THE IMPACT OF TRADE POLICY REFORMS ON INTERNATIONAL TRADE TAX REVENUE IN GHANA

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DECLARATION

I, AFUA AMPONSAA ASOMANING, hereby declare that this thesis is original research undertaken by me under the guidance of my supervisors; and except for references to other scholarly works dully cited, it has neither in part nor in whole been submitted for another degree elsewhere.

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ABSTRACT

The trade sector is generally considered as one that can set the stage for the development of an economy, as evidenced by the immense economic developments attained by Japan and China as a result of their good performance in the trade sectors.

Ghana had hopes of achieving such success in the trade sector owing to the abundance of natural resources in the country but within 25 years of independence, the economy had cave in as a result of poor economic performance in the trade sector. Reforms were put in place to salvage the situation with minimal success.

This study analyses the impact of trade policy reforms on international trade tax revenue in Ghana from the period 1980 to 2017. The Autoregressive Distributive Lag (ARDL) model is employed to estimate the long-run relationship among the variables and further, the short-run dynamics of the variables are examined using the Error Correction Model (ECM). The empirical results show that whereas trade openness has a positive and significant effect on international trade tax revenue in both the long-run and short-run models, the average tariff rate influences international trade tax revenue positively in the short-run but adversely in the long-run. Also, a Pairwise Granger Causality test is performed to determine the causal relationship between trade openness, average tariff rate, and international trade tax revenue, we found unidirectional causality running from trade openness to international trade tax revenue.

In conclusion, the results suggest that Ghana should utilize the benefits accompanying trade policy reforms without apprehension about its effects on trade tax revenue.

DEDICATION

This thesis is dedicated to God Almighty, my loving parents, Dorothy (of blessed memory) and Kofi and to my siblings Abena and Nana Yaw for being a constant source of support and encouragement throughout my studies.

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Finally, I wish to emphasize that I carry the responsibility for any errors detected in my work, I also welcome comments, suggestions and any constructive criticism.

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ACRONYMS AND ABBREVIATIONS

ACP	African, Caribbean and Pacific countries
ADF	Augmented Dickey-Fuller
AGOA	African Growth and Opportunity Act
ARDL	Autoregressive Distributive Lag
BOT	Balance of Trade
BOP	Balance of Payments
CET	Common External Tariff
CIF	Cost, Insurance and Freight
CUSUM	Cumulative sum
CUSUMSQ	Cumulative sum of squares
ECM	Error Correction Model
ECOWAS	Economic Community of West African States
EPA	Economic Partnership Agreement
ERP	Economic Recovery Programme
ETLS	ECOWAS Trade Liberalization Scheme
EU	European Union
FDI	Foreign Direct Investment
GATT	General Agreement on Tariffs and Trade
GCMS	Ghana Customs Management Systems
GCNet	Ghana Community Network
GEPA	Ghana Export Promotion Authority
GPHA	Ghana Ports and Harbour Authority
GDP	Gross Domestic Product
GMM	General Method of Moment

GNP	Gross National Product
H-O	Hecksher-Ohlin
IMF	International Monetary Fund
MFN	Most Favoured Nation
MLGRD	Ministry of Local Government and Rural Development
MOFA	Ministry of Food and Agriculture
MOFEP	Ministry of Finance and Economic Planning
MOTI	Ministry of Trade and Industry
NTBs	Non-Tariff Barriers
NTE	Non-Traditional Export
1D1F	One District, One Factory
PED	Price Elasticity of Demand
PERD	Planting for Export and Rural Development
PSI	Pre-Shipment Inspection
VAR	Vector Autoregressive
VECM	Vector Error Correction Model
SAP	Structural Adjustment Programme
SSA	Sub-Saharan Africa
TSSP	Trade Sector Support Programme
WB	World Bank
WDI	World Development Indicators
WTO	World Trade Organisation

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Tax revenue is an important source of income to national governments because it aids the provision of basic necessities, such as infrastructure, education, health, and security. Moreover, with the advent of privatization in many countries tax revenues have gained more importance in recent years (Sasmaz and Bayar, 2017). Tax revenue may be defined as government revenue obtained from direct and indirect taxes based on the tax incidence or domestic and international trade taxes based on the source (Kassim, 2016). This is further broken down into various components including taxes imposed on income, profits and capital gains, social security contributions, payroll taxes, property taxes, domestic taxes levied on local goods and services, customs duties and other taxes (Karimi et al., 2016; Kassim, 2016; OECD,2012). International trade taxes comprise of government proceeds acquired from custom duties (imports and exports) (Karimi et al., 2016; Kusi, 1998).

At the initial stages of economic development in a country, trade taxes constitute an important source of revenue for the government (Moller, 2016). Most of the world's industrial economies depended heavily on trade taxes to raise revenue to fund their modern state administrations (Moller, 2016). For instance, to fund civil wars in the United States of America tariff levels escalated (Moller, 2016; O'Rourke, 2000) and Australia had over 75% of their tax revenue emanating from trade by the end of the 19th century (Moller, 2016; Levi, 1988).

Some benefits associated with trade include opening up economies and integrating them into a global economic environment as well as improving economic performance (Vacu and

Odhiambo, 2017; Nwosa et al, 2012; Rajaram, 1994). Adam Smith argued that trade increases specialization, which affirms the notion that trade is highly correlated with economic performance, measured by economic growth. According to the theory of comparative advantage, trade enables an economy to use its resources more efficiently by ensuring goods and services are produced at a relatively lower cost, and thus exported (Tripathi, 2016). John Stuart Mills, Professor John Hicks, and Haberler who are renowned economists outlined some potential impacts on economies that partake in international trade. They include, growth in real income resulting in a high standard of living, market expansion and improved productivity giving rise to economies of scale, prospective increase in growth, access to technological knowledge, stimulates investment thus promoting capital formation, allows for import of foreign capital, enhance healthy competition for export sector development and promote efficient use of resources.

In the quest to attain an optimal level of economic growth, many countries are confronted with ways of mobilizing revenue to meet growing expenditure needs (Gupta, 2008). Regrettably, most developing countries are faced with inadequate revenue mobilization strategies and tax administration challenges, and as a result, rely heavily on trade tax revenue and borrowing (Kassim, 2016; Hisali, 2012). However, from the early 1980s to recent years many developing nations have embarked on substantial trade policy reforms (Dean et al., 1994). Trade policy can be described as laws, regulations, and agreements governing the conduct of trade.

In Ghana's case, before independence, it was a member of the sterling zone under the British colonial era, where a fairly liberal payment regime was in operation (Vacu and Odhiambo, 2017). After which, an import substitution industrialization (ISI) policy was implemented

(Laryea & Senadza, 2017). This involved the imposition of restrictions on international trade in the form of high tariffs, export taxes and quotas as well as an import licensing scheme.

Unfortunately, from the 1970s to early 1980s, Ghana faced major economic difficulties which led to social and political instability and thus the inability of different governments and other economic agents to pursue lasting plans in the economy. Various studies conducted suggest that these socio-economic crises were due to domestic policy mismanagement, poor international trade relations, natural disasters such as severe bush fires due to prolonged drought and incidental famine, as well as the arrival of about a million of Ghanaians from Nigeria in 1983 (Vacu and Odhiambo, 2017; Laryea & Senadza, 2017; Laryea & Akuoni, 2012; Brafu-Insaidoo et al, 2008).

To alleviate the crises, the Government of Ghana resorted to the International Monetary Fund (IMF) and the World Bank (WB) for assistance in 1983 (Laryea & Senadza, 2017; Laryea & Akuoni, 2012; Brafu-Insaidoo et al, 2008). The policy-based lending programme of such organizations called for more liberal trade regimes (Jones et al., 2011). The International Monetary Fund (IMF) and World Bank (WB) Structural Adjustment Programme (SAP) and Economic Recovery Programme (ERP) focused on four main objectives: a stabilisation component to reduce inflation and moving towards a trade deficit consistent with the available funds, institutional reforms to correct price incentives and further integrate the Ghanaian economy with the world economy, rehabilitation of social and physical infrastructure and encouraging the growth of private investments. The reforms were however funded through external aid, soft loans and credit (Laryea & Senadza, 2017; Brafu-Insaidoo et al, 2008).

A number of actions including harmonizing tariffs, abolishing tariffs, getting rid of some other restrictions, exchange rate changes, as well as bringing in new forms of trade facilitation enhancing schemes were undertaken to reinforce the reforms that took place. Cocoa prices were gradually boosted up to 60% of the world price and private participation and investment in the cocoa sector was encouraged. Efforts were made to widen the base of exports from just cocoa, timber and minerals to include more products (Vacu and Odhiambo, 2017; Laryea & Senadza, 2017).

The import licensing scheme was scrapped and replaced with import tariffs. Further liberalisation led to the development of a four-band tariff structure with raw materials attracting the least tariffs and finished goods attracting the most. In addition, there was high participation in regional trading arrangements with preferential tariffs and Economic Partnership Agreements (EPAs) by developing countries (Laryea & Akuoni, 2012). The adoption of these policies raise concerns about their implication on trade tax revenue since it is an important source of revenue to the government of Ghana.

Ghana's trade policy in recent years is geared towards export promotion, specifically, to achieve growth of non-traditional exports (NTE) by 20% each year and NTE value of $5.3 billion by 2021(GEPA, 2017). Therefore, there is a need to improve the competitiveness of Ghana's exports by providing a liberalized environment which encourages domestic exporting firms to equally compete in domestic and international markets (Laryea & Akuoni, 2012). Also, trade policy in Ghana has been shaped by the World Trade Organization (WTO) which succeeded the General Agreement on Tariffs and Trade (GATT) and, trade agreements between Ghana and major trading partners as well as the country's own economic development policy (Laryea & Senadza, 2017; Laryea & Akuoni, 2012).

Additionally, it is deemed that a small country benefits more from trade openness than a large country because trade forms a substantial proportion of their Gross Domestic Product (GDP) and as such engaging in more liberal trade policies could lead to specialization, efficient allocation of resources, improvement in the welfare of consumers and increased privatization.

Though similar studies have been conducted on this topic, the majority of such studies are on cross-country basis and as such conclusions do not truly reflect the impact on individual countries, due to country-specific trade policies and institutional reforms. As such policy implications suggested by such literature, may not be well rounded or suitable for each country hence the need for country-specific studies in the context of the Ghanaian economy. To buttress this, Bhagwati and Srinivasan (1976) who are renowned advocates of free trade reject cross-country regressions for more in-depth case studies on the impact of trade reforms.

This study seeks to analyse the impact of trade policy on international trade tax revenue in Ghana. In Africa, Ghana has had one of the longest experiences in relation to structural adjustment and economic recovery which included trade policy reforms and stabilization packages. The specific trade policy reforms comprised exchange rate policy reform, tariff reform, import liberalization, export incentives, improved institutional support for exporters (insurance, financing, promotion) and specific programmes to major export and import saving sectors. This emphasizes the need to assess how far Ghana has come under these trade policy reforms.

1.2 Statement of the Problem

From the background it is clear that in the past trade was very restrictive in Ghana. The main aim for imposing restrictions such as export taxes on cocoa was to generate revenue for the government but import tariffs were essentially to protect domestic industries however, this also generated revenues for the government (Laryea & Senadza, 2017).

In recent years, policy reforms have been guided by the overall objective that by freeing up trade, the world gets a higher standard of living. Reforms in trade policy include tariff adjustments and reductions, import liberalisation, deregulation of domestic market prices and controls, institutional reforms with respect to revenue generating bodies such as Customs Exercise and Preventive Service (CEPS), and exchange rate reforms. The net welfare effect of such trade policy reforms on revenue in developing countries has attracted considerable attention in the literature, because, most of them are heavily dependent on trade tax revenue (Karimi et al., 2016; Kassim, 2016; Immurana et al., 2013).

In the context of the Ghanaian economy, majority of exports attract no taxes and average tariff level keeps declining (Laryea & Senadza, 2017). Theoretically, the effects of these policies on trade tax revenue are difficult to determine a priori because these measures can either affect international trade tax revenue positively or adversely in the long-run (Hisali, 2012; Brafu-Insaidoo et al, 2012). Trade policy reforms aimed at replacing quantity restraints with tariffs can cause an upsurge in trade tax revenue (Agyei et al., 2018; Immurana et al., 2013; Hisali, 2012; Dean et al., 1994). However, further trade policy reforms characterized by tariff reductions and unification can lead to a decline in trade tax revenue or, alternatively, cause import volumes to rise and consequently, the tax base and revenue to do so as well (Agyei et al., 2018; Immurana et al., 2013). Yet, the net effect is determined by many factors including

the elasticity of demand for imports, the initial trade regime, political, economic and structural conditions (Ahmad et al., 2018; Brafu-Insaidoo & Obeng, 2012; Obeng et al, 2011).

Although in Ghana trade policy reforms have resulted in marginal increases in international trade tax revenue in nominal terms, international trade tax revenue as a percentage of government revenue has not been very encouraging. Before ERP, trade tax revenues contributed to over 40% of government revenue. After implementing ERP in 1983, trade tax revenue as a share of government revenue shot up to 45% as expected. However, by the year 2005, this reduced significantly to 18% and then further fell to an average of about 13% in 2017. Also, trade tax revenue as a share of GDP remains minimal at an average of 2.5% compared to the year 1987 where it peaked at 3.5% during the early stage of implementing trade policy reforms (Kusi, 1998; Jebuni et al,1994; MOFEP,2018).

Evidence of similar studies on this topic in Ghana includes, research by Oduro (2000) and Jebuni et al. (1994). However, these studies were based on descriptive analyses. Regression models were not employed to investigate the impact of trade policy reforms on international trade tax revenue.

More so, Obeng et al. (2011) conducted a study using the decomposition analytical approach to investigate the decomposed analysis of import tax changes in Ghana. They established that as a result of lowering the average level of official duty rate, Ghana was confronted with some declines in revenue. Conversely, Brafu-Insaidoo and Obeng (2012) employed regression analysis to study the impact of import liberalization on import tariff yield in Ghana by estimating the buoyancy and elasticity of the import tariff for pre-reform and reform episodes. Their findings affirmed the notion that tariff reforms result in increases in tariff revenue yield.

Although both studies used the same sample period of 42 years from 1965 to 2007, they obtained contradictory results. Armah et al. (2014) also analysed the effect of trade liberalization on import revenue in Ghana. All three studies focused solely on import taxes ignoring export taxes in their analysis.

Furthermore, Immurana et al (2013) assessed trade liberalization and its impact on tax revenue and found a positive impact. However, they could not carry out the analysis on individual tax components because they failed to account for the various components of total tax revenue. This implies their work does not clearly measure the impact of trade policy reforms on trade tax revenue. Also, in their analysis, the real exchange rate was used as a control variable which may not wholly capture the macroeconomic effect because Ghana engages in both bilateral and multilateral trade hence the real effective exchange rate would have been an appropriate measure.

A more recent study by Agyei and Amankwaah (2018) on trade tax revenue and trade openness in Ghana showed that trade openness has a positive effect on trade tax revenue. Yet, this study employed the Johansen and Jesulius (1990) cointegration approach for the period 1986-2012. This approach is based on Vector Autoregressive (VAR) methodology which causes an over-parameterized model and thus, presented a challenge when reducing it to a more parsimonious model to depict reality (Hisali, 2012).

Now considering that different methodologies and different variables have yielded different outcomes and variables used were not adequate to capture trade policy reforms, and the period was not long enough to capture the full effect therefore we employ a new approach and extend the period under study.

To bridge the gap in the literature, this study employs the Autoregressive Distributive Lag (ARDL) Bounds Testing Technique to assess the impact of trade policy reforms on international trade tax revenue in Ghana, and captures the long-run relationship between trade policy variables like the tariff rate; trade openness (sum of imports and exports divided by GDP) and international trade tax revenue. Also, the sample period is extended to cover the years 1980 to 2017. The ARDL approach yields an unbiased estimate for long-run coefficients in the regression equation which are asymptotically normal as well as a valid t-statistics (Harris, 2003). Besides, it has good small sample properties compared to alternative techniques.

1.3 Research Questions

This study seeks to find answers to the following questions:

i. What is the effect of trade openness, tariff rate changes on international trade tax revenue in Ghana?
ii. Does a causal relationship exist between trade openness, tariff rate, and international trade tax revenue?

1.4 Objectives of the Study

The principal objective of this study is to examine the impact of trade policy reforms on international trade tax revenue in Ghana. The specific objectives include;

i. To examine the effect of trade openness, and the tariff rate on international trade tax revenue in Ghana.
ii. To test the causality between trade openness, tariff rate, and international trade tax revenue.

1.5 Significance of the Study

This study gives more insight into the impact of trade policy reforms on international trade tax revenue in Ghana. Additionally, it provides quantitative evidence on the link between tariff rate changes, trade openness and international trade tax revenue in the long-run.

Moreover, similar to Hisali (2012) study on Uganda, this will aid policy-makers in their quest to mobilize more revenue, to consider adopting policies that will not be detrimental to the welfare of citizens, as well as, enlighten economic agents on the need to ensure that appropriate institutions and customs modernization schemes are put in place to safeguard the effectiveness of trade and structural reforms.

It will also be useful to economic agents in understanding the revenue implications associated with joining Trade Agreements and Arrangements for control and regulation purposes (Kassim, 2016).

1.6 Organisation of the Study

The study is structured into five (5) chapters. Chapter one (1) covers the introduction which will provide the background, statement of the problem, research questions, objectives, significance, and organization of the study. Chapter two (2) presents an overview of trade policy and trade tax revenue in Ghana. Chapter three (3) centres on the literature review synthesising theoretical and empirical literature on the topical issue. Chapter four (4) focuses on the methodology and empirical findings of the study and Chapter five (5) encapsulates the conclusion, policy implications and recommendations of the study.

CHAPTER TWO

OVERVIEW OF TRADE POLICY AND INTERNATIONAL TRADE TAX REVENUE IN GHANA

2.1 Introduction

This chapter presents an overview of trade and revenue in Ghana by using various sources of literature. Ghana's trade system has experienced several changes as a result of policy measures implemented by different governments. This study, therefore, looks at the implementation processes of the trade policies and their effect on international trade tax revenue in the Ghanaian economy. Furthermore, trends in international trade tax revenue, trade indicators, and some macroeconomic variables will be explored.

2.2 Trade Policy and International Trade Tax Revenue in Ghana

2.2.1 Trade Policy Prior to ERP and SAP

Discussions under this section are based on various literature including Vacu and Odhiambo, (2017); Laryea and Senadza (2017); Laryea & Akuoni (2012); Harvey & Sedegah (2011); Brafu-Insaidoo (2008); Ocran et al (2006); Jebuni et al. (1994).

In the 1950s, Ghana operated a fairly liberal payments regime. Under this regime, Ghana was a member of the Sterling zone and as such was obliged to adhere to currency prescriptions for the area. Payments to and from member countries of the sterling zone were relatively free compared to those with non-member countries which were restricted. During part of this period, export prices improved, so reserves were accumulated. After attaining independence in 1957, Ghana became a member of the General Agreement on Tariffs and Trade (GATT)

now the World Trade Organisation (WTO). Consequently, there was a need for active government participation in the economy as a result of the economic policies which were being enacted.

