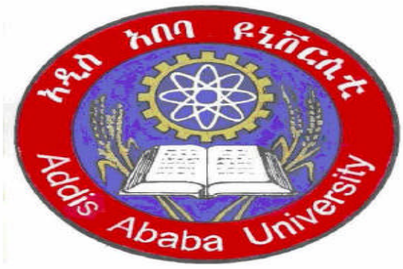

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSISNESS AND ECONOMICS

DEPARTMENT OF ACCOUNTING AND FINANCE

Determinants of Tax Revenue Performance: Ethiopian Federal Government

By

Belay Zewude Ayyele

A Thesis is Submitted to the department of Accounting and Finance of Addis Ababa University in Partial Fulfillments of the Requirements for the Degree of Master of Science in Accounting and Finance

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Declaration

I, theundersigned, hereby declare that this thesis work entitled, Determinants oftax revenue performance: Ethiopian Federal Government, submitted by me for the award of the degree of Master of Accounting and Finance of Addis Ababa University At Addis Ababa Ethiopia, is original work and it hasn't been presented for the award of any other Degree, Diploma and other titles of any other University or institution and that all source of material used for the thesis have been duly acknowledged**.**

Declared by;

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Statement of Certification

This is to certify that the thesis prepared by Belay Zewude Ayyele, entitled Determinants of Tax Revenue Performance: Ethiopia Federal Government and submitted in partial fulfillment of the requirements for the degree of Master of science in Accounting and Finance complies with the regulations of University meets the accepted standard with respect to originality and quality.

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Abstract

Most developing countries have been faced problem of increasing tax revenue as they need to cover expenditure. Since Ethiopian is one part of developing country, pattern of tax revenues and economic growth across countries has become a significant concern to it. This study so investigated the determinants of tax revenue performance in Ethiopian federal government by using time series data from 1992-2013.The variable used were Foreign direct investment, public debt, openness ,foreign aid ,inflation and gross domestic product. The study has employed both descriptive and time series regression method as well as Eviews software for analysis purpose. Also post positivism research approach has been used. The trend of tax collection in Ethiopia is inconsistent, changing upward and downward depending upon economic conditions. However, in recent years it shows an incremental in total tax collection but performance of tax collection is decreasing from year to year. As an example, tax revenue was increased staring from 2003, because tax base was added as the form of VAT and also GDP was the main contributor since it has been rapidly increased. The study made diagnostic tests to assess the fitness of the model. The study reveals that growth domestic product, public debt foreign direct investment, and openness, have significant positive relationship with tax revenue performance. But, foreign aid is negatively related to tax revenue performance. The study also provides recommendations that will be solve this problem and added tax revenue performance. Policy implication has been stated in this study for example government should adjust its fiscal policy and investment area should be selected based on their benefit for country.

Key words:*Tax revenue: Determinants of tax: Time Series analysis: Ethiopia Federal Government*

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List of Acronyms and Abbreviations

CLRM=Classical Linear Regression Model

ERCA =Ethiopian Revenue and Custom Authority

GDP=Growth Domestic Product

MOFED=Ministry of Finance and Economic Development

MDGs= Millennium Development Goals

NBE=National Bank of Ethiopia

OECD=Organization for Economic Cooperation andDevelopment

WB=World Bank

UNCTD=United Nations Conference on Trade and Development

SAP=Structural adjustment plan

CHAPER ONE: INTRODUCTION

1.1 Background of the study

Government as any organization needs revenues in order to run both public and administrative activities. For this accomplishment, different sources of finances are used under different circumstances. Tax is one among them and it is a contribution demanded by the state. It is not punitive but compulsory and unreturned transfer of resources from the private to the public sector, levied on the basis of prearranged criteria. 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. Mohani, A. (2001), explained that, these days apart from the object of raising the public revenue, taxes are levied to affect consumption, production and distribution with a view to ensuring the social welfare through the economic development of a country.

Organization for Economic Cooperation and Development study (2009) explained as taxation is central to the contemporary economic development program. It provides a stable flow of revenue to finance development priorities, such as strengthening physical infrastructure, and is interlink with many other policy areas, from good governance and formalizing the economy, to stimulate growth. Also tax policy shapes the environment in which international trade and investment take place. Thus, a core challenge for African countries is finding the optimal balance between a tax regime that is business and investment friendly, and one which can leverage enough revenue for public service delivery to enhance the attractiveness of the economy. Pius V.C.Okoye and Raymond Ezejiofor (2014) explained the main function of a tax system is to raise enough revenue to finance essential expenditures on the goods and services provided by government.

According to Kaldore (1963) if a country wants to develop, it requires to collect tax revenue more than other means of financing in developing countries. This is because of taxation is one of the best instruments to boost the potential for public sector performance, to finance the social insurance program and for the repayment of public debt. A country's revenue generation primarily depends upon its sufficient capacity to tax more in both economic and administrative term. 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.

Ethiopian Chamber of Commerce and Ethiopian Business Development Services Network (2005) indicated as tax is important sources of public revenue. As a result, the existence of collective of goods and services necessitates putting some of our income into government hands. Because, public goods like roads, power, municipal services, and other public infrastructures have favorable results on many families, business enterprises, industries and the general public. Those Public goods are normally supplied by public agencies due to their natures of non-rivalry and non-excludability.

Ethiopian Chamber of Commerce and Ethiopian Business Development Services Network (2005) stated in their tax assessment in Ethiopia as nature of consumption 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 the commodities. Government intervention in the supply of public goods is therefore inevitable and can only be done if the public pays taxes for the production and supply of such goods.

In addition, taxes play an essential role in economic planning and development since it is the main source of revenue for government. Asa result, domestic revenue mobilization is important to sustainable development. Economic policies are based on expected tax revenue and the tax policy is a fundamental component of economic policies for every country. Aggry (2011) indicated as many sub-Saharan African countries face difficulty in raising domestic revenue in the form of taxes to finance public projects. This occurred as a result of low per capita income, reliance on subsistence agriculture, poorly structured tax systems, and weak tax and customs administrations.

Toye(1978) indicated that the link between taxation and economic development is a tie between a universal desire and a form of government action that is believed to be the means to an end. When actual tax revenue collected falls short of the projected revenue, it affects developmental plans of that nation. Currently; there is socio-economic pressure on most developing countries

government to provide energy, water, waste management and other social services. However, governments find it difficult to raise taxes to carry out these activities. Considerable effort and attention in most developing countries have been committed to policies best suited to the promotion of economic developments, where the major focus of these efforts is the search for desirable fiscal policies with considerable stress being placed on the role of taxation as an instrument of economic development. Tax policy has always been an important instrument for increase revenue. This is as true in developing countries as in developed countries, where tax revenue is the major source of domestic revenue. By understanding this tax revenue advantages for nations, various studiesattempted to investigate the determinants of tax revenue performances Teera (2003); Weiss (1969); Tanzi and Zee (2000) and Imam and Jacobs (2007).

Imam and Jacobs (2007) explained that real per capita income, share of agriculture in GDP, trade openness, inflation and corruption are the most important determinants of a tax collection. Gupta (2007) finds that several structural factors like per capita GDP, share of agriculture in GDP, trade openness foreign aid, foreign debt and some new institutional variables like corruption and political stability are statistically significant and strong determinants of revenue performance. From this view point, in the last decades nations have been seriously looking at ways to get better on their internally generated funds to carry out public sector expenditure of which Ethiopia is no exception.

Thus, the most important motivation for fiscal policy in the worldis the need to raise revenue. However, generation of tax revenue requires strong economic decisions and good administration with taxation. According to World Bank report (2013), Ethiopian tax revenue to GDP ratio was only around 9.5% out of expected 13%, while sub-Saharan country has 16% of tax revenue to GDP ratio. As a result, it contributes for deficit problem in Ethiopia every year. Therefore, the present study focuses to identify which variables can determine Ethiopian tax revenue performance and solving literature conflict.

1.2 Problem statement

Reaching the Millennium Development Goals willrequire a combined effort from both developed and developing countries. Aid from developed countries will have to rise significantly to achieve the Millennium Development Goals (MDGs). Although the donors have pledged to

increase development aid by US$18.5 billion (from a 2002 level of US$58 billion), the World Bank (2004) estimates that developing countries could effectively use at least US$30 billion initially. World Bank also added that, developed countries need to aim for improved market access for developing countries' exports by eliminating tariffs and domestic subsidies.

However, because excessive reliance on foreign financing may in the long run leads to problems of debt sustainability. As a result, developing countries will need to rely substantially on domestic revenue mobilization. The experience with domestic resource mobilization of developing countries over the last 25 years has been mixed. In countries such as Botswana, Israel, Kuwait and Seychelles, the central government revenue's share in GDP has been more than 40 percent on average. Gupta (2007) revealed that, countries such as Argentina, Niger, Guatemala and Burkina Faso have struggled to raise their revenue above 11 percent.

Tax revenue (% of GDP) in Ethiopia was last measured as less than 10% according to the World Bank report of 2013 which is even less than the average value of sub Saharan country that has 16% of GDP.As a result, Ethiopia hasfaced budget deficit every year since government expenditure exceed government revenue. From 1998/99-2008/9, on average, Ethiopia faced budget deficit of (17.121) as % of GDP) yearly, (NBE, 2009).

If the government's budget is not sufficient; it is difficult to giveexpected amount of social service for society. So, to provide enough social services for society, revenue should be above expenditure. Because of this, the most important motivation for fiscal policy on the world is the need to raise revenue. However, generation of tax revenue requires strong economic decisions and good tax administration. To make decision, policy makers should know factors affect tax revenue performance. But, there was disagreement between many researchers on determinants of tax revenue performance whether it could be affected positively or negatively. Example, the study of Darrat (1998) found that, there is a negative causal relationship between tax and expenditure while Buchanan and Wagner (1978) contrary to thisfound as government expenditure actually leads revenue which means they have positive relationship.

Hoover and Sheffrin (1991) did a study for the USA and conclude that expenditure and revenue are determined independently from each other. So, on tax revenue and expenditure; there is

unclear effect on each other. Stotsky and Wolde Mariam (1997) measured the determinants of the tax and constructed a measure of tax effort. The analysis suggested that, the shares of agriculture in GDP and mining in GDP are both negative and significantly related to the tax share, and that the export and import (openness) shares in GDP are both positive and significantly related to the tax share whereas per capita income is not significant.

Agbeyegbe et al. (2004) investigated the relationship between the tax revenue, trade liberalization and changes in the exchange rate. 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 ,on this tax revenue ,expenditure as well as agricultures are the variable that researchers were disagree on.

Eltony (2002) find foreign aid and foreign debt positively influence on tax revenue, but Gupta (2007) suggested as both are negatively influence over tax revenue which reveals contrary to the Eltony. When we see the tax revenue and inflation rate, Tanzi (1992), indicated that tax revenue is negatively affected by inflation, the called Olivera-Tanzieffect contrary to this, Mahdvi (2008) explained on as positive relationship between tax revenue and inflation rate. There are conflicting results which needs further investigation to identify determinants of tax revenue performance. The main focus of this study is toidentify the variables which affect tax revenue performance in Ethiopian and speak out policy implication.

1.3.1 General Objective

The general objective of this study is to investing atthedeterminants of tax revenue performance in Ethiopian Federal Government.

1.3.2 Specific objective.

Meanwhile the specific objectives of this study are,

1. To investigate the effect of gross domestic product on tax revenue
2. To investigate the effect of inflation on tax revenue
3. To investigate the effect of foreign direct investment on tax revenue

4. To investigate the effect of public debt on tax revenue
5. To examine the effect of trade openness on tax revenue
6. To investigate the effect of foreign aid on tax revenue

1.3 Significance of the study

This study is expected to determine the most significant independent variables to the dependent variable. In addition, it is expected to help policymakers whose concern is tax policy enactment to provide solution for variable identified and Ethiopian revenue and custom authority for their future career. That means it can give an insight about effect of the study variables on tax performance and enables them to give high attention. The output of this study will also serve as an input for the upcoming researchers to further investigate the points under considerations.

1.4 Scope and limitation of the study

The Study focuses on determinants of tax revenue performance in Ethiopia and all needed time series data have been collected based on the registry of 1992-2013 which is 22 in years. The reason of using an indicated years is unavailability of data before that which was also the limitation for this paper.GDP, inflation rate, foreign aid, public debt, foreign direct investment, and openness, were selected as independent variables and tax revenue as dependent variable in this study.The variables are selected owing to their ability to influence the level of tax revenue performance.

1.5 Organization of the research

The paper has been organized into five chapters. The first chapter has presented the introductory part of paper followed by second chapter in which the most relevant literatures have been indicated. Methodology is the third chapter of this paper. Data were analyzed and in fourth chapter. Conclusion and recommendations were presented in the fifth chapter of the paper.

CHAPTER TWO: LITERATURE REVIEW

2.1 Theoretical review

Introduction

This part reviews interrelated literature on different issues that assist as root for this work. The review basically designed into theoretical and empirical literature review which explained about theory regarding to tax and work done by other over this area.

Some Confusion on Taxation and its actuality

Tax may be defined as financial burden set upon individuals or property owners to support the government. It is a payment exerted by governmental authority. A tax is not a voluntary payment or donation, but a compulsory, exacted pursuant to legislative authority and is any contribution imposed by government whether under the name of direct tax or indirect tax. A traditional function of the tax system is to bring in sufficient revenue to meet the growing public sector requirements. State or the functional equivalent of a state such that failure to pay is punishable, because Tax incomes are used to run government planned expenditure. Taxes are also imposed by many sub-national entities as well it consists of direct tax or indirect tax.

The meaning of direct tax and indirect tax can vary in different contexts, which can sometimes lead to confusion. J. Econ. (1977). mentioned as direct taxes refer to those taxes that are collected from the people or organizations on which they are apparently imposed. Direct taxes are simple collecting from person directly (income tax) and indirect taxes are collecting tax in direct ways example VAT. The legal definition and the economic definition of taxes differ in that economists do not consider many transfers to governments to be taxes. For example, some transfers to the public sector are comparable to prices. Examples include tuition at public universities and fees for utilities provided by local governments. Governments also obtain resources by creating money, through voluntary gifts, by imposing penalties, by borrowing, and by confiscating wealth. From the view of economists, a tax is a non-penal, yet compulsory transfer of resources from the private to the public sector levied on a basis of predetermined criteria and without reference to specific benefit received. In contemporary taxation systems, taxes are levied in money, but in-kind and corvée taxation is characteristic of traditional or pre-capitalist states and their functional equivalents. The method of taxation and the government expenditure of taxes raised are often highly debated.

Tax collection is performed by a government revenue agency such as Canada Revenue Agency, the Internal Revenue Service in the United States, Ethiopian revenue and custom authority (ERCA), Kenya Revenue Authority, and Ghana Revenue Authority. When taxes are not fully paid, assessee is penalized for that reason.

Types of Taxes

As it was cited in Aggrey.(2011), types of taxes are ,Personal Income Tax, Profit Tax, Capital Gains Tax, Tax on Interest Income on Deposits, Dividend Income Tax, Tax on Income from Royalties, Tax on Income from Games of Chance, Tax on Gain of Transfer of certain Investment Property, Tax on Income from Rental of Property, Tax on Income from Rendering of Technical Services, Agricultural Income Tax , Land Use Tax, Turnover Tax, Excise Tax Stamp Duty, Customs Duty, Value Added Tax, and like. Governments use different kinds of taxes and vary the tax rates so as to carry out developmental goals. This is done to distribute the tax burden among individuals or classes of the population involved in taxable activities, such as business, or to redistribute resources between individuals or classes in the population. Historically, the nobility were supported by taxes on the poor; modern social security systems are intended to support the poor, the disabled, and pensioners by taxes of those who are still working. In addition, taxes are applied to fund foreign aid and military ventures, to influence the macroeconomic performance of the economy or to modify patterns of consumption or employment within an economy, by making some classes of transaction more or less attractive.

A nation's tax system is often a reflection of its communal values or/and the values of those in power. According to Omoruyi (2003) explanation, to create a system of taxation, a nation must make choices regarding the distribution of the tax burden that will pay taxes and how much they will pay and how the taxes collected will be spent. In democratic nations where the public elects those in charge of establishing the tax system, these choices reflect the type of community that the public and/or government wish to create. In countries where the public does not have a significant amount of influence over the system of taxation, that system may be more of a reflection on the values of those in power. The resource collected from the public through taxation is always greater than the amount which can be used by the government. The difference is called compliance cost, which includes salary of staff who hired for undertaking tax collection in order to spend it on a specified purpose. This practice is often disliked by finance

ministers,since it reduces their freedom of action. Some economic theorists consider the concept to be intellectually dishonest since money is fungible. Furthermore, it often happens that taxes or excises initially levied to fund some specific government programs are then later diverted to the government general fund.

