

**ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATES STUDIES**

**EFFECTS OF CUSTOMS TARIFF REDUCTION ON ETHIOPIAN TRADE AND
ECONOMIC GROWTH: A COINTEGRATED VAR MODEL APPROACH**

BY

DESTA LAMBEBO HEBOTO

**JUNE, 2016
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***A Project Submitted to the Department of Economics in Partial
Fulfillment of the Requirements for the Degree of Master of Arts in
Economics (Applied Trade Policy Analysis)***

BY

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**June, 2016
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ACKNOWLEDGMENT

I thank my God for all His interventions and provisions throughout my life. All things became possible only by Him.

I would like to express my heartfelt thanks and gratitude to my Advisor, Dr. Tadele Ferede, Head, Economics Department, in Addis Ababa University for his constructive comments and valuable advice in the preparation of this Research Paper. I am particularly grateful to Dr. Lemma Gudissa, Ethiopian Civil Service University for his valuable comments.

Many thanks go to my colleagues in Fiscal Policy Directorate, Firehiwot Handamo, Lisanework Yirsaw, Gosa Tefera, Tizita Feleke, and Getachew Shiferaw from ERCA for providing me data for this study.

Finally, my deepest gratitude also goes to my wife, Meseret Desta and our children; Bethel, Yonathan, Nahom and Deborah for their encouragement and support for being successful in my research work.

Table of Contents

ACKNOWLEDGMENT	i
LIST OF FIGURES	iv
LIST OF TABLES	iv
ACRONYMS and ABBREVIATIONS	v
ABSTRACT	1
CHAPTER ONE: INTRODUCTION OF THE STUDY	2
1.1 Background.....	2
1.2 Objective of the study	5
1.3 Research Methodology and data source	6
CHAPTER TWO: LITERATURE REVIEW	8
2.1 Theoretical Literature.....	8
2.2 Empirical Literature	10
CHAPTER THREE: THE ECONOMIC GROWTH, TRADE LIBERALIZATION AND TARIFF REFORM MEASURES IN ETHIOPIA	21
CHAPTER FOUR: ECONOMETRIC MODEL SPECIFICATION, VARIABLE DEFINITION AND ESTIMATION TECHNIQUE	29
4.1 Variable Definition.....	29
4.2 Model specification	30
4.3 Estimation Procedures.....	32
4.3.1 Stationarity Test.....	32
4.3.1.1 Testing for Unit Roots	32

4.3.2 Econometric Method.....	34
4.3.2.1 Vector Autoregressive (VAR) Modeling and Co-Integration Analysis	34
4.3.2.2 The Vector Error Correction Model (VECM)	35
4.3.2.3 Diagnostic Checks	37
CHAPTER FIVE: DATA ANALYSIS AND INTERPRETATION OF RESULTS	39
5.1 Time series properties of the data	39
5.1.1 Unit Root Tests.....	39
5.2 Econometric Analysis	40
5.2.1 Co-Integration Test Result.....	40
5.2.2 Post-Estimation Diagnostics	41
5.2.3 Vector Error Correction Model (VECM).....	44
CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS	49
6.1 CONCLUSIONS.....	49
6.2 RECOMMENDATIONS	51
APPENDICES	59
Appendices I/A-D: Original Macroeconomic Data on Government Revenues, GDP, Imports and Foreign Exchange Rates and own computed data	59
Appendix II: Share of Imports to GDP since the Economic Reform programs and tariff cut down period (1992 - 2015)	67
Appendix III: Ethiopian Economy and trade movement, and share to GDP (2000/01 - 2014/15) In Million Birr.....	68

LIST OF FIGURES

page

Figure 3.1 Ethiopia Economic Growth by sector (2000/01-2014/15).....	21
Figure 3.2 GDP Share by Sector (2000/01-2014/15).....	22
Figure 3.3: Total Government Revenue by Major Sources (1975/76 -2014/15)	25
Figure 3.4: Contribution of total foreign trade taxes to tax revenue (1975/76 - 2014/15).....	26
Figure 3.5: Contribution of tax revenue to Total revenues and Grants (1975/76 - 2014/15).....	27
Figure 3.6: Contribution of trade of goods to GDP at current market prices (2000/01 – 2014/15).....	28
Figure 5.1 Inverse roots of the AR	43

LIST OF TABLES

Table 3.1 Ethiopian Economy and trade movement, and share to GDP (2000/01 - 2014/15) (In Million Birr)	23
Table 3.2 Brief features of the Ethiopian Customs tariff amendments (1993 – 2014)	24
Table 5.1: Augmented Dickey-Fuller Stationarity Test Result	39
Table 5.2: Optimal lag order selection criteria.....	41
Table 5.3: Diagnostic checks for VECM.....	42
Table 5.4: Unrestricted Co-integration Rank Test (Trace).....	43
Table 5.5: The Estimated Long-Run Model for LGDP could be.....	45
Table 5.6: The Estimated Long-Run Model for LIMP.....	46
Table 5.7: Short-Run Coefficients when dependent variable is D (LGDP).....	47
Table 5.8: Short-Run Coefficients when dependent variable is D (LIMP).....	48

ACRONYMS and ABBREVIATIONS

ACBE	The African Capacity Building Foundation
ADF	Augmented Dickey-Fuller
ASYCUDA	African Technical Assistance Automation System for Customs Data
BMW	Bonded Manufacturing Warehouse
BPR	Business Process Re-engineering
BTN	Brussels Tariff Nomenclature
CCCN	Customs Cooperation Council Nomenclature
CIF	Cost + Insurance +Freight
COMESA	Common Market for Eastern and Southern Africa
ECT	Error Correction Term
EDRI	Ethiopian Development Research Institute
EEA	Ethiopian Economic Association
EIA	Ethiopian Investment Agency
ERCA	Ethiopian Revenues and Customs Authority
FDRE	Federal Democratic Republic of Ethiopia
FDI	Foreign Direct Investment
GDP	Gross Domestic Products

GNP	Gross National Products
GTP	Growth and Transformational Plan
H.S	Harmonized System
IMF	International Monetary Fund
LDCs	Least Developed Countries
MoFED	Ministry of Finance and Economic Development
MoFEC	Ministry of Finance and Economic Cooperation
NBE	National Bank of Ethiopia
NGOs	Non-Governmental Organizations
NPC	National Planning Commission
OLS	Ordinary Least Squares
PAC	Partial Autocorrelation
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
RIOs	Regional Investment Offices
RTC	Regional Training Centre
SARS	South African Revenue Service
SDPRP	Sustainable Development and Poverty Reduction Program
TR	Tax Revenue/Tariff Revenue

TTR	Total Tax Revenue
VAT	Value Added Tax
VECM	Vector Error Correction Model
WB	World Bank
WCO	World Customs Organization
WTO	World Trade Organization

ABSTRACT

Customs tariff plays an important role in the Ethiopian trade and growth. It contributes a vital share in revenue generation needed to finance the economy. The reviewed empirical literature has indicated that the effects and contribution of customs tariff to the government budget in Ethiopia are not yet identified. Specifically, the importance of imposing customs tariff, the share of customs duty in the public revenue, its revenue productivity and its determinants are yet studied. This can negatively affect the fiscal role of customs tariff in the country and may also distort the decisions of the policymakers.

For this research, secondary macroeconomic data for the period between 1975/76 and 2014/15 Ethiopian fiscal years, were collected mainly from the Ministry of Finance and Economic Cooperation (MoFEC), the Ethiopian Revenues and Customs Authority (ERCA), and additionally from other sources. Extensive theoretical and conceptual reviews, simple descriptive statistics, and co-integrated VAR model is applied to analyze the data.

Accordingly, the major reasons to impose tariffs on imported goods are found to be revenue generation, protection of domestic industries, reducing the balance of payments and trade deficits, and capital formation. Simple descriptive statistics have shown that customs tariff, in the form of customs duty, has very significant share (36%, and 15%) in the foreign trade taxes, and total taxes, respectively) in the Ethiopian tax structure. Although the contribution of customs duty in the Ethiopian government revenue is significant, the customs duty has been neither buoyant nor elastic. This implies that both the direct discretionary and non-discretionary measures have not yet brought the buoyancy and elasticity of the customs duty to the unitary level.

The long-run equilibrium equation shows that, *ceteris paribus*, direct and indirect domestic taxes, foreign trade taxes (FTT) and exchange rate have positive and significant impact on economic growth (GDP). Other independent variables (import, weighted average customs tariff rate, and revenue from customs duty) have a negative but significant impact on economic growth.

Key words: customs tariff, customs duty, tariff liberalization, co-integrated VAR model, openness, trade, revenue productivity

CHAPTER ONE: INTRODUCTION OF THE STUDY

1.1 Background

A continuous debate is undergoing on the merits and demerits of trade liberalization and customs tariff reduction or elimination. The argument that international trade enhances domestic economic growth goes back to the theories of absolute advantage and comparative advantage developed by Adam Smith (1723 -1790) and David Ricardo (1772 - 1823), respectively, are the pillars of classical economics. Recent developments in endogenous growth theory by Romer (1986) and Lucas (1988) also provided a more convincing and rigorous theoretical basis for the positive relationship between international trade and long-run economic growth and development. Furthermore, the new theory of endogenous economic growth postulates the lowering trade barriers will speed up the rate of economic growth and development in the long run (Salvatore, 2007).

This research attempts to examine the effects of Customs tariff reduction on the Ethiopian trade and economic growth focusing on its contribution to the domestic resource mobilization. The fiscal imbalance between public revenues and expenditures is one of the crucial problems of most of the developing countries. Domestic resource mobilization is a focus area to finance the economic growth and development in countries like Ethiopia. There is an attempt by the government to narrow the fiscal deficit gap by collecting public revenues efficiently and effectively, even though it is not as expected. One of the major contributors to government revenues in Ethiopia is revenue from international trade. Customs duty/tariff and other domestic taxes collected at the customs ports had a major contribution in tax revenue. This indicates that its role in trade facilitation and government budget is inevitable.

The main objective of levying customs tariff on international trade is to perform appropriate trade policy of a country, rather than fulfilling purposes of the country's fiscal policy. However, tariff revenue still serves as a major source of government revenue in many developing countries and let them to focus on the fiscal policy. This indicates the fact that the performance of tariff revenue has an impact on the overall performance of public revenue to the government budget of the developing countries.

Customs tariffs are simply taxes mainly imposed on goods when they are imported from abroad and also rarely imposed on exports. They are basically levied to protect domestic infant industries and/or to generate revenue for the government budget. The distinction between protective and revenue tariffs is largely covered by the facts of a world of expanding international trade, based mainly on geographic specialization between industrial and agricultural countries. Protective tariffs are imposed to protect domestic products from similar imported goods, based on Country's import substitution policy direction (Gudissa, 2014).

Protective duties are of course levied only on the import of goods produced or expected to be produced in the country. Protective duties are less satisfactory in their revenue aspects. Revenue tariffs, on the other hand, are levied by governments for the purpose of collecting tariff revenue and may be imposed on both imports and exports (Carbaugh, 1992: 97).

Where there are broad alternatives for a country with a rapidly expanding trade, both domestic and international, the best way to obtain revenue, according to Fox (1936), is through low tariff rates on commodities largely produced elsewhere and restrictions of protective duties to a select group of highly competitive commodities. Where alternatives are narrow, or nonexistent, the usual considerations of both revenue and protection become subordinate in tariff making. With the breakdown of other sources of income, tariffs, even under restrictive conditions, have become an increasingly important source of revenue.

Many countries also use customs tariffs to cut down imports generally in order to offset the decrease in exports resulting from different factors. The tariff policy can be used to reduce the demand for imports, by raising the customs duty rates, which in turn will have the effect of improving the position of trade deficits.

Customs tariffs can be used as a policy instrument to raise public revenue, to protect local industries against competing imports, to restrict luxury consumer goods, to improve the balance of payments, to improve terms of trade and, in general, to achieve an import substitution policy of industrialization (Todaro and Smith, 2006).

There are also many factors that influence the revenue productivity of customs tariff rates. Tariff liberalizations, exchange rate liberalizations, tax incentives in the form of exemptions and exonerations, and other revenue leakages such as smuggling, under-invoicing, misclassification and other forms of commercial frauds, are some of the potential factors that can have effects on the contribution of customs tariff. According to De Wulf (1980) the revenue productivity of the tax base is influenced by at least three major factors: height and structure of the tariff rates, smuggling, exemptions and exonerations, and economic integration.

The role of tariff liberalization in achieving trade policy objectives and in playing fiscal role may sometimes tradeoff with each other. At least theoretically, the objective of raising revenue from imported goods and the objective of protecting domestic industries, for example, conflict with each other: the lower the customs duty rate, the higher the customs revenue but the lower the protection of domestic industries.

Frequent and continuous reduction on customs tariff has been made since 1992/93 Ethiopian fiscal year and revised for about eight times. The revisions took place in 1993, 1995, 1996, 1997, 1998, 2003, 2007 and 2014. It cut down the maximum tariff rate from 230% to 35% and the weighted average from 41.6% to 17.5% (MoFED, 2014).

Ethiopia is recently rated to be one of the countries in the world that have achieved the fastest annual economic growth. The economic growth cannot be achieved without the importation of capital goods, raw materials and intermediary goods, which in turn increases the openness of the national economy to the international economy. Openness is another factor that is expected to directly influence the contribution of customs duty to the government revenues. This also lacks empirical investigation in Ethiopia.

Since 1992, the value of Birr has been continuously declined and reached the average of Birr 20.1 per US Dollar, in the fiscal year 2014/15. Theoretically, other things remaining constant, devaluation is inversely related to imports and tariff revenue. The practical effect of the exchange rate liberalization on the contribution of customs duty to total government revenues in the country is also not yet studied.

The other possible effect of the levying higher customs tariffs could be the revenue leakage in the form of smuggling. Smuggling, according to De Wulf (1980), may take different forms: imports may not be simply recorded by customs officials, they may be under-invoiced, or they may be classified under a type of import that bears a lower tariff than their own category, or customs officials themselves may under-assess the dutiable value of the import. It is clear that smuggling and other revenue leakages affect the contribution of customs tariff negatively.

According to the IMF (2011), “even though most middle-income countries have easily raised revenue from domestic sources, replacing trade tax revenues from domestic sources has proved problematic in some low income countries”. If this is the case, analyzing the revenue implications of the tariff-related economic reforms such as tariff rate reductions, devaluations, and customs modernization efforts would be worthwhile attempt.

Currently, the Ethiopian Revenues and Customs Authority (ERCA), the only government department authorized in the country to collect taxes from foreign trade, is collecting Customs duties (0-35%), Excise tax (10-100%), Value Added Tax (15%), Surtax (10%), and Withholding tax (3%) from imported goods to the country. These taxes provide considerable revenue to the government. According to the reports issued by the Ethiopian Ministry of Finance and Economic Development (MoFED), during the 1975/76-2014/15 Ethiopian fiscal years, these taxes provided revenue of 289,968.1 million Ethiopian Birr. This is about 30.6% of the total government revenues and 37.8% of the total tax collections (MoFED updated data).