During the consolidation period from 1957 to 1959, projects which began during the five-year colonial plan were completed and the process of developing the first five-year post-independence plan was initiated. This plan required massive investment in domestic industries and hence, resulted in substantial increases in government expenditure, specifically, capital expenditure and high import demand which led to huge budget deficits, current account deficit and a strain on Ghana's foreign exchange reserves. The foreign account deficit increased from US$19.4 million to US$94.9 million and further to US$135.1 million in 1959, 1960 and 1961 respectively.

A controlled regime was put into effect in 1961 which aimed at attaining economic growth, and in effect respond to the balance of payments crises. This period witnessed the introduction of an austerity budget and an increase in taxes. To curb the alarming fiscal deficit situation, foreign exchange controls, as well as a comprehensive import licensing scheme, was put in place. The Exchange Control Act (Act 71) was passed in July 1961 due to deterioration in the foreign exchange reserves. Additionally, quantitative restrictions which were implemented through the issue of import licenses in December 1961 could not be auctioned or resold.

The seven-year development plan was implemented in 1963/64. This also involved massive increases in government expenditure due to the adoption of the import substitution industrialization strategy. The government had to resort to the imposition of trade restrictions in order to sustain the balance of payments and the protection of domestic industries.

Alternatively, the government had to increase external borrowing significantly to curtail the decline in foreign exchange reserves. This resulted in macroeconomic hardships.

A liberalized import regime was introduced in July 1967 which continued till 1971. This period observed a devaluation of the domestic currency by 43% as well as an introduction of an austerity budget. More so, this resulted in an increase of about 17% in government tax revenue from 1967 to 1970. This increase in tax revenue was largely associated with increases in revenue from international trade taxes, particularly, export taxes on cocoa. In real terms, revenue from international transactions increased by 23%, 13%, 18% and 16% in 1967, 1968, 1969 and 1970 respectively. Although government tax revenue augmented, due to the devaluation, import volumes decreased and hence, real import tax revenue by 2% and 22.8% in 1967 and 1968 respectively. Consequently, in 1969 import surcharges were instituted. By 1969, import values and revenues improved owing to the real exchange rate appreciation. Additionally, import tariff rates decreased from 55.48% in 1966 to 47.29% in 1967. It decreased further to 36% and then to 32% in 1968 and 1969 respectively and by 1970 increased marginally to 37.73%. Likewise, the export tax rate also waned. The period 1970 also witnessed the imposition of a special development levy on imports.

For the period 1971, Ghana recorded an upsurge of about 26% in government revenue from import taxes. Unfortunately, world prices of cocoa decreased drastically from US$997 to US$565 thus, reducing revenue obtained from export duties on cocoa by 21.1%. Consequently, the decline in international trade tax revenue resulted in a fall in total tax revenue by 5%. This compelled the government to devalue the currency by 44% in December 1971. By 1972, the first cycle of Ghana's trade policy ended with a political overthrow and the adoption of control measures.

Subsequently, in 1972 Ghana's trade policy regime was one which typified strict import controls. This involved a 26% revaluation of the currency by the new government. However, the currency revaluation could not wholly annul the real effective exchange rate depreciation that stemmed from the devaluation in 1971 hence, the net devaluation was held up at 28%. Also, despite the increase in tax rates, tax revenues shrunk from the period 1971 to 1973 as a result of the decrease in international trade taxes. Moreover, the heightened occurrence of smuggling hindered import volumes and exports growth, causing erosion of both the export and import tax bases.

Furthermore, in 1974 and 1975, revenue accrued by the government from export duties increased by 56% and 15% respectively. This can be attributed to an upsurge in the price of cocoa on the world market. Similarly, import tax revenue improved by 26% in 1974 but fell marginally in 1975 by 2%. Generally, international trade taxes rose by 43% in 1974 and an additional 15% in 1975 thus, enhancing total tax revenue by 21%. However, real GDP declined in 1975 by 13%. As a result of the falling tax base and controlled system, total tax revenue in real terms decreased during the period 1976 to 1982.

During the year 1982 real government revenue, imports and cocoa export volumes reduced to their lowest level since 1960. Import and export tax bases decreased from their 1974 levels of 19.5% and 10.6% respectively to 6.8% and 2.5% correspondingly in 1982. These failures were attributed to government policies, a rise in the movement of economic pursuits from official channels to parallel markets, overvaluation of the exchange rate, commodity shortages, increase in the price of basic commodities and smuggling. Additionally, government expenditure increased in contradiction to budgetary statements. On the whole, there were serious foreign exchange constraints and a general decline in the economic status of the

country. These circumstances required the adoption of the Economic Recovery Programme (ERP) and Structural Adjustment Programme (SAP) prescribed by the World Bank and International Monetary Fund (IMF) in 1983 which aimed at using price instruments to replace quantitative trade restrictions and a move towards a more liberal trade regime (Harvey & Sedegah, 2011; Brafu-Insaidoo, 2008). This was referred to as the export-led industrialization strategy.

2.2.2 Trade Policy under ERP and SAP

Trade policy reforms under the Economic Recovery Programme (ERP) and Structural Adjustment Programme (SAP) involved elimination of quantity restraints, tariff reforms, liberalization of imports and foreign exchange, and institutional reforms. The objective of these reforms was to promote exports and enhance exchange controls (Laryea & Akuoni, 2012). The reforms have been classified into three phases by Brafu-Insaidoo and Obeng (2008) which are;

Phase	Period
Phase I- Attempted liberalization regime	1983–1986
Phase II- Import liberalization regime	1986–1989
Phase III- Liberalized trade regime	after 1989

These phases are explained in detail below.

Phase I- Attempted liberalization/transition to import liberalization (1983–1986)

The transition to import liberalization began in April 1983, when a multiple exchange rate system was instituted. Also, owing to the drought and overall economic failure tax revenues decreased by 4.6% in 1983 and a system of bonuses and surcharges were initiated in this period.

However, depreciation of the real exchange rate arising from the nominal devaluations reinforced confidence in the liberalization process. Subsequently, there was a downward adjustment of tax schedules thus; import tariffs declined from a high rate of 35 %, 60% and 100% before 1983 to 10%, 20%, and 25% respectively (Ocran, 2006). Moreover, there was a reduction in the number of import restrictions although the import licensing scheme and import programming range of rates were maintained.

Generally, with the exception of special licenses which attracted a tax rate of 50%, the period 1983 to 1985 recorded a stable tax structure. Besides, the incessant currency depreciation and making high price outlays to cocoa farmers caused export volumes to increase, resulting in a boost in export tax revenue. Consequently, real GDP growth caused a steady increase in virtually all sources of government revenue from 1984 to 1988.

Phase II- Import liberalization regime (1986–1989)

During this period, due to auctioning and further exchange rate liberalization there was a unification of the dual exchange rate. The import licensing categories were redefined in 1986 owing to the new exchange rate system hence, import tax schedules and sales tax charged on imports declined by 10 percentage points (Harvey & Sedegah, 2011; Brafu-Insaidoo, 2008). In addition, with the exception of luxury goods the import tax rates on all other classes of commodities in Ghana reduced significantly by a range of 5 to 10 percentage points in 1986 (Jebuni et al, 1994). By the year 1987, there was a reduction in the cocoa export tax rate even as the foreign exchange liberalization retention scheme was pursued.

Again, in 1988 cocoa production recorded a decline of 6.8%. The decline in cocoa exports coupled with a fall in the world market price for cocoa resulted in a reduction in export tax revenue by 31% and consequently, international trade taxes by 15.8%.

Additionally, there was a complete abolishment of the import licensing scheme in 1989 hence the major instruments employed in implementing trade policy were the exchange rate and international trade taxes. Furthermore, abolishing the import licensing system resulted in significant reductions in import cost owing to the removal of the Special Development Levy and import licensing fees.

Overall, this regime to a large extent witnessed increases in government revenue which can be attributed to amendments in policy and how the economy responds to the change, widening of the tax base, and enhanced efficiency in tax collection through tax farming and proper tax administration design. However, budget deficits persisted for the entire period.

Phase III- Liberalized trade regime (after 1989)

Pertaining to this period, in the foreign exchange market retail auctioning was replaced with wholesale auctioning in 1990 and a floating exchange rate system was instituted as well. Additionally, there was a 5 percentage point reduction in the import tax charged on raw materials and capital goods coupled with a fall in sales taxes on basic consumer imports to promote local production. Consequently, the import tariff charged had a simple average of 17% and consumer goods had a maximum of 25% duty rate levied on them. This period also witnessed the imposition of protective duty rates on specific commodities and the elimination of the export retention scheme in 1990 and 1994.

2.3 Trade Policies Enacted Overtime in Ghana

2.3.1 Ghana's Trade Policy 2004: Trade Sector Support Programme (TSSP)

Ghana's long-term goal of achieving middle income status by 2012 led to a new trade policy being introduced in 2004. The policy, consistent to WTO rules provide a guide for the Government in implementing its domestic and international trade agenda. It is also to ensure a stable environment for the private sector. The policy emphasized two parallel strategies, both export led and a domestic market led industrialisation strategy. These strategies supported by increasing the competitiveness of local producers in the domestic and international market and by introducing an import and domestic trade regime to protect consumer interest (Laryea & Senadza, 2017; Osei-Assibey, 2015).

The TSSP refers to a plan which provides a comprehensive framework to implement Ghana's trade policy. The plan was implemented for a five-year period, starting from January 2006 to December 2010 through a public-private partnership. Also, TSSP was established to aid the expansion of Ghana's productive base rapidly and strategically. It was aimed at influencing sustainable growth, incomes, and employment of the Ghanaian populace. To achieve this, there was a need to enhance Ghana's competitiveness in both domestic and international markets.

The TSSP comprised of twenty-seven (27) objective projects which were integrated thus, encompassing ten (10) thematic areas including: Multilateral Trade, Import-Export Regime, Trade Facilitation, Production Capacity, export Trade Support Services, Standards, Domestic Trade and Distribution, Competition and Government Procurement, Consumer Protection, Intellectual Property Rights as well as a Management and Coordination component.

2.3.2 Export Promotion

Non-Traditional Export (NTE) Promotion

With growing import dependency coupled with considerable pressure on the cedi from major trading currencies, there is a need to support the export sector to grow in order to generate foreign exchange. To promote this initiative, the Ghana Export Promotion Authority (GEPA) together with Ministry of Local Government and Rural Development (MLGRD), Ministry of Food and Agriculture (MOFA) and Ministry of Trade and Industry (MOTI) who are spearheading the One District, One Factory (1D1F) Initiative and Planting for Export and Rural Development (PERD), are also advancing the One District, One Export Product program. Furthermore, these policies are required to promote productive and industrial sectors in the country as well as provide value-added products and services for export. Thus, generating foreign exchange and strengthening the cedi to achieve revenue target of $5.3billion from non-traditional export (NTE) in 2021 (GEPA, 2017).

Export Development and Agricultural Investment Fund Levy

This is a levy imposed on all imports with the exception of petroleum products. It is currently referred to as the EXIM levy and the rate is 0.75% of the cost, insurance, and freight (CIF) value. The imposition of this levy is to provide affordable credit for firms engaged in agriculture and export sectors.

Free-zone Enterprises

All organizations who operate in this sector enjoy a 10-year concessionary period of 1% tax after which they are taxed 15%. Also, they are to produce for exports hence, at least 70% of their products are to be exported and only a maximum of 30% can be sold in the country.

Additionally, they are exempted from import duties. However, if goods sold are beyond 30% the extra goods will be considered as imports and so subject to all import charges.

Duty Drawback Measures

The Duty Drawback Regime is legally backed by sections 40-42 of Customs (Management) Law of 1993, P.N.D.C. Law 330. This is a refund of import duties charged on finished products or raw materials to an importer after re-exporting the imported product. It can be categorized into two namely: Same-state drawback and Material drawback.

In relation to Same-state drawback, an importer can claim import duties paid on finished products which are re-exported. On the other hand, for Material drawback, an importer can obtain a refund for raw materials imported and used in the production of finished goods and exported. However, many exporters have raised concerns about the cumbersome procedures and time it takes to get a refund of import duties paid (Osei-Assibey, 2015).

Bonded Warehousing

The Warehousing Regime is legally backed by PNDC Law 330 (1993) Sections 123 – 152. This system allows for imported commodities that are manufactured domestically to be stored up in a Government or Private bonded warehouse under the supervision of customs with no payment of duties or taxes. It also involves the entry, examination, and release of goods by the customs before it is transferred to the warehouse which is secured with revenue locks.

Besides, goods can be re-entered later on by their owners for domestic consumption, exportation or transferred to another warehouse within a period of two years. However, beyond the given time frame, these goods can be re-entered again for re-warehousing on condition that they are not deteriorated and are wholesome.

This system also permits an importer or manufacturer to defer payment of duties or taxes until goods are required for domestic consumption or exportation. Therefore, an importer or manufacturer takes advantage of both home and foreign markets without any loss of money regarding duties paid.

2.3.3 Automation Systems

Mandatory Pre-Shipment Inspection (PSI)

Initially, there was a voluntary PSI system but this was replaced with a mandatory PSI system. The mandatory PSI system is used for the valuation and inspection of imported commodities. Its main purpose is to aid fast clearance of imported goods by customs officials as well as reduce errors pertaining to the classification, quantity, and value of imports.

Ghana Customs Management Systems (GCMS)

To upgrade the Customs Valuation Department, a modern valuation database was introduced. Thus, computer software modules were developed to enhance customs management information systems. An archive for import and export data was created together with a data distribution channel to some state agencies including the Ministry of Finance and Economic Planning (MOFEP), Ghana Statistical Services and Export Promotion Council.

Ghana Community Network (GCNet) Services

The GCNet was established in the 2000s under a private-public sector partnership (PPP). This aided the development and operation of a customized electronic system for the processing of trade and customs documents. Also, to promote trade facilitation, competitiveness, development and effective trade tax revenue mobilization the GCNet provides ICT-based solutions to state agencies.

Paperless Port

Paperless Port was introduced in 2017 by the Ghana Ports and Harbour Authority (GPHA) with the aim of eliminating cash payments at the Tema and Takoradi Ports. Additionally, this was to reduce time spent in processing requisite data, reduce the level of corruption allegations against the Customs Division of GPHA and further enhance revenue mobilization by the Ghana Revenue Authority (GRA).

In effect, the implementation of Ghana's Trade Policy in 2006, Export promotion policies, as well as automation of systems in the customs division has improved tax administration and time spent in customs documentation hence, international trade tax revenue has increased marginally in recent years. However, the share of international trade tax revenue in GDP remains quite low at an average of about 2.5%. Tax evasion, corruption, and smuggling continue to pose a challenge thus, inability to maximize the benefits of such policies.

2.4 Trade Agreements and Arrangements

2.4.1 World Trade Organization (WTO)

The WTO is a global international organization dealing with the rules of trade between nations. It was previously the General Agreement on Tariffs and Trade (GATT). Ghana acceded to the GATT in 1957 and became a founding member of the WTO in 1995. Thus Ghana, entered into an agreement with the United States of America (USA) (Laryea & Akuoni, 2012). At the core of WTO is the WTO agreements as well as legal guidelines for international commerce and trade policy (Rose, 2003). The WTO has three principal objectives and they are (Rose, 2003):

i. To aid free trade flow as much as possible.

ii. To attain further liberalization step by step through cooperation.

iii. To establish an unbiased process of resolving disputes.

As a result of Ghana's agreement to join WTO, the most-favoured nations (MFNs) tariffs apply to most imports from all its trading partners. Based on GATT's Article 1, the MFN principle states that all countries who are members of WTO should be treated equally.

Additionally, from 2007 to 2013, Ghana remained an important recipient of the technical training and assistance provided by the WTO. Also, in Ghana, there are five (5) operational WTO reference centres and national enquiry points on sanitary and phytosanitary (SPS) measures, technical barriers to trade (TBT), trade-related aspects of intellectual property rights (TRIPS) and services respectively, with Ministry of Trade and Industry (MOTI) as the pivot (WTO, 2014).

2.4.2 Economic Community of West African States (ECOWAS)

Ghana is committed to regional trading agreements. The year 1975, marked the inception of the Economic Community of West African States (ECOWAS) of which Ghana is a founding member. ECOWAS under the Enabling clause was notified to the WTO in 2005 (WTO, 2014). Despite challenges, the ECOWAS is committed to safeguarding economic co-operation and integration in West Africa by providing easy access to markets, harmonizing policies, institutional development and enhancing trade flows.

Jebuni (1997) remarked that attempts by ECOWAS to stimulate regional integration and trade-related activities have been slow, and until 1990, intra-regional trade remained low. This can be fairly attributed to the fact that instead of members opening up their markets most of them

maintained trade borders which were in contradiction to community rules. Besides, there were regional conflicts, weak governance, and concerns by individual member countries on the impact of liberalizing trade on government revenue and balance of payment.

In 1993, the ECOWAS Trade Liberalization Scheme (ETLS) was established. Under the scheme, Ghana offered 20% preferential tariff reduction on some imports from particular countries that were conferred with community status (Bhasin, 2011). Whereas for member countries preferential tariff reductions of 8%, 16%, and 20% were imposed on products that required preferential treatment similar products from non-ECOWAS countries had duty rates of 10%, 20% and 25% imposed on them respectively (Brafu-Insaidoo, 2008).

Moreover, since 1996, imports from member countries of the Economic Community of West African States (ECOWAS) attract duty-free rates and no quantitative restrictions and for non-member countries, the most favoured nation (MFN) tariffs apply to most imports. In Ghana, these duty-free rates are usually given to a range of unprocessed agricultural products and industrial products produced by entities situated in the member countries. To qualify for this preferential treatment, the import good must meet the ECOWAS rules of origin and 60% of the raw materials must be obtained from industries within the member states. However, after many years, the ETLS is faced with a substantial amount of challenges including implementation problems (USAID and West Africa Trade Hub, 2012). Thus, intra-ECOWAS trade as a share of Ghana's total trade is quite low.

Furthermore, the common external tariff (CET) was adopted in 2013 and as a member of ECOWAS, Ghana implemented the CET in 2016. The CET necessitates that ad valorem tariff rate are simplified and harmonized into four bands which are: zero, 5%, 10% and 20% on social

goods, imported raw materials, intermediate goods, and finished goods respectively. Additionally, there were 190 exemptions granted under the CET. More so, goods originating from non-member countries attract a special levy referred to as the ECOWAS levy which is eventually transferred into ECOWAS account. The rate is 0.5% of Cost, Insurance and Freight (CIF) value.

2.4.3 European Union-African, Caribbean and Pacific (EU-ACP) Agreement.

Ghana joined the EU-ACP relationship since its inception in 1975. Prior to the EU-ACP Cotonou Agreement, four (4) Lome Agreements were signed. The European Economic Community (EEC) sought to keep economic ties and some influence in their former colonies, gain access to raw materials and provide a market for their finished goods (Laryea & Akuoni, 2012).

Fundamental aspects of the agreements included duty-free entry of ACP exports into the EU market though ACP countries could impose restrictions on EU goods entering their markets. Additionally, ACP countries received development aid inflows. Also, political dialogues including democratic principles, the rule of law and good governance became necessary (Acheampong et al., 2014; Laryea & Akuoni, 2012).

