

UNIVERSITY OF CAPE COAST

COMPLIANCE BURDEN AND TAX GAP AMONG MICRO AND SMALL
SIZE BUSINESSES IN GHANA

BY

ERIC ATSU AVORKPO

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University of Cape Coast

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Thesis submitted to the Department of Economics Studies of the School of
Economics, College of Humanities and Legal Studies, University of Cape Coast,
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degree in Economics

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature Date

Name: Eric Atsu Avorkpo

Supervisor's Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

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ABSTRACT

Developing an efficient and effective tax policy is not a guarantee for reducing revenue loss but a concerted effort of the taxpayers and the revenue mobilization agency to ensure high level of compliance without having to increase the cost of collecting these revenues and without imposing much compliance burden on the taxpayer. This study investigates the compliance burden and tax gap of Micro and Small Enterprises (MSEs) in Ghana. It specifically focuses on how compliance burden affects the tax gap (Revenue loss) as well as the correlates of compliance burden. Data on 485 registered MSEs taxpayers collected by the Directorate of Research Innovation and Consultancy (DRIC) was used for the study. A t-test was conducted while OLS was employed to examine the effect of compliance burden on the tax gap as well as the correlates of compliance burden. It was found that small enterprises underpay tax while micro enterprises overpay tax. The compliance burden significantly increases the tax gap. Tax audit, number of taxes, tax knowledge, distance to the tax office, and the kind of service used in preparing and filing returns were found to have significant effects on compliance burden in Ghana. The key policy recommendation is that Ghana Revenue Authority (GRA) should intensify its tax auditing work to reduce the compliance burden and build more offices to reduce the distance covered by MSEs when visiting the tax office to make tax payment or seek advice.

KEY WORDS

Compliance Burden

Compliance cost

Ghana

Micro and Small-Scales Enterprises

Tax gap

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DEDICATION

To my family and Mr. Noah Amedome Gaikpa

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LIST OF ACRONYMS

CIT	Corporate Income Tax
CLRM	Classical Linear Regression Model
CST	Communications Service Tax
CEPS	Custom Excise and Preventive Service
DTRD	Domestic Tax Revenue Division
EIA	Exchange of Information Agreements
ETSA	Excise Tax Stamp Authenticator
GDP	Gross Domestic Product
GRA	Ghana Revenue Authority
IRS	Internal Revenue Service
MSE	Micro and Small-Scale Enterprises
MSMEs	Micro, Small and Medium-Scale Enterprise
NFSL	National Fiscal Stabilization Lev
NRS	National Revenue Secretariat
NHIL	National Health Insurance Levy
OLS	Ordinary Least Square
PIT	Personal Income Tax
RGD	Registrar General's Department
RAGB	Revenue Agencies Governing Board
SCM	Standard Cost Model
SME	Small and Medium-Scale Enterprise
STOs	Small Taxpayer Offices
VAT	Value Added Tax

CHAPTER ONE

INTRODUCTION

This chapter focuses on the background, statement of the problem, the purpose of the study, objectives, hypotheses and question, and significance of investigating compliance burden and tax gap in Ghana. The chapter ends with the organization of the study.

Background to the Study

It has long been believed that fiscal policy can influence the provision of public goods and services such as schools, water, public safety and sanitation. Fiscal policy involves the formulation and the implementation of tax policy to generate revenue for the government. Mwakalobo (2015) explains that resorting to domestic revenue for the government should be given preference. This is because for almost every country, there are more potentials regarding revenue mobilization. Kregel (2004), however argues that an external source of funding developmental activities can drive a country to crises and financial instability, if not managed well.

Again, revenue from taxation is an essential governmental asset that is capable of propelling the economy into achieving its potential growth. Danquah and Osei-Assibey (2018) emphasize that insufficient tax revenue account for the fall in the provision of public goods and services in many developing countries. This statement then emphasizes the importance of domestic revenue mobilization, hence, the stress on Ghana Beyond Aid agenda.

Ghana Beyond Aid, being a new policy paradigm aimed at effective and efficient generation and utilisation of revenue especially those from taxes by concentrating on the domestic economy. This is because tax to GDP ratio according to OECD (2018) for Ghana in 2018, 2017 and 2016 was 15.6 percent, 11.9, and 17.6 percent respectively. These estimates are below the 19.1 percent for the ECOWAS Sub Region. These low tax to GDP ratios in Ghana reemphasizes the low domestic tax revenues generation despite the huge potential with high levels of inefficiencies. By these, the Ghana Beyond Aid also aimed at implementing innovative ways to widen our tax net and to bring in the huge informal sector, which employs over 80 percent of workers and that is at the heart of the Ghana Revenue Authority (GRA).

According to the GRA, Act 2009, (Act 791) domestic taxes are the compulsory levies imposed on individuals and firms within the geographical boundaries of Ghana. Examples include, capital gain tax, Value Added Tax (VAT), stamp duty, Corporate Income Tax (CIT), Personal Income Tax (PIT), excise duty etc. However, the CIT, PIT and the VAT have high revenue elasticities and this reemphasize the important of these taxes (Danquah & Senahey, 2016). Similarly, Ahmad, Mohammed, Iskandar, Hanefah, and Faizal (2014) indicate that CIT accounts for approximately 50.64 percent of Malaysians' total direct tax revenue. This again stresses the importance of CIT in the economy. While these taxes provide the country with the revenue it requires, the inefficiencies in the tax system have rendered its maximum collection fatal. Even with the country realizing all these revenues from the domestic economy over the years, evidence suggests the

government is always faced with the issue of insufficient payments and it has a detrimental effect on the economy.

Tax gap is simply the difference between the amount of tax a taxpayer ought to pay and the amount they actually pay. According to Toder (2007), tax gap has three components; non-filing of tax returns, under-reporting of tax owed, and underpayment. The three components are interlinked. The non-filing gap is when a taxpayer who has been required to file a return refuses to do or does so but not on time. The under-reporting tax gap refers to the tax owed by a taxpayer who may or may not file returns on time but did not report the true amount of the tax base they ought to have filed. The underreporting tax gap is also linked to the uncollected tax revenue from taxpayers who file their tax returns but intentionally or unintentionally do not pay the amount they report.

Gemmell and Hasseldine (2015) report that the “Internal Revenue Service (IRS) of the US federal tax gap for 2006” shows that under-reporting forms the largest component of the tax gap. Specifically, the under-reporting tax gap is US\$376 billion, underpayment tax gap is \$46 billion, and the non-filing tax gap is US\$28 billion. The case of Ghana is quite different as Danquah and Osei-Assibey (2018) found US\$56,951,573 to be the annual aggregated tax gap in the non-farm informal household facet in Ghana.

Agyapong (2010) indicates that matters relating to tax payment in the informal sector of Ghana must be given prime consideration. Apparently, the informal sector is mostly inhabited by Micro and Small Scale Enterprises (MSEs) and constitutes about 90 percent of all businesses in Ghana and employs about 81

percent of permanent jobs (Amoah & Amoah, 2018). As earlier indicated, these MSEs are characterized by high tax noncompliance rate and huge tax gap. Fauziati, Minovia, Muslim, and Nasrah (2016) and Oladipupo and Obazee (2016) point out that MSEs in many countries are small businesses that do not keep proper accounting records and as well having low tax knowledge. Similarly, Atawodi and Ojeka (2012) and Freebairn et al., (2017) observe that the compliance burden among MSEs is relatively high. This then justifies the high noncompliance rate associated with the huge tax gap from MSEs tax-paying firms.

Additionally, although the implementation of tax policies helps countries to mobilize enough revenue, its rippling effect on firms especially the MSEs is enormous. One is the increased overall cost of firms especially when firms have to outsource to honour their tax obligations (Smulders, 2013). This has encouraged tax avoidance and tax evasion among MSEs (Krause, 2000; Neck, Wächter, & Schneider, 2012) hence leading to a huge tax gap.

Domestic taxes continue to affect MSEs through their decision-making process and performance because some taxpayers have to engage the service of others during the period of honouring their tax obligation (Adeniyi & Imade, 2018; Bello, 2018; Okolo, Okpalaojiego, & Okolo, 2016; Best, Brockmeyer, Kleven, Spinnewijn, & Waseem, 2015). The monetary value relating to honouring tax obligations is the compliance burden. This includes expenses relating to outsourcing the service of an expert to file returns or advice. The compliance burden, again, includes the administrative (paper works) cost, transaction cost, time waiting cost, cost of traveling to the tax office to make tax payment excluding the

actual amount paid as tax, etc (Dunlop & Radaelli, 2016; Standard Cost Model Network, 2005).

Bordignon (1993) and, Cowell and Gordon (1988) suggest that the incentive for evading tax is influenced by the perceived return that taxpayers seek to derive from government goods and services. Given the high compliance burden of firms, the personal income tax for example, has emerged as an exceptionally high-cost source of funds as compared to other competing sources of funds in India (Chattopadhyay, Das-Gupta, Bhatnagar, Mohanty, Mukhopadhyay & Surendra, 2002). To them, a high compliance burden involves substantive tax provisions and cumbersome procedures of tax laws and regulations.

Lastly, since non-compliance with tax laws reduces the amount of taxes paid, the tax gap (revenue loss) will continue to widen. This has made the formulation and implementation of tax policies a bit challenging. That is, a high amount of compliance burden causes taxpayers to either evade or avoid tax payments, hence making the country's revenue fall short of its potentials (resulting in tax gap).

Statement of the Problem

Danquah and Osei-Assibey (2018) note that there exist about US\$56,951,573 annual aggregated tax gap in the informal non-farm household facet in Ghana. Underlying this is the fact that compliance burden is one of the main determinants of tax compliance among MSEs in Ghana. Considering the fact that MSEs constitute a significant proportion of the Ghanaian informal economy and

are therefore germane to tax revenue mobilization in the domestic economy, it is pertinent to understand the gravity of their tax gap and how this is affected by the compliance burden.

Admittedly, compliance burdens and tax gaps may vary depending on the type of business enterprise, differences tax handles and among different regions because of their location. While such nuances are critical to drive decisions and policy, they have received less attention in the literature. Thus, studies conducted around this area of taxation mainly focus on the macro level (Asante, 2012; Danquah & Osei-Assibey, 2018; Kuug, 2016). This considerable research inattention undermines the efforts to boost domestic revenue mobilization and the president's aim of Ghana Beyond Aid. Again, failure to understand the extent of the tax gap among MSEs and more specifically, across regions and among tax handles does not only represent a neglect of duty of state building, but can endanger the fiscal position of the country.

An important contribution of this study is that it examines tax gap at the micro level. Indeed, estimating the tax gap can be on a macro basis as stated earlier, however, there exists abundant literature. Meanwhile, according to Gemmell and Hasseldine (2015), aggregate direct tax gap estimates are likely to have huge margins of error. The micro approach to estimating the tax gap is direct, reliable and are therefore preferred compared to macro approach if estimates are as well based on especially random sampling. As a result, the micro approach which uses firm level data from a survey data was used.

Purpose of the Study

This study investigates the compliance burden and tax gap among micro and small size enterprises in Ghana.

Research Objectives

Specifically, the study seeks to:

1. Compute and analyse the difference in tax gap for micro and small enterprises in Ghana
2. Evaluate the effect of compliance burden on the tax gap among MSEs
3. Examine the effects of compliance burden on the tax gap in the Greater-Accra, Ashanti and Northern region of Ghana
4. Determine the effects of compliance burden on the tax gap for the different tax handles

Research Hypotheses

The null hypotheses are as follows:

1. H_0 = There is no significant difference in tax gap between micro enterprises and small enterprises
2. H_0 = Compliance burden has no significant effect on tax gap among MSEs
3. H_0 = Compliance burden has no effect on tax gap among the three regions in Ghana
4. H_0 = Compliance burden has no effect on tax gap among different tax handles

Significance of the Study

This study provides useful information to relevant stakeholders especially the GRA regarding the intensity of tax policies. Additionally, the tax gap estimates will help in performance evaluation of the GRA, benchmark performance against other revenue sources and assist compliance risk management, quantify, compare, and prioritize responses to risk in the tax system.

The findings from this study will give managers and owners of MSEs an insight into compliance burden. This will then help them to make the necessary adjustments especially by reducing their compliance burden.

Moreover, the study contributes to the frontiers of knowledge by providing useful information that will aid other researchers interested in issues of compliance burden and tax gap. The study will then help researchers and scholars, especially when conceptualizing issues, thereby helping to expose gaps for further studies since other dimensions of the subject matter are beyond our scope.

Delimitation

The study focuses on MSEs who have registered with the GRA in Greater Accra, Ashanti and Northern Regions. It also emphasizes the effect of compliance burden on tax gap in those three regions and across different tax handles.

Definition of Terms

Tax Gap: This is the difference between actual tax payment and potential tax.

Potential Tax: It is the legal amount of tax revenue that can be generated if there is an efficient tax collection with full compliance with tax laws.

Compliance Burden: This is the monetary value of the time spend honouring tax obligations (filing of returns, preparing and payment of tax).

Tax Handles: It refers to the different type of taxes that these micro and small size businesses pay. It includes the corporate income tax, personal income tax and the value added tax.

Micro and Small Businesses: Micro businesses in this study are businesses that have work-force of 1-5 whilst small businesses are those with work-force between 6-30.

Organization of the Study

The study is organised into five chapters. Chapter One provides a background to the study, statement of the problem, the purpose of the study, research objectives, hypothesis etc. Chapter Two presents an overview of the Ghana tax system and review related literature. Chapter Three presents and discusses the various methods appropriate to the study, the data and estimation techniques employed. Chapter Four presents, discusses and analyses the research results. Chapter Five summarizes the research findings, makes the necessary conclusions and recommendations based on the major findings.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter presents an overview of the Ghana tax system. It also presents the conceptual issues, theoretical, and empirical findings of other studies. Again, the chapter highlights and discusses what various authors and academic scholars have studied and written about tax compliance burden and tax. The goal of the chapter is to gain a full understanding of the concepts involved and a justification for studying the problem stated in chapter one.

Overview of Ghana's Tax System

Ghana's tax system, just like any other country's, encompasses both direct and indirect taxes. Direct taxes are taxes imposed directly on the income or profit of an individual or an entity. For instance, CIT, PIT, royalties, rental income, etc. (Nyamadi, 2014). The CIT was established by the Companies Code (Act 179) in 1973. This type of tax is paid by all entities that have registered under the company code, be it micro, small, medium, or large enterprises. In general, the CIT rate is 25 percent, 35 percent for upstream petroleum and mining companies, the hotel industry may have a reduced CIT rate of 22 percent, eight (8) percent for companies in the non-traditional exports sectors and 20 percent for banks into granting of loans to the agricultural and leasing sectors (PWC, 2020). The PIT, on the other hand, involves Pay-As-You Earn (PAYE) and taxes for self-employed individuals like

the sole proprietors. The chargeable income of such individuals with an annual income below GHC1,584 is taxed free. The minimum chargeable annual income (GHC2,376) rate as at the time of data collection was five (5) percent and the rate for annual income exceeding GHC31,680 was 25 percent (PWC, 2020).