1.2 Objective of the study

Customs duty is one of the major revenue sources in developing countries and continues to be the major source in the future as well. Although economists have not yet come to agreement, on the necessity of imposing customs tariff on international trade, governments use customs tariff to achieve so many economic policy objectives, one of which is its contribution to total government revenues. However, the revenue productivity of customs tariff is affected by many factors among which trade liberalizations, the inefficiency of customs and tax administrations to enforce customs laws and control the customs duty evasions, the provision of generous customs duty exemptions for investors and exporters are given primary role in determining the performance of customs tariff.

The primary objective of this research is, therefore, to identify the effects of a cut down of frequent and continuous customs tariffs on import of goods. The purpose is to provide results that can be used in reviewing, changing and administering of customs tariff reductions, devaluation, reforms and modernizations in customs and tax incentives in the country.

One major reason for arguing this way is that there is no independently formulated trade policy that clearly indicates the direction of the government towards international trade. Rather different policy issues are indicated in various economic reform policy documents like SDPRP, PASDEP, and GTP I and II. Indicating the share of customs duty in the total taxes, which is one of the major contributors to government revenues, will help the government to give due attention to this source of revenue in devising its budget and other revenue-related policies. Creating awareness among the policy makers, about the significance of customs tariff in the government budget is, therefore, another importance of the research.

1.3 Research Methodology and data source

A co-integrated VAR model approach is utilized to examine the customs tariff effects on import, tax revenue, and on economy as a whole. Time series data indicating the tariff policy measures in the last 40 years (1975/76 – 2014/15) is used to analyze the measures and its contribution to Ethiopian trade and economic growth and development. The main data source is Ministry of Finance and Economic Cooperation (MoFEC), previously known as MoFED. Others like NBE and ERCA are also used as data sources. The impacts of different policy changes on the customs duty are also not yet evaluated. The purpose of this research is, therefore, to identify effects of customs tariff on import, tax revenue, and economic growth and the responses of different policy changes particularly those which are related with trade liberalization.

To this end, attempts will be made to address the following questions.

1. Why do countries impose customs tariffs?
2. What is the contribution of tariff revenue to the government budget and its trend in Ethiopia?
3. What is the level of the revenue productivity of tariff in Ethiopia?

4. What are the effects of lowering tariff rates?

This paper is organized into six Chapters. The first Chapter deals with the introductory aspect of the research. Chapter 2 deals with Literature Review. Chapter 3 tries to indicate on Customs tariff revisions and trade policy in Ethiopia. Chapter 4 identifies and focuses on Model specification and followed by data analysis in Chapter 5. Finally, in Chapter 6 it indicates the drawn conclusions and policy recommendations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Theoretical Literature

The relationship between trade and economic development are linked with the principle of comparative advantage. The theory of comparative advantage rises from the nineteenth century free trade model associated with David Ricardo and John Stuart Mill, which were modified by trade theories embodied in the factor proportions or Hecksher - Ohlin (1933) theory and Stolper - Samuelson (1941) and Rybznki (1955) effects. These trade models can be relatively effective to countries producing goods with intensive factors.

The values of the goods are also determined by customs valuation procedure being followed by the specific Customs Administration under consideration, and the customs valuation also considers the official foreign currency exchange rates that exist at the time of importation and exportation. The customs duty and taxes exemptions are determined by the investment and export laws and other similar laws that make the beneficiaries eligible for the tax incentives. National legislations enumerate the cases, in which relief from import duties and taxes is granted.

Customs tariffs can be used as a policy instrument to raise public revenue, to protect local industries against competing imports, to restrict luxury consumer goods, to improve the balance of payments, to improve terms of trade and, in general, to achieve an import substitution policy of industrialization (Todaro and Smith, 2006).

Sometimes customs tariff can also be used for non-economic purposes. Even though protectionists may concede that economic losses occur with tariffs and other restrictions, remarks Carbaugh (2005: 127), “they often argue that noneconomic benefits such as national security more than offset the economic losses. In seeking protection from imports, domestic industries and labor unions attempt to secure their economic welfare.”

This indicates that tariff serves not only as a commercial, but also as fiscal, industrial, economic growth and development as well as social and political tool. But, irrespective of all these objectives of customs tariffs, the leading economists including David Hume, Adam Smith, David Ricardo,

John Stuart Mill, Paul Samuelson, Wassily Leontief, Bertil Ohlin, Jagdish Bhagwati, and others advocate the importance of free trade. For example, David Ricardo (1772-1823), according to Thirlwall (2006), was the founder of the comparative cost, classical free trade doctrine; Adam Smith underlined the importance of trade as a means for surplus and market access, as well as division and productivity of labour; Alfred Marshal remarked that “the causes which determine the economic progress of nations belong to the study of international trade”; and Arthur Lewis was one of the advocates of trade as the engine of growth. Their reasons for their firm stand on the importance of free trade is that by participating in international trade, each national economy can use its resources most efficiently, concentrating on those activities it is best suited to conduct and can reap significant economies of scale. International organizations such as the IMF, World Bank and World Trade Organization also consider tariff as a barrier to international trade. They classify barriers to trade into tariff and non-tariff. The non-tariff barriers include quotas on imports, subsidies, and licensing rules. To maximize the advantages of free trade, they propose trade and exchange rate liberalizations as means of solutions. The IMF and the World Bank, in their Washington Consensus, for example, prescribe trade and exchange rate liberalizations as solutions for economic backwardness problem of the developing countries.

But others still blame the free trade doctrine of the free trade advocates, for the low economic performance of the Sub-Saharan Africa and for the recent financial crisis as well. “The recent crisis”, say Norman and Stiglitz (2009), “has, of course, bolstered the critique of market fundamentalism.” Todaro and Smith (2006: 583) also evaluate the effects of free trade against the “four basic economic concepts”, which include efficiency, equity, stability, and growth, and conclude that “free trade exists more in theory than in practice.”

In line with the above explanations, De Wulf (1980) divides these factors into three: tax ratio (the ratio of total taxes-to-GNP), the openness of the country (the ratio of imports or imports plus exports to GNP), and the revenue productivity of the tax base. To measure these factors, he uses the following identity:

$$CD/TTR = GNP/TTR \times M/GNP \times CD/M$$

Where:

CD = Customs Duties;

TTR = Total Tax Revenue;

M = Imports; and

GNP = Gross National Product.

The relationship shows that the inverse of the ratio (GNP/TTR), the openness of the country (M/GNP), and the average effective tariff (CD/M) determine the relative contribution of customs duties to total revenue (CD/TTR). Ascertaining the factors that affect GNP/TTR, M/GNP, and CD/M should provide us with a fairly good idea of the determinants of CD/TTR.

De Wulf also further explains that the factors that are responsible for the revenue productivity of the tax base include: a) smuggling, exemptions, and exonerations; b) economic integration; c) height and structure of tariffs.

In addition to the factors listed by De Wulf (1980), other researchers (Matlanyane and Harmse, 2002; Brafu-Insaidoo and Obeng, 2008), consider trade liberalization and exchange rate liberalization as other determinant factors of the revenue contribution of customs tariff to the government revenue. The efficiency of the customs administration in controlling leakages and enforcing customs laws can be a crucial area to focus.

2.2 Empirical Literature

Empirical literature significantly suggests that reducing protectionism is related with increased trade followed by increased revenue and highly associated with greater economic growth. The tax ratio, openness, economic integration, size and structure of tariffs, trade liberalization, exchange rate liberalization, duty exemptions and other leakages, and the efficiency of customs administration are very important determinants of the customs tariff effects in trade and growth. However, the theories of international trade and tariff policy have been debatable amongst

economists and policymakers for longer time now. The practical implication of the theoretical and policy arguments in the case of Ethiopia is also a new contribution to advance knowledge in the discipline.

According to the Ethiopian law, the legal constituents of the customs tariff are: the customs duty rates, value of the imported goods, the origin of the goods, and the tax incentives such as exemptions, reliefs, and drawbacks that are granted to investors, exporters and other beneficiaries.

The customs duty rates are determined as per the tariff schedule/book of a country. The origin of the goods matters only when the goods under consideration originated from a country or a region with which the country contracted bilateral or multilateral agreements for exemptions or concessions. In such a case, the preferential tariff rate is used. Unless there is such a special treatment, the origin of the goods is not used to determine the customs tariff. In the Ethiopian case, there is no such a remarkable special treatment as the country has not yet fully implemented the COMESA (Common Market for Eastern and Southern Africa) Free Trade Area and other regional economic integration agreements such as EPA with EU and Tripartite FTA (MoFED, 2014).

Glendy (2002) found that during the initial years of trade liberalization in Kenya (1989/90-93/94), the simple average import duty rate was 40%, and the trade weighted average duty rate was 24%. These rates yielded on the average, import duty revenues of only 2.9% of GDP. By contrast, during the later years (1994/95 - 98/99), the simple average import duty rate was 20%, and the trade weighted average duty rate was 17%, but the average import duty revenues had risen to only 4% of GDP. The lowest revenue yield was experienced in 1991/92 at 2.1% of GDP when the simple average duty rate was 38% and the trade weighted average rate was 21%. The lowest duty rates prevailed in 1997/98 with the simple average duty rate at 17% and the trade weighted average rate at 15%, but the revenue yield from import duties was 3.7% of GDP. Accordingly, these figures demonstrate that the lower average duty rates on imports are not necessarily correlated with lower revenue yields. Glendy (2002) further argues that within many customs systems there is major potential for increasing revenues that, under certain circumstances, can even lead to increases in revenue yields as the average import duty rates are lowered. This has certainly been the experience in Kenya.

The economic roles of one of the tools for trade policies, i.e., customs tariff, are reviewed from protection, revenue collection, balance of payment and economic development perspectives. Some empirical findings in Ethiopia are also included.

The historical and theoretical reviews above have shown that although most of the economists and schools of thought argue for free trade, there are others who support protection, inward-looking strategies and import substitution. For those who argue that protection is important, customs tariff plays a pivotal role to achieve the protectionist trade policy objective. Among the policy tools available for policy makers in international trade, customs tariff is the most widely known and used almost in all countries in the world. This instrument is commonly known as a barrier to international trade. “Tariff barrier” is a term that is used in international economics and trade theories to denote the restriction imposed using customs tariff. Other restrictions such as quota are known as non-tariff barriers to trade. Even if customs tariff is perceived as a major barrier to trade on one hand, it has also its own advantages on the other hand. In other words, there are economic benefits that determine the demand for customs tariff. It plays important economic roles such as protective, revenue, income distribution, employment, balance of payments, import substitution and economic growth. Beyond these economic roles, some people argue that sometimes customs tariff is also associated with high levels of “nationalism” and “patriotism” (Carbaugh, 2005), income redistribution and national defense (Lindert, 1986).

Similarly, the Ethiopian Ministry of Finance and Economic Development (2003, 2007 and 2014), states the objectives and focus of the Ethiopian customs tariff as follows:

- Serving as a device to properly protect domestic industries and investors;
- Providing “Price Signal” for the producers and the investors;
- Encouraging import substitution with local products;
- Controlling the balance of payment deficit;
- Prohibiting the importation of hazardous and polluting goods from abroad; and
- Serving as a source of government revenue.

Tariffs mainly play the role of protecting domestic industries and generating revenue for the government. Many countries use tariffs to improve their balance of payments positions as well. They increase their tariff rates to cut down imports generally in order to offset the decrease in exports. Todaro and Smith (2006: 634) explain the four major components of customs tariff as follows:

- Duties on trade are the major source of government revenue in most LDCs because they are a relatively easy form of taxation to impose and even easier to collect;
- Import restrictions represent an obvious response to chronic balance of payments and debt problems;
- Protection against imports is one of the most appropriate means of fostering economies of scale, positive externalities, and industrial self-reliance as well as overcoming the pervasive state of economic dependence in which most developing countries find themselves; and
- By pursuing policies of import restriction, developing countries can gain greater control over their economic destinies while encouraging foreign business interests to invest in local import-substituting industries, generating high profits and thus the potential for greater saving and future growth.

According to the tariff reduction made in August 1993 (Customs Tariffs Regulations No. 122 of 1993), the maximum duty rate was lowered significantly from the level of 230% to 80%. According to the Customs Tariff (Amendment Volume 1, 1995 edition), the maximum Customs duty rate used to be 60% of the CIF value of an imported item. The maximum Customs duty rates were reduced to 50%, 40% and then 35% in the years 1996, 1998, and 2003, respectively. The number of tariff bands (including zero) has dropped from 23 to 6, and the maximum tariff rate from 230% to 35%. The current tariff structure remains as it was amended in the year 2003 (MoFED, 2014).

Frequent and continuous reduction on customs tariff has been made since 1992/93 Ethiopian fiscal year and revised for about eight times. The revisions took place in 1993, 1995, 1996, 1997, 1998, 2003, 2007 and 2014. The revisions in 1993, 1997, 2003, 2007 and 2014 were based on the agreement made in the World Customs Organization (WCO) membership to implement

Harmonized System and its continuous amendments. Along with this implementation, economic measures followed the economic reform program were the guiding elements of the revision. These tariff revisions lowered the rates imposed on all goods and the average tariff rates. Accordingly, the weighted average tariff rates have been reduced from 41.6% in 1992 to 29.6%, and then to 24.6%, 23.6%, 21.5%, 19.5%, and 17.5% in 1993, 1995, 1996, 1997, 1998, and 2003, respectively (MoFED, 2014).

The weighted average tariff rate has not been changed since the amendment in 2003 even though two amendments were undertaken in 2007 and 2014. These amendments focused on implementation of WCO's HS 2007 and HS 2012 versions and based on industrial protection and other internal policy measures. Theoretically, reducing tariff rates, *ceteris paribus*, increases the demand for imports and thereby the taxes collected from the imported goods. It is also expected to reduce the incentive for smuggling and tax evasion. However, the effects of the continual tariff liberalizations, on the government revenues in Ethiopia, are not yet evaluated.

According to Brafu-Insaidoo and Obeng (2008) “an extensive definition of trade liberalization demands the elimination of quantitative restrictions and reduction in import tariff rates. Tariff liberalization involves reducing the average tariff rate, a unification of the range of import tax rates towards a single rate and the phasing out of tariffs.”

International trade economists have long paid attention to the role of tariffs and other trade taxes on the pattern of trade and international investment. The major concern of the IMF, World Bank, and World Trade Organization (WTO) has always been to facilitate the movement of goods across the boundaries of countries all over the world. The Washington Consensus of the IMF and the World Bank also incorporates trade liberalization as one of the ten components of the Consensus. This shows that trade liberalization has been given due attention in recent years. The major component of trade liberalization is tariff liberalization, which in turn includes lowering tariff rates reduction and elimination of restrictions. Ebrill et al (1999) explain that “In theory trade liberalization is expected to enhance efficiency in production, international competitiveness and increase the volume of trade.” The argument is that the elimination of tariffs may lead to trade reform while preserving revenue by broadening the tax base.