Yet, certain requirements of the Agreement such as non-reciprocity breached WTO principles. As a result, the EU-ACP required a waiver but non-ACP developing countries were no longer willing to grant this waiver. To avoid trade interruptions that would have taken place owing to the expiration of the waiver granted by the WTO in 2007, an interim EPA was signed (Acheampong et al., 2014).

2.4.4 Economic Partnership Agreement (EPA)

Ghana signed an EPA with the EU on 12th December 2007. The overriding features of the agreement included (Kassim, 2016; Acheampong et al., 2014; Laryea & Akuoni, 2012):

i. No restrictions on imports to EU from 1st January 2008.
ii. Liberalization of 80% of imports from the EU i.e. 81% of tariff lines for the next 15 years.
iii. Trade defence with bilateral safeguards which allows the reintroduction of restrictions if imports of either party pose a threat to their economy.
iv. Introduction of Technical Barriers to Trade (TBT) and Sanitary and Phyto-Sanitary (SPS) measures to assist Ghanaian exporters to meet EU import standards.
v. To stimulate trade by enhancing the efficiency of customs processes and better co-operation between administrators.
vi. Exclusion of some agricultural goods and non-agricultural processed goods to safeguard sensitive sectors and tax revenue.
vii. Provision of comprehensive procedures for settling dispute to encourage the effective implementation of the agreement, and new improved rules of origin.
viii. Investment and innovation to reinforce and improve the capacity of productive sectors as well as the business environment.

There are concerns, however, that such agreements could lead to revenue losses. Kassim (2016) argues that engaging in more trade policy reforms in the form of Economic Partnership Agreements (EPAs) is likely to hinder output growth if they reduce total tax revenues in developing countries.

2.4.5 Other agreements

In October 2000 Ghana was part of the 34 countries confirmed eligible to benefit from the United States package established under the African Growth and Opportunity Act (AGOA). Based on this agreement, a range of commodities, comprising selected agricultural and textile products attracted no duty or quota in the US markets until 2015. Also, in 2013 US imports from Ghana averaged below US$300 million out of which two-thirds attract MFN duty-free rates, 18.7% attract MFN duties and approximately 5% based on Generalized System of Preferences (GSP) tariff treatment enter duty-free (WTO, 2014).

Although engaging in trade agreements and arrangements provides access to larger markets and thus, can potentially increase international trade tax revenue, there are concerns that this can lead to the dismantling of tariffs on goods which can adversely affect revenues. In addition, regional integration efforts are undermined by unfair competition as a result of the unbalanced nature of the relationship existing between the European Union (EU), the United States (US), and Ghana. This is because of the lack of an enabling environment leading to increased marginalization in the world trade, low export diversification and loss of market shares thus, potential gains may not be attained from trade agreements (Kassim, 2016). Besides, countries must transform to market-based economies by pursuing essential economic, political, social, and institutional reforms in order to benefit from regional trade agreements (Tang and Harrison, 2004). Also, there is a lack of commitment from member states of the ECOWAS.

2.5 Trends in Trade Tax Revenue, Trade Indicators and Macroeconomic Variables

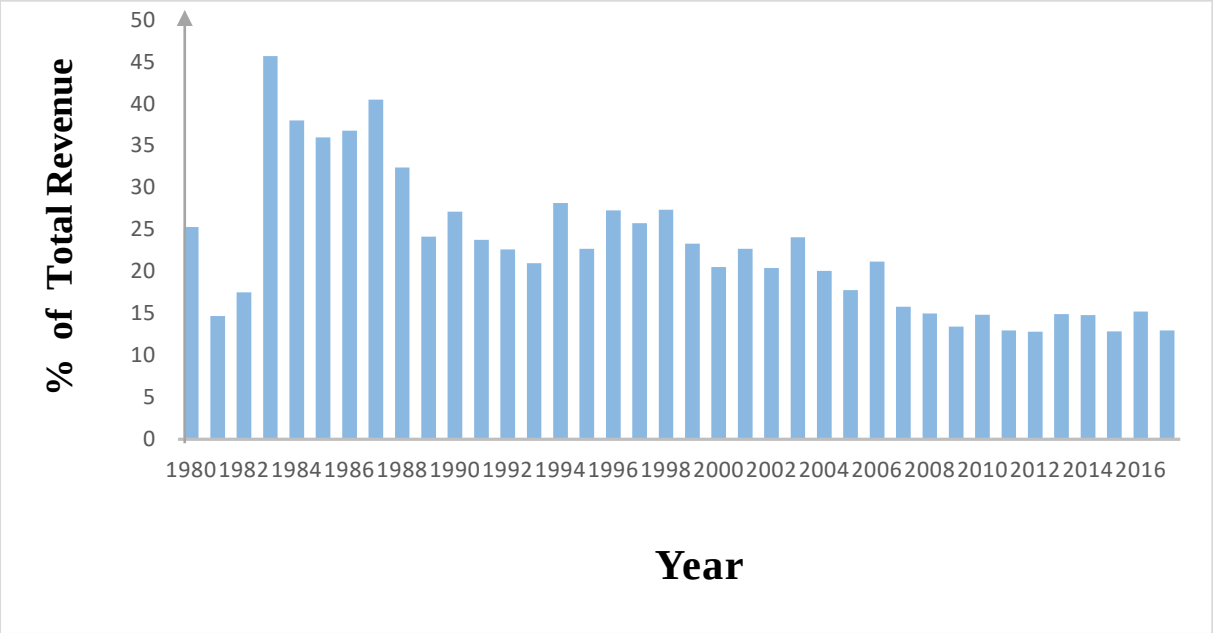

Figure 2.1: International Trade Tax Revenue as a Percentage of Government Revenue
Source: Author's compilation based on Government of Ghana, Quarterly Digest of Economics (various issues); Ministry of Finance and Economic Planning.

From figure 2.1, with the exception of 1981 and 1982 which evidenced a complete failure of the Ghanaian economy, international trade tax revenue accounted for over 40% of government revenue on average before the Economic Recovery Progamme (ERP) (Jebuni et al., 1994). By 1983, international trade tax revenue contributed an average of over 45% of government revenue owing to a stable tax structure and real GDP growth. Also, continuous currency depreciation and high price outlays to cocoa farmers boosted export volumes thus, trade tax revenue (Laryea & Akuoni, 2012). However, this reduced marginally to around 36% on average of government revenue as of 1984 until 1987 where it shot up to 40%. Then with further liberalization, it kept fluctuating within an average of over 20% and 30% from 1988 to 2004. In the year 2005, international trade taxes dropped significantly to account for about 18% of government revenue but rose marginally to around 20% in 2006 and then fell again sharply to about 16% in 2007. Beyond 2007, international trade tax revenue as a percentage of government revenue kept fluctuating between averages of 12% to 16% from 2007 to 2017.

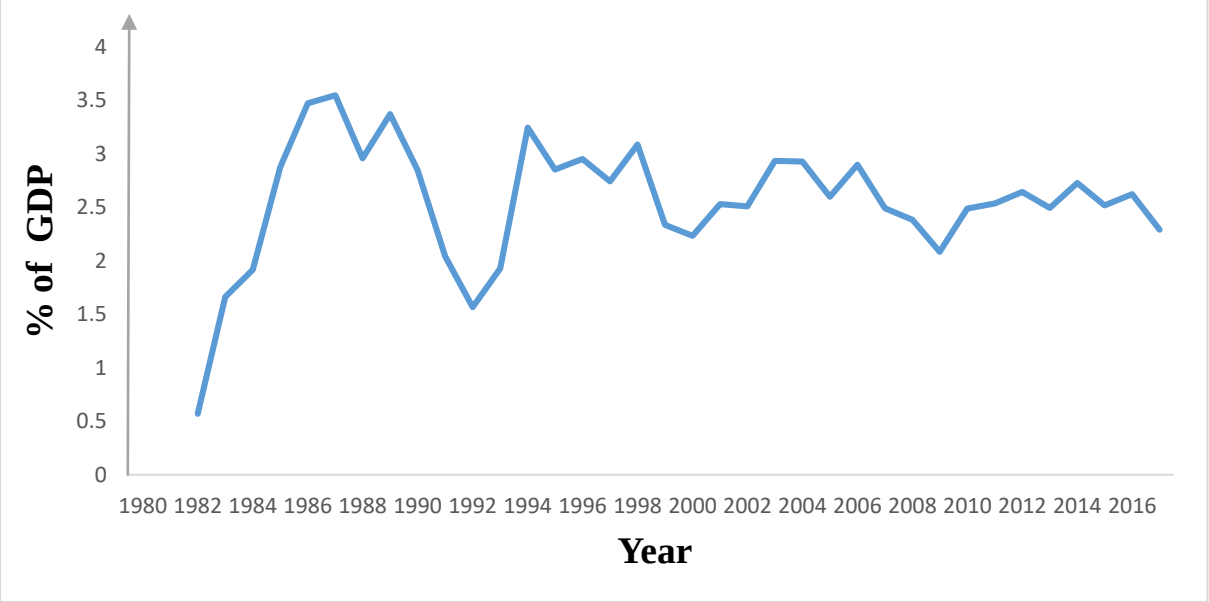

Figure 2.2: International Trade Tax Revenue as a Percentage of GDP
Source: Author's compilation based on ICTD / UNU-WIDER Government Revenue Dataset, 2018 and Ministry of Finance and Economic Planning.

Based on figure 2.2, before 1983, international trade tax revenue accounted for less than 1% of GDP. In 1983 and 1984 it was hovering around 1.5% to about 2% of GDP. From 1985 to 1986 international trade tax revenue as a percentage of GDP was ranging from 2% to 3% but peaked at 3.5% in 1987. Again, it fell slightly in 1988 and immediately picked up in 1989 but began to decline steadily afterward. The periods 1992 and 1993 witnessed a decline of 1.57% and 1.93% respectively in the share of trade tax revenue in GDP. However, by 1994 international trade tax revenue to GDP ratio increased again to over 3% of GDP and then kept fluctuating between 2.2% and 3% from the years 1995 up to 2008. The year 2009 witnessed a marginal decline of 2.08% in the share of international trade tax revenue in GDP but picked up in 2010 and maintained levels ranging from 2.3% to 2.8% from 2010 to 2017.

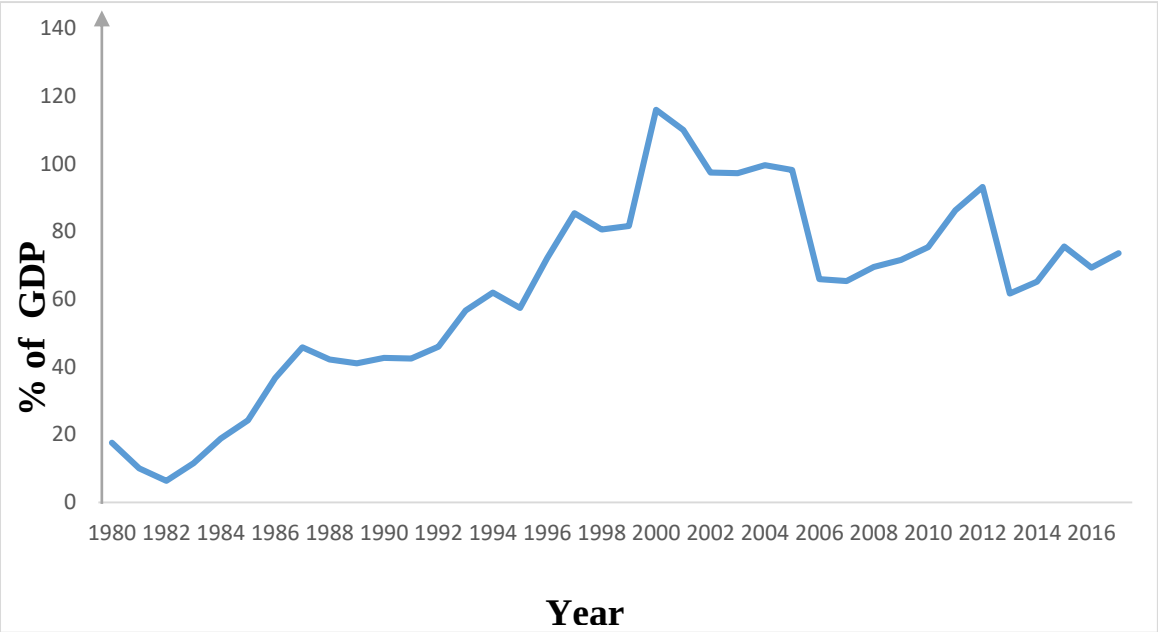

Figure 2.3: Trade as a percentage of GDP
Source: Author's compilation using data from World Development Indicators (WDI).

Since 1983, international trade has played a significant role in Ghana over time in relation to its share in Gross Domestic Product (GDP). From figure 2.3, trade (defined as an aggregate of exports and imports) accounted for as low as 11.5% of GDP in 1983 and kept increasing steadily till 1987 where trade as a share of GDP shot up to 45%. From 1988 to 1995, trade to GDP ratio averaged over 40% to 60% and by 1997, trade was contributing to more than 85% of GDP till 2000 and 2001 where abnormally high levels of over 100% were recorded. However, this declined marginally to 97% in 2002 but fell drastically to about 66% in 2006 and maintained such levels till 2012. By 2012, trade as a percentage of GDP was about 93% which declined again to about 62% in 2013. In 2015, 2016 and 2017 trade to GDP ratio stood at 76%, 69% and 74% respectively.

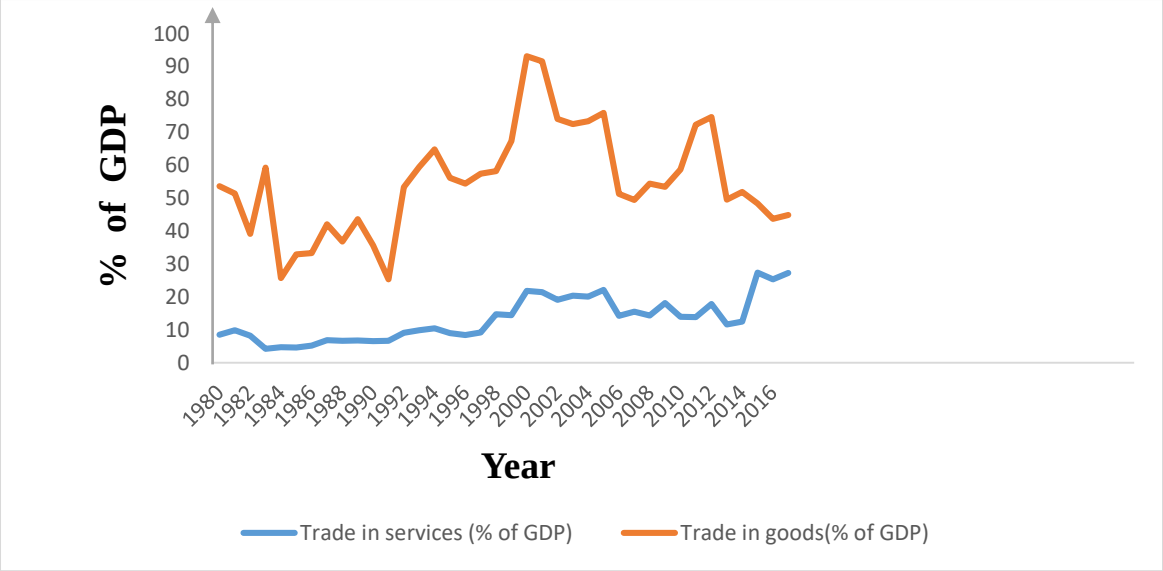

Figure 2.4 Trade in Goods and Services as a Percentage of GDP
Source: Author's compilation using data from World Development Indicators (WDI).

Based on Figure 2.4, trade in both goods and services as a percentage of GDP keeps fluctuating over the entire period. Trade in goods as a share of GDP increased slightly from about 54% in 1980 to approximately 59% in 1983. However, this reduced significantly to roughly 26% in 1984 but picked up in 1985 and maintained levels between 30% and 40% until 1991 where trade in goods to GDP ratio fell again to almost 25%. By 1993, trade in goods as a proportion of GDP rose sharply to nearly 65% and peaked at approximately 93% in 2000. Yet, this fell to almost 73% in 2003 and 2004 then further to around 50% in 2007. After 2007, the proportion of trade in goods to GDP kept rising steadily to about 75% in 2012 but this declined to about 50% again in 2013 and ranged between 40% and 50% from 2014 to 2017.

In relation to trade in services as a percentage of GDP, it averaged between 4% and 15% from 1980 to 1999. However, from 2000 to 2005 trade in services to GDP ratio was hovering around 22% but it declined to nearly 14% in 2006 and kept increasing steadily until 2013 which recorded a low level of about 12% but picked up immediately. By 2017, trade in services accounted for approximately 28% of GDP.

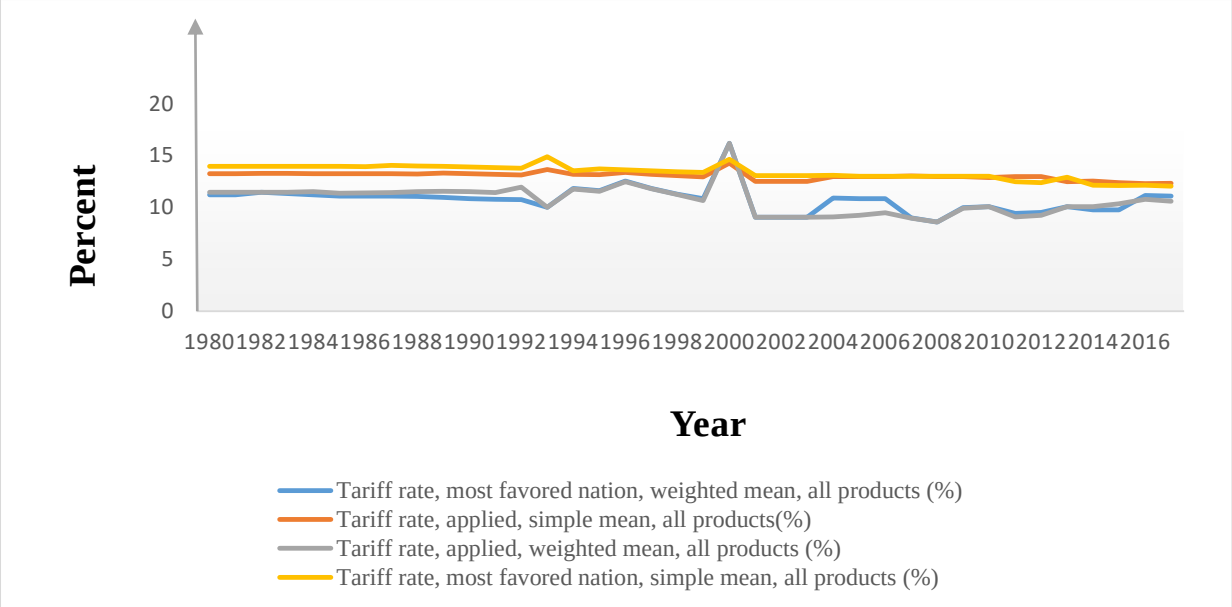

Figure 2.5: Trends in Average Tariff rate
Source: Author's compilation using data from World Development Indicators (WDI).