Some economists, especially neo-classical economists, argue that all taxation creates market distortion and results in economic inefficiency. They have therefore required identifying the kind of tax system that would minimize this distortion. Also, one of every government's most fundamental duties is to administer possession and use of land in the geographic area over which it is sovereign, and it is considered economically efficient for government to recover for public purposes the additional value it creates by providing this unique service in the form of taxes.

When we see from the National Income Accounting framework, taxes are considered as leakage or flows. An increase in tax revenue is seen as a decrease in output or national income since, increasing taxes reduces consumption and investment which are components of the national income accounting model. The first person who examined how taxation affects growth was Solow (1956).The neoclassical growth model of Solow implies that steady state growth is not affected by tax policy. In other words, tax policy, however distortionary, has no impact on long-term economic growth rates, even if it does reduce the level of economic output in the long-term. This is true when looking at taxation in relation to national income accounting. Unlike, the 'new' endogenous growth theory pioneered by Romer (1986), produced growth models in which government spending and tax policies can have long-term or permanent growth effects. Countries have very different philosophy about taxation and very different methods of collecting their revenue.

Castles and Dowrick (1990), Agell, Lindh and Ohlsson (1997) all argue that the different uses of total government expenditure affect growth differently and a similar argument applies to the way tax revenue is raised. During the past decades, some countries have increased taxation quite dramatically, while in other countries tax rates have remained roughly the same. In theory there are three main hypotheses on the causal relationship between government expenditure and government revenues. The first of these is the fiscal synchronization hypothesis where government expenditure and government revenues are said to be determined simultaneously.

According to Vamvoukas (1997) this suggests that there is a feedback causal relationship between expenditure and revenue. In this hypothesis the public is said to determine the levels of government spending and taxation by weighing the benefits of government services to their costs. Meltzer and Richard (1991) have advanced arguments in favor of this theory for the United States of America. The second hypothesis is mainly known as the tax-and-spend hypothesis. This approach stresses that any expenditure budget must be expanded in line with taxation and therefore that expenditure must follow revenue. Thus the amount of tax revenues available will determine the level of government spending. The view here is that if taxes are raised they will propel (push or force) a growth in government spending. Friedman (1982) suggests cutting taxes as a remedy to budget deficits, since taxes have a positive causal impact on government expenditure.

According to Friedman, a cut in tax leads to higher deficits, which should influence government to reduce its level of spending. Buchanan and Wagner (1978) share the same view that taxes lead government expenditure but that the causal relationship is negative. Their point of view is that with a cut in taxes the public will perceive that the cost of government programs has fallen. As a result they will demand more programs from the government which if undertaken will result in an increase in government spending. Higher budget deficits will then be realized since tax revenue will decline and government spending will increase. Their remedy for budget deficits is therefore an increase in taxes. There are two opposing ideas about tax revenue and expenditure. The study of Darrat (1998) finds that, the tax-and-spend hypothesis exists in the case of Turkey. The study shows that there is a negative causal relationship running from taxes to spending as hypothesized by Buchanan and Wagner (1978).

The third hypothesis is that government spending actually leads revenue. Advanced by Peacock and Wiseman (1961) and others like Barro (1979), this view is based on their observation that any large-scale exogenous disturbances like wars and other unstable political conditions or natural disasters, will induce an increase in government spending and therefore an increase in tax revenues. The solution suggested here to problems of budget deficits is that government spending should be reduced. Empirical work to support this hypothesis has been done in the case of United States of America (USA) by Jones and Joulfani (1991). They examine this relationship for the period 1792 to 1860. Their data support the spend-and-tax hypothesis in the short run and

that in the long run there exists a bi-directional causality between taxes and expenditure.Vamvoukas (1997) also finds that the spend-and-tax hypothesis exists in the case of Greece in the short run while in the long run his study seems to support the fiscal synchronization hypothesis.

The other researchers have developed the hypothesis that there is no causal relationship between government expenditure and revenue. Hoover and Sheffrin (1991) did a study for the USA and conclude that expenditure and revenue are determined independently from each other. Musgrave (1969) highlights main approaches used to assess the tax performance of a country. The most commonly used approach to measuring tax effort is by regressing tax ratio on a set of variables that serve as proxies for a country's 'tax handles'. The set of variables include the major determinants of output of the country Bahl and Chelliah (1971).

Taxation and Economic Growth

According to Solow (1956) these relationship are often addressed in an accounting framework. In his approach, the output, of an economy, typically measured by GDP, is determined by its economic resources such as the size and skill of its workforce, and the size and technological productivity of its capital stock, for instance, a country like the United Kingdom might be expected to have a greater per capita output than Tanzania because its (per capita) capital stock is so much larger and more technologically advanced and its workers have more skills, or human capital. However, the growth rate of economic output will therefore depend on the growth rate of resources such as physical capital and human capital as well as changes in the underlying productivity of these general inputs in the economy. More formally, we can decompose the growth rate of the economy's output into its different components as imbkayμ μ……eq*(Aggrey, 2011).

Where the real GDP growth rate in country I is denoted yiand the net investment rate (expressed as a fraction of GDP), equivalently the change over time in the capital stock, is given by ki. However, the percentage growth rate in the effective labor force over time is written mi, while the variable iμ measures the economy's overall productivity growth. There are two other relevant variables in equation *, which are the coefficients measuring the marginal productivity of capital, ai and the output elasticity of labor, bi. (Aggrey, 2011)

The above theoretical framework was used to list the five ways that taxes might affect output growth, corresponding to each of the variables on the right-hand side of equation *. To begin with, higher taxes can discourage the investment rate, or the net growth in the capital stock (ki in equation *), through high statutory tax rates on corporate and individual income, high effective capital gains tax rates, and low depreciation allowances. Secondly, taxes may ease labor supply growth mi by discouraging labor force participation or hours of work, or by distorting occupational choice or the acquisition of education, skills, and training. Thirdly, tax policy has the potential to discourage productivity growth by attuning research and development and the development of venture capital for "high-tech" industries, activities whose spillover effects can potentially enhance the productivity of existing labor and capital.

Fourthly, tax policy can also influence the marginal productivity of capital by distorting investment from heavily taxed sectors into more lightly taxed sectors with lower overall productivity Harberger, (1962, and 1966). Lastly, heavy taxation on labor supply can distort the efficient use of human capital by discouraging workers from employment in sectors with high social productivity but a heavy tax burden. In other words, highly taxed countries may experience lower values of values of 'a' and 'b', which will tend to retard economic growth, holding constant investment rates in both human and physical capital Engen and Skinner, (1996). However, a number of recent theoretical studies have used endogenous growth models to simulate the effects of a fundamental tax reform on economic growth. All of these studies conclude that decreasing the distorting effects of the high tax structure would permanently increase economic growth. Unfortunately, the magnitude of this increase in economic growth is highly sensitive to certain assumptions embodied in the economic models, with little empirical guidance or consensus about key parameter values. Consequently, these studies reached substantially different conclusions concerning the magnitude of the boost in growth rates.

Lucas (1990) calculated that a revenue-neutral change that eliminated all capital income taxes while raising labor income taxes would increase growth rates negligibly. Jones, Manuelli and Rossi (1993) calculated that eliminating all distorting taxes would raise average annual growth rates by a whopping four to eight percentage points. Thus an "across-the-board" reduction in distortionary tax rates in these models, rather than complete elimination of distortionary taxes, would be expected to have a smaller positive effect on economic growth. Also most recently,

Mendoza, Razin, and Tesar (1994) came up with a simulation model which suggests thatrelatively modest differences in economic growth of roughly 0.25 percentage points annually as the consequence of a 10 percentage point change in tax rates. These simulation models of endogenous growth fail to provide a comfortable range of believable effects of taxes on growth and thus tend to raise more questions than they answer. Habitually, simulation analysis is performed in terms of a single flat-rate tax in the context of a (single) representative agent model. Ultimately, one needs to consider the empirical record to make informed judgments about whether tax policy exerts a strong influence on economic growth.

Supply-side Economics and Economic Growth

The supply-side economics also have argued that economic growth can be most effectively created by lowering barriers for people to produce (supply) goods and services, such as adjusting income tax and capital gains tax rates and this will have effect on tax revenue. In addition, in response to inflation, supply-siders called for indexed marginal income tax rates, as monetary inflation push wage earners into higher marginal income tax brackets that remained static. Thus, as wages increase to maintain purchasing power with prices, income tax brackets if not adjusted accordingly will thus push wage earners into higher income tax brackets than tax policy intend to do. Supply-side economics holds that increased taxation steadily reduces economic trade between economic participants within a nation and that it discourages investment.

Case & Fair (1999) stated that taxes act as a type of trade barrier or tariff that causes economic participants to revert to less efficient means of satisfying their needs. As such, higher taxation leads to lower levels of specialization, lower economic efficiency and output which can affect tax revenue. This idea is said to be illustrated by the Laffer curve. Crucial to the operation of supply-side theory is the expansion of free trade and free movement of capital. It is argued that free capital movement, in addition to the classical reasoning of comparative advantage, frequently allows an economic expansion. Lowering tax barriers to trade provides to the domestic economy all the advantages that the international economy gets from lower tariff barriers.

Taxation and Government Expenditure

Fiscal policy is the use of government expenditure and revenue collection to influence the economy. Turnovsky,(1996)explained fiscal policy can be contrasted with the other main type of macroeconomic policy, monetary policy, which attempts to stabilize the economy by controlling interest rates and the money supply. The two main instruments of fiscal policy are government expenditure and taxation. However, changes in the level and composition of taxation and government spending can impact on the following variables in the economy.

Aggregate demand and the level of economic activity: - Fiscal policy refers to the use of the government budget to influence these three: Economic activity, Economic effects of fiscal policy and fiscal straitjacket. These three possible stances of fiscal policy are neutral, expansionary and contractionary. In most countries where government spending is fully funded by tax revenue and hence the overall has budget outcome has a neutral effect on the level of economic activity. An expansionary stance of fiscal policy involves government spending exceeding tax revenue. Acontractionary fiscal policy occurs when government spending is lower than tax revenue. However, these definitions can be misleading because, even with no changes in spending or tax laws at all, cyclical fluctuations of the economy can result in cyclical fluctuations of tax revenues and of some types of government spending, altering the deficit situation; but these are not considered to be policy changes. Therefore, for purposes of the above definitions, "government's spending" and "tax revenue" are normally replaced by "cyclically adjusted government spending" and "cyclically adjusted tax revenue". Thus, for instance, a government budget that is balanced over the course of the business cycle is considered to represent a neutral fiscal policy stance.

As Ariyo, A. (1997); Governments do spend money on a wide variety of things, from the military and police to services like education and healthcare, as well as transfer payments such as welfare benefits. This expenditure can be funded in a number of different ways, such as borrowing money from the population or from abroad, consumption of fiscal reserves and sale of fixed assets benefit from printing money, etc. All of these except taxation are forms of deficit financing. Borrowing or fiscal deficit is often funded by issuing bonds, like treasury bills or consuls and gilt-edged securities. These pay interest, either for a fixed period or indefinitely. If the interest and capital repayments are too large, a nation may default on its debts, usually to

foreign creditors. Consuming prior surpluses; a fiscal surplus is often saved for future use, and may be invested in local (same currency) financial instruments, until needed. When income from taxation or other sources falls during an economic slump, reserves allow spending to continue at the same rate without incurring additional debt. Thus, economic effects of fiscal policy can be seen when governments use fiscal policy to influence the level of aggregate demand in the economy, in an effort to achieve economic objectives of price stability, full employment, and economic growth. However, Keynesian, (1980s) economics suggests that increasing government spending and decreasing tax rates are the best ways to stimulate aggregate demand. It's normally used in times of recession or low economic activity as an essential tool for building the framework for strong economic growth and working towards full employment. Governments can use a budget surplus to do two things: to slow the pace of strong economic growth and to stabilize prices when inflation is too high. The Keynesian theorist posits that removing spending from the economy will reduce levels of aggregate demand and contract the economy, thus stabilizing prices. Economists debate the effectiveness of fiscal stimulus. The argument mostly center on crowding out, phenomena where government borrowing leads to higher interest rates that offset the simulative impact of spending. When the government runs a budget deficit, funds will need to come from public borrowing (the issue of government bonds), overseas borrowing, or monetizing the debt. However, when governments fund a deficit with the issuing of government bonds, interest rates can increase across the market, because government borrowing creates higher demand for credit in the financial markets. This results in lower aggregate demand for goods and services, contrary to the objective of a fiscal stimulus.

However, while the Neoclassical economists generally emphasize crowding out, the Keynesians argue that fiscal policy can still be effective especially in a liquidity trap where, they argue, crowding out is minimal. Most classical and neoclassical economists have argued that crowding out completely negates any fiscal stimulus "Treasury View" and this has been rejected by the Keynesian economics. This Treasury View refers to the theoretical positions of classical economists in the British Treasury, who opposed Keynes's call in the 1930s fiscal stimulus. In view of the classicalist, expansionary fiscal policy also decreases net exports, which has a mitigating effect on national output and income. Foreign capital from foreign investors is attracted, when interest rates is increased through increase government borrowing. This is made

possible because, all other things being equal, the bonds issued from a country executing expansionary fiscal policy now offer a higher rate of return. Thus, companies wanting to finance projects must compete with their government for capital so they offer higher rates of return. To purchase bonds originating from a certain country, foreign investors must obtain that country's currency. Hence, when foreign capital flows into the country undergoes fiscal expansion, demand for that country's currency increases. The increased demand results in the appreciation of that country's currency. Once the currency appreciates, goods originating from that country now cost more to foreigners than they did before and foreign goods now cost less than they did before. Accordingly, exports decrease and imports increase. Other possible problems with fiscal stimulus include the time lag between the implementation of the policy and detectable effects in the economy, and inflationary effects driven by increased demand (Teera.J.M, 2002).

Fiscal stimulus, in theory does not cause inflation when it uses resources that would have otherwise been idle. For example, if a fiscal stimulus employs a worker who otherwise would have been unemployed, there is no inflationary effect; however, if the stimulus employs a worker who otherwise would have had a job, the stimulus is increasing labor demand while labor supply remains fixed, leading to wage inflation and therefore price inflation.

Fiscal Straitjacket concept:-Fiscal straitjacket is a general economic principle that suggests strict constraints on government spending and public sector borrowing, to limit or regulate the budget deficit over a time period. "Fiscal discipline is a learned behavior." To put it another way, eventually the unfavorable effects of running persistent budget deficits will force governments to reduce spending in line with their levels of revenue. This view is also promoted by Victor Canto. Thus, government need tax revenue to run its planned projects hence, tax revenue stimulate economic growth and development (Prest, 1962)

Estimating Technique of Tax Revenue

Most of the studies on the determinants of tax revenue used Gross Domestic Product as the barometer in estimating tax revenue for this, When we see the work of Ole (1975), Asher (1989), Wawire (2000), Ariyo (1997), Murithi and Moyi (2003), Omoruyi (1983), and Wilford and Wilfrord (1978a and 1978b).Sahota (1961) and Prest (1962) used the Proportional Adjustment Method to estimate tax revenue. This method was later used by Mansfield (1972) and Omoruyi

(1983). The method involves isolating the data on discretionary revenue changes based on data provided by the government. The resulting data reflect only what the collections would have been if the base year structure had been in force throughout the sample period Osorio (1993). Ariyo (1997) cited several shortcomings of the proportional adjustment method. To start with, data on revenue receipts directly and strictly attributable to discretionary changes in tax policy are not available. It relies on budget estimates for discretionary effects of tax revenue, which tends to differ substantially from the actual tax revenue collected. The approach assumes that the discretionary changes are as progressive as the underlying tax structure, hence it is contingent on the assumption that discretionary changes are more or less progressive than the tax structure they modify Leuthold and N' Guessan (198 and Chipeta, 1998). Not all, the approach is highly aggregative. This shows how different researcher used different method to conduct their research.