According to Matlanyane and Harmse (2002) “in implementing trade liberalization policies, the major focus is on the medium to long term effects. However, in the short to medium term the policy is expected to result in a reduction in tax income that accrues from trade. Thus, one of the immediate effects of trade liberalization is felt on the budgetary accounts of government. On the other hand, it is possible that this situation may be turned around in favor of the economy depending on the growth in trade with the new regime.

Matlanyane and Harmse (2002) explain that the effect of trade liberalizations on government revenue is still debatable. They argue that “The net effect depends on a host of factors, including the initial trade regime and the extent of increase in demand for imports.”

Glendy (2002) also argues that “within many Customs systems there is major potential for increasing revenues that, under certain circumstances, can even lead to increases in revenue yields as the average import duty rates are lowered.” However, the major fear of developing countries, when attempting to liberalize trade through customs tariff is said to be the revenue loss. This is because customs tariff constitutes a significant proportion of their revenue budget from the taxation of international trade. Therefore, these ambiguous and opposing views and theories definitely need empirical investigations.

The IMF (2011) also explains that “relative to both GDP and total revenue, trade taxes have shown trend of decline for thirty years, tracking a decline in collected tariff rates (revenues relative to imports). Further liberalizations mean that the trend will continue. The same source also states that while the efficiency and growth implications of this are welcome, the fiscal challenges can be significant as in Sub-Saharan Africa, for instance, trade taxes still account for one-quarter of all tax revenue.” Matlanyane and Harmse (2002) also found that, in South Africa, the share of customs revenue has declined since the trade liberalization in the country.

In most cases developing countries overvalue their currencies. Overvalued currencies, on the other hand, can have the power of encouraging importation of cheap capital goods, raw materials, intermediate, and consumer goods. When importation of goods is encouraged, there is a possibility that customs administrations collect more customs tariff from the imported goods. As overvalued

exchange rates have also the role of exacerbating the problem of balance of payments by cheapening imports, the problem is tried to be solved through exchange rate liberalization. Exchange rate liberalization, in most cases devaluation, can have the reverse effect on customs tariff, because it is the policy that is usually used to encourage exports and discourage imports. If the volume of imports is reduced, then it will affect, of course negatively, the revenue tariff from imported goods.

The “competitive exchange rate” doctrine of the Washington Consensus may also affect the customs revenue in either ways. According to Brafu-Insaidoo and Obeng (2008), “one objective of trade liberalization is reducing the gap between the official and the parallel exchange rates”. Devaluation of the exchange rate, for example, can reduce the demand for foreign exchange and foreign products, which entails the reduction of customs tariff from imported goods. On the other side, it may also have positive effect on the contribution of international trade if the type of imported good is demand inelastic and also it can have positive fiscal effect if it raises the domestic value of imports and hence stimulates people to switch consumption from imported goods to domestic products and thus increases goods and services tax base.

Keen (2003), has identified three areas in which customs systems are commonly vulnerable to significant abuse. These include: valuation, duty relief regimes, and the provision of exemptions from Customs duty. He further explains that “many countries have had great difficulty in properly administering and monitoring the regimes, which has resulted in abuse, fraud, and significant revenue leakage. Customs valuation is the determination of the amount upon which the rate of duty is calculated. Duty relief is commonly provided to ensure that goods in transit, and goods used to produce exports, do not bear duty, whereas duty exemption is the provision of exemptions from duty often extended to particular goods, persons, or activities.

De Wulf and Sokol (2005, 9-10) explain that to enhance revenue mobilization, the World Bank and the IMF frequently use the diagnostic work which mainly focuses on measuring revenue leakages. They advise that the core indicators used to identify the slack in revenue generation include: “(a) collected taxes over imports compared with potential revenue collections to identify the “gap”; (b) share of total imports exempted from taxes; (c) fraud in recording valuation, weight, or rule of

origin. They also believe that the methodology of these diagnostic exercises is neither standard nor publicly available, but has centered on a pragmatic analysis of customs processes to identify possible improvements.”

For a variety of reasons, duty exemptions are given to some well-specified imports. Exemptions given for distribution purposes often include whole category of unprocessed food products. Those given for protective purposes often embrace basic raw materials and capital equipment. Exonerations from customs duties may be given to particular end-users of imports, and they often affect a large share of total imports of the developing countries. Both, exemptions and exonerations from customs duty, may be expensive in terms of customs duty revenue forgone. Another factor that reduces the effective tax rate on imports is the practice of providing drawbacks for duties paid by the exporter on imported goods used as inputs (De Wulf, 1980).

Kebede, Alekaw (2011, 67) explains is accompanied by either increased direct tax rate or increased consumption tax rate, no promising effects have been detected on the economy as a whole, poverty reduction and income distribution in Ethiopia. In fact, it is found that replacing tariff revenue lost by increasing direct tax rate has some insignificant positive effects in promoting growth, increasing social welfare, reducing poverty and narrowing income inequalities.

The effect of duty and tax exemption on customs tariff is again not as such clear. Although tax incentives such as duty exemptions and exonerations undoubtedly can play the role of increasing the volume of imports and investments, it is not at all clear that the overall benefits outweigh the costs. Contrary to her revenue need, as a developing nation, Ethiopia has also been trying to attract foreign and domestic investments and promote exports through import tax exemptions, duty drawback systems, voucher schemes and other tax incentives. From the information gained from a statistical bulletin produced by the Ethiopian Revenues and Customs Authority (ERCA) in 2010, it is observed that in the 2005/06 fiscal year a total amount of Birr 3,939 million duties and taxes were exempted for those who have duties and taxes exemption privileges. This amount increased to Birr 19,163 million in 2009/10. This is about 5% of the GDP and closer to the 5.5% of the Gross Domestic Saving of the 2009/10 fiscal year. In general, the duties and taxes exempted had shown an annual average growth rate of 49%, and the ratio of the exemptions to the collections has jumped

from 35% to 54%. These indicate that the Ethiopian Tax Administration is being torn between these two opposing policies (ERCA, 2010).

Tax incentives can play a role in encouraging investment in a country when there is a favorable investment climate. If the investment climate of a country is not conducive enough for motivating investors, tax incentives could be downplayed for other purposes like corruption, fraud and rent seeking or investors may not consider them as motivating factors. In order to achieve the economic development objectives of a country through investment, governments have developed investment promotion incentives management system. Even though, the type of tax related investment incentives are more or less similar among different countries, the management however varies from country to country. Such variation is usually linked to capacity limits in the areas of coordination, monitoring and evaluation of the implementation of tax incentives among government organs that are responsible for the administration of the scheme and lack of awareness among the beneficiaries of the scheme (Gudissa, 2014).

Easson and Zolt (2002), conclude that “in general investment promotion initiatives of a country can be in different forms so that the country can achieve its social and economic objectives. In granting tax incentives, countries have to identify the types of incentives that better attract investment taking into account the specific circumstances of the country. The form of the incentives should also be linked to the desirability of the investment sector and the administrative capacity of the tax authorities”.

According to Zake et al (2009), although the nominal value of imports has been rising (from Birr 46.9 billion in 2006/07 to 85.1 billion in 2008/09), imports as a percentage of GDP have been falling- from 27% to 24% of GDP for 2006/07 to 2008/09 respectively. The contribution of the Customs taxes (excise duty, VAT and import duties) to total federal collections has been declining for the period under review from 54% in 2006/07 to 41% in 2008/09. Likewise, the percentage level to GDP has been falling- from 4.5% in 2006/07 to 2.7% in 2008/09. The report also commented that exemptions from import taxes have been growing and are contributors to the erosion of the tax take from customs duties.

Theoretically, the factors that are assumed to determine the contribution of customs tariff to the government receipts include: the tax ratio, the response of imports to GDP growth (openness), economic integrations, the height and structure of customs tariff, trade liberalizations, exchange rate liberalizations, the reductions from customs duty in the form of exemptions and exonerations and other leakages in the form of smuggling, commercial frauds and corruption, and the capacity of customs administrations in controlling the leakages and enforcing customs laws and regulations. Among these factors, tax ratio, openness and the efficiency of customs administrations are positively related with the revenue productivity of the customs duty, whereas, duty exemptions, exchange rate devaluations, and economic integrations are negatively related with the revenue performance of the customs duty. The direction of change and the magnitude of the impacts of height of customs tariff rates, trade liberalizations and average exchange rates, on the contribution of customs tariff to government revenue, both theoretically and empirically, are still ambiguous. It is difficult, to determine the direction of change in customs tariff as a result of reducing or increasing the height of tariff rates because it depends on many factors. In some countries like Kenya, tariff rate reduction has increased the customs duty-to-GDP ratio.

The effect of trade liberalization on customs duty is also mixed. In Ghana, for example, although it has brought some positive fiscal results in the second of the 1980s, in the 1990s the result was not as such fiscally compatible. Even though exchange rate depreciation over the liberalization period has increased tariff revenue, it is offset by the revenue-reducing effect of tariff reductions over this period. In South Africa, the share of customs revenue has declined since the trade liberalization in the country.

These and other similar factors that are responsible for the contribution of customs duty to the public revenue can be categorized into two measures: discretionary and non-discretionary measures. The discretionary measures are the policy issues that are at the discretionary decisions of the government, for example in granting duty exemptions to investors, exporters, diplomats, government purchases and the like. The efficiency and effectiveness of the customs administration in enforcing tariff polices and controlling leakages is also classified under the discretionary measures. The non-discretionary measure, on the other hand, is the natural growth of the GDP, without any additional measure from the government.

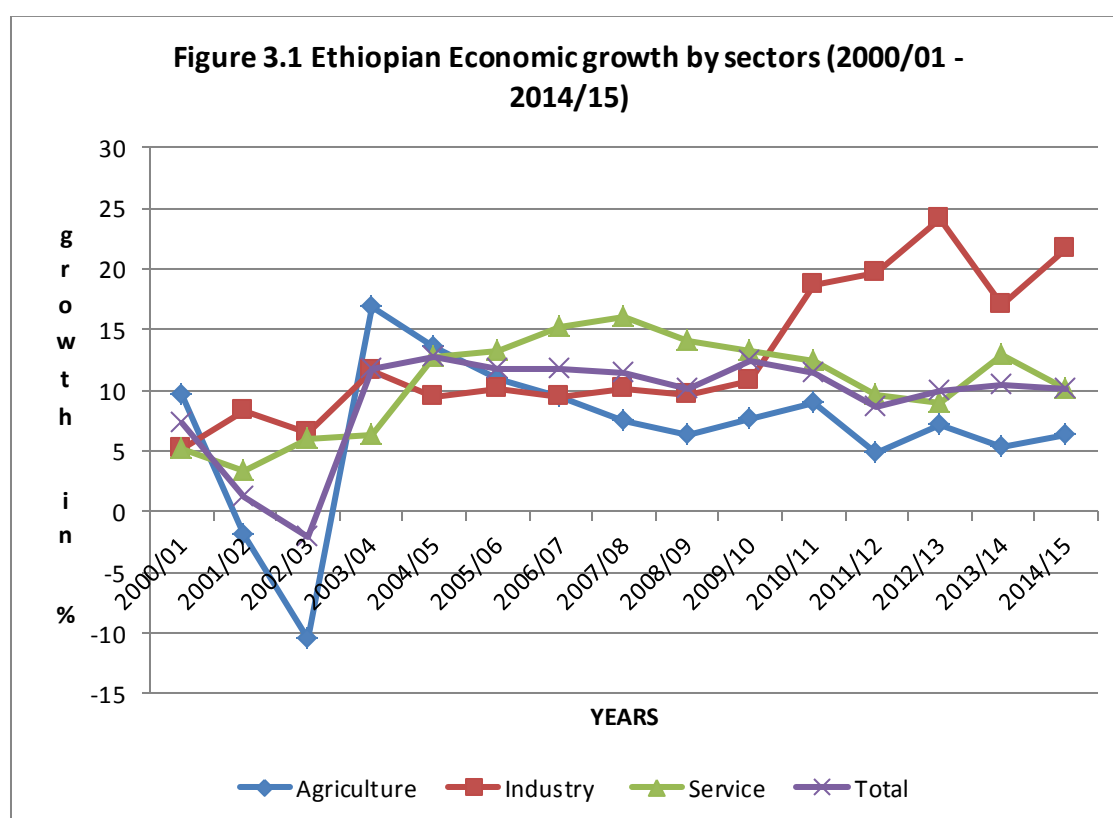
The historical, conceptual and theoretical reviews made on the role of international trade and customs tariff have shown that although most of the economists and schools of thought argue for free trade, there are others who support protection, inward-looking strategies and import substitution. One of their major reasons is that at the early stages of their economic development, most of the now developed countries used tariffs effectively to protect their infant industries. The other argument is that at the early stages of economic development, collecting sufficient taxes from domestic activities are so difficult due to the subsistence, decentralized and small scale nature of their economic activities. Therefore, the taxes from international trade, mostly from imports, cannot be disregarded. The chronic problems that involved many developing countries in huge borrowings from abroad, both to pay their debts and finance their development projects, which also led some people to develop a slogan “trade, not aid”, is also another argument for imposing tariffs. Lastly, even from the developed and large countries point of view, the theory of optimum tariff is another argument against free trade.

The study by Alekaw Kebede (2011) identifies the effects of tariff reduction on growth poverty and income distribution, and focuses on the compensation mechanisms. It recommends the revenue loss due to tariff reduction to be compensated through increasing direct and indirect tax rates. However, tariff reduction policy is relatively simple compared to other indirect taxes and direct taxes. This study focuses on tariff reduction effects on trade and growth, and draws a recommendation based on data and the result of the model.

The clear roles of customs tariff are: protecting domestic industries; revenue generation, reducing balance of payment deficit, implementing import substitution, and contributing for capital formation.