From figure 2.5, both the most favoured nation (MFN) and applied simple mean tariff rates remained fairly stable over the entire period thus, averaged between 12% and 14%. It was only in 2000 that a slight increase of 14.6% was recorded.

Also, for the weighted mean MFN and applied tariff rates, it was initially ranging around 11.5% before 1993 where it fell marginally to 10%. However, it picked up again in 1994 and maintained levels between 10.5% and almost 12% from1994 to 1999. By 2000, it peaked at 16% but fell sharply to about 9% in 2001 and kept fluctuating between 9% and 11% for the rest of the period.

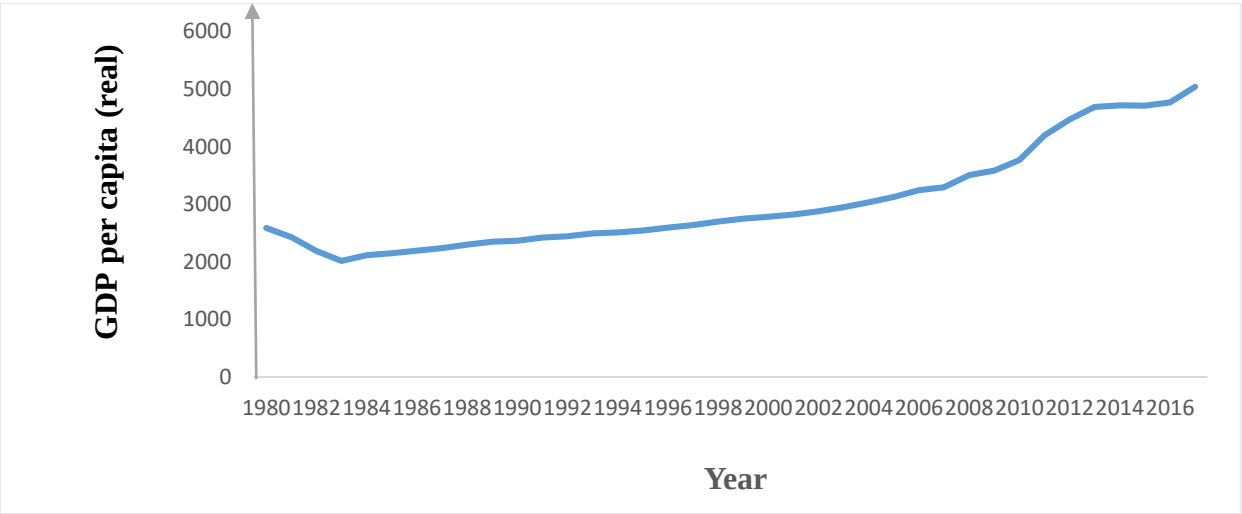

Figure 2.6: Trends in GDP per capita
Source: Author's compilation using data from World Development Indicators (WDI).

From figure 2.6, GDP per capita shows an upward trend over time thus, depicting improvement in Ghana's level of economic development from 1983 to 2017.

2.6 Conclusion

The Ministry of Trade and Industry is responsible for advising the government, formulating and implementing trade policies for the promotion of international trade. Other agencies that aid the ministry's work include Ghana Export Promotion Authority (GEPA), Ghana Standards Authority (GSA), Ghana Trade Fair Company (GTFC), and Ghana Free Zones Board (GFZB). There is a need for the Ghanaian economy to take a holistic view of trade policies, regulations, and practices to promote export diversification. This will enhance its productive capacity and competitiveness to take maximum advantage of various trade agreements and arrangements. Although greater openness in the form of liberal trade has improved trade relations and as such increased volume of imports owing to the reductions in average tariff rate, the effective collection rate is not very encouraging. Tax exemptions and evasion and fiscal imbalances still keep the Ghanaian economy from achieving optimum trade tax revenue (Bekoe et al., 2016).

CHAPTER THREE

LITERATURE REVIEW

3.1 Introduction

In both theoretical and empirical literature, the impact of trade policy reforms on total tax revenue and particularly trade tax revenue is of great interest. This chapter entails a review of relevant literature on trade and revenue. It is broken down into two sections, that is, the theoretical and empirical literature on the revenue implications of trade policy reforms. Furthermore, variables that have been used by researchers to measure trade policy will be explored.

3.2 Theoretical Literature

3.2.1 The Theoretical foundation of Trade Policy

Adam Smith proposed that trade is beneficial to countries because, it enhances specialization which leads to economies of scale and hence, highly correlated to economic growth (Tripathi, 2016). This proposition was based on the concept of absolute advantage. Different from absolute advantage is the principle of comparative advantage which was based on Ricardo's initial concept of trade in wine and wool between the UK and Portugal. Notwithstanding, the principle of comparative advantage forms the foundation of trade theory and can be explained as the higher efficiency one country has in the production of certain goods or services at a relatively marginal opportunity cost to another. According to comparative advantage theory, trade is beneficial to a country and can promote growth thus, a country will most likely export commodities in which they have a comparative advantage (Tripathi, 2016; Whalley, 2002).

On the other hand, though, the Heckscher-Ohlin (H-O) theory of trade which is also referred to as the neoclassical factor endowment model illustrates how differences in relative factor endowments form the basis of trade. The Heckscher-Ohlin (H-O) trade theorem states that a country is more likely to export a commodity whose production utilizes its relatively abundant factor more intensively (Whalley, 2002). Although in theory, the H-O model performs satisfactorily, it is inadequate as an explanation for historical or modern trade patterns in practice unless technological differences across countries are incorporated in explaining it (Feenstra, 2003).

Quite simply, the underpinnings of these trade theories are that free trade is beneficial and hence, a means of improving trade volumes, attaining production efficiency and global competitiveness (Ebrill et al., 1999). Through trade, developing countries can acquire essential elements to aid development. The country is also given access to a large market compared to the typically small market of a developing country. Competition introduced by trade will also force local businesses to increase their efficiency and productivity in order to keep up. Based on these arguments, countries were urged to pursue trade policy reforms, including countries like Ghana especially when we came under the umbrella of IMF (Laryea & Senadza, 2017).

"However, trade is an opportunity not a guarantee". To profit from trade a country must be competitive by producing at a low cost. This needs supportive infrastructure, productive labour force, functioning legal and regulatory structures. A competitive exchange rate is also important (Laryea & Senadza, 2017). Thus, to regulate trade, most countries enacted and adopted trade policies. These trade policies included the introduction of barriers or restrictions on trade in the form of taxes and non-tariff measures.

Although neo-classical theory proposes that trade interventions weaken efficient resource allocation, decreases their effectiveness and aggravate macroeconomic imbalances and as such their impact on resource allocation and trade in an economy should be neutral to prevent the undermining of international competitiveness, in developing countries, these trade policy measures were used to obtain differing goals which include: government revenue accumulation, rectifying distortions in the market, protecting domestic industry, enhancing terms of trade and domestic income distribution. (Khattry and Rao, 2002; Whalley, 2002; Krueger, 1995). In the advent of globalisation and regional integration, there are moves towards more liberal trade regimes thus, the lessening of trade restrictions. As such, there are concerns that this may also result in loss of revenue to governments in developing economies.

When there is free trade, a domestic country consumes more than its produces at world price thus, giving rise to imports to meet the excess demand. Suppose the domestic economy imposes a tariff on imports, domestic prices will increase causing a fall in home demand whereas home supply increases. As a result of an increase in domestic production but a decline in domestic consumption, there is a decline in imports. Therefore, with the imposition of a tariff on imports trade reduces by encouraging production and impeding consumption. Notwithstanding, the government gains trade tax revenue which is equal to tariffs times the volume of imports. Furthermore, the tariff imposition puts an excess burden on the economy due to consumer and producer surpluses.

Similarly, with the imposition of the export tax, the domestic price of the exportable decrease thus drops below the world price. As a result of the decline in the domestic price of the exportable relative to the importable, resources will shift out of the domestic industry into the production of importables. Additionally, the reduction in the domestic price of the export

product will generate an increase in its demand but a decline in production. Consequently, the decrease in production coupled with consumption increases causes export volumes to decline. However, trade tax revenue is accrued and hence, government revenue will increase

Likewise, the introduction of trade restrictions in the form of quotas will cause the domestic price to increase beyond the world price. The difference between both prices is the implicit tariff hence, this can also produce similar economic effects as the tariffs. However, the revenue effect depends on whether the quotas are auctioned or administered. With the auction or sale of import quotas revenue accrues to the government and a simple equivalence between a tariff and a quota is established. The increase in price as a result of the quota is usually referred to as the tariff equivalent of the quota. According to Bhagwati & Srinivisan (1983) "… if a tariff were to be replaced by a quota equal to the import level associated with the tariff, the quotas would lead to a domestic price that would exceed the landed, CIF price of the imported good by an implicit tariff that would equal the explicit tariff that the quota replaced…."

However, simple equivalence breaks down if quotas are administered. For instance, if the government issues quotas freely, the revenue obtained from the quotas accrues to the quota holder instead of the government thus, giving rise to different revenue effects of tariff and quotas. Also, if quotas are administered for rent-seeking activities and monopoly power, the domestic firm is able to charge a higher price than it could with a tariff because consumers cannot obtain imports beyond what has been set by the quota. Thus, the domestic producer enjoys a sheltered market and the equivalence between tariffs and quota does not hold. This implies that real resources which equal the quota value are dedicated to rent-seeking activities thus, no revenue is accrued and the quotas lead to higher welfare costs for home consumers than the equivalent tariffs.

Based on these discussions, one will say an imposition of barriers on trade can be very disturbing because of its effect on the welfare of the economy hence, why not opt for trade liberalization? Also, there are arguments that transforming quantitative restrictions into their equivalent price will promote transparency and reduce discrimination among industries, reduce hoarding of inputs due to the uncertainty of obtaining them, minimize monopoly power and rent-seeking behaviour and increase government revenue because quota rents accrue to the government.

However, Dean et al. (1994) asserts that by-product distortions are produced in other markets whenever tariffs are reduced gradually as a result of liberalization and this creates uncertainty in welfare effects. Additionally, Falvey (2012), Katthry and Rao (2002) argue that when quantity restraints are eliminated gradually one moves into a second-best position which is sub-optimal. Besides, if tariffs and quotas are eliminated simultaneously it may not translate into an improvement in welfare at each stage and may reduce revenue especially in developing countries (Dean et al., 1994).

3.2.2 Constraints Associated with Trade Policy Reforms

The impact of trade policy reforms on international trade tax revenue is of great interest to developing and less developed economies because of their heavy dependence on international trade tax revenue. Additionally, in such countries restrictions were imposed to regulate international trade, protect domestic industries, and boost government revenue (Pupongsak, 2009).

In an attempt by developed economies to promote sustained economic growth and development globally, all countries have been urged to pursue trade liberalization policies. However, as a result of certain distinctive features that pertain to developing countries, implementing policy packages designed for industrial economies for them may not be feasible. According to Khattry and Rao (2002) such peculiar features include:

i. Geographical constraints

This relates to the size of an economy. In a small country, the size of the domestic market is relatively small thus, deterring industries from obtaining economies of scale. Also, there is likely to be an inefficient allocation of resources in a small economy because competition is minimal within their domestic market. Besides, Helpman and Krugman (1985) argue that in a small country strategic trade policies are usually unavailable and thus, such economies are unable to prepare their domestic industries to compete in the world economy. Since such economies have inadequate infrastructure and economic resources domestically they rely heavily on imports and exports exposing them to external economic shocks.

Aside these constraints, the size of an economy can also play a major role in influencing its revenue. Developing countries depend heavily on trade taxes to raise revenue therefore, liberalizing trade in the form of lowering tariffs can have adverse effects on international trade tax revenue. Although there are arguments in the literature that suggest the losses in trade taxes can be replaced with consumption taxes, this may not necessarily work in a small country scenario because their consumption tax base is relatively small. This can be attributed to the fact that such countries have small domestic markets, high poverty levels and income distribution (Ebrill et al., 1999; Rajaram, 1994).

ii. Structural constraints

According to Musgrave (1969), a country's ability to tax increases when there is growth in their GDP. Tanzi (1989) also adds that, countries become urbanized as they grow and hence, increase their demand for public services, necessitating that tax revenue and capacity to tax must increase to meet such growing expenditure needs.

However, in developing countries, subsistence economic activities which are quite difficult to tax are dominant. This is because the nature of operations in these small-medium scale firms are informal and as such they are unable to give an accurate assessment of their incomes (Pupongsak, 2009). Therefore, to raise revenue from such sectors, the government had to impose taxes on exports and in the case of Ghana cocoa exports. Besides, small countries have a high age-dependency ratio. All these highlight why a small country will depend on trade taxes to raise revenue and also shows how limited developing countries are in terms of substituting losses in trade tax revenue as a result of trade policy reforms with domestic tax sources.

iii. Institutional and political constraints.

As a result of information asymmetry, poor management, auditing and supervision of staff coupled with inefficient and corrupt staff administrators in developing countries, tax assessment can be very difficult. In addition, rampant cases of tax evasion and smuggling can impede tax collection thus, reducing tax revenue. Smuggling is a socially wasteful activity which involves bringing in commodities into a country through illegal means to reduce or avoid tax liability (Whalley, 2002). This results in tariff revenue losses which would have otherwise accrued to the government as revenue. Smuggling can be associated with corruption and tax evasion through several schemes such as bribing custom officials and invoicing wrongly.

Also, there are concerns about the enforcement schemes employed and the economic cost incurred by government agencies in controlling such practices like smuggling and tax evasion. In the literature, enforcement schemes such as the imposition of large fines can be used to curb such situations. From a pure efficiency perspective, the imposition of fines to deter perpetrators of these practices is relatively inexpensive to allocating resources to detection. However, this may not be done as a result of the risk of incorrect apprehension that is, officials can mistakenly exact a huge penalty on a compliant taxpayer. Partly due to this reason, penalties for smuggling and evasion are usually modest thus, the rampant occurrence of such practices in low-income countries with inadequate administrative setup (Whalley, 2002).

In addition, political constraints such as the use of political power by some interest groups to obtain tax exemptions can produce dampening effects on tax revenue mobilization (Hisali, 2012; Aizenman and Jinjarak, 2009). Owing to such constraints in relation to institutional quality and political instability, developing countries are forced to depend on trade taxes to raise revenue.

Furthermore, trade policies are capable of influencing the foreign exchange market. Tariff restrictions on imports coupled with an unchanged monetary policy can affect exchange rates either positively or adversely but this depends on the elasticity of import demand. With a fixed exchange rate and foreign exchange rationing schemes, there will be a rising black market premium on foreign exchange. Trade policy measures such as the introduction of tariffs can help to reduce the premium (Dean et al., 1994).

3.2.3 Effect of Trade Policy Reforms on International Trade Tax Revenue

In small open economies, international trade tax revenues are likely to decrease with the adoption of liberal trade regimes which call for tariff reductions and harmonization. However, implications of trade liberalization on trade tax revenue may depend on a number of factors including initial tariff levels, import elasticities of demand and the volume of trade (Ebrill et al., 1999). Even though trade liberalization ultimately seeks to reduce or eliminate barriers to trade, it usually follows a sequence of removing quantity restraints and then replacing them with tariffs before gradually lowering tariffs. If this is pursued, the assumption is that at initial stage of eliminating quantity restraints, trade volume may shoot up hence, trade tax revenue can increase (Pupongsak, 2009).

According Pritchett and Sethi (1994), when initial tariff levels are prohibitively high, trade volumes are likely to reduce which may adversely affect trade tax revenue and as such when tariff levels are reduced may be an incentive to avoid tax evasion and further increase trade volumes and consequently trade tax revenue. However, further tariff reductions beyond the revenue maximizing rate owing to trade liberalization can result in revenue losses because the volume of trade may not be large enough to offset the tariff reductions. Therefore, trade tax revenue may reduce significantly in the long-run (Agbeyegbe et al, 2004; Khattry and Rao, 2002; Ebrill et al, 1999).

Moreover, when there is high price elasticity of demand and supply for imports and import substitutes respectively, it can lead to an increase in revenue after liberalization if current value of imports exceeds the previous value of imports prior to liberalization. Notwithstanding, elasticity also depends on the timing and characteristic of the good in question. Durable

consumer goods are responsive to price changes than raw materials and intermediate imports (Pupongsak, 2009).

Another challenge associated with trade policy reforms relates to its effect on the terms of trade of an economy. With liberalization of trade simultaneously in developing countries, there could be excess supply of products which may be competitive to domestic exports thus, lowering the prices of goods to be exported. This end up worsening the terms of trade in the economy (Sakyi, 2011).

3.2.4 Measures of Trade Policy

Generally, it is quite challenging to construct an aggregate measure for trade policy (Dean et al., 1994; Rose, 2003). Moreover, Hisali (2012) adds that most empirical studies on the relationship between trade policy reforms and trade tax revenue find it difficult to choose appropriate proxies for trade policy reforms.

According to Dean et al. (1994), an aggregate index must meet a number of requirements. These include:

i. The index adopted should be able to make a distinction between degrees of openness objectively and also take into consideration cross-country and cross-time comparisons.
ii. The index must be as comprehensive as possible in order to account for interaction among policy changes.
iii. It should be able to capture variations in both the extent and gravity of the trade distortions it measures.
iv. The index must be responsive to policy changes.

Some measures employed in the literature are discussed as follows:

Dollar Index

The Dollar index (Dollar, 1992) is used to measure the degree of liberality and its approach to assessing price distortion is quite different. Based on the Summers/Heston international comparison of prices an index of the relative price level is established as:

$$RPL_i = 100\left({}^{e_i P_i}/_{P_{US}}\right)$$

Where '*e*' represents the nominal exchange rate between a country, i and the US, and P_i, and P_{us} are their price levels respectively. This index, in effect, measures the degree of distortion of the real exchange rate. The assumption is that if purchasing power parity holds, then with the non-existence of trade barriers and non-traded goods, RPL_i equals 100. Deviations from 100 represent the effects of either trade barriers or non-traded goods.

Since the underlying regression does not eliminate the effect of non-traded goods satisfactorily, the index may not simply reveal the effects of trade barriers. As Harrison (1996) points out, deviations in price level could still reflect domestic distortions. Finally, the index incorporates some weaknesses of the Summers/Heston price data calculations.

Openness

This is an outcome-based measure of trade policy (Rose, 2003). In simple terms, it can be measured as exports plus imports divided by GDP. However, Pritchett (1996) also introduces other 16 cross-sectional measures of openness for the years 1982 and 1985. This relates to both imports and overall trade penetration for developing countries which covers four different aggregates including manufacturing, agricultural and resource sectors as well as an overall measure.

Tariffs

Tariffs represent a policy incidence-based measure of trade policy (Rose, 2003). There are several measures of tariffs which include the simple and weighted average tariffs. However, there are concerns that these measures can be upwards or downward biased. A simple average tariff rate may be biased because high rates usually apply to a few categories of goods and thus, imports which are subject to high tax are seldom imported (Dean et al, 1994; Rose, 2003). Although, weighted average tariff rates are desirable, choosing appropriate weights to compute them can be challenging (Dean et al., 1994). According to Rodriguez and Rodrik (2000), "It is common to assert in this literature that simple trade-weighted tariff averages or non-tariff coverage ratios—which we believe to be the most direct indicators of trade restrictions—are misleading as indicators of the stance of trade policy. Yet we know of no papers that document the existence of serious biases in these direct indicators, much less establish that an alternative indicator performs better (in the relevant sense of calibrating the restrictiveness of trade regimes). An examination of simple averages of taxes on imports and exports and NTB coverage ratios leaves us with the impression that these measures, in fact, do a decent job of rank-ordering countries according to the restrictiveness of their trade regimes."