Indirect taxes, on the other hand, are those imposed on goods and services. Examples include the VAT, Communication and Service Tax (CST), National Health Insurance Levy (NHIL), etc. The VAT is imposed on the value of a product at each stage of production and distribution and forms part of the final price that the good is purchased. Typically, VAT is collected by registered taxpayers be it micro, small, medium, or large businesses. This type of indirect tax (VAT) was introduced in 1995 (Nyamadi, 2014). However, this was reviewed in 2013 after passing the VAT Act 870. The standard VAT rate for example is 15 percent, three (3) percent VAT flat, the NHIL is 2.5 percent. These taxes are administered by the Domestic Tax Division of the GRA.

Tax Reforms in Ghana

Reforms in Ghana's tax system are done to expand the revenue capacity, improve on tax collection and reduce distortions that the tax laws impose on taxpayers (Nyamadi, 2014). Although these reforms are needed to keep up with changes in the economy, Osei and Quartey (2005) explain that the restoration of the tax base resulting from tax reforms for example, saw a consistent decline prior to 1984. The reforms can however be looked at as the strengthening of production incentive as well as the enhancement of the efficiency and equity in tax collection.

The focus of reforms on efficiency and equity primarily started around 1985. During this period, the autonomy of the Internal Revenue Service (IRS), the National Revenue Secretariat (NRS) and Custom Excise and Preventive Service (CEPS) were granted with their respective roles. The recommendation of computers in tax administration and management by the World Bank in 1989 and the introduction of taxpayers' identification numbering system were some of the reforms at the time (PKF International Limited, 2012).

Furthermore, from 1989, 1993 to the early 2000s, the CIT rate which, for example, stood at 55 percent was reduced to 35 percent in 1993 and 25 percent in 2006. Similarly, a new tax law was enacted in 2001 where the Internal Revenue Act 2000 (Act 592) was passed to manage direct taxes (PKF International Limited, 2012). The only distinguished national levies in the country after the amendment was the NHIL which imposed 2.5 percent on certain goods and services and with five (5) National Fiscal Stabilization Levy (NFSL). Aside the VAT which is levied on goods and services, some of the other taxes imposed on citizens in Ghana included the sales and service taxes, income taxes managed by the Domestic Tax Revenue Division (DTRD) of the GRA and customs and excise duties managed by the Customs Division (CD). In order to harmonize all the activities of all the major revenue mobilizing agencies in the country, the GRA was then set up.

The GRA having been established in 2009, is a union of all the major revenue mobilization agencies in Ghana. The IRS, the Value Added Tax division, Customs, CEPS and the Revenue Agencies Governing Board (RAGB) were all under the GRA Act 2009, (Act 791). The Authority had the mandate to ensure

maximum tax compliance to generate enough revenue for the Government. The Authority was also tasked to facilitate trade and safe flow of goods across the borders of the country. This also meant that the GRA had to implement policies to increase revenue, regulate the international agreements that govern the country's relations with other tax jurisdictions and institutions such as World Customs Organization Protocols (WCOP), World Trade Organization Protocols (WTOP), double taxation, and Exchange of Information Agreements (EIA) (Nyamadi, 2014).

Additionally, owing to the mandate of the GRA as enshrined in the Act, the Integrated Tax Application and Preparation Systems (ITAPS) and the ETSA were introduced in 2018. The purpose was to make tax payment convenient and cheaper for MSEs to honour their tax obligations, hence encouraging compliance so as to reduce the inefficiencies that existed in revenue collection.

Taxation and Micro and Small-Scale Enterprises

Taxation provides an expected and constant flow of revenue to finance a country's developmental activities such as construction of roads, hospitals etc. This is important in a country like Ghana that has serious challenges with meeting its long and short-term economic objectives. Eventually, one of the major sectors contributing to achieving these long and short-term objectives are the MSEs. Though data on MSEs are rare, statistics from the Registrar General's Department (RGD) and the GRA posit that about 92 percent of all registered firms are Micro, Small, and Medium Enterprises (MSMEs), (Amanamah, 2016; Awotwe, 2018; Musamali, 2013). The sector contributes about 22 percent to Gross Domestic

Product (GDP), generate revenue for the government through their mandatory contribution (taxable incomes) and collect VAT for the government.

Despite their immense contribution, data from the 2018 annual Ease of Doing Business Report indicates that there is an increasing difficulty in operating business in Ghana of which the MSEs are not exempted. Specifically, Ghana's ranking out of the 190 countries considered is 8th, 102nd, 87th, 120th, and 118th in 2005, 2007, 2010, 2018, and 2019 respectively (World Bank, 2018; 2019). This implies that it is becoming very difficult to do business in Ghana. The report also indicates that out of the ten (10) indicators used for the ranking, tax-paying is among the top three factors that account for this difficulty.

Characterized by high tax noncompliance rate and huge tax gap, MSEs do not keep proper accounting records and have low tax knowledge (Fauziati et al., 2016; Oladipupo & Obazee, 2016). Similar to other researchers, Atawodi and Ojeka (2012) observe that the compliance burden among MSEs is relatively high. This then justifies the high noncompliance rate among MSEs since it imposes cost on the tax-paying firms (Adeniyi & Imade, 2018; Bello, 2018; Okolo, Okpalaojiego, & Okolo, 2016; Best et al., 2015).

Conceptual and Theoretical Issues

Tax Gap: Definition and Measurement

Danquah and Osei-Assibey (2018) define tax gap as the difference between the potential tax and the actual tax. Tax gap can emanate from underreporting, underpayment, and or non-filing of tax returns. The estimate of the total tax gap in

this study includes the component of underreporting and underpayment of taxes owed. Under assessment of the tax base of enterprises is the result of non-filing and non-reporting of true information. This involves non-filing on time as well as total non-filing. In a like manner, underreporting of the tax base results from paying an amount of tax less than what the individual or firm ought to pay. Though this satisfies the wish of the taxpayers, its effect on tax revenue mobilisation is likely to deprive the government from providing certain social amenities. For example, the IRS estimate the tax gap due to underreporting to be \$285 billion, underpayment tax gap to be \$33.3 billion, and a non-filing tax gap to be \$27 billion (Toder, 2007).

Furthermore, another aspect of the tax gap is the gross and the net tax gap. The gross tax gap is measured as a net of overpayments of tax liability while net tax gap is the gross tax gap in any tax year minus payments of that year's tax liability that come in later through either voluntary/involuntary late payments or enforcement activities like tax auditing. The payment of interest and fine associated with late payment or underreporting tax liabilities are not considered in the gross or net tax gap estimates. Meanwhile, the computation of the tax gap vary depending on the type of tax (tax handle) being investigated. Minh (2007) explains that it is possible to multiply the tax base for each sector by the average VAT rate to get the VAT revenue potential which will then aid in the estimation of the VAT gap. That notwithstanding, policymakers must consider the three components of the tax gap (underreporting, non-filing, and underpayment) because each of them poses a challenge to the economy when mobilising tax revenue.

Tax Compliance and Tax Revenue

As defined by James and Alley (2009), tax compliance is the degree to which taxpayers comply to tax laws. It is the willingness of the individuals and other taxable entities (MSEs) to act per the tax laws without being forced. This is referred to as voluntary compliance. According to this study, so far as a taxpayer honours his/her tax obligation without being forced, prompted, or prosecuted form part of the voluntary compliance. James and Alley again assert that this definition includes both the narrow law enforcement approach and the broader economic definition as well as a more comprehensive version involving taxpayers' decision to conform to the wider state objectives.

The narrow law enforcement approach suggests that tax compliance is the degree of non-compliance to be measured in the context of tax gap (Toder, 2007). The economic meaning of tax compliance should necessarily take into consideration the possible effects of the tax system and its enforcement on the economy. Drawing from the Toder's study, improper tax administration could decrease the potential tax revenue via discouraging taxpayers from engaging in economic activities. Thus, an unembellished tax enforcement policy coupled with an inefficient tax system could slender the 'tax gap' because the amount of tax will reduce.

Additionally, tax compliance also involves the accurate reporting of the tax base (turnover); correct computation of tax liabilities; timely filing of tax returns, and timely payment of the due tax amount. When all these are adhered to without recourse to being forced, the tax gap will reduce (Danquah & Osei-Assibey, 2018). Therefore, issues of underpayment (a major cause of tax gap) reduce when tax

obligations are adhered to, thereby making the tax system more robust in mobilising the required tax revenue.

Cost of Taxation in the context of Compliance

The cost of taxation is much more than the amount of tax that individuals and firms pay. The effect of these costs in the economy can be specific to households, firms or government. Starting with the efficiency costs, this cost can be seen as the change in people's behaviour as a result of changes in tax (Clemens, J., Veldhuis, N., & Palacios, M., 2007). Households are the main economic agents hit by this kind of cost. That is, the quantity of goods or services consumed by these households change owing to the fact that prices are inflated with taxes. Similarly, it also affects firms/MSEs greatly by changing the price of inputs (land, labour, and capital) provided by the household. Hence, changes in tax policies can lead to undesirable effects on the economy (on investment, risk-taking, less saving, etc.) depending on how a specific tax is designed. The cost to the society (state) is the administrative cost of taxation. The state incurs this cost in an attempt to identify, assess, and collect tax from a potential taxpayer as well as the cost in enforcing tax compliance (Clemens et al., 2007). This administrative cost is eventually transferred to the citizens to pay.

Furthermore, the cost associated with compliance is likened to compliance burden because it is an obligation that needs to be fulfilled. It is incurred when individuals and entities honour their tax obligation (Clemens et al., 2007). The sum of these costs (efficiency costs, government administrative costs, tax liability, and compliance expenses) represent the total cost of government tax

policy. This study is interested in just the compliance burden (cost) owing to the fact that it is the main determining factor of how wide or small the tax gap is. Additionally, Clemens et al. explains that some taxes impose greater burden on the economic agents than others.

Compliance Burden: Definitions and Measurement

The emergence of tax according to Smulders (2015) is by far one of the most time-consuming and wearisome sets of rules because of the time and resources that an individual or a firm has to commit to oblige with it. The compliance burden is the monetary value of the time and expenses that individuals and enterprises incur to fully file necessary reports, undertake tax planning, maintain proper records, and calculate necessary remittances (Clemens et al., 2007). Similarly, Sandford (1995) defined compliance burden as the cost incurred by a taxpayer in meeting the requirements imposed on the taxpayer by a tax policy/law and the revenue authorities costs over and above the actual payment of tax; costs which would disappear if the tax is abolished.

There is, however, an increasingly significant consideration for tax planning since compliance burdens can undermine tax compliance as well as hurt economic growth (OECD, 2019). Meanwhile, DeLuca, Guyton, Lee, O'Hare and Stilmar (2007) indicates that there is a devastating proportion of time burden spent on record-keeping, money is spent on professionals that are consulted for help on tax-related issues. By that, enterprises that pay for professional services in honouring their tax obligation are substituting monetary expenditures for time.

Furthermore, reduction in compliance burden becomes vital for services that require verifying the identity and eligibility of the taxpayer as well as combining technology and administrative data. That is, new technologies used in tax administration can either reduce or make compliance burdens worse (Moynihan, Herd & Harvey, 2015). According to Moynihan, Herd and Harvey, the possibility of bureaucracies surrounding the use of information technology may limit the capacity of administrators to minimize the effects of compliance burden since they cannot use their discretion. Therefore, the rule will provide an unfavourable burden.

York (2018) stated that, quantifying compliance burden can be complex and that many researchers measure it depending on the focus of their studies. Among other studies, this study measures compliance burden as the monetary value of the average time spent by MSEs when honouring their tax obligation (filling, preparing, and paying tax) excluding the actual amount of taxes paid (Arena, O'Har, & Stavrianos, 2002; Chattopadhyay, et al., 2002; Smulders, 2015; Vellinga & Zoetermeer, 2002). This includes the monetary value of the average time spent internally and externally, transaction cost, and cost of traveling to the tax office. This is however similar to the Standard Cost Model (SCM) by (Standard Cost Model Network, 2005). The model considers the cost involved in honouring tax obligation and the number of times it has to be repeated in a year (frequency).

Micro and Small-Scale Enterprises

In Ghana, enterprises are classified as either micro, small, medium or large (Oppong, Owiredu, & Churchill, (2014). According to Agyapong (2010), there is

no generally accepted definition of MSMEs. The definition of MSMEs varies depending on the kind of economic activity that the firm engages in. However, most of these definitions are based on local operations and more importantly on the size of the firm in terms of the volume of the firm's turnover and the number of employees. It is also important to note that some of these definitions are specific to either a country or to a particular sector.

Moreover, different researchers have conceptualized what MSEs are, in order to situate their studies. The European Commission (2007) considers the number of employees that the firms have in their classification of businesses. According to Amanamah (2016), businesses with zero (0) to nine (9) employees are regarded as Micro-enterprises; 10 to 99 employees as Small-enterprises and 100 to 499 employees as Medium-enterprises and those above 499 are regarded as Large enterprises by the commission.

This study, however, uses the number of employees and turnover to classify MSEs. The GRA classifies all businesses with annual turnover of GHC 90,000 or less as small taxpayers. In addition to that, the researcher also considers the NBSSI classification of businesses to sub-divide the "small taxpayers" into Micro-taxpayers and Small-taxpayers. According to Oppong et al. (2014), the NBSSI classifies businesses with workforce of zero (0) to five (5) as Micro-enterprises and six (6) to 29 workforces as Small-enterprises. The reclassification of MSEs becomes necessary so far as their contribution to tax revenue mobilization is of relevance. This is due to the fact that, delegation and division of labour in Micro-enterprises is limited to just a few (or zero) workers compared to the Small

Enterprise. Therefore, micro firms are less likely to outsource the service of experts in their tax-related and other administrative activities at a cost. This in turn, increases the compliance burden of micro-enterprises relative to small enterprise (Mantey, 2015). Consequently, the reclassification of “Small taxpayer” as micro and small defined by NBSSI may make policy prescription more precise.

