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DETERMINANTS OF TAX REVENUE PERFORMANCE IN ETHIOPIA

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DECLARATION

I, the undersigned, declare that this thesis is my original work and all sources of material used for the thesis have been dully acknowledged.

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ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

This is to certify that the thesis prepared by Meron Teshome, entitled*: Determinant of Tax Revenue Performance in Ethiopia.* It is submitted in partial fulfillment of the requirements for the Degree of Master of Accounting and Finance complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Advisor's Approval

This Thesis has been submitted for examination with my approval as a University advisor.

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Table of Contents

List of Tables and Figure

List of Tables

List of Figure

Acronyms and Abbreviations

ADF:	Augmented Dickey-Fuller
CPI:	Consumer Price Index
CSA:	Central Statistics Agency
CLRM:	Classical Linear Regression Model
ECC and EBDS:	Ethiopian chamber of commerce and Ethiopian Business Development Service
ERCA:	Ethiopian Revenue and Custom Authority
EXR:	Exchange Rate
FDI:	Foreign Direct Investment
GDPPC:	GDP per Capital
GDP:	Gross Domestic Product
IMF:	International Monetary Fund
IR:	Inflation Rate
MOFEC:	Ministry of Finance and Economic Cooperation
NBE:	National Bank of Ethiopia
OECD:	Organization for Economic Cooperation and Development
SAP:	Structural Adjustment Plan
SSA:	Sub-Saharan Africa
TRP:	Tax Revenue Performance
UR:	Urbanization Rate
UNR:	Unemployment Rate
VECM:	Vector Error Correction Model

Abstract

The development of any nation depends on the ability of the government to generate sufficient amount of revenue from its own internal source of finance. Tax is the most efficient and effective tools of fiscal policy in the world through which a government is able to supply a variety of social and welfare services. Many developing countries face fiscal deficit due to low tax collection performance. Similarly, Ethiopian tax collection performance is low as compared to other sub-Saharan African countries and the trend of these taxes not consistent. The main objective of the study was to identify determinants of tax revenue performance in Ethiopia using time series data covering period from1980-2015. The variables used in the study were inflation rate, exchange rate, unemployment rate, foreign direct investment, urbanization rate as explanatory variables to explain the explained variable of tax revenue performance. Multiple regression model and Vector error correction model (VECM) have been employed to analyze the long run and short run relationship for the analysis and test the hypotheses developed using ordinary least square. The stability of the data is checked and all the data are stationary by differencing, beside all the CLRM assumptions were tested and none of the assumptions violated in the study. Accordingly, the result of the regression model revealed that urbanization rate, inflation rate and foreign direct investment have significant positive relationship with tax revenue performance, whereas unemployment rate has significant negative relationship with tax revenue performance in the long run. But exchange rate has negative insignificant effect in the long run .Unlike the long run; only exchange rate has a significant positive effect on tax revenue performance in the short. Finally, the study forwarded recommendation that enhance tax revenue performance to incorporating all responsible organs under the tax system, improving labor market to bring unemployment back down ,deepening currently followed market economy and expand formal settlement and exhaustively working to track foreign investment.

Key words: Tax revenue performance, Unemployment rate, Inflation rate, Urbanization rate, Exchange rate and Foreign direct investment.

CHAPTER ONE

1. INTRODUCTION

This chapter will highlight the background of the study, statement of the problem, objective of the study, hypothesis statement, significance of the study, scope and limitation of the study and organization of the paper.

1.1. Background of the Study

Government supply public goods and services which otherwise would not be available to the general public by the market. Public goods are normally supplied by public agencies due to their natures of non-rivalry and non-excludability. The consumption nature of public goods is such that consumption by one does not reduce consumption for others. Besides, consumption of public goods by an agent does not exclude others from doing same. Such nature of public goods therefore makes them impossible for private suppliers to avail them at market prices like other commodities (ECC and EBDS, 2005).

Government intervention in the supply of public goods is therefore inevitable. On the other hand, increase public expenditure normally means a fall in private spending hence to accomplish this, government use different source of finance in order to cover its expenditure tax is a major source of government revenue in both developing and developed countries (Teera and Hudson, 2004). According to Musgrave and Musgrave (2004), the most important economic means by which funds can be raised for the public to facilitate its activities are taxation, borrowing from the public and credit creation. As credit creation will lead the country towards inflation and borrowing of money from the bank requires the payments of principal and interest on the sum amount borrowed, they can be detrimental to building wealth over the time (Machiraju, 2008). Hence, because of drawbacks associated with both credit creations and borrowing from the public, taxation is undoubtedly the most important source of government revenue (Chaudhry and Munir, 2010).

A tax is defined as "a compulsory contribution payable by an economic unit to a government without expectation of direct and equivalent return from the government for the contribution

made". Taxation is a way by which governments finance their expenditure by imposing taxes on citizens and their business entities. In many countries, one of the main purposes of taxation is the raising of as much revenue as possible to meet the ever-expanding public expenditure for the supply of public goods and services. Particularly, nowadays, in developing countries with the increasing task of the government, the role of taxation in economic development has become more significant. Furthermore, the goals of maintaining and expanding adequate system of social services, curtailing of unnecessary consumption of luxury items, and maintaining of economic stability are ensured by the government through well-established taxation system (ECC and EBDS, 2005).

According to classical economic view, the only objective of taxation was to raise government revenue. But with the changes in circumstances and ideologies, the aim of taxes has also been changed. These days apart from the object of raising the public revenue, taxes are levied to affect consumption, production and distribution with a view to ensure the social welfare through the economic development of a country (Mohani, 2001).

Most governments in developing countries are aiming at stimulating and guiding their economic and social development. In developing countries personal savings are usually low (ECC and EBDS, 2005). This is because the per capita income of the population in these countries is very low. Moreover, the population in these countries is so high that it demands their governments to spend much of their limited revenues on public goods, such as infrastructure, education and health. Thus the governments of these countries normally have to look into various sources of finance, one of which is tax. To this end, the implementation of an effective tax policy is an important tool by which resources are better mobilized (Wawire, 2011). In most developing counties the amount of revenue collected from taxation is below the capacity of the economy to finance government expenditure. Hence taxation in developing counties remains poor (Hague, 2009).

According to Wilford and Wilford (1978) to enhance economic growth, developing countries ought to increasingly mobilize their own internal resources which can be mainly achieved through tax revenue generation. However, fiscal imbalance between government revenue and expenditure remains the problem of most developing countries for the past several decades. The reason is attributed to rapid expansion of government expenditure and low revenue

collection (Ansari, 1982). While trying to improve efforts to boost their fiscal revenue by establishing an efficient tax system, developing countries, especially those Sub-Saharan African (SSA) countries are greatly challenged by factors like; economic structure, institutional capacity, political setup and low economic development (Dioda, 2012).

Similar to most developing countries, the central aim of the tax system in Ethiopia is to collect sufficient money to finance the administrative costs of the government as well as to finance the fulfillment of basic infrastructures like roads, telecommunication, electricity and other basic social services like education, health and water supply facilities. Like other developing countries, Ethiopia faces a fiscal imbalance due to low tax to GDP.

For many years the tax revenue failed to meet government expenditure demand in Ethiopia. This resulted in fiscal imbalance and instability in the economy. On the other side, the tax-to-GDP ratio is an economic measurement that compares the amount of taxes collected by a government to the amount of income that country receives for its products. In this regard, tax revenue to GDP ratio of Ethiopia is 12.7% in 2013/14 far behind Sub-Saharan average i.e. 17%. The overall tax system is found to be inelastic. This indicates that an increase in national income or GDP has not been translated to an increase in the tax revenue. At the same time the gaps between domestic revenue and government expenditure have continued to worsen over the years. The main strategy to address this budget deficit is arguably enhancing the capacity of the economy to generate more revenue through increasing in tax base (Tegegn, 2008).

Several international studies have been conducted on the determinant of tax revenue performance in various countries by using cross sectional across countries and panel data whereas as country-specific studies remain limited. Although, some local studies have made on the area, the number of variable used to explain the dependent variables are very limited. Therefore, considering the vital role of tax revenue in Ethiopia sustaining the economic development, it is quite interesting to conduct a research on the determinants of tax revenue performance.

1.2. Statement of Problem

The development of any nation depends on the ability of the government to generate sufficient amount of revenue from its own internal source of finance. Tax is the main component of government revenue used to finance all the government expenditure to stabilize the economy. Today the role of the government has increased and government has to collect more tax than ever to finance its operation through internal source. The most important instrument by which resources are marshaled is through the implementation of an effective tax policy (Wawire, 2011).Thus enable the country to mobilizing sufficient revenue to decreases the degree of dependence of the government to donors for its development (Komanya, 2013).

In the past decade, the economies of developing countries have shown a noticeable progress in revenue collection; however, half of Sub-Saharan African countries mobilize tax revenue less than 17% of their GDP, below the minimum level considered by the UN i.e., 20% as necessary to achieve the Millennium Development Goals. On the other hand, Ethiopian tax revenue performance to GDP ratio is 12.7 in 2013/14even below the Sub -Saharan Africa average of average 17 percent. This is lower even to its neighbors like Kenya (23%, Mauritius 19% and Tanzania, 17%) AfDB, OECD, UNDP (2015).This shows that the percentage share of tax revenue to GDP of Ethiopia is still lower both to its revenue capacity and Sub-Saharan standard. The performance of low tax to GDP ratio put the Government under persistence budget deficit (Delessa, 2014).

Ministry Finance and Economic Cooperation Report (2015) showed that in the last two decade on average, the Ethiopian government covered it expenditure trough taxation ,which is funds that are internally mobilized is 62.25 percent, and the rest 37.75 % of the budget deficit filled out by looking other source of financing .The fiscal imbalance resulted from the country low tax collection performance .Thus budget deficit over long years forced the country to look for foreign aid and assistance to finance public goods and services, excessive reliance on foreign financing may in the long run lead to problems of debt sustainability; hence the countries should rely substantially on domestic revenue mobilization (Gupta,2007).

Developing countries face many problems in raising revenue for general public purpose like low per capital income, an economic base in substance agricultural, poorly structured tax

system, small tax base, large informal sector, misuse of transferring pricing, weak tax administration and all these contribute to difficulty in raising tax revenue (Stotsky and WoldeMariam, 1997). Similarly, Ethiopia faces these problems like any other developing country. As a result, to alleviate the cited problems the country took various measures like: tax policy reform, improve weak tax administration performance, reduce the existing tax evasion and avoidance, change tax structure, and broaden the tax base and introducing new tax like VAT (Delessa,2014).

Despite these measures taken by government, the tax revenue shows insignificant change for the post compressive tax reform period (Delessa, 2014). Therefore, the government is unable to generate the required level of tax revenue in proportion to GDP and these will affect the government's long term objectives of undertaking various development projects to achieve the Millennium development Goal. Hence, studying the determinants of tax revenue performance is very important as tax revenue has a vital role to play in the growth of a country and scientific anticipation of incomes also increases tax officers' accuracy and attempt in collecting taxes (Monjazeb and Soleimani, 2004).

Several international and local studies have been conducted on the determinants of tax revenue performance in various countries. For instance, Velaj and Prendi (2014) made a research by taking GDP, inflation, income, tax, unemployment rate and import as independent variable to explain the dependent variable, tax revenue performance. Accordingly, the study has found that tax revenue is positively related with GDP, inflation, import and income tax but negatively related with Unemployment rate. This finding is consistent with the study made by Gupta (2007) which also found positive relationship between tax revenue and GDP. However, the study is inconsistent with the positive finding of unemployment rate and tax revenue (Malaysia EEP, 2015) and similar to negative result of tax revenue performance and unemployment rate (Kubarov and Rihova, 2009).

In addition, as far as the best knowledge of the researcher is concerned, only few local studies have been conducted on the determinants of tax revenue. A study conducted by Belay (2015), titled "Determinant of Tax Revenue Performance in the case of federal government" by taking time series data from 1992/93 to 2013/14and used gross domestic product, public debt, trade openness, foreign direct investment, inflation and foreign aid as explanatory variables and

revenue performance as dependent variable. Accordingly, it has found that gross domestic product, public debt, trade openness, inflation and foreign direct investment have a positive relationship with tax revenue performance while foreign aid has negatively related to tax revenue performance. The positive relation between inflation and tax revenue performance is inconsistent with the findings of other research works such as (Tazi, 1992; Tesfaye, 2015and Workineh, 2016).

Tesfaye (2015) examined the determinant of tax revenue in Ethiopia using time series data of fifteen years (1999/00 to 2013/14). In so doing, agricultural share to GDP, foreign direct investment, trade openness, share of industry to GDP, inflation rate, per capita income, service share to GDP and saving interest rate have been used as independent variables to explain their impact on dependent variable tax revenue performance. Accordingly, the result shows that per capital income, share of industry, saving interest rate have positive relationship with tax revenue and foreign direct investment and inflation have negatively related with tax revenue. The result of this study is not consistent with other researches works of (Ngotho and Kerongo, 2014 and Belay, 2015) which have found positive relationship between foreign direct investment and the tax revenue performance.

Generally, even though several researches have been conducted in this area, there is inconsistency in their findings. In addition, the variables used as independent variables to see their impact on dependent variable tax revenue performance varies from one research to another. Moreover, when it comes to local researches, the number of studies by itself is very much limited and there were great inconsistency in their findings. In addition, previous studies conducted by local researchers did not incorporate variables like unemployment rate, exchange rate and urbanization rate. Therefore, these it is quite interesting to undertake a research on this issue due to the above mentioned gaps. Moreover, this research is intended to study the determinants of tax revenue performance by adding more data and variables unlike previous researches conducted so far, to enhance the validity and generalizability of the study.

Accordingly, the variables have been considered in this study are GDP per capital, inflation rate, exchange rate, unemployment rate, external debt, trade openness (sum of import and

export), foreign direct investment, urbanization rate as explanatory variables to explain the explained variable of tax revenue performance in Ethiopia.

1.3. Objective of the Study

1.3.1. General Objective

The main objective of the study is to identify factors that determine the tax revenue performance in Ethiopia.

1.3.2. Specific Objectives

In line with the general objective the specific objectives of the study are;

- To examine the impact of level economic development (GDP per capital) on tax revenue performance.
- To evaluate the effect of macroeconomic variable (inflation and exchange rate) on tax revenue performance.
- To assess the impact of social variables (unemployment and urbanization rate) on tax revenue performance.
- To determine the impact of trade openness on tax revenue performance
- To examine the impact of external variable (External debt and foreign direct investment) on tax revenue performance.

1.4. Hypothesis Statement

The following research hypotheses are developed to test whether the independent variables taken in the study have an impact on the tax revenue performance in Ethiopia

H01: GDP Per capital has significant positive effect on tax revenue performance.
H02: Trade openness has significant positive effect on tax revenue performance.
H03: External debt has significant positive effect on tax revenue performance.
H04: Unemployment rate has significant negative effect on tax revenue performance.
H05: Urbanization rate has significant positive effect on tax revenue performance.
H06: Exchange rate has significant positive effect on Tax revenue performance.
H07: Foreign direct investment has significant positive effect on Tax revenue performance.
H08: Inflation rate has negative significant effect on Tax revenue performance.

1.5. Significance of the Study

As tax is a major source of government revenue and the nation's development is highly depend on the ability of the government to generate sufficient revenue to cover its expenditure, identifying the major determinants of tax revenue is expected to help: the Ethiopian Revenue and Custom Authority to give emphasis on identified factors in order to enhance its tax revenue performance, policymakers also consider factors that affect tax revenue while designing tax policies and reforms and design different mechanism that controls them. In addition to this, the study proofs the result of previous studies which have been conducted so far in the area. Furthermore, the output of this study will also serves as an input for the potential future researchers who have an interest to conduct a research on this area.

1.6. Scope and Limitation of the Study

This study is confined only to identify the key determinants of tax revenue performance in the case of Ethiopia. In the study, time series data of 36 years are considered to analyze the relationship between dependent and independent variables. The study is limited to only quantitative data due to time and cost constraints and as a result the qualitative aspects not considered. In addition, the study unable to consider data for more than 36 years due to lack of organized data on Socio economic variables. However, quantitative factors considered and time serious data of 36 years are enough for the regression, the above mentioned limitations were not compromised the result of the study.

1.7. Organization of the Paper

The study has been organized into five chapters. The first chapter of the study deals with the introduction of the study, which includes background of the study, problem statement, general and specific objectives, significance of the study, scope as well as limitations of the study. The second chapter discusses about the review of theoretical and empirical literatures conducted so far on the study area. The third chapter of the study also provides methodology used to conduct the study. Accordingly, data analysis and presentation has been made on the fourth chapter and finally the paper gives conclusion and proposed recommendation, based on the results of the assessment, in its fifth chapter.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURES

In order to provide readers with deeper understanding of the paper, the theoretical framework that involves relevant theories and the previous research studies conducted so far in the area of determinants of tax revenue performance is briefly presented under this portion.