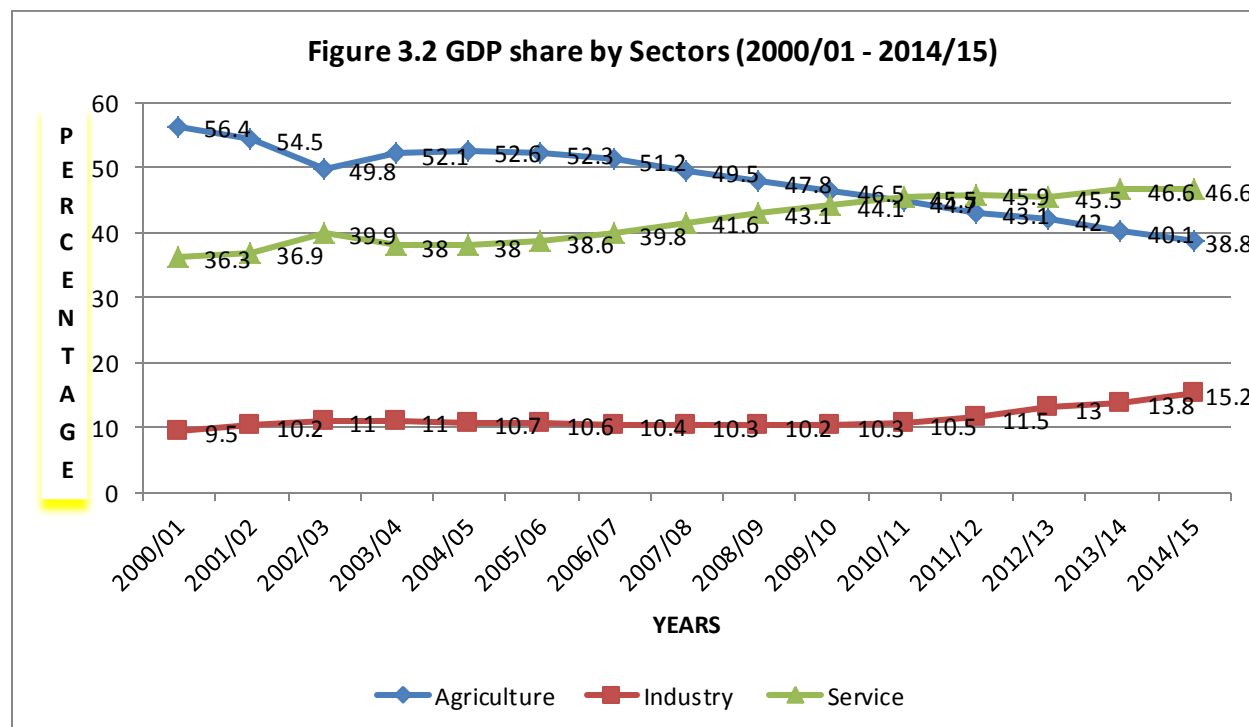
CHAPTER THREE: THE ECONOMIC GROWTH, TRADE LIBERALIZATION AND TARIFF REFORM MEASURES IN ETHIOPIA

Ethiopia's economic growth has been remarkably rapid and stable over the past decade. Real GDP growth averaged 11.1 percent in 2003/04 – 2014/15 according to data from National Accounts Directorate of National Planning Commission. The Directorate was operating under MoFED/ MoFEC and moved to NPC due to institutional structure changes. The average growth rate over the last 15 years (2000/01 - 2014/15) averaged 9.3 percent (Figure 3.1).



In this period, negative economic growth was observed in 2002/03 due to a drop in agriculture. Droughts and conflict produced volatile growth patterns prior to 2003/04, but growth has been rapid and stable since then. The high growth industry sector and relatively stable growth in service and agriculture sector has contributed to a high economic growth.

Data for the last 15 Ethiopian fiscal years (2000/01 – 2014/15) is used to look at the structural changes of the economy and their contribution. The data and the following figure (Figure 3.2) indicates the shift in structure of the economy.



Agriculture sector was dominantly contributing to the economy followed by Service sector. Recently, the service sector is playing a leading contribution role to the economy. Industry sector contribution is growing significantly in the past five years. It is assumed to be due to the economic policy and strategic focus on encouraging value added products and investment flow.

The rapid and sustainable economic growth has encouraged the flow of investment. As a result, the trade flow of goods and services has been significantly growing. The growth in import is significant and related to industrial growth and the well being of the people. Income per capita has reached to about 700 USD. It is assumed that tariff reduction has a positive impact on import and shows that it is continuously growing, and contrary to this export is not growing as expected and dropped in 2014/15 (Table 3.1).

Table 3.1 Ethiopian Economy and trade movement, and share to GDP (2000/01 - 2014/15)
(In Million Birr)

Year	GDP	Import	Export	Total Trade	Import share to GDP	Export share to GDP	Total trade share to GDP
2000/01	67351.0	16108.0	8146.0	24254.0	23.9	12.1	36.0
2001/02	65895.0	17707.0	8389.0	26096.0	26.9	12.7	39.6
2002/03	72703.0	20131.0	9779.0	29910.0	27.7	13.5	41.1
2003/04	85800.0	27367.0	12914.0	40281.0	31.9	15.1	46.9
2004/05	105415.0	37776.0	16077.0	53853.0	35.8	15.3	51.1
2005/06	130334.0	48092.0	18205.0	66297.0	36.9	14.0	50.9
2006/07	170281.0	55088.0	21854.0	76942.0	32.4	12.8	45.2
2007/08	245836.0	76564.0	28317.0	104881.0	31.1	11.5	42.7
2008/09	332060.0	96285.0	35233.0	131518.0	29.0	10.6	39.6
2009/10	379135.0	126319.0	52168.0	178487.0	33.3	13.8	47.1
2010/11	515078.5	162487.1	85950.4	248437.5	31.5	16.7	48.2
2011/12	747326.5	236383.9	102886.6	339270.5	31.6	13.8	45.4
2012/13	866921.1	251300.6	108227.1	359527.7	29.0	12.5	41.5
2013/14	1060814.4	308691.3	123496.0	432187.3	29.1	11.6	40.7
2014/15	1236677.9	338180.8	121532.2	459713.0	27.3	9.8	37.2
Total	6081628.4	1818480.7	753174.3	2571655.0	29.9	12.4	42.3

Source: MoFED, and NPC

The role of tariff liberalization in achieving trade policy objectives and in playing fiscal role may sometimes tradeoff with each other. At least theoretically, the objective of raising revenue from imported goods and the objective of protecting domestic industries, for example, conflict with each other: the lower the customs duty rate, the higher the customs revenue but the lower the protection of domestic industries.

Frequent and continuous reduction on customs tariff has been made since 1992/93 Ethiopian fiscal year and revised for about eight times. The revisions took place in 1993, 1995, 1996, 1997, 1998, 2003, 2007 and 2014. The revisions in 1993, 1997 2003, 2007 and 2014 were made according to the agreement made in the World Customs Organization (WCO) membership to implement Harmonized System and its continuous amendments. Along with this implementation, economic measures followed the economic reform program were guiding elements of the revision. These

tariff revisions lowered the rates imposed on all goods and the average tariff rates. Accordingly, the weighted average tariff rates have been reduced from 41.6% in 1992 to 29.6%, and then to 24.6%, 23.6%, 21.5%, 19.5%, and 17.5% in 1993, 1995, 1996, 1997, 1998, and 2003, respectively.

The weighted average tariff rate has not been changed since the amendment in 2003 even though two amendments were undertaken in 2007 and 2014. These amendments focused on implementation of WCO's HS 2007 and HS 2012 versions and based on industrial protection and other internal policy measures. Frequent and continuous customs tariff amendments since 1993 followed the economic reform of the country and the commitment of the government to transform the economy. The brief features the amendments of Ethiopian customs tariff are shown in Table 3.2.

Table 3.2 Brief features of the Ethiopian Customs tariff amendments (1993 – 2014)

Sr. No	Major Indicators	Before 1993	Rounds of Amendments							
			1st Round 1993	2nd Round 1995	3 rd Round 1996	4th Round 1997	5th Round 1998	6th Round 2003	7th Round 2007	8th Round 2014
1	Total tariff lines	1821	5332	5294	5295	5486	5426	5608	5426	5686
1.1	Advalorem tariff lines	1330	5188	5119	5119	5312	5262	5424	5189	5403
1.2	Specific duty tariff lines	157	3	3	3	3	3	0	0	0
1.3	Zero rated tariff lines	327	138	169	170	168	159	172	232	279
1.4	Prohibited items tariff lines	2	2	2	2	2	2	5	5	4
2	Maximum tariff Rate	230	80	60	50	50	40	35	35	35
3	Minimum tariff rate	0	0	0	0	0	0	0	0	0
4	Tarff bands(including zero)	23	9	8	8	8	7	6	6	6
5	simple average tariff rate	79.1	35	28.8	24.3	24.3	20.0	20.0	20.0	20.0
6	Weighted Average tariff rate	41.6	29.6	24.6	23.6	21.5	19.5	17.5	17.5	17.5
7	Tarff dispersion	225	75	55	45	45	35	30	30	30

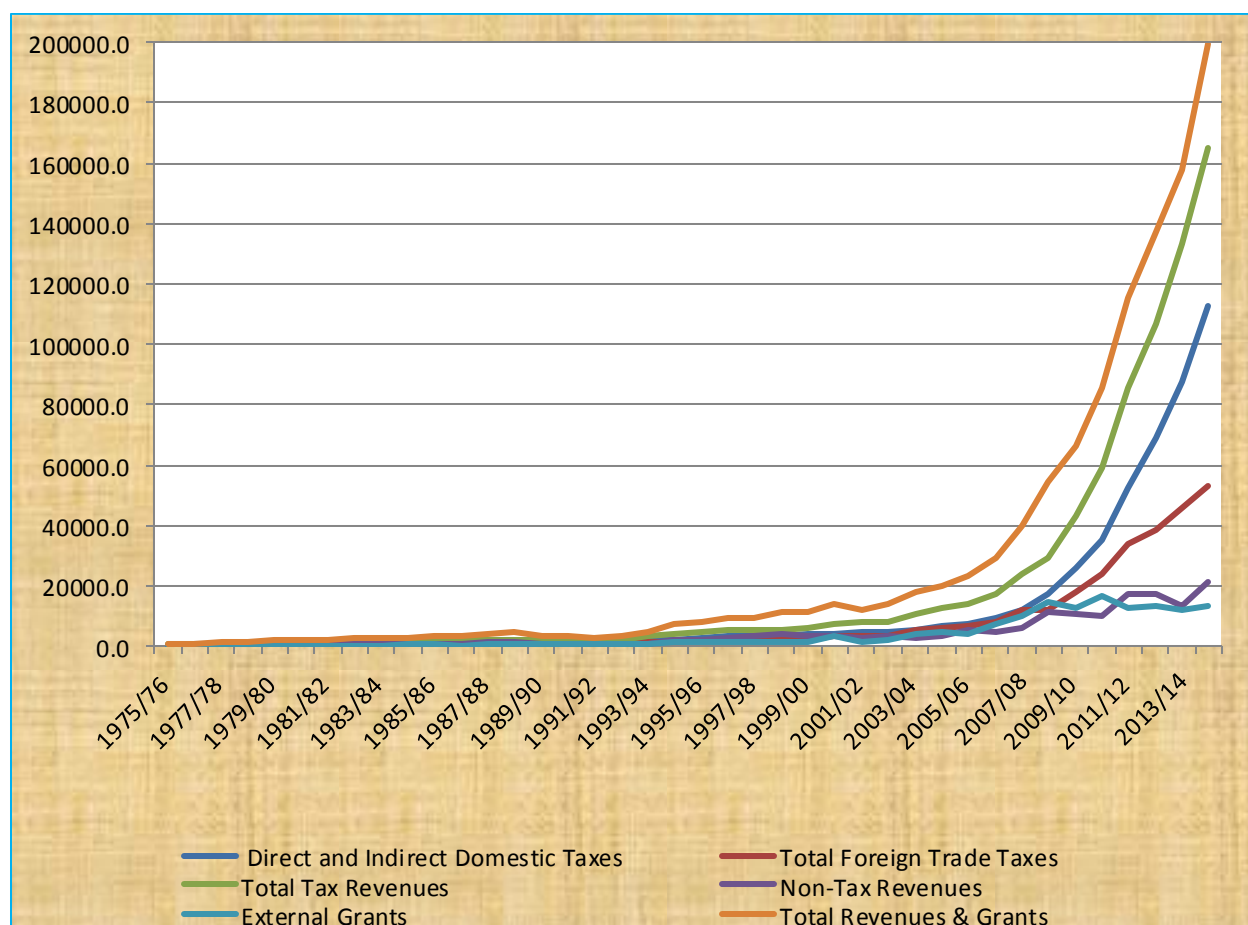
Source: MoFED, 2014

The government of Ethiopia has taken great measures in cutting down the highly protective tariffs. The data used for analysis shows that revenue from customs duty has been growing irrespective of these measures. This indicates that the effect of tariff reduction is positive to revenue collection. It can be due to increase of the volume of import followed the economic growth and investment flow (both domestic and FDI).

Theoretically, reducing tariff rates, *ceteris paribus*, increases the demand for imports and thereby the taxes collected from the imported goods. It is also expected to reduce the incentive for smuggling and tax evasion. However, the effects of the continual tariff liberalizations, on the government revenues in Ethiopia, are not yet evaluated.

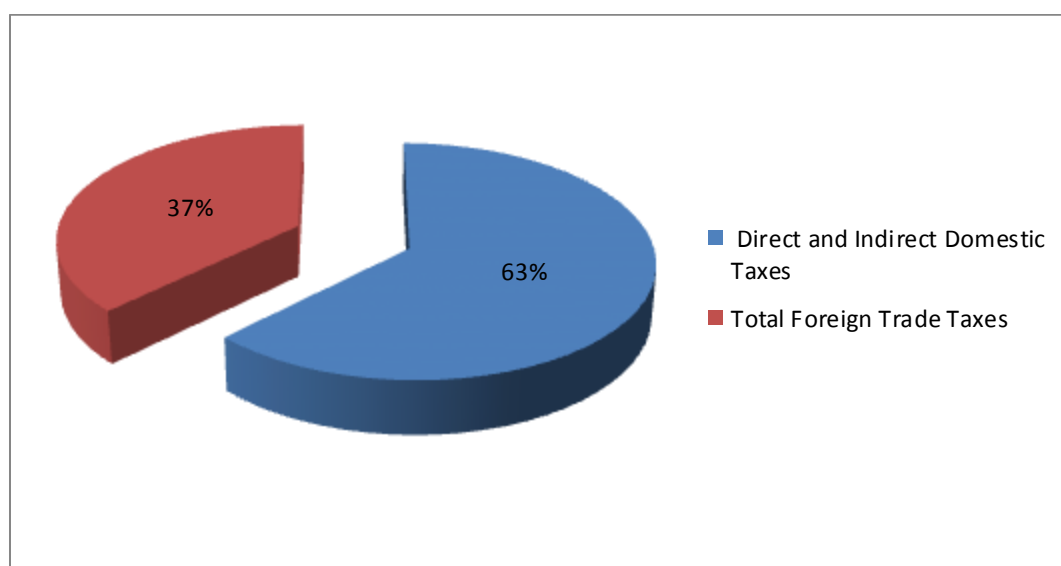
Data for major sources of Government revenue for the fiscal years 1975/76 – 2014/15 in Appendix 1 shows that total foreign trade tax contributes on average about 37% of total tax revenue. Total foreign trade tax is a sum of revenue collected from taxes levied on both imported and exported goods. Currently, foreign trade taxes revenue focuses only on imports rather than exports. It used to be collected till 2002/2003. Revenue from domestic and foreign trade taxes has been growing significantly since the economic reform measures taken by the government in 2001/02, and external grants dropping in recent years (Details shown in Figure 3.3).