Theoretical Review

Economic Based Theory

The economic based theory emphasis that taxpayers are utility maximisers (Atawodi & Ojeka, 2012) and are influenced by varying economic motives and not limited to probability of detection. Specifically, the explains that some taxpayers truly report their income irrespective of their income whiles other taxpayers carefully examines the cost associated with compliance. Thus, habitual compliers and those that are strategic. Doran and Oran (2009) explained that habitual compliant taxpayers are those who truthfully report their taxable incomes irrespective of the profit they make and those taxpayers who examines their incentive carefully and act accordingly in order to maximize their expected utility are strategic non-complaints. The later are those who analyses alternatives compliance pathways for instance, the probability of being spotted, repercussions for non-compliant in the form of fines and penalties and then select the alternative that optimises their expected utilities after considering the risk factor. Trivedi, Shehata and Mestelman (2005) referred to this process as “playing the audit lottery”. Conclusions from this theory suggest that significant variations in tax gap

can exist depending on whether the firm is a habitually compliant or strategic in honouring its tax obligations (Atawodi & Ojeka, 2012).

Theory of Planned Behaviour

Ajzen (1991) developed the planned behaviour theory. This theory posits that individuals are not simply autonomous, selfish, and utility maximisers. Rather, the individuals behave according to specific values, norms, and roles. Again, the theory suggests that personality traits and the attitudes of a subject is the result of human behaviour that can be observed in some other forms. This means that individual managers and owners who make decision on behave of the enterprise, use their personality traits to influence the enterprise response to tax laws.

Additionally, the managers' intention to achieve a given organizational goal demands them to act differently (Benk et al., 2011). The cognitive ability of an educated manager, for instance, influences his/her knowledge on understanding tax-related issues. Hence, such managers will have different orientation to looking at the essence of compliance when making tax payment. Again, such managers apply this logic to maximize the requirement of tax obligation in terms of the fact that educated managers are more likely to use various means in learning about how to reduce their compliance burden. This is because individuals that avoid or evade tax resulting from knowing about the tax system are likely to comply less with tax rules and that has a possible implication on how much tax is paid. Therefore, this behavioural perspective combined with the empirical literature has helped explain the concepts and also assisted to select variables that affect the tax gap and MSEs' compliance burden. Specifically, the sex and age of the manager, perception about

the complexity of the tax system, tax knowledge etc. could impact the behaviour of firm managers and owners in adhering to tax laws. This then affects the firm's compliance, compliance burden, and tax gap. Again, this theory is important because it envisages the effects of demographic variables (location, regions, etc.) on firms' compliance behaviour tortuously through their effects on incentives and attitudes towards non-compliance which widens the tax gap.

Empirical Review

Size of the Informal Sector and the Tax Gap

Tax gap is the difference between the amount of tax paid and the amount taxpayers are supposed to pay legally. This difference is the result of underreporting, underpayment and or non-filing of returns. Estimates of the tax gap resulting from underreporting is about 86 percent of what the U.S. government is owed, however, the IRS estimates the average annual tax gap between 2008 and 2010 to be \$458 billion (Internal Revenue Service, 2016). While these estimates are useful for policy purposes, York (2018) explains that a simpler tax system is likely to reduce this gap and increase revenue mobilization.

In Africa, and Kenya to be specific, the uncollected legal tax revenue (potential tax) during the Moi presidency regime in 2001 was about 35 percent. This suggested an increasing significance in the levels of tax evasion since the individual taxpayers and firms lost faith in his regime (Cheeseman & Griffi, 2005).

Additionally, Jenkins and Kuo (2000) use a Household Budget data as well as using the input-output tables in estimating the sale tax gap in Romania. They

found that there exists six (6) percent tax gap on alcoholic products and 48 percent on beverages and tobacco products. The estimate of the VAT tax gap was about 46 percent in 2002 after considering 34 main economic sectors.

In Pakistan, Ahmed and Rider (2008) assessed the direct tax gap via the 2004/05 Household Integrated Expenditure Survey with input-output simulation on 81 sectors. The direct tax gap was estimated to be about 65 percent and 35 percent for indirect tax gap. This is similar to the 45 percent potential tax liability reported by Martin-Vazquez, Rider and Wallace (2008).

Harremi (2014) shows that in 2011 and 2012, the informal economy of the Balkan Region was 33 percent and 32.61 percent of its GDP and a tax gap of 34.89 percent and 27.35 percent respectively. Additionally, Greece had the lowest tax gap of 17.6 percent and 46 percent for Serbia (being the highest) in 2011. Similarly, in 2012, Luxembourg (Grand-Duché) recorded the lowest tax gap of \$0.95 billion and Italy recorded the highest (306.27). However, in 2013 and 2014 Luxembourg and Malta consistently recorded the lowest tax gap (\$1.01 billion respectively) and Italy recorded the highest (\$303.71 billion in 2013 and 295.9 billion in 2014) (Raczkowski, 2015).

In the Ghanaian context, Asante (2012) used a Dynamic Ordinary Least Square (DOLS) technique in estimating the size of the shadow economy and the level of tax evasion in Ghana. He found that almost half (48 %) of the official GDP for Ghana between the period 1990 and 2010 was attributed to the shadow economy while about four (4) percent and 14 percent of that official GDP was attributable to

tax evasion in those years respectively. This is on the macro level, with high level of aggregation.

Finally, the study by Danquah and Osei-Assibey (2018) established that indeed Ghana continued to lose revenue after using the sixth round of the Ghana Living Standard Survey. They found out that there exist US\$81,974,846 (GHC 327,899,384.00) potential tax in the informal sector as against the actual tax payment of US\$25,023,273 (GHC 100,093,092.00). The difference being the tax gap estimate is reported to be US\$56,951,573 (GHC227, 806,292.00).

Correlates of Tax Gap

From the measurement point of view, factors that turn to influence the potential tax (hypothetical or theoretical tax) and the amount of tax collected can affect the tax gap estimates. Motivation from Akinboade (2015), Asante (2012), Danquah and Osei-Assibey (2018), Raczkowski (2015), and some other studies offer a clear and unambiguous justification for the determinant of the tax gap.

According to Akinboade (2015), the location of the business in the Littoral Province of Cameroon was associated with filing compliant. This meant that firms located in urban centers are filing complaint compared to their counterparts in the rural centres. Since firms that file their returns are more likely to pay their tax, it is understandable to expect firms located in the urban areas to have a reduced tax gap compared to firms located in rural areas. Additionally, owners/managers with higher educational attainment are more likely to be compliant in terms of registering their business, filing their return, and as well know more about the importance of tax revenue to the government. Hence, they are likely to be

associated with a reduced tax gap compared to uneducated owners/managers (Danquah & Osei-Assibey, 2018).

Helhel and Ahmed (2014) examine the tax compliance level of individual taxpayers in Yemen. They found females to be more compliant with tax policies compared to their male counterparts. This then suggests that we should expect the tax gap for females to be less than that of males. Similarly, Danquah and Osei-Assibey (2018) explained that older firms are more likely to be filing compliant because they have more experience compared to new firms. Other demographic factors like the location of the firm can have an influence on the firms' compliance level as suggested by the theory of plan behaviour and hence the tax gap (Helhel & Ahmed, 2014).

Furthermore, Kuug (2016) examined the factors influencing tax compliance among SMEs in Ghana. Her findings prove that the compliance burden (compliance cost), is an important determinant of compliance. This then suggests that the compliance burden could have an impact on the tax gap.

Meanwhile, Chattopadhyay et al. (2002) have argued that for a government to increase its tax revenue in order to reduce the gaps in revenue collection, it needs to follow five options policy dimensions; strengthening of compliance requirements, use of tax rates and brackets, administrative actions, civil and criminal sanctions for non-compliance as well as tax base characteristics, including proper definition of taxable items, exclusions, and deductions.

Cost of Taxation

The cost of government tax policy is much more than just the amount of tax individuals and firms pay. The effect of this cost in an economy can be specific to an individual, households, firms, and/or the government. Starting with efficiency costs, this cost can be seen as a change in people's behaviour as a result of tax (Clemens et al., 2007). The households are the main economic agent hit by this kind of cost. That is the quantity of goods and services consumed by households' changes because of the variations in prices resulting from tax. Similarly, it also affects firms/MSE by changing the price of inputs (land, labour, and capital) provided by the household.

Moreover, the cost to society (state) is the administrative cost of taxation. These costs are incurred by the state in an attempt to identify, assess, and collect tax from a potential taxpayer as well as the cost in enforcing tax compliance (Clemens et al., 2007). This administrative cost is eventually transferred to the citizens and non-citizens to pay.

Furthermore, the costs referred to as compliance costs are likened to the compliance burden because it is an obligation that needs to be fulfilled. These burdens are all related to conforming with tax laws mostly by individuals and firms (Clemens et al., 2007). The sum of these costs (efficiency costs, government administrative costs, tax liability, and compliance expenses) represent the total cost of government tax policy. However, this study is interested in just the compliance burden (cost) because it is the main determining factor of how wide or small the tax gap is. Hence, changes in tax policies can lead to undesirable effects (on investment, risk-taking, less saving, etc.) depending on how a specific tax is

designed. Some taxes, according to Clemens et al. (2007), impose a greater burden on the economic agent than others.

Additionally, Barbone, Bird, and Vázquez Caro (2012) found that there is no extensive study that verifies the compliance burden and tax compliance relationship possibly because of the difficulty in estimating the burden (Chattopadhyay et al., 2002). Hence, this study looks at just one part of their observation. That is, by computing the compliance burden and finding its correlates.

Factors affecting Compliance Burden

Smulders (2013) has identified several factors that can potentially increase or decrease the burden of firms when complying with tax laws. Notwithstanding, the compliance burden is the monetary value of the number of times spent complying with tax laws. The taxpayers' perception about how complex the tax system is needed to honour tax obligations, and the varied tax rates applicable to different businesses may be a substituted for formal enterprises' incentive to undervalue business transactions. Chattopadhyay et al. (2002) explain that increases in the complexity of the tax system could undermine the effort made in raising tax revenue because it can result in a large compliance burden.

More so, the number of tax payments (Number of taxes paid) could also have an impact on MSEs' administrative burden. The Doing Business report in 2012 showed that in 2004, for instance, Moroccans had to make 28 payments while spending more than 44 days representing 358 hours to comply with tax policies. This meant that for each additional tax that these MSEs had to pay, they needed to

spend time to prepare and file returns before making the necessary payment (PWC, 2019).

Business size measured as the number of employees can potentially affect the burden of the firm (Coolidge, 2009). Smulders (2013) explains that this can increase the absolute internal costs of compliance. The legal form of the business includes sole proprietorship, partnership, or companies. Due to their legal composition and their varied requirements, their compliance burden varies with the tax types. Hundsdorfer, Eichfelder, and Blaufus (2012) indicate that sole proprietorship firms tend to outsource their tax compliance activities compared to companies.

Additionally, the sectoral distribution of small business may not directly affect the internal compliance burden of the firm (Reekmans, 2010), rather, it may affect those who use both internal and external services in honouring their tax obligation. Also, the findings of Hansford and Hasseldine (2002) suggest that some sectors that provide goods incur lower VAT compliance burden than what other sectors face. Similarly, Eichfelder and Schorn (2009) found that the services sector recorded a higher tax compliance burden than the real estate sector. Smulders (2013) reported that the transport, postal, warehousing, public administration, and safety sector were among the sectors that spend the most time when honouring their tax activities internally. However, he acknowledged that there is no local and global consistency in the internal compliance burden across the sectors. While the study by Smulders (2013) claim that no research in South Africa has indicated a significant sectoral effect on internal compliance burden, the estimate of tax

compliance burden as well as its correlates in Ghana and specifically Micro and Small-Scale Enterprise is lacking. Hence, this study estimates the burden and its drivers.

Furthermore, the age of the business measured as the number of years of the firm since its establishment or registration with the relevant tax-collecting agency could greatly affect the burden of the firm. Younger enterprises according to Eichfelder and Schorn (2009) mostly incur lower internal compliance burden as against old-established enterprises. This according to Smulders (2013) may be due to a lower degree of tax complexity faced by MSE established recently compared older ones. This also posits that a complex tax system could have ramifications the compliance burden given that lack of understanding resulting from the complex nature of the tax laws could make managers ignorant of ways that increase or to reduce the burden.

Accounting systems using either computerized or manual systems, have implications for compliance. Firms with a computerized system should have a higher tax compliance burden compared to a manual system (Hansford & Hasseldine, 2002). To them, high training costs and high annual license fees required to operate these systems as well as the little paperwork needed to be done before computerizing hence, account for the higher computerized system burden.

More so, the level of education of the one in-charge of tax issues in a firm (MSEs) matters most so far as reducing compliance burden is concerned. Hundsdorfer et al. (2012) indicated that business owners or managers with at least a university degree spend more time on tax compliance hence, have a higher burden

than those with less than University degree because those with less than University degree are less interested in tax planning and compliance issues. Also, their findings show that compliance burden decreases for owners or managers with higher levels of accounting knowledge compared to owners or managers with a low level of accounting knowledge because the latter is likely to spend less time understanding the implications of most tax accounting transactions.

The European Commission (2007) explained that the key motives for high compliance burden of small size businesses are but not limited to short and inflexible tax payments deadlines; complex tax systems; frequent changes of tax laws; costs of tax consultants; registration procedures; incomprehensible language of tax laws; the presence of different tax administration. Also, the frequent change in tax laws in many developing countries produces instability and low transparency of the tax law mostly in the eyes of the taxpayer (Individuals and Entities). Consequently, complex tax regulations and alter tax code because it confuse both taxpayers and tax administrators alike and this may result in tax avoidance and even evasion (Mo, 2003) on the part of taxpayers.

In conclusion, the correlates of compliance burden are not exhaustive. For instance, Eichfelder and Schorn (2009) include region while Hundsdoerfer et al. (2012) considers gender and marital status of the respondent. Intuitively, the distance to the tax office could impact the overall cost of the firms in two ways. Firstly, the individuals or firms that are closer to the tax office often find it easy to seek advice spend less on transport costs when going to pay tax at the tax office.

Secondly, individuals and firms that are not close to the tax office often turn to evade tax because most of them are not regularly supervised by the tax officials.

Chapter Summary

In sum, the review of the theories/principles coupled with the empirical and conceptual issue aids to appreciate the essence of compliance burden, domestic tax, and the need to concentrate on the extent and correlates of the tax gap among Micro and Small-Scale Enterprise. However, the literature reveals that the estimate of the compliance burden and tax gap as well as the correlates of compliance burden for MSEs is inadequate while having to know their consequences on revenue mobilisation.