2.2 History and Overview of Taxation in Ethiopia

The history of taxes reveals that their coercive nature is of comparatively recent development. 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, as appears from the Medieval Latin term donum, and the English "benevolence." This conception of the relation between the subject and government was gradually transformed; payment becoming more and more obligatory, until finally coercive taxation resulted. At the present time payment of taxes is 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, Ethiopian Chamber of Commerce and Ethiopian Business Development Services Network (ECC, EBDSN, 2005).

Resources were allocated among the various sectors of the economy differently in the imperial and revolutionary periods. Under the emperor, the government dedicated about 36 percent of the annual budget to national defense and maintenance of internal order. Toward the end of the imperial period, the budgets of the various ministries increased steadily while tax yields stagnated. With a majority of the population living at a subsistence level, there was limited opportunity to increase taxes on personal or agricultural income. Consequently, the imperial government relied on indirect taxes (customs, excise, and sales) to generate revenues. For instance, in the early l970s taxes on foreign trade accounted for close to two fifths of the tax

revenues and about one-third of all government revenues, excluding foreign grants. At the same time, direct taxes accounted for less than one-third of tax revenues.

The revolutionary government changed the tax structure in 1976, replacing taxes on agricultural income and rural land with a rural land-use fee and a new tax on income from agricultural activities. The government partially alleviated the tax collection problem that existed during the imperial period by delegating the responsibility for collecting the fee and tax on agriculture to peasant associations, which received a small percentage of revenues as payment. Whereas total revenue increased significantly, to about 24 percent of GDP in l988/89, tax revenues remained stagnant at around l5 percent of GDP. In l974/75, total revenue and tax revenue had been l3 and 11 percent of GDP, respectively. Despite the 1976 changes in the tax structure, the government believed that the agricultural income tax was being underpaid, largely because of under assessments by peasant associations Ethiopian Chamber of Commerce and Ethiopian Business Development Services Network (ECC, EBDSN.2005),

The government levied taxes on exports and imports. In 1987 Addis Ababa taxed all exports at 2 % and levied an additional export duty and a sur-tax on coffee. Import taxes included customs duties and a 19 % general import transaction tax. Because of a policy of encouraging new capital investment, the government exempted capital goods from all import taxes. Among imports, intermediate goods were taxed on a scale ranging from 0 to 35 percent, consumer goods on a scale of 0 to l00 percent, and luxuries at a flat rate of 200 percent. High taxes on certain consumer goods and luxury items contributed to a flourishing underground economy in which the smuggling of some imports, particularly liquor and electronic goods, played an important part. Although tax collection procedures proved somewhat ineffective, the government maintained close control of current and capital expenditures. The Ministry of Finance oversaw procurements and audited ministries to ensure that expenditures conformed to budget authorizations.

Current expenditures as a proportion of GDP grew from l3.2 percent in l974/75 to 26.1 percent in l987/88. This growth was largely the result of the increase in expenditures for defense and general services following the 1974 revolution. During the l977-78 Ogaden War, for example, when the Somali counteroffensive was under way, defense took close to 60 % of the budget.

That percentage declined after l979, although it remained relatively higher than the figure for the pre-revolutionary period. Between l974 and l988, about 40 to 50 % of the budget was dedicated to defense and government services Ethiopian Chamber of Commerce (ECC), and Ethiopian Business Development Services Network (ECC, EBDSN.2005).

Economic and social services received less than 30 percent of government funds until l972/73, when a rise in educational outlays pushed them to around 40%. Under the Dergue regime, economic and social service expenditures remained at pre-revolutionary levels: agriculture's share was 2 %, while education and health received an average of l4% and 4%, respectively. Since 1992/93, the Government of Ethiopia has made a major economic policy shift from Central Planning to market oriented economic system. In line with this change, a series of tariff and tax reform measures have been taken. The reasons to these were: outdated tariff and tax laws; weak customs and tax administration; failure of the tariff and tax regime to attract investment, to facilitate trade and to generate adequate revenue to cover current and capital expenditure, and hence finance development and poverty reducing projects.

The series of tariff and tax reform programs have helped to increase both Federal Government and national revenue. As per the reports of the Ministry of Revenue, the Federal Revenue has increased to Birr 6.7 billion in 2002/2003 from Birr 2.54 billion in 1993/94 as the result of which federal revenue as percentage of the GDP increased from 8.97% in 1993/94 to 11.87% in 2002/03. The increase in revenue mainly attributes to the modest increase in both direct and indirect taxes, mainly the foreign trade taxes. As well, National tax revenue as percentage of GDP has increased to 15.1% in 2002/03 from 10.9 in 1993/94. Despite, the series of reforms and increase in revenue, the overall budget deficit with and without grant has been increasing. For example, the overall budget deficit without grants as percent of GDP has increased from -5.2% in 1996/97 to -14.5% in 2002/03. This shows that performance of revenue collection in Ethiopia has been low compared to the rest of Sub-Saharan African countries which is over 23% of the GDP.

Hence, coupled by a series of reduction in the import tariff, excise tax and income tax and widening of the budgetary deficit, introducing a neutral and efficient tax, i.e. the VAT with broad tax base was considered. Value Added Tax (VAT) has become a major tax instrument

worldwide. VAT has also become an indispensable component of tax reforms in developing countries. Ethiopia's tax reform program has introduced VAT since January, 2003. VAT revenue performance and its neutrality and efficiency are also the reasons for superiority of this tax in contrast to other common tax instruments such as the turnover tax. The emerging conventional wisdom, based largely on practice and numerous country case studies, suggests that a single rate VAT (with the rate between 10 and 20%), with very few exemptions and, therefore, a broad base is superior to a VAT with multiple rates and many exemptions which reduce its base and complicate administrations.

Taxes on Income and Profits

Tax on employment income used to be guided by Income Tax Proclamation No. 173/1961. In the 1990s, this proclamation was amended with modifications to the legislation regulating income tax on employment: rural land and agricultural income tax; rental income tax; taxes on business and other profits; tax on income from mining activities; capital gains tax, and taxes on other sources of income such as chance wining, royalties and tax on non-resident persons offering services in Ethiopia. This reform resulted in a schedule for marginal tax rate which is currently being applied to income exceeding Birr 150, the assumed minimum wage rate. Compared to the marginal tax rate of 89 per cent during the military (Dergue) period; the current reform which reduced the maximum marginal tax rate to 35 per cent was quite radical. The 1978 income tax for rural land and agricultural activities was also amended in 1995 and 1997. For land use, farmers are now taxed Birr 10 for the first hectare and Birr 7.5 for each additional half hectare. Moreover, annual income exceeding Birr 1,200 is subject to a progressive tax rate. Togo over the main points, most studies find that per capita GDP and degree of openness is positively related to revenue performance, but a higher agriculture share lowers it. The effect of foreign aid and revenue performance is ambiguous. Studies such as Tanzi (1991) and Eltony (2002) found that foreign debt is positively related to resource mobilization while other side as it is negative effect for the tax revenue. However, this review reveals that, existing literature on Ethiopia’s tax revenue determinants is virtually none existing. More so, a very important variable like GDP, inflation rate, foreign openness, public debt, foreign direct investment and many other variables were not tested in Ethiopian case to know the effect on tax revenue performance , hence the need for this study.

2.3 Empirical Literature on determinants of tax revenue

In the empirical literature, several variables have been considered as determining factors of tax revenues. Researchers have included several variables such as per capita GDP, the sectorial composition of output, the degree of trade and financial openness, and the ratio of foreign aid to GDP, the ratio of overall debt to GDP, a measure for informal economy, and some institutional factors such as degree of political stability and corruption as potential determinants of revenue performance. The empirical findings have been mixed because of their sensitivity to the set of countries and the sample period.

Several empirical studies have looked into determinants of resource mobilization at regional level. For sub-Saharan African countries, Tanzi (1981) finds that mining and non-mineral export share positively affect the tax ratio. Focusing on the same region, Leuthold (1991) uses panel data to find a positive impact from trade share, but a negative one from the share of agriculture. Using a panel of 43 sub-Saharan African countries during 1990-95, Stotsky and WoldeMariam (1997) measured the determinants of the tax share in GDP and constructed a measure of tax effort. The analysis suggests that the shares of agriculture in GDP and mining in GDP are both negative and significantly related to the tax share, and that the export and import shares in GDP are both positive and significantly related to the tax share whereas per capita income is not significant. Trade liberalization also may have some effects on the domestic exchange rates as well as fiscal structure. Agbeyegbe et al. (2004) investigated the relationship between the tax revenue, trade liberalization and changes in the exchange rate using a panel data set of 22 sub-Saharan countries. 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.

Gupta (2007) investigated revenue performance of a large set of developing countries over the past 25 years. He found that several structural factors like per capita GDP, share of agriculture in GDP and trade openness are significant and strong determinants of revenue performance. He also looked at the impact of foreign aid and foreign debt on revenue mobilization. His findings

suggest a strong negative and significant relationship between agriculture share and revenueperformance. It is estimated that a 1%increase in the share of agriculture sector could reduce revenue performance by as much as 40% percent. The results indicate that although foreign aid improves revenue performance significantly, debt doesn't. 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. On the other hand, countries that put greater emphasis on taxing income, profits and capital gains, perform better. Structural factors are found to be significant across all income groups, when the analysis is conducted over the sub-samples based on income level.

Eltony (2002) examined the determinants of tax revenue shares and constructed an index of tax effort for the sixteen Arab countries. The results suggest that the main determinants of the tax share in the GDP for the Arab countries are the per capita income, the share of agriculture in GDP and the share of mining in GDP. These variables are statistically significant and possessed the expected signs. Other variables that are also important determinants are the share of exports and imports and in only the non-oil Arab countries, the outstanding foreign debt was found significant and positively related to the tax share. In connection with the title under investigation, studies have been done in different counties as a panel studies.

Studies of single-country

Chaudhry and Munir (2010) attempted to analyze empirically the determinants of low tax revenue in Pakistan by employing time series econometric techniques over the period 1973-2009.They investigated 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. Their empirical results suggest that openness, broad money, external debt, foreign aid and political stability are the significant determinants of tax efforts in Pakistan with expected signs. The results also indicates that the determinants of low tax revenue in Pakistan are narrow tax base, more dependence on agriculture sector, foreign aid and low level of literacy rate. Finally Journal of Finance, Accounting and Management, (pp 50-63, 2013) concluded that Pakistan economy can generate high tax to GDP ratio by boosting the openness, literacy level, political stability and broadening the tax base and by controlling income inequality, tax evasion and tax exemptions.

Rajan (1996) tried to investigate the stability of the determinants of personal income tax which is influenced by radical changes in the political scenario during the study period. The results of the analysis reveal that the variables such as per capita GDP, literacy rate, per capita public expenditure are positively associated and variables such as urban population, Scheduled Caste and Scheduled Tribe population are negatively associated with per capita income tax. Further, it is found that the determinants of per capita personal income tax equation are not stable during the politically "stable" and "non-stable" periods. This finding is explained by the leap of the successive governments from growth oriented to populist programs and from egalitarian to liberalized policies during the study period.

Most of the developing countries rely on trade tax, sales tax and VAT. Since these kind of taxes are vulnerable to external events because their prices are determined in the world market and tend to be volatile. This has resulted in inadequate tax revenues and continuous existence of budget deficits. Keeping this point in mind, Wawire (2011) tried to establish the determinants of VAT revenue.GDP, institutional, demographic, and structural features of the economy have been found the determinants of VAT. Among the notable ones that seem to have had positive influences on VAT revenues are introduction of sales tax in 1973, coffee and tea booms, and introduction of sale tax on imports in the fiscal year 1984/85, budget rationalization program, establishment of KRA in 1995, favorable weather, TMG, and the volume of international trade. Ahmed and Mohammed (2010) attempted to search the determinants of tax buoyancy of 25 developing countries. Their study revealed that growth in import and manufacturing sector has positive impact on growth of tax collection. The effects of the agriculture is insignificant but unlike of the previous studies which found insignificant impact of service sector on tax buoyancy this study found positive and significant impact on tax buoyancy due to the development of service sector in 1990s. Monetary growth also influence positively on tax collection. Finally increase in budget deficit has positive influence on tax collection by demanding more resource mobilization from the governments, however, at the same time the growth in grants inversely influences on tax collection because government in developing countries avoids unpopular steps of imposing taxes for domestic resource mobilization.

Wahid (2008) analyzed the causal relationship between total expenditure and tax revenue. In general, his results support the hypothesis that government expenditure causes revenues. Teera

(2002), used time series data on Uganda to examine the determinants of tax revenue share in that country. He used the Augmented Dickey Fuller (ADF) and the Error Correction Model (ECM) and found that, there is a positive relationship between per capita income and total tax revenue as well as income taxes. This finding lends support to the hypothesis that, as countries develop tax bases develop more than proportionately to the growth in income. Musgrave (1969) argued that lack of availability of 'tax handles' might limit revenue collection at low levels of income and these limitations should become less severe as the economy develops. Economic development is assumed to bring about both an increased demand for public expenditure and a larger supply of taxing capacity to meet such demands, Tanzi, (1987) as cited in (Musgrave, 1969). Chelliah, (1971) also found that a higher per capita income reflecting a higher level of development is held to indicate a higher capacity to pay taxes as well as a greater capacity to levy and collect them. There is also the consideration that, as income grows countries generally become more urbanized. Urbanization thus brings about a greater demand for public services while at the same time facilitating tax collection.

Per capita income is a proxy for the overall development of the economy and is expected to be positively correlated with tax share as it is expected to be a good indicator of the overall level of economic development and sophistication of the economic structure. Moreover, according to Wagner's law, the demand for government services is income–elastic, so the share of goods and services provided by the government is expected to rise with income. The sectorial composition of output also matters because certain sectors of the economy are easier to tax than others. For example, the agriculture sector may be difficult to tax, especially if it is dominated by a large number of subsistence farmers. Imports and exports are amenable to tax as they take place at specified locations. Furthermore, most developing countries shifted away from trade taxes in the 1990s, which was largely due to the widespread liberalization of trade undertaken under the Uruguay Round. The effect of trade liberalization on revenue mobilization may be ambiguous. If this liberalization occurs primarily through reduction in tariffs then one expects losses in tariff revenue. On the other hand, Keen and Simone (2004) argued that, revenue may increase provided trade liberalization occurs through traffication of quotas, eliminations of exemptions, reduction in tariff peaks and improvement in customs procedure.

Rodrik (1998) also points out that there is a strong positive correlation between trade openness and the size of the government, as societies seem to demand (and receive) an expanded role for the government in providing social insurance in more open economies subject to external risks. The degree of external indebtedness of a country may affect revenue performance as well. To generate the necessary foreign exchange to service the debt, a country may choose to reduce imports. In such a scenario, import taxes will be lower. Alternatively, the country may choose to increase import tariffs or other taxes with a view to generate a primary budget surplus to service the debt. Foreign aid has also been identified as a factor that may affect revenue performance. A key distinction appears to be whether the aid is used productively or simply to finance current consumption expenditures. Moreover, the composition of aid has an important effect on revenue performance. Gupta et al. (2004) find that concessional loans are associated with higher domestic revenue mobilization, while grants have the opposite effect.

Lotz and Morss (1967) found that per capita income and trade share are determinants of the tax share, and this finding has been replicated since (e.g., see Piancastelli (2001)). Chelliah (1971) relates the tax share to explanatory variables such as mining share, non-mineral export ratio and agriculture share. Several studies, including ChelliahBaas and Kelly (1975); and Tait, Grätz and Eichengreen (1979), update Chelliah (1971) obtained similar results. Tanzi (1992) finds that half of the variation in the tax ratio is explained by per capita income, import share, agriculture share and foreign debt share. Recently, some studies have looked at the importance of institutional factors in determining revenue performance. For example, the study made by Bird, Martinez-Vasquez and Torgler (2004) indicated as factors such as corruption, rule of law, and entry regulations play key roles in determining tax revenue. Several regional studies have looked into determinants of resource mobilization.