Figure 3.3: Total Government Revenue by Major Sources (1975/76 -2014/15) (in Million Birr)



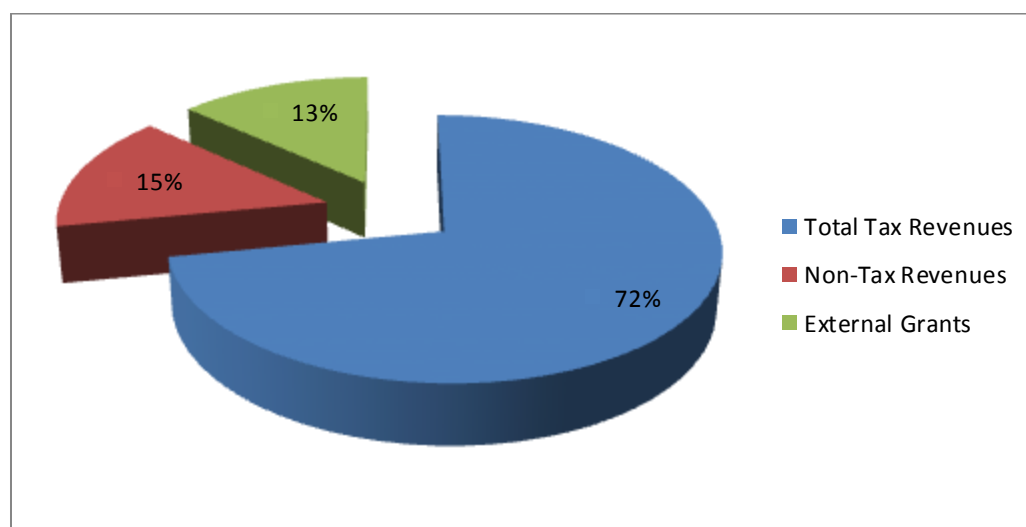
Revenue from domestic taxes (both direct and indirect taxes) is also growing and has a share of about 63% on average to total tax revenue for the last 40 years (1975/76 – 2014/15). The contribution of foreign trade taxes revenue to total tax revenue reached to about 49% in 2007/08 and dropped to 32% in 2014/15; the average being about 37% for the last 40 years. This indicates that dependency on import taxes revenue is shifting to domestic revenue sources and the economic growth has a positive effect on domestic income generation. The contribution of total foreign trade taxes revenue to country's total tax revenue is indicated in Figure 3.4.

Figure 3.4: Contribution of total foreign trade taxes to tax revenue (1975/76 - 2014/15)



Direct and indirect domestic tax revenue contributes significantly to total tax and its share is increasing through time. On the hand, the share of tax revenue (72% of the total resource envelope) is growing but not significantly. The average share of non tax revenue and external grants to total revenue and grants in the past 40 years reached 15% and 13%, respectively. The shift from external grants dependence to tax revenue generation is a positive measure to sustain economic growth (See Figure 3.5).

Figure 3.5: Contribution of tax revenue to Total revenues and Grants (1975/76 - 2014/15)

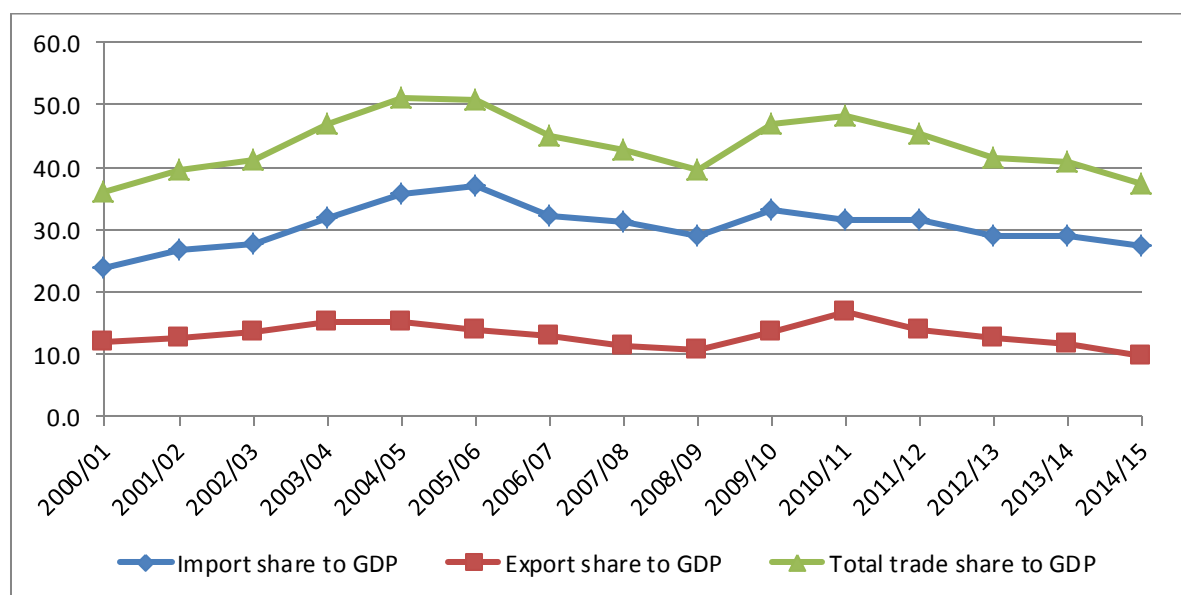


Ethiopia is recently rated to be one of the countries in the world that have achieved the fastest annual economic growth. The economic growth cannot be achieved without the importation of capital goods, raw materials and intermediary goods, which in turn increases the openness of the national economy to the international economy. Openness, the share of import to GDP is another factor that is expected to directly influence the contribution of customs duty to the government revenues. It reveals growth in recent years and reached to about 26% on average for fiscal years 1975/76 – 2014/15 (Appendix 1D).

Both trade of goods (Import and Export) and GDP at current market prices are growing and moving in the same direction. The economic growth has encouraged investment and importation of capital goods, raw materials, semi-processed goods and finished goods. Openness has a positive effect on government revenue despite of duty free incentives effect in the short run.

Even though, both trade and the economy are moving in the same direction, it is observed that the contribution of import and export, and total trade to the economy is slightly dropping within the past 15 years (2000/01 -2014/15). It is indicated in Figure 3.6 and Appendix III.

Figure 3.6: Contribution of trade of goods to GDP at current market prices (2000/01 – 2014/15)



Source: MoFED, NBE, and ERCA

Currently, the weighted average tariff rate is 17.5%, and remained the same for the last 12 years. But the average effective tariff rate (Customs Duty/import) is about 5.7%. This wide gap between these two shows that the openness to international market may be limited or tax incentives in the form of exemptions and exonerations, and other revenue leakages such as smuggling, under-invoicing, misclassification and other forms of commercial frauds have effects on the contribution of customs tariff.

Customs tariff policy is an important tool in regional economic integration. It determines the volume of intra trade among member countries. Ethiopia is member of COMESA but has not yet joined the COMESA FTA. Rather the preferential tariff of 10% for COMESA member states has been implemented. There are a lot of pushes to open up the economy linked with the accession to the WTO and other regional FTAs.

CHAPTER FOUR: ECONOMETRIC MODEL SPECIFICATION, VARIABLE DEFINITION AND ESTIMATION TECHNIQUE

4.1 Variable Definition

Gross Domestic Product (GDP) at Current Prices is the market value of goods and services produced in a country during a year expressed in millions of Birr. It is used as a proxy for economic growth. The GDP is expected to have a positive impact on import, tax revenue, total foreign trade tax; and may have negative effect on exchange rate.

Import flow of tradable goods to the country from abroad. It serves as a base/source of revenue from customs duty and other taxes and fees levied on it.

Tax Revenue is the income that is gained by governments through taxation. It is compulsory transfers to the government for public purposes. Tax revenue is expected to have a negative impact on import while an ambiguous effect on GDP. Accordingly, different economic schools of thoughts have different perspective about the relationship between growth and tax revenue so that the expected sign cannot be predetermined.

Total Direct and Indirect Domestic Taxes is revenue collected from direct taxes (business income tax, rental income tax, personal income tax, and others) and indirect domestic taxes like sales tax, VAT, Excise tax, etc. It focuses on domestic tax collection.

Total Foreign Trade Taxes is revenue collected from customs duties and other taxes levied on import and export. For the estimation purpose, TFTT represents revenue collected from import of goods only.

Average Exchange Rate is annual average exchange rate computed and reported by National Bank of Ethiopia. The average exchange rate is computed according to the Ethiopian fiscal year.

Weighted Average Customs Tariff Rate is the average of tariff rates imposed on imported goods. Number of tariff lines is used as a weight in the computation of this average. It follows the policy measures taken by the government and varies from time to time.

Customs Duty is revenue collected from customs duty based on customs tariff rates and value of goods imported. Customs tariffs can be levied as advalorem (rates applied on value) and/or specific rates. There were few specific rates applied to the Ethiopian customs tariff and changed fully to advalorem,

4.2 Model specification

The empirical framework of this study is focused on modeling the relationship of customs duty and other variables to trade and economic growth. The presence of endogenous variables on both left and right hand side of the equation makes the estimation and inference process difficult. However, the Vector Auto Regressive (VAR) approach circumvents this complexity by treating every variable as endogenous in the system as a function of the lagged values of all endogenous variables in the system.

Depending up on the theoretical grounds, some of the relevant factors that affect GDP and Import, taking the variables such as Customs Duty, Direct and Indirect Domestic Taxes, Total Foreign Trade Taxes, Average Exchange Rates and Weighted Average Customs Tariff Rates can be specified respectively as:

$$y_t = C + \beta_1 y_{t-1} + \dots + \beta_p y_{t-p} + \epsilon$$

$$y = \begin{bmatrix} DIDT \\ FTT \\ Imp \\ GDP \\ EXR \\ WACTR \\ LCD \end{bmatrix}$$

Where; DIDT =Total Direct and Indirect Domestic Taxes,

FTT = Total Foreign Trade Taxes,

IMP= Import,

EXR = Average Exchange Rates,

GDP = Gross Domestic Product,

WACTR = Weighted Average Customs Tariff Rates, and

LCD = Custom Duty

For economic analysis, many variables are used in logarithm (log). In time series analysis, this transformation is often considered to stabilize the variance of a series (Gujarati, 2004). Thus, from the beginning, the variables are transformed into log data to avoid heteroskedasticity and to show elasticity of the variables. In this regards, the above functions of equation can be written in logarithmic form as:

$$\begin{aligned} \ln IMP = & \alpha_1 + \sum_{s=1}^p \beta_1 \ln IMP_{t-s} + \sum_{s=1}^p \beta_2 \ln DIDT_{t-s} + \sum_{s=1}^p \beta_3 \ln FTT_{t-s} \\ & + \sum_{s=1}^p \beta_4 \ln EXR_{t-s} + \sum_{s=1}^p \beta_5 \ln GDP_{t-s} + \sum_{s=1}^p \beta_6 \ln CD_{t-s} + \sum_{s=1}^p \beta_7 \ln WACTR_{t-s} \\ & + \varepsilon_{1t} \end{aligned}$$

$$\begin{aligned} \ln GDP = & \alpha_2 + \sum_{s=1}^p \theta_1 \ln GDP_{t-s} + \sum_{s=1}^p \theta_2 \ln IMP_{t-s} + \sum_{s=1}^p \theta_3 \ln DIDT_{t-s} + \sum_{s=1}^p \theta_4 \ln FTT_{t-s} \\ & + \sum_{s=1}^p \theta_5 \ln EXR_{t-s} + \sum_{s=1}^p \theta_6 \ln CD_{t-s} + \sum_{s=1}^p \theta_7 \ln WACTR_{t-s} + \varepsilon_{2t} \end{aligned}$$

Where: α_i and α_2 are constant and θ_i are parameters to be estimated.

4.3 Estimation Procedures

4.3.1 Stationarity Test

A stochastic process said to be weakly stationary if its mean and variance are constant over time and the value of the covariance between the two-time periods depends only on the distance or gap between the two-time and not the actual time at which the covariance is computed. And according to Gujarati (2003), a time series is strictly stationary if all of the moments of its probability distribution are invariant over time. However, the normal stochastic process is fully specified by its two moments, the mean and the variance. According to Davidson and Mackinnon (1999), empirical work based on time-series data assumes that the underlying time series is stationary. If a time series is not stationary in the sense just defined, it is called a non-stationary time series. In other words, a non-stationary time series will have a time-varying mean or a time-varying variance or both. If a time series is non-stationary, we can study its behavior only for the time period under consideration. Each set of time series data will therefore be for a particular episode. As a consequence, it is not possible to generalize it to other time periods.

4.3.1.1 Testing for Unit Roots

The unit root test has become the most common method to test for stationarity. It is fundamental to test for the statistical properties of variables when dealing with time series data. For a number of reasons, it can be important to know whether or not an economic time series has a unit root. According to Davidson and Mackinnon (1999) a non-stationary time series is said to be integrated of order one, or $I(1)$, if its first difference, $\Delta y_t = y_t - y_{t-1}$, is $I(0)$. More generally, a series is integrated of order d , or $I(d)$, if it must be differenced d times before an $I(0)$ series results. A series is $I(1)$ if it contains what is called a unit root. It is therefore very important to be able to detect the presence of unit roots in time series, normally by the use of what are called unit root tests. For these tests, the null hypothesis is that the time series has a unit root and the alternative is that it is $I(0)$.

In this regard, the Augmented Dickey-Fuller (ADF) test and the Phillips-Peron test are the most widely used tests. This study basically employs the Augmented Dickey-Fuller (ADF) test to determine the existence of a unit root.

Augmented Dickey-Fuller (ADF) tests

The original Dickey-Fuller (DF) test is based on a simple autoregressive of order one AR (1) process with a white-noise disturbance. However, because the Dickey-Fuller test regression does not include values of variables beyond one lag, there may be serial correlation among error terms so that results based on such tests may be biased and as a result not valid. The Augmented Dickey-Fuller test avoids this problem because it corrects for serial correlation by adding lagged-difference terms (Greene, 2003).

Assuming the random walk model with drift around the stochastic trend as correctly specified by augmenting the lagged values of the explained variables Δy_t , the ADF test can be estimated using the following three cases.

Case one: When there is only intercept term

$$\Delta y_t = \alpha_0 + \gamma y_{t-1} + \beta_1 \Delta y_{t-1} + \cdots + \beta_p \Delta y_{t-p} + \epsilon_t$$

In this regards, t-statistics can be used on the γ coefficients to test whether we need to difference the data to make it stationary.

In this case, the null and alternative hypothesis of the ADF t-test can be:

$H_0: \gamma = 0$ (the data has a unit root, i.e., the data need to be differenced to make it stationary)

$H_1: \gamma < 0$ (i.e., the data is stationary and does not need to be differenced)

Case Two: When there is intercept and trend

$$\Delta y_t = \alpha_0 + \alpha_t t + \gamma y_{t-1} + \beta_1 \Delta y_{t-1} + \cdots + \beta_p \Delta y_{t-p} + \epsilon_t$$

Here one can also use the t-statistics on the γ coefficients to test whether differencing the data to make it stationary or we need to put a time trend in the regression model to correct for the variables deterministic trend.

Thus, the null and alternative hypothesis of the ADF t-test can be:

$H_0: \gamma = 0$ (the data has a unit root, i.e., the data need to be differenced to make it stationary)

$H_1: \gamma < 0$ (i.e., the data is trend stationary and needs to be analyzed by means of using a time trend in the regression model instead of differencing the data).