CHAPTER THREE

RESEARCH METHODS

Introduction

This chapter discusses the research design, data source and description, population, samples and sampling procedures, the empirical model used in examining the hypotheses, description of the variables and the post estimation test conducted. The chapter ends with a summary.

Research Design

The quantitative research approach which is in line with the positivist philosophy was employed. The positivist philosophy is considered because, it strives for objectivity. Since this research seeks to investigate compliance burden and tax gap among MSEs in Ghana, the quantitative research approach was deemed appropriate, as it enables the researcher to examine relationships using both descriptive and inferential statistics. Creswell (2003) suggests that the researcher's experience, the consumers of the research report, and the research problem are some main canons for selecting an appropriate approach. However, Sampong (2015) posits that in quantitative or qualitative studies, the survey design can be adopted. Sampong also explains that this design produces reliable results hence, facilitates the motive of generalization which is at the heart of the positivist philosophy.

Data Source and Description

This study used data collected by the Directorate of Research, Innovation and Consultancy (DRIC) at the University of Cape Coast on the topic “Ghana Beyond Aid: Cost of Tax Compliance and Tax Incentives” on small taxpayers. The data were collected in the Greater-Accra Region, Ashanti Region and the Northern Region concurrently. Data collection covered a period of 4 weeks from 14th December 2019 to 14th January 2020. Information on CIT, PIT, VAT and other taxes were also captured. A total of 497 small taxpayers were interviewed. Specifically, 143 small taxpayers in Kasoa STO and Kaneshi STO from the Greater-Accra Region, 230 in the Konongo STO, Obuasi STO, Ashanti Mampong STO, and Suame STO from the Ashanti Region and 124 small taxpayers in the Tamale and Yendi STO from the Northern Region were included in the data.

The data contained the following information: background information of respondents, identification of the firm, employment data, expenses and assets of the firm, payable taxes, knowledge on Ghana’s tax system, tax compliance, tax compliance cost, firm’s perception, tax education or training, technology Adoption, investment decision and additional information not captured in the preceding modules.

These small taxpayers have an annual turnover of GHC 90,000 or less and engaged in financial and commercial activities like, retail and wholesale services, lumber, food processing, hotel and hospitality services, and Microfinance institution, food production, timber processing, leather work, woodwork, textile

production, sales of motor spare parts, provision shops, sales of construction materials, natural resource production like gold, silica, aluminium, etc.

Population, Samples and Sampling Procedures

The targeted population was 12569. A multi-stage sampling technique that involves a probability and non-probability samplings were used to select the regions, the district (STO), and the MSEs. The country was classified into Coastal, forest, and Savanna belts and the region with the highest tax capacity was selected from each of the three belts. In the Coastal belt (Greater-Accra, Western, Volta and Central region), the Greater-Accra region was selected, from the Forest belt (Ashanti, Eastern Brong and Ahafo regions), the Ashanti region was selected and the Northern region from the Savannah belt (Upper East, Northern and Upper West Regions) was also selected. However, due to the availability of the list of small taxpayers in these regions, the Kasoa and Kaneshi STOs were selected in the Greater-Accra Region, Konongo, Obuasi, Ashanti Mampong, and Suame STOs in the Ashanti region and Tamale and Yendi STOs selected from the Northern Region. Finally, simple random sampling was employed to select the enterprises. The selection of the region was based on the 10 administrative regions and not the newly created 16 regions because the new regions do not have STOs. To be able to do the random selection, the Yamane (1967) formula was employed to determine a representative sample of 388. However, due to the possibility of nonresponses and to correct for margin of errors, 497 respondents were finally chosen.

Data Analysis

Data analysis encompasses the process of cleaning, transforming, editing and modelling data as a goal (Adèr & Mellenbergh, 2008). In view of that, both descriptive statistics and inferential statistics were provided in the form of graphs and tables. As part of the process in achieving the objectives, a student t-test was conducted to analyse and examine the difference in the mean of compliance burden and tax gap for MSEs. Conversely, an Ordinary Least Square regression (OLS) was used to examine the effect of the compliance burden on the tax gap for the three regions and across different tax handles.

Econometrics Model Specification

Several models can be used in analyzing quantitative data; the logit, probit, OLS, etc. However, the logit and probit models are suitable when the dependent variable is binary. The OLS used by Chattopadhyay et al. (2002) and Danquah and Osei-Assibey (2018) were adopted because compliance burden and tax gap are directly related. Again, the use of OLS is informed by the measurement of the dependent variables (tax gap and compliance burden) which are continuous.

Ordinary Least Square

The study used an OLS in examining the effect of compliance burden on tax gap as well as the correlates of compliance burden. By minimizing the sum of square residuals, the OLS regression in equation one (1) must satisfy the assumptions of the Classical Linear Regression Models (CLRM). Some of these assumptions according to Wooldridge, (2016) includes: explanatory variables have

The model is based on the belief that compliance burden resulting from the imposition of public policy (tax policy in our case), rules, or laws affects the overall cost efficiency of the firm. Because firms' productive resources are used in complying with those obligations rather than using them to produce outputs. Again, since compliance burden forms part of the firm's overall cost, it is not out of order to believe that it can affect the firm's compliance level. Hence, a higher compliance burden is expected to be associated with low compliance, thereby serving as a significant variable contributing to the widening of the tax gap (revenue lost).

Tax Gap

Danquah and Osei-Assibey (2018) and York (2018) have estimated the tax gap as the difference between the actual amount of tax paid by firms and the amount of tax that can be mobilized via hypothetical, perfect enforcement of tax laws (potential tax). As Danquah and Osei-Assibey have argued, estimating the tax gap can be on a macro basis or a micro basis.

To estimate the tax gap, we first identified and computed the potential tax for all the Micro and Small Enterprises in the sample. Since getting the potential tax was difficult, the specific tax rate was then applied on their profit proxied by turnover to capture the potential tax. This was simple and more realistic since all the Micro and Small Enterprises interviewed are registered with the GRA. It is important to state that, the assumption that turnover represent the tax base of MSEs is largely accurate. This means that, the proxy of turnover used as profit is by far exact because most MSEs underreport their tax base due to the fear of being taxed.

After this, the difference was estimated by subtracting the actual amount of annual taxes paid from the potential amount to get the tax gap.

Tax Audit

Tax audit is a categorical variable indicating whether an MSE is audited or not. Accordingly, Chattopadhyay et al. (2002) indicate that tax scrutinizing (tax audit in this study) raises the firm's compliance burden by most measures but reduces time compliance cost. The increase in compliance burden for firms that are audited is an indication of increasing tax compliance. This is because an unaudited firm is less likely to get advice from the GRA official on how to reduce their burden. Based on this, we expect firms that are not audited to have a higher compliance burden compared to firms that are audited.

Location of MSEs (Rural or Urban)

The location of MSE is a categorical variable, where an MSE can either be located in a rural area or an urban area. The availability of human resources and logistics suggest that the location of an enterprise either in the rural or urban area matters for compliance burden, and tax gap. For example, Danquah and Osei-Assibey (2018) concluded that firms located in urban areas are believed to reduce the tax gap compared to their counterparts in rural areas. Hence, we expect less tax gap among urban located firms compared to rural areas.

Age of the Firm

The number of years since the firm registered with the GRA was used to capture firms' age. Coupled with mixed findings, Al-Mamun, Yasser, Rahman, Wickramasinghe, and Nathan (2014) and Palil (2010) however explained that older

firm are more abreast with tax regulations hence, are less likely to be burden with tax-related activities compared to firms that register with the GRA recently. Again, older firms are more probable of engaging in taxable activities than younger firms, all things being equal. Hence, we are uncertain about its relationship with the compliance burden but a negative relationship is expected with the tax gap.

Kind of Service Used in Honouring Tax Obligation

Similar to Dunlop and Radaelli (2016), the kind of service used in honouring tax obligations is categorized into internal or external or both. MSEs that honour its tax obligation by only the stuffs of the firm is said to be using internal service while those that pay for the service of a non-stuff member to honour its tax obligation use external service. Meanwhile, firms that engage the service of internal and external expert in honouring tax obligation is likely to have higher compliance burden compared to firms that resort to only internal or only external service.

Business Size

Consistent with Smulders (2013), the size of the business was measured as the number of employees that the MSEs have. Accordingly, the business size is said to have varying impacts on an organization. For instance, since the division of labour is possible when an organization has more employees, this could affect the activities of the firms regarding their time allocation. However, the direction of the effect of the number of employees on a firm's compliance burden may vary. That is, holding that the firm practice division of labour, increases in the number of employees (business size) will reduce the time spent on tax activities hence reduce compliance burden. On the contrary, an increase in the number of employees also

comes with an additional cost that the firm has to incur. Hence, firms will resort to outsourcing for advice or help on tax-related issues thereby increasing their compliance burden.

Complexity of Tax System

The complexity of the tax system is the perception that the MSEs have on the tax system. The respondents, on behalf of the MSEs, were asked to indicate on a scale of 1 to 5 their agreement to whether Ghana's tax system is complex (where 1-lowest agreement, 2-low agreement, 3-Agreement, 4-High Agreement, and 5-Highest agreement). Hence, perceived increase in how the tax system is complex produces higher tax gap resulting from compliance burden (Schanz, Sturm, Hoppe, Sturm, & Sureth-sloane, 2020; Saad, 2014; World Bank, Corporation International Finance & PricewaterhouseCoopers (2011).

Tax Knowledge

Tax knowledge was an index computed from a set of question. It is computed as;

$$\text{Tax knowledge Score} = \frac{\text{Number of each correct questions}}{\text{Number of questions (25)}} \times 100 \text{ percent}$$

This index ranges from zero (0) to 100 percent. Higher values imply higher tax knowledge. The researcher expects that higher tax knowledge should reduce compliance burden and the tax gap because a well-informed taxpayer is likely to understand the tax system and apply them in their tax-related activities (Saad, 2014).

Number of Taxes Paid

Number of taxes paid is the total number of taxes that MSEs pay. This includes the CIT, PIT, VAT and other taxes. It is measured on a continuous scale. The number of taxes that these MSEs pay influence the amount of time MSEs allocate for tax-related activities and hence affect the compliance burden of the businesses (World Bank et al., 2011). For instance, MSEs that pay two types of tax may have to spend more time preparing, paying, and filing their tax return. Hence, the researcher expects an increase in compliance burden for each additional tax payments because firms need to prepare, pay, and file returns on each tax.

Legal Form of the Business

The legal form of the business is a categorical variable with the MSE being a sole-proprietorship, partnership or a company. Smulders (2013) and Hundsdoerfer et al. (2012) explain that sole proprietors typically spend more time internally when dealing with tax-related activities compared to partnership and companies. Also, companies mostly resort to outsourcing the services of an expert with regards to tax compliance activities. Hence, variation in compliance burden for the different legal forms of businesses is expected.

Distance to Tax Office

Distance to the tax office represent the number of minutes it took the MSE to drive to the nearest tax office. The longer the distance between the tax office and the firm, we expect a higher compliance burden and tax gap. Thus, MSEs that are far from the tax office have to spend more time and incur more transport cost to visit the tax office to honour tax obligation. A study by Appiah (2015) shown that

the distance between the tax office and businesses enterprises in the Kumasi metropolis is quite high and poses a challenge to taxpaying firms, leading to noncompliance as a result of the cost associated with moving from once business to the tax office.

Table 1: Summary of the Measurement of the Variables

Variable	Type	Definition and Measurement	Expected sign
InTaxGap	<i>Continuous</i>	Potential tax-Actual Tax	
M_Sex	<i>Categorical</i>	Sex of the Manager (0=male, 1=female)	<i>Positive</i>
M_Edu	<i>Categorical</i>	Manager's level of education (0=At most basic, 1= At least secondary)	<i>Negative</i>
Location	<i>Categorical</i>	Location of the firm (0=rural, 1=urban)	<i>Negative</i>
MSE	<i>Categorical</i>	Classification of business (0=Micro, 1=Small)	<i>Positive</i>
Age	<i>Continuous</i>	Number of years of business since registered with GRA	<i>Negative</i>
Complexity	<i>Categorical</i>	Complexity about tax system (0= more complex, 1=Less complex)	<i>Positive</i>
Sectors	<i>Categorical</i>	Sectors (0=industry, 1=service)	<i>Uncertain</i>
InBurden	<i>Continuous</i>	Compliance burden= $P * T * Q$ (P, is the cost per hour, T is the Hours per day, Q is the Days per week)	<i>Positive on InTaxGap</i>
Audit	<i>Categorical</i>	Whether the firm is Audited or not (0=Yes, 1=No)	<i>Positive</i>
NTaxes	<i>Continuous</i>	Total number of taxes paid by the firm	<i>Positive</i>
BusinessSize	<i>Continuous</i>	Total number of employees in the firm	<i>Positive</i>
Legal_form	<i>Categorical</i>	The legal form of the business (0=Sole-proprietorship, 1=partnership, 2=company)	<i>Positive</i>
ServiceUsed	<i>Categorical</i>	The kind of service used in honouring tax obligation (0=Internal, 1=External, 2Both)	<i>Positive</i>
TK	<i>Continuous</i>	Tax Knowledge Score (percentage)	<i>Negative</i>
Distance	<i>Continuous</i>	Distance to the tax office (minutes)	<i>Positive</i>

Source: Avorkpo (2020)

Post Estimation Test

For the estimates to be efficient and consistent, the error term (ϵ_i) in equation one must be identically and normally distributed such that the ϵ_i should be homoscedastic as well as satisfy all the CLRM axioms. To test for this and other properties, the goodness-of-fit test and link test for the OLS model specification are performed. Due to the non-normality of some key variable and the presence of outliers, the robust estimates were conducted where the robust standard errors provided. The prove of violating the heteroscedastic was also provided in the appendix. In addition, omitted variable test, multicollinearity and correlation matrix are also performed and their results are in the appendices (Appendices A-I).

Chapter Summary

The chapter explained the methodology for the study, describing the research design, where the positivist approach was used. This chapter also described the data used. To distinguish this work from others, the study examines the effect of compliance burden on tax gap and explore the correlates of compliance burden among MSEs in Ghana.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter presents a detailed analysis and discussion of the results of the study. It provides the descriptive statistics of the characteristics of the MSEs. The next section presents the empirical estimations (OLS). Again, the results are presented and discussed inline with the objectives of the study. Tables and figures are used in the presentation. The chapter then ends with a chapter summary.