Alternatively, there are cross-sectional measures including Barro-Lee data set which uses own-import weighted tariff on intermediate inputs and capital goods; Edwards (1997) who used the ratio of international trade taxes to total trade, and Pritchett (1996) who stipulates a weighted average total import charge which covers four different aggregates for some countries.

Non-Tariff Barriers

Another measure of trade policy is the use of the coverage of non-tariff barriers (NTBs). This is an incidence-based measure (Rose, 2003). Usually, the incidence of quantity restraints such

as quotas is presented as the percentage of tariff lines dependent on a restraint. Similar to tariffs, to capture the actual volume of trade restrained by the quantitative restrictions, a weighted average is required. However, the existence of NTBs may not necessarily indicate its intensity and severity (i.e. the degree at which it distorts prices) (Dean et al., 1994). Although obtaining the tariff equivalent of the quantity restriction can capture the level of severity, there may be difficulty in estimating across various restrained products.

Informal or Qualitative Measures

There are diverse informal and qualitative measures of trade policy. These include the trade orientation measures by the World Bank for two episodes (1963-1973; 1973-1985) which range from "strongly outward-oriented" to "strongly inward-oriented". Also, Edwards (1997) employs cross country rankings obtained from regression-based indices for two years (i.e. 1975 and 1985). Another is the heritage foundation index for the overall economic freedom where the trade policy measure is solely determined by tariff rates, corrected for non-tariff barriers and corruption. Krueger (1978) also created measures on the phase of trade liberalization.

Composite Measures

In a panel study to investigate the effect of trade policy on economic growth, Harrison (1996) defines some trade policy measures for developing economies including an index based on individual country data on exchange rate and commercial policies; an index from tariff and non-tariff measures computed from country data provided by the World Bank, with higher values indicating more liberal policy in both cases, and the extent of anti-agricultural sector bias caused by industrial protection and the overvaluation of the exchange rate where, high values depict lower protection. Again, Edwards (1997) stipulates degrees of openness as calculated by Sachs and Warner for various eras.

Measures Based on Residuals from Trade Equations

This includes Leamer's measure of trade policy using actual deviations of an individual country's trade from average trade as envisaged by an empirical factor-proportions trade model for 1982. Therefore, the aggregate of the deviations of actual from predicted trade in relation to the Gross National Product (GNP) is employed as an index for the degree of distortion. However, Leamer unveils that one drawback pertains to the fact that the counterfactual used in this index is the level of trade which occurs when a country imposes the average level of trade barriers, not free trade. Another challenge is that the residuals do not clearly reveal the non-linearity, unmeasured resources, and trade barriers. Also, there is an absence of a direct link between this index and policy variables.

Furthermore, some variations of this measure and distinct sub-aggregates were established by Pritchett (1996) based on 1982 data. Also, Hiscox and Kastner (2002) derived measures of trade policy by employing fixed country-year residual effects from both a simple and augmented gravity model.

Measures Based on Price Outcomes

Harrison (1996) in her panel study again postulated some price-based measures in addition to her composite indices for trade policy which include the black market premium for foreign exchange, the movement of a country to international prices with Penn World Table data serving as the point of reference, trade as a fraction of GDP, and a revised version of the familiar "price distortion" index by Dollar (1992). Additionally, Pritchett (1996) specifies measures of the degree and variability of the "price distortion" index.

3.3 Empirical Literature Review

Empirically, the analysis of trade policy on total tax revenue and trade tax revenue in detail has been done on country-specific and cross-country bases by using simple specifications and standard ex-post methods to describe cross country variations, differences in shares of tax revenue and trade tax revenue (Hisali 2012).

Additionally, most of these studies are centred on determinants such as trade volume and degree of economic development instead of trade tax revenue implications of trade policy reforms. These studies try to affirm Kuznets' hypothesis that a country relies less on trade taxes as it develops more economically (Khattry and Rao, 2002).

Also, these empirical analyses are centred on trade liberalization. The main argument in support of trade liberalization is that it leads to poverty reduction and improvement in the welfare of citizens since it provides the opportunity to choose from a wide range of imports (Pupongsak, 2009).

Some research initially propose that trade policy reforms adversely affect tax revenue and alternatively suggest the requisite domestic tax modernization schemes to implement in order to compensate the loss in revenue by employing standard ex-ante approaches (Abe, 1995; Hatzipanayotou et al., 1994; Michael et al., 1993; Keen and Ligthart, 2002).

Khattry and Rao (2002) explored the implications that trade liberalization has on the tax revenue by applying panel regression framework, specifically the fixed effects estimator, on a sample of 80 developing and developed countries from 1970 to 1998 and deduced that trade openness negatively affects revenue. The reason being that lowering trade taxes significantly

reduced total tax revenue particularly in low-income and middle-income countries. Moreover, structural features which limit the ability for developing countries to move from high dependence on trade taxes were important in explaining the decline. Thus, low-income countries, particularly in sub-Saharan Africa, are faced with a trade off between either reduced protection or reduced revenues from liberalization.

Contrary to this study, Ebrill et al. (1999) assessed the effect of the level of tariff on trade tax revenue by employing a fixed effect approach to panel data modelling on 105 countries from 1980 to 1995 and concluded that declines in trade tax revenue were not as a result of tariff rate changes but instead trade tax revenues are dependent on supply and demand elasticities of goods and services which are traded. Moreover, trade tax revenue increased due to exchange rate depreciation for countries in their sample which included both developed and developing countries.

A similar study by Nashashibi and Bazzoni (1994) on 28 sub-Saharan African countries proposed that most of these countries had their tax base eroded because of devaluing their exchange rate, diminishing terms of trade and liberalizing of imports. This results from the fact that the tax base of most sub-Saharan African countries is heavily dependent on imports and import substitutes.

Although the approach adopted in such studies are useful in reducing omitted variable bias, lagged effects in these locations are ignored in the estimations. Currently, there are methodological approaches such as the dynamic approach to panel data modelling that researchers can adopt to encapsulate the dynamics and endogeneity of relationships between macroeconomic variables (Hisali 2012).

A recent study by Kassim (2016) on a sample of 28 sub-Saharan African countries from 1981 to 2010 adopted panel data estimators of fixed and generalized method of moments (GMM) to undertake the econometric analysis. This study looked at some new evidence pertaining to the advent of the Economic Partnership Agreement. The results indicated that trade liberalization leads to a rise in total tax revenue. Additionally, a reduction in trade taxes increases and decreases domestic and trade tax revenue respectively.

Moreover, Ebeke and Ehrhart (2012) also in their study involving 37 countries in sub-Saharan Africa covering the period 1980 to 2005 used panel regression to investigate the consequences and remedies of tax revenue instability in sub-Saharan Africa and revealed that tax revenue is affected positively by trade openness.

Keen and Mansour (2010) carried out a descriptive study from 1980 to 2005 in sub-Saharan Africa to ascertain whether such countries have been able to use indirect taxes to compensate trade tax losses. Their findings established that trade tax revenue losses were compensated with twice of indirect tax revenue increases. However, following liberalization low-income countries in sub- Saharan Africa are faced with declines in both trade tax and total tax revenues.

Aizenman and Jinjarak (2009) based on a sample of 60 developing countries from 1980 to 1999 assessed the impact of globalisation on different categories of taxes collected. They show that although trade openness has a positive relationship with income and value-added taxes, in the case of tariffs a negative relationship exists.

Baunsgaard and Keen (2005) applying panel regression to 111 countries to study the tax revenue impacts of trade liberalization from 1975 to 2001 reveal that there is a negative impact

for high-income countries whereas for other countries the impact is positive. Baunsgaard and Keen (2009) in an extended study applied the difference Generalized Method of Moment (GMM) estimator to 117 countries from 1975 to 2006 but came up with contradictory results that trade liberalization positively affects tax revenues in high-income countries because of the ability to recoup the trade taxes that are lost from other revenue sources but in low-income countries the impact is adverse.

Adam et al. (2001) employing panel regression, specifically dynamic Generalized Method of Moment (GMM) technique, to study exchange rate systems and the performance of revenue in Sub-Saharan Africa showed that in CFA countries openness increases trade tax revenue. Similarly, Agbeyegbe et al. (2004) employed the same technique to a panel data of 22 Sub-Saharan African countries over the period 1980 to 1996 to investigate the relationship that exist among the following variables trade liberalization, exchange rate, and tax revenue and concluded that whereas there is a positive link between trade liberalization and tax revenue exchange rate plays no significant role.

Despite the fact that cross country panel models play an essential role in controlling for heterogeneity effects in individual countries they may end up concealing certain significant effects peculiar to individual countries. Thus, below are some country-specific studies on the trade-revenue relationship.

Ahmad, Ali, and Ali (2018) in an empirical analysis on the influence of free trade on trade tax revenue in Pakistan covering the period 1972 to 2014 find a negative effect of trade liberalization on trade tax revenue owing to quantitative restrictions on trade. Thus, they suggest that to increase trade tax revenue, average tariff rate volume must be improved.

Brafu-Insaidoo and Obeng (2012) also examined import liberalization and tariff yield in Ghana from 1965 to 2007 by estimating import tariff buoyancy and elasticity for pre and post-liberalization periods. Their findings affirm the proposition that tariff reforms increase tariff revenue yield.

Hisali (2012) performed a country-specific study in Uganda using Johansen Multivariate Approach to empirically analyse the trade policy reform and international trade tax revenue relationship by openly taking into account institutional features. Some findings include; trade tax revenues are likely to decrease in the short-run when tariffs are reduced although the overall outcome is dependent on other factors like exchange rate fluctuations. In the long-run, it is anticipated that revenue outcomes will ultimately be impacted by importers response to tariff rate changes, the elasticity of import demand and nominal exchange rate hence, percentage of trade tax revenue to GDP reduces. More so, seasonal patterns in trade tax payments were observed in the short term.

Similarly, a study conducted by Nwosa et al. (2012) in Nigeria on the effect of trade liberalization on trade tax revenue from the period 1970 to 2009 using Johansen Multivariate cointegration discovered that trade liberalization impacted positively on trade tax revenue.

Zafar (2005) examining the fiscal and trade implications of trade liberalization in Niger by applying the SMART partial equilibrium model finds that tax revenues are likely to reduce by more than 1 percent of GDP but trade will increase by about 1.5 percent of GDP as a result of further trade reforms in Niger.

Matlanyane and Harmse (2002) based on a study in South Africa from 1974 to 2000 establish that trade tax revenue reduces following a decrease in average tariff rates arising from liberalization. Thus, they suggested good macroeconomic policies are key for successful trade liberalization.

3.4 Conclusion

In summary, it is evident in these findings that the influence of trade policy on tax revenue suggests uncertainty about the eminent gains of trade argument especially in developing economies. There are conflicting opinions about the effect trade policy has on international trade tax revenue and hence, total tax revenue in the long-run. One school of thought suggest trade policy reforms lead to increased trade tax revenue. Other authors question this view and propose that trade policies without good structural characteristics and institutional features can reduce trade tax revenues significantly. Based on the contradictory views in the literature about the trade-revenue relationship, this study seeks to provide additional evidence on the overall effect of trade policies on trade tax revenue in Ghana.

CHAPTER FOUR

METHODOLOGY AND RESULTS

4.1 Introduction

This chapter captures the methodology and data sources employed to ascertain the impact of trade policy reforms on international trade tax revenues in Ghana. Additionally, the theoretical framework underlying the research, the empirical model employed in the study, the estimation techniques, tests adopted and results will be discussed.

4.2 Theoretical framework

International trade tax revenue is generally a function of total trade in a country. This further encapsulates the tariff structure, volumes of trade, other administrative setup and aspects of trade facilitation, as well as the size of an economy. Additionally, if the world economy is growing it can also be an indication of increased trade.

To assess the impact of trade policy reforms on international trade tax revenue, this study adopts the conventional tax effort model. Tax effort may be defined as the extent to which a country is making use of its tax base to raise revenue and can serve as an indicator for taxable capacity (Pupongsak, 2009). Musgrave (1969) in explaining why developing countries obtain low levels of tax revenue compared to advanced economies argued that developing countries were faced with inadequate skills and facilities to enhance tax administration and the structure of such economies provide them insufficient “tax handles” on which to collect taxes. Tax handle or capacity is necessary to increase tax effort.

To estimate tax effort, the conventional approach is to regress tax to GDP ratio on several variables that function as proxies for a country's tax handles. This implies that the explanatory variables represent the main determinants of tax effort. Therefore, proceeding to estimate tax effort we obtain a stochastic model represented in the following functional equation as:

$$\frac{TTR}{GDP} = f(Z_i, \dots, Z_k, u) \quad \textbf{(1)}$$

Where *TTR* is the total tax revenue, *GDP* is the Gross Domestic Product, *TTR/GDP* represents the tax effort index or tax ratio, Z_i (i=1, 2…, k) are the independent variables that influence tax ratio, and *u* denotes the error term.

Usually, the traditional explanatory variables employed in assessing tax effort are those for controlling the economic structure of a country. These variables are selected based on both theoretical and empirical literature, such as Leuthold, (1991); Stotsky and WoldeMariam (1997); Gupta (2007); Bird et al. (2008). The variables include:

i. Sectorial composition of GDP: This includes the major sectors of the economy that is agricultural, industrial and services sector value-added as a percentage of GDP. However, in Ghana, about 86% of exports are made up of primary products such as unrefined minerals, unprocessed agricultural commodities and crude oil (Osei-Assibey, 2015).

ii. Level of industrialization /economic development: This is measured by GDP per capita. As an economy becomes relatively more developed, the citizens have a higher capacity to pay taxes and there is an improvement in tax administration systems to ease the collection of taxes. Thus, the economy relies less on trade taxes.

iii. Importance of international trade: This captures the openness of an economy and it is basically measured as the proportion of exports plus imports of a country to GDP in the literature. Usually, this openness index is employed as a tool for measuring the level of distortion in trade flows, the degree of globalisation and the extent of a country's foreign trade sector (Dean et al., 1994; Pupongsak, 2009). Besides, most studies find a strong correlation between the degree of openness and tax revenue. This variable is of relevance because trade tax revenue constitutes an important source of revenue in developing countries thus, a greater degree of openness in a country is expected to yield higher tax ratio. Nonetheless, if the decrease in trade barriers due to openness overshadows the expected high trade volumes this can lead to a negative effect on the tax ratio (Gnangnon, 2017).

However, Dean et al. (1994) write that "Since countries with large domestic markets are likely to have small openness ratios, even in a world of free trade, a small value for the index cannot be taken as an indicator of highly restricted trade."

More so, similar to studies carried out by Pupongsak (2009), Karimi et al. (2016) and Kassim (2016) who included the tariff rate in addition to standard index of trade openness to measure trade policy, this study also employs other proxies including the average tariff rate and a trade policy dummy to serve as trade policy measures. Additionally, the average tariff rate is included because it is proposed that the initial tariff levels, their coverage and the extent of their reduction are important in influencing international trade tax revenue. Hence, the need to assess the degree of restrictiveness of trade using the tariff rate as another measure.

4.3 Model Specification

Though the model specification is based on the tax effort model, as stated by Tanzi (1989), macroeconomic variables such as; exchange rate can probably influence tax revenue significantly but are not included in the conventional literature on tax effort. Also, the exchange rate is important for the competitiveness of a country, a prerequisite for benefitting from trade (Laryea & Senadza, 2017).

Additionally, as per Gnangnon (2016), donors are likely to recompense developing countries for fiscal losses sustained during the process of liberalizing trade policies which are in line with the main objective of foreign aid that is, enhancing economic development and welfare in developing countries. In the meantime, to maintain trade relations with potential export markets of developing countries, it will be in the interest of donors to provide such compensation. Thus, with the high dependence of developing countries on external financing, aid can be included in the model to ascertain its impact on revenue.

Medina and Schneider (2016) also propose that the size of the shadow economy is necessary to determine the extent of tax evasion in an economy. Although measuring the size of the shadow economy can be challenging, because persons behind such activities try to conceal their dealings, it is of both political and economic relevance. Moreover, overall economic activity which includes official and unofficial production of goods and services should be considered when designing trade policies and hence translate into economic policies that counteract fluctuations and economic development eventually.

Therefore, to provide a logical presentation of the analysis these key variables are included in the model specification. Additionally, Hisali (2012) stated that empirical studies on the impact

of trade policy reforms on international trade tax revenue have been carried out by using a simple trade tax effort model. For this reason, extending the basic tax effort model a functional form of international trade tax revenue to GDP ratio is represented as:

$$ITT = f(\ PolicyReform, REER, GDPPC, AGRIC, AID, SE\ ) \quad \textbf{(2)}$$

Where *ITT* represents the ratio of international trade tax revenue to GDP, *PolicyReform* denotes the various measures of trade policy which are; indices of openness i.e. the tariff rate (*TAR*), trade openness (*OPEN*) as well as a dummy variable (*TPdumm*), *REER* denotes the real effective exchange rate, *GDPPC* measures GDP per capita growth, *AGRIC* signifies agricultural sector shares in GDP, *AID* represents Official Development Assistance per capita, and *SE* accounts for the size of the shadow economy.

Empirical analyses on the impact of trade policy reforms on international trade tax revenue are either cross-country or country-specific. This study, however, is country-specific and focuses only on Ghana. It employs the Autoregressive Distributive Lag (ARDL) Bounds Testing approach to examine this relationship. Therefore, incorporating time, the model is specified as follows:

$$\frac{ITT_t}{GDP_t} = \alpha_0 + \beta Z_t + \varepsilon_t \quad \textbf{(3)}$$

Where: α_0 is the overall constant term, the tax to GDP ratio is altered to represent the ratio of international trade tax revenue to GDP (ITT_t/GDP_t) and Z_t denotes a set of control variables and ε_t is the error term.

Expanding equation (3) and taking the log of certain variables, the time series model employed to examine the relationship between trade policy reforms and international trade tax revenue is given as follows:

$$ITT_t = \beta_0 + \beta_1 PolicyReform_t^{1} + \beta_2 logREER_t + \beta_3\ GDPPC_t + \beta_4 AGRIC_t + \beta_5 AID_t + \beta_6 SE_{\ t} + \ \varepsilon_t \quad \textbf{(4)}$$

Where β_0 represents the constant (intercept), β_1 to β_6 denotes the coefficients of the explanatory variables respectively and ε_t is the residual term.

4.4 Definition and measurement of variables

4.4.1 Dependent variable

***International Trade Tax Revenue to GDP ratio (ITT)*:** This is an aggregate of imports and exports duties to GDP.

i. *Import duty*: This is a duty imposed on all authorised goods brought into the country with the exception of those that are statutorily exempt. It forms a substantial part of taxes accumulated by the customs division and hence contributes significantly to tax revenue in developing countries owing to the high dependence on imports. It is computed on the cost, insurance, and freight (CIF) value.

ii. *Export duty*: This is levied on commodities that are dispatched overseas. However, in recent years most developing countries pursue an export promotion policy to boost foreign exchange earnings and attain trade balance as such most primary and semi-manufactured exports attract a zero tariff rate (Ahmad et al., 2018). Thus, in Ghana export duties are imposed on commodities like cocoa and petroleum products.