2.1. Theoretical Literature

2.1.1. Definition and Concept of Taxation

Taxation is mode by which governments make exactions for revenue in order to support their existence and carry out for their legitimate objectives. It is indispensable and inevitable price for civilized society; without which the government would be paralyzed. Governments often use different methods of raising resources like, borrowing, receipt of aid, printing of money and taxation. But, taxation is undoubtedly the most important source of government revenue (Chaudhry and Munir, 2010). It is compulsory revenue transfers to the central government for public purposes, but certain compulsory transfers such as fines, penalties and most social security contributions are debarred. Refunds and corrections of mistakenly collected tax revenues are treated as negative revenue. Hence taxes are mandatory payments, ruled by laws (Piana, 2003).

Tax has been defined by various authorities and professionals in various ways. Conceptually, tax can be defined or seen as a compulsory transfer of resources from the private to the public sector (Uremadu, 2000). According to Adesola (1986), tax is a compulsory levy which a government imposes on its citizens to enable it to obtain the required revenue to finance its activities. And the other scholars (Lymer and Oats, 2009) defined tax as ‘a compulsory levy, imposed by government or other tax raising body, on income, expenditure, or capital assets, for which the taxpayer receives expenditure, or capital assets, for which the taxpayer receives nothing specific in return. According to Dalton(1920) "a tax is a compulsory contribution imposed by a public authority, irrespective of the exact amount of service rendered to the taxpayer in return, and not imposed as penalty for any legal offence”.

2.1.2. Purpose of Taxation

The definition of taxation given above underlines the main purpose of taxation, it is central to the contemporary economic development program.

Revenue is the most obvious and direct role of taxation. It provide a stable flow of revenue to finance development priority, such as strengthening the physical infrastructure and interlink with many other economic policy areas from good governance and formalizing the economy, to stimulate economic growth. The demands must be met from domestically-generated revenues is the only alternative to postulating permanent dependence (Torrance and Lochery, 2005).

Redistribution is the other role of a taxes system. It is of course not valuable for its own sake but specifically, rather, to the extent that it can allow a given society to achieve human development gains by lifting its poorest members out of (broadly defined) poverty. Where a society has wealth sufficient to meet the first demand on revenues above, inequality may form the obstacle to widespread human development. Immediate gains from direct quality of life enhancement are complemented by longer-term benefits through the effective increase in the society's (economic) development potential.

The other role of taxation is to shapes the environment in which international trade and investment take places thus, a core challenge for African countries finding the optimal balance between a tax regime that is business and investments friendly .and one which can leverage for enough revenue for public delivery to enhance the attractiveness of the economist is, to raise revenue to defray the cost of services provided by the country. Other purposes of taxation are to reduce inequalities arising from the distribution of wealth; to restrain certain types of consumption e.g. alcoholic beverages and cigarettes; to protect home industries and to control certain aspects of the country's economy e.g. balance of payment, employment saving, investment and productivity (ECC and EDBS,2005)

2.1.3. Theories of Taxation

The economists have forward many theories or principles of taxation at different times to guide the state as to how justice or equity in taxation can be achieved. The main theories or principles in brief, are:

(i) Benefit Theory:

According to this theory, the state should levy taxes on individuals according to the benefit conferred on them. The more benefits a person derives from the activities of the state, the more he should pay to the government.

(ii) The Cost of Service Theory:

Some economists were of the opinion that if the state charges actual cost of the service rend from the people, it will satisfy the idea of equity or justice in taxation. The cost of service principle can no doubt be applied to some extent in those cases where the services are rendered out of prices and are a bit easy to determine, e.g., postal, railway services, supply of electricity, etc. But most of the expenditure incurred by the state cannot be fixed for each individual because it cannot be exactly determined. For instance, how can we measure the cost of service of the police, armed forces, judiciary etc., to different individuals? Dalton has also rejected this theory on the ground that there's no quid pro qua in a tax (Kendric, 1939)

(iii) Ability to Pay Theory

The most popular and commonly accepted principle of equity or justice in taxation is that citizens of a country should pay taxes to the government in accordance with their ability to pay. It appears very reasonable and just that taxes should be levied on the basis of the taxable capacity of an individual. For instance, if the taxable capacity of a person A is greater than the person B, the former should be asked to pay more taxes than the latter (Kaplow, 2010)

2.1.4. History of Taxation

Due to poor historical records, coupled with the diverse social and cultural structures of ancient civilizations, it is uncertain when the first system of taxation was actually implemented (Lymer and John, 2002).

The oldest taxation records were unearthed with the discovery of King Scorpion the I's tomb. The discovery of these tax records was not only significant for the history of taxation, but also for written language. Writing emerged as an innovation because of economic necessity rather than from creative expressions of mankind." Economic necessity' may here be defined as an exigent need for efficient tax collection and as such was a major component in the development of writing.

The Ancient Egyptian concept of taxation was espoused by Ancient Greece. Hence "ideas about taxes, developed in a particular time and place, were transported to and adopted in other times and in other places". The espousal of the concept of tax was significant in that it distinguished levels of civilization in the ancient world. "In the ancient civilizations, taxation arose independently such that taxes, like writing, characterized civilized society. Yet, it is the uncivilized acts of war that often seems to be the impetus for developing or adopting a new form of tax". The Ancient Greeks imposed various forms of taxation, including a special tax during times of war. Furthermore, the Ancient Greeks were one of the first and few "societies that were able to rescind the tax: after the emergency was over (Tax world, 2010).

British income tax represents the vanguard of modern tax. Analogous to Ancient Greece, Britain formulated an income tax to finance her engagement in the Napoleonic wars. With the resolution of the wars against Napoleon after the Battle of Waterloo in 1816, Britain rescinded the income tax. Opponents to the tax attempted to destroy all records of the income tax, including the repealing thereof, as it was contended that the sole purpose for such a tax was to finance war. However, complete destruction of the records was prevented as "copies were retained in the basement of the tax court".

Furthermore, during the Second War of Independence in 1812 the USA considered implementing an income tax based on the British Tax Act of 1798. Thus in addition to archival preservation of the British War tax records; other countries had already studied the British model, therefore making it impossible to strike the model from record. However, implementation of such income tax in the USA was postponed due to the Treaty of Ghent in 1815 which ended hostilities and, therefore, the urgent necessity for such a tax. The postponement of imposing such an income tax in the USA was temporary as finance was required for the Civil War. The USA Tax Act of 1861 proposed that "there shall be tax levied,

collected, and paid, upon annual income of every person residing in the U.S. whether derived from any kind of property, or from any professional trade, employment, or vocation carried on in the United States or elsewhere, or from any source whatever."

The twentieth century generated mounting revenue requirements which could not be met by traditional indirect taxes and income tax systems. The concept of VAT was first devised in Germany post World War I. Prior to the introduction of VAT, a "cascading turnover tax was imposed every time: goods were transferred in the process of production and distribution to the consumer" (Schenk and Old man, 2007). In Germany Dr. Wilhelm von Siemens, upon recognizing the problems with the existing turnover taxes, devised a new tax system which is commonly referred to today as VAT. It was deemed that a major flaw with the turnover taxes was that they were "cascading". Following Dr, Wilhelm von Siemens of Germany, Thomas Adams (1873–1933) discussed the concept of value added type taxation in the USA in 1921 based on "the principle of reducing the tax on sales by the tax already paid on business inputs in order to avoid the tax-on-a-tax effect and to remove the incentive to vertically integrate a business.

France extended this 'new taxing system' in 1954. The 'new extended' version of the 'new taxing system' was fondly labeled "value-added tax". It multi stage tax, though this tax adopted by many countries, few industrialized countries are not yet adopt this taxes such as USA, most of the Canada state and India. To date, more than 130 countries worldwide have introduced VAT into their national taxing systems compared to the late 1960s when less than ten countries had adopted the VAT system (Charlet and Owens, 2010).

2.1.5. History of Taxation in Ethiopia

The original idea of a tax was that payment was not obligatory upon the subject, but consisted rather as a voluntary contribution toward the expenses of government. Gradually taxes become obligatory in all civilized nations; where the rate or imposition is at all dependent upon the taxpayer, the tax takes the form of a fee or payment for contractual services.

In Ethiopia Emperor Hailesilasie I was the pioneer to adopt modern tax system in the country after Second World War II. First generation tax was set during 1942 -1944 before the birr was issued as a legal tender of currency in 1945 By the Emperor" in order to accomplish the

establishment of the Government, the prosperity of the country and the well-being of the People, land taxes shall be levied" (*Negarit Gazeta,* 1" Year, No.1: 17). Through time as country become modernizing the country it entailed a need to exploit available and additional sources of revenue. That need has been expressed and realized by the issuance of subsequent laws that required citizens to pay their share of the cost of the modernization process. And the laws changed over time with changes in the development of the economy and the political system of the country. In the second epoch in 1947-1952 changes were introduced in rate structures, especially with respect to taxes on income. At this time following the development of the industrial sector and subsequent expansion of trade a broad-based transaction tax on goods and services was introduced during the mid-fifties. Later in the decade and in the early 1960s, changes were also made in the rate and structure of taxes, especially on income (Wogene, 1994).

In the post-revolution period (1974-91), there was an increase in the coverage of tax bases and tax rates owing to the need to raise more revenues to support war efforts and to finance the ever growing public sector. Particularly during 1976-79, significant major changes on the rate and structure of all types of taxes were made. The revolutionary government changed the tax structure in 1976, replacing taxes on agricultural income and rural land with a rural land-use fee, introducing capital and surplus transfers from nationalized firms and a new tax on income from agricultural activities (Alemayehu and Abebe, 2005).

In the year 1992/93, the Government of Ethiopia has made Changes of the economic policy from centrally planned economy to market oriented economic system necessitated the country to undertake a series of systematic changes in the tax system to raise tax revenues so as to finance public expenditures. In addition by the existing government, Ethiopia adopted VAT by January 1, 2003 through replacing the out dated general sales tax in accordance with proclamation No 285/2002 for the purpose of raising sufficient tax revenues.

2.1.6. Classification of Taxes in Ethiopia

According to Johannes and Sisay (2009) taxes are classified based on the nature of tax and the reason for payment as direct and indirect.

Direct Tax

A direct tax is one for which the formal and economic incidence are essentially the same, i.e. the taxpayer is not able to pass the burden to someone else. Accordingly, direct taxes are paid entirely by those persons on whom they are imposed. A direct tax is one that cannot be shifted by the taxpayer to someone else. Direct Taxes are includes: The major types of direct taxes in Ethiopia are personal income tax, rental tax, business profit tax, withholding tax and such other taxes like taxes from loyalties, from games of chance, dividends or property taxes (Johannes and Sisay, 2009). These taxes are progressive in nature, and reduce income dispersion and generate higher revenue and countries greater reliance on taxation of income, profits and capital gains appears to improve revenue performance (Gupta, 2007).

Indirect Tax

An indirect tax is a tax collected by an intermediary (such as a retail store) from the person who bears the ultimate economic burden of the tax. An indirect tax is one that can be shifted by the taxpayer to someone else. An indirect tax may increase the price of a good so that consumers are actually paying the tax by paying more for the products. Indirect tax revenue in Ethiopia consists of The Value Added Tax (VAT), Excise Tax; Turn over tax, and Stamp and customs duties (Tilahun, 2014). Indirect taxes tends to be regressive in nature, since most of the taxes are on goods and services and as a result, it may exacerbate the inequality in income distribution and reduce the tax base, which in some cases may result in a reduction in the share of revenue in GDP. Countries that rely more on taxes on goods and services as a source of revenue have lower revenue performance (Gupta2007).

According to Shenk and Old man (2007), indirect taxes are taxes on consumption have long been the heart of taxation in developing countries and it provide two-thirds or more of tax revenues in many countries. Similarly, the author argued as indirect tax is more important instrument for the poorest countries to boost domestic tax revenues on goods and services.

2.1.7. Measures of Tax Revenue Performance

Various researcher state factors that determine tax revenue performance. The amount of tax revenue is the result of the application of a tax rate to a tax base. Increases in tax base result in more socially acceptable increase in revenue than an increase in the rate. Le-Minh et al. (2008)

explained the role of various tax categories in determining tax effort that expresses the ratio of the actual tax collected to potential tax and used as an indicator of how much a country is utilizing its taxable capacity. The tax base affected by macro-economic factors, structural, economic development and intuitional (Gupta, 2007)

Tax revenue is the total amount of tax collected during each year by the government only from tax sources. The tax revenue performance is measured percentage of tax revenue in respective of GDP. This ratio is important because it tells how much tax revenue is available to a country's government, taking account of the size of the economy and therefore used as an indicator of how much a country is utilizing its taxable capacity. While a number of studies have analyzed numerous principal determinants of tax revenue performance among them this study considered the following variables as measure the tax revenue performance, according to various literatures reviewed by the study;

1. **Per capita income (PCI)**

It is a measure of the total output of a country that takes the gross domestic product (GDP) and divides it by the number of people in the country. The per capita GDP is especially useful when comparing one country to another because it shows the relative performance of the countries.GDP Per Capita has been used in the conventional tax effort literature as a proxy for the level of development of a country. A higher level of development goes together with a higher capacity to pay and collect taxes, as well as a higher relative demand for income elastic public goods and services (Chelliah, 1971; Bahl, 1971).

2. **Urbanization Rate**

It is percentage of population lives in urban area, is used as an additional factor that affects tax revenue. Urbanization is important for its social, political, and cultural, as well as economic implications. Urbanization brings new needs and demand for public services. On the other hand, government's ability to collect taxes is enhanced by structural changes, which are concomitant with urbanization (Al-Hakim, 2008). When the country became urbanized most the people who live in the urban have an access for education and these makes the tax payers to comply the tax law. Because the tax payers will meet the terms of tax laws, obey the rules of

taxes and accurately report their income and deductions honestly. So, the obligation of tax laws will lead to an increase in tax revenue (Ahmed et al, 2016).

3. Unemployment Rate

Unemployment rate is an economy occurs when there are people who are both willing and able to work but do not have a job. It is the percentage of the total labor force that is unemployed but actively seeking employment and willing to work. When the number of unemployment increase the government tax revenue becomes less due to fewer people are working, there will be fewer people earning enough income to pay tax. As a result, the government will receive less tax revenue and this will have a large impact on the government's finances. In addition to this it hiders the economic growth because of firm won't be able to produce as many goods and services produced. As a result, the output of goods and services in the economy, GDP, will be lower. This also has an impact on government taxation and spending (Roland,2013).

4. Trade Openness

Trade openness is a measure of economic policies that either restrict or invite trade between countries. For example, if a country sets a policy of high trade tariffs, thus restricting the desirability of international trade, this restrictive policy will inhibit other countries from sending exports and accepting imports from that country. According to dominating economic theory, this restrictiveness is lack of trade openness, will have an economic effect of slowing economic development/growth. Conversely, according to economic theory, trade openness will have an economic effect of increasing economic development and growth. This economic development and growth will be further aided by aggressive government policy that removes trade barriers, especially trade tariffs that make trade with other countries less profitable and more undesirable. Certain features of international trade make it more amenable to taxation than domestic activities and also in many developing countries, the international trade sector is typically the most monetized sector of economy because the entrance and exit to the country takes place in specified locations. Farhadian-Lorie and Katz (1989) have noted that trade taxes have historically been the major source of government revenue during the early stages of economic development because they are easier to collect. Thus import and export shares could be an important determinant of tax revenues (Stostsky and Woldemariam, 1997)

5. Inflation Rate

In mainstream economics, the word “inflation” refers to a general rise in prices measured against a standard level of purchasing power. Inflation is measured by comparing two sets of goods at two points in time, and computing the increase in cost not reflected by an increase in quality. The Consumer Price Index (CPI) measures the percentage change through time in the cost of purchasing a constant basket of goods and services representing the average pattern of purchases made by a particular population group in a specified time period. It measures the increase price index. (Ghura’s, 1998) and (Mahdi, 2008) explain inflation is a substitute instrument of taxation and a signal of state weakness. Furthermore, inflation rate leads to macroeconomic instability, thus erodes the purchasing power of the people and reduces the value of revenue collected in real terms. Thus makes an individual’s not to pay rather they evade from the tax authority and under report their actual earning which will understate the amount that would otherwise be collected (Workineh,2016).

6. Exchange Rate

The official exchange rate is price for which the currency of a country can be exchanged for another country's currency. It is measured by the official birr to US dollar exchange rate available in the National Bank of Ethiopia. The exchange rate of an economy affects aggregate demand through its effect on export and import prices. An increase foreign exchange rate (devaluation) creates investment opportunities in the devaluating country by improving the situation for foreign investors inviting an inflow of capital (World Bank, 1992). Devaluation is expected to increase the price of exportable relative to that of non-tradable there by shifting aggregate supply to the tradable and aggregate demand to non-tradable. In addition to the shift in production from home goods (non-tradable) to tradable, the shift also occurs from import to import substitution. Therefore, domestic firms will benefit from increased sales. This may lead to job creation and lower unemployment, especially in exporting industries.