Characteristics of Micro and Small Enterprises

This section presents the summary of continuous variables. As initially stated, the number of observations is 497. However, due to the problem of none response and the classification of businesses as micro and small, 12 enterprises having a workforce of more than 30 were dropped. Table 2 displays the summary statistics of the 485 MSEs. The compliance burden (Burden) has a mean of GHC109.6. This indicates that, on average, MSEs spend GHC109.60 per month complying with tax laws. With a standard deviation of GHC178.6, the minimum amount of compliance burden is GHC5.00 and a maximum amount is GHC955.

On the average, our estimate is consistent with what Eichfelder et al. (2010) found as cited by Eichfelder and Vaillancourt (2014). They found out that the compliance burden associated with the Germans' thin-capitalization rules is 18

Euro. Converting the 18 Euro to Ghana cedis, the Germans' thin-capitalization rules spend close to GHC117.00 (using 6.5 as the exchange rate).

Table 2: Summary Statistics

Variable	Obs.	Mean	Std. Dev.	Minimum	Maximum
Burden	485	109.6	178.6	5	955
Distance	485	23.9	15.3	2	120
Nyears	485	11.4	7.5	1	50
TK	485	56.1	12.2	12	88
Employees	485	6.3	5.5	1	29
NTaxes	485	2.4	1.2	1	4
Tax_Gap	485	109.2	491.9	-809.4	3498
Turnover	485	10577.7	12157.4	400	80000

Note: Obs. represent observations and Std. Dev. represent Standard Deviation

Source: Avorkpo (2020)

The distance between the tax office and the MSEs is measured in minutes. It ranges from two minutes to 120 minutes. With the standard deviation of 15 minutes three-second, each enterprise spends an average time of 23 minutes nine seconds to get to the tax office to either honour their tax obligations or to make enquiries.

The number of years since the firm registered with the revenue collecting agency (GRA) is the age of the firm (Age_firm). The MSEs have a mean age of 11.4 years. This means that MSEs are 11 years old on average, it ranges from one to 50 years. The tax knowledge (TK) is measured as the percent score of the total correctly answered questions. It has a mean score of 56.1 percent. This implies that the MSEs have an average tax knowledge score (56.1 %). The scores range between 12 percent and 88 percent with a standard deviation score of 12.2 percent.

Furthermore, the number of employees (Employees) in MSEs ranges from one to 29. The average number of employees per enterprise is about six and a

standard deviation of approximately six. The average number of taxes paid (NTaxes) by MSEs is about 2. Some of the enterprises pay as high as four taxes while some pay just one type of tax. It has a standard deviation of 1.2. The reason for the difference in the number of taxes paid is the different economic activities they engage in as well as the legal status of the enterprise. For example, a company that deals in VAT product and pay personal income tax on behalf of its workers is likely to pay the maximum number of tax (4).

Lastly, we computed the tax gap (Tax_Gap) by finding the difference between potentials and actual tax for the enterprises. It ranges from negative GHC809.4 to positive GHC3,498. The negative GHC809.4 tax gap indicates over payment of tax while the positive GHC3,498 indicates under payment of tax (revenue loss). However, the mean annual tax gap is about GHC1,092 per MSEs. This means that with a standard deviation of GHC491.9, the country can generate an additional GHC1,092 more if it has an efficient tax collection system with a 100 percent compliance level. Also, the average turnover of these MSEs is GhC10577.7 and a standard deviation of GHC12157.4. They have a minimum turnover of GHC400 and a maximum of GHC80,000.

Descriptive Statistics for the MSEs

This section describes the frequencies and percentages of key categorical variables in the data. It is observed from the Table 3 that 33.2 percent of the MSEs perceive the tax system as less complex and the majority (66.8 %) of them perceive it as more complex. Almost all the enterprises (95.57 %) are owned by Ghanaians, 3.02 percent of them are owned by Non-Ghanaians and just 1.41 percent is owned

by both Ghanaians and foreigners. This is consistent with the Ghana Statistical Service (2015), firms owned by only Ghanaians is 98.6 percent, Non-Ghanaian with 1.2 percent and both Ghanaians and Non-Ghanaian own businesses constitute 0.2 percent.

Additionally, 53.12 percent of the enterprises are not audited by the GRA and 46.88 percent of them are audited. Again, the data shows that the number of movable firms constitute just about 19 percent while 81 percent are non-movable. This shows that the data is skewed towards non-movable firms.

Table 3: Descriptive Statistics of the MSEs

Variables	Categories	Frequencies	Percentages
Complexity	<i>Less complex</i>	161	33.2
	<i>More complex</i>	324	66.8
Nationality	<i>Ghanaian</i>	475	95.57
	<i>Non-Ghanaian</i>	15	3.02
	<i>Ghanaian & Non-Ghanaian</i>	7	1.41
Audit	<i>Yes</i>	264	53.12
	<i>No</i>	233	46.88
Structure	<i>Movable</i>	93	18.71
	<i>Non-movable</i>	404	81.29
M_Edu	<i>At most JHS/Middle</i>	92	18.51
	<i>At least Secondary</i>	405	81.49
Legal_Form	<i>Sole proprietorship</i>	288	57.95
	<i>Partnership</i>	55	11.07
	<i>Company</i>	153	30.78
Location	<i>Urban</i>	467	93.96
	<i>Rural</i>	30	6.04
MSE	<i>Micro</i>	310	63.92
	<i>Small</i>	175	36.08

Source: Avorkpo (2020)

Moreover, the Table 3 shows that 18.51 percent of the managers in the MSEs attained at most JHS/Middle school education (None, Primary, JHS/Middle) and 81.49 percent attained at least Secondary education (Secondary and Tertiary). Meanwhile, 57.95 percent of the MSEs are sole-proprietorships, 11.07 percent is a partnership, and 30.78 percent being companies. However, the data is tilted toward urban centers. Specifically, 93.96 percent of the MSEs are located in the urban areas and 6.04 percent in the rural area. Micro enterprises constitute 63.92 percent while Small enterprises constitute 36.08 percent. According to Ghana Statistical Service (2015), Micro businesses constitute 79.76 percent of all establishment and 18.38 percent for Small businesses. In terms of proportion, there is no substantial difference in the proportion of micro and small businesses and that the data used in this study mimic a nationwide data on firms.

Distribution of Micro and Small Enterprises

The section provides the distribution of the characteristics of the enterprises by the classification of businesses as micro and small enterprises. The chi-square test is also provided in order to determine the association between firms' characteristics and the classification of businesses. Table 4 conveys the test result of the differences in percentage distributions of MSEs across other firm characteristics. The percentage of male managers in micro-enterprises is significantly higher (61.05 percent) than male managers (38.95 percent) in small enterprises. Similarly, female managers in micro-enterprises are significantly higher (70.92 %) than those (29.08 %) managing small enterprises. However, managers with at most JHS/Middle school education manage 58.53 percent of the

micro-enterprises and 41.47 percent manage small enterprises. In a like manner, 83.65 percent of the managers with at least secondary education manage micro-enterprises as against 16.35 percent in small-enterprise. This shows that to a very large extent, managers with at least secondary education manage firms with a total workforce of less than six.

Table 4: Characteristics of Micro and Small Enterprises

	Categories	Micro	Small	Total	P-value	Sig
M_Sex	<i>Male</i>	61.05	38.95	100	0.040	**
	<i>Females</i>	70.92	29.08	100	0.040	**
M_Edu	<i>At most JHS/Middle</i>	58.53	41.47	100	0.000	***
	<i>At least Secondary</i>	83.65	16.35	100	0.000	***
Audit	<i>No</i>	57.85	42.15	100	0.003	***
	<i>Yes</i>	70.98	29.02	100	0.003	***
Regions	<i>Greater-Accra</i>	73.19	26.81	100	0.007	***
	<i>Ashanti</i>	64.57	35.43	100	0.781	
	<i>Northern</i>	52.42	47.58	100	0.002	***
Legal_form	<i>Sole Proprietorship</i>	78.14	21.86	100	0.000	***
	<i>Partnership</i>	63.64	36.36	100	0.963	
	<i>Company</i>	37.75	62.25	100	0.000	***

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: Avorkpo (2020)

Furthermore, with 95 percent confidence, we observe that the difference in the distribution of audited and non-audited micro and small enterprises is significant. Specifically, the percentage of enterprises that are not audited in Micro and Small enterprises is 57.85 and 42.15 respectively. Again, the proportion of those that are audited in the micro-enterprises and small enterprises is 70.98 percent and 29.02 percent respectively.

Also, the distribution of the regions and the legal form of the MSEs is significant. The regional breakdown shows that in Greater Accra, there exist 73.19 percent of micro-enterprise and 26.81 percent being small enterprises. The Ashanti region is dominated (64.57 percent) with micro-enterprise as against 35.43 percent being small. Lastly, the Northern region has 52.24 percent of the enterprises being micro and 47.58 percent to be small. With the exception of Ashanti region, the distribution of Greater Accra and Northern region by micro and small enterprises is significant. With regards to the legal form of the business, 78.14 percent of the sole proprietorship is on a micro-scale while the remaining 21.86 percent is small. Again, 63.64 percent of the partnerships are on micro-scale and 36.36 percent on small-scale. Conversely, 37.75 percent of the companies are on micro-scale and the remaining 62.25 percent on a small-scale. It is however consequently clear that the distribution of sole proprietorship and companies over MSEs are significant, compared with the distribution of partnerships.

Compliance Burden by Kind of Service used in Honouring Tax Obligation

The section provides a graphical view of the kind of services employed in honouring tax obligation by these micro and small businesses. Basically, these businesses either uses internal service, external service or employ both. Figure 1 presents the estimates of the compliance burden for the different kinds of services used by these MSEs in honouring tax obligation. The blue colour indicates the percentage of MSEs that use a particular service while the red colour shows the average estimated compliance burden measured in Ghana cedis (GHC).

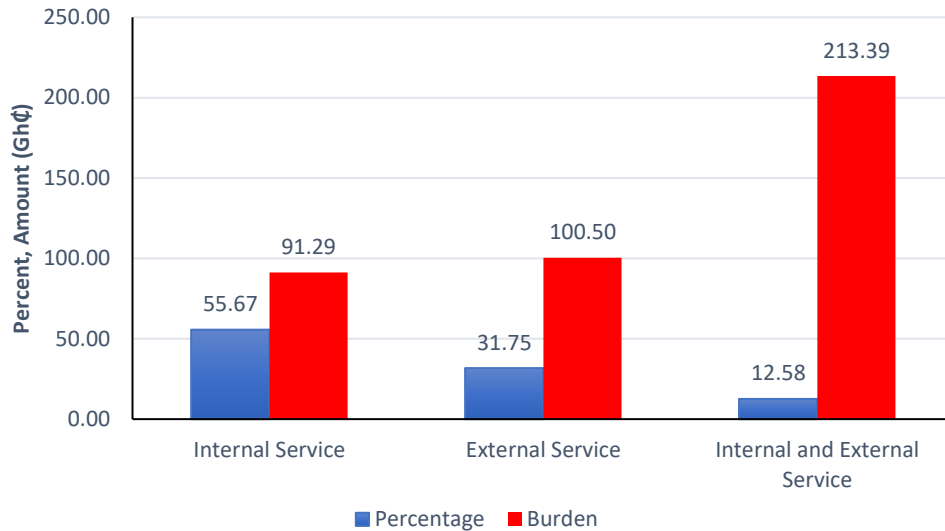


Figure 1: Kind of Service Used in Preparing, Paying and Filing Returns
Source: Avorkpo (2020)

From Figure 1, more than half (55.67 %) of the enterprises use internal service in honouring their tax obligation, 31.75 percent employ external services, and 12.58 percent employ both the internal and external services. The MSEs that honour their tax obligation internally have GHC91.29 compliance burden, GHC100.50 for external service users, and GHC 213.39 for MSEs that use both the internal and external services. These categories are very important when considering compliance burden because outsourcing the service of an expert comes with a cost (Dunlop & Radaelli, 2016). Smulders (2013) explains that outsourcing the service of an expert in VAT function, increases the number of hours spent on internal VAT compliance, whiles Coolidge and Kisunko (2009) found otherwise. They explain that outsourcing for an expert implies duplication of work and effort because the expert has to check what the firms have been doing before making the necessary corrections and suggestions.

Regional Estimates of Potential, Actual and Tax gap

Tax gap is the difference between potential tax and actual tax payment. Tax gap literally mean revenue loss while the potential tax is the amount of tax that can be collected is the right policies are implement and there is a full compliance with tax policies. Figure 2 reports the average amount of taxes paid by MSEs as well as the average estimated potential tax and tax gap by regions. The result shows that the average estimated potential tax for the Greater-Accra region is GHC3,163, GHC3,668 for Ashanti region and GHC4,018 for Northern region.

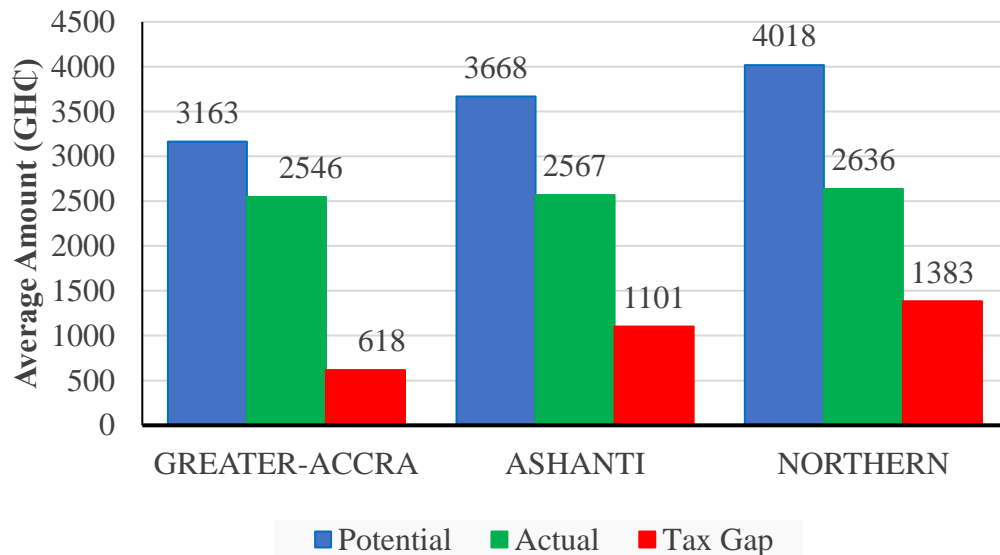


Figure 2: Amount of Tax paid, Estimate of the Compliance Burden and Tax Gap

Source: Avorkpo (2020)

The findings show that there is more revenue potential in the Northern region compared to the Greater-Accra and Ashanti regions. Meanwhile, the average amount of tax collected from the MSEs in the Greater-Accra region is GHC2,546, GHC2,567 for the Ashanti region, and GHC2,636 for the Northern region. The difference between the potential tax and actual tax gives the tax gap. It is clear from

Figure 2 that there is more revenue loss (tax gap) in the Northern region compared to Ashanti and Greater-Accra regions. This could be due to the smaller number of STOs in the region. Specifically, six (6) STOs serve 50 MMDAs in the Northern part of the country. This means that MSEs located in the Northern part lack supervision and monitoring due to the smaller number of STOs in the region, thus has the tendency to create additional opportunities for tax evasion.