This data is sourced from the Ministry of Finance and Economic Planning (MOFEP), Ghana and ICTD / UNU-WIDER Government Revenue Dataset.

[1]Where *PolicyReform* stands for *TAR*, *OPEN* or *TPdumm* and these will be entered separately as alternative measures of trade policy reforms. The same also applies to equation 5 on page 67 as well as equation 6 and 7 on page 69.

4.4.2 Independent Variables

1. *Trade Policy Reform (PolicyReform)*: This is used to capture how liberal or restrictive trade policy is and are categorised into two;

I. *Index of openness*: This study employs two indices for measuring openness.

i. *Trade openness* (*OPEN*): This is a key variable for assessing the level of distortion in trade flows, the standard of globalisation as well as the extent of a country's external trade sector and can be defined as the addition of exports and imports expressed as a fraction of GDP (Agyei et al., 2018; Dean et al, 1994). An increase in the ratio computed signifies more openness implying exports exceeds imports. This results in a favourable Balance of Trade (BOT) leading to a Balance of Payments (BOP) surplus. All other things being equal, if the capital account remains unchanged, economic growth is likely to improve, trade volumes will rise and international trade tax revenue increases. In the literature, it is seen to have a positive (Nwosa et al., 2012; Pupongsak, 2009) or negative influence (Ahmad et al., 2018; Khattry and Rao, 2002) on trade tax revenue. Data for this variable is sourced from World Development Indicators (WDI).

ii. *Tariff rates (TAR)*: This variable encapsulates the effects of trade restrictions (changes in imports and export duties charged). It is difficult to predict its sign a priori because reduced tariff rates can result in a decline in trade tax revenue but can also lead to an increase in volumes of imports and exports and thus increase trade tax revenue (Gnangnon, 2017). A reduction indicates greater openness and may positively or negatively affect trade tax revenue. According to Dean et al, (1994), even though an average nominal tariff rate which is not weighted may be a reasonable measure of trade restrictiveness, it may be biased upwards because only some categories of imports are taxed with high rates and such imports are likely not to be imported. Thus, a weighted

average tariff rate is much preferable. Nonetheless, there is difficulty in selecting the appropriate weights. One can use the import-weighted average tariff though this may be downward biased since very restrictive rates which reduce imports significantly will attract minimum weights in the average. A prohibitive tariff, for instance, attracts a weight of zero and as such may not be reflected when computing the weighted average of the tariff levels. Alternatively, the number of goods produced domestically which are subject to protection by the tariff can be used to weight. However, this can also be biased in relation to placing heftier weights on more highly protected sectors. This study employs the most favoured nation (MFN) weighted mean tariff rate obtained from the WDI database.

II. *Trade policy dummy (TPdumm)*: This is in reference to the year 2004 when Ghana under supervision of the Ministry Of Trade and Industry (MOTI) embarked on a major trade policy reform referred to as the Trade Sector Support Programme (TSSP). Although the TSSP was initiated in 2004, it was implemented from the years 2006 to 2010. It assumes the value of one (1) for years during and after which this policy was implemented and zero (0) otherwise. This variable assists in capturing the qualitative effect of trade policy reforms and its sign cannot be determined a priori.

2. *Real effective exchange rate (REER)*: This can be referred to as a multilateral exchange rate that determines a country's currency value in relation to the weighted average of numerous external currencies. Thus, the division of nominal effective exchange rate by a price deflator or index of costs. This variable encapsulates the macroeconomic implications of trade policy on trade tax revenue. Market efficiency requires a competitive exchange rate because they have an effect on international trade by affecting prices of various currencies of imported and

exported goods and services (Laryea and Senadza, 2017). Therefore, trade policy reforms are normally associated with exchange rate reforms. A real exchange rate devaluation can cause the domestic currency value of imports to upsurge and if import volumes remain unchanged customs revenue may rise (Kattry and Rao, 2002). However, if there is an elastic price elasticity of demand (PED) for imports it may lead to a decrease in customs revenue (Kassim, 2016). Consequently, real exchange rate devaluation can probably result in a decrease in trade tax revenues if it is accompanied by switching costs from tradable to non-tradable goods because locally consumed importable and exportable goods have become relatively very costly (Kattry and Rao, 2002). Data for this variable is obtained from World Development Indicators (WDI) and may possibly exhibit a negative correlation with trade tax revenue.

3. *GDP per capita growth (GDPPC)*: This is expressed as the ratio of gross domestic product to the midyear population. Gross domestic product is the aggregate value of all final goods and services in an economy. GDP per capita captures an economy's general level of economic development (Katthry and Rao, 2002; Kassim, 2016); country size and potential effects on the tax base (Karimi et al., 2016). Theoretically, it gives a better outlook of a country's administrative capacity and institutional quality (Kassim, 2016). Per capita income can either have a positive impact on trade tax revenue because it signifies improved tax administration capacity (Katthry and Rao, 2002) or negative impact on trade tax revenue because as a country develops they rely less on trade tax revenue (Karimi et al., 2016). Data used to capture this variable is from World Development Indicators (WDI).

4. *Agriculture as a share of GDP (AGRIC)*: This variable is included to account for the inconvenience faced in taxing different economic components since in most developing countries agricultural activities are usually dominated by the informal sector (Ahmad et al.,

2018). Additionally, the agricultural sector reflects the possibility of tax evasion in the economic sector. This is important since the majority of exports comprise of primary products (Osei-Assibey, 2015). This is likely to impact trade tax revenue negatively (Immurana and Iddrisu, 2013; Kassim, 2016). Data for this variable is obtained from World Development Indicators (WDI).

5. ***Official Development Assistance per capita (AID)***: This comprises an aggregate of concessional loans and grants received. Aid can reduce institutional quality by impairing governmental accountability and state bureaucracies thus, causing political instability, promoting rent-seeking and corruption, heightening disagreements on the management of aid funds as well as lessening the incentive to reform policies and institutions which are inefficient (Pupongsak, 2009). On the other hand, aid can be used to stimulate total tax revenue and boost economic activities (Kassim, 2016). Besides, the nature of aid may determine its impact on trade tax revenue (Immurana et al., 2013). Therefore, it has either a positive or negative relationship with trade tax revenue and employs data from World Development Indicators (WDI) database.

6. ***Shadow economy (SE)***: This accounts for legal economic activities that could have realised revenue for the government and also boost GDP which is concealed from official institutions. They may be as a result of monetary reasons such as evading taxes; regulatory purposes like eluding bureaucratic processes in governmental organizations as well as institutional purposes such as non-compliance with laws and statutory requirements (Medina and Schneider, 2018). This is employed to measure institutional quality. This is expected to impact negatively on trade tax revenue. Dataset for this variable is from an IMF working paper by Medina and Schneider (2018) and was computed by employing the MIMIC model.

Table 4.1: Summary of Variables and Expected Signs

Variable	Description	Expected sign
International trade tax revenue (ITT) (% of GDP)	Sum of import and export duties as a percentage of GDP	N.A
Tariff rate (TAR)	Weighted mean most favoured nations tariff (weighted by the product import shares)	Positive/Negative
Trade Openness (OPEN)	Sum of import and export divided by GDP	Positive
Dummy Variable (TPdumm)	Assumes the value of one (1) for years during and after Trade policy (TSSP) and zero(0) otherwise	Positive/Negative
Real Effective Exchange Rate (REER)	Nominal effective exchange rate divided by a price deflator or index of costs (2010 = 100)	Negative
GDP Per Capita Growth (GDPPC)	GDP divided by midyear population (in local currency units)	Negative
Agricultural sector shares in GDP (AGRIC)	Value-added to agricultural activities including; forestry, hunting, fishing, cultivation of crops and livestock as a percentage of GDP	Negative
Official Development Assistance (AID)	Sum of concessional loans and grants	positive/negative
Size of the shadow economy (SE)	Legal economic activities that do not contribute to government revenue and GDP because they are hidden from official authorities.	Negative

Source: Author's compilation

4.5 Data Source

To examine the impact of trade policy reforms on international trade tax revenue, this study will employ a quantitative approach in the analysis. Data to be utilized in the regression analysis will be secondary and is a time series. The dependent variable for the model will be international trade tax revenue to GDP ratio and the other variables to the model will be some selected trade policy variables which are based on theory, previous studies and their relevance

to this study. The study spans from the period 1980 to 2017. With the exception of the data on international trade tax revenue which was obtained from the Ministry of Finance and ICTD / UNU-WIDER Government Revenue Dataset and the data on shadow economy which was sourced from an IMF working paper. All other relevant data were obtained from the World Development Indicators (WDI).

4.6 Analytical Technique

To assess the impact of trade policy reforms on international trade tax revenue in Ghana, a unit root test is conducted to test for the order of integration of the series. Subsequently, based on the outcome of the unit root test, when the variables are integrated of the order zero and one i.e. I(0) and I(1) then the Autoregressive Distributive Lag (ARDL) Bounds Testing approach propounded by Pesaran and Shin (1999) and further expanded by Pesaran et al (2001) is employed to test for cointegration (existence of long-run relationship) between the variables. The ARDL model provides an unbiased estimate for long-run coefficients in the regression equation which are asymptotically normal as well as a valid t-statistics (Harris, 2003). The ARDL method is preferred to alternative approaches like Engle and Granger (1987); Johansen and Juselius (1990) which have the following limitations: whereas the Engle and Granger (E-G) method may be inadequate in instances where the explanatory variables are more than one, the Johansen and Juselius may be over-parameterized because it is built on the Vector Autoregressive (VAR) methodology and it is also susceptible to the model specification and choice of the lag length (Hisali, 2012; Agyei and Amankwaah, 2018).

The advantages of ARDL model include: it has good small sample size properties; suitable for estimating variables with different order of integration and have useful statistical properties

because of the estimates of Unrestricted Vector Error Correction Model (VECM) hence, both the short and long-run dynamics are not constrained to the error term (Pattichis, 1999).

4.6.1 Test for Stationarity

To investigate the properties of stationarity among the variables in the series the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests are performed. ADF unit root test estimates the null hypothesis of a unit root against otherwise and the regression equation employed is given as:

ADF with both the trend and intercept

$$\Delta y_t = \alpha + \beta_t + \gamma y_{t-1} + \sum_{i=1}^{k} \delta_i \Delta y_{t-i} + \varepsilon_t \quad \textbf{(i)}$$

Where t indexes time, Δ represents the first difference operator, α is a constant (intercept) referred to as the drift, β parameter with respect to time, γ denotes the coefficient for the unit root, k is the lag length, *i* represents the maximum lag from 1, 2…k and ε_t is the error term.

The ADF test is used to determine whether the error term (ε_t) has a serial correlation or white noise by introducing the lagged difference term. Furthermore, it utilizes the t-statistic by applying it on the lagged independent variable's coefficient (δ).

Decision rule: Based on the critical values of 10%, 5%, and 1% significance level, if t-statistic value is significantly greater(lesser) compared to the critical value, the null hypothesis of a unit root is rejected (not rejected) and we arrive at a conclusion that there is stationarity (no stationarity).

4.6.2 Autoregressive Distributive Lag (ARDL) Bound test Model

The study employed the OLS estimation technique to estimate the ARDL model below. The result of the estimation is then used to determine the Bound test for cointegration.

$$\Delta ITT_t = \alpha_0 + \sum_{j=1}^{n} \alpha_j \, \Delta PolicyReform_{t-j} + \sum_{j=1}^{n} \omega_j \, \Delta lnREER_{t-j} +$$

$$\sum_{j=1}^{n} \varphi_j \, \Delta GDPPC_{t-j} + \sum_{j=1}^{n} \sigma_j \, \Delta AGRIC_{t-j} + \sum_{j=1}^{n} \gamma_j \, \Delta AID_{t-j} + \sum_{j=1}^{n} \delta_j \, \Delta SE_{t-j} +$$

$$\eta_1 PolicyReform_{t-1} + \eta_2 lnREER_{t-1} + \eta_3 GDPPC_{t-1} + \eta_4 AGRIC_{t-1} + \eta_5 AID_{t-1} +$$

$$\eta_6 SE_{t-1} + \varepsilon_t \qquad \textbf{(5)}$$

Where ITT_t represents the ratio of international trade tax revenue to GDP; Δ is the first difference operator; α_0 is the constant term (intercept) ; $\Delta PolicyReform$, $\Delta GDPPC$, $\Delta AGRIC$, ΔAID, and ΔSE represent the first difference of Trade Policy Reform (tariff rate, trade openness, trade policy dummy), GDP per capita growth, agricultural sector shares in GDP, Official Development Assistance per capita, and size of the shadow economy respectively; and $\Delta lnREER$ denote first difference of the log of real effective exchange rate; n signifies the lag length; (α, ω, φ, σ, γ, δ) represents the short-run dynamics of the trade tax revenue model; $\eta_1 \ldots \eta_6$ are the long-run parameters and ε_t is the white noise term.

According to Enders (1995), choosing a suitable lag length is equally essential as deciding which variables to incorporate in any form of an equation. The ARDL modelling technique allows a maximum lag length of one (1). Two conventional lag structures namely; The Akaike Information Criteria (AIC) and Schwarz (Bayesian) Information Criteria (SIC) can be used.

4.6.3 Bound Test for Cointegration

Co-integration implies that even though it is probable that all the variables in a series may be non-stationary when they are linearly combined with other variables they may result in

stationarity. This is used to eschew spurious regressions (Immurana and Iddrisu, 2013). A cointegration test is conducted based on the outcome of the order of integration from the unit root test to analyse the long-run correlation amongst the trade policy variables and trade tax revenue.

Therefore, the F-test which follows an asymptotic non-standard distribution is employed to test for joint significance of the coefficients of the lagged level variables. Accordingly, we proceed to ascertain the existence of cointegrating relationships by constricting coefficients estimated of lagged level variables to zero. Therefore, the hypothesis is presented as:

Null hypothesis (H_0): no cointegration or long-run relationship

Alternative hypothesis (H_1): the existence of cointegration or long-run relationship

That is; $H_o : \gamma_1 = \gamma_2 = \gamma_3 = 0$

Against $H_1 : \gamma_1 \neq 0,\ \gamma_2 \neq 0,\ \gamma_3 \neq 0$

Decision rule: To formulate a decision, the values obtained from the computation of the F-test are evaluated against two asymptotic critical value bounds namely; upper and lower bounds. However, the asymptotic critical value bounds specify a test for cointegration depending on the order of integration of the explanatory variables either I(0) or I(1). Whereas the upper bound presupposes that all the regressors are integrated of order I(1), the lower bound assumes that they are all integrated of order I(0).

Consequently, the null hypothesis of no cointegration is rejected if the calculated F-statistic lies above the upper bound, suggesting the existence of a long-run relationship. Conversely, if the F-statistics obtained lies below the lower bound, we refuse to reject the null hypothesis and

conclude that there is nonexistence of cointegration. However, if the F-statistics estimated lies within the bound then the outcome is indecisive.

4.6.4 Estimation of Long-run relationship

Subsequently, in estimating the long-run relationship among the variables, we set up the Long-run ARDL Model which is specified as follows:

$$ITT_t = \alpha_0 + \eta_1 PolicyReform_{t-1} + \eta_2 lnREER_{t-1} + \eta_3 GDPPC_{t-1} + \eta_4 AGRIC_{t-1} + \eta_5 AID_{t-1} + \eta_6 SE_{t-1} + \varepsilon_t \quad \textbf{(6)}$$

Where α_0 signifies the constant (intercept) term, $\eta_1 \ldots \eta_6$ are the long-run parameters and ε_t is the white noise term.

4.6.5 Estimation of the Error Correction Model

$$\Delta ITT_t = \alpha_0 + \sum_{j=1}^{n} \alpha_j \Delta PolicyReform_{t-j} + \sum_{j=1}^{n} \omega_j \Delta lnREER_{t-j} + \sum_{j=1}^{n} \varphi_j \Delta GDPPC_{t-j} + \sum_{j=1}^{n} \sigma_j \Delta AGRIC_{t-j} + \sum_{j=1}^{n} \gamma_j \Delta AID_{t-j} + \sum_{j=1}^{n} \delta_j \Delta SE_{t-j} + \lambda_1 ECT_{t-1} + \varepsilon_t \quad \textbf{(7)}$$

Where Δ depicts the first difference operator, α_0 signifies the constant (intercept) term, *n* represents the lag length of the variables, (α, ω, φ, σ,γ, δ) are the short-run dynamic coefficients of the model, λ_1 is the speed of adjustment to obtain the long-run equilibrium in the event of shock, ECT_{t-1} is the error correction term and ε_t is the white noise term.

It must be noted that if the coefficient of *ECT* is negative and significant it implies there is cointegration hence, the variables will converge in the long-run.

4.6.6 Pairwise Granger Causality Test

To examine the causal relationship between trade openness, tariff rate, and international trade tax revenue, a Granger Causality test is undertaken. One advantage of Granger Causality test over other test procedures is its robustness to both small and large sample size. Therefore, a pairwise causality is constructed whereby the coefficients of international trade tax revenue to GDP (*ITT*) and the index of openness (*OPEN, TAR*) are statistically significant from zero for all regressions.

$$ITT_t = \alpha_0 + \sum_{i=1}^{n} \alpha_1 ITT_{t-1} + \sum_{i=1}^{n} \alpha_2 OPEN_t + \sum_{i=1}^{n} \alpha_3 TAR_t + \sum_{i=1}^{n} \alpha_4 \ ECT_{t-1} + \varepsilon_t \quad \textbf{(8)}$$

$$OPEN_t = \beta_0 + \sum_{i=1}^{n} \beta_1 ITT_t + \sum_{i=1}^{n} \beta_2 OPEN_{t-1} + \sum_{i=1}^{n} \beta_3 TAR_t + \sum_{i=1}^{n} \beta_4 ECT_{t-1} + u_t \quad \textbf{(9)}$$

$$TAR_t = \alpha_0 + \sum_{i=1}^{n} \delta_1 ITT_t + \sum_{i=1}^{n} \delta_2 OPEN_t + \sum_{i=1}^{n} \delta_3 TAR_{t-1} + \sum_{i=1}^{n} \delta_4 \ ECT_{t-1} + e_t \quad \textbf{(10)}$$

Where *ITT*, *TAR*, *OPEN* represent the underlying variables for establishing the causal relationship; ECT_{t-1} is the error correction term with one lag period depicted from the cointegration regression analysis; ε_t, u_t, *and* e_t denote white noise residuals which are mutually uncorrelated.

4.6.7 Diagnostic and Stability Tests

To investigate the robustness of the outcome from the ARDL model, diagnostic and stability tests are performed. Diagnostic tests include analyses to reveal the existence of autocorrelation, normality, incorrect functional form and heteroscedasticity of the error term. More so, the stability test is executed to identify the existence of structural breaks by utilizing the cumulative sum (*CUSUM*) and the cumulative sum of squares (*CUSUMSQ*) of recursive residuals. In a nutshell, one assumption underlying the ARDL Bounds Testing method is the need for the error terms to be serially independent in the Unrestricted Vector Error Correction Model (VECM).