Leuthold (1991) uses panel data to find a positive impact from trade share, but a negative one from the share of agriculture and StotskyandWolde Mariam (1997) find that both agriculture and mining share are negatively related to the tax ratio, while export share and per capita income have a positive effect. Ghura (1998) concludes that the tax ratio rises with income and degree of openness, and falls with the share of agriculture in GDP. He also finds that other factors like corruption, structural reforms and human capital development affect the tax ratio. While a rise in corruption is linked with a decline in tax ratio, structural reforms and an increase in the level of

human capital is associated with an increase in tax ratio. Gupta (2007) used a panel dataset that covers 105 developing countries over 25 years. His variable of interest was central government revenue (excluding grants) as a percentage of GDP). Among the explanatory variables, that were used included structural variables such as per capita GDP, share of agriculture in GDP, share of manufacturing in GDP, share of imports in GDP, ratio of debt and aid to GDP. His outcome on revenue performance of a large set of developing countries over the past 25 years was that, that several structural factors like per capita GDP, share of agriculture in GDP and trade openness were statistically significant and strong determinants of revenue performance. In a study of Arab countries, Eltony (2002) observes that mining share has a negative impact on the tax ratio for oil exporting countries, but a positive impact for non-oil exporting countries. He used pooled time-series and cross-sectional country data for the 1994-2000 time periods for 16 Arab countries

Torecap, most studies found that per capita GDP and degree of openness was positively related to revenue performance, but a higher agriculture share lowers it. The effect of mining share and revenue performance was ambiguous. Chipeta (1998) evaluated effects of tax reform on tax yields in Malawi for the period 1970 to 1994. The results indicated buoyancy of 0.95 and an elasticity of 0.6. The study concluded that tax bases had grown less rapidly than GDP. Kusi (1998) studied tax reform and revenue productivity of Ghana and results showed a pre- reform buoyancy of 0.72 and elasticity of 0.71 for the period 1970 to 1982 with this, he concluded that the reforms had contributed significantly to tax revenue productivity which was cited in (AGGREY, 2011).Njoroge (1993) found that the overall elasticity was 0.86 while buoyancy was1.00. The study concluded that from a revenue point of view, the system did not meet its target, hence required constant review as the structure of the economy changes. Ariyo (1997) evaluated the productivity of the Nigerian tax system for the period 1970 -1990. Khattry and Rao (2002) looked at the effects of trade liberalization on tax revenue/GDP ratios using a group of 80 developing and industrialized countries over 1970-98, and found that both low-income and upper middle-income countries have experienced declines in total tax revenues, which was attributed to falling both income and trade tax revenues since the onset of trade liberalization. It is argued that structural characteristics associated with these developing countries have limited their ability to make the transition from trade to domestic taxes. In addition, they also find that the scale of the

economy, the level of urbanization, and their trade measure have a positive effect on total tax revenues.

Agbeyegbe. al. (2004) examined a panel of 22 Sub-Saharan countries over the 1980-1996 period and found evidence that the relationship between trade liberalization and tax revenue is sensitive to the measure used to proxy trade liberalization, and while the traditional measure of trade liberalization is not strongly linked to aggregate tax revenue or its main components in general, the collected-tariff liberalization measure is linked to higher income tax revenue. The only determinant of total tax revenue that was consistently found significant for both measures of openness was inflation, and it was negatively related to tax revenues.

Adam, Bevan and Chambas (2001) also examined the relationship between tax revenue, exchange rates, and trade openness in Sub-Saharan Africa and find that openness raises overall tax revenue in CFA Franc zone countries while it has little effect in countries outside the zone. They concluded that the poor tax revenue performance in the CFA countries in the 1970-96 period reflected mainly differences in environmental and structural factors and to different responses to changes in the equilibrium real exchange rate, but that misalignments of the exchange rate also played a role. Fierro and Reisen (1990) looked at the variety of channels through which devaluation of the exchange rate impacts on real tax receipts. An important insight results from the distinction of the direct (price) effect and indirect (output) effect of changes in the real exchange rate on tax receipts with this, Inflation effects were also found to be uniformly negative and relatively significant across all types of tax revenues. But as liberalization policies usually occur together with exchange rate movements, liberalization also has an effect on tax revenue through such fluctuations. Tanzi(1989) observed that, there is often an inverse relationship between a country's tax revenues and the real level of its official exchange rate, and argues that overvaluation has a direct effect by suppressing import and export bases measured in domestic currency terms, thus reducing the collection of international trade, sales, and excise taxes.

Diego (2006) examined the effect of foreign direct investment (FDI) on tax revenue performance for a group of Latin American countries and FDI exerts a significant positive effect on central government tax revenues, which is channeled through its effect on the most important

component of tax revenues, the taxes on goods and services. This gives support to the economic policies enforced in Latin America for the last decades in order to spur economic growth, as it is now empirically demonstrated that the larger flows of FDI into the region do not only contribute to improvements of real GDP per capita growth rates, but it also contributes to the better performance of a factor that perhaps is more relevant to domestic standards of living, from the perspective of the inhabitants of a country. This positive effect of FDI on tax revenues is especially important for less developed economies, as it is shown that its effect is even greater than the overall effect for these economies, but very small for the more developed countries. While these results could induce developing countries to intensify the promotion of FDI through enhanced incentives, the importance of the structural changes emanating from the disappointing 1980s should also be taken into consideration, as well as the effect of higher competition in terms of cost.

Leuthold (1991) was examined the effect of tax from 1973 to 1981 on Africa and used the OLS estimation method. From the study the share of agriculture will affect the level of taxation and robust the relationship of total tax revenue into direct and indirect taxes. The level of taxes will give the different effect to growth and other indicators caused by the macroeconomic variables such as extent of corruption and adversely affected by the inflation rate in nine African countries over the period 1985-1996 (Ghura, 1998). Agbeyegbe (2004) used the same geographical sample,

The Impact and Consequences of Tax Revenues' Components on Economic Indicators: Evidence from Panel Groups Data 101 which are 22 countries in sub-Saharan Africa from 1980 to 1996. The study examined the effect of tax revenue on trade liberalization or "openness". The potential variable that will change the amount of tax revenue is change in inflation rate in a country. High inflation rate in a country will force the government to increase the taxes on goods and services by increasing the price and stabilizing the consumption and aggregate expenditure. With that, excise tax on some products may be affected with the change in inflation rate (Tanzi, 1989). A study by Mahdavi(2008) mentioned the effect of income, profit and capital gain tax due to change in inflation rate and investment plans.

Farazmand and Ahmadi's (2007) study the factors affecting tax capacity in Lorestan Province. Results indicate that the relationship of the value-added in industry, service sectors and literacy rate with the province's tax capacity is positively significant. Yet, variables associated with the value-added of the mining sector, income per capita, inflation rate and population have no significant relationship with tax revenues.

In an article titled "estimating tax effort in Iran and its comparison with selected developing countries", Ghamtari and Eslamlouian (2007) studied Iran's tax capacity and compared it to 14 other selected developing countries. In the same article, tax ratio pattern was estimated using the Seemingly Unrelated Regression (SUR) method between 1994 and 2002. Based on the results, there is a positive significant relationship between tax ratio and the value-added share of industry, services, and foreign trade sectors' share of GDP. Moreover, the share of the agriculture sector's value-added of GDP, the ratio of foreign loans to GDP, and inflation rate leave negative effects on tax ratio.

Ahsan and Wu (2005) examined the tax share of GDP in developing countries between 1979 and 2002. Results showed that the share of agriculture, GDP per capita, and population growth has a negative significant relationship with tax revenues, while the share of commerce in GDP has a positive significant relationship with tax revenues. In a study, Gura (1997) explored the effects of economic policies and corruption on tax share in GDP using panel data and statistical information of African countries from 1986 to 1995. Results indicate that –upon reforming political structure and reducing corruption, the relative reduction of agriculture sector share in production, the reduction of inflation, and the increase of economy's openness the relative share of government's tax revenues in GDP significantly increases. Komijani and Yahyaii (1994) examined tax capacity and direct relationship was observed between income per capita and other independent variables with tax ratio. The significance of independent variables coefficients in determining tax capacity became evident as well. Of the results of the estimation of the tax capacity function is that the estimated coefficient of the model shows that the industry and services sectors play the most effective roles in earning tax revenues in developing countries. Tanzi, (1987) found that the growth of public spending has generated large fiscal deficits in many countries, leading to increases in the share of public debt relative to GDP. With these large debts, governments need to raise the revenues necessary to service it. However, when the interest

on the debt exceeds net borrowing plus the possible reduction in non-interest expenditure, the level of taxation will go up unless the rate of growth of the economy is high enough to neutralize the increase. Therefore public debt plays a role in determining the extent to which countries may take advantage of their taxable capacity. However, a high debt burden can also create macroeconomic imbalances that may tend to reduce the tax level. By and large, however, on balance, a high debt burden would tend to raise the tax level, ceteris paribus (Tanzi, 1992). On the other hand, countries faced with an increased trade deficit may try to restrict imports as an alternative to exchange rate adjustment irrespective of the source of the trade imbalance. This will reduce revenue from import duties, Hinrichs (1965). Tanzi&Blejer (1988) used per capita income as a measure of development, for an explanation of the relationship between fiscal deficits and public debt.

Openness is a country volume of exports and imports expressed over its GDP. It shows how a country is opened to international trade and its impact on tax revenue performance. According to Seade (1990), the relative size of the overseas sector, which is a measure of openness, reflects the degree of exposure of an economy to external economic influences. Hence in the presence of inward capital flows, the overall level of activity in the economy is artificially and or temporarily increased through foreign borrowing and so is the aggregate tax base. As a consequence, tax revenues become artificially buoyant and volatile.

Linn and Weitzel (1990) stated that, certain features of overseas trade make it more amenable to taxation than domestic activities, and in developing countries, the overseas trade sector is typically the most monetized sector of the economy. Theadministrative ease with which trade taxes can be collected makes them an attractive source of government revenue when administrative capabilities are scarce.

According to September 2004 ATPC work in progress project paper of the Economic Commission for Africa (ECA), it was identified that trade liberalization (openness) was a potential source of fiscal instability for African countries because of their high dependence on trade taxes for public revenue. Taxes on international trade are important in Africa because when tax administration is inefficient governments tend to concentrate on easy to collect taxes such as trade taxes. In Africa as a whole international trade taxes generated on average 28.2 % of total

current revenues over the last decade; for sub-Saharan Africa the share went up to 30.5 %. This compares to 0.8 % for high-income Organization for Economic Cooperation and Development (OECD) countries, 18.42 % for lower medium-income countries, and 22.5 % for low income countries. Over the late 1990s trade tax revenues as a percentage of GDP declined. An important policy issue is how countries should react to falls in revenue as tariffs are cut. This is critical for African countries because they have already carried out considerable liberalization of their trade regimes. Negative fiscal impacts emerge at later stages of liberalization because; boost to revenues from higher trade volumes as a result of tariff cuts is insufficient to outweigh the revenue-damping effect of the tax reduction. Aid and grants have been a major source of development finance for the majority of developing countries over the past few decades. Empirical literature has tended to evaluate the impact of aid by including it as a variable in a regression for the determinants of some economic performance indicator, emanating from the general concern that it might have a negative impact on some of such indicators. For instance, there is a general concern that aid may decrease taxation revenue in recipient countries. In fact, results in Franco-Rodriguez, Morrissey, and McGillivray (1998) showed that, with 1 rupee change in aid money disbursed resulted into a –2.91 rupee change in taxation. Inaddition Political economy considerations provide additional support to the argument that aid may discourage taxation by recipient governments. A key argument of the aid dependency literature, for example, is that aid lowers tax revenue because it undermines the development of domestic institutions that support tax administration and good governance Knack(, 2000) Heller and Gupta, (2002); Brautigam and Knack(, 2004); and Moss et al., (2008). Evidence of a negative relationship between aid and tax revenue has been borne out in the data in several studies. Ghura (1998) using data for a sample of 39 sub-Saharan African countries for the period 1985–96, finds that aid has a statistically significant negative effect on the ratio of taxes to GDP. Remmer (2004) uses a broader sample of 120 developing countries over the period 1970–99. She finds a negative relationship between three different measures of aid (aid to GNI, aid to imports, and aid to government expenditure) and changes in tax revenue to GDP. Moreover, they show that the negative effect of ODA grants is stronger in countries with weak institutions. Knack (2009) also finds a robust negative relationship between sovereign rents (from aid and natural resources) and taxation

Tanzi, (1989), servicing of the foreign debt requires a trade account surplus, which in turn may require a reduction in imports. This affects revenue given the high dependence of the tax system on the external sector. Agriculture is considered to be a salient feature regarding the structure of the economy and as Tanzi (1992) asserts, a country's economic structure is one of the factors that could be expected to influence the level of taxation. For many developing countries like Ethiopia, the share of agriculture may be an important influence on the tax share, from both the demand and supply point of view. On the supply side, it is very difficult to tax the agricultural sector explicitly, though it is often very heavily taxed in many implicit ways such as; import quotas, tariffs, controlled prices for output, or overvalued exchange rates. On the other hand, small farmers are notoriously difficult to tax and a large share of agriculture is normally subsistence, which does not generate large taxable surpluses, as many countries are unwilling to tax the main foods that are used for subsistence Stotsky&Wolde Mariam, (1997). On the demand side, since many public sector activities are largely city-oriented (Addis Ababa as example), it may be assumed that the more agricultural a country is, the less it will have to spend for governmental activities and services. Hence as the share of agriculture in GDP rises, the need for total public spending and so for tax revenue may fall.

Manufacturing enterprises are easier to tax than agricultural enterprises since business owners typically keep better books of accounts and records. Manufacturing can generate larger surpluses if production is efficient. Therefore the variable is positively related to the tax ratio. As the level of manufacturing goes up tax revenue will also increase. Foreign Direct Investment brings in capital for economic growth and development. Corporate taxes and Pay as You Earn tax can be obtained from FDI. While there is an increasing movement of capital around the world, a noteworthy shift in the components of international capital flows has occurred in Latin America. Aggregate FDI inflows to Latin America and the Caribbean have reached record levels in the past decade, jumping from $6.1 billion in 1980 to $7.8 billion in 1990 and to a remarkable $76.9 billion in 2000 (ECLAC), with the major recipients in the region being Brazil, Mexico, and Argentina, accounting for around 60 percent of total flows. The perceived importance of FDI on economic growth is probably best described by the quote from the United Nations Conference on Development in Monterrey, Mexico, posted in the Business Roundtable's1 web page: "Private international capital flows, particularly foreign direct investment are vital complements to

national and international development efforts. Foreign direct investment contributes toward financing sustained economic growth over the long term. It is especially important for its potential to transfer knowledge and technology, create jobs, boost overall productivity, enhance competitiveness and entrepreneurship, and ultimately eradicate poverty through economic growth and development". They cite further emphasizes in the concrete ways in which FDI stimulates global economic growth, highlighting that "FDI creates jobs and improves worker's wages," "stimulates competitive markets," and "contributes to growth in government revenues." It argues that FDI increases government revenues through taxes paid by corporations, their employees, and the purchasers of products and services. This view is shared by many of the leading economic and political scholars, and is based on the theoretical idea that higher levels of economic activity generate higher levels of production, and consequently higher levels of government revenue.

To sum up, in thisempirical literature, several variables have been considered as determining factors of tax revenues. For example per capita GDP, the sectorial composition of output, the degree of trade and financial openness, and the ratio of foreign aid to GDP, the ratio of overall debt to GDP, foreign direct investment , public debt to GDP a measure for informal economy, and degree of political stability as well as corruption as potential determinants of revenue performance. Several empirical studies have looked into determinants of resource mobilization at regional level too. For sub-Saharan African countries, Tanzi (1981) finds that mining and non-mineral export share positively affect the tax ratio and Leuthold (1991) uses panel data to find a positive impact from trade share, but a negative one from the share of agriculture. Stotsky and Wolde Mariam (1997), suggests that the shares of agriculture in GDP and mining in GDP are both negative and significantly related to the tax share, and that the export and import shares in GDP are both positive and significantly related to the tax share whereas per capita income is not significant. Agbeyegbe et al. (2004) investigation show that, trade liberalization, agricultural share, industrial share, government consumption, and terms of trade exert a positive effect on total tax revenue. Inflation exerts a negative effect and unexpected positive effect of agricultural share by the influence of exports in providing a tax handle. In other side the sign of agricultural sector share turns to negative when the independent variable is income tax revenue.

Gupta (2007) investigated revenue performance of a large set of developing countries and found that several structural factors like per capita GDP, share of agriculture in GDP and trade openness are significant and strong determinants of revenue performance. He also found as foreign aid improves revenue performance significantly, debt doesn't as well as corruption has a significantly negative effect on revenue performance. Political and economic stability are other effective factors, but only across certain specifications. On the other hand, countries that put greater emphasis on taxing income, profits and capital gains, perform better. Structural factors are found to be significant across all income groups, when the analysis is conducted over the sub-samples based on income level. With this, the following hypothesis testing has been derived.