Potential Tax, Actual Tax and Tax Gap by a Firm Characteristic

Tax gap estimates could vary across different firm characteristics such as sectors, location, type of structure, legal form of the business and for the different classification of businesses as either micro or small businesses. The average potential tax (ought to pay) and actual tax for the industrial sector, irrespective of the firm being micro or small, is about GHC3084.30 and GHC2235.52 respectively. This shows a significant difference (tax gap) of GHC848.78. However, the service sector recorded an annual potential tax of GHC3797.10 and the actual tax of GHC2659.17. Therefore, the difference, being the tax gap, is GHC1137.94. This shows that there exists substantial revenue loss in the service sector compared to the industrial sector. However, the high amount of tax revenue collected in the service reiterates the dominance of the service sector's contribution to the economy compared to the industrial sector.

In addition, the average potential tax and actual tax for the MSEs in the urban areas are GHC3744.02 and GHC2596.81 respectively. This creates a tax gap of GHC1147.22. In a like manner, enterprises located in the rural areas record an

annual average potential tax of GHC2772.63, actual taxes of GHC2517.60, and a tax gap of GHC255.033.

Table 5: Potential Tax, Actual Tax and Tax Gap by a Firm's Characteristics

Variables	Categories	Potential Tax (GHC)	Actual Tax (GHC)	Tax Gap (GHC)
Sectors	<i>Industry</i>	3084.30	2235.52	848.78
	<i>Service</i>	3797.10	2659.17	1137.93
Location	<i>Urban</i>	3744.02	2596.81	1147.21
	<i>Rural</i>	2772.63	2517.60	255.03
Type of structure	<i>Movable</i>	3798.00	2539.09	1258.91
	<i>Non-Movable</i>	3196.68	2817.52	379.16
Legal Form	<i>Sole-Proprietorship</i>	2352.49	2541.65	-189.16
	<i>Partnership</i>	4012.05	2673.02	1339.03
	<i>Companies</i>	6024.52	2655.23	3369.29
MSE	<i>Micro</i>	2482.08	2517.47	-35.38
	<i>Small</i>	5812.94	2723.78	3089.16

Source: Avorkpo (2020)

It is evident that the difference in the tax gap for enterprises located in the urban areas is greater than that of the rural areas. This difference can be attributed to the fact that owners and managers of urban enterprises may be more abreast with new developments relating to tax planning and management which may be lacking in enterprises located in rural areas. Hence, enterprises located in the urban areas do not pay an amount of tax proportional to their potential tax, thereby having a higher tax gap.

Another important characteristic of enterprises is the structure in which they operate. Enterprises with movable structures have an average annual potential tax of GHC3798, actual tax of GHC2539.09, and a tax gap of GHC1258.91. Conversely, non-movable enterprises have a potential tax of GHC 3196.68 but pay

an amount of GHC2817.52 as tax. This is slightly higher than those in movable firms. However, there exists a tax gap of GHC379.16, significantly lower compared to the tax gap observed under the movable enterprise. The differences in the tax gap for firms with movable structure and unmovable structures can be explained in the context of tax evasion. This is because firms with movable structures have a higher probability of evading tax anytime tax officials go around to collect taxes compared to enterprises that are non-movable. It is clear to observe that movable firms pay less amount of tax compared to a non-movable firm hence have a higher tax gap.

Furthermore, the legal form of the business has a major implication for the type of tax paid, the amount of tax paid, and the tax rate. Precisely, the annual average potential tax for sole-proprietorship is GHC2352.49, GHC4012.05 for partnership, and GHC6024.52 for companies. Their corresponding actual tax paid is GHC2541.65, GHC2673.02, and GHC2655.23. With this, it is clear to observe a higher (GHC3369.29) tax gap for companies compared to partnership (GHC1339.03) and sole-proprietorship (GHC189.14). This implies that on average, sole-proprietorships pay more tax than they should (overburden). The difference in the tax gap estimate for companies, partnerships, and sole-proprietorship can be attributed to the fact that the legal form of the business requires the firm to pay a particular type of tax and at a specific tax rate. For instance, companies pay corporate tax while partners and sole-proprietors pay income tax. At the same time, all these three legal forms of business can pay VAT depending on the firms' economic activities. Hence, we expect a difference in how much each of these firms ought to pay (potential tax) and their associated actual tax and tax gap.

More so, the results in Table 5 show that with an annual average potential tax of GHC2482.08 and the actual tax of GHC2517.47, there exists a tax gap of negative GHC35.381 for the micro-enterprises. This implies that just like the sole-proprietorship, micro-enterprises are also overburdened with tax payment. This is in line with the 2018 ease of doing business report which indicates that SMEs find it difficult to pay tax (World Bank, 2018). This justifies the existence of the high tax gap because non-payment of tax is positively related to tax gap. On the contrary, the small-taxpayers have an annual potential tax of GHC5812.94 and the actual tax of GHC2723.78 thereby showing a tax gap of GHC3089.16.

To sum up the result in Table 5, there exist more revenue potentials in companies than any legal business form of business considered, and on the other hand, the micro firms are the most taxed group.

Compliance Burden, Amount of Taxes Paid, and Tax Gap

The compliance burden of micro and small size business affects the amount of taxes paid and affect the size if the tax gap that is estimated. From the economic base theory which emphasize that there are two groups of tax payers (habitual compliant and those who are strategical), negative tax gap implies that such group of tax payers are habitual compliant whilst a positive tax gap shows that such taxpayers pay their tax strategically. Figure 3 presents an average of the actual tax, estimated tax potential, and tax gap. On average, micro-enterprises and small enterprises spend (compliance burden) GHC 80.00 and GHC 163.00 respectively to comply with tax laws in Ghana. However, the difference in the average amount

of the actual taxes paid is GHC 207.00 (2724 - 2517), where the micro-enterprises pay GHC2,517.00 and small enterprises pay GHC2,724.00 on average. However, there has been a substantial difference in revenue loss (measured by the tax gap) to this sector.

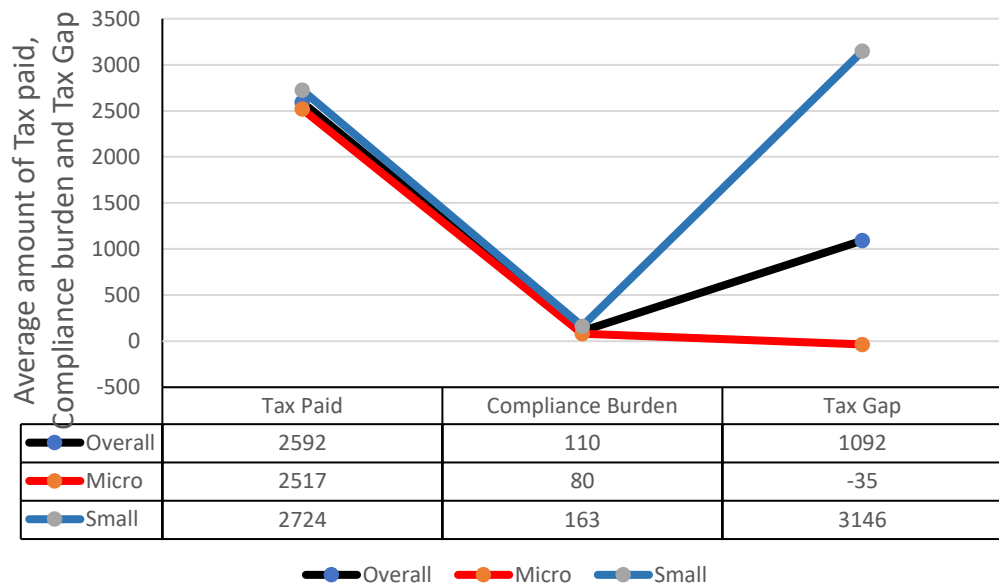


Figure 3: Amount of Tax Paid, Estimate of the Compliance Burden and Tax Gap

Source: Avorkpo (2020)

This has made the formulation and implementation of tax policies a bit challenging because, high amount of compliance burden causes taxpayers to either evade or avoid tax payment and this affects Ghana’s tax revenue.

Econometric Results

The next three sections present the results of each objective. The first section reports the findings of the objective one by capturing the average estimated compliance burden and the tax gap. Again, we conducted a t-test to establish the existence of statistical differences in compliance burden and tax gap for both micro-enterprises and small enterprises. The second section addresses objective two by examining the effect of compliance burden on the tax gap across different regions and on different tax handles. Finally, the third section deals with objective three and four by finding the effect of compliance burden on tax gap, among the three regions and for different tax handles.

Test of difference in Tax Gap by MSEs

This segment of the chapter presents the estimates of tax gap and compliance burden as well as analyse the differences in both the tax gap and compliance burden for micro and small businesses. Table 6 addressed the objective one. It presents a student t-test to analyse the difference in tax gap and compliance burden between the micro and small-scale enterprise.

Table 6: Test of difference in Tax Gap among MSEs

Group	Observation	Mean	Standard Error
Small	175	3089.16	518.631
Micro	310	-35.38	159.156
Combined	485	1092.03	223.338
Difference	135	-3124.54	542.502
T-Statistics	=	-5.760	
Prob(T > t)	=	0.000	
Satterthwaite's df	=	207.28	
Ho: Difference	=	0	
Ha: Difference	≠	0	

Source: Avorkpo (2020)

Again, the results in Table 6 shows that the difference in the average tax gap for micro enterprises and small enterprises is GHC3124.54. However, the test hypothesized that there is no difference in the mean tax gap for micro (-35.38) and small enterprises (3089.16). Distributed with unequal variance, the t-statistic associated with its Satterthwaite's degrees of freedom (207.281) is -5.756. The two-tailed p-value corresponding to this t-statistic is 0.000 and it is significant at 0.01 alpha level. Based on this, we reject the null hypothesis and conclude that the difference in the average tax gap for micro-enterprises and small-enterprises is not due to chance, thus, different from zero. Following the explanation of the economic based theory by Atawodi and Ojeka (2012), Doran and Oran (2009) and, Trivedi et al. (2005), it is evident that micro businesses are “habitual compliant” and small businesses are “strategic non-complaint”.

Effect of Compliance Burden on the Tax Gap Among MSEs

We examine the effect of compliance burden on tax gap among micro and small size businesses as capture in the objective two. Table 7 presents the effect that compliance burden and other factors have on the tax gap among MSEs. We conducted an omitted variable test (Ramsey RESET test) to check if all important variables are included in the model. The test result is in appendix A. The null hypothesis states that the model has no omitted variable. The p-value (Prob>F=0.2874) associated with its F-statistics ($F(3,473) = 1.26$) indicates that the test is not significant and hence, we conclude that there is no important variable that has been omitted. Again, we conducted a linktest to determine the goodness of

fit. The significance of the hat (p -value=0.001) and the insignificance of the hatsq (p -value=0.163) in the appendix C indicates that the model is correctly specified. The multicollinearity test is reported in the appendix E. Since the mean variance inflation factor is 1.070, we conclude that there is no collinearity among the variables used. Finally, the Breusch-Pagan/Cook-Weisberg tests conducted shows the presence of heteroskedasticity; hence the study used the heteroskedasticity-robust standard error approach was employed in order to obtain a robust estimate and to avoid deceptive results (test in Appendix H).

Additionally, the model in Table 7 shows F-statistics of 5.190. Its associated probability value of 0.000 indicates that all the independent variables (education and sex of the manager, location, age, compliance burden, complexity, and sectors) jointly and reliably predict the tax gap estimate. Similar to the F-statistics, the R^2 (12.7 %) shows the predictive power of the model. The contribution of each significant variable to the variation in the predictive power of the model is discussed in the following paragraphs.

The coefficient -0.080 is the effect of managers that have attained at least secondary education on the tax gap. This is significant at the 0.05 alpha level. It means that compared to managers with at most basic education, having attained at least secondary education is associated with a reduced tax gap of 8 percent. This implies that managers who have attained at least secondary education pay more tax compared to those with at most basic education. It follows the idea that individuals that are more educated know more about the economy and hence, know the importance and the implication for honouring their tax obligations (Kasipillai et al.,

2003). Conversely, the 0.249 is the coefficient for small enterprises. It is significant at 1 percent alpha level. It means that, compared to micro-enterprises, being a small enterprise is associated with a higher tax gap of 24.9 percent. This is consistent with the descriptive statistics in Figure 3. Again, this result also emphasizes the statistical difference in the tax gap between micro-enterprises and small enterprises reported in Table 6 earlier.

Table 7: Effect of Compliance Burden on Tax Gap Among MSEs

InTaxGap	Coefficient	Robust standard error
<i>Sex of Manager (Base=Males)</i>		
Females	0.010	0.046
<i>Managers Education (Base=At most basic)</i>		
At least secondary	-0.080**	0.032
<i>Location (Base=Rural)</i>		
Urban	-0.057	0.080
<i>MSE (Base=Micro)</i>		
Small	0.249***	0.051
Age Firms	-0.003	0.002
InBurden	0.075***	0.020
<i>Complexity (Base=Less Complex)</i>		
Complex	0.020	0.044
<i>Sectors (Base=Industry)</i>		
Service	0.008	0.054
Constant	-0.261***	0.091
<i>F-Statistics</i>	5.190	
<i>Prob > F</i>	0.000	
<i>R-squared</i>	0.127	
<i>Number of observations</i>	485	

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: Avorkpo (2020)

Furthermore, the result shows that, increasing compliance burden is associated with higher tax gap. It has a coefficient of 0.075 and it is significant at 0.01 alpha level. This coefficient suggests that a percent increase in the amount of

compliance burden causes a 7.5 percent increase in the tax gap, all other factors remaining constant. The second null hypothesis which postulates that compliance burden has no significant effect on the tax gap is rejected. We then conclude that the compliance burden of MSEs increases the tax gap significantly. This is consistent with the assessment raised by Kuug (2016) that compliance cost is an important determinant of compliance and that increases in compliance cost result in low tax compliance and this affect the amount of taxes that firms pay as tax thereby increasing the tax gap.