Case Three: when there is no intercept and trend

$$\Delta y_t = \gamma y_{t-1} + \beta_1 \Delta y_{t-1} + \dots + \beta_p \Delta y_{t-p} + \epsilon_t$$

In this case, the null and alternative hypothesis of the ADF t-test can be:

$H_0: \gamma = 0$ (the data has a unit root i.e. the data need to be differenced to make it stationary)

$H_1: \gamma < 0$ (i.e. the data is stationary and does not need to be differenced)

Where: ϵ_t represents the white noise.

The appropriate critical values to be used to test for the presence of a unit root are provided by the Dickey-Fuller. After estimating the equations with ordinary least square method, the resulting t-statistics are compared with the respective critical values given in the Dickey-Fuller tables.

4.3.2 Econometric Method

4.3.2.1 Vector Autoregressive (VAR) Modeling and Co-Integration Analysis

Co-integration test is employed to check long run linear relationships among variables in the presence of short-run deviations from the long run equilibrium. Basically where there is non-stationary series with a unit root, first differencing appears to provide the appropriate solutions to ensuring series are weakly stationary, though first differencing does possess a major limitation in that it tends to ignore the long run properties of the data.

Thus, the VAR approach has, in recent years, become quite a common tool for macroeconomic analysis. The procedure used for co-integration testing and estimation of the VAR for this study is based on methodology developed and used by Johansen (1988, 1991), and Johansen and Juselius (1990). This method is preferred to the single equation based Engel-Granger two step procedure for the reason that it allows testing for the presence of more than one co-integration vector. Moreover, it permits to estimate the model without priority restricting the variables as endogenous and exogenous.

4.3.2.2 The Vector Error Correction Model (VECM)

The Vector Autoregressive (VAR) model is a general framework used to describe the dynamic interrelationship among stationary variables. It contains information on both the short-run and long-run properties of the model, with disequilibrium as a process of adjustment to the long run model. The Vector Error Correction (VEC) model is just a special case of the VAR for variables that are stationary in their differences. When the variables of a VAR are co-integrated, we use a Vector Error-correction model (Davidson and Mackinnon 1999).

Johansen Co-integration Test

The Johansen test and estimation strategy, maximum likelihood, makes it possible to estimate all co-integrating vectors when there are more than two variables. If there are three variables each with unit roots, there are at most two co-integrating vectors. More generally, if there are n variables which all have unit roots, there are at most $n - 1$ co-integrating vectors. The Johansen test provides estimates of all co-integrating vectors.

In the Johansen (1988) procedure, determining the rank (r) of the long run matrix (Π) provides the number of co-integrating vector between the variables. To determine the rank of the long-run matrix and hence the number of co-integrating vectors, the two likelihood ratio tests (the trace), and the maximal Eigen value (λ maximum) statistics are used. For both test statistics, the initial Johansen test is a test of the null hypothesis of no co-integration against the alternative of co-integration.

Maximum Eigen value Test

The maximum Eigen value test examines whether the largest Eigen value is zero relative to the alternative that the next largest Eigen value is zero. The first test is a test whether the rank of the matrix Π is zero. The null hypothesis is that $\text{rank}(\Pi) = 0$ and the alternative hypothesis is that $\text{rank}(\Pi) = 1$. For further tests, the null hypothesis is that $\text{rank}(\Pi) = 1, 2, \dots$ and the alternative hypothesis is that $\text{rank}(\Pi) = 2, 3, \dots$

The test of the maximum (remaining) Eigen value is a likelihood ratio test. The test statistic is

$$LR(r_0, r_0 + 1) = -T \ln(1 - \lambda_{r_0+1})$$

Where, $LR(r_0, r_0 + 1)$ is the likelihood ratio test statistic for testing whether $\text{rank}(\Pi) = r_0$ versus the alternative hypothesis that $\text{rank}(\Pi) = r_0 + 1$

Trace Test

The trace test is a test whether the rank of the matrix Π is r_0 . The null hypothesis is that $\text{rank}(\Pi) = r_0$. The alternative hypothesis is that $r_0 < \text{rank}(\Pi) \leq n$, where n is the maximum number of possible co-integrating vectors. For the succeeding test if this null hypothesis is rejected, the next null hypothesis is that $\text{rank}(\Pi) = r_0 + 1$ and the alternative hypothesis is that $r_0 + 1 < \text{rank}(\Pi) \leq n$. Testing proceeds as for the maximum Eigen value test.

The likelihood ratio test statistic is

$$LR(r_0, n) = -T \sum_{i=r_0+1}^n \ln(1 - \lambda_i)$$

Where, $LR(r_0, n)$ is the likelihood ratio statistic for testing whether $\text{rank}(\Pi) = r_0$ versus the alternative hypothesis that $r_0 < \text{rank}(\Pi) \leq n$.

According to Davidson and Mackinnon (1999), the estimation of the VECM requires the determination of the appropriate lag length because the co-integration result may be sensitive to the number of lags included in the VAR. Thus, prior to co-integration testing and estimation of the

VECM, we need to determine the appropriate lag length, which is determined using the well-known model selection criteria, the Akaike Information Criteria (AIC), the Final Prediction Error (FPE), the Hannan-Quinn Information Criteria (HQ), and the Schwarz (Bayesian) Information Criteria (SIC). The objective of the information criteria (IC) method is to select the number of parameters, which minimize the value of the information criteria.

4.3.2.3 Diagnostic Checks

Once the VAR models are estimated we should make some diagnostic tests which are important in order to make sure that the results obtained from VAR estimation can be used for forecasting or policy purposes. These post-estimation tests are mostly performed on the residual of the VAR.

Tests for Normality of a Vector White Noise Process

The Jarque-Bera normality test is used to determine whether the regression errors are normally distributed. The idea is to compare the third and fourth moments of the transformed process with the theoretical values obtained for a Gaussian process. It is a joint asymptotic test whose statistic is calculated from the skewness and kurtosis of the residuals as follows:

$JB = S_3^2 + S_4^2$ where, S_3^2 and S_4^2 computed as

$$S_3^2 = T b_1' b_1 / 6$$

$$S_4^2 = T(b_2 - 3_k)'(b_2 - 3_k) / 24$$

Where, b_1 and b_2 are the third and fourth non-central moment vectors of the standardized residuals and T is the number of observation.

The joint test is based on the null hypothesis that the residuals are normally distributed. Non rejection of the null hypothesis at the standard critical values indicates normality of the residuals.

Error Vector Autocorrelation Test

Autocorrelation normally occurs while employing time series data. This occurs when two or more consecutive error terms are correlated, and we say that the error term is subject to autocorrelation or serial correlation. This study uses the Breusch-Godfrey Lagrange Multiplier (LM) test, which is a multivariate test for residual serial correlation up to some specified lag order.

The null hypothesis of the LM test for autocorrelation is that the residuals are not serially correlated, while the alternative is that the residuals are serially correlated. If the p-value is less than 0.05 then we reject the null hypothesis. The test statistic is given by:

$$LM = (T - q)R_{\varepsilon}^2$$

Where, q is the degrees of freedom and R_{ε}^2 is the coefficient of determination obtained from the auxiliary regression; and the LM test statistic is chi-square distributed.

Heteroskedasticity Test

The test for heteroskedasticity investigates whether the variance of the errors in the model are constant or not. White's test is used to check whether the residuals are both homoskedastic and that there is no problem of misspecification. It tests the null hypothesis that the residuals are homoskedastic i.e., $E(u_i^2) = \sigma^2$. The test regression is run by regressing each cross product of the residuals on the cross products of the regressors and testing the joint significance of the regression. If the White test statistic is significant, that is, p-value is less than 0.05; the null hypothesis of homoskedasticity and no misspecification will be rejected.

CHAPTER FIVE: DATA ANALYSIS AND INTERPRETATION OF RESULTS

Time series data of the last 40 years (1975/76 – 2014/15) is used in the analysis of arguments on co integration of variables. Economic growth and import of goods are considered to be dependent variables.

5.1 Time series properties of the data

5.1.1 Unit Root Tests

Testing for stationarity of the time series ensures that the variables used in the regressions are not subject to spurious correlation/ regressions. In order to avoid the problem of spurious correlations in the regression analysis, the time series of the variables used in the regression analysis are investigated using the standard Augmented Dickey-Fuller (ADF) unit root test. The test with these methods is performed with different trend assumptions such as only intercept, both linear trend and intercept, and no intercept and no trend. Performing the tests under all three alternatives will identify whether only the intercept or both the trend and intercept are significant.

Table 5.1: Augmented Dickey-Fuller Stationarity Test Result

Variable	Tests statistics under different case			Order of Integration
	Intercept	Trend and Intercept	No Trend No Intercept	
LDIDT	1.304103	-0.378358	2.649957	I(1)
D(LDIDT)	-3.094422	-3.493903	-1.876069	
LFTT	0.838624	-1.165076	3.575212	I(1)
D(LFTT)	-5.940810	-6.694815	-2.677573	
LCD	1.325791	-1.425811	4.543814	I(1)
D(LCD)	-6.122365	-6.862621	-4.569110	
LIMP	2.211833	-0.403528	6.470309	I(1)
D(LIMP)	-2.449189	-6.385455	-1.281115	
LGDP	2.381954	-0.663076	5.238097	I(1)

D(LGDP)	-4.937087	-5.816579	-1.921082	
LEXR	0.176866	-2.984331	1.888725	I(1)
D(LEXR)	-4.151636	-4.228387	-2.990369	
LWACTR	-0.521853	-1.300807	-2.173761	I(1)
D(LWACTR)	-2.707496	-2.666429	-2.405189	

Note: D shows the variable is differenced once. MacKinnon (1996) one-sided critical values for rejection of a unit root are used here.

The time series behaviour of each series using the ADF test is presented in above table (5.1). The ADF test results at level shows that all the critical values are greater than the ADF test statistics; therefore we fail to reject the null hypothesis a unit root and all of the variables included in the model are integrated of order 1.

5.2 Econometric Analysis

5.2.1 Co-Integration Test Result

Lag Order Selection for Endogenous Variables

A crucial aspect of empirical research based on the vector autoregressive (VAR) model is the choice of the lag order, since all inference in the VAR model is based on the correct model specification. Among the classical procedures, the information criteria such as Likelihood Ratio (LR), Akaike (AIC), Schwarz (SC) and Hannan-Quinn (HQ) and Forecast Prediction Error (Lutkepohl, 1993) have been used to decide lag length that helps to estimate VAR model. As indicated by the table 5.2 below, the LR, FPE, AIC, SC and HQ propose an optimal lag of three at a 5% level of significance.

Table 5.2: Optimal lag order selection criteria

Lag	Log L	LR	FPE	AIC	SC	HQ
0	10.52436	NA	1.21e-10	-0.136452	0.211855	-0.013658
1	266.8251	387.9146	3.99e-15	-10.53109	-7.396327	-9.425936
2	360.8320	101.6291	1.32e-15	-12.15308	-6.231867	-10.06557
3	506.7194	4.62968*	8.92e-17*	-16.5794*	-7.871761*	-13.50957*

Note: * indicates lag order selected by the criterion

5.2.2 Post-Estimation Diagnostics

Different post-estimation diagnostic tests were performed to guarantee that the residuals from the models are Gaussian in which the assumptions are not violated and the estimation results and inferences are trustworthy. The diagnostic test results could also be used as indicators of the validity of employing impulse-response functions and variance decomposition analyses.

Residual Vector Normality Test

Multivariate version of the Jarque-Bera tests is used to test the normality of the residuals. It compares the 3rd and 4th moments (skewness and kurtosis) to those from a normal distribution. The test has null hypothesis stating that the error term in the model has skewness and kurtosis corresponding to a normal distribution. The result (in table 5.8) shows that the residual vector of the model is found to be jointly normal.

Residual Vector Serial Correlation LM Test

Table 5.3 below show the p-values of statistical significance at 5% level for test of residual vector serial correlation. The small p-values imply that the chi-squared statistics at all lags are not large enough to help reject the null of no autocorrelation at any of the usual critical values. In this case, the serial correlation Lagrange Multiplier (LM) test fails to reject the null hypothesis of no serial correlation. This result indicates that the residuals of the estimated error correction model do not suffer from any type autocorrelation.

Table 5.3: Diagnostic checks for VECM

Test	Statistics		p-value
	Lag	Chi-square	
Residual Vector Serial Correlation LM	1	43.85636	0.1728
	2	29.43586	0.7723
	3	38.28263	0.3663
Residual Vector Normality (Jarque-Bera)12df	Joint	4.488841	0.7221
Residual Vector Heteroskedasticity	Joint	797.9138	0.3571

Residual Vector Heteroskedasticity Test

Finally, the VEC residuals heteroskedasticity test is performed. The result in table 5.8 suggests that there is no enough evidence to help reject the null of no heteroskedasticity at 5% level of significance. Therefore, the residuals of the model are found to be homoskedastic. This, together with the results of the other pre and post estimation diagnostic tests, suggests the validity and robustness of the estimated results.

Model Stability Test

The stability of the VAR model and the results of the post-estimation diagnostics could affect the validity and robustness of the results. This result can be visualized from the graph of the inverse roots of the AR characteristic polynomial (Figure 5.1). The figure shows that all of the moduli lie inside the unit circle. Therefore, the results suggest that the VAR model satisfies the stability condition.

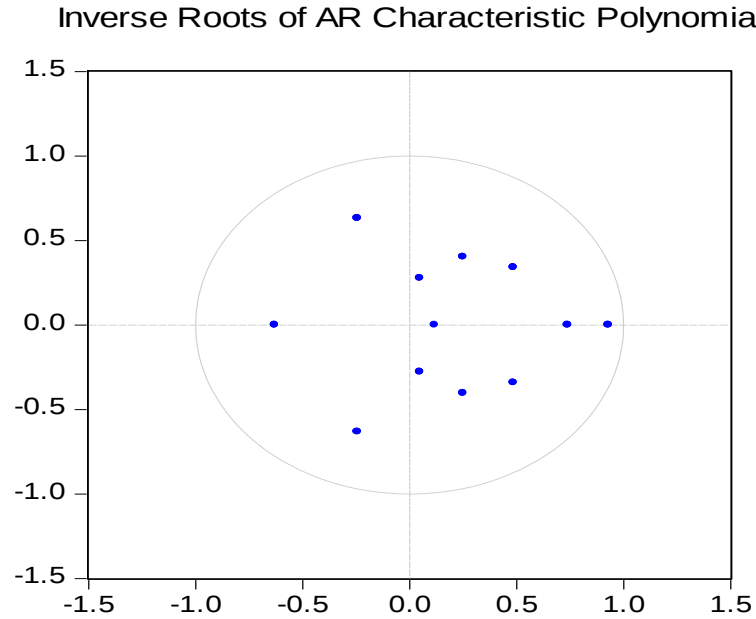


Figure 5.1 Inverse roots of the AR

The Johansen Co-integration Test Result

ADF tests found that the series are non-stationary at level and stationary at first difference. To capture the existence of long run relationship among the variables, this study employs the Johansen system framework to detect the existence of co-integrating relationships by the use of trace and maximum Eigen value statistics. The number of lags of endogenous variables and trend assumption determine the results of Johansen co-integration test in the VAR environment.