Moreover, when exchange rate increase, foreign demand for export increases on one hand, and the production of substitute goods for import will be more profitable on the other. As a corollary, the production of tradable goods increases and then the earnings from the production tax of tradable goods will enhance (Bisrat et al, 2014).

7. External Debt

It is an outstanding loan that one country owes to another country or institutions within that country. External debt also includes due payments to international organizations such as the International Monetary Fund (IMF).It is measured by share of debt to GDP ratio .In many less developed countries like Ethiopia, a high level of public spending often leads to large fiscal deficits and an increase in public debt the interest on debt and the debt it is often paid with current tax revenue. The interest on debt and the debt itself is often paid with current tax revenue. Thus, this may result in raising tax revenue in order for the government to finance large debt (Gupta et al., 2004)

8. Foreign Direct Investment (FDI)

It is investment made to acquire a lasting interest in or effective control over an enterprise operating outside of the economy of the investor. FDI net inflows are the value of inward direct investment made by non-resident investors in the reporting economy, including reinvested earnings and intra-company loans, net of repatriation of capital and repayment of loans. This inflow of fund can generate new jobs, bring in new technologies and, more generally, promote growth and employment. The resulting net increase in domestic income is shared with government through taxation of wages and profits of foreign-owned companies, and possibly other taxes on business MacDougall(1961).Generally, FDI would enhance nation welfare by reducing unemployment, rising productivity through technology transfer and raising government revenue through taxation (Brander and Spencer,1987).

2.2. Empirical Literatures

2.2.1. International Studies

Ahmed et al. (2016) conducted an empirical analysis on the socio economic determinate of tax revenue in Pakistan .The aim of the study was to identify the socio economic determinate of tax revenue. The study applied Auto regressive Distributed lag (ARDL) approach to estimate long run and short run empirical coefficients of these determinants and used time series data from1975 to 2012.The study considered five independent variables: per capita GDP, agricultural share to GDP, informal economy and urbanization rate to explain the dependent variable tax revenue. Accordingly, the result of revealed that, per capita GDP and Urbanization

rate positive and statistically significant whereas agricultural, informal economy and government regime has negative and significant effect on tax revenue performance.

Mutascu and Danuletiu (2015) analyzed the relationship between tax revenues and literacy level, using a panel model approach. The dataset covers the period 1996 to 2010 and includes 123 countries. The main objective of the study to analyze the impact of the level of literacy on tax revenue .The study considered GDP per capita, the size of industrial sector, the size of agricultural sector, public debt, government consumption expenditure, balance of trade, inflation rate and net foreign direct investments and used urbanization as proxy for literacy rate as independent variable to explain the dependent variable tax revenue. The study find out that GDP per capita, size of industrial sector, government consumption, balance of trade and inflation rate are significant, having positive signs, but the rest variable insignificant effect, whereas tax revenues increase in a parallel manner with the literacy index.

Sharma and Singh (2015) conducted on" Determinants of tax-revenue in India": a principal component analysis approach the tax generation in India. The data was collected for a period of 13 years, i.e. from 1999–2000 to 2011–2012, The variables incorporated in study namely; gross domestic product growth rate, agriculture growth rate, industry growth rate, services growth rate, inflation rate, unemployment rate, population density, total expenditure.(Gross national income, per capita, exports and imports). The result of the study revealed that 'Core Developmental Indicators'(inflation, population density, total expenditure (developmental and non-developmental), GNI per capital and exports), 'Growth Boosters' (GDP, service and industry growth rate) and 'Sustainable Development Indicators (Agricultural and unemployment rate)' had a positive role towards tax-revenue generation in India; major role being played by F1 'Core Developmental Indicators' (0.955), F2 'Growth Boosters' (0.154) and F3 'Sustainable Development Indicators' (0.1773) .The result suggested that there is an urgent need to control inflation, population growth rate and non-developmental expenditure, besides improving the growth rates of GDP, exports and allied sectors.

Malaysia Economics Essay (2015) conducted a research on determinant of tax revenue in Malaysia. The purpose of the study was to determine factors that determinant tax revenue in Malaysia. The study incorporates Gross Domestic Product (GDP), inflation rate, unemployment and openness as independent variable and tax revenue as dependent variable. The result of the

study shows that Domestic Product (GDP), inflation rate, unemployment positive relation with the tax revenue whereas trade openness negatively related to tax revenue.

Basirat et al. (2014) analyzed the effect of economic variable on total tax revenue in Iran over a period of 1974 to 2011 by using Auto regression distributed Lag (ARDL). The main objectives of the study were to examine the effect of economic variable on total tax revenue. Accordingly, the study incorporate the Industry value added, Import, Exchange rate, Oil sector value added and agriculture sector value added as explanatory variable to examine the effect on total tax revenue. The result of the study showed that significant positive relationship with between Industry value added, Import, Exchange rate and negative significant relation with value added agriculture sector value added.

Velaj and Prendi (2014) conducted a research on factors that determine tax revenue in the Case of Albania the data cover over 20 years (1993-2013) .The objective of the study was to analyze the factors that enhance or weaken tax revenue performance. In order to attain the research objective ,the study incorporate GDP, inflation, unemployment rate and imports of goods and services as independent variable to see the impact on the tax revenue of the dependent variable. The study was used SPSS program to analysis the relationship. The result of the study revealed that GDP, inflation, imports are statically significant and positive relation with the tax revenue whereas the unemployment rate negative and significant effect on the tax revenue performance. Moreover the study also analyzed the elasticity of GDP against income tax and government expenditure and found that while income tax increase by 1%, GDP will grow only and by 0.626% but not to government expenditure.

Mahmood and Chaudhary (2014) conducted a research on the impact of foreign direct investment on tax revenue in Pakistan. The main objective of the study was to analyze the short and long term effect of FDI on tax revenue using -Regressive Distributive Lag. The study incorporates foreign direct investment and gross domestic product per person as independent variables and tax revenue as dependent variable. The result of the study revealed that foreign direct investment and gross domestic product per person employed have positive and significant impact on tax revenue. According to Bond and Samuelson (1986) cited by Mahmud and Chaudhary (2014), host countries could lose some tax revenue in short run if tax holidays

were given to attract FDI in early period. Tax revenue could increase in the long run because foreign investment would not pull out after that tax holiday period.

Ngotho and Kerongo (2014) examined "Determinate of tax revenue collection in developing countries": The case of Kenya. The major objective of the study was identifying factors that determine tax revenue a collection. The study considered four factors: inflation, compliance level, tax rate and foreign direct investment as explanatory variable that explain the dependent variable of revenue collection. The result of the study showed that, compliance levels and tax rates were factors that mainly affected revenue collection from an administrative perspective. Inflation and foreign direct investment influenced revenue collection though to some extent were beyond administrative control due to varying market forces.

Castro et al. (2014) conducted a research on Determinants of tax revenue in OECD countries across 34 countries over the period 2001-2011 by using unbalanced panel data. They were including high and middle income countries in their study high. The variable considered by the study GDP per capital, agriculture value added, the industry value added, gross tertiary school enrolment, life expectancy and child mortality rate, institutional factor, level of democracy; and civil liberties as independent variable to explain the dependent variable of total tax revenue in percentage of GDP. The result of the study stated that the GDP per capital and FDI positive and negative significant relation with tax performance. Agriculture and industry sector have negative and positive significant relation at 1%, respectively. The intuitional variable like civil liberty and political right negative and positive effect but civil liberty statically significant at 10% .The result also shows democracy is not a robust determinant of tax revenue effect .Social factors like life expectancy is significant and negative relation with tax revenue. At the end they also found that life expectancy and child mortality rate were not significant and strong determinant of the tax revenue.

Karagoz (2013) conducted a research on the title of "Determinants of Tax Revenue In Case on Turkey". The objective of the study was to analyze the effect of the sectorial composition on tax revenue using time series data of 41 years (1970-2010).The study used share agricultural value added to GDP, Industrial, foreign debt to GDP, monetization rate, money supply (M2) to GDP, urbanization rate, openness (exports plus imports) to GDP as the explanatory variable

and tax revenue as dependent variable. The result of the study confirmed that tax revenue significantly affected by industrial sector share in GDP, foreign debt stock, monetization rate of the economy, urbanization rate and have are positive relation with tax revenue .But the share of agriculture is significant and negative relation with tax revenue .However the openness to foreign trade has no significant impact on tax revenues in Turkey.

Muibi and Sinbo (2013) analyzed "Macroeconomic determinants of tax revenue in Nigeria". The main objective of the study was to examine the most relevant macroeconomic policy variable that can serve as an anchor variable .In so doing, the study covered time series data (1970-2011) of forty two years. The study considered five macro-economic factors: Gross domestic product, Trade Openness, Exchange rate, inflation rate, and external debt to GDP ratio as independent variable and tax revenue as dependent variable. Accordingly, the findings of the study revealed that growth rate of economic activity impacted positively on tax revenue and that exchange rate depreciation and inflation rate have adversely affect the tax revenue. Trade liberalization policy seems not to have adversely affected the tax revenue and rather it has positively stimulated revenue generation. Whereas External debt burden also has negatively influence on the amount of tax revenue that government can generate.

Mushtaq et al. (2012) made a research on the Impact of Trade Liberalization on Tax Revenue in Pakistan by using time series data a period covered from 1975-2010.The major objective of the study was to determine the effect of trade liberation on tax revenue .The study used population size, GDP, urbanization and trade openness as explanatory variable to explain tax revenue of dependent variable .In addition to these ,the study also analyze the relation between trade tax as dependent variable and population, GDP, urbanization, trade openness, trade share and exchange rate as independent variable . The result of the study revealed that exchange rate and population were negatively related to tax revenue, whereas trade openness, GDP and urbanization rate showed positive relationship with tax revenue.

Aamir et al. (2011) conducted a research on determinant of tax revenue in a Comparative Study of Direct taxes and Indirect taxes of Pakistan and India. The sample period covered ranged from 1999-2000 to 2008-2009 of panel data .The main objective of this study was to compare the two types of taxes and to see the effect on total tax revenue in these countries. The

study used direct and direct tax as the explanatory variable and total tax revenue as explained variable. The study employed two regression line to see the effect this .The result of the study confirmed that direct taxes have more statistically significant impact on the total revenue, for example if the direct taxes are increased by 1 percent , the total revenue will increase by2.293 whereas if the indirect tax will increase by 1 percent , the increase in the total revenue would be 0.316.Therefore the study conclude that in Pakistan more revenue is charged by levying indirect taxes where as India is on the opposite side of it.

Chaudire and Munir (2010) conducted a research on the "Determinants of Low Tax Revenue in Pakistan". The study covered a period of thirty seven years (1973-2009). The objective of the empirical analysis were to investigate whether economic policies, external variables and social indicators along with elements of tax base can account for part of the variation in the tax revenue performance. The study considered 14 variables as explanatory those are Per Capita Income , Share of agriculture in GDP ,Share of manufacturing ,Share of service sector, share of exports plus imports ,Exchange rate, Money supply, Rate of inflation, External debt, Worker's remittances, Foreign aid, Literacy rate, share of urban population in total population that explains the dependent variable of the tax revenue. The result of the study revealed that agriculture share and service share had negative relation with tax revenue but statically insignificant. Share of manufacturing and inflation were positive relation but statically insignificant. Per capital income and exchange rate has the negative relation that tax to tax revenue collection. Monetization of the economy captured by the Variable and degree of openness as measured by ratio of exports plus imports to GDP were positively related to the tax revenue and statistically significant .External debt in positively related to the tax revenue collection and also statistically significant. Foreign aid is negatively related to tax ratio and statically insignificant .whereas literacy rate and urbanization rate had negative relation .In addition to this the political stability has a positive impact of tax revenue and it is statically significant.

Bird (2008) found that Latin American countries show consistently lower tax effort compared to other developing or transition countries. Performance in African countries shows a mixed performance. Some countries collect as little as half while others collect up to 2 to 3 times what they would be expected to (OECD, 2010). The latter group includes to a large degree those

countries with a high share of resource-related tax revenue. Thus, estimates of tax effort for some resource-rich countries turn out to be quite sensitive to whether resource-related tax revenues are considered or not. Using a tax effort measure that excludes resource-related tax revenues is revealing: more than half of the African countries (22 out of 42) collect more or what is expected. This suggests that in quite a number of countries domestic revenue mobilization is not constrained by the tax system but more by GDP growth and broader development.

Gupta (2007) examined "Determinants of Tax Revenue Efforts in Developing Countries" by using 25 years unbalanced data .The objective of the study was to investigate the main factors that may explain the variation in resource mobilization of developing countries. More specifically, they look at the main determinants of revenues (excluding grants) of the central government, and analyze the extent to which factors such as government policies, the structure of the economy, institutions and the stage of development explain their variation. The result of the study revealed that structural factors such as per capita GDP, share of agriculture to GDP, and trade openness are strong determinants of revenue performance. He also found that although foreign aid improves revenue performance, foreign debt does not have a significant effect. Tax revenue performance is positive significant relation with per capita GDP and a strong negative significant relationship between agriculture share .For example, a one percent increases in the share of Agriculture sector could reduce revenue performance by as much as 0.4 percent and trade openness strong positive relationship with tax revenue performances. Among the institutional factors, he found corruption has a significantly negative effect on revenue performance. Political and economic stability are other effective factors, but only across certain specifications. Structural factors are found to be significant across income group when the analysis conducted over the unbalanced sample bases on income level. On the other hand, countries that put greater emphasis on taxing income, profits and capital gains perform better.

Agbeyegbe et al. (2006) on Trade Liberalization, Exchange Rate, and Tax Revenue in Sub-Saharan Africa used a panel data set covering 22 countries in SSA, over 1980–1996 are using the System GMM method to test the regression .The objective of the study was to analyze the relation between the of independent variable of trade liberalization, exchange rates on the

explained variable of tax revenue variables. They found that that trade liberalization is not strongly linked to total tax revenue and some evidence that exchange rate appreciation and higher inflation had a negative impact on tax revenues.

Agbeyegbe et al. (2004) analyzed the relationship between the tax revenue, trade liberalization and changes in the exchange rate by using a panel data set of 22 sub-Saharan countries of over a period 1980-1996. Their results suggest that trade liberalization, agricultural share, industrial share, government consumption, and terms of trade exert a positive effect on total tax revenue, and inflation exerts a negative effect. They explain the unexpected positive effect of agricultural share by the influence of exports in providing a tax handle. On the other side, the sign of agricultural sector share turns to negative when the independent variable is income tax revenue, while the industrial sector's share remains same.

According to Immervoll (2000), Inflation can alter the characteristics of tax and contribution systems in numerous ways; and showed in his research that if the tax values are computed in a nominal fractional change, inflation will lead to increasing effective tax rates. A tax base is not affected by inflation if the tax is a fraction of a transaction's value at the time of the transaction. For changing general price levels, the tax changes in line with the nominal value of the underlying transaction. Thus, the real value of the tax liability remains unchanged.

*G.*stostky and Woldemariam (1997) attempted to search tax effort on sub-Saharan Africa by using panel data on 43 sub Saharan African countries during 1990-1995 .The major objective of the study was to measures the determinant of tax share on GDP and construct measure of tax effort .In order to achieve this study, the research employed share of agriculture and mining, share of import and export and per capital income. The result of the study revealed that share of agriculture and mining in GDP had negative and significantly relation to tax share whereas share of import and export positive and significant relation. GDP had also positive but insignificant relation to tax revenue .They also found no strong relation between fund program and taxation.

Eltony (2002) studied on Determinants of Tax Effort in Arab Countries by using Pooled time-series and cross-sectional country data of 1994-2000 time periods for 16Arab countries. The objective of the study was to examine the determinants of tax revenue shares and to construct

an index of tax effort for the Arab countries. The study accordingly use variables, (the share of agriculture, the share of mining, the share of manufacturing, per capita income, the share of exports in GDP, the share of imports in GDP, and the share of outstanding foreign debts. The results suggest that the per capita income, the share of agriculture in GDP and the share of mining in GDP are the main determinants of the tax share in the GDP for the Arab countries. These variables are statistically significant and possessed the expected signs. The share of exports and imports are also other determinant of tax share for only the non-oil Arab countries and he also found outstanding foreign debt was significant and positively related to the tax share.

Ansari (1982) analyzed the determinants of tax ratio in less developed countries. The factors taken into account for this study were real gross domestic product, size of overseas trade measured by the share of exports plus imports in national income and the demographic pressure measured by the density of population. It was observed that the three explanatory variables such as real per capita gross domestic product, size of overseas trade and measure of demographic conditions could explain differences in the inter-country tax ratios to a significant extent as compared to earlier studies.