Effects of Compliance Burden on the Tax Gap in the Various Regions of Ghana and for Different Tax Handles

The result of the third and fourth objectives of the studies is presented under this section where the effect of compliance burden was examined on tax gap across the regions and for different tax handles. Table 8 presents the results of objective three. Specifically, the Table examines the effects of compliance burden on tax gap in the various regions (Greater-Accra, Ashanti and Northern) and among different tax handles (CIT, PIT and VAT). The results of the regional analysis are presented in column 2, 3 and 4 of Table 8 while the column 5, 6 and 7 shows the results of the different tax handles.

Regional Analysis

The second column in the Table 8 shows the effects of compliance burden on tax gap in Greater-Accra region. Even though all the variables jointly and reliably explained the variations in the tax gap as well as the R^2 of 13.6 percent, the

use of 138 MSEs from the Greater-Accra region shows that all but compliance burden is statistically insignificant. However, the coefficient of compliance burden on the tax gap in the Greater Accra region is 0.100. This coefficient is significant at 0.01 alpha level. This reveals that a percent increase in the amount of compliance burden increases the tax gap by 10 percent *ceteris paribus*. The implied hypothesis that compliance burden has no significant effect on the tax gap in the Greater Accra region is rejected. Since the p-value associated with this coefficient (0.100) is statistically significant at 0.01 alpha level, we reject the null hypothesis. We therefore conclude that the compliance burden increases tax gap among MSEs in Greater-Accra.

The third column in the Table 8 shows the result of Ashanti region. We used a total of 223 responses in analyzing the effect of the compliance burden on the tax gap in the Ashanti region. All the variables except the classification of businesses as MSE are significant in affecting the tax gap. The coefficient of MSE is 0.311 and it is significant at 0.01 alpha level. It reveals that compared to micro-enterprises, small-enterprises record higher tax gap of 31.1 percent.

Interestingly, the compliance burden is insignificant in increasing the tax gap in the Ashanti region because the p-value associated with its coefficient 0.063 is greater than the 0.05 alpha level. This suggests that the compliance burden does not affect the tax gap in the Ashanti region. Contrary to that of Greater-Accra discussed earlier, the study failed to reject the fact that compliance burden can affect tax gap. We then conclude that the compliance burden has no significant effect on the tax gap in the Ashanti region. This can be due to the multiplicity of

business outlet of the same firm in the Ashanti region. That is, multiple businesses belonging to the same owner mostly make payments at the head offices and not in all the other outlets hence, the effect of the burden is shared among all the other outlets, making its effect on the tax gap insignificant. This is further supported by the fact that 16 percent of Ghanaians workforce are involved in more than one job (Nunoo, Darfor, Koomson & Arthur, 2018). Hence, it shows the possibility of an individual having multiple firms that will pay tax from only the head office and not in the subsidiaries.

Table 8 column four shows the effect of compliance burden on tax gap in Northern Region. The result is by far, different from the other two regions after analyzing 124 responses from the MSEs. The predictive power of this model using the same set of variables as the other two regions is 18.4 percent. The F-statistics of 3.320 and its associated probability value of 0.000 indicate that all the variables used jointly and reliably explained the 18.4 percent variation in the tax gap in the Northern Region. The contribution of the specific significant variables to the variation in the tax gap is discussed in the following paragraphs.

The Table shows that there is a negative 0.148 effect of managers with at least secondary education on the tax gap. It is significant at 0.05 alpha level, signifying that the tax gap estimates for enterprises with managers having attained at least secondary education reduces by 14.8 percent compared to enterprises managed by individuals with at most basic education. Again, enterprises located in the urban areas have a negative and significant coefficient of 0.281. It implies that enterprises located in an urban area have a reduced tax gap of 28.1 percent

compared to enterprises located in rural areas. This is pointed to the fact that more STOs are located in the urban areas compared to the rural areas. Therefore, enterprises located in the urban areas are regularly monitored and audited compared to rural enterprises. This makes the urban enterprises comply more with tax laws hence pay more taxes and have a reduced tax gap than rural enterprises. This confirms the study by Danquah and Osei-Assibey (2018) who report that firms located at the rural areas are associated with higher tax gap and those at the urban areas have lower tax gap.

Similar to the overall model in Table 7, small enterprises are associated with a positive significant coefficient of 0.243 tax gap. This suggests that the tax gap among small enterprises (6-29 Employees) is 24.3 percent higher than the tax gap in micro-enterprises (0-5 employees). At 1 percent alpha level, there is a statistically significant variation in the tax gap for micro-enterprises as against the small enterprises.

The age of the enterprise is an equally important determinant of the tax gap and was found to be significant in reducing the tax gap at 0.05 alpha level. It has a coefficient of 0.007. Meaning, an additional year in the firm's business life reduces the tax gap by 0.7 percent, all things being equal. Well-established enterprises are likely to make more profit and hence increase the amount of taxes paid. That is, increases in the amount of tax reduce the tax gap. This is consistent with the negative effect of firms experience on the tax gap by Danquah and Osei-Assibey (2018).

Table 8: Effects of Compliance Burden on the Tax Gap in the Various Regions and for Different Tax Handles

lnTaxGap	Regional Estimates			Different Tax handles		
	Greater Accra	Ashanti	Northern	Corporate	Income	VAT
Sex of Manager (Base=Males)						
Females	-0.063 [0.066]	-0.092 [0.082]	0.077 [0.078]	0.041 [0.155]	0.029 [0.046]	-0.006 [0.064]
Managers Education (Base=At most basic)						
At least secondary	-0.081 [0.054]	0.027 [0.100]	-0.148*** [0.044]	-0.268*** [0.098]	-0.069** [0.031]	-0.054 [0.054]
Location (Base=Rural)						
Urban	0.116 [0.163]	-0.097 [0.120]	-0.281** [0.120]	0.225 [0.231]	-0.160*** [0.053]	-0.232*** [0.060]
MSE (Base=Micro)						
Small	0.163 [0.121]	0.311*** [0.094]	0.243*** [0.078]	0.286*** [0.103]	0.259*** [0.051]	0.256*** [0.068]
Age Firms	-0.003 [0.003]	0.005 [0.006]	-0.007** [0.004]	-0.008 [0.006]	-0.002 [0.002]	-0.001 [0.004]
lnBurden	0.100*** [0.026]	0.063 [0.045]	0.109*** [0.035]	0.0483 [0.058]	0.078*** [0.020]	0.059** [0.0271]
Complexity (Base=Less Complex)						
Complex	-0.061 [0.094]	-0.024 [0.160]	0.081 [0.066]	0.047 [0.132]	0.016 [0.046]	0.027 [0.073]
Sectors (Base=Industry)						
Service	0.081 [0.053]	0.009 [0.117]	-0.145 [0.121]	0.031 [0.131]	-0.007 [0.056]	-0.021 [0.097]
Constant	-0.379*** [0.117]	-0.342 [0.242]	-0.296* [0.169]	-0.008 [0.273]	-0.272*** [0.093]	-0.172 [0.130]
<i>F-Statistics</i>	3.390	2.520	3.320	2.18	5.80	4.34
<i>Prob > F</i>	0.002	0.015	0.001	0.032	0.000	0.000
<i>R-squared</i>	0.136	0.136	0.184	0.067	0.141	0.114
<i>Obs.</i>	138	223	124	167	465	255

Obs. Number of observations, *robust standard error in parenthesis*, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: Avorkpo (2020)

The effect of the compliance burden on the tax gap in the Northern region is 0.109. This means that a percentage increase in the compliance burden increase the tax gap in Northern region by 10.9 percent *ceteris paribus*. This is significant at 0.01 alpha level. It implies that higher compliance burden leads to tax evasion and avoidance. Since tax evasion and avoidance is a good recipe for tax non-payment, the tax gap will increase. The implied hypothesis two which postulates that the compliance burden has no significant effect on the tax gap in the Northern Region is rejected at 0.05 alpha level. Therefore, we established that the compliance burden has an increasing significant effect on the tax gap in the Northern region. Just as Akinboade (2015) has pointed out, differences in compliance level firms vary across different Province of Cameroon. Based on that difference in compliance burden for these businesses in different regions is expected to influence their compliance level which then affect tax gap. It can be concluded from the results and the discussions of the regional analysis that the effect of compliance on tax gap have varying effect in the different regions of Ghana as shown in the table.

In all, the results of the regional analysis reveal that compliance burden is a significant determinant of tax gap in both Greater-Accra and Northern regions whilst in the Ashanti region, it is insignificant.

Different Tax Handles

The fifth, six and seventh columns in Table 8 present the result of the different tax handles. The education level of the manager has a significant influence on tax gap. Compared to enterprises managed by at most basic education graduates, managers with at least secondary education reduce the corporate tax gap and

income tax gap by 26.8 percent and 6.9 percent respectively. However, the effect of managers education on VAT gap is not significant. Similarly, there is a 16 percent and 23.2 percent reduction in income tax gap and VAT gap respectively for enterprises located in urban areas compared to enterprises located in rural areas. This reduction could be because more STOs are located in the urban areas compared to rural areas hence, it is more likely for the tax officials to supervise and ensure tax payment in those areas than in rural areas.

Additionally, small enterprises are associated with a higher corporate tax gap (28.6 %) than income tax gap (25.9 %) and VAT gap (25.6 %) compared to micro-enterprises. In a more precise way, the effect of tax compliance burden on the corporate tax gap is not significant whilst that of the income tax gap and the VAT gap are significant at 0.05 alpha level.

Furthermore, the coefficient of compliance burden is not statistically significant, suggesting that it does not affect the corporate tax gap. In contrast, the coefficient is found to be statistically significant in explaining income tax gap and VAT gap. Specifically, a percentage increase in the compliance burden increases the income tax gap by 7.8 percent and the VAT gap by 5.9 percent. By far, we can conclude that the effect of compliance burden on the income tax gap is greater than on the corporate tax gap and VAT gap. The reason being that almost all enterprises pay income tax. Again, this reiterates the fact that most of these MSEs who pay income tax are sole-proprietorships and hence are required by law to pay income tax. It could then be concluded that compliance burden is significant in affecting personal income tax gap and VAT gap and it rang from 5.9 to 7.8 percent.

Meanwhile, since difference exist between companies and sole proprietorship as well as for partnership, variations in tax gap resulting from changes is compliance burden is inevitable.

Correlates of Tax Compliance Burden Among MSEs

Owing to the fact that tax gap in the preceding models (in Table 7 and Table 8) are significantly affected by compliance burden, we extend the scope of the study to explore the correlates of compliance burden. Table 9 presents the results of the objective three where key variables informed by the literature to have influence on compliance burden were examined. Meanwhile, we conducted an omitted variable test (Ramsey RESET test) to check if all important variables were included in the model. The test result is in appendix B. The null hypothesis states that the model has no omitted variable. The p-value ($\text{Prob}>F=0.1017$) associated with its F-statistics ($F(3,473)=2.08$) indicates that the coefficient of the test is not statistically significant. Hence, we fail to reject the null hypothesis and conclude that there are no important variables that has been omitted. Again, we conducted a linktest to determine the goodness of fit. The significance of the hat ($p\text{-value}=0.007$) and the insignificance of the hatsq ($p\text{-value}=0.287$) in the appendix D indicates that the model is correctly specified. The multicollinearity test is reported in appendix F. Since the mean variance inflation factor is 1.209, we conclude that there is no collinearity among the variables used. Finally, the Breusch-Pagan/Cook-Weisberg tests conducted shows the presence of heteroskedasticity, hence, the heteroskedasticity-robust standard error approach was employed so as to avoid

misleading results that can affect inferences made (test in Appendix I). The Table 9 presents the actual results of the correlates of compliance burden.

Table 9: Correlates of the Compliance Burden

Inburden	Coef.	Robust standard error
<i>Complexity (Base=Less Complex)</i>		
Complex	0.047	0.097
<i>Audit (Base=Yes)</i>		
No	0.398***	0.091
NTaxes	0.185***	0.044
BusinessSize	0.033***	0.008
<i>Legal_Form (Base=Proprietorship)</i>		
Partnership	0.127	0.134
Company	0.504***	0.115
Age	0.005	0.006
<i>ServiceUsed (Base=Internal Service)</i>		
External Service	0.202**	0.087
Internal & External Service	0.699***	0.119
Tax Knowledge	0.021***	0.003
<i>M_Edu (Base=At most Basic)</i>		
At least Secondary	-0.688*	0.408
Distance	-0.007**	0.003
Constant	1.844***	0.239
<i>F-Statistics</i>	24.52	
<i>Prob > F</i>	0.000	
<i>R-squared</i>	0.384	
<i>Number of observations</i>	485	

R. St. Err. is the robust standard error, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
Source: Avorkpo (2020)

In the Table 9, the coefficient of determination (R-Squared, R^2) measures the predictive power of the model. Again, it shows the proportion of variation in compliance burden which is predicted by a set of independent variables. Specifically, 38.4 percent of the variations in compliance burden is predicted by the tax audit, number of taxes, business size, legal form of the business, the kind of service used, tax knowledge, manager's education, and distance to the tax office. Additionally, it shows the overall measure of strength of association. Also, with an

F-statistics of 24.52 and Prob>F of 0.000, all the independent variables jointly and reliably explained the compliance burden. Meanwhile, the effect of each controlled variable on MESs compliance burden is discussed in the following paragraphs.

Table 9 indicates that though complexity about the tax system was not significant in affecting compliance burden, firms that perceived the tax system to be more complex positively correlate with the compliance burden. Like Cheeseman and Griffi (2005) the growing complexity of the U.S. tax laws creates high compliance burden for households and businesses. For all that, the insignificance of the complexity may be because a complex tax system may create additional compliance burden that provide an opportunity for tax avoidance and evasion (Chattopadhyay et al., 2002; Fischer, Wartick & Mark, 1992). Hence, compliance burden for those who perceive the tax system as complex are likely not going to pay taxes and this will increase the tax gap.

Furthermore, the coefficient of enterprises that are not audited (Audit) is 0.398. This means that holding all other factors constant, enterprises that are not audited spend more (39.8 percent) when complying with Ghana tax policies than firms that are audited. This is significant at a 0.01 alpha level, implying that firms that are not audited may find it difficult to seek advice from the revenue collecting agency (GRA), hence, they will resort to hiring the service of an expert which increases their compliance burden. As well, this is consistent with the expectation in chapter three and the time compliance cost found by Chattopadhyay et al., (2002). Confirmatively, Chattopadhyay et al. (2002) expressed that scrutiny (tax audit in my case) increase compliance costs by most measures.