4.7 Presentation and Discussion of Empirical results

4.7.1 Descriptive Statistics of Variables

This sub-section provides summary statistics of all the variables used in the regression analysis. Table 4.2 reports the summary statistics of the variables which encapsulate the sample observations, the mean representing an average of the variables, minimum and maximum which corresponds to the range from the lowest to the highest values, as well as the standard deviation which depicts the variations from the mean. The differences in the observations stem from the unavailability of data points. However, the missing values are not highly significant to adversely influence the results.

Table 4. 2: Summary Statistic of Variables

Variables	Observations	Mean	Maximum	Minimum	Standard Deviation
Dependent variable: International Trade Tax Revenue (ITT) (% of GDP)	36	2.552018	3.545583	0.57	0.575413
Independent variables: Tariff rate(TAR)	38	10.74936	16.2	8.6	1.299093
Trade Openness (OPEN)	38	54.8479	93.19641	25.3466	16.09157
Real Effective Exchange Rate (REER) (2010=100)	38	333.4836	3448.332	68.3678	664.7199
GDP Per Capita Growth (GDPPC)	38	1.787333	11.27926	-9.925440	3.708286
Official Development Assistance per capita (AID)	38	41.47628	71.80498	9.112136	17.20643
AGRIC (% of GDP)	38	37.46831	59.7306	19.69616	11.36923
Shadow Economy (SE)	25	42.7704	47.71	38.5	2.702493

Source: Author's compilation

From the period 1980 to 2017, GDP per capita growth (GDPPC) and international trade tax revenue to GDP ratio (ITT) recorded a low mean of 1.787333 and 2.552018 respectively thus, their contribution to GDP on average is minimal. With the exception of the real effective exchange rate (REER) and GDP per capita growth (GDPPC), all the variables have a lower standard deviation compared to their means. This implies that both real effective exchange rate (REER) and GDP per capita growth (GDPPC) disperses greatly away from their mean.

In terms of maximum and minimum values, whereas the variable with the highest maximum and minimum value is the real effective exchange rate (REER), international trade tax revenue as a share of GDP (ITT) has the lowest maximum value and GDP per capita growth (GDPPC) recorded the lowest minimum value of 2.552018 and -9.925440 correspondingly.

Additionally, official development assistance per capita (AID) ranges widely between 9.112136 and 71.80498. Likewise, the real effective exchange rate has a large interval ranging from 68.3678 to 3448.332. All variables have positive values except GDP per capita growth (GDPPC) which has some negative values as depicted by its minimum value.

4.7.2 Results of Test for Stationarity

To test the stationarity properties of the variables and confirm that indeed all the variables are I(0) and I(1) to avoid spurious results, the unit root test was conducted and the results are displayed in table 4.3.

Table 4. 3: Results of the Unit Root Test

	At levels		At First Difference		
Variable	ADF t-Statistic	Probability value	ADF t-Statistic	Probability value	Order of Integration
ITT	-5.626928***	0.0004			I(0)
TAR	-5.266761***	0.0006			I(0)
OPEN	-1.553628	0.7919	-6.130458***	0.0001	I(1)
Log of REER	-2.455141	0.3470	-6.407148***	0.0000	I(1)
GDPPC	-5.349702***	0.0006			I(0)
AGRIC	-3.690867**	0.0399			I(0)
AID	-2.71287	0.2376	-7.95317***	0.0000	I(1)
SE	-5.03343***	0.0025			I(0)

Note: H_0= All series have a unit root H_1= At least one series is stationary
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ implies rejection of the null hypothesis at 10%, 5% and 1% level of significance respectively.
Source: Author's computation.

From table 4.3, the outcome of the unit root test indicates that whereas international trade tax revenue to GDP ratio (ITT), tariff rate (TAR), GDP per capita growth (GDPPC), Agricultural sector value-added as a share of GDP (AGRIC) and the shadow economy (SE) are stationary at levels i.e. I(0) at 1% and 5% levels of significance, all the other variables were stationary at first difference i.e. I(1) at 1% significance level. Therefore, confirming that all the variables are integrated of order one and zero, a long-run movement among the variables is probable. Moreover, Ouattara (2004) proposed that it is necessary to test the order of integration of the variables in the model to ensure that none of them are I(2) before implementing the ARDL.

Thus, a combination of I(0)s and I(1)s satisfies the precondition necessary to perform the ARDL Bounds Testing Approach to cointegration.

4.7.3 Results of Bound Test for Cointegration

After determining the stationarity amongst the variables, the bound test for cointegration follows. Employing the F-test to test whether the joint significance of the coefficients of the lagged level variables are zero that is no cointegration relationship, the following outcome is produced as shown in table 4.4

Table 4. 4: Result of the Pesaran and Shin Bound Test for Cointegration

Significance	Lower I(0) Bound	Upper I(1) Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43
F-statistic: Model 1(*TAR*)	10.3930	
Model 2(*OPEN*)	3.6313	
Model 3(*TPdumm*)	11.6542	

Source: Author's computation Note: H_0= No Cointegration H_1=There is Cointegration

Based on the results obtained in Table 4.4, the null hypothesis of no cointegration is rejected using the 95% confidence band because, the computed F-statistic lies above the upper bound i.e. I(1), suggesting the existence of a long-run relationship.

4.7.4 Results Obtained from the Estimation of the Long-run Relationship

In establishing the existence of a long-run relationship among the variables, the estimation of the long-run coefficients is undertaken, where international trade tax revenue to GDP ratio is the dependent variable and the results are presented in Table 4.5

Table 4. 5 Estimates of the Long-run Coefficients

Dependent Variable: International trade tax revenue (ITT) as a percentage of GDP			
Explanatory Variable	Model 1	Model 2	Model 3
Tariff rate (TAR)	-0.0815* (0.0463)	-	-
Trade Openness (OPEN)	-	0.023* (0.010)	-
Trade Policy Dummy (TPdumm)	-	-	-0.983*** (0.314)
Log of Real Effective Exchange Rate (REER)	-0.489 (0.510)	-1.680** (0.934)	-0.638** (0.185)
GDP Per Capita Growth (GDPPC)	-0.056 (0.034)	-0.237* (0.116)	-0.113*** (0.018)
AGRIC (% of GDP)	-0.004 (0.014)	-0.076* (0.034)	-0.084*** (0.024)
Official Development Assistance Per Capita (AID)	-0.021 (0.008)	0.051 (0.025)	-0.003 (0.007)
Shadow Economy (SE)	-0.072 (0.050)	0.114 (0.053)	0.066 (0.040)
Constant	9.661** (2.667)	2.709* (3.532)	7.634** (1.94)
R-squared	0.9846	0.8790	0.8039
F-statistic	2.8193	1.4520	3.7600
Prob(F-statistic)	0.0368	0.2654	0.0180

Source: Author's computation

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ denote statistical significance at 10%, 5% and 1% levels of significance respectively. Standard errors in parentheses.

Based on the results in Table 4.5, when three alternative measures of trade policy reforms are used to run three different estimations, the tariff rate has a negative and statistically significant relationship with international trade tax revenue to GDP ratio. This implies that a 100 percent increase in tariff rate reforms decreases international trade tax revenue as a proportion of GDP by 8.15%. This affirms the empirical studies of Karimi et al (2016); Hisali (2012); Pupongsak (2009) and Katthry and Rao (2002) who highlight the fact that further reductions in the tariff rate due to trade policy reforms can lead to declines in trade tax revenue. However, they add that tariff unification and reductions should not deter countries from embarking on trade policy reforms because they can benefit from trade liberalization without concerning themselves with the revenue loss accompanying it.

Trade Openness is seen to exert a positive influence on international trade tax revenue. Therefore, increasing trade openness by a 100 percent increases international trade tax revenue as a share of GDP by 2.3% in the long-run which is also statistically significant. This is consistent with economic theory that the greater the level of openness of an economy the likelihood for an increase in their trade volumes and hence, international trade revenue. These empirical results confirm the stances of Agyei et al. (2018), Nwosa et al. (2012), and Ebrill et al. (1999) but are contradictory to those of Pritchett and Sethi (1994), Khattry and Rao (2002) who find a negative effect.

More so, the statistically significant negative coefficient of the trade policy dummy suggests that during and after the implementation of Ghana's trade policy that is the Trade Sector Support Programme (TSSP), there have been some marginal declines in international trade tax revenue as a share of GDP.

The negative relationship between the real effective exchange rate and international trade tax revenue to GDP ratio conforms to the expected sign though it is not significant in the first regression. A 1% increase in real effective exchange rate reduces trade tax by 0.489%, 1.680% and 0.638% respectively and reinforces the proposition of Hisali (2012) that an exchange rate depreciation increases home prices of imports thus reducing its demand and trade tax revenues.

Furthermore, GDP per capita growth has a negative impact on international trade tax revenue. However, this is not significant in the first model. Thus, a 100 percent increase in GDP per capita growth translates to a 23.7% and 11.3% reduction in the ratio of international trade tax revenue to GDP in model two and three respectively. This is expected because as a country's level of economic development improves they become less dependent on trade tax revenue. This is in line with the study of Pupongsak (2009) who finds a significant and negative coefficient for GDP per capita in low and lower-middle income countries. Contrarily, Katthry and Rao (2002) discover a significant positive correlation and argue that possibly when countries faced with very low-income levels attain higher incomes, it enables them to stimulate their trade and as such obtain higher trade tax revenue.

Likewise, the Agricultural sector value-added as a percentage of GDP has a significant negative effect on international trade tax revenue to GDP ratio in the second and third estimation. Therefore, a 100 percent increase in the agricultural sector as a share of GDP will decrease international trade tax revenue to GDP ratio by 76% and 84% in model two and three respectively. This is consistent with the earlier prediction and the findings of Pupongsak (2009) and Immurana et al. (2013) that most developing countries are more dependent on primary products for exports, however, there is difficulty in taxing the agricultural sector and this may negatively affect trade tax revenue.

4.7.5 Results Obtained from the Estimation of the Error Correction Model

Subsequent to examining the long-run relationship, we proceed to find the short-run relationship between international trade tax revenue to GDP ratio and the explanatory variables. This is done by estimating the error correction model by generating the residuals of the long-run regression model and adding it to the first difference of the variables to obtain the error correction term. Table 4.6 presents the results of the short-run estimates with the error correction term.

Table 4. 6: Representation of the Short-run and Error Correction Estimates

Dependent Variable: D [international trade tax revenue (ITT) as a percentage of GDP]			
Explanatory Variable	Model 1	Model 2	Model 3
D(TAR)	0.0599* (0.0309)	-	-
D(OPEN)	-	0.022* (0.010)	-
D(TPdumm)	-	-	0.716** (0.185)
D(Log of REER)	0.912 (1.117)	2.880 (0.929)	2.421 (0.309)
D(GDPPC)	-0.187 (0.101)	0.097 (0.071)	0.182 (0.036)
D(AGRIC)	-0.0527** (0.022)	0.110 (0.063)	0.145 (0.020)
D(AID)	-0.0154** (0.005)	-0.050* (0.029)	-0.037*** (0.006)
D(SE)	0.275 (0.127)	-0.470*** (0.151)	-0.454*** (0.049)
ECT(-1)	-1.128*** (0.362)	-1.330*** (0.356)	-1.366*** (0.317)
R-squared	0.8198	0.9221	0.9549
F-statistic	5.9179	9.8697	14.6548
Prob(F-statistic)	0.0020	0.0005	0.0002

Source: Author's estimation

Note: D denotes the first difference operator and * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ represent statistical significance at 10%, 5% and 1% levels of significance respectively. Standard errors in parentheses.

From Table 4.6, all alternative measures of trade policy reforms have a positive and statistically significant coefficient in all three estimations. This indicates that a 100 percent increase in the tariff rate (TAR), trade openness (OPEN) and trade policy dummy (TPdumm) leads to a corresponding increase in international trade tax revenue to GDP ratio by 59.9%, 2.2%, and 71.6%. Pupongsak (2009) and Katthry and Rao (2002) argued that the positive coefficient of the tariff rate may be suggestive of a trade-off between reduced international trade tax revenue and reduced protection. In relation to the trade policy dummy, the positive sign implies that during the early stages of the trade policy reform program, there were marginal improvements in international trade tax revenue as a share of GDP.

Agricultural sector value-added as a share of GDP (AGRIC) has a negative and significant influence on international trade tax revenue only in the first model. Thus, a 100 percent increase in the agricultural sector value-added as a share of GDP will lead to a decline in international trade tax revenue to GDP ratio by approximately 5.3% due to difficulty in taxing the sector.

Aid per capita has a negative and significant influence on international trade tax revenue indicating that reductions in trade tax revenue are recompensed by a percentage increase in aid. Gnangnon (2016) asserts that donors give higher aid to countries which experience declines in trade tax revenue. Also, the shadow economy has a negative coefficient in model 1 and 2, and this is as expected because productive activities supposed to generate revenue for the government were not disclosed thus, adversely affecting international trade tax revenue.

The lagged error correction term (ECT(-1)) is highly significant at 1%, 5% and 10% significance levels confirming the existence of cointegration. Also, the negative coefficient of the error correction term which represents the speed of adjustment indicates that there is a

convergence towards the long-run equilibrium path. There are two schools of thought on the range in which the lagged error correction term (ECT(-1)) should fall within. One school of thought suggest that theoretically, it should lie between 0 and -1. The other propose that it can be less than -1 but should not exceed -2. According to Loayza and Ranciere (2005), for dynamic stability, the lagged error correction term should be negative and not less than -2. Additionally, Narayan & Smyth (2006) write that when the lagged error correction term(ECT(-1)) lies between -1 and -2, it does not converge directly but produces fluctuations around the long-run equilibrium path which are dampening but immediately this process is completed there is rapid convergence to the equilibrium path. Based on the estimations carried out, about 112.8%, 133%, and 136.6% of the deviations and shocks from the long-run equilibrium path of international trade tax revenue to GDP ratio are reduced in less than a year for all three models respectively.

4.7.6 Post-estimation Tests

This section presents the results of diagnostic and stability tests undertaken to ensure the reliability of the data and estimation results of the study.

Diagnostic tests

Tests for serial correlation, heteroscedasticity, and normality were performed and the results presented in table 4.7, 4.8 and 4.9 respectively.

Table 4.7: Breusch-Godfrey Serial Correlation Lagrange Multiplier Test

	F-statistic	Prob. F-statistic		Prob. Chi-Square (2)
Model 1 (TAR)	0.976724	F (2,11)	0.4069	0.1637
Model 2 (OPEN)	0.475574	F (2,8)	0.6380	0.2946
Model 3 (TPdumm)	0.745917	F (2,7)	0.5086	0.1326

Source: Author's estimation Note: H_0 = No Serial Correlation

Based on the probability values of the F-statistic and the Chi-Square in Table 4.7, we fail to reject the null hypothesis of no serial correlation at 1%, 5%, and 10% significance level thus, indicating the absence of autocorrelation among the variables in the series.

Table 4.8: Heteroskedasticity Test: Breusch-Pagan-Godfrey

	F-statistic	Prob. F-statistic	Prob. Chi-Square
Model 1 (TAR)	0.715250	F(10,13) 0.6984	0.5784
Model 2 (OPEN)	0.598150	F(12,10) 0.8024	0.6501
Model 3 (TPdumm)	2.960959	F(13,9) 0.1543	0.1346

Source: Author's estimation Note: H_0= Homoskedasticity

From table 4.8, the null hypothesis of homoskedasticity cannot be rejected at 1%, 5% and 10% levels of significance thus, suggesting there is no heteroskedasticity in the series.

Table 4.9: Normality Test

	Jarque-Bera	Prob. F-statistic
Model 1 (TAR)	0.4820	0.7858
Model 2 (OPEN)	1.0417	0.5940
Model 3 (TPdumm)	0.9674	0.6165

Source: Author's estimation Note: H_0= Normality

Similarly, from table 4.9, the null hypothesis of Normality is not rejected at 1%, 5%, and 10% significance levels.

Tests for Parameter Stability

To investigate the stability of the above long-run and short-run relationships for the entire period under study, the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMSQ) tests proposed by Brown *et al*. (1975) is employed. This methodology is adopted

because different from the Chow test which requires break-points to be specified, the CUSUM and CUSUMSQ tests can be used even if the structural break-point is unknown.

Decision rule: If the plot of the CUSUM and CUSUMSQ stays within the 5% critical bound the null hypothesis that all coefficients are stable cannot be rejected. Conversely, if any of the parallel lines are crossed then the null hypothesis of parameter stability is rejected at 5% significance level. The results of the CUSUM and CUSUMSQ are shown in the Appendix.

It is evident that both the CUSUM and CUSUMSQ plots lie within the 5% critical bound for all models suggesting that during the period of study, the parameters of the model are not faced with any structural instability.

4.7.7 Results of the Granger Causality Test

To address the second objective of this study, a pairwise Granger causality test is performed to ascertain the direction of the causal relationship among the variables of interest. The results obtained are recorded in table 4.10.

Table 4.10: Results of Pairwise Granger Causality Test

Null Hypothesis:	Observation	F-Statistic	Probability
OPEN does not Granger Cause ITT	34	0.31962	0.0846*
ITT does not Granger Cause OPEN		2.6927	0.7289
TAR does not Granger Cause ITT	34	0.04026	0.9606
ITT does not Granger Cause TAR		0.32198	0.7273
TAR does not Granger Cause OPEN	36	0.32603	0.7242
OPEN does not Granger Cause TAR		0.74265	0.4841

Source: Author's estimation

From Table 4.10, the null hypothesis that trade openness does not Granger Cause international trade tax revenue to GDP ratio is rejected at 10% level of significance. Conversely, we fail to reject the null hypothesis that international trade tax revenue to GDP ratio does not Granger Cause trade openness. This is indicative of a unidirectional causality running from trade openness to international trade tax revenue as the results of Agyei et al. (2018).

Furthermore, the null hypothesis for the other causal relationships is not rejected at 1%, 5% and 10% levels of significance. This implies that there is no causal relationship between tariff rate and international trade tax revenue to GDP ratio. Likewise, the tariff rate and trade openness.

4.7.8 Conclusion

This chapter employed the ARDL Bound Testing Technique and the Pairwise Granger Causality test to respond to the objectives of the study. The estimations covered the period 1980 to 2017 and were undertaken with Eviews9 statistical package. The study discovered the existence of long-run relationships among the variables necessitating the estimation of the long-run and error correction models. In addition, post-estimation tests including the diagnostic and stability tests were performed.

Generally, some findings to highlight on include a positive effect of trade openness on international trade tax revenue in both short-run and long-run models. This reinforces economic theory that a greater degree of openness suggesting exports exceeds imports implies a favourable Balance of Trade (BOT) thus, a surplus Balance of Payments (BOP). With capital account held constant, economic growth is likely to improve which translates to an increase in trade volumes and hence, international trade tax revenue. This affirms the stances of Agyei et al. (2018); Nwosa et al. (2012); Pupongsak (2009) and Ebrill et al. (1999) who find a positive correlation.