2.2.2. Local Studies

Workineh (2016) conducted a research on the determinants of tax revenue in Ethiopia .The study used a time series data covered a period of 1975-2013 using Johansson maximum like hood co-integration approach .The objective of the study was to identify the macroeconomic determinants of tax revenue in Ethiopia. In so doing, the study use share of agriculture to GDP, inflation, share of industry, real GDP per capital, foreign aid, level of education as explanatory variables to see their impact on the dependent variable of tax revenue performance. Accordingly, the research has revealed that GDP per capita income, foreign aid and industrial value added share of GDP positively and significantly affect tax revenue. The inflation exerted a negative and significant influence on tax revenue. Whereas, in the short run Real GDP per capita income and inflation have negative effect but industrial Value added share of GDP has positive effect on tax revenue in Ethiopia.

Tadele (2015) conducted a research on the title "Analysis of Tax Buoyancy and Its Determinants" in Ethiopia. The data covered a period of 1974 to 2010 using Integration Approach. The objective of the study was to estimate the short run and long run buoyancies of direct, domestic indirect, foreign trade and gross tax revenues and figure out the factors that determine buoyancy of gross tax revenue in Ethiopia. The study use share of service value added to nominal GDP, share of import to nominal GDP, share of overall government budget deficit to nominal GDP, and share of industry value added to nominal GDP, share of official development assistance to nominal GDP as explanatory variable to explain the gross tax revenue as dependent variable. The results revealed that gross direct and domestic indirect tax revenues were non-buoyant both in short run and in the long run. Even though, foreign trade tax revenue was found non buoyant in the short run, it was buoyant in the long run. He also find that the share of service sector value added, import and over all government budget deficits to GDP affects positively, whereas the share of official development assistance to GDP affects it negatively. The share of industry value added to GDP has positive effect on the buoyancy of gross tax revenue and it was statically insignificant.

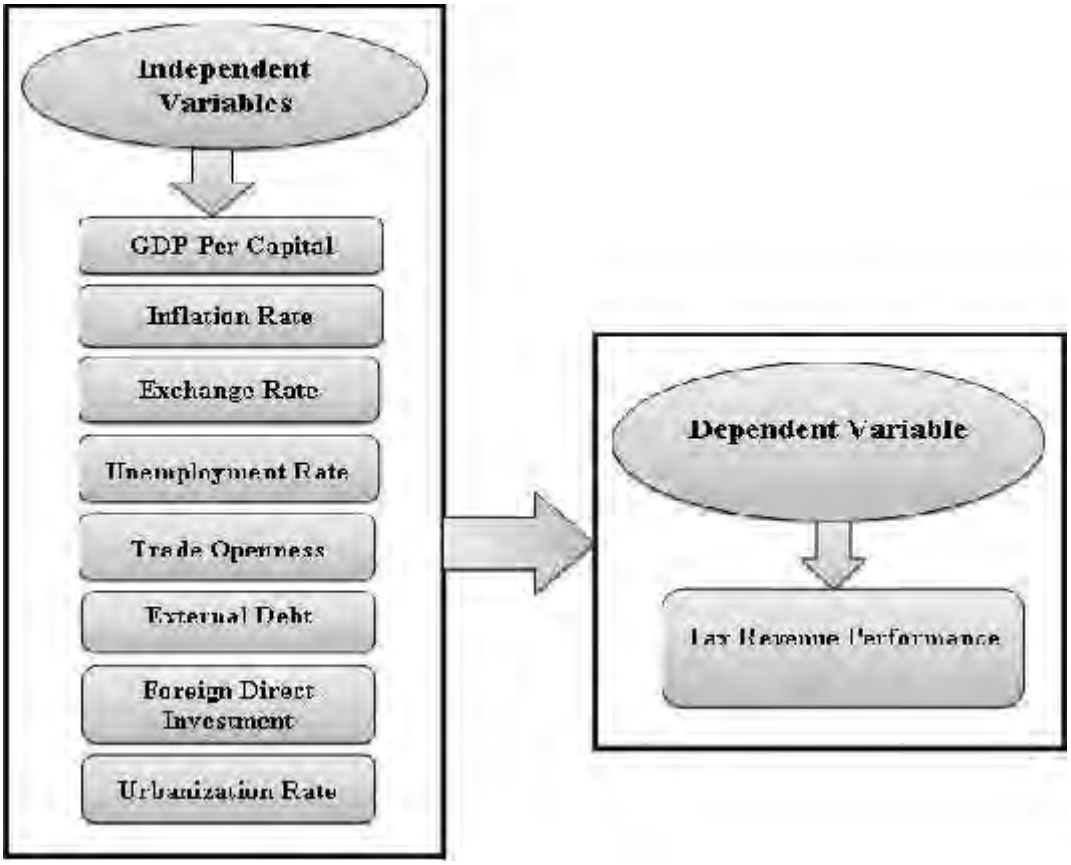
Anwar (2014) conducted a mini-research on the determinate of tax revenue performance in the case of Ethiopia revenue and customs authority. The objective of the study was identifying significant factors of tax revenue performance by taking 21 years data. The study used GDP per capital income, exports of goods and services (% of GDP), imports of goods and service (% of GDP), industry value added (% of GDP), manufacturing value added (% of GDP), agriculture value added (% of GDP), inflation, consumer prices (annual %) as expiatory variable and tax to GDP ratio as the dependent variable. The results of the study shows that GDP per capital income and share of export (% GDP) sector in the economy have positive significant impact on the amount of tax collected. But share of import in percent of GDP has negative significant impact on the tax performance of Ethiopia.

2.2.3. Research Gap

Generally, from the above analysis we can understand that, even though, several international studies have been conducted on determinant of tax revenue by considering the variables like GDP, GDP per capita, share of agriculture, share of industry, share of service, trade openness (share of import and export) interest rate, inflation rate, exchange rate, foreign direct investment, population density, unemployment rate, urbanization rate, literacy rate, foreign aid, public debt, foreign debt as determinates of tax revenue, there are still a limitation in local researches conducted using time series data. Moreover, the number of variables considered in studying determinants of tax revenue is limited and there were inconsistencies of findings .For instance, a study conducted by Belay and Tesfay (2015) using variables such as: GDP per capita, share of agriculture, share of industry, share of service, trade openness (share of import and export) interest, inflation rate, public debt and foreign aid, they did not considered variables like exchange rate, unemployment and urbanization rate. In addition, there were inconsistency over research findings for example (Gupta, 2007) found that trade openness has strong positive impact on tax revenue whereas (Karagöz, 2013) and (Agbeyegbe et al., 2006) have revealed that trade openness has no significant effect on tax revenue performance. The research findings of (Chaudhry and Munir, 2010) and (Karagöz, 2013) on determinant of tax revenue revealed that external debt have positive relation with tax revenue which is inconsistent to (Gupta's, 2007) findings of negative relationship. Chaudhry and Munir (2010) and Velaj and Prendi (2014) conduct a research on determinants of tax revenue performance and found that inflation rate has positive relation with tax revenue. This finding is inconsistent with (Muibi and Sinbo, 2013) and (Agbeyegbe et al., 2006) which have found negative relationship between inflation rate and tax revenue. Moreover, local studies conducted by (Belay and Tesfaye, 2015) on determinant of tax revenue in Ethiopia have revealed positive and negative relationship between foreign direct investment and tax revenue respectively. These showed the presence of great inconsistencies among the findings of previous researches.

2.2.4. Conceptual Framework

The study employed specified model which clearly define independent variables and dependent variable. The dependent variable is the variable of primary interest to the researcher. Independent variables were factors that would influence the dependent variable in either a positive or negative way. The research model which shows the relationship between dependent and independent variables is presented as follows.



Source: Self-Constructed

CHAPTER THREE

3. RESEARCH METHODOLOGY

This chapter discusses the research approach, data type and source, sample size, data collection method, model specification, procedure of data analysis and variables definition and measurement.

3.1. Research Approach

The study has been conducted by using quantitative approach which is in line with the research problem. This is because, in quantitative research approach it is possible to analyze the cause and effect of several explanatory variables and empirically test the research hypotheses and draw conclusions based on the research findings. Moreover, quantitative research approach helped the study to identify whether the measurement is reliable, valid, and generalizable in its clear prediction of cause and effect (Casella and Symon, 1994).

3.2. Data Type and Source

The objective of the study is to analyze the effect of multiple independent variables on one dependent variable using data collected over a period of time. Therefore, time series data were appropriate and used for the study. This helped the study to capture the trend of variables on country specific situation. Since the research is quantitative in nature, secondary data were used. The major sources of these secondary data are annual reports of Ethiopian Revenue and Customs Authority (ERCA) and Ministry of Finance and Economic Cooperation office (MOFEC). In addition, relevant data gathered from National Bank of Ethiopia (NBE) and Central Statistics Agency (CSA) and Ethiopian Investment Commission (EIC).

3.3. Sample Size

The study considered a sample of 36 years i.e., from 1980 to 2015 due to unavailability data to consider beyond this on some of the variables incorporated in this study.

3.4. Data Collection Method

According to Koul (2006) as cited in Tesfaye (2015), using appropriate data collection techniques help researchers to combine the strengths and amend some of the inadequacies of any source of data to minimize risk of irrelevant conclusion. He further argued that, appropriate data collection techniques increase the credibility and value of the research findings. With this concept in mind, for this study, the necessary data were collected by reviewing different documents which are obtained from the above mentioned secondary sources on dependent variable: tax revenue performance and independent variable: GDPPC, inflation rate, exchange rate, external debt , foreign direct investment, trade openness, unemployment and urbanization rate.

3.5. Model Specification

A research model is developed after reviewing various researchers' model specification on the determinant of tax revenue and other related topic; those are (karagoz, 2013; Tesfay, 2015; Belay 2015, Workineh, 2016). The study has employed multiple linear regression models because; this model helps to examine the effect of all of the explanatory variables together on the explained variable (Brook, 2008). This regression model is commonly used in business and economics for testing the relationship between variables. In addition, the study applied the correlation analysis to obtain a measurement of the degree of association or correlation between explanatory variables.

The multiple regressions are a statistical tool used to measure the type of relationship existed between two or more variables. The relationship is expressed in a mathematical equation, which gives the basis of estimating the values of a dependent variable based on the values of independent variables. The research model has been used tax revenue performance as dependent variable and GDP per capital, inflation rate, exchange rate, external debt, foreign direct investment, trade openness, unemployment rate and urbanization rate as independent variables. The model that employed in the study is obtained from (Brook, 2008) and presented below

$$yt = \alpha + \beta 1x2t + \beta 2x3t + \cdots + \beta k\, xt + ut,\ t = 1, 2, \ldots, T$$

Y_t – The value of dependent variable; Tax revenue performance at time t

α – The constant term;

β – The coefficient of the function;

X_i – The value of independent variables:

ε_i – The disturbance or error term

Based on all the above information, the study has performed the following regressions:

TRP =F (GDPPC, IR, EXR, UNR, OPP, ED, FDI, UR)

According to Worku (2010) converting variable in to log linear model enable the study to control the size of data and make results consistent and reliable estimates .In addition, log linear model produces better results than linear form of the model; i.e., logs are used in economics because the estimated coefficients in log regressions have a good interpretation. Accordingly, the study used log for the variables that are not change in to ratio and percentage which are considered in the model tax revenue performance, trade openness, foreign debt and foreign direct investment.

$$LTRP = \alpha + \beta_1 GDPPC_i + \beta_2 IR_i + \beta_3 EXR_i + \beta_4 UN_i + L\beta_5 OPP_i + L\beta_6 ED_i + L\beta_7 FDI_i + \beta_8 UR_i + \varepsilon i$$

3.6. Variable Definition and Measurement

Tax revenue is the total amount of tax collected during each year by the government only from tax sources.

Dependent Variable –Tax Revenue Performance

Tax Revenue performance is an important indicator for the efficiency of the tax administration and the pressure it faces to increase its collection efforts. A common measure of tax performance of an economy is the tax-GDP. This ratio is important because it tells how much tax revenue is available to a country's government, taking account of the size of the economy. However, tax revenue performance measured by the tax to GDP ratio, for the purpose of this study, the value of tax revenue performance used as it is i.e. without making any calculation on it rather it would be measured by Natural logarithm tax revenue .

Independent Variables

1. **GDP per capital**: - It is used as a proxy for the level of development of a country and measured of the total output of a country that takes the gross domestic product (GDP) and divides it by the number of people in the country. GDP per capita attempts to capture the impact of a country's development on ability to pay and collect taxes. Economic development helps to increase taxpayer's ability to pay tax and improve efficiency of tax authorities in tax collection in the long run (Gupta, 2007; Baunsgard and Keen, 2009; Workineh, 2016).Hence the positive relation between GDP per capita and tax revenue performance is expected

2. **Inflation**: It is a sustained rise in the general price level of goods and services in an economy. It is the proxy for macroeconomic stability of a country. The most commonly used measure of inflation is consumer price index; it reflects percentage change through time in the cost of purchasing a constant basket of goods and services representing the average pattern of purchases made by a particular population group in a specified time period. An increase in cost of living associated with the loss of purchasing power of money, which could ultimately reduce real value of tax collected (Workineh, 2016). In addition, Tanzi (1989) state that sizable time lag between the actual tax collection and the transaction to be taxed, in developing countries in which tax at time of payment is small in real value as tax obligations become lower. Based on this negative association between Inflation and tax revenue performance is expected.

3. **Urbanization Rate**: It is measured by percentage of population, lives in urban area. It is used as proxy to capture the demand for public services because most government sector activities are concentrated in cities which also results in high tax revenue from urban areas. An increasing urban population expand the tax base especially in terms of income tax which collected on wages and profits (Karagöz, 2013) .Hence ,the positive relation between urbanization and tax revenue performance is expected

4. **Unemployment Rate:** It is share of the labor forces those are both willing and able to work but do not have a job. It is the percentage of the total labor force that is unemployed but actively seeking employment and willing to work live in urban .A high unemployment rate means less income for individuals, less consumption, less production, and creates a

situation of recession for the economy (Kubatov and Rihova,2009; Velaj and Prend, 2014).Therefore; negative relationship is expected from the study.

5. **Trade Openness**: It is the extent to which an economy is open to international trade .These could also be considered as an indicator of liberalization level of the economy. It calculated as sum of imports and exports. In developing countries, the international trade sector is typically the most monetized sector of the economy and most of the international trade entrance and exit is takes place in specified locations .This make the international trade more amenable to taxation than domestic activities and diminishes the possibility of escape without paying taxes (Gupta, 2007; Baunsgaard and Keen, 2009; Tesfaye, 2015).And then, positive association between Trade openness and tax revenue performance is expected.
6. **The Exchange Rate**: It is price for which the currency of a country can be exchanged for another country's currency. It is measured by the official birr to US dollar exchange rate available in the National Bank of Ethiopia. The exchange rate of an economy affects aggregate demand through its effect on export and import prices and policy makers may exploit this connection. As the exchange rate increases, total demand composition changes in terms of tradable and non-tradable goods. The reason is that with the increase of exchange rate, the consumption of tradable goods becomes more expensive – whether they are the substitute goods for import or exportable goods. Total demand will be transferred from the tradable goods to non-tradable ones and consequently the earnings from trade are reduced yet domestic tax revenues increase. Moreover, when exchange rate increases, foreign demand for export increases on one hand, and the production of substitute goods for import will be more profitable on the other. As a corollary, the production of tradable goods increases and then the earnings from the production tax of tradable goods will enhance (Bisrat et al., 2014). Accordingly, positive outcome is expected from the study between exchange rate and tax revenue performance.
7. **External Debt**: It is an outstanding loan that country owes to another country or institutions within that country. Foreign debt also includes due payments to international organizations such as the International Monetary Fund (IMF). As the burden of future loan repayments may induce policymakers to mobilize higher revenue for the settlement of this

debt (Tanzi, 1987 & 1992; Gupta et al., 2004; Karagöz, 2013).Based on this theory, the positive relation is expected between tax revenue performance and foreign debt.

8. **Foreign Direct investment:** It is an investment made to acquire a lasting interest in or effective control over an enterprise operating outside of the economy of the investor. FDI net inflows are the value of inward direct investment made by non-resident investors in the reporting economy, including reinvested earnings and intra-company loans, net of repatriation of capital and repayment of loans. An increase in inflow of fund can generate new jobs, bring in new technologies and, more generally, promote growth and employment. This development brings domestic income and enables the government to collect more taxes through taxation of wages and profits of foreign-owned companies, and possibly other taxes on business (e.g. property tax) (OECD,2008). Therefore positive association is expected between FDI and tax Revenue performance.