Table 5.4: Unrestricted Co-integration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigen value	Co-integration Test Statistics	Critical Value (5%)
None *	0.924040	265.4040	169.5991
At most 1 *	0.757711	167.4570	134.6780
At most 2 *	0.559290	113.5873	103.8473
At most 3 *	0.504926	82.45127	76.97277
At most 4 *	0.457760	55.73546	54.07904
At most 5	0.321474	32.47770	35.19275

Note: * denotes rejection of null hypothesis at 5 percent level.

Both the trace and the maximal Eigen value tests identified five co-integrating relationships at the 5% level of significance. This evidence shows that there is a long-run relationship among the variables. The results also legitimize the use of the VAR and the Johansen method instead of the single-equation-based Engle-Granger two-step procedure.

5.2.3 Vector Error Correction Model (VECM)

The vector error correction (VEC) model is just a special case of the VAR for variables that are stationary in their differences (i.e., in this case, $I(1)$). The VEC can also take into account any co-integrating relationships among the variables. Thus, in this analysis the optimum lag of three is chosen for the VAR using information criteria results. The VECM model consists of the dynamics of both short run and long run adjustments.

Long-run Relationship

The result of ADF and Johansen co-integration tests supported the existence of long-run equilibrium relationships among the *DIDT*, *FTT*, *IMP*, *GDP*, *EXR*, *CD* and *WACTR*. In this regards, this study aimed to examine: the impact of custom duty, total direct and indirect domestic taxes, total foreign trade taxes, import, average exchange rates and weighted average customs tariff rates on economic growth as well as total direct and indirect domestic taxes, total foreign trade taxes, economic growth, average exchange rates and weighted average customs tariff rates on trade, basically import of goods. The Johansen co-integration test confirms that there are five co-integration equations so that there will be long-run relation among the variables.

The result of the long-run relationship after estimating the unrestricted co-integrating vector with ad-hoc normalization on LGDP is given by:

Table 5.5: The Estimated Long-Run Model for LGDP could be

Variable	LDIDT	LFTT	LIMP	LEXR	LWACTR	LCD	C
Coefficient	2.459	0.946	-3.546	0.535	-4.735	-1.794	20.38
	(12.07)	(4.05)	(-11.33)	(2.11)	(-9.46)	(-7.68)	(10.00)

Note: Values in parentheses are t-Statistics

Estimated Long-Run Model for LGDP

$$LGDP_t - 20.38 - 2.45LDIDT_t - 0.94LFTT_t - 0.53LEXR_t + 4.73LWACTR_t + 1.79LCD_t + 3.45LIMP_t = 0$$

The above long-run equilibrium equation shows that, *circa paribus*, direct and indirect domestic taxes has positive and significant impact on economic growth (GDP) while the long run impact of import is negative and significant. This result shows that 1 percent point increase in direct and indirect domestic taxes increases economic growth by 2.45 percent point in the long run. Similarly, the equation indicates that, *circa paribus*, foreign trade taxes (FTT) has positive significant impact on economic growth. It shows that a 1 percent increase in revenue from foreign trade taxes increases 0.946 percent economic growth in the long run. According to the long-run model, the currency devaluation has a positive and significant impact on economic growth.

Other independent variables (import, weighted average customs tariff rate, and revenue from customs duty) have a negative but significant impact on economic growth. It seems that these variables are highly correlated.

This shows that attention should be given to domestic resource mobilization focusing on domestic taxes for economic growth and sustainable development. Additionally, focus should be given on

import substitution and export of high value added goods in the long run and primary commodities and manufactured goods in the short run.

On the other hand, after estimating the unrestricted co-integrating vector with ad-hoc normalization on LIMP is given by:

Table 5.6: The Estimated Long-Run Model for LIMP

Variable	LDIDT	LGDP	LFTT	LEXR	LWACTR	LCD	C
Coefficient	-0.81	-0.36	0.49	-1.23	0.50	0.34	-4.06
	(-16.77)	(-6.27)	(4.59)	(-8.28)	(3.24)	(2.86)	(-7.29)

Note: Values in parentheses are t-Statistics

Estimated Long-Run Model for Import

$$LIMP_t + 4.06 + 0.81LDIDT_t - 0.49LFTT_t + 1.23LEXR_t - 0.5LWACTR_t - 0.34LCD_t + 0.36LGDP_t = 0$$

The effect of GDP on import is negative; as a result 1 percent point increase in GDP will decrease import by 0.36 percentage point in the long run. This negative and significant relationship between GDP and import can be because of the demand for domestic goods and services may be increasing as the economy grows in the long run.

The effects of customs duty, weighted average customs tariff rate and foreign trade tax on import show a positive and significant relationship. As a result, 1 percent point increase in foreign trade tax will increase by 0.49 percentage point in the long run. The reduction of tariff rate effect responds positively and significantly to the volume of import which is the base for revenue from customs duty and foreign trade taxes.

The Short run Relationship

Once the existence of long-run relationship checked and the appropriate parameters are determined, the next step is estimating the coefficients of the short term dynamics. In order to capture the short-run dynamics of the model, error correction mechanism will be applied. The coefficient of the error correction term indicates how quickly the variables converge to equilibrium.

Table 5.6 shows the results of the D (LGDP) equation in the error-correction model from which the short-run impact of total direct and indirect domestic taxes, custom duty, total foreign trade taxes, import, average exchange rates and weighted average customs tariff rates on economic growth can be analyzed. The coefficients of the one-period lagged differences in the table can be interpreted as the short-run parameters representing the short-run causality.

The result shows that import has positive and insignificant impacts on economic growth in the short run. This can be due to the impact of import of capital goods for investment that does not generate immediate revenue to the economy in the short run and affects the economic growth. The short-run impact of direct and indirect domestic tax show that a 1percentage-point increases in DIDT decreases GDP by 0.75 percentage points in the short run.

Table 5.7: Short-Run Coefficients when dependent variable is D (LGDP)

Error Correction Model	Dependent Variable: D(LGDP)	
	Coefficient	t-value
ECM	-0.409220	[-1.80791]
D(LIMP(-1))	0.401833	[0.67434]
D(LDIDT(-1))	-0.753312	[-2.05022]
D(LFTT(-1))	-0.558451	[-2.01302]
D(LEXR(-1))	0.987144	[1.79110]
D(LWACTR(-1))	0.386831	[0.56149]
D(LCD(-1))	0.377633	[1.47712]
C	-4.385466	[-2.31047]

$$R^2 = 0.76$$

As it can be observed from table 5.7 above the coefficient of the error correction term for the GDP equation possesses the negative sign. This guarantees that although the actual GDP may temporarily deviate from its long-run equilibrium value, it would gradually converge to its equilibrium. The error correction term of -0.409 shows that about 41 percent of the deviation of the actual GDP from its equilibrium value is eliminated every year; hence, full adjustment would require a period of less than three years.

Table 5.8: Short-Run Coefficients when dependent variable is D (LIMP)

Error Correction Model	Dependent Variable: D(LIMP)	
	Coefficient	t-value
ECM	-0.039665	[-0.05441]
D(LGDP(-1))	-0.446535	[-2.52465]
D(LDIDT(-1))	-0.576825	[-1.67858]
D(LFTT(-1))	-0.147979	[-0.49260]
D(LEXR(-1))	0.271280	[0.56765]
D(LWACTR(-1))	-1.419271	[-2.01813]
D(LCD(-1))	0.221240	[0.68079]
C	4.299652	[0.15958]

$$R^2 = 0.77$$

The coefficient of the error correction term for the output equation below in table 5.8 possesses insignificant and negative sign. The result of short run coefficients indicates that the impact of GDP on IMP is negative and significant. This shows that increase in GDP in the short run hampers import in Ethiopia. The result indicates that 1 percent point increase in GDP growth rate decreases import by 0.44 percent point. There is also short run causality from direct and indirect domestic tax which also affects import negatively in the short run.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

The central theme of this research focused on identifying the effects of Customs tariff reduction on Ethiopian trade and economic growth. The contribution of revenue to the budgetary revenue from foreign trade tax especially customs duty on imported goods is immense and plays a great role in domestic resource mobilization.

In Chapter one, Introduction of this research four leading questions were raised as a guiding principle of the research: Why do countries impose customs tariffs? What is the contribution of tariff revenue to the government budget and its trend in Ethiopia? What is the level of the revenue productivity of tariff in Ethiopia? And what are the effects of lowering tariff rates? To answer these questions, and examine the effects of reduction of customs tariff on trade and growth, 40 years (1975/76 – 2014/15) secondary macroeconomic data focusing on GDP, trade and revenue generation was collected from relevant sources. Besides extensive theoretical and conceptual reviews, simple descriptive statistics and econometric analysis using Co-integrated VAR Model were applied and valuable findings achieved.

The major reasons to impose Customs tariffs on imported goods are found to be revenue generation, protection of domestic industries, reducing the balance of payments and trade deficits, and capital formation. It has significant share, about (36%, and 15% of revenue from foreign trade taxes, and total taxes, respectively) in the Ethiopian tax structure. The customs tariff rates imposed in the first 17 years (1975/76 – 1992/93) were very high in the policy direction of protecting local industries and focusing on revenue generation. Following the Economic Reform Programs of the country, various policy measures have been taken by the Government and shows that variables under consideration are responding positively to the policy measures.

The debate between trade-optimists and trade-pessimists, although begun many centuries back, still keeps ongoing. Even though free trade is important in many respects, the imposition of customs tariff is also supported due to its many advantages particularly to the developing countries. The supporters of protectionist trade policy argue that its importance in revenue generation, protecting

infant industries, reducing trade deficits and attracting investors cannot be undermined in developing countries. This argument implies that policymakers impose customs tariff not because they do not know the advantages of free trade and globalization but because they found the benefits of tariff exceed its disadvantages, when they compare with their own specific situations.

However, customs duty is declining since recent years; the share of customs duty in total government revenue, total taxes, total indirect taxes and total foreign taxes remains significant in Ethiopia. It is also possible to conclude that customs duty is responsible for the low tax-to-GDP ratio in the country. This shows that the level of the economic development in the country has not yet brought the required structural changes in its tax structure.

Although the contribution of customs duty in the government revenue in Ethiopia is significant, the customs duty has been neither buoyant nor elastic. This implies that both the direct discretionary and non-discretionary measures have not yet brought the buoyancy and elasticity of the customs duty to the unitary level.

The long-run equilibrium equation shows that, *ceteris paribus*, direct and indirect domestic taxes, foreign trade taxes (FTT) and exchange rate have positive and significant impact on economic growth (GDP). Other independent variables (import, weighted average customs tariff rate, and revenue from customs duty) have a negative but significant impact on economic growth.

This shows that attention should be given to domestic resource mobilization focusing on domestic taxes for economic growth and sustainable development. Additionally, focus should be given on import substitution and export of high value added goods in the long run and primary commodities and manufactured goods in the short run. The result also shows that import has positive and insignificant impacts on economic growth in the short run. This can be due to the impact of import of capital goods for investment that does not generate immediate revenue to the economy in the short run and affects the economic growth.

6.2 RECOMMENDATIONS

The economic importance of customs tariff for a developing country is multidimensional. Public revenue generation, infant industry protection, balance of payment protection and attraction of investors and capital to the protected areas are the major benefits of imposing customs tariff.

The results of this research also reveal that although the Ethiopian government seems to divert its attention to domestic direct and indirect taxes than the international trade taxes, taxes from international trade, including customs duty are still playing pivotal role. So, it needs careful decision in strengthening and capacity building the tax policy and tax administration of the country.

It is a dilemma that the country has not yet formulated trade policy, which is supposed to incorporate tariff policy. Establishing modern trade policy that incorporates tariff policy is highly essential for the development and attention should be given to regional economic integration, like COMESA, Tripartite FTA, African Economic Union and WTO accession.

At the current stage of economic development in Ethiopia, undermining the role of customs duty in the budgetary revenue of the government is very difficult. However, it needs detailed study and take appropriate measures that facilitate trade and sustainable growth.

Understating the role of foreign trade taxes and focusing on other taxes alone cannot entail the required structural change in taxation; rather it is the required development that can fetch the required structural change in taxation. This needs careful policy studies and decisions.

Enhancing the capacity of the customs administration in the country through further customs reforms and modernization can help the government to improve the revenue productivity of the customs duty.

The generous exemptions and exonerations from customs duty are also negatively affecting the revenue productivity of customs duty. It is better to compare this revenue cost of the exemptions and exonerations with their other benefits and revise the investment and export promotion schemes if their costs higher than their benefits.

The depreciation of the Ethiopian Birr against the American Dollar has also negatively affected the ratio of customs duty-to-GDP. The policy makers are also advised to incorporate the revenue implications of foreign exchange devaluations, in their monetary policy formulations.