2.4 Hypotheses for research

To bring clarity, specifically and focus to the research problem, the following research hypothesis and definition of variables as per literatures are

Clausing (2007), regression analysis shows that the share of the value added of the corporate sector, profit level GDP per capita and GDP growth have a positive impact on revenues of tax.

H1=There is no relationship between tax revenue and GDP

Tanzi (1992), in his research provide evidence that tax revenue is negatively affected by inflation, the so-called Olivera-Tanzi effect.

H2=There is no relationship between tax revenue and Inflation rate

Baunssgard et al. (2005), in their research found that openness is significantly positively related to domestic tax revenue and aid per capita negatively.

H3=There is no relationship between tax revenue and Foreign aid

Ghura (1998) concludes that the tax ratio rises with income and degree of openness, and falls with the share of agriculture in GDP.

H4=There is no relationship between tax revenue and openness

Eltony (2002) find public debt positively influences on tax revenue, but Gupta (2007) suggested as negatively influence over tax revenue.

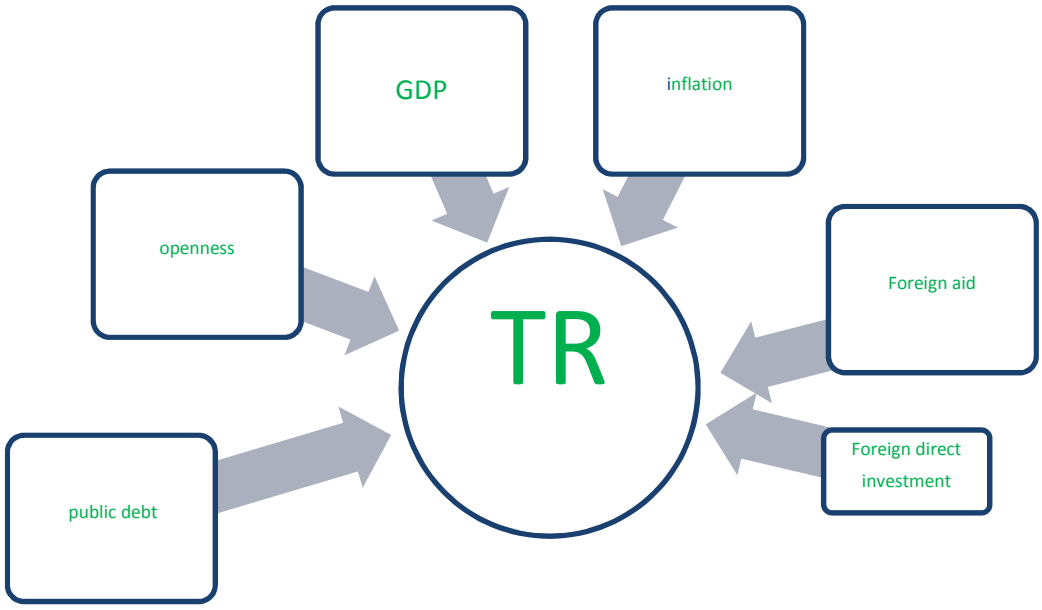
H5=There is no relationship between tax revenue and Public debt

Diego (2006) examined the effect of foreign direct investment (FDI) on tax revenue performance for a group of Latin American countries and FDI exerts a significant positive effect on central government tax revenues, which is channeled through its effect on the most important component of tax revenues, the taxes on goods and services.

H6=There is no relationship between tax revenue and foreign direct investment

2.5 Conceptual Framework

This conceptual framework describes the relationship of tax revenue with GDP, Inflation rate, openness, foreign direct investment, Foreign aid public debt. Based ondifferent literature, the following conceptual framework has been developed to guide this particular paper. As per literature, the effects of those variables were stated as GDP, openness, and foreign direct investment have positive effect on tax revenue while foreign aid and inflation have negativeeffectontaxrevenueperformance.



Source: Researcher own construction based on different literature

CHAPTER THREE:RESEARCH METHODOLOGY

Post positivism research approach wasused, because researcher had used numerical and secondary data for analysis. In addition, researchers used quantitative research approach to infer the result for other developing countries as well as to test existed theory. In addition since quantitative research approach is free from biasness, researcher has chosen for this study.Also, to be more reliable and objective, to reduces and restructures a complex problem to a limited number of variables.

3.1 Study area

The study had been conducted at country level i.e. Federal democratic Republic of Ethiopia. The country is located in Eastern Africa particularly sub-Saharan Africa and a country with a total population of over 84 million in 2011 which makes it populousamongAfrican countries. It is a Federal Democratic Republic, including nine regional states: Afar, Benishangul-Gumuz, Amhara, Oromia, Tigray, Somali, Southern Nations-Nationalities and Peoples Region (SNNPR), Gambella and Harari, and two administrative states: Addis Ababa city administration and Dire Dawa City Council. Since 1991, Ethiopia has adopted a market economy after the fall of the Derg regime, which practiced a state controlled economy. The country's current economic situation is rated at developing stage in high speed.So, to make it really, government needs high revenue which can get more from tax.

3.2 Source of data

The sources include National Bank of Ethiopia (inflation rate, foreign aid, and foreign direct investment, gross domestic product), Ethiopian revenue and Customs Authority (tax revenue, import and export) and Ministry of Finance and Economic Development's (public debt), organizational records, surveys and annual reports. This secondary data had been used by the author to gain the idea and information to develop the literature review and complete this study.

3.3 Method of data collection

Data was collected by reviewing different documents that has been recorded formerly or pre-analyzed for different purpose. The variables that had been collected are GDP, Inflation rate, tax revenue, foreign direct investment, foreign aid, openness, and public debt.

3.4 Data analysis

All the data collected were processed by using Eviews7 software program. A series regression method was used and the process of evaluating is the same with simple regression, but in order to derive the estimated regression, a computer has been used to solve the complex nature of data and time required. Descriptive statistics has been used to explain the selected variables.Thepresentation of findings has been made to examine the relationship among independent variables and dependent variable (tax revenue).

3.5 **Model specification**

The researcher used series linear regression model and ordinary least square (OLS) estimation method. The characteristics of the model and proposed variables likely not violate the classical assumption underlying the OLS model.Researcher's rationality to use OLS is to find the line of "best fit", that is, the line that minimizes the total distance between the actual data points and the predicted line (or residuals). Time series data was used from 1992-2013. The following model was developed based on literature

TR = b (1) + b (2)*opps+ b (3)*FA + b (4)*FDI + b (5)*Pd+ b (6)*INFR + b (7)*GDP +e

3.5.1. Definition of the variables

GDP=Growth domestic product (GDP)

INF=Inflation

FA =Foreign aid,

PD=Public debt,

FDI=Foreign direct investment,

opps=Openness

e=Error terms or undefined

3.6 Model Assumption test

Time series data needs different tests to be free from fake or false result; those tests are stationaritytest, classical linear regression diagnostic test which includes Hetroskedasticity test, autocorrelation test, normality test and Multicollinearity test.

3.6.1. Test for Stationary

Estimation of parameters and hypothesis testing using time series data requires an investigation of the data generating process of the variable under consideration. This investigation helps to avoid estimating spurious correlation between variables in a regression, where what actually exist is correlated time trend rather than meaningful economic relationship. Combination of variables that contain a time trend ornon-stationary may amounts to spurious correlations. To avoid such problem of spurious correlation due to the presence of non-stationary variables in the regression model, the time series property of the variables used in the model are investigated. A series is referred as (covariance) stationary if it has constant mean, finite time invariant variance and a constant as well as a covariance between any two-time periods that depends only on the lag between them. On stationarity, a property common to many macroeconomic and financial time series, means that variable has no clear tendency to return to a constant mean or a linear trend. Granger and New bold, (1974), stated the presence of non-stationary variables, might be spurious correlation, Hence each series is checked for stationarity using the standard Augmented Dickey-Fuller ADF)

Augmented Dickey-Fuller (ADF)

A test of stationarity (or non-stationarity) that has been become popular over the past several years is the unit root test. Gujarati, (2004) indicated that ADF test is the most usually used tests for unit root. Under ADF test null hypothesis say variable has unit root while alternative

hypothesis say there is stationary. So, if T-statistics of ADF is greater than critical value at 5% and 10% more at the former level, it reject the HO which say unit root and assure the stationary

3.6.2. Classical linear regression diagnostic testing

Before going to further in to time series econometric procedure, the first issue is test of the assumption of classical linear regression model (CLRM).Most prior academic literature, as mentioned in literature review, examines determinants of tax revenue performance using different time series data modeling techniques. The ordinary least squares (OLS) techniques in which different between the observation and estimation are minimized in terms of sum of squares. The characteristics of the model and proposed variables stated in this research are not violating the classical assumptions underlying the OLS model. These are checked by testing each assumption.

3.6.2.1. Hetroskedasticity

Among the OLS assumption, the first diagnostic test which was conducted in this study is Heteroscedastic. This theoretically expressed as (Ut) =α2< ∞: it has been assumed thus far that the variance of the error is constant, α2 – this is known as the assumption of homoscedasticity. If the errors do not have constant variance, they are said to be Heteroscedastic.'' White (1980) as cited by Brooks, (2008) is the most popular test of homoscedasticity.

3.6.2.2. Autocorrelation

The second important diagnostic test which was performed in this research is the autocorrelation test. This assumption of OLS theoretically expressed by the number of writers among that Brooks (2008) started. It has been stated as cov(Ui,Uj)=0,this is another assumption that made of the CLRMs disturbance terms is that the covariance between the error terms over time should be zero. That means the errors are uncorrelated with one another. If errors are not uncorrelated with one another, it would be stated that they are auto correlated or serially correlated. The most common test of this assumption is using the Durbin-Watson test and the Breusch-Godfrey test to detect the problem of autocorrelation.

3.6.2.3. The Normality (Bera-Jaque)Test

Another diagnostic test conducted in this study is the normality assumption (i.e. the normality distributed errors).The Brooks (2008) stated as normality assumption (UtN (0, σ2) is required in order to conduct single or joint hypothesis test about the model parameters. One of the most commonly applied tests for normality is the Bera-Jaque (BJ) test. The BJ uses the property of normally distributed random variable that the entire distribution is characterized by the first two moments those are mean and variance. Having the superiority of BJ than other for normality test, the researcher used it for the null hypothesis of normally distributed errors assumption.

3.6.2.4. Multi co-linearity Test

The final test which was conducted in this study is the Multicollinearity test. This help to identify the correlation between explanatory variables and to avoid double effect of independent variable from the model. Simply we can test Multicollinearity by correlation matrix. Brooks (2008) indicated that, if the variables arehighlycorrelated, the solution is ignoring, avoiding one variable that have Multicollinearity and transforming that variable to ratio.

3.7 Variable definition and measurement

3.7.1. Gross Domestic product (GDP)

GDP is total market value, measured in current prices, of all goods and services produced within the political boundaries of an economy during a given period of time, usually one year. The key is that nominal gross domestic product is measured in current, or actual prices, the prices that buyers actually pay for goods and services purchased. Nominal gross domestic product is also termed current gross domestic product. GDP measurement has three approaches which are shown as follows:-

Expenditures Approach:

The total spending on all final goods and services (Consumption goods and services (C) + Gross Investments (I) + Government Purchases (G) + (Exports (X) - Imports (M))

GDP = C + I + G + (X-M)

Income approach (NY = National Income)

Using the Income Approach GDP is calculated by adding up the factor incomes to the factors of production in the society. These include

National Income (NY) + Indirect Business Taxes (IBT) + Capital Consumption Allowance and Depreciation (CCA) + Net Factor Payments to the rest of the world (NFP)

In this approach,

NY = Employee compensation + Corporate profits + Proprietor's Income + Rental income + Net Interest

CCA = Igross + Inet (I= Investment)

NFP = Payments of factor income to the ROW minus the receipt of factor income from the rest of the world.

Thus,

GDP + NFP = GNP （GROSS NATIONAL PRODUCT)

GNP - CCA = NNP (NET NATIONAL PRODUCT)

NNP - IBT = NY (NATIONAL INCOME)

Value added Approach

The value of sales of goods - purchase of intermediate goods to produce the goods sold.

3.7.2. Consumer price index (CPI)

A measure that examines the weighted average of prices of a basket of consumer goods and services, such as transportation, food and medical care and so on. The CPI is calculated by taking price changes for each item in the predetermined basket of goods and averaging them; the goods are weighted according to their importance. Changes in CPI are used to assess price changes associated with the cost of living.it is proxy for inflation.

3.7.3. Foreign direct investment (FDI)

Foreign direct investment (FDI) is a category of cross-border investment in which an investor resident in one economy establishes a lasting interest in and a significant degree of influence over an enterprise resident in another economy. It is measured by net capital that has been invested in one country.

3.7.4. Foreign Aid (FA)

The standard definition of foreign aid comes from the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD), which defines foreign aid (or the equivalent term, foreign assistance) as financial flows, technical assistance, and commodities that are (1) designed to promote economic development and welfare as their main objective (thus excluding aid for military or other non-development purposes); and (2) are provided as either grants or subsidized loans.

3.7.5. Public Debt (PD)

Public debt refers to the current outstanding obligations for which the Central Government and its branches are responsible. It is measured by Debt to GDPratio and shows country's ability to pay back its debt.

3.7.6. Openness

Trade openness is defined as the ongoing process of greater economic interdependence among countries reflected in the increasing amount of cross-border trade in goods and services the increasing volume of international financial flows and increasing flows of labor. It is measured by share of GDP or (import +export/GDP).

CHAPTERE FOUR: EMPIRICAL RESULT AND DISCUSSION

INTRODUCTION

This chapter deals with the results of study which includes, descriptive statics, time series graphical explanation of tax revenue to GDP, correlation results for explanatory variables, stationary test, diagnosis test for the regression models, and regression analysis for the variables. Prior to conducting the regression of thetaxrevenue determinants, it is essential to test the appropriateness of the time series data based on certain criteria and assumption of OLS diagnostic test.

4.1 Descriptive Statistics Analysis

Summary statistics of tax and some determinants of tax are given which includes the mean, maximum value, minimum value and standard deviation. Table1 reveals descriptive view about the data set that it consists of 22 observations of each variable. First column shows the variables and second column shows the mean values of all the variables which show the average values for example, mean value of inflation is 42.22 percent, foreignaid the mean value is 8.64 percent, mean value for foreign direct investment is 13.09 percent, and the mean value of growth domestic product is 11.75 percent. The mean value of the tax revenue is 9.5 percent, the mean value of openness is 27.8 and the mean value of public debt is 45.9 percent.