Table 3-1: Measurement of variable, expected outcome and Abbreviation

Variable	Type	Measurement	Abbreviation	Expected Sign
Tax Revenue performance	Dependent	Logarithm of tax revenue performance.	TRP	
GDP per capital	Independent	GDP to total population	GDPPC	+
Inflation	Independent	Inflation in percentage.	IR	-
Exchange Rate	Independent	Exchange rate of birr in terms of dollar.	EXR	-
Unemployment Rate	Independent	Percentage of unemployed work force.	UNR	-
Trade Openness	Independent	Logarithm of (imports plus exports).	OPP	+
External Debt	Independent	Logarithm of External debt	ODAL	+
Foreign Direct Investment	Independent	Logarithm of percentage of FDI.	FDI	+
Urbanization Rate	Independent	Share of urban population in total population.	UR	+

Source: self-constructed.

3.7. Procedure of Data Analysis

Basically, the study has used time series multiple regression to analyze the data collected from the above mentioned sources. Time series data has unique futures of the non-stationary by level, so the stationary of the data first checked before running the regression.

While working with times series data, it is pre-request for test the stationary of the data because non-stationary data can lead to spurious regressions, hence, testing for stationary is essential for any econometric analysis. This investigation helps to avoid estimating a spurious correlation between variables in a regression, where what actually exist is correlated time trend rather than a meaningful economic relationship (Granger and Newbold, 1974). The unit root test has become the most common method to test for stationary. It is fundamental to test for the statistical properties of variables when dealing with time series data. There are several ways of testing for the presence of a unit root, but the study used the Augmented Dickey-Fuller (ADF) test to test the stationary of the data.

After the variable made stationary at first differencing and in the same order, the study used Johannes co-integration test to check the co -integrated variable. And the study done diagnosis test on the assumptions of Classical Linier Regression Model (CLRM): are Autocorrelation-Breusch Godfrey, Heterosckedasticity-white test and Normality-Jarque-Bera and stationary of the data, the study run regression using Ordinary Least square method to estimate coefficient of the variables. In addition, multicolliniarity test among explanatory variables and descriptive statistics of dependent and independent variables which are extracted from E-views 8 econometric software are adequately explained.

Finally, after the study testing the multicolliniarity test, stationary of the data, and co-integration among the variable, the study employ Vector error correction model to analyze the long term and short term relation between the dependent variable and independent variable and check diagnostic test. The regression output that has been obtained from E-views8 econometric software has explained the relationship between one dependent variable, tax revenue, and multiple independent variables. The E-view8software has been selected due to its ability to analyze the study easily and efficiently (Brooks, 2008).

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter presents and discusses the results of the study .This includes: descriptive statistic of variables, muticollieanarity test , stationary test for stability of the data, co–integration of the data, and correlation results between explanatory variables. In addition diagnosis tests for the basic assumptions of classical linear regression model (CLRM): i.e., auto-correlation test, heterosckedasticity test & normality test. Moreover, regression analyses of the dependent and independent variables and discussion of results as well as the result of long-term and short term dynamics of Vector error correction model has been explained.

4.1. Descriptive Statistics of Variables

In this section the descriptive statistics summary of the dependent variables: Tax revenue performance and explanatory variables: Unemployment rate, Urbanization rate, Inflation rate, Exchange rate, Foreign direct investment, Trade Openness External debt and GDPPC are presented in the table 4.1 which is depicted below. It includes the mean, maximum minimum and their standard deviations of each variable.

Table 4.1: Descriptive Statistics of Variables

Dependent Variables	**Mean**	**Max**	**Min**	**Std. Dev.**
LOG TRP	**3.7812**	**5.2183**	**2.3157**	**0.7093**
Independent Variables	**Mean**	**Max**	**Min**	**Std. Dev.**
UNR	6.00	8.20	5.00	0.9748
UR	14.50	19.50	12.010	2.107
IR	8.77	36.40	(0.1060)	10.24
EX	7.23	20.05	2.07	5.441
LOG FDI	2.0537	4.3192	0	0.0157
GDPPC	4041.62	8166.80	2408.60	1481.08
LOG OPP	4.1619	5.5918	3.3201	0.7323
LOG ED	4.5334	5.5630	3.7313	0.4926
OB	36	36	36	36

Source: E-views 8 Output - Descriptive Statistic

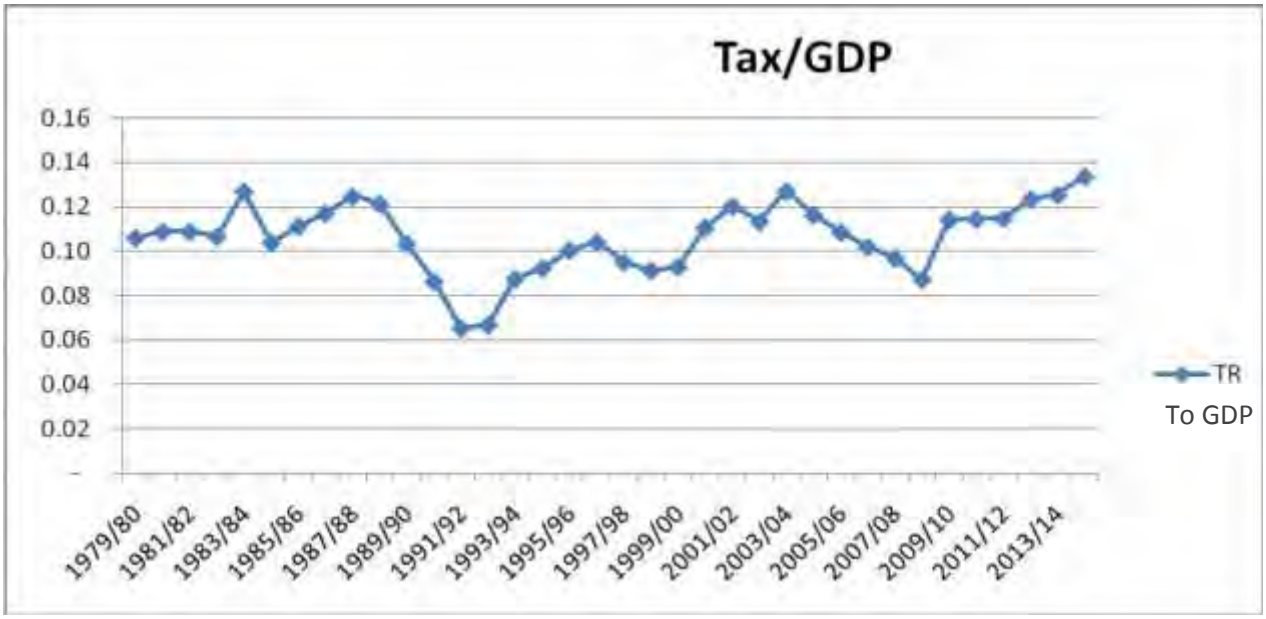
The above table 4.1 shows descriptive statistics for all variables of dependent and independent variables. Accordingly, finding from the descriptive statistics revealed that dependent variable - tax revenue performance, has a positive mean value of log 3.7812, i.e. Birr 21,788.58 million and its standard deviation of 0.7093. Similarly, the above table 4.1 also shows the mean value of independent variables: unemployment rate, urbanization rate, inflation rate, exchange rate, foreign direct investment, trade openness, external debt and GDP per capital. The former three variables have maintain a mean value of 6, 14.5, 8.77 percent respectively, exchange had a mean value of 7.23, foreign direct investment, trade openness, external debt had a mean value of Log 2.053, 4.1619, 4.5334, i.e. amounting 9,735.9 million, 56,520 million, 51,472.70 million and GDP per capital had a mean value of 4041.6 .The detail analysis is presented below;

As we can see the minimum and maximum value of tax revenue performance in the above table 4.1, tax performance of over this period is positive. Over this sample period, the minimum and maximum tax revenue performance collected in year 1991/92 and 2014 /15 were log of 3.7812 and log 5.2183 i.e. amounting 1,682 and 165,313 million respectively.

This shows disparity between the maximum and the minimum value of tax revenue performance over this period due to the Ethiopian government introducing different tax policy and administration reforms. Some of the reforms are, amendment of tax for instance the maximum of marginal tax in dreg regime is 89 percent to 35%, introduction of trade liberalization, administration and structural reform, introduction of new taxes like Value added tax and turn over taxes and use of a tax identification number etc. The policies that contribute to the increment of tax performance are introducing VAT as a replacement of conventional sales tax in 2003. The other reason that enhance the performance of tax resulted from administration reform in the years 1999 and 2009 which centralized tax collection by merging different tax collection authorities under one umbrella.

In addition, Ethiopia has been recorded an impressive economy growth performance over the last ten years averaging 10.63% per year and the second fastest in Africa next Angola and even surpasses that of China (10.2%). So that’s why the difference resulted between ranges.

Figure 4.1. Trend of Tax Revenue Performance to GDP in Ethiopia from 1980 – 2015



Source: Self-computation based on the data extracted from ERCA

Tax/GDP ratio is an important universal measure of tax performance. In Ethiopia, even if the tax receipt in nominal value increases over the time, the Tax /GDP ratio is lower than the developing countries' average. As we can see in the above figure 4.1, the trend of tax revenue performance in Tax/GDP, is not consistent over the sample period and the detail analysis is presented below:

In the year 1979/80 the tax ratio was 11 percent and reached 13 percent in the year 1983/84, then it has sharply declined from 13% in the 1983/84 fiscal year to only 6% in the 1992/93 fiscal year, due to the Ethiopian government launching trade linearization and it has stridently increased from the 6% year to 13% in the 2003/04 fiscal year because, introduction of new tax is which valued added tax (VAT). Again, the ratio continuously decline from 13% in 2003/04 and reached only 9% in the 2008/09 fiscal year, it was the time that structural and administrative reform measures taken. Since 2009/10, the ratio has the an increasing trend and it has reached the level of 13% in the 2014/15 fiscal year due the current government were under take a number of policy and administrative measure to improve domestic tax revenue collection.

The implementation of the reforms in terms of tax policy and administration helps the authority to boost revenue mobilization at federal and regional level trough promoting compliance and equipping tax collection institutions with adequate enforcement power, implementation of the TIN system throughout the country, improvement of the presumptive tax system, development and implementation of an audit program to cover all taxes and expansion and improvement of the administration of the Value Added Tax (VAT). In addition, impressive economy growth performance registered over the last ten years averaging 10.63% per year has contributed toward the improvement of tax revenue performance. Although the tax revenue performance has shown an improvement in nominal value, there is slight improvement in tax to GDP, i.e. 11.42 and 13.37 percent in the years 2009/10 and 2014/15 respectively.

Therefore, as the trend of the tax collection performance of Ethiopia revealed that the country tax collection performance is not consistent which means there is fluctuation one period to the other over the sample period, which is shown on in the above figure 4.1, because the government introduce new taxes, introduction of trade liberalization, administrative and policy reforms .

Although, the tax revenue performance seems to improve in nominal value which is depicted in the above table 4.1, the minimum value collected birr 1.68 million in the years 1991/92 to maximum amount, birr 165.53 million in year 2014 /15, the average tax revenue performance of Ethiopia i.e. Tax to GDP is 10.63 percent which is shown in (appendix I) is lower than the developing countries' average. When we compare the performance from other Sub Saharan countries i.e. 16 percent, many African countries ratio exceeds 20 percent, middle income countries 25 percent and 40 percent in higher income countries in 2014 which is reported by World Bank report (2015). The ratio of tax revenue to gross domestic product (GDP) of Ethiopia is still well short of the international averages. It indicates the current tax system of Ethiopian fails to mobilize sufficient amount tax revenue performance.

On the other hand, the unemployment rate, as the description result on table 4.1 shows that, this variable had mean value of 6percent from the total labor force that are actively seeking works and its standard deviation is 0.97.When these figures compared with other Sub-Saharan, Lower income countries and World, i.e. 8 percent, 6 percent, and 5.9 percent in the year 2014 respectively which is reported by World Bank report (2016) on international labor organization,

Ethiopian unemployment rate is moderate at the country level. According to Nzinga and Tsegaye (2012) while unemployment rate in urban remain widespread, it decline markedly since 1999 for the economy as a whole and for youth. The minimum of unemployment rate in this country was 5 percent in the year of 2013/14 and the maximum unemployment rate was recorded in 1999/00, i.e. 8.2 percent at the country level. This implies that the government striving in reduction of unemployment rate by designing different strategies but still remain. Though, markedly decline of unemployment rate at country level, urban unemployment rate is increase due to limited expansion of formal employment, opportunity, rapid population growth, rural urban migration in adequate school curricula poor education. The result of the study is consistent with (Nzinga and Tsegaye, 2012).

The other variable included in the descriptive statistics is urbanization rate; it is measured by the urban population to the total population. Urbanization rate had a mean value of 14.5 percent and standard deviation value of 2.107. The minimum and maximum value 12.01 and 19.5 percent respectively. This indicates that the range was somewhat higher because the country faces growing youth landlessness in rural areas and insignificant rural job creation, potentially leading to an increase in migration to urban areas.

With regard to inflation, it is one of the measures of macroeconomic performance indicator and measured by percentage change through time in the cost of purchasing a constant basket of goods and service in a specific time period. The result of the descriptive statistic on table 4.1 revealed that the average inflation rate over this period is 8.77 percent and standard deviation value is 10.24. This percentage is significant as compared to other sub-Saharan African countries and low income countries of 6.4% and 4.3% correspondingly. On the other hand, while looking the maximum and minimum inflation rate of 36.4 and (10.60) percent in the year 2008/09 and 2001/02, there were high disparity between this value, due to increase of food price in the year, 2008/09 and the economy perform less than the expected in 2001/02.Though, moderate inflation has an inevitable consequence of sustained economic growth and the inflation rate exhibited in Ethiopia is beyond the break-even point (Admasu, 2014).

In the above table 4.1, the other variables that were included in the descriptive statistics were foreign direct investment, the mean of this variable is log 2.0537, i.e. amounting 2,712.33 million (1.1 percent of total GDP at constant market price over 1980-2015) and standard

deviation value of 0.015.In comparing the foreign direct investment of Ethiopia i.e. 1.1 percentage of GDP in (appendix I**)** with other sub-Saharan countries and low income countries in the year 2014/15 of 2 and 4.3 percent respectively, Ethiopian FDI is very low.

On the other hand, there was big difference between the maximum and minimum foreign direct investment log of 4.3192, i.e. amounting 20,856.00 million in the year 2013/14 and almost zero in the year 1980 respectively. The minimum foreign direct investment is registered due to in the pre-1991; the environment was not encouraging for private investment in general and FDI in particular. Furthermore, political instability, insecurity, and the nationalization of major industries made the environment unattractive for private investment. As a result, there were no foreign direct investment inflows during that time. Followed the formation of the existing government, and implementation of Structural Adjustment Program, the government promised to implement a series of policy reform measure in order to remove and change the command economic system with market based economy, to open the economy into the world economy and to encourage the wider participation of the private sectors in the development process of the country. So, the increase in FDI inflows into the country can be attributed to the revision of the investment proclamation after the reform in a way that accounted for higher level of incentives for FDI.

The other variable considered in the descriptive statistics is foreign exchange rate, it is measured by the birr to us dollar. The descriptive statistic result revealed that mean value of exchange rate is 7.23 and standard deviation 5.441. The mean value indicate that one US dollar on average exchange to 7.23 Ethiopian birr. The minimum and maximum value of foreign exchange rate is 2.07 and 20.09. These shows that the range is winder due to Ethiopian government made devaluation on its currencies to improve the trade balance of the country in the year 1992/93 and 2010/11 and the failure of the economy to balance the supply and demand.

With regard to trade openness, it is the extent to which one country is open for international trade. The result of the descriptive statistic revealed that the mean value of trade openness is log 4.1619 i.e. amounting 56,520 million and its standard deviation, i.e. 0.7323. The minimum and maximum international trade were undertaken in the year 1991/92 and 2014/15, log of 3.2013, i.e. birr 2,090 million and log of 5.5918, i.e. birr 390,655 million respectively. This

indicates that the range was somewhat higher because the Ethiopian governments remove trade restrictions to which the economy was subjected which done within the framework of Structural Adjustment Program (SAP) which was the Government launched in 1992 and the economic growth by its self has its own impact of the demand .

The other variable included in the descriptive statistic is foreign debt, it had a mean value of log 4.5334 which is birr 51,472.70 million and its' standard deviation is 0.4926. On the other hand, there was big difference between the maximum and minimum foreign debt log of 5.5630, i.e. amounting 365,621.80 million and log of 3.7313, i.e. birr 5385.5 million in the year 2014/15 and in the year 1987/88 respectively.

The last variable included in the descriptive statistics is GDP per capital income. It is a proxy for level of economic development. The descriptive statistic result revealed that the mean value per capital income over the sample period is 4,041.62 and it's Standard deviation of 1481.08.The mean value indicate average income earned per person in a given area .The minimum and maximum GDP per capital were 2,408.60 and 8166.80 which are recorded in the years 1991/92 and 2014/15, this resulted due to an impressive economy growth over the country.