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APPENDICES

Appendices I/A-D: Original Macroeconomic Data on Government Revenues, GDP, Imports and Foreign Exchange Rates and own computed data

Appendix I/A: The Major Sources of Total Government Revenues for the Entire Study Period (1975/76 -2014/15) in Million Birr

Fiscal Year	Direct and Indirect Domestic Taxes	Total Foreign Trade Taxes	Total Tax Revenues	Non-Tax Revenues	External Grants	Total Revenues & Grants	Share of TFFT to TR (%)
1975/76	348.3	265.0	613.3	167.7	0.0	781.0	43.21
1976/77	390.4	465.5	855.9	145.8	9.5	1011.2	54.39
1977/78	412.6	526.2	938.8	161.0	8.2	1108.0	56.05
1978/79	584.5	562.0	1146.5	182.7	6.2	1335.4	49.02
1979/80	753.9	544.3	1298.2	269.3	174.1	1741.6	41.93
1980/81	876.9	484.9	1361.8	395.1	190.4	1947.3	35.61
1981/82	961.3	475.1	1436.4	440.3	261.6	2138.3	33.08
1982/83	1047.5	510.6	1558.1	616.4	259.3	2433.8	32.77
1983/84	1152.4	579.1	1731.5	562.4	253.7	2547.6	33.44
1984/85	1211.7	465.8	1677.5	645.8	631.3	2954.6	27.77
1985/86	1319.8	556.3	1876.1	929.9	443.1	3249.1	29.65
1986/87	1529.3	562.9	2092.2	833.7	322.0	3247.9	26.90
1987/88	1732.4	585.0	2317.4	1149.7	635.9	4103.0	25.24
1988/89	1846.5	524.5	2371.0	1527.9	799.0	4697.9	22.12
1989/90	1683.9	475.3	2159.2	983.4	401.4	3544.0	22.01
1990/91	1589.2	464.2	2053.4	652.9	463.3	3169.6	22.61
1991/92	1198.1	420.1	1618.2	589.7	543.0	2750.9	25.96
1992/93	1483.7	722.1	2205.8	985.5	466.1	3657.4	32.74
1993/94	1779.3	1297.2	3076.5	862.4	987.2	4926.1	42.16
1994/95	2257.1	1621.5	3878.6	2034.2	1131.7	7044.5	41.81
1995/96	2909.4	1813.9	4723.3	2242.9	1096.8	8063.0	38.40
1996/97	3195.4	2163.6	5359.0	2526.7	1492.8	9378.5	40.37
1997/98	3058.1	2234.1	5292.2	3089.1	1185.2	9566.5	42.21
1998/99	3219.3	2309.7	5529.0	4021.6	1644.8	11195.4	41.77
1999/00	3802.8	2327.8	6130.6	3639.1	1530.9	11300.6	37.97

2000/01	4069.1	3324.0	7393.1	3147.1	3195.5	13735.7	44.96
2001/02	4553.0	3304.9	7857.9	2573.1	1323.2	11754.2	42.06
2002/03	4560.4	3633.9	8194.3	3505.0	2191.5	13890.8	44.35
2003/04	5512.5	5258.4	10770.9	2941.1	4001.0	17713.0	48.82
2004/05	6651.0	5746.0	12397.0	3195.0	4565.0	20157.0	46.35
2005/06	7571.8	6587.0	14158.8	5371.1	3731.8	23261.7	46.52
2006/07	9164.4	8188.7	17353.1	4443.7	7583.0	29379.8	47.19
2007/08	12109.0	11693.0	23802.0	5992.0	9911.0	39705.0	49.13
2008/09	17193.0	11814.0	29007.0	11176.0	14454.0	54637.0	40.73
2009/10	25633.0	17685.0	43318.0	10546.0	12376.0	66240.0	40.83
2010/11	35255.0	23726.0	58981.0	10139.0	16491.0	85611.0	40.23
2011/12	52184.0	33556.0	85740.0	17124.0	12795.0	115659.0	39.14
2012/13	68833.0	38177.0	107010.0	17067.0	13115.0	137192.0	35.68
2013/14	87520.0	45599.0	133119.0	13055.0	11904.0	158078.0	34.25
2014/15	112487.0	52790.0	165277.0	21312.0	13020.0	199609.0	31.94
Total/ Average	493640.0	294039.6	787679.6	161242.3	145594.5	1094516.4	37.33

Source: Ministry of Finance and Economic Development (MoFED), 2014 and updated data

Appendix I/B: Domestic Tax Revenues (1975/76 - 2014/15) in Million Birr

Fiscal Years	Direct Taxes	Domestic Indirect Taxes	Total Domestic Taxes
1975/76	174.3	174.0	348.3
1976/77	209.0	181.4	390.4
1977/78	225.8	186.8	412.6
1978/79	315.6	268.9	584.5
1979/80	380.3	373.6	753.9
1980/81	489.5	387.4	876.9
1981/82	565.1	396.2	961.3
1982/83	604.3	443.2	1047.5
1983/84	656.9	495.5	1152.4
1984/85	688.0	523.7	1211.7
1985/86	766.0	553.8	1319.8
1986/87	906.3	623.0	1529.3
1987/88	1012.4	720.0	1732.4
1988/89	1062.0	784.5	1846.5
1989/90	924.5	759.4	1683.9
1990/91	831.4	757.8	1589.2
1991/92	663.6	534.5	1198.1
1992/93	737.7	746.0	1483.7
1993/94	945.2	834.1	1779.3
1994/95	1311.6	945.5	2257.1
1995/96	1753.8	1155.6	2909.4
1996/97	1903.9	1291.5	3195.4
1997/98	1869.4	1188.7	3058.1
1998/99	2018.4	1200.9	3219.3
1999/00	2360.5	1442.3	3802.8
2000/01	2688.0	1381.1	4069.1
2001/02	3013.6	1539.4	4553.0
2002/03	2873.2	1687.2	4560.4
2003/04	3681.3	1831.2	5512.5
2004/05	3930.0	2721.0	6651.0
2005/06	4461.0	3110.8	7571.8
2006/07	5167.9	3996.5	9164.4
2007/08	7016.0	5093.0	12109.0
2008/09	9868.0	7325.0	17193.0
2009/10	14906.0	10727.0	25633.0
2010/11	19550.0	15705.0	35255.0
2011/12	28858.0	23326.0	52184.0

2012/13	36393.0	32440.0	68833.0
2013/14	47021.0	40499.0	87520.0
2014/15	60149.0	52339.0	112488.0
Total	272951.5	220689.5	493641.0

Source: Ministry of Finance and Economic Development (MoFED), 2014 and updated data

Appendix I/C: Foreign Trade Taxes (1975/76 - 2014/15) in Million Birr

Fiscal Years	Customs Duty	Excise & Other Taxes from Imports	Total Import taxes	Export Taxes	Total Foreign Trade Taxes	Share of CD to TIT (%)	Share of CD to TFFT (%)
1975/76	119.0	59.8	178.8	86.2	265.0	66.6	44.9
1976/77	164.6	82.2	246.8	218.7	465.5	66.7	35.4
1977/78	168.8	75.6	244.4	281.8	526.2	69.1	32.1
1978/79	211.7	122.0	333.7	228.3	562.0	63.4	37.7
1979/80	138.0	109.2	247.2	297.1	544.3	55.8	25.4
1980/81	167.2	129.5	296.7	188.2	484.9	56.4	34.5
1981/82	155.6	129.1	284.7	190.4	475.1	54.7	32.8
1982/83	174.6	132.2	306.8	203.8	510.6	56.9	34.2
1983/84	188.3	132.9	321.2	257.9	579.1	58.6	32.5
1984/85	172.1	120.9	293.0	172.8	465.8	58.7	36.9
1985/86	172.2	121.1	293.3	263.0	556.3	58.7	31.0
1986/87	230.4	178.8	409.2	153.7	562.9	56.3	40.9
1987/88	235.5	202.3	437.8	147.2	585.0	53.8	40.3
1988/89	199.9	160.3	360.2	164.3	524.5	55.5	38.1
1989/90	244.3	173.8	418.1	57.2	475.3	58.4	51.4
1990/91	259.7	183.6	443.3	20.9	464.2	58.6	55.9
1991/92	217.0	193.8	410.8	9.3	420.1	52.8	51.7
1992/93	351.8	351.7	703.5	18.6	722.1	50.0	48.7
1993/94	632.1	618.5	1250.6	46.6	1297.2	50.5	48.7
1994/95	747.2	672.9	1420.1	201.4	1621.5	52.6	46.1
1995/96	889.1	805.3	1694.4	119.5	1813.9	52.5	49.0
1996/97	1067.0	958.2	2025.2	138.4	2163.6	52.7	49.3
1997/98	1021.7	1029.0	2050.7	183.1	2233.8	49.8	45.7
1998/99	1083.2	1072.5	2155.7	154.0	2309.7	50.2	46.9
1999/00	1074.0	1106.3	2180.3	147.5	2327.8	49.3	46.1
2000/01	1275.4	1955.3	3230.7	93.3	3324.0	39.5	38.4
2001/02	1507.9	1770.2	3278.1	26.8	3304.9	46.0	45.6
2002/03	1695.0	1937.7	3632.7	1.2	3633.9	46.7	46.6
2003/04	2425.8	2832.6	5258.4	0.0	5258.4	46.1	46.1
2004/05	2503.0	3243.0	5746.0	0.0	5746.0	43.6	43.6
2005/06	2954.2	3632.8	6587.0	0.0	6587.0	44.8	44.8
2006/07	3298.5	4890.2	8188.7	0.0	8188.7	40.3	40.3
2007/08	3892.0	7801.0	11693.0	0.0	11693.0	33.3	33.3
2008/09	3941.0	7872.0	11813.0	0.0	11813.0	33.4	33.4

2009/10	5852.0	11833.0	17685.0	0.0	17685.0	33.1	33.1
2010/11	7717.0	16009.0	23726.0	0.0	23726.0	32.5	32.5
2011/12	11091.0	22466.0	33557.0	0.0	33557.0	33.1	33.1
2012/13	12761.0	25416.0	38177.0	0.0	38177.0	33.4	33.4
2013/14	15372.0	30227.0	45599.0	0.0	45599.0	33.7	33.7
2014/15	17572.0	35218.0	52790.0	0.0	52790.0	33.3	33.3
Total	103942.8	186025.3	289968.1	4071.2	294039.3	35.8	35.3

Source: Ministry of Finance and Economic Development (MoFED) and own computed data

**Appendix I/D: Imports, GDP, Annual Average Exchange Rates, and Annual
Average Customs Tariff rates (1975/76 – 2014/15)**

Fiscal Years	Imports (In Million Birr)	GDP at Current Market Price (In Million Birr)	Average Exchange Rates (Birr/USD)	Weighted Average Customs Tariff Rates (%)	Share of Import to GDP (%)
1976	729.50	7873.00	2.07	41.60	9.27
1977	823.00	8308.00	2.07	41.60	9.91
1978	1064.90	9287.00	2.07	41.60	11.47
1979	1174.60	9865.00	2.07	41.60	11.91
1980	1432.90	10079.00	2.07	41.60	14.22
1981	1384.20	10636.00	2.07	41.60	13.01
1982	1641.70	11775.00	2.07	41.60	13.94
1983	1752.90	10988.00	2.07	41.60	15.95
1984	2067.00	13027.00	2.07	41.60	15.87
1985	1770.40	13575.00	2.07	41.60	13.04
1986	2211.00	14391.00	2.07	41.60	15.36
1987	2236.90	14971.00	2.07	41.60	14.94
1988	2274.70	15742.00	2.07	41.60	14.45
1989	2110.40	16826.00	2.07	41.60	12.54
1990	1824.20	19195.00	2.07	41.60	9.50
1991	2130.30	20792.00	2.07	41.60	10.25
1992	1810.90	26671.00	2.07	41.60	6.79
1993	3126.70	28329.00	3.69	29.60	11.04
1994	4740.30	33885.00	5.77	29.60	13.99
1995	6546.30	37938.00	6.25	24.60	17.26
1996	7708.20	41465.00	6.32	23.60	18.59
1997	8505.20	44840.00	6.50	21.50	18.97
1998	9338.50	48803.00	6.88	19.50	19.14
1999	11702.00	53190.00	7.51	19.50	22.00
2000	13115.90	54211.00	8.14	19.50	24.19
2001	12967.70	66557.00	8.33	19.50	19.48
2002	14485.30	73432.00	8.54	19.50	19.73
2003	15929.50	86661.00	8.58	17.50	18.38
2004	22297.70	106473.00	8.62	17.50	20.94
2005	31434.40	131641.00	8.65	17.50	23.88
2006	39870.30	171989.00	8.68	17.50	23.18
2007	45126.40	248303.00	8.79	17.50	18.17
2008	63146.90	335392.00	9.24	17.50	18.83
2009	84677.20	382939.00	10.42	17.50	22.11

2010	108956.30	511157.00	12.89	17.50	21.32
2011	129693.40	515079.00	16.12	17.50	25.18
2012	191587.10	747326.00	17.25	17.50	25.64
2013	196871.00	866921.00	18.28	17.50	22.71
2014	354716.00	1060814.00	19.07	17.50	33.44
2015	414393.00	1236677.00	20.10	17.50	33.51
Total	1819374.80	7118023.00			25.56

Sources:

- 1) Imports for the 1976 -2015 Period (NBE, 2014 report) and updated data
- 2) GDP for the 1976 -2015 Period (MoFED, reports and updated data)
- 3) Average Exchange Rates for the Period 1976 -2015 (NBE, 2014 Report and updated data)
- 4) Average Customs Tariff Rates for the Period 1976 -2015 (MoFED, 2007 and 2014 Reports, and updated data)

**Appendix II: Share of Imports to GDP since the Economic Reform programs and tariff cut
down period (1992 - 2015)**

Fiscal Years	Imports (In Million Birr)	GDP at Current Market Price (In Million Birr)	Share of Imports to GDP (%)
1992	1810.90	26671.00	6.79
1993	3126.70	28329.00	11.04
1994	4740.30	33885.00	13.99
1995	6546.30	37938.00	17.26
1996	7708.20	41465.00	18.59
1997	8505.20	44840.00	18.97
1998	9338.50	48803.00	19.14
1999	11702.00	53190.00	22.00
2000	13115.90	54211.00	24.19
2001	12967.70	66557.00	19.48
2002	14485.30	73432.00	19.73
2003	15929.50	86661.00	18.38
2004	22297.70	106473.00	20.94
2005	31434.40	131641.00	23.88
2006	39870.30	171989.00	23.18
2007	45126.40	248303.00	18.17
2008	63146.90	335392.00	18.83
2009	84677.20	382939.00	22.11
2010	108956.30	511157.00	21.32
2011	129693.40	515079.00	25.18
2012	191587.10	747326.00	25.64
2013	196871.00	866921.00	22.71
2014	354716.00	1060814.00	33.44
2015	414393.00	1236677.00	33.51
Total	1792746.20	6910693.00	25.94

Source: MoFEC, and NPC

Appendix III: Ethiopian Economy and trade movement, and share to GDP (2000/01 - 2014/15) In Million Birr

Year	GDP	Import	Export	Total Trade	Import share to GDP	Export share to GDP	Total trade share to GDP
2000/01	67351.0	16108.0	8146.0	24254.0	23.9	12.1	36.0
2001/02	65895.0	17707.0	8389.0	26096.0	26.9	12.7	39.6
2002/03	72703.0	20131.0	9779.0	29910.0	27.7	13.5	41.1
2003/04	85800.0	27367.0	12914.0	40281.0	31.9	15.1	46.9
2004/05	105415.0	37776.0	16077.0	53853.0	35.8	15.3	51.1
2005/06	130334.0	48092.0	18205.0	66297.0	36.9	14.0	50.9
2006/07	170281.0	55088.0	21854.0	76942.0	32.4	12.8	45.2
2007/08	245836.0	76564.0	28317.0	104881.0	31.1	11.5	42.7
2008/09	332060.0	96285.0	35233.0	131518.0	29.0	10.6	39.6
2009/10	379135.0	126319.0	52168.0	178487.0	33.3	13.8	47.1
2010/11	515078.5	162487.1	85950.4	248437.5	31.5	16.7	48.2
2011/12	747326.5	236383.9	102886.6	339270.5	31.6	13.8	45.4
2012/13	866921.1	251300.6	108227.1	359527.7	29.0	12.5	41.5
2013/14	1060814.4	308691.3	123496.0	432187.3	29.1	11.6	40.7
2014/15	1236677.9	338180.8	121532.2	459713.0	27.3	9.8	37.2
Total	6081628.4	1818480.7	753174.3	2571655.0	29.9	12.4	42.3

Source: MoFED, NBE, and ERCA

Declaration

I, the undersigned, declare that this project paper is my original work and that all sources of material used for the study have been duly acknowledged.

Name: Desta Lambebo Heboto

Signature: _____

Date: _____

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Signature: _____

Date: _____

Place of Submission: Addis Ababa University

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Date of submission: June 16, 2016