Number of taxes (NTaxes) are positively related to compliance burden. It has a coefficient of 0.185. This indicates that an additional tax paid by an enterprise increase the firm's compliance burden by 18.5 percent. This is significant at 0.05 alpha level. This is justified by the fact that for each tax paid, the enterprise has to make the necessary preparation towards its payment as well as file returns, all of which comes with rationale as the theory of plan behaviour discussed in chapter two suggested (World Bank et al., 2011). Hence, the compliance burden increases with an increase in the number of taxes.

The size of the business (BusinessSize) is proxied by the number of employees. It has a coefficient of 0.033 and is statistically significant at 0.01 alpha level. This means that an increase in the size of a business turns to have an increase in the compliance burden by 3.3 percent *ceteris paribus*. That is, larger firms are probably engaging in more business activities that require them to honour different tax obligations. Hence, businesses are more likely to significantly spend more time complying with tax policies than businesses with a much smaller size (Smulders, 2013).

Table 9 reveals that the effect of compliance burden on tax gap for partnership firms is 0.127 insignificantly higher compared to the sole proprietorship. Additionally, the compliance burden for companies is 0.504. This means that the compliance burden for companies is 50.4 percent higher than that of sole proprietorship. Regarding the legality of MSEs (Legal_Form), the sole proprietorship spends more time on tax compliance activities, therefore in normal instances, should have a higher compliance burden (Smulders, 2013). But since

companies pay more taxes compared to sole-proprietorship, companies are then likely to outsource these functions hence increase their overall burden. Again, companies are mostly large and engage in more sophisticated business activities which comes with additional tax obligation compared to sole-proprietorship.

Another equally important variable that influences compliance burden is the kind of service used (ServiceUsed) by the MSEs in preparing, paying, and filing tax returns. The kind of service used is a categorical variable with internal service to be the base category. External service has a coefficient of 0.202 and 0.699 for enterprises that uses both services. The 0.202 means that enterprises that use only external service in dealing with tax-related activities, meaning compliance burden increase by 20.2 percent more than enterprises that use only internal services. This coefficient is statistically significant (from zero) at 0.05 alpha level. Similarly, enterprises that used both internal and external services have 69.9 percent increase in their compliance burden compared to enterprises that used only internal service. This is statistically significant at 0.01 alpha level. This is consistent with our expectation because outsourcing (external services) comes with cost that adds up to the firm's overall compliance burden.

Tax knowledge (TK) also has a 0.021 effect on the compliance burden. It implies that a percent increase in tax knowledge score increases the compliance burden by 2.1 percent, all other things being equal. This variable is statistically significant (at 0.01 alpha level) in increasing the compliance burden. Though this defies our a priori expectation, an increased tax knowledge is likely to increase tax compliance (Saad, 2014). Meaning that increase in compliance is associated with a

higher compliance burden since a positive relationship between tax knowledge score and compliance burden was observed.

Additionally, Table 9 shows a reducing effect of the educational level of managers (M_Edu) on the compliance burden. The coefficient 0.688 means that MSEs managed by individuals with at least secondary reduces the compliance burden of the enterprise by 68.8 percent compared to MSEs managed by individuals with at most basic education. This is significant at 0.10 alpha level. This suggests that educated managers facilitate the tax administration process and engage in more tax planning and management compared to managers with at most basic education hence, reduce the firm's compliance burden (Danquah & Osei-Assibey, 2018; Saad, 2014).

Finally, the distance to the tax office (Distance) significantly reduces the compliance burden by 0.007. That is, an additional minute spend in traveling to the tax office significantly reduce the compliance burden by just 0.7 percent *ceteris paribus*. Though negative relationship is different from the expected positive relationship, the negative relationship signifies that firms that are far from the tax office find it difficult to seek for tax advice from the GRA officials. Hence, these firms are likely to evade or avoid tax payment which then reduces their overall compliance because of non-compliance. As these MSEs comply less with the tax laws, there is a proportionate reduction in their compliance burden. Similarly, Appiah (2015) shown that the distance between the tax office and businesses enterprises in the Kumasi metropolis poses a challenge to taxpaying firms, leading

to noncompliance as a result of the cost associated with moving from one's business to the tax office.

In conclusion, it is evident from the preceding paragraphs that the correlates of compliance burden vary significantly with respect to the factors considered. Thus, we conclude that tax audit, number of taxes, business size, legal form of the enterprises, tax knowledge, manager's education level, distance to the tax office and the kind of service used in preparing, paying and filing tax returns are the key variables that significantly determine compliance burden among MSEs in Ghana.

Chapter Summary

This chapter has offered a discussion on tax gap and compliance burden estimates. We examined the effect of the compliance burden on the tax gap as well as the correlates of compliance burden in Ghana. Again, the Chapter also discussed the Regional dynamics and different tax handle estimates. An omitted variable test (Ramsey RESET test), goodness-of-fit and specification test (linktest), and multicollinearity test (variance inflation factor) for the models in Table 7 and Table 9 as well as the correlation matrix were performed. The tests are shown in the Appendices A-G. It is, however, important to note that we failed the heteroscedasticity test due to the fact that there are a number of outliers that calls for the normalization of the data by taking natural logarithms.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

This final chapter presents a summary of the research problem, its purpose, methodology, and empirical findings. We also conclude on the key research findings. Specific policy recommendations were made to specific public institutions and businesses. The chapter ends with the limitation encountered and unveil new areas for future studies.

Summary

The resort to the formulation and implementation of efficient and effective tax policy to mobilize revenue domestically has been widely given attention due to its potential of raising large sums of revenue without having to source this externally which comes with conditions and conditionalities. It is against this background that we investigated the compliance burden and tax gap among micro and small-scale enterprises in Ghana. Specifically, we sought to:

1. compute and analyse the difference in tax gap for micro and small enterprises in Ghana
2. evaluate the effect of compliance burden on the tax gap among MSEs
3. examine the effects of compliance burden on the tax gap in the Greater-Accra, Ashanti and Northern region of Ghana

4. determine the effects of compliance burden on the tax gap for the different tax handles

The study used the economic base theory and the theory of planned behaviour reviewed in understanding the estimates of tax gap and the selection of socio-demographic variables. The quantitative research design which follows the positivist philosophy was adopted. In all, 485 MSEs were used for the analysis. The data type and source were presented and how each objective was achieved was also critically examined. A student t-test and an OLS were employed to examine the objectives. This regression analysis uses the estimation technique that minimizes the sum of square residual in its estimation.

The objectives were achieved by conducting a chi-square test, student t-test and an Ordinary Least Square regression. Chi-square test was conducted to determine the association between the characteristics of MSEs. In line with the objective one, the student t-test was conducted to test the significant difference in tax gap and compliance burden between micro and small enterprises. Finally, an OLS regression was used to examine the effect of the compliance burden on the tax gap, the regional dynamics and for different tax handles. It was also used to reconnoitre the correlates of MSEs compliance burden in objective two and three. The omitted variable test, specification test and the multicollinearity test were conducted to ensure that the models were well specified to produce robust estimates. In Appendix G, we present the correlation matrix.

Conclusions

The following conclusions were made;

1. Huge Tax revenue potential was observed among MSEs. It is established that the compliance burden of small enterprises is twice that of the micro enterprises (micro taxpayers). Similarly, micro-enterprises overpay tax while small-enterprises underpay tax.
2. The tax compliance burden of MSEs increases the tax gap (revenue loss) in Greater-Accra and Northern region and across PIT and VAT gap. Also, the compliance burden for MSEs that is not audited is 39.8% higher than those that are audited. Again, the number of taxes increases the compliance burden of MSEs by 18.5%.
3. The study concluded that the following factors are the correlates or determinant of tax compliance burden among MSEs in Ghana; tax audit (scrutiny), number of taxes, business size, legal form of the enterprises, tax knowledge, managers education level, distance to the tax office and the kind of service used in preparing, paying tax and filing returns.

Recommendations

The following recommendations were made;

The Domestic Tax Revenue Division (DTRD) of the GRA should intensify tax collection in especially areas where the tax gap is positive. Also, the DTRD should consider the NBSSI classification of businesses to classify businesses as registered “micro taxpayers” and registered “small taxpayers”. That is, the

consideration of all enterprises with an annual turnover of GHC90,000 or less as “small taxpayers” should be relaxed. This is because we observed that enterprises having an annual turnover of GHC90,000 or less as well as having a total workforce of less than six (6) (micro taxpayers) overpay tax while enterprises with an annual turnover of GHC90,000 or less and have workforce between five (5) and 30 (“small taxpayers”) underpay tax. It is therefore clear that policies implemented to affect the existing “small taxpayers” may not yield its intended purpose if this is not revised.

Again, the small taxpayer division of the GRA should intensify their tax auditing or scrutinizing work so as to reduce MSEs compliance burden. This is because we observed a reduction in the tax compliance burden of MSEs that were audited. Therefore, a reduction in compliance burden emanating from tax audit reduces revenue loss (tax gap).

Furthermore, because the number of taxes is significant in increasing the compliance burden of MSEs, we recommend to the GRA through the DTRD that the number of taxes (CIT, PIT and VAT) to be paid by MSEs taxpayers should be harmonized. This will then reduce the compliance burden (Andoh & Cantah, 2020) and hence, increase tax compliance so as to reduce tax gap (revenue loss). For instance, the lumping together of the 2.5 percent NHIL to form the VAT rate, 12.5 percent on the value of the taxable supply of goods or services and 2.5 percent GetFund Levy has helped in reducing VAT compliance burden.

To the managers and owners of MSEs, we recommend that they recruit individuals with at least secondary education to manage their enterprises and tax-

related activities. Because managers with such educational attainment can reduce the compliance burden up to 68.8 percent compared to those with less than secondary education. Also, managers and owners of MSEs should recruit tax experts to be part of their internal staff and not only outsource them. However, a combination of these services by a firm was observed to shut up the firms' compliance burden instead of reducing it.

Limitation of the Study

The potential tax is computed as a percentage of firm's turnover. Thus, the specific tax rates were applied the turnover to capture the potential tax. Therefore, the potential tax may not necessarily depict the actual percentage of the MSEs' profit that should be taxed. This issue could have minimal effect on the tax gap estimated in this study. However, this estimate is largely assumed to be true because most, if not all, the MSEs may not disclose their actual profit made.

Suggestion for future Study

Due to the scope of this study, the researcher was unable to compare registered and unregistered taxpayers. It is recommended that a study be conducted using registered taxpayers and non-registered taxpayers with the tax stamp to establish and unfold more revenue potentials of the country.

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APPENDIX

A: Omitted Variable Test for Table 7

Ramsey RESET test using powers of the fitted values of lnTaxGap

Ho: model has no omitted variables

$F(3, 473) = 1.26$

Prob > F = 0.2874

B: Omitted Variable Test for Table 9

Ramsey RESET test using powers of the fitted values of lnBurden

Ho: model has no omitted variables

$F(3, 469) = 2.08$

Prob > F = 0.1017

C: Linktest and Goodness-of-Fit-Test for Table 7

lnTaxGap	Coef.	Std. Err.	t-test	P>t	[95% Confidence Interval]	
_hat	0.741	0.220	3.36	0.001	0.308	1.174
_hatsq	0.947	0.678	1.40	0.163	-0.384	2.279
_cons	-0.012	0.026	-0.47	0.642	-0.064	0.039

D: Linktest and Goodness-of-Fit-Test for Table 9

lnTaxGap	Coef.	Std. Err.	t-test	P>t	[95% Confidence Interval]	
_hat	1.638	0.602	2.72	0.007	0.455	2.821
_hatsq	-0.075	0.070	-1.06	0.287	-0.2130	0.063
_cons	-1.322	1.265	-1.05	0.296	-3.808	1.163

E: Multicollinearity test (VIF) for Table 7

	VIF	1/VIF
M Sex	1.045	0.957
Education	1.090	0.917
Location	1.033	0.968
MSE	1.180	0.847
Age	1.046	0.956
Burden	1.117	0.895
Complexity	1.017	0.983
Sectors	1.029	0.972
Mean VIF	1.070	

F: Multicollinearity test (VIF) for Table 9

	VIF	1/VIF
Complexity	1.109	0.902
Tax Audit	1.146	0.872
NTaxes	1.493	0.670
Employees	1.251	0.799
Partnership	1.134	0.882
Companies	1.727	0.579
Experience	1.035	0.967
External Service used	1.151	0.869
Both internal and external used	1.176	0.851
Tax Knowledge	1.119	0.894
M Edu	1.069	0.936
Distance	1.105	0.905
Mean VIF	1.209	

G: Heteroskedasticity Test for Table 7

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of lnTaxGap

Chi2(1) = 255.11

Prob > chi2 = 0.0000

H: Heteroskedasticity Test for Table 9

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of lnBurden

Chi2(1) = 2.98

Prob > chi2 = 0.0845

I: Correlation Matrix for the regression models

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Burden	1.00															
2. Tax Gap	0.12	1.00														
3. Complexity	-0.01	0.05	1.00													
4. Tax Audit	0.00	-0.03	-0.01	1.00												
5. N. of Taxes	0.26	0.28	0.18	-0.22	1.00											
6. Business Size	0.34	0.26	0.06	-0.13	0.24	1.00										
7. Legal form	0.26	0.33	0.02	-0.24	0.51	0.39	1.00									
8. Firms' Age	0.13	0.01	0.03	-0.02	0.09	0.14	0.06	1.00								
9. Service Used	0.18	-0.03	-0.11	-0.17	0.05	0.07	0.14	0.02	1.00							
10. Tax Knowledge	0.21	0.18	-0.01	-0.07	0.12	0.23	0.21	0.05	0.08	1.00						
11. Managers Edu	-0.05	-0.02	0.12	0.13	-0.07	-0.02	-0.08	0.05	0.07	-0.02	1.00					
12. Distance	-0.12	-0.04	-0.07	-0.14	0.08	-0.04	-0.04	-0.06	-0.09	-0.14	-0.12	1.00				
13. Managers Sex	-0.04	-0.03	-0.01	0.08	-0.17	-0.10	-0.19	-0.13	-0.07	-0.10	-0.02	0.14	1.00			
14. Location	-0.05	-0.04	-0.02	-0.03	-0.11	-0.06	-0.06	-0.04	0.12	-0.05	0.06	0.14	0.01	1.00		
15. MSE	0.22	0.31	0.10	-0.14	0.30	0.72	0.38	0.15	0.03	0.22	-0.04	0.02	-0.09	-0.01	1.00	
16. Sectors	0.05	0.02	0.07	-0.05	0.03	0.04	-0.07	0.02	-0.04	0.03	-0.03	-0.05	0.12	-0.08	0.03	1.00