4.2. Multicolliniarity Test

The study conducted a multicolliniarity test in order to identify explanatory variables having high correlation value and to take measure not to make in appropriate conclusion. The study used correlation matrix to check the presence of multicollinearity. A correlation matrix is used to ensure the correlation between explanatory variables. Cooper & Schindler, (2009) suggested that a correlation coefficient above 0.8 between explanatory variables should be corrected because; it is a sign for multicolliniarity problem, as quoted by (Habtamu, 2012). In addition, (Hair et al., 2006) also argued that correlation coefficient below 0.9 may not cause serious multicollinearity problem.

The study dropped variables having high correlation value from the model, because Cooper &Schindler, (2009) and Hair et al. (2006) suggested that serious multicolliniarity should be corrected when the correlation coefficient is 0.8 and 0.90 respectively. In addition brooks (2008) suggested solution for multicolliniarity is dropping variables that are highly correlated.

Accordingly this study dropped GDPPC, Trade Openness and External debt from the model,. Finally, after these three variables dropped from the model, the multicolliniarity problems were solved and the result is presented as below.

Table 4.2 Correlation Matrix: Explanatory Variables

Variables	UNR	UR	EXR	FDI	IR
UNR	1				
UR	-0.15	1			
EXR	-0.49	0.62	1		
FDI	-0.64	0.67	0.69	1	
IR	-0.38	-0.02	0.21	0.26	1

Source: E-view 8correlation test result

Generally as we can see table 4.10 above, since the highest correlation coefficient in this study is 0.69, between exchange rate and foreign direct investment, i.e. it is less than 0.80.This indicate that there is no evidence of serious multicolliniarity in the study, because Cooper &Schindler, (2009) and Hair et al. (2006) suggested that serious multicollinearity corrected when the correlation coefficient is 0.8 and 0.90 respectively**.**

4.3. Econometrics Analysis

4.3.1.Stationary Test

Stationary is a prerequisite while working with time series data. If the time series is non-stationary, the mean, variance or covariance will not be constant and one is likely to end up with spurious regression where statistical inference on the basic of the classical linear regression model will be invalid. The results of using non-stationary time series may be spurious. Therefore, so as to get consistent and reliable estimates of the model, a non-stationary data must be converted into stationary by differencing. In this study, the Augmented Dickey Fuller (ADF) test was used for unit root test, the lag length for each variable is automatically selected on Schwartz information, and the test result is given in table below.

Table 4-3: Unit Root Test Result -Augmented Dickey-Fuller Stationary Test Result

Variables	Augmented Dickey-Fuller Stationary Test Result			
	ADF Statistic	ADF Critical Value at (5%)	p-value	Order of integration
DLTRP	3.10	2.95	0.0359**	I(1)
DUNR	6.51	2.95	0.0000*	I(1)
DUR	4.8793	2.9639	0.0005*	I(1)
DEXR	2.2678	1.91513	0.0246**	I(1)
DFDI	7.5711	3.5529	0.0000*	I(1)
DIR	8.2331	2.9571	0.0000*	I(1)

Note: * and ** denotes the significance at 1% and 5% respectively
Source: E-view -8 Unit root test result.

The unit root result in the above table 4.3 shows that all variable were not non stationary at 5% significance level but after differencing all variable become stationary at 5% significant level (95% confidence interval) and found all the variable are integrated in the same order one; Therefore, Johansen maximum likelihood approach applied to test the presence of co-integrating relationship among variables appropriate.

4.3.2. Co-integration Test Results

Optimal Lag Selection

Before running the co-integration test it is essential to know the optimal number of lags to include in the test because the Johansen co-integration test results are sensitive to the number of lags included for the endogenous variables. It appears that, in general, too few lags in the model results in rejection of the null hypotheses too easily, while too many lags in the model decrease the power of the test (Verbeek, 2004). This indicates that there is some optimal lag length. There are a number of tests to determine this optimal length; Likelihood Ratio test statistics, Final Prediction Error, the Akaiki Information Criterion, the Schwarz Information Criterion, and the Hannan-Quin Information Criterion. Therefore, selection of optimal lag length helps to avoid loss of initial values. As shown in the table 4.4 depicted below, the selected optimal lag length is two. This is because all lag selection criteria's (i.e., LR, FPE, AIC, SIC and HQ) suggest an optimal lag of at two.

Table 4.4: Optimal lag order selection criteria

Lag	Log L	LR	FPE	AIC	SC	HQ
0	-296.9600	NA	6.738647	18.93500	19.20982	19.02610
1	-141.5157	242.8818	0.004028	11.46973	13.39351*	12.10741
2	-80.77713	72.12702*	0.001108*	9.923570*	13.49630	11.10783*

Source: Own estimation using E-views 8 * indicates lag order selected by the criterion

The optimal lag selected is two because all of the selection Criterion, the optimal to be included in each variable is two except the Schwarz Information Criterion.

The Johansen Co-integration test

The stationary test results observed above confirmed that all the variables are integrated of the same order one and that they are non-stationary at level, meaning that we would get unreliable out come if these variables are included in the model. Granger representation theorem, however, states that non-stationary variables can produce stationary relationship if they are co-integrated or that these variables could have a meaningful relationship in the long-run. In order to know the presence and the number of co-integrating relationships the trace and maximum-Eigen value methods are employed. The results can be observed in the following table 4.5

Table 4.5 .Johansen Co-Integration Test Result

Co-integration rank test	Null Hypothesis	Eigen value	Trace Statistic	Critical Value (5%)	p -values
Trace test	None *	0.810302	153.1801	95.75366	0.0000*
	At most 1 *	0.709000	99.98579	69.81889	0.0000*
	At most 2 *	0.590893	60.48401	47.85613	0.0021*
	At most 3 *	0.481956	31.88308	29.79707	0.0283**
	At most 4	0.285909	10.83681	15.49471	0.2217
	At most 5	0.001904	0.060996	3.841466	0.8049
Maxim Eigen value	None *	0.810302	53.19429	40.07757	0.0010*
	At most 1 *	0.709000	39.50178	33.87687	0.0096*
	At most 2 *	0.590893	28.60093	27.58434	0.0370**
	At most 3	0.481956	21.04627	21.13162	0.0514**
	At most 4	0.285909	10.77582	14.26460	0.1658
	At most 5	0.001904	0.060996	3.841466	0.8049

Note: * and ** denotes the significance at 1% and 5% respectively
Source- E-views 8 co-integration test result.

The table 4.5 above tells us that both the maximum Eigen value test and the trace test identified that there are a maximum of four co-integration equations at a 5% level of significance. This confirms the existence of long-run relationship among tax revenue performance and unemployment rate, foreign direct investment, exchange rate, inflation rate and urbanization.

4.4. Vector Error Correction Model

In this section, the long run and short run regression result analysis for dependent variable: tax revenue performance and independent variables: Urbanization rate, exchange rate, unemployment rate, inflation and foreign direct investment are presented. Initially, the study incorporated eight independent variables; but the study considered five of eight independent variables in the model due to some of the variables (GDP per capital (GDPPC), trade openness (OPP) and external debt (FD)) are strongly correlated to one other).Therefore, the study run the regression after dropping variables having high correlation value to make the model more reliable, the regression model result which incorporated five variables of long run and short run regression result obtained from Vector error correction is presented below:

The result of ADF and Johansen co-integration tests supported the existence of long-run equilibrium relationships among the tax revenue performance, unemployment rate, urbanization rate, exchange rate, inflation and foreign direct investment. The existence of a long-term equilibrium relationship among the variables necessitates the use of the Vector Error correction model (VECM).Because; it contains information on both the long-run and the short-run.

The long run regression analysis for dependent variable: tax revenue performance and independent variables: Unemployment rate, urbanization rate, exchange rate, inflation and foreign direct investment are presented below.

4.4.1. Long Run Relationship

The table 4.6 depicted below shown that the long term effect of the unemployment rate, urbanization rate, exchange rate, inflation and foreign direct investment on tax revenue performance. The result of the error correction in the table 4.7 confirm that long term causality between those variable, since the result revealed that ECM (-1) was statistically significant and

negative sign which implies the existence of co-integration among variables and hence, the presence of stable long-run relationship.

The table 4.6 presented below shows that unemployment rate, urbanization rate, inflation and foreign direct investment have significant effect on tax revenue performance since value of the T-statistic greater than two but exchange rate not significant.

Table 4.6-The Estimated Long-Run Model for LRTP

Variable	**UNR(-1)**	**UR(-1)**	**EXR(-1)**	**IR (-1)**	**LFDI(-1)**	**C**
Coefficient	-0.079493	0.243311	-0.022035	0.015867	0.215433	0.157442
Standard Error	0.01677	0.03128	00.01292	0.00269	0.04836	
T-statics	-4.474158	7.77805	-1.70505	5.88777	4.45492	

Note: T-statistics ration more than 2 is statically significant.

Source: E-view 8 short run result.

In accordance with the above results the long-run equilibrium relationship normalized on LTRP can be rewritten as follows

LTRP = C (1) + (C2)*UNR + (C3)*URR + C4*(EXR) +C5*(IR) + (C6)*FDI

LTRP=0.1544-0.0794*UNR+0.2433*UR–0.0220*(EXR) +0.0158*(IR) +0.2154*FDI.

In the above table 4.6, long run equilibrium equation, urbanization rate, foreign direct investment and inflation have significant and positive effect on tax revenue performance. Whereas as unemployment rate has significant but negative effect on tax revenue performance in the long run and exchange rate exerts negative insignificant effect on tax revenue performance. The hypotheses tested are presented below:-

In this study the decision rule to reject the null hypothesis and accept the alternative one is based on the T-statistic value .When the T-statistic value is equal or less than two, reject the null hypothesis and accept alternative. If T-statistic is more than two, we accept the null hypothesis and reject alternative hypothesis

Unemployment Rate

Hypothesis testing the relationship between unemployment rate and tax revenue performances:
H0: Unemployment rate has significant negative effect on tax revenue performance.
H1: Unemployment rate has no significant negative effect on tax revenue performance.

Conclusion: Do not reject Ho hypothesis since the regression result shows that unemployment rate has significant negative effect on tax revenue performance; because the t-statics value of this variable is 4.47415 which is more than two as shown in the above table 4.6 long term equation model. It indicates unemployment rate affects the tax revenue performance in the long run significantly. The beta value, coefficient, of this variable is -0.0794 which indicates there is negative long run causal relationship between unemployment rate and tax revenue performance.

The study revealed that an increase in unemployment rate would reduce the tax revenue performance. Meaning, a 1% increase in unemployment rate will result in a decrease of 7.94 percent on dependent variable tax revenue performance, this is because unemployed people contribute less to the economy as they are spending less and they do not participate in paying tax due to lack of job. In addition, as fewer people have job, firms won't be able to produce as many goods and services and thereby, the output of goods and services in the economy, GDP, will be lower. As a result, the lower GDP would adversely affect the tax revenue performance and the government ends up borrowing money because of low revenues and high spending.

Sharma and Singh (2015) and Velaj and Prendi (2014) also conducted a research in this area and their study suggested that an increase in unemployment rate will negatively affect the tax revenue performance which is consistent with findings obtained in this study. However, the study couldn't compare this finding with the previous local studies reviewed by the study because they does not include unemployment rate as a parameter of tax revenue performance. But not consistence with Malaysia economic essay paper (2015) found positive association between tax revenue and unemployment rate.

Urbanization Rate

Hypothesis testing between urbanization rate and tax revenue performance:
H0: Urbanization rate has significant positive effect on tax revenue performance.

H1: Urbanization rate has no significant positive effect on tax revenue performance.

Conclusion: Do not reject Ho hypothesis since the regression result shows there is significant positive causal relationship between urbanization rate and tax revenue performance ; as the t-statics value of this variable shown in the long run equation on above table 4.6 is more than two i.e., 7.77805. It indicates urbanization rate affects the tax revenue performance significantly in the long run. The beta value, coefficient, of this variable is 0.2433. This shows there is positive long run causal relationship between urbanization rate and tax revenue performance. This indicates that this variable has higher contribution toward the improvement of tax revenue performance.

Meaning, a 1% increase in urbanization rate will result in an increase of 24.33 percent on dependent variable tax revenue performance, because , urbanization brings new demand and increase the tax especially in terms of income tax which is collected on wages and profits. In addition when urban population becomes educated urbanization makes the tax payers to comply the tax law which means tax payers will meet the terms of tax laws, obey the rules of taxes and accurately report their income and deductions honestly. This finding is supported by the previous research work of (Mushtaq et al., 2012; Karagöz, 2013 and Ahmed et al., 2016) conducted on this area with but not consistent with the findings of Pakistan of (chaudhry and Munir, 2010) found negative relationship between urbanization and tax revenue performance.

Foreign Direct Investment

Hypothesis testing between foreign direct investment and tax revenue performances are presented below

H0: Foreign direct investment has significant positive effect on tax revenue performance.

H1: Foreign direct investment has no significant positive effect on tax revenue performance.

Conclusion: Do not reject Ho hypothesis since regression result shows that foreign direct investment has positive and significant long run effect on tax revenue performance, because the t-static value is greater than two, i.e. 4.45492, and the beta value, coefficient of this variable is 0.2154 it is shown in table 4-6. It indicates that foreign direct investment has positive and significant long run causal relationship with tax revenue performance. Meaning a one percent increase foreign direct investment will boost tax revenue approximately by 21.54

percent, Because , foreign direct investment provides essential capital to spark the creation of productive enterprises, facilitate faster economic growth; produce externalities in form of larger employment, technology transfers, skills to local industry, boosted productivity or filled 'idea gaps" between rich and poor countries.

This indicates that, this variable has great contribution towards the improvement of tax revenue performance in the long run. The positive causal relationship with tax revenue performance of this study is consistence with (Mahmud and Chaudhary, 2014 and Belay 2015) which have found positive association between FDI and tax revenue performance and (Bond and Samuelson, 1986) cited by (Mahmud and Chaudhary, 2014).The finding of this study is inconsistent with (Tesfaye, 2015) and (Castroet al., 2014) found negative relationship between FDI and tax revenue performance.

Inflation Rate

Hypothesis testing, between inflation rate and tax revenue performance:
H0: Inflation rate has significant negative effect on tax revenue performance.
H1: Inflation rate has no negative effect on tax revenue performance.

Conclusion: Do not reject the Hypothesis's of the study since the regression result shows that inflation has significant effect on tax revenue performance in the long run, because t-statics value shown in the long run equation model is greater than two i.e. 5.88777 shown in the above table 4.6 The beta value, coefficient of this variable is 0.0158 which indicates inflation has positive causal relationship with tax revenue performance. Because, as tax is imposed on the nominal value of total taxable income, an increase in inflation would enhance the nominal value of the total taxable income, meaning tax is changed in line with the nominal value of the underlying transaction, and thereby positively affects the total tax revenue performance and the real value the tax liability remains unchanged.

In addition, inflation accelerates economic growth through redistributing income from workers and peasants, who are assumed to have a low marginal propensity to save, to capitalist entrepreneurs, who have assumed to have a high marginal propensity to save and invest; and by raising the nominal rate of return on investment relative to the rate on interest, thus promoting investment. As a result, the tax on consumption and profit will be higher.

The Ethiopian economy has been growing at 10% for five consecutive years and it is healthy at present (Hassan, 2008) and also for the last five years the tax to GDP ratio showed improvement from year to year.

Therefore, inflation exhibited in the Ethiopian economy for the past twenty three years has played a role in stimulating the economy which in-turn has positive impact on tax revenue performance during the same period. Moreover, the country has experienced double-digit economic growth; averaging 10.8% since 2005, with the existence of moderate inflation is an indication for the positive impact of inflation. The positive finding of this study is consistent with (Chaudhry and Munir, 2010; Velaj and Prendi, 2014; Belay, 2015) and (Mutascuan and Damultetie, 2013) but inconsistence with (Muibi and Sinbo, 2013; Tesfaye, 2015 and Workneh, 2016) and who have established negative association between inflation and tax revenue performance.

Exchange Rate

Hypothesis testing between urbanization rate and tax revenue performance are presented below:

H0: Exchange rate has significant positive effect on tax revenue performance.

H1: Exchange rate has no significant positive effect on tax revenue performance.

Conclusion: Reject the Ho hypothesis of the study since the regression result shows that exchange rate has insignificant negative effect on tax revenue performance in the long run, because the t-statistics value shown in the table 4.6 is less than two i.e. 1.705 and the beta value, coefficient, of this variable is -0.02203, the result of this study is not as expected. There is negative insignificant causal relationship between exchange rate and tax revenue performance in the long run.

Meaning, a 1% increase Exchange rate (Devaluation of currency) will result in a reduction of 2.22 percent on dependent variable tax revenue performance, which might be due to most of the goods are row material and thus make demand for importing of goods from abroad is inelastic. Thus induce the trade balance deficit to increase, as a result inflation push up and hider economic growth in the long run.