Table1, Summary statistics of tax and determinants' of taxes, 1992-2013

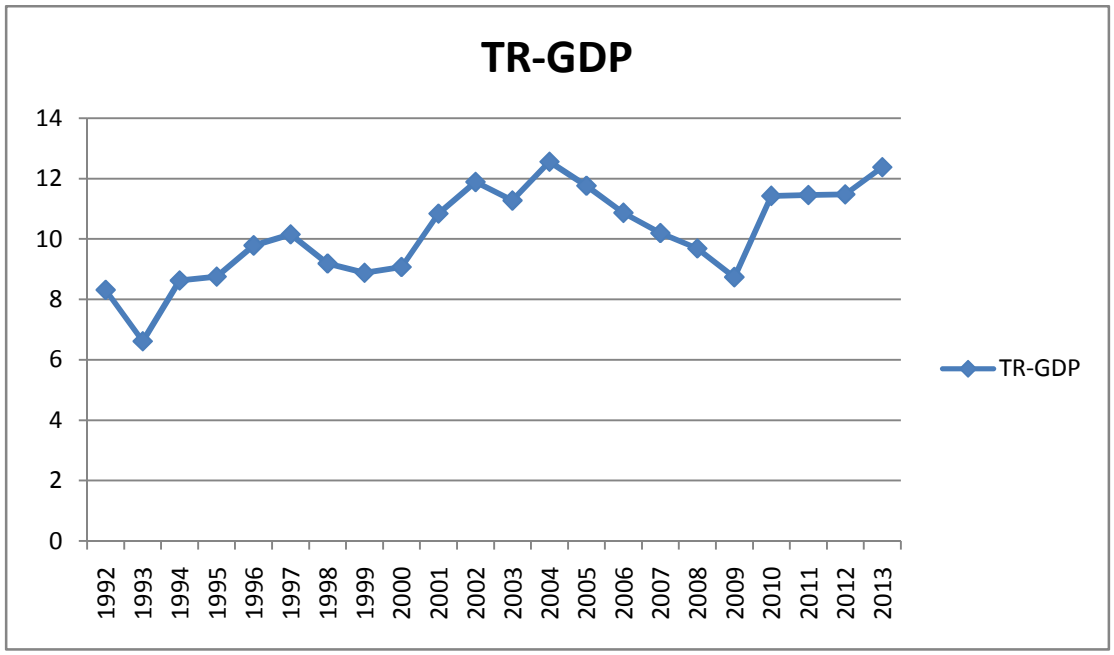
	Mean	Maximum	Minimum	S.D	Observation
CPI	42.21791	119.5866	20.38626	30.21127	22
LFA	8.637351	10.33684	7.25806	1.119163	22
LFDI	13.08617	15.20162	10.17275	1.701614	22
LNGDP	11.74992	13.86181	10.40693	1.098715	22
LTR	9.472311	11.79899	7.690332	1.198154	22
Openness	27.80206	37.25703	13.35686	6.271401	22
PD	45.88324	80.42172	10.35446	24.04897	22

Source: Eviews computed result

The maximum and minimum values of these variables give the range, for example, the minimum value of inflation is 20.4 and maximum value is 119.6.so the range is 99.2.The frequency of noticeable range is displaying large fluctuations in its contribution. Standard deviation also tells us about the scatterness (spread) of the values and it can also be used for comparison purposes of

for example as data shows that inflation has comparatively larger spread than other variables. Foreign aid has standard deviation of 1.119; foreign direct investment has standard deviation of 1.70, gross domestic product has standard deviation of 1.098, tax revenue has standard deviation of 1.198, openness has standard deviation of 6.27and public debt has standard deviation of 24.04

4.2 Time series tax revenue to GDP from 1992-2013



Source: National Bank of Ethiopia staff computation

As it is observed from the above graph, the tax revenue trend was not constant for the previous 22 years. At some year increase and at other years decreased because of different reason. Example in 1993 tax revenue was at lows point of 6.6percent of GDP growth. This was the time when trade liberalization somewhat came to the country by the order of World Bank. So, because new system,there was instability for tax revenue collection. In 2004, tax to GDP ratio was 12.5% which was the highest percent in the trend of tax revenue collection. This was because of VAT added as tax revenue base in Ethiopia in 2003. Again in 2009, tax revenue to GDP ratio was 8.73 and shows decrement, because of globalization financial crisis effect on import and export.

4.3 Classical linear regression model assumption and diagnostic test

Before going to further in to time series econometric procedure, theotherissue is test of the assumption of classical linear regression model (CLRM).Most prior academic literature, as mentioned in literature review, examines determinants of tax revenue performance using different time series data modeling techniques. Among others, Brooks (2015) use ordinary least squares (OLS) techniques in which different between the observation and estimation are minimized in terms of sum of squares. The characteristics of the model and proposed variables stated in this research are not violating the classical assumptions underlying the OLS model. These werechecked by testing each assumption.

4.2.1. Heteroscedastic Test

Among the OLS assumption, the first diagnostic test which was conducted in this study is Heteroscedastic test. This theoretically expressed as (Ut) = $\alpha 2 < \infty$: it has been assumed thus far that the variance of the error is constant, $\alpha 2$ – this is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be Heteroscedastic.'' White (1980) as cited by Brooks, (2008 p. 134) is the most popular test of homoscedasticity.

Table 2.Heteroscedastic

Heteroscedastic test: white			
HO= homo scedasity while H1=Heteroscedastic			
F-statistic	1.492779	Prob. F (6, 15)	0.2466
Obs*R-squared	8.225132	Prob. Chi-Square (6)	0.2221
Scaled explained SS	2.051425	Prob. Chi-Square (6)	0.9149

Source; Eviews computed result

The above table reveals that Ho hypothesis is not be rejected with F-test,Obs*R2, and scaledexplained because, their corresponding P-value is greater than 5 %. This shows that variance of the errors is constant (i.e. there is no the problem of Heteroscedastic to the model.

HeteroscedasticTest: Breusch-Pagan-Godfrey			
F-statistic	1.402548	Prob. F(6,15)	0.2768
Obs*R-squared	7.906642	Prob. Chi-Square(6)	0.2450
Scaled explained SS	1.971990	Prob. Chi-Square(6)	0.9223

The above table also reveals that there is no any Heteroscedastic problem, because the F-statistics, Obs*R2 and scaled explained ss"s P-value shows >5%

4.2.2. Autocorrelation Test

The second important diagnostic test which was performed in this research is the autocorrelation test. This assumption of OLS theoretically expressed by the number of writers among that Brooks (2008) started. It has been stated as cov(Ui,Uj)=0,this is another assumption that made of the CLRMs disturbance terms is that the covariance between the error terms over time should be zero. That means the errors are uncorrelated with one another. If errors are not uncorrelated with one another, it would be stated that they are auto correlated or serially correlated. The most common test of this assumption is using the Durbin-Watson test and the Breusch-Godfrey test to detect the problem of autocorrelation. For this study both were used.

Table .3 Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.015409	Prob. F(1,14)	0.9030
Obs*R-squared	0.024187	Prob. Chi-Square(1)	0.8764
DW	1.952913		

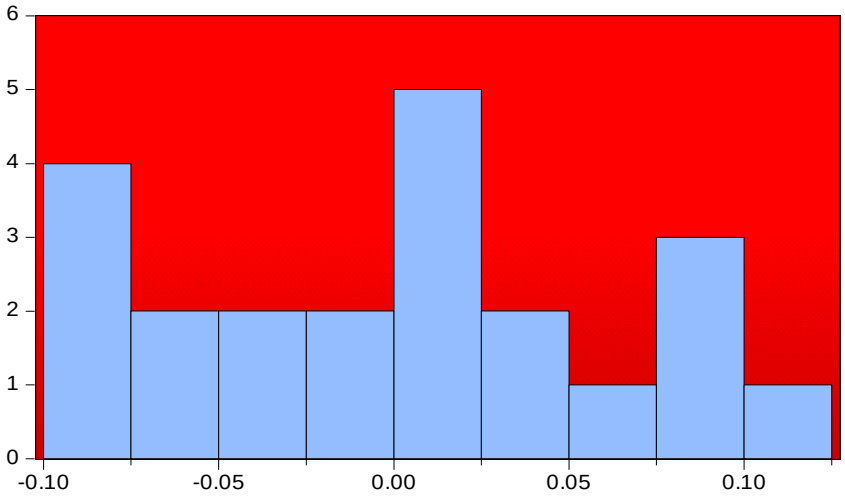
Source: computed from Eviews result

The above table shows the acceptances of the null hypothesis,becausebothmethods fail to reject since P-value of F-statistic and Obs*R2 is greater than 5% which is the most value to know significance of the model. The DW test also reveals that there is no autocorrelation, because its value is relative to 2.

4.2.3. The Normality (Bera-Jaque)Test

Another diagnostic test conducted in this study is the normality assumption (i.e. the normality distributed errors).The Brooks (2008) stated as normality assumption is required in order to conduct single or joint hypothesis test about the model parameters. The most commonly applied test for normality is the Bera-Jaque (BJ) test. The BJ uses the property of normally distributed random variable that the entire distribution is characterized by the first two moments, those are mean and variance. Having the superiority of BJ than other for normality test, the researcher used it for the null hypothesis of normally distributed errors assumption.

Since, the histogram is bell-shaped and Bj statistic is not significant, which means P-value given at the bottom of the normality test should be > 10%, so it is bigger than it and normal. The following graph shows the normality output.



Series: Residuals	
Sample 1992 2013	
Observations 22	
Mean	2.52e-16
Median	0.005643
Maximum	0.123339
Minimum	-0.098772
Std. Dev.	0.063723
Skewness	0.076228
Kurtosis	2.073014
Jarque-Bera	0.809000
Probability	0.667311

4.2.4. Multicollinearity Test

The final test which was conducted in this study is the Multicollinearity test. This help to identify the correlation between explanatory variables and to avoid double effect of independent variable from the model. The following table shows correlation among independent variable.

Table 4.Multicollinearity

.	CPI	LFA	LFDI	LNGDP	OPPS	PD
CPI	1					
LFA	0.515926	1				
LFDI	0.335581	0.559612	1			
LNGDP	0.728339	0.646995	0.512995	1		
OPPS	0.400291	0.736421	0.608019	0.662313	1	
PD	-0.656164	-0.759778	-0.429316	-0.794851	-0.537700	1

A correlation is number that explains the degree of relationship between two variables. In other explanation, Multicollinearity reveals the relation among the independent variables. As stated on correlation matrix, many of correlations that have occurred among independent variables areweak correlations which show non-existenceofMulticollinearity. Even though some high correlation existed between some variables, researcher ignored those near Multicollinearityproblems but, not without scholar's reason. Cooperand Schindler (2009) and Hailer et al. (2006) recommended that Multicollinearityproblem would be corrected when correlation level to be above 80% and 90% respectively. Ethiopia growth domestic product (GDP) is increasing from time to time and with this development, other economic variable also increased. As indicated on the correlation matrix, GDP has positive correlation with customer price index (.73) and foreign direct investment (0.51).Inflation is positively correlated with foreign direct investment (.335) and foreign aid (.52).Inflation and foreign direct investment arepositively correlated and external debt or public debt has negative correlation with all variables as per this study.

4.4 Stationary analysis

While working with time series data, testing for stationarity is needed. As it has been stated in previous paragraph, working with non-stationary leads to spurious output. This means, it indicate a relationship between variable which does not existed. To have reliable result, we have to transform non-stationary to stationary by making it differencing. As the following table reveals,

all variable do not show stationary at level, but foreign direct investment, openness, and foreign aid are stationary at first difference while inflation, growth domestic product, tax revenue and public debt are stationary at second difference. Lag length for each variable is automatically selected based on Schwartz information and Akaikie information criterion.

Table 5. Unit root test

Variable	ADF				
	Level	1st(d)	2nd (d)	Critical value at 5%	Critical value at 10%
CPI	.68	2.714	7.71	3.6	3.2
FDI	1.943	9.83	-	3.02	2.65
GDP	.92	2.19	6.19	3.02	2.65
Openness	2.618	3.816	-	3.012	2.64
Public debt	1.99	3.22	6.69	6.65	3.268
foreign aid	.39	4.13	-	3.01	2.6
TR	2.019	-2.75	6.66	-3.03	2.66

Source: Eviews result

As observedfrom the above table, the variable that was not stationary at level are stationary atdifference. So, all variable became stationary and can be concluded that, there is nostationarity problem in this study.

4.4.0 Regression analysis between tax revenue and explanatory variable

This part explained over all the empirical result of the regression and its effect on tax revenue performance. The following regression modelwas applied

LTR = -3.2371 + 0.99 *LNGDP + 0.02*OPPS + 0.01 *PD+0.04*CPI-.002*LFA+0.002*LFDI

In the following table, coefficient, standard errors, t-values, and P-values explanatory variable and R2, adjusted R2, F-statistics, prob (F-st) for regression and number of observations included are presented.

Table 6. Regression result

Dependent Variable: LTR

Method: Least Squares

Date: 05/16/14 Time: 11:46

Sample: 1992 2013

Included observations: 22

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.239571	1.136095	-2.851497	0.0121
CPI	0.003481	0.002982	1.167472	0.2612
LFA	-0.001970	0.055021	-0.035804	0.0719
LFDI	0.001864	0.012723	0.146486	0.0455
LNGDP	0.996275	0.136425	7.302736	0.0000
OPPS	0.022482	0.006098	3.686810	0.0022
Pd	0.004933	0.001366	3.612182	0.0026

R-squared	0.967171	Mean dependent var	9.472311
Adjusted R-squared	0.936040	S.D. dependent var	1.198154
S.E. of regression	0.075398	Akaike info criterion	-2.078710
Sum squared resid	0.085272	Schwarz criterion	-1.731560
Log likelihood	29.86581	Hannan-Quinn criter.	-1.996932
F-statistic	881.3479	Durbin-Watson stat	1.952913
Prob(F-statistic)	0.000000		

Source: Eviews result

4.4.1 Coefficient of Determination ($_R^2$) and adjusted $_R^2$

Coefficient of determination or R2measures what percentage of a change in the dependent variable can be measured or explained by the change in the independent variables. It is also explains the level of the explanatory power.

If R-squared = 0 (no explanatory power)

This means that none of the change in the dependent variable can be measured by the change in the independent variables. The estimated equation is useless.

If R-squared = 1 (full explanatory power)

This means 100% of the change in the dependent variable can be explained by the change in the independent variables. But, the adjusted R-squared is a modified version of R-squared that has been adjusted for the number of predictors in the model. The adjusted R-squared increases only if the new term improves the model more than would be expected by chance. It decreases when a predictor improves the model by less than expected by chance. On this study, both the R-squared and adjusted R-squared look better, Also the coefficient estimates are significant because their p-values are less than 0.05 except few. The results obtained shows that, R-squared is 0.967. This means that 96% change in the dependent variable can be explained by the change in independent variables. However, 4% can be explained by other variables. This means that the dependent variable is strongly explained by independent variables. Besides, it also has an accepted higher explanatory power by 96%. The adjusted R-squared shows 93% that can really explained by explanatory power. So it is good to show the effect of independent variable on dependent variable in sample taken , but to show total significance for population, it can explained by F-statistics corresponding P-value .

As the above regression table shows, F-statistics" p-value is less than 5% which are very significance for model and for the population inference. By and large the model of this study, looks good since it pass all regression assumption and diagnostic test.

4.4.2 Result of Regression Model

As it can be seen from the table above, GDP, openness and public debt are statistically significant at 1% while foreign direct investment is significant at 5% as well as foreign aid is significant at 10% levels of significance.CPI is not statistically significant but has positive effect on tax revenue performance in Ethiopian.

Nominal Gross DomesticProduct (NGDP)

It is total market value, measured in current prices, of all goods and services produced within the political boundaries of an economy during a given period of time, usually one year. Comparing nominal GDPs from year to year shows the amount an economy has grown or shrunk in dollar amounts. As the regression result reveals, gross domestic product has strong positive relationship with tax revenue performance and opposing the sign of null hypothesis which say no positive relationship. This is also indicated by Clausing (2007), regression analysis that GDP growth has a positive impact on tax revenues performance. It shows that these variables have a positive relationship and consistent with the economic theory. As per this study reveals, GDP increase by 1 unit, tax revenue will increase by .99 units. The reason is that as gross domestic product increase in the country, employment rate also increase and all people those have not paid before will pay currently tax for government. In addition, higher level of development, which is usually associated with a higher ability for tax payers to pay taxes as well as a greater capacity of the government to collect taxes. If the gross domestic product value decreases, the tax payers ability to pay decrease that is why they have direct relationship. Also tax base will increase as GDP value increase which leads to increase tax revenue performance in country. If economies of country increase, different Business Company emerged and createsopportunity to make revenue for government.

Public debt (PD)

Public debt refers to the current outstanding obligations for which the Central Government and its branches are responsible. It is measured by Debt to GDPratio and shows country's ability to pay back its debt. As this study indicates, the sign of public debt revealed positive relationship with tax revenue performance, but this relationship has raised conflict among different researchers. Example, Tanzi (1991) andEltony (2002) find public debt positively influences on tax revenue, but Gupta (2007) suggested as negatively influence over tax revenue. This study assured the study of EltonyandTanziaspublic debt or external debt has positive effect for tax revenue collection. From the results obtained, it shows that when public debt increase by 1 unit, tax revenue will increase by 0.004933. The increase in public debt will increases total tax revenue collection by government. It demonstrate that this variable have a positive relationship.

The reason could be increasing public debt force the government to impose high tax revenue on people to pay back for owner. In addition, it could create job for unemployed people by providing initial capital. Having this capital, the Society can createbusiness and make profit. So if society creates business and gets profit, it is inevitable that government collects high tax revenue per annum or per month to cover his deficit. Also public debt used for creating investment in the county.As a result public debt has positive relationship with tax revenue performance in Ethiopia and has good opportunity for unemployed people to create job. This is only possible if it has some limit in taking debt otherwise the country will be indebted.