Tariff rate, on the other hand, has a positive effect on international trade tax revenue in the short-run asserting that at the initial stages of trade policy reforms where quantity restraints are replaced with tariffs it generates trade tax revenue but further tariff reductions adversely affects trade tax revenue in the long-run (Karimi et al., 2016; Hisali, 2012; Pupongsak, 2009; Katthry and Rao, 2002).

CHAPTER FIVE

SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the study and provides a general conclusion as well as policy implications. Recommendations will also be made.

5.2 Summary of the Study

This study endeavoured to examine the impact of trade policy reforms on international trade tax revenue in Ghana. Additionally, the causal relationship between trade openness, average tariff rate, and international trade tax revenue were assessed. Also, an overview of trade policy and international trade tax revenue including trends in trade indicators and macroeconomic variables were presented. The theoretical literature review centred on the theoretical foundation of trade policy, constraints that limit developing countries ability to benefit from trade policy reforms, the effect of trade policy reforms on trade tax revenue and some measures of trade policy employed in the literature. Moreover, an empirical survey of the literature on the relationship between trade policy reforms and revenue was undertaken and this produced mixed findings.

The model specification was built on the conventional tax effort model and the Autoregressive Distributive Lag (ARDL) Bound Test Approach to cointegration was employed to ascertain the short and long-run relationships among the variables in the study. The results of the estimation revealed that in both the long-run and short-run models, all alternative measures of trade policy reforms are significant.

From the study, the findings of the trade policy measures i.e. tariff rate, trade openness, and trade policy dummy are presented as follows:

Although the average tariff rate has a positive coefficient in the short-run, it has a negative influence on international trade tax revenue in the long-run. This positive coefficient suggests a compromise between reduced protection and reduced international trade tax revenue. Also, if the tariff rate is high at their initial levels, reducing them can cause international trade tax revenue to increase in the short-run. Conversely, excessively high tariffs can adversely affect trade volumes hence, reducing international trade tax revenue. On the other hand, tariff reductions can reduce the incentive to evade taxes thus increasing trade volumes and promoting international trade tax revenue. However, reducing further a low tariff which is below the revenue-maximizing rate will lead to international trade tax revenue losses because the higher trade volumes will not be enough to offset the low tariff (Pritchett and Sethi, 1994; Khattry and Rao 2002; Ebrill et al., 1999).

In the case of trade openness, it is seen to have a positive correlation in all models suggesting that trade openness stimulates higher trade volumes and increases trade tax revenue (Agyei et al., 2018; Pupongsak, 2009). Thus, Ghana's adoption of liberal trade regimes to promote trade, is beneficial and as such should not worry so much about the adverse consequences of liberalization.

The trade policy dummy also had a positive and a negative coefficient in the short-run and long run models respectively indicating that even though the adoption of the Ghana's Trade policy improved international trade tax revenue generation as a share of GDP during and after the implementation of the policy in the short-run, this could not be sustained.

Furthermore, the level of economic development represented by the GDP per capita showed a negative correlation in both the short-run and long-run models. This confirms the hypothesis that as a country grows they depend less on international trade tax revenues because they have better tax administration and government capacity to collect taxes as well as taxpayers who have the ability to pay taxes (Pupongsak, 2009; Kassim, 2016). Conversely, developing countries have inadequate tax administration capacity and thus, rely mostly on international trade tax revenues which are easy to collect.

The Granger Causality test showed a unidirectional causality running from trade openness to international trade tax revenue. This implies the past values of openness can predict the present values of international trade tax revenue.

5.3 Conclusion

According to Matlayane & Harmse (2002), when carrying out trade policies the focus is geared towards medium to long term consequences. Nonetheless, in the short to medium term, it is anticipated that trade policy reforms will lead to a decrease in tax income accruing from trade. The impact is borne immediately by the government budgetary statements. This instantaneously affects the debt encumbrance of economies with a narrow tax base. However, with respect to economies that are able to easily find other sources of revenue to replace trade tax revenue losses, there is likely to be less strain on the budget position.

Therefore, if a country embarks on trade policies which are aimed at opening up their economy and as such require reducing or eliminating trade barriers, it must ensure that the benefit from opening up its economy outweighs the loss.

5.4 Policy Implications and Recommendations

The economic consequences of trade policy reforms require a conscious effort by the government to be very particular when embarking on such policies. This study has focused on the impact of trade policy reforms on government international trade tax revenue mobilization. Policy implications and recommendations stemming from the findings include;

The empirical findings indicate that trade policy reforms in the form of tariff reductions had a positive effect on international trade tax revenue in the short term but resulted in a reduction in the long-run. This implies that Ghana can maximize the benefits of trade policy reforms without worrying too much about its effect on trade tax revenue. However, tariff reductions should not go beyond the revenue maximizing tariff rate in order to maintain revenue levels. Besides, the government can take advantage of the cedi depreciation by promoting exports to boost export earnings which will be enough to offset the declines in trade tax revenues due to tariff reductions.

Moreover, given the positive and significant effect of trade openness on the international trade tax revenue, depicts that liberalizing trade on a whole has been beneficial in Ghana. However, market efficiency requires a competitive exchange rate, the relevant variable here being the real effective exchange rate which essentially measures competitiveness by showing the number of units of domestic goods required to buy the weighted average of a basket of foreign goods. The empirical results show a negative effect of the real effective exchange rate. It is therefore necessary for policy makers to ensure the competitiveness of the Ghanaian economy by monitoring the real effective exchange rate and keeping it from straying too far from equilibrium. Trying to keep the nominal exchange rate from moving in the face of shocks will affect the competitiveness of the economy (Laryea & Senadza, 2017). Therefore, it is essential that the government embarks on trade policies together with sound macroeconomic policies

such as prudent exchange rate policies to help gain revenues from international trade and in effect alleviate budget strains.

Therefore, it behoves on the government to concentrate on providing a favourable macroeconomic policy environment and infrastructure accompanied by fairly stable and effective trade policies and regulations. Moreover, because international trade tax revenue is an important source of revenue to the government it is imperative that administrative capacity is enhanced to mobilize trade tax revenue. Furthermore, the exemption scheme must be reviewed to attain some moderate increases in international trade tax revenue.

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APPENDIX

Appendix A

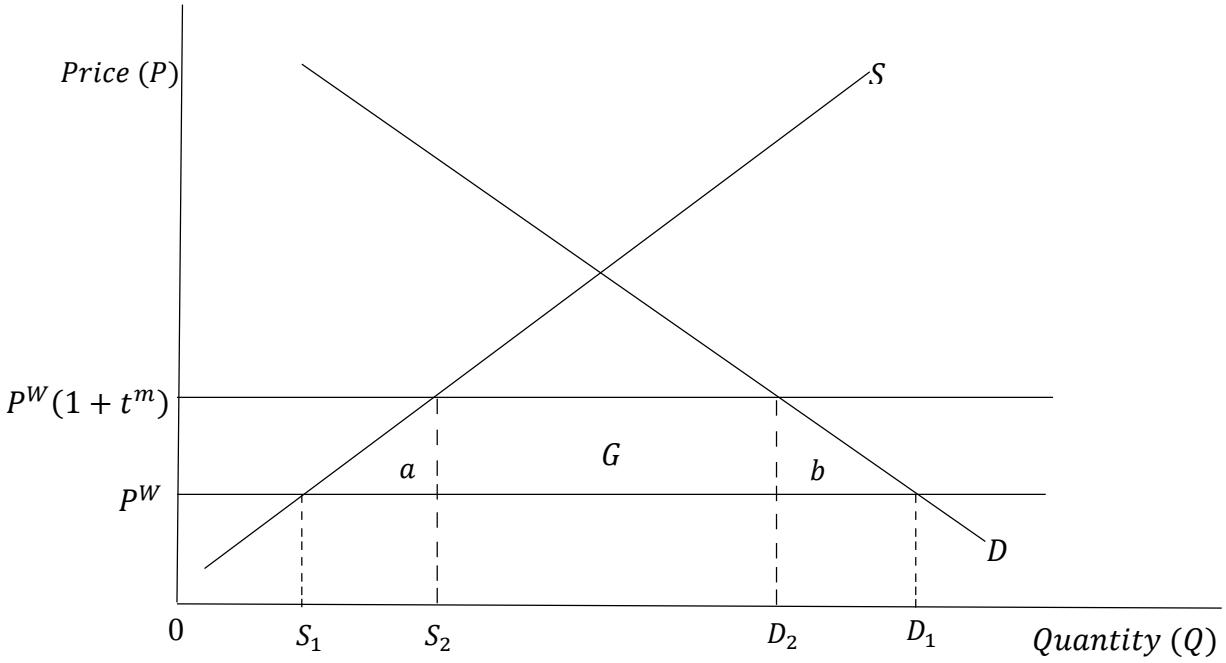
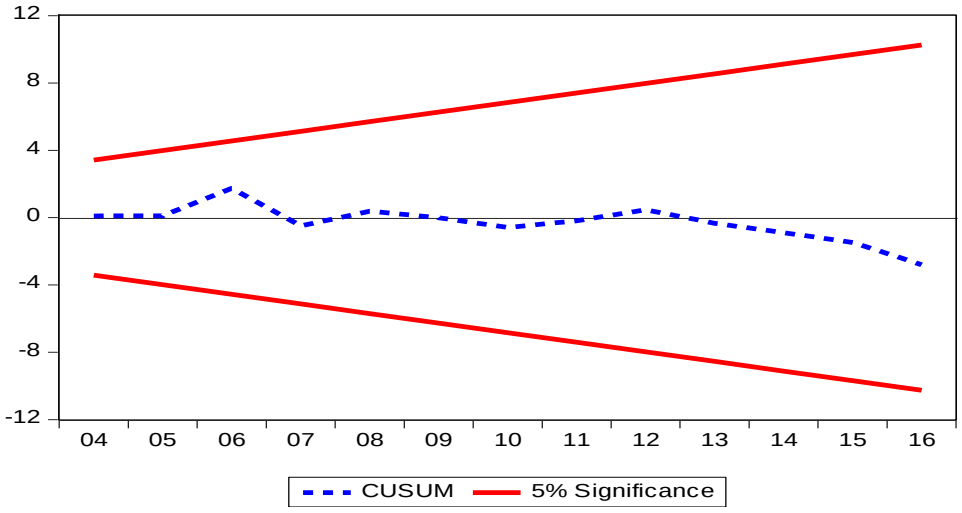


Figure 3.1: Effects of Import Tariffs

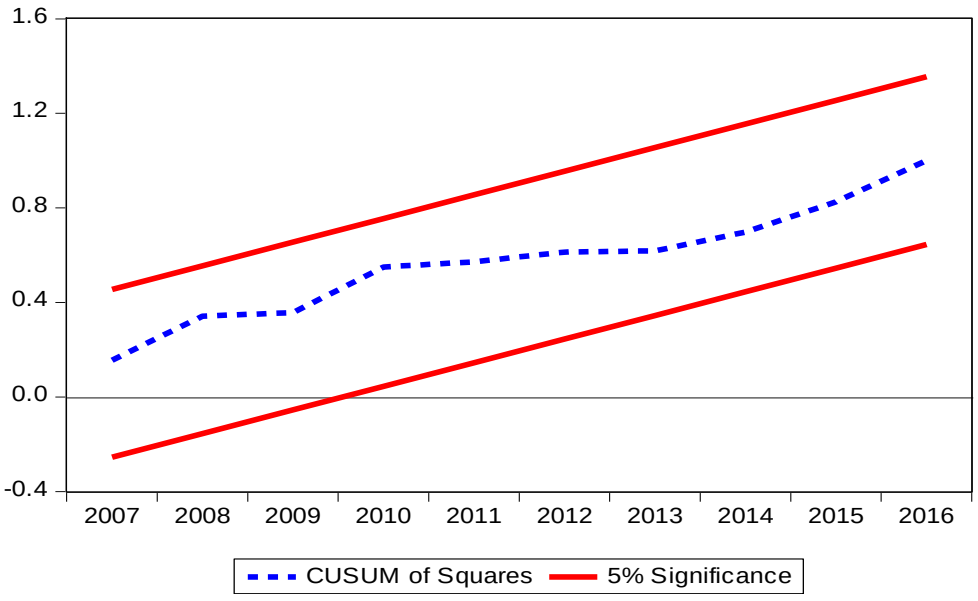
Appendix A depicts the demand and supply curves of the home country. At world price (P^w), the quantity consumed (D_1) exceeds the quantity produced (S_1) in the home country thus, giving rise to imports (D_1-S_1) to meet the excess demand. Suppose the domestic economy imposes a tariff on imports, domestic prices will increase from P^w to $P^w(1+t^m)$. At the new price $P^w(1+t^m)$, there is a fall in home demand from D_1 to D_2 whereas home supply increases from S_1 to S_2. As a result of the production effect i.e. an increase in domestic production and the consumption effect i.e. a decrease in domestic consumption, the trade effect is a decline in imports to D_2-S_2. Therefore, with the imposition of a tariff on imports trade reduces by encouraging production and impeding consumption. Notwithstanding, the government gains trade tax revenue 'G' which is equal to tariffs times the volume of imports. Area 'a' and 'b' represent deadweight losses.

Model 1: Tariff rate

Appendix B: Plot of Cumulative Sum

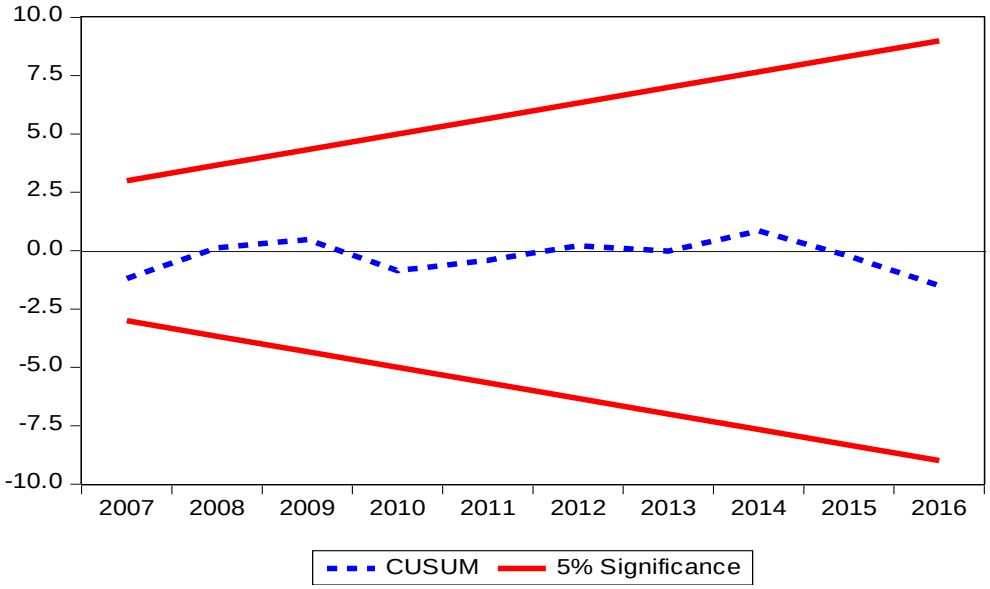


Appendix C: Plot of Cumulative Sum of Squares of Recursive Residuals

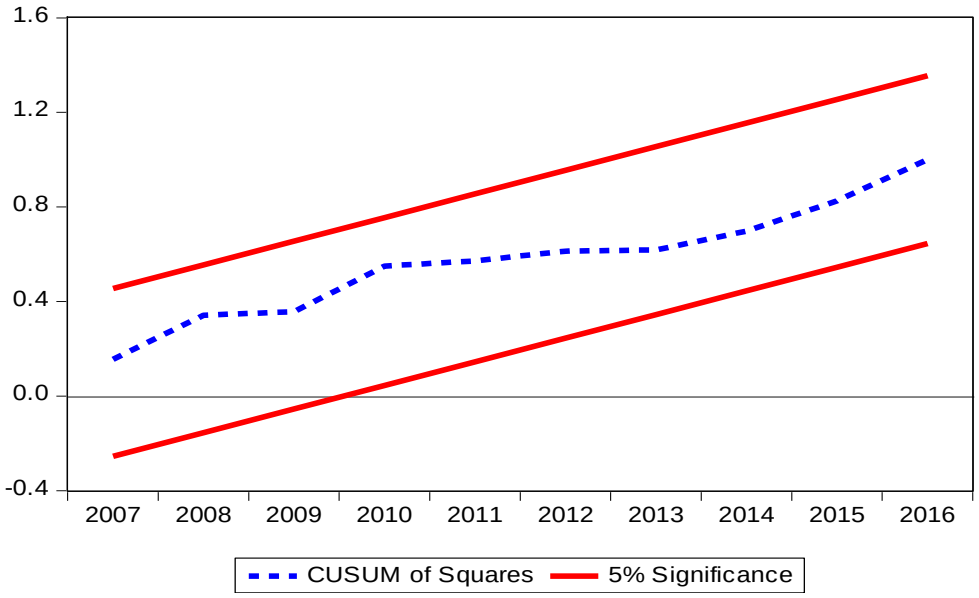


Model 2: Trade Openness

Appendix D: Plot of Cumulative Sum

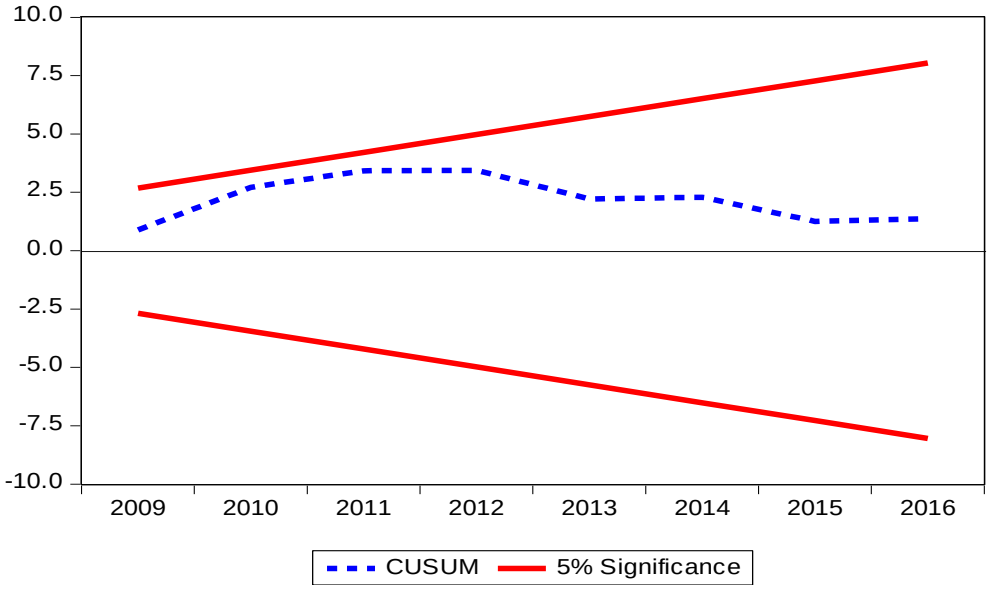


Appendix E: Plot of Cumulative Sum of Squares of Recursive Residuals



Model 3: Trade Policy Dummy

Appendix F: Plot of Cumulative Sum



Appendix G: Plot of Cumulative Sum of Squares of Recursive Residuals