In addition firm not strive to reduce costs to be competitive in the international market, thus reduce productivity in the long run. All these make the tax revenue to reduce in the long run. The result of this study is in line with the findings of (Chaudry and Munir, 2010) and (Muibi and Sinbo, 2013) and this finding supported by the economic theories. But the result of the study is not consistent with (Agbeyegbe et al., 2006) and (Bisrat et al., 2014) who found positive association between exchange rate and tax revenue performance, because an increase in exchange rate makes the consumption of tradable goods becomes more expensive – whether they are the substitute goods for import or exportable goods at the end total demand will be transferred from the tradable goods to non-tradable ones and consequently the earnings from trade are reduced yet domestic tax revenues increase.

4.4.2. Short-Run Relationship

Once the existence of long-run relationship has been 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 was applied. The coefficient of the error correction term indicates how quickly variables converge to equilibrium.

As we can see short run regression results in the table 4.7 presented below, exchange rate has significant and positive effect on tax revenue in the short run, at 5% significance level but urbanization rate, unemployment rate, foreign direct investment and inflation rate are not significant. In other word only exchange rate has significant causal relation with tax revenue performances in the short run.

Table 4.7- Short-Run Coefficients dependent variable D (LTRP)

Error Correction Model		**Dependent Variable: D (LTRP)**		
	Coefficient	**SE**	**T-statics**	**p-value**
D(UNR(-1))	0.005155	0.014777	0.348884	0.7312
D(UR(-1))	-0.054652	0.033909	-1.611721	0.1244
D(EXR(-1))	0.044472	0.020360	2.184233	0.0424**
D(IR(-1))	-0.003900	0.001834	-2.125985	0.0476
D(LFDI(-1))	-0.011335	0.032407	-0.349752	0.7306
ECM(-1)	-0.285863	0.098794	-2.893517	0.0097
C	0.025541	0.017333	1.473540	0.1579

Note: * and ** denotes the significance at 1% and 5% respectively
Source: E-view 8 short run result

The vector error correction term has important implication in linking the short-run periods to the long run period. It represents a deviation from the long run equilibrium which is corrected gradually through a series of short run partial adjustments. The sign and magnitude of the coefficient of the error correction term indicates the direction and speed of adjustment of the dependent variable towards its long run steady state path.

As it can be observed in the table 4.7 above, the coefficient of the error correction term for the LTRP equation possesses the negative sign and statistically significant. This guarantees that although the actual tax revenue temporarily deviate from its long-run equilibrium value, it would gradually converge to its equilibrium. Negative sign indicates that the tax revenue is below equilibrium level and the magnitude also shows speed of adjustment toward equilibrium. Thus, the statistically significant and negative sign of ECM (-1) implies the existence of co-integration among variables and hence, the presence of long-run relationship .The error correction term of this study -0.2858 shows that about 28.58 percent of the deviation of the tax revenue performance equilibrium value is eliminated every year.

Unlike to the long run regression result, in the short run model, exchange rate has positives and significant effect on tax revenue performance in the short run, because the p-value of this variable is 0.042 and the beta, coefficient of this variable 0.0445. It shows that exchange rate has significant positive causal relationship with tax revenue performance in the short run. Meaning a unit percentage increase in exchange rate leads tax revenue performance to increase by 4.45 percent. This might be, due to demand for importing good from abroad increase throughout the year regardless of the increase exchange rate, thus makes tax income obtained from the international trade to be higher, since international trade in amenable for taxation because exist and entrance is takes place in defined place. This positive result is consistent with (Ahmed et al., 2016) who has found positive association between exchange rate and tax revenue performance.

The short run model revealed that inflation exerts negative effect on tax revenue performance in the short run unlike the long run result because, the short run beta coefficient of this variable is -0.0039 and p-value 0.0476.This indicate inflation rate has no significant effect on tax revenue performance at 95% of confidence interval and negative causal relationship with tax

revenue performance. This, negative result is consistent with (Tesfaye, 2015 and Workineh, 2016).

Unlike the long run, in the short run foreign direct investment has negative causal relationship with tax revenue performance but not significant, because the beta, coefficient, of this variable is -0.0111 and p-value 0.73. It indicate that FDI has negative impact on tax revenue performance in the short run this finding is consistence with (Tesfaye, 2015) due to the incentive given by government to investors may induce the tax revenue performance to lower in the short run.

In the short run model, urbanization has negative relationship with tax revenue performance un like the long run result but not significant at 5% significance level since coefficient, of this variable is -0.0542 and p-value 0.12. It indicates negative causality between urbanization and tax revenue performance and the result is not as expected. This might be due to an increase migration from rural to urban make cities wholly unmanageable and most of the migrant involved in the informal sector of business and thereby the government can't full collect taxes from those involved in the informal sectors of business.

Finally, unemployment has positive causal relationship with tax revenue performance in the short run but it is not significant as coefficient, of this variable is 0.00515 and p-value i.e. 0.73 at 95% confidence level. The positive association between tax revenue performance and unemployment are not as expected.

The F- statistics value of the study is 0.042; it indicates statistically significant at 5% of significance level which implies that all explanatory variables jointly explain the dependent variable the tax revenue performance. The model is also well fitted model, the explanatory power of the model as measured by R2 is 0.631216, which implies that 63.12 % of the variation in tax revenue is explained by the variation in the variables included in the model.

4.5. Post Estimation Diagnosis Tests

In this section of study, diagnostic test on the model has conducted to the check the average value of the error is zero, weather the residual is normally distributed or not, the variance of the error is constant, the covariance between the error term over the time is zero and the variables stated in this study were not violating the classical linear regression assumption. As per Chris

(Brooks, 2008), the first assumption required that the average value of the errors is zero (E (ut) = 0). In fact, if a constant term is included in the regression equation, this assumption will never be violated, (Brooks 2008). Since there is no intercept parameter without constant term, the first assumption will never go against. This means there is no potentially severe bias in the slope coefficient estimates in the regression model. However, the rest assumptions of CLRM were properly tested and presented as follows.

- **Heterosckedasticity Test**

The second assumption of CLRM states that the variance of the errors is constant, σ2 this is known as the assumption of homosckedasticity (Brook 2008). If the errors do not have constant variance, they are said to be Heterosckedasticity. In other words, if the residuals of the regression have systematically changing variability over the sample, that is a sign of Heterosckedasticity (Brooks, 2008). White test was used for general test of Heterosckedasticity. The Heterosckedasticity test result is presented in table 4.8 below:

Table 4-8. Heterosckedasticity Test Result

Null hypothesis Heterosckedasticity		Alternative hypothesis	
The residual is not Heterosckedasticity		The residual is Heterosckedasticity	
F-statistic	1.122783	Prob. F(18,13)	0.4236
Obs*R-squared	19.47369	Prob. Chi-Square(18)	0.3632
Scaled explained SS	12.66960	Prob. Chi-Square(18)	0.8108

Source: E-views 8 output of Heterosckedasticity test

The above tables 4.8 indicates that both χ2 and F-test versions of the Heterosckedasticity test of statistics give the same conclusion that there is no evidence for the presence of Heterosckedasticity, since the p-values are considerably in excess of 0.05 at 95% confidence. This indicates the variance of the errors is constant (i.e. there is no problem of Heterosckedasticity or the residual is homosckedasticity.

- **Autocorrelation Test**

According to (Brooks 2008), assumption three, that is made of the CLRM, disturbance terms, says that the covariance between the error terms over time (or cross-section ally, for that type

of data) is zero. In other words, it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are auto-correlated" or that they are serially correlated. The most common test of this assumption is Breusch-Godfrey test (Brooks, 2008).

Table 4.9 Breusch –Godfrey Serial correlation LM Test

Null hypothesis		Alternative hypothesis	
The residual is serially correlated		The residual is not serially correlated	
F-statistic	0.896789	Prob. F(2,16)	0.4274
Obs*R-squared	3.225574	Prob. Chi-Square(2)	0.1993

Source: E-views 8 output of Serial correlation LM Test

As we observe can see Breusch –Godfrey Serial correlation test result in the table 4.9 above , the null hypothesis for serial correlation is failed to reject since the p-value above 5% significant level and this result confirm that no evidence for the presence autocorrelation problem.

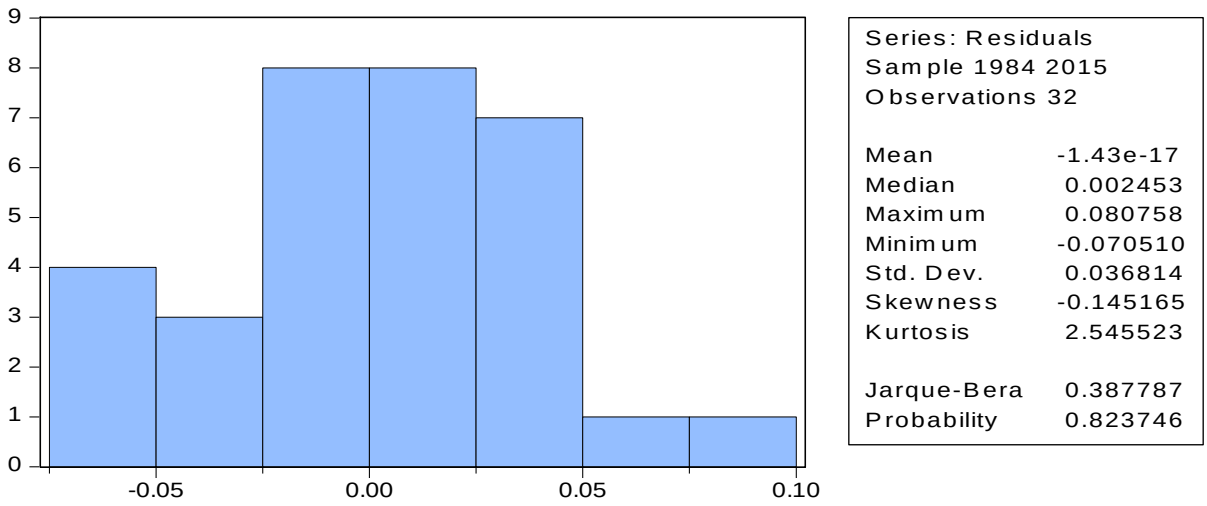
- ## Normality Test: Jarque-Bera (JB)

The last assumptions in classical linear regression model that has been done for this is normality test. It requires checking whether the disturbances are normally distributed or not, (Brooks, 2008). In order to do this, one of the most commonly applied tests for normality, i.e., Jarque Bera- (BJ) test, was implemented. JB uses the property of a normally distributed random variable that the entire distribution is characterized by the first two moments, the mean and the variance.

If the residuals are normally distributed the histogram should be bell-shaped and the Jarque-Bera statistic would not be significant. This means that, the p-value given at the bottom of the normality test screen should be bigger than 0.05 not to reject the null of normality at the 5% significance Jarque–Bera Statistical Test Results level (Brooks, 2008). Accordingly, the Jarque-Bera statistic test result of the model of this study is presented in the table 4.10 below:

Table 4.10 Jarque-Bera Statistical Test Result

Null hypothesis	Alternative
Residual are normality distributed	Residual are not normality distributed



Source: Normality test by Jarque-Bera from E-view 8

As we can see from the above table 4.10, the residuals are normally distributed since the p value for the BJ test is 0.823746. Hence the null hypothesis for residual normality failed to reject i.e. the residual are normality distributed.

CHAPTER FIVE

5. CONCLUSIONSANDRECOMMENDATIONS

Under this chapter, conclusions made based on the empirical findings of the study are properly discussed. Besides, recommendation, which the study believes to be implemented by different organs, is given based on conclusions made.

5.1. Conclusions

The study examined determinate of tax revenue performance in Ethiopia using data from 1980-2015 by using Johansson co-integration approach to identify the con-integrated variable and employed Vector Error Correction approaches to analyze the variables both in the short run and long run and finally Conclusions drawn based on the results of the descriptive and empirical analyses are presented as follows:

- As per the trend and descriptive statistic, average tax revenue performance of Ethiopia, which is measured by tax to GDP ratio, is lower as compared with other sub-Saharan African and low-income countries and the trend of this ratio is not consistent through this period .Because, during the last decade there were a steady growth in Ethiopian GDP which is higher than other Sub-Saharan African countries and this lower the tax to GDP ratio. This indicates that the Ethiopian tax revenue is not equivalently grown with GDP.
- The study has made diagnostic test on the assumptions of classical linear regression model and found that there were no problem of heterosckedasticity, auto correlation and normality. However, the study was initially faced multicollinearity problem after while the study dropped variables that are strongly correlated as recommended by (Brooks, 2008) and at the end the problem is resolved.
- The study used the augmented dickey fuller test to the unit root. The test approved the existence of unit root in level and all the variables are stationary in first difference. This indicates the existence of long run relationship among the variables. The Johansen co integration test proposes the existence of co integration relationship between dependent and independent variables.

- In the long run, urbanization has significant and positive effect on tax revenue performance in Ethiopia. Meaning, it has vital role to play in the economic growth thereby to enhance tax revenue performance. Because, urbanization brings new demand and makes the tax base increase especially in terms of income tax which is collected from wages and profits. Moreover, as empirical evidences suggest, no country has ever reached middle income status without a significant population shift into cities since it is necessary to sustain growth in developing countries.
- In the long run, unemployment rate exert negative and significant impact on tax revenue performances. This is due to fewer peoples have a job and there will be fewer people earning income to pay tax. In addition, high unemployment rate hiders the economic growth as it forces firms not to produce as many goods and services which intern reduce tax revenue collected from this sector.
- In the long run foreign direct investment has positive and significant effect on tax revenue performance in Ethiopia. The positive relationship is mainly due to developing countries like Ethiopia have both the demand for a good or service, and the labor and natural resources to supply it, but they lack the access to capital necessary to begin producing. However, either banks do not exist in adequate numbers or they do not have enough capital to lend to even the majority of worthy borrowers. Thus, foreign investment provides essential capital to spark the creation of productive enterprises.
- Inflation rate has positive and significant effect on tax revenue performance in the long run but not significant in the short run and the result is not as expected. Because the nominal value of the total taxable income is changed in line with the nominal value of the underlying transaction i.e. the nominal value of the tax liability remain unchanged and thereby positively affects the total tax revenue. In addition, moderate inflation rate accelerate economic growth by raising the rate of profit, thus increasing private investment. When the private investment expands the tax on profit and employment tax is increased.
- In the long run, exchange rate has negative impact on tax revenue performance due to the increase in trade balance deficit, because the demand for importing is inelastic as most of the imported goods are row material. Thus hider economic growth in the long

run .Moreover, in the long run an increase exchange rate not invites firms to cut costs to be competitive, thus induce the productivity to reduce in the long run. When firms not competitive and productive at the end they became collapsed, so governments unable to generate sufficient revenue.

- The short run adjustment coefficient is estimated using Error correction model; the adjustment coefficient is identified has negative sign and significant. The adjustment coefficient of –0.2858 indicates that 28.58 percent of the short run adjustment made within a year.

- In the short run, most of the variables are insignificant except exchange rate .In the short run exchange rate has significant positive causal relationship with tax revenue performance unlike to long run relationship. This might be the devaluation of domestic currency does not reduce the aggregate import demand. Thus make the tax revenue performance to increase due to the increase of taxes in importing of goods.

5.2. Recommendations

Tax is the most common and important financial source of public revenue and it is considered among the most efficient and effective tools of fiscal policy in the world through which a government is able to supply a variety of social and welfare services and lead many social and economic activities. Therefore, mobilizing sufficient amount of tax revenue is important for the economic development is undeniable fact. As a result, based on the findings of the study and the conclusions drawn the following recommendations are forwarded by the study in order to improve the tax revenue performance.

- The study revealed that average tax revenue performance of Ethiopia, is lower as compared with other sub-Saharan African and low-income countries. Therefore, the tax revenue authority should improve the tax collection system, by employing modern technology, increasing instructional quality, enhancing public awareness regarding the benefit of tax revenue and improving its efficiency and effectiveness to exhaustively incorporate all responsible organs under the tax system. This will enable the tax authority collect tax revenue which should have been collected from the economy.

- Unemployment rate in Ethiopian has negative and significant impact on tax revenue performance in the long run but not significant in the short run. Therefore, the government should create employment opportunity by expanding private industries that make firm able to produce as many goods and services. This will stimulate the country economy development and enhance the tax revenue. Moreover, policymakers have a key role to play in introducing the reforms and measures such as adopting labor intensive technology and using suitable monetary and fiscal policy to discourage the use of capital intensive technology and developing systems in promoting entrepreneur needed to improve labor markets and bring unemployment back down.
- Urbanization rate in Ethiopia has positive and significant effect on the tax revenue performance in the long run but not significant in the short run. As no country has ever reached middle income status without a significant population shift into cities, the government should deepen the currently following market oriented economic policy, which accumulates and restructures capital, technology, and other assets and diverts them into productive channels. In addition, the government should speed up the introduction of efficient markets for labor, capital, and land, spur the development of technology and expanding formal settlement in urban. Moreover, the government should adopt various policy measures to reduce market failures like adopting antimonopoly measures, increasing return to scale and protecting the environment. This would allow the government to tap its full potential and enhance its tax revenue performance.
- As foreign direct investment significant positive relation with the tax revenue performance in the long run. The government should attract foreign investors through the properly use the fiscal policy, exhaustively working on research and development, reducing the bureaucratic red tape and business doing costs, by give political risk insurance, eliminate regulatory restriction and improving the country infrastructure to create favorable economic, social and political environment. At same time the government properly selects the sectors of investment which has greater contribution to the economy development.