Openness

Ethiopia adopts SAP in 1992 as recommend by World Bank. From that adjustment, Trade liberalization is one policy, which the country adopts with the aim of expanding export, import and GDP of the country. Trade liberalization in Ethiopia can be classified in to export promotion and import substitution. Ethiopian government eliminated restriction on exporter to promote the export and have trade surplus. In line with this, study also reveals that openness has positive relationship with tax revenue in Ethiopia and it was also indicated by Rodrik (1998) andGhura (1998) aswellasBaunssgard et al. (2005), as tax revenue and openness has positive relationship. From the results obtained, it shows that when openness increases by 1 unit, tax revenue will increase by 0.022482.Increase in openness will increases total tax revenue collection by government. It shows that this variable have a positive relationship and have consistent with the economic theory. Increase in growth of import sector tax revenue collection increases through import duties, tariff, and sales tax on import stage and withholding income tax at import stage and if there is movement in word as well as out word ,government can generate revenue. Also as more openness promotes the exchange process of goods and services with othercountries, tax revenue could be increased as well as increased trade openness promotes the efficient allocation of resources, enhances competition in national and international markets and allows for diffusion of knowledge and technology across countries. It has the ability to enhance tax revenue in the country.

Foreign Direct Investment (FDI)

Foreign direct investment (FDI) is a category of cross-border investment in which an investor resident in one economy establishes a lasting interest in and a significant degree of influence over an enterprise resident in another economy. As current study shows the relationship between tax revenue and foreign direct investment is positively related and statically significant. This also indicated by Diego (2006), who examined the effect of foreign direct investment (FDI) on tax revenue performance for a group of Latin American countries and FDI exerts a significant positive effect on central government tax revenues, which is channeled through its effect on the most important component of tax revenues, on goods and services. In Ethiopian, since 1992 market oriented economic reforms have been given to taken place and emphasis has been attracting FDI. This aim of attracting is not basically to have investors in the country, but government understood that foreign investor has influence on revenue of the central government and economic development of the country. As Diego (2006) indicated, positive effect of FDI on tax revenues is especially important for less developed economies, as it is shown that its effect is even greater than the overall effect for these economies, but very small for the more developed countries. This is so true for Ethiopian case, since it is developing country. From the results gotten, it shows that when FDI increase by 1 unit, tax revenue will increase by 0.0019 and it supports economic theory which says, foreign direct investment has positive relationship with tax revenue of one country. The reason for this positive relationship could be enhancing national welfare by reducing unemployment, rising productivity through technology transfers, create local labor's training, better management skills and then increase tax revenue of the country. In other ways, as number of investor increase in the country, the number of employments also increase that amounts to increasing the income of many people in country. As a result, number of tax payer will increase andperformance of tax revenue collection augmented. In addition, government can get tax from the investors themselves.

Foreign Aid (FA)

The result above revealed that tax revenue and foreign aid has negative relationship. This also indicted under the study of Baunssgard et al. (2005).Their research found that openness is significantly positively related to domestic tax revenue and aid per capita negatively related.

Also evidence of a negative relationship between aid and tax revenue has been borne out in the data in several studies. Ghura (1998) using data for a sample of 39 sub-Saharan African countries for the period 1985–96, finds that aid has a statistically significant negative effect on the ratio of taxes to GDP. Remmer (2004) uses a broader sample of 120 developing countries over the period 1970–99. She finds a negative relationship between three different measures of aid (aid to GNI, aid to imports, and aid to government expenditure) and changes in tax revenue to GDP. Gupta et al. (2004) also find similar results. Moreover, they show that the negative effect of aid is stronger in countries with weak institutions. Knack (2009) also finds a robust negative relationship between sovereign rents (from aid and natural resources) and taxation. From a result obtained, it disclosed that when foreign aid increase by 1 unit, tax revenue will decrease by 0.00197 and statistical significant at 10%. This is because when government gets foreign aid, they can use it for their financing problem than searching other means such as increasing tax base in country.

Customer Price Index (CPI)

CPI is a measure of changes in the purchasing-power of a currency and the rate of inflation. The consumer price index expresses the current prices of a basket of goods and services in terms of the prices during the same period in a previous year, to show effect of inflation on purchasing power. This study make clear that the relationship between tax revenue andCustomer price index (used to measure inflation or proxy for inflation) is positivelyrelatedinEthiopia. The regression result revealed, when inflation increase by 1 unit, tax revenue will increase by 0.003481, and opposing the so- called Olivera-Tanzi effect that assumed negative relationship and accepting null hypothesis. Because, in Ethiopia more of tax revenue collected from consumption product and people purchase those product whatever price it has. As a result, increasing of inflation resulted in increasing in tax revenue. For example value added tax (VAT) is more collected if price of product increase because, it is the multiplicative of flat rate (15%). Since no one survives without consumption, demand for consumption is increasing regardless of inflation. This means as inflation increase, tax revenue collection also increase. Also high inflation rate in a country will force the government to increase the tax on goods and services by increasing the price and stabilizing the consumption andaggregateexpenditure. This is used for inflation adjustmentsso that, excise tax on some products may be affected with thechange in inflation rate Tanzi, (1989).A study by Mahdavi (2008) mentioned the effect of income, capital gain and profit tax,

due to change in inflation rate. When inflation is too strong, the economy may need a slowdown. In such a situation, a government can use fiscal policy to increase taxes to suck money out of the economy. Monetary policy and physical policy control the inflation rate by using different method, so for physical policy increasing tax on assesse is one method of controlling inflation.

4.4.3 Summary of the findings

From the above discussion, the author has stated the following summarized finding: those are

- ✓ Gross domestic product has highly positive relationship with tax revenue in Ethiopia and this lead to increment of tax revenue performance for the country. It has been supported by different scholars as it has such relationship.
- ✓ The finding also explained that public debt has positive relationship with tax revenue in Ethiopia, but this has many conflicting result among scholars, many said positive relationship and other negative relationship.
- ✓ The study also revealed Openness or export plus imports as share of gross domestic product has positive relationship with tax revenue performance. So, as openness increase tax revenue collection also increase for country.
- ✓ Foreign direct investment has positive relationship with tax revenue in Ethiopia as the study explained. With this, tax revenue collection increased as foreign direct investment increase in Ethiopia.
- ✓ Foreign aid has negative relationship with tax revenue performance in Ethiopian, as it was stated in literature;governmentwillnotsearchof other means of financing if he got foreign aid, example no increasing tax base.
- ✓ The finally finding of this study has been ended with explanation of inflation effect on tax revenue in Ethiopia. As the above finding revealed, tax revenue and inflation has positive relationship in Ethiopian. This is because tax revenue collection in Ethiopia is more from consumption product. So, demand increase from time to time regardless of its price. The other reason stated in the study was, fiscal policy used tax imposition for inflation controlling purpose. As a result, tax revenue collection increase as inflation increased in Ethiopia.

CHAPTEREFIVE: CONCLUSIONS, POLICYIMPLICATIONSANDRECOMONDATIONS

5.1.Conclusions

The aim of this study is to investigate determinants' of tax revenue performance in Ethiopia federal government. In this study quantitative research method has been used and Time series regression analysis has been used. To avoid spurious correlation between variables in a regression, data investigation methods have been done by using diagnostic testing and stationaritytest. Because Combination of variables that contain a time trend or non-stationary may amounts to spurious correlations. As this study explained all variables are stationary at first difference and second difference,so has no problem of non-stationarity. In this study, classical linear regression assumption test have done, as the result shows, there were no problem of heteroscedastic, autocorrelation, normality and Multicollinearity.

The study regression result revealed thatGDP,foreign direct investment, openness, external debt, as well as inflation, drivepositivechanges in tax revenues. So when those variables accelerate, tax revenues also strengthen, and when all decelerate, tax revenues decline. Foreign aid is affecting tax revenue performance negatively in this study, because as per literature when government gets aid from other country, they are not giving attention for other means of financing. The main policy implication that follows from this finding is that countries should narrow the gap of using foreign aid as means of financing because it is not long-lasting financing ways for country. If foreign aid cease up for consecutive years, government face for deficit problem, so, emerging and developing economies should closely monitor developments of foreign aid and be prepared to adjust fiscal policy, as needed. Study displayed Gross domestic product, openness and foreign direct investment are the main variables that government should increase their volume since they are the main contributor for revenue performance in a country. Also foreign direct investment has good contribution for revenue of the country. By and large the factors that significantly affect tax revenue performances are variable explained above as per this study.

5.2.Recommendation

Tax revenue is the means for government finance for its social service and economic development without affecting other economic variable, political and cultural issues. There are many source of finance for government such as printing money, collection of money through penalty and other means, but those solution leads to other problem. Contrary to this source of fiancé, source that comes from tax revenue is best solution since it is not affect any social variables in country.

- Since informal sectors, black market and underground economy have the ability to affect the gross domestic product; government should work around this area to minimize the influence.
  - As per this study, foreign aid affect tax revenue negatively this is because of government don't search of other means of financing when government get foreign aid which leads to low tax revenue performance. To avoid this government or policy maker should give adequate attention to domestic revenue mobilization capacity than depending on outsider. The federal government also use revenue bench marking policy to be good in internal revenue mobilization. In addition government should use foreign aid as additional source of income than using as main source of finance .Because, ifgovernment gives his hand to foreign aid or support;it will be failed if such aid stopped. Even though foreign aid good for social services, government should not minimize the use of internal financing such as tax collection.
  - Foreign direct investment has many contributions for country in terms of minimizing unemployment rate, facilitating saving habit, and experience sharing. Moreover, foreign direct investment contributes for tax revenue performance. So, government and policy makers should work around foreign direct investment attraction area more than they did before. But care should be taken when attracting FDI to Ethiopia and it should be directed to more productive sectors of the economy. Predominantly, this investment should be able to create jobs, develop local skilled labor and stimulate and transfer new technology. If those are applied, the government can generate tax revenue from the activities of the foreign investors.
  - As per this study, public debt or external debt has positive contribution for tax revenue performance.Tobe real, public debt should have the ability to create job opportunity in

the country and properly used for investment purpose in the country. In order to have such ability, proper management plan should be putted in advance in Ethiopia.

5.3.Future Direction of Research

The author suggest that for future research on this work, other researchers can expand the study period and include other macroeconomic as well as social variables such as corruption, public awareness, agriculture sector, service sectors, expenditure,administrative issues and so on Should be seen by someone else that were not considered in this model. This can help improve tax revenue generation for national development.

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Appendix A. stationary test

Unit root testing

1 *Null Hypothesis: CPI has a unit root*

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*3.120376*	*1.0000*
Test critical values:	*1% level*	*-3.788030*	
	5% level	*-3.012363*	
	10% level	*-2.646119*	

2 *Null Hypothesis: CPI has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**

Augmented Dickey-Fuller test statistic		*0.680620*	*0.9991*
Test critical values:	*1% level*	*-4.467895*	
	5% level	*-3.644963*	
	10% level	*-3.261452*	

3 *Null Hypothesis: CPI has a unit root*

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*4.547830*	*1.0000*
Test critical values:	*1% level*	*-2.679735*	
	5% level	*-1.958088*	
	10% level	*-1.607830*	

4 *Null Hypothesis: D(CPI) has a unit root*

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-2.714466*	*0.0891*
Test critical values:	*1% level*	*-3.808546*	
	5% level	*-3.020686*	

10% level	*-2.650413*	

5 *Null Hypothesis: D(CPI) has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-4.091144*	*0.0221*
Test critical values:	*1% level*	*-4.498307*	
	5% level	*-3.658446*	
	10%	*-3.268973*	

6 *.Null Hypothesis: D(CPI) has a unit root*

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-2.142939*	*0.0340*
Test critical values:	*1% level*	*-2.685718*	
	5% level	*-1.959071*	
	10% level	*-1.607456*	

7 *.Null Hypothesis: D(CPI,2) has a unit root*

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-7.789898*	*0.0000*
Test critical values:	*1% level*	*-3.857386*	

	5% level	*-3.040391*
	10% level	*-2.660551*

8 *.Null Hypothesis: D(CPI,2) has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 1 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-8.722153*	*0.0000*
Test critical values:	*1% level*	*-4.571559*	
	5% level	*-3.690814*	
	10% level	*-3.286909*	

9 *.Null Hypothesis: D(CPI,2) has a unit root*

Exogenous: None

Lag Length: 1 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-7.481180*	*0.0000*
Test critical values:	*1% level*	*-2.699769*	
	5% level	*-1.961409*	
	10% level	*-1.606610*	

10 *.Null Hypothesis: LFA has a unit root*

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-0.399318*	*0.8924*
Test critical values:	*1% level*	*-3.788030*	

5% level	*-3.012363*	
10% level	*-2.646119*	

11 *.Null Hypothesis: LFA has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-2.111106*	*0.5106*
Test critical values:	*1% level*	*-4.467895*	
	5% level	*-3.644963*	
	10% level	*-3.261452*	

12 *.Null Hypothesis: LFA has a unit root*

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

	t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic	*1.891468*	*0.9823*

Test critical values:	*1% level*	*-2.679735*
	5% level	*-1.958088*
	10% level	*-1.607830*

13 *. LFA (d)*

Null Hypothesis: D(LFA) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-4.132234*	*0.0050*
Test critical values:	*1% level*	*-3.808546*	
	5% level	*-3.020686*	
	10% level	*-2.650413*	

14 *.Null Hypothesis: D(LFA) has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-3.926755*	*0.0303*
Test critical values:	*1% level*	*-4.498307*	
	5% level	*-3.658446*	
	10% level	*-3.268973*	

15 *.Null Hypothesis: D(LFA) has a unit root*

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.486452	0.0014
Test critical values:	1% level	-2.685718	
	5% level	-1.959071	
	10% level	-1.607456	

16 *.Null Hypothesis: LFDI has a unit root*

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.943860	0.3071
Test critical values:	1% level	-3.808546	
	5% level	-3.020686	
	10% level	-2.650413	

17 *.Null Hypothesis: LFDI has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*

Augmented Dickey-Fuller test statistic		*-4.682838*	*0.0065*
Test critical values:	*1% level*	*-4.467895*	
	5% level	*-3.644963*	
	10% level	*-3.261452*	

18 *.Null Hypothesis: LFDI has a unit root*

Exogenous: None

Lag Length: 1 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*0.612077*	*0.8401*
Test critical values:	*1% level*	*-2.685718*	
	5% level	*-1.959071*	
	10% level	*-1.607456*	

19 *.Null Hypothesis: D(LFDI) has a unit root*

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-9.838063*	*0.0000*
Test critical values:	*1% level*	*-3.808546*	
	5% level	*-3.020686*	
	10% level	*-2.650413*	

20 *.Null Hypothesis: D(LFDI) has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

	t-Statistic	*Prob.**

Augmented Dickey-Fuller test statistic		*-9.761149*	*0.0000*
Test critical values:	*1% level*	*-4.498307*	
	5% level	*-3.658446*	
	10% level	*-3.268973*	

21 *.Null Hypothesis: D(LFDI) has a unit root*

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-9.916537*	*0.0000*
Test critical values:	*1% level*	*-2.685718*	
	5% level	*-1.959071*	
	10% level	*-1.607456*	

22 *.Null Hypothesis: LNGDP has a unit root*

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*0.919798*	*0.9935*
Test critical values:	*1% level*	*-3.808546*	
	5% level	*-3.020686*	
	10% level	*-2.650413*	

23 *Null Hypothesis: LNGDP has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 1 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.011221	0.9194
Test critical values:	1% level	-4.498307	
	5% level	-3.658446	
	10% level	-3.268973	

24 *.Null Hypothesis: LNGDP has a unit root*

Exogenous: None

Lag Length: 1 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		2.125238	0.9889
Test critical values:	1% level	-2.685718	
	5% level	-1.959071	
	10% level	-1.607456	

25 *.Null Hypothesis: D(LNGDP) has a unit root*

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.191444	0.2150
	1%		
Test critical values:		-3.808546	
	5% level	-3.020686	
	10% level	-2.650413	

26 *.Null Hypothesis: D(LNGDP) has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		*-2.656914*	*0.2620*
Test critical values:	*1% level*	*-4.498307*	
	5% level	*-3.658446*	
	10% level	*-3.268973*	

27 *.Null Hypothesis: D(LNGDP) has a unit root*

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		*-0.875086*	*0.3245*
Test critical values:	*1% level*	*-2.685718*	
	5% level	*-1.959071*	
	10% level	*-1.607456*	