- Inflation has significant positive effect on tax revenue performance. Although, inflation rate above the break-even hinder the economy growth, the study revealed moderate inflation would accelerate the economy growth. Therefore, the government should properly manage inflation under acceptable moderate level using both monetary and fiscal policy.
- This study found that tax revenue performance influenced negatively by exchange rate in the long run but in the short run it affects the tax revenue performance positively. Therefore, policy makers should care not to make decision at the expense of long term while using exchange rate policy for trade balance adjustment and increase the growth of the country through improving of the real sector of the economy to make the country more competitive. Furthermore, policy makers should properly analyze how domestic firms pivot toward domestic replacement and export

FUTURE RESEARCH DIRECTION

This study was limited to quantitative factors that determine the tax revenue performance, so the author suggested that the future researcher who has an interest to conduct a research on this area to include qualitative factors like intuitional quality, efficiency and effectiveness of the tax administrators and macroeconomic variable, demographic factor, government expenditure share of tax and other variables that not included in this study.

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Appendixes

Appendix I: Ratio to GDP

Dependent variables	Mean
Tax revenue performance / GDP	10.63%
Independent Variables	Mean
Foreign direct investment to GDP	1.1%
Trade openness/GDP	24.00%
External debt /GDP	37.88%

Appendix II: Unit root Test Result

1. Tax revenue performance

Ho: LTRP is non-stationary series

H1: LTRP is stationary

Null Hypothesis: D(LTRP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.104536	0.0359
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

2. Unemployment rate

Ho: UNR is unit root non stationary series

H1: UNR is stationary

Null Hypothesis: D(UNR) has a unit root

Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.503967	0.0000
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

3. Urbanization rate

Ho: UR is unit root non stationary series

H1: UR is stationary

Null Hypothesis: D(UR) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.879303	0.0005
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

4. Exchange Rate

Ho: EXR is non stationary series

H1: EXR is stationary

Null Hypothesis: D(EX) has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.267810	0.0246
Test critical values:	1% level	-2.636901	
	5% level	-1.951332	

	10% level	-1.610747

*MacKinnon (1996) one-sided p-values.

5. Foreign direct investment

Ho: FDI is non stationary series

H1: FDI is stationary series

Null Hypothesis: D(FDI) has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.342921	0.0000
Test critical values:	1% level	-2.636901	
	5% level	-1.951332	
	10% level	-1.610747	

*MacKinnon (1996) one-sided p-values.

6. Inflation

Ho: IR is non-stationary series

H1: IR is stationary

Null Hypothesis: D(IR) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.233104	0.0000
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

*MacKinnon (1996) one-sided p-values.

Appendix III: Diagnostic Test Result

2.1: Heterosckedasticity Test

Heterosckedasticity Test: White

F-statistic	1.122783	Prob. F(18,13)	0.4236
Obs*R-squared	19.47369	Prob. Chi-Square(18)	0.3632
Scaled explained SS	12.66960	Prob. Chi-Square(18)	0.8108

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 01/12/16 Time: 16:04
Sample: 1984 2015
Included observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.023225	0.015035	-1.544670	0.1464
LTRP(-1)^2	0.000863	0.002212	0.390030	0.7028
UNRD(-1)^2	1.74E-05	0.000109	0.160049	0.8753
URD(-1)^2	0.000154	0.000100	1.528039	0.1505
EXR(-1)^2	-7.91E-05	0.000114	-0.691540	0.5014
IRD(-1)^2	1.06E-05	4.24E-06	2.490793	0.0271
DLFDID(-1)^2	-0.000517	0.000484	-1.069291	0.3044
LTRPD(-2)^2	-0.002832	0.002720	-1.041007	0.3168
LTRPD(-3)^2	0.004534	0.002131	2.127952	0.0530
UNRD(-2)^2	0.000118	9.10E-05	1.298365	0.2167
UNRD(-3)^2	8.84E-05	7.68E-05	1.151079	0.2704
URD(-2)^2	-0.000297	0.000223	-1.333492	0.2053
URD(-3)^2	0.000126	0.000146	0.859734	0.4055
EXRD(-2)^2	-6.91E-06	0.000182	-0.037901	0.9703
EXRD(-3)^2	4.54E-05	0.000188	0.240676	0.8136
INRD(-2)^2	-6.72E-06	3.90E-06	-1.722913	0.1086
INRD(-3)^2	7.23E-06	3.24E-06	2.231663	0.0439
LFDI(-2)^2	-0.000899	0.000413	-2.174212	0.0487
LFDI(-3)^2	-0.000362	0.000452	-0.801249	0.4374

R-squared	0.608553	Mean dependent var	0.001305
Adjusted R-squared	0.066549	S.D. dependent var	0.002689
S.E. of regression	0.002598	Akaike info criterion	-8.781623
Sum squared resid	8.77E-05	Schwarz criterion	-7.911342
Log likelihood	159.5060	Hannan-Quinn criter.	-8.493150
F-statistic	1.122783	Durbin-Watson stat	2.897188
Prob(F-statistic)	0.423602		

2.2. Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

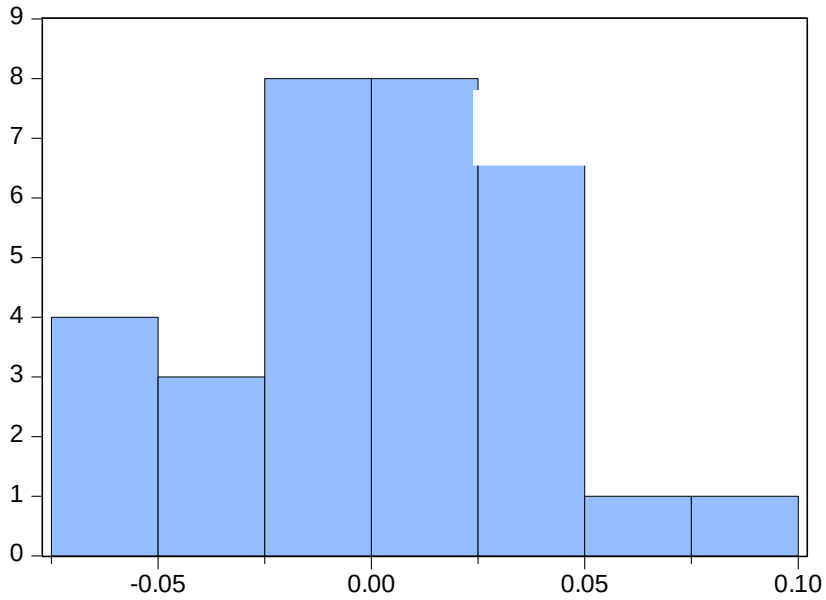
F-statistic	0.896789	Prob. F(2,16)	0.4274
Obs*R-squared	3.225574	Prob. Chi-Square(2)	0.1993

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 01/12/16 Time: 16:15
Sample: 1984 2015
Included observations: 32
Preamble missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.136712	0.180886	-0.755791	0.4608
C(2)	-0.867506	0.851651	-1.018617	0.3235
C(3)	0.790532	0.658729	1.200087	0.2476
C(4)	0.018432	0.020863	0.883486	0.3901
C(5)	-0.001298	0.014594	-0.088934	0.9302
C(6)	-0.029000	0.054146	-0.535578	0.5996
C(7)	-0.020941	0.031237	-0.670383	0.5122
C(8)	0.005069	0.023080	0.219618	0.8289
C(9)	0.014773	0.037110	0.398082	0.6958
C(10)	-0.002455	0.003223	-0.761794	0.4573
C(11)	-0.001425	0.002220	-0.641728	0.5301
C(12)	-0.042087	0.046640	-0.902375	0.3802
C(13)	0.004094	0.030997	0.132081	0.8966
C(14)	0.009791	0.024668	0.396916	0.6967
RESID(-1)	1.059250	1.042310	1.016252	0.3246
RESID(-2)	-0.810916	0.608154	-1.333405	0.2011

R-squared	0.100799	Mean dependent var	-7.59E-18
Adjusted R-squared	-0.742202	S.D. dependent var	0.036703
S.E. of regression	0.048445	Akaike info criterion	-2.909928
Sum squared resid	0.037550	Schwarz criterion	-2.177060
Log likelihood	62.55885	Hannan-Quinn criter.	-2.667003
F-statistic	0.119572	Durbin-Watson stat	1.924203
Prob(F-statistic)	0.999917		

2.3. Normality test result



Series: Residuals	
Sample 1984 2015	
Observations 32	
Mean	-1.43e-17
Median	0.002453
Maximum	0.080758
Minimum	-0.070510
Std. Dev.	0.036814
Skewness	-0.145165
Kurtosis	2.545523
Jarque-Bera	0.387787
Probability	0.823746

Appendix IV: The result of error correction method

Dependent Variable: D(LTRP)
Method: Least Squares
Date: 01/12/16 Time: 12:01
Sample (adjusted): 1984 2015
Included observations: 32 after adjustments

Short run Estimation Result

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.285863	0.098794	-2.893517	0.0097
C(2)	0.190562	0.236423	0.806021	0.4308
C(3)	0.098713	0.250349	0.394303	0.6980
C(4)	0.044472	0.020360	2.184233	0.0424
C(5)	0.021357	0.025238	0.846222	0.4085
C(6)	-0.011335	0.032407	-0.349752	0.7306
C(7)	-0.022274	0.030668	-0.726283	0.4770
C(8)	0.005155	0.014777	0.348884	0.7312
C(9)	0.011145	0.013722	0.812203	0.4273
C(10)	-0.003900	0.001834	-2.125985	0.0476
C(11)	-0.001447	0.001552	-0.932250	0.3635
C(12)	-0.054652	0.033909	-1.611721	0.1244
C(13)	0.019927	0.025222	0.790081	0.4398
C(14)	0.025541	0.017333	1.473540	0.1579

R-squared	0.631216	Mean dependent var	0.063304
Adjusted R-squared	0.364871	S.D. dependent var	0.060438
S.E. of regression	0.048166	Akaike info criterion	-2.928679
Sum squared resid	0.041760	Schwarz criterion	-2.287420
Log likelihood	60.85887	Hannan-Quinn criter.	-2.716120
F-statistic	2.369923	Durbin-Watson stat	1.961629
Prob(F-statistic)	0.043484		

Long rung Estimation result

CointegratingEq:	CointEq1
TRP(-1)	1.000000
EXR(-1)	0.022035 (0.01292) [1.70505]
LFDI(-1)	-0.215433 (0.04836) [-4.45492]
UNR(-1)	0.079493 (0.01677) [4.74158]
IR(-1)	-0.015867 (0.00269) [-5.88777]
UR(-1)	-0.243311 (0.03128) [-7.77805]
C	-0.157442

Error Correction:	D(LTRP)	D(EXR)	D(LFDI)	D(UNR)	D(INR)	D(UR)
CointEq1	-0.296958 (0.10222) [-2.90509]	-2.286439 (1.22288) [-1.86972]	-3.276794 (0.87009) [-3.76604]	-7.227896 (1.68613) [-4.28667]	2.795935 (17.0037) [0.16443]	1.368988 (0.70448) [1.94327]
D(TRP(-1))	0.185006 (0.24085) [0.76812]	2.953388 (2.88140) [1.02498]	-3.844200 (2.05015) [-1.87509]	-9.695268 (3.97294) [-2.44032]	21.27594 (40.0648) [0.53104]	0.655337 (1.65992) [0.39480]
D(TRP(-2))	0.019877 (0.28602)	0.730454 (3.42173)	-8.183250 (2.43460)	-17.49337 (4.71796)	-14.05625 (47.5779)	-1.304307 (1.97119)

	[0.06949]	[0.21347]	[-3.36124]	[-3.70782]	[-0.29544]	[-0.66168]
D(EXR(-1))	0.053240	0.652338	0.330164	0.963983	-4.196988	0.199726
	(0.02526)	(0.30220)	(0.21502)	(0.41669)	(4.20203)	(0.17409)
	[2.10760]	[2.15860]	[1.53550]	[2.31345]	[-0.99880]	[1.14723]
D(DEXR(-2))	0.021865	0.139394	0.834930	1.510692	-1.328803	0.027468
	(0.02571)	(0.30753)	(0.21881)	(0.42403)	(4.27607)	(0.17716)
	[0.85058]	[0.45327]	[3.81578]	[3.56272]	[-0.31075]	[0.15504]
D(LFDI(-1))	-0.008761	-0.137342	-0.839765	-1.311018	6.362022	0.150000
	(0.03326)	(0.39792)	(0.28313)	(0.54867)	(5.53298)	(0.22924)
	[-0.26338]	[-0.34515]	[-2.96604]	[-2.38946]	[1.14984]	[0.65435]
D(LFDI(-2))	-0.030173	-0.672644	-0.672821	-1.004979	5.445856	-0.044386
	(0.03382)	(0.40462)	(0.28789)	(0.55790)	(5.62613)	(0.23310)
	[-0.89210]	[-1.66240]	[-2.33705]	[-1.80135]	[0.96796]	[-0.19042]
D(UNR(-1))	0.002475	0.0[illegible]	030989	-0.042043	-3.104443	-0.025337
	(0.01568)	(0.1[illegible]	13344)	(0.25860)	(2.60779)	(0.10804)
	[0.15791]	[0.2[illegible]	.23223]	[-0.16258]	[-1.19045]	[-0.23451]
D(UNR(-2))	0.012129	0.218042	0.112761	0.061544	-3.587526	0.037862
	(0.01406)	(0.16824)	(0.11970)	(0.23197)	(2.33926)	(0.09692)
	[0.86248]	[1.29605]	[0.94202]	[0.26531]	[-1.53362]	[0.39066]
D(IR(-1))	-0.004464	-0.050284	-0.041322	-0.073055	-0.239247	0.029827
	(0.00209)	(0.02495)	(0.01775)	(0.03440)	(0.34694)	(0.01437)
	[-2.14031]	[-2.01524]	[-2.32757]	[-2.12346]	[-0.68958]	[2.07507]
D(IR(-2))	-0.001626	-0.055564	-0.043371	-0.094351	-0.704915	0.026121
	(0.00161)	(0.01923)	(0.01368)	(0.02651)	(0.26734)	(0.01108)
	[-1.01197]	[-2.88995]	[-3.17042]	[-3.55905]	[-2.63679]	[2.35836]
D(UR(-1))	-0.058422	-0.525007	-0.939602	-0.922991	7.818887	0.017967
	(0.03507)	(0.41959)	(0.29854)	(0.57854)	(5.83426)	(0.24172)
	[-1.66569]	[-1.25123]	[-3.14729]	[-1.59537]	[1.34017]	[0.07433]
D(UR(-2))	0.054863	-0.107465	-0.036290	-1.148719	-14.26197	0.237455
	(0.06300)	(0.75371)	(0.53627)	(1.03923)	(10.4800)	(0.43420)
	[0.87082]	[-0.14258]	[-0.06767]	[-1.10536]	[-1.36087]	[0.54688]
C	0.023539	0.161152	0.689618	1.349328	3.158955	0.063592
	(0.01795)	(0.21475)	(0.15280)	(0.29610)	(2.98604)	(0.12371)
	[1.31130]	[0.75041]	[4.51328]	[4.55694]	[1.05791]	[0.51402]
R-squared	0.635904	0.740608	0.676068	0.721749	0.685742	0.688081

Adj. R-squared	0.357477	0.542249	0.428355	0.508968	0.445427	0.449556
Sum sq. resids	0.040873	5.849747	2.961412	11.12125	1130.980	1.941349
S.E. equation	0.049034	0.586603	0.417374	0.808821	8.156486	0.337930
F-statistic	2.283918	3.733673	2.729243	3.391989	2.853513	2.884724
Log likelihood	58.79753	-18.13947	-7.588118	-28.09759	-99.73831	-1.042729
Akaike AIC	-2.890164	2.073514	1.392782	2.715974	7.337956	0.970499
Schwarz SC	-2.242556	2.721121	2.040389	3.363581	7.985563	1.618106
Mean dependent	0.062311	0.520152	0.107011	0.180645	0.135484	0.220323
S.D. dependent	0.061172	0.867020	0.552029	1.154244	10.95276	0.455481

Determinant resid covariance (dof adj.)	0.000109
Determinant resid covariance	2.95E-06
Log likelihood	-66.57161
Akaike information criterion	10.10139
Schwarz criterion	14.26458