28 *.Null Hypothesis: D(LNGDP,2) has a unit root*

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=1)

	t-Statistic	Prob.*

Augmented Dickey-Fuller test statistic		*-6.196680*	*0.0001*
Test critical values:	*1% level*	*-3.857386*	
	5% level	*-3.040391*	
	10% level	*-2.660551*	

29 *Null Hypothesis: D(LNGDP,2) has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 1 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-5.991591*	*0.0007*
Test critical values:	*1% level*	*-4.571559*	
	5% level	*-3.690814*	
	10% level	*-3.286909*	

30 *.Null Hypothesis: D(LNGDP,2) has a unit root*

Exogenous: None

Lag Length: 1 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-6.167013*	*0.0000*
Test critical values:	*1% level*	*-2.699769*	
	5% level	*-1.961409*	
	10% level	*-1.606610*	

31 *.Null Hypothesis: OPPS has a unit root*

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-2.618772*	*0.1051*
Test critical values:	*1% level*	*-3.788030*	
	5% level	*-3.012363*	
	10% level	*-2.646119*	

32 *.Null Hypothesis: OPPS has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-1.781858*	*0.6770*
Test critical values:	*1% level*	*-4.467895*	
	5% level	*-3.644963*	
	10% level	*-3.261452*	

33 *.Null Hypothesis: OPPS has a unit root*

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*0.706385*	*0.8601*
Test critical values:	*1% level*	*-2.679735*	
	5% level	*-1.958088*	

10% level	*-1.607830*	

34 *Null Hypothesis: D(OPPS) has a unit root*

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-3.816743*	*0.0098*
Test critical values:	*1% level*	*-3.808546*	
	5% level	*-3.020686*	
	10% level	*-2.650413*	

35 *.Null Hypothesis: D(OPPS) has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-4.086284*	*0.0223*
Test critical values:	*1% level*	*-4.498307*	
	5% level	*-3.658446*	
	10% level	*-3.268973*	

36 *Null Hypothesis: D(OPPS) has a unit root*

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

	t-Statistic	*Prob.**

Augmented Dickey-Fuller test statistic		*-3.774953*	*0.0007*
Test critical values:	*1% level*	*-2.685718*	
	5% level	*-1.959071*	
	10% level	*-1.607456*	

37 *.Null Hypothesis: PD has a unit root*

Exogenous: Constant

Lag Length: 2 (Automatic - based on SIC, maxlag=4)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-1.994619*	*0.2864*
Test critical values:	*1% level*	*-3.831511*	
	5% level	*-3.029970*	
	10% level	*-2.655194*	

38 *Null Hypothesis: PD has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 2 (Automatic - based on SIC, maxlag=4)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-2.955933*	*0.1687*
Test critical values:	*1% level*	*-4.532598*	
	5% level	*-3.673616*	
	10% level	*-3.277364*	

39 *Null Hypothesis: PD has a unit root*

Exogenous: None

Lag Length: 3 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.665855	0.4145
Test critical values:	1% level	-2.699769	
	5% level	-1.961409	
	10% level	-1.606610	

40 Null Hypothesis: D(PD) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.383304	0.0243
Test critical values:	1% level	-3.808546	
	5% level	-3.020686	
	10% level	-2.650413	

41 Null Hypothesis: D(PD) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.218774	0.1089
Test critical values:	1% level	-4.498307	
	5% level	-3.658446	
	10% level	-3.268973	

42 Null Hypothesis: D(PD) has a unit root

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		*-3.323986*	*0.0022*
Test critical values:	*1% level*	*-2.685718*	
	5% level	*-1.959071*	
	10% level	*-1.607456*	

43 *Null Hypothesis: D(PD,2) has a unit root*

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		*-6.905170*	*0.0000*
Test critical values:	*1% level*	*-3.831511*	
	5% level	*-3.029970*	
	10%level	*-2.655194*	

44 *.Null Hypothesis: D(PD,2) has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-6.695337*	*0.0002*
Test critical values:	*1% level*	*-4.532598*	
	5% level	*-3.673616*	
	10% level	*-3.277364*	

45 *Null Hypothesis: D(PD,2) has a unit root*

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-7.125020*	*0.0000*
Test critical values:	*1% level*	*-2.692358*	
	5% level	*-1.960171*	
	10% level	*-1.607051*	

46 *Null Hypothesis: LTR has a unit root*

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*2.019966*	*0.9997*
Test critical values:	*1% level*	*-3.788030*	
	5% level	*-3.012363*	
	10% level	*-2.646119*	

47 *Null Hypothesis: LTR has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*0.056508*	*0.9942*
Test critical values:	*1% level*	*-4.467895*	
	5% level	*-3.644963*	
	10% level	*-3.261452*	

48 *Null Hypothesis: LTR has a unit root*

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*8.730736*	*1.0000*
Test critical values:	*1% level*	*-2.679735*	

	5% level	*-1.958088*
	10% level	*-1.607830*

49 *Null Hypothesis: D(LTR) has a unit root*

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-2.749132*	*0.0836*
Test critical values:	*1% level*	*-3.808546*	
	5% level	*-3.020686*	
	10% level	*-2.650413*	

50 *Null Hypothesis: D(LTR) has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-3.743617*	*0.0427*
Test critical values:	*1% level*	*-4.498307*	
	5% level	*-3.658446*	
	10% level	*-3.268973*	

51 *Null Hypothesis: D(LTR,2) has a unit root*

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-6.462774*	*0.0000*
Test critical values:	*1% level*	*-3.831511*	
	5% level	*-3.029970*	
	10% level	*-2.655194*	

52 *Null Hypothesis: D(LTR,2) has a unit root*

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-6.287627*	*0.0004*
Test critical values:	*1% level*	*-4.532598*	
	5% level	*-3.673616*	
	10% level	*-3.277364*	

53 *Null Hypothesis: D(LTR,2) has a unit root*

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	*Prob.**
Augmented Dickey-Fuller test statistic		*-6.655592*	*0.0000*
Test critical values:	*1% level*	*-2.692358*	
	5% level	*-1.960171*	
	10% level	*-1.607051*	

Appendix B. Diagnostic test

1st Heteroscadicity

HetroskedasticityTest: White

F-statistic	*1.492779*	*Prob. F(6,15)*	*0.2466*
*Obs*R-squared*	*8.225132*	*Prob. Chi-Square(6)*	*0.2221*
Scaled explained SS	*2.051425*	*Prob. Chi-Square(6)*	*0.9149*

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 05/16/14 Time: 12:50

Sample: 1992 2013

Included observations: 22

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
C	*0.025201*	*0.020255*	*1.244175*	*0.2325*
CPI^2	*6.06E-08*	*7.80E-07*	*0.077705*	*0.9391*
LFA^2	*-9.93E-06*	*0.000190*	*-0.052307*	*0.9590*
LFDI^2	*1.95E-05*	*2.51E-05*	*0.777376*	*0.4490*
LNGDP^2	*-0.000123*	*0.000243*	*-0.503697*	*0.6218*
OPPS^2	*-3.89E-06*	*4.61E-06*	*-0.844191*	*0.4118*
PD^2	*-1.47E-06*	*6.80E-07*	*-2.161762*	*0.0472*

R-squared	*0.373870*	*Mean dependent var*	*0.003876*
Adjusted R-squared	*0.123417*	*S.D. dependent var*	*0.004109*
S.E. of regression	*0.003848*	*Akaike info criterion*	*-8.029386*
Sum squared resid	*0.000222*	*Schwarz criterion*	*-7.682236*
Log likelihood	*95.32325*	*Hannan-Quinn criter.*	*-7.947608*
F-statistic	*1.492779*	*Durbin-Watson stat*	*2.540076*
Prob(F-statistic)	*0.246568*		

Hetero 2nd check

Hetroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	*1.402548*	*Prob. F(6,15)*	*0.2768*
*Obs*R-squared*	*7.906642*	*Prob. Chi-Square(6)*	*0.2450*
Scaled explained SS	*1.971990*	*Prob. Chi-Square(6)*	*0.9223*

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 05/16/14 Time: 12:52

Sample: 1992 2013

Included observations: 22

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
C	*0.069044*	*0.058642*	*1.177389*	*0.2574*
CPI	*7.43E-05*	*0.000154*	*0.482545*	*0.6364*
LFA	*-0.000788*	*0.002840*	*-0.277509*	*0.7852*
LFDI	*0.000431*	*0.000657*	*0.656433*	*0.5215*
LNGDP	*-0.005034*	*0.007042*	*-0.714923*	*0.4856*
OPPS	*-4.08E-05*	*0.000315*	*-0.129688*	*0.8985*
PD	*-0.000149*	*7.05E-05*	*-2.117956*	*0.0513*

R-squared	*0.359393*	*Mean dependent var*	*0.003876*
Adjusted R-squared	*0.103150*	*S.D. dependent var*	*0.004109*
S.E. of regression	*0.003892*	*Akaike info criterion*	*-8.006528*
Sum squared resid	*0.000227*	*Schwarz criterion*	*-7.659378*
Log likelihood	*95.07181*	*Hannan-Quinn criter.*	*-7.924750*
F-statistic	*1.402548*	*Durbin-Watson stat*	*2.522307*
Prob(F-statistic)	*0.276841*		

2nd autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	*0.015409*	*Prob. F(1,14)*	*0.9030*
*Obs*R-squared*	*0.024187*	*Prob. Chi-Square(1)*	*0.8764*

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 05/16/14 Time: 12:53

Sample: 1992 2013

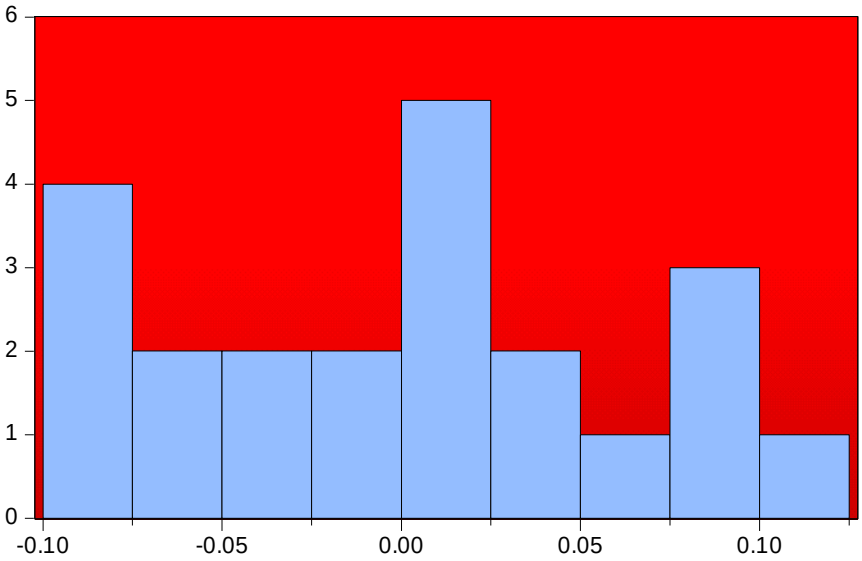
Included observations: 22

Presample missing value lagged residuals set to zero.

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
C	*-0.023055*	*1.189908*	*-0.019376*	*0.9848*
CPI	*-4.73E-05*	*0.003108*	*-0.015218*	*0.9881*
LFA	*-0.002528*	*0.060454*	*-0.041812*	*0.9672*
LFDI	*0.000295*	*0.013376*	*0.022090*	*0.9827*
LNGDP	*0.003667*	*0.144193*	*0.025428*	*0.9801*
OPPS	*-1.98E-05*	*0.006311*	*-0.003134*	*0.9975*
PD	*1.04E-05*	*0.001415*	*0.007335*	*0.9943*
RESID(-1)	*-0.035743*	*0.287946*	*-0.124132*	*0.9030*

R-squared	*0.001099*	*Mean dependent var*	*2.52E-16*
Adjusted R-squared	*-0.498351*	*S.D. dependent var*	*0.063723*
S.E. of regression	*0.078001*	*Akaike info criterion*	*-1.988901*
Sum squared resid	*0.085178*	*Schwarz criterion*	*-1.592158*
Log likelihood	*29.87791*	*Hannan-Quinn criter.*	*-1.895440*
F-statistic	*0.002201*	*Durbin-Watson stat*	*1.915722*
Prob(F-statistic)	*1.000000*		

3rd Normality



Series: Residuals
Sample 1992 2013
Observations 22

Mean	2.52e-16
Median	0.005643
Maximum	0.123339
Minimum	-0.098772
Std. Dev.	0.063723
Skewness	0.076228
Kurtosis	2.073014
Jarque-Bera	0.809000
Probability	0.667311

Table 4.F Multicollinearity

	CPI	***LFA***	***LFDI***	***LNGDP***	***OPPS***	***PD***
CPI	***1***					
LFA	***0.515926***	***1***				
LFDI	***0.335581***	***0.559612***	***1***			
LNGDP	***0.728339***	***0.646995***	***0.512995***	***1***		
OPPS	***0.400291***	***0.736421***	***0.608019***	***0.662313***	***1***	
PD	***-0.656164***	***-0.759778***	***-0.429316***	***-0.794851***	***-0.537700***	***1***

Table5.G Original data used for analysis

obs	***LFDI***	***LTR***	***OPPS***	***LFA***	***PD***	***CPI***	***LNGDP***
1992	***11.3947643***	***7.69033174***	***13.3568585***	***7.44348813***	***56.7530668***	***20.3862565***	***10.40693***
1993	***10.172751***	***8.01628489***	***17.0118319***	***7.27773137***	***73.1901519***	***21.3473265***	***10.46722***
1994	***11.7298771***	***8.20990687***	***22.0717258***	***7.84784066***	***65.9690333***	***22.6908118***	***10.64631***
1995	***10.9460106***	***8.434637***	***21.7727909***	***7.81367239***	***57.5547718***	***26.0570726***	***10.75928***
1996	***11.98442***	***8.560348***	***23.3099197***	***7.28358558***	***51.5341242***	***23.7122631***	***10.84819***
1997	***12.598536***	***8.538779***	***24.2340974***	***7.35902196***	***50.1848422***	***23.0832906***	***10.92644***
1998	***10.2386514***	***8.589495***	***25.3355579***	***7.25805998***	***52.1369356***	***23.1074117***	***11.01113***

1999	*13.5745054*	*8.696677*	*23.3328406*	*7.44284415*	*67.6618478*	*25.5091345*	*11.0972*
2000	*13.2120495*	*8.895589*	*24.0242376*	*8.09852126*	*68.6980075*	*25.9923408*	*11.11767*
2001	*13.6255353*	*8.965858*	*27.8465488*	*8.21948772*	*80.4217163*	*23.1920857*	*11.09582*
2002	*13.2975802*	*9.011048*	*27.7977328*	*8.54624701*	*80.1640707*	*22.9087005*	*11.19413*
2003	*14.9513062*	*9.284613*	*32.0190202*	*8.50063689*	*72.4800259*	*26.9803515*	*11.35977*
2004	*13.6783289*	*9.42521*	*36.7741088*	*8.77774042*	*49.4182122*	*27.6232908*	*11.56566*
2005	*13.026212*	*9.558092*	*37.2570264*	*8.78906595*	*40.157401*	*30.5920481*	*11.77785*
2006	*14.9898464*	*9.761526*	*32.6426625*	*9.26346399*	*11.8714175*	*33.9020642*	*12.0452*
2007	*15.2016172*	*10.07752*	*31.2387931*	*9.40365957*	*10.354458*	*39.0221832*	*12.41242*
2008	*15.1605888*	*10.27496*	*30.0833918*	*9.6910119*	*10.3750633*	*60.5785503*	*12.71307*
2009	*15.0010543*	*10.67626*	*35.6262724*	*10.1090739*	*18.9377874*	*62.2183297*	*12.84565*
2010	*10.9985844*	*10.98497*	*33.8237632*	*10.319731*	*24.35532*	*66.7735782*	*13.15207*
2011	*14.9710563*	*11.35907*	*32.9282996*	*10.3368434*	*20.4236086*	*92.1769744*	*13.52426*
2012	*12.0541185*	*11.58068*	*29.2463495*	*10.2341034*	*21.4317988*	*111.353447*	*13.67011*
2013	*15.0883392*	*11.79899*	*29.9114638*	*10.0058907*	*25.3575112*	*119.586586*	*13.86181*

Source: MOFED, NBE and ERCA