FACTORS AFFECTING BUSINESS INCOME TAX REVENUE IN ETHIOPIA.

By

HAMELMAL AZENE H/GEBRIEL

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Chairperson, Department Graduate Committee:

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Date________________________________________
DECLARATION

I hereby declare that this thesis entitled “Factors affecting Business Income Tax Revenue in Ethiopia” is my own original work under the guidance and supervision of Teklu Kassu (Ph.D.)

The thesis has not been submitted for the award of any Degree in any University, and all the materials used in this thesis have been duly acknowledged.

Researcher’s Name: Hamelmal Azene H/gebriel

Signature: ____________________________ Date: ____________________________
**ABSTRACT**

Observing the fluctuation in business income tax revenue trends at wider and narrower perspective analysing the factors and comparing it to Ethiopia’s case research question has been set to figure the quantitative relationship to some factors.

Based on theories and empirical reviews a conceptual framework was set to see the relationship of Incentives, Foreign direct investment and Inflation on business income tax revenue in Ethiopia.

To reach the desired conclusion statistical methods both descriptive and inferential were acted up on 30 years data using SPSS(23).

From these analysis important factors such as the correlation matrix, ANOVA, coefficients tables along with P-P normal plot and scattered plot have been discussed in detail. The correlation matrices which turned out to be the same for all regression analysis types revealed the following facts.

The correlation matrix implies, the relation between business income tax and incentives is .969 (96.9%) whereas the relationship of inflation and foreign direct investment to the same is .170 (17%) and .255 (25.5%) respectively. Based on the ANOVA tables the listed significant P values are detected to examine the hypothesis of mean equality against < 0.05 significant P value. .000b, .528b for model -1, .634c for model -2, .000d for model-3, and .000b for Standard, hierarchical and stepwise multiple regression models respectively. P-P normal curve and the scattered plot nearly show the same distribution except for the stepwise regression P-P normal distribution where the abnormally broken line shows.

The model formulated is mentioned as follows:

**Business income tax = .804(Incentives) -.152(Foreign direct investment)+30,046,993.585(Inflation) -848,937,390.864**

The interpretation being to obtain a unit change in business income tax revenue .804 incentive should be induced, .152 foreign direct investment should be reduced, 30,046,993.585 inflation should be increased or if all are constant the revenue would decrease by 848,937,390.864.
ACKNOWLEDGMENT

At the completion of this thesis my special gratitude goes to My Advisor Dr. Teklu Kassu for his countless support and encouragement.
In fact it is impossible for one to fulfill a wish without magnificent people helping you. So the next honor goes to Family, Friends, Colleagues, Instructors, My company DERBA MIDROC Cement Plc. for giving me this wonderful chance, People who cooperated in data availing in different government institutions, My Country at large and finally….
To ALMIGHTY who works behind the screen and gave me additional BREATH.

DEDICATION

This thesis I dedicate for the memorial of Unity University which provided me with the platform to discover myself, experience joy and team effort.
I thank you!
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## KEY WORDS

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<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tr>
<td>ANOVA</td>
<td>Analysis of Variance</td>
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<tr>
<td>CAPM</td>
<td>Capital Assets Pricing Model</td>
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<tr>
<td>CEMAC</td>
<td>Economic and Monetary Community of Central African States</td>
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<td>CIT</td>
<td>Corporate Income Tax</td>
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<td>ECOWAS</td>
<td>Economic Community of West African States</td>
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<td>EPRDF</td>
<td>Ethiopian People Revolutionary Democratic Front</td>
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<td>FDI</td>
<td>Foreign Direct Investment</td>
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<tr>
<td>GST</td>
<td>Goods and Services Tax</td>
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<tr>
<td>MOFEC</td>
<td>Ministry of Finance and Economic Cooperation</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<tr>
<td>OECD</td>
<td>Organization for Economic Cooperation and Development</td>
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<td>R&amp;D</td>
<td>Research and Development</td>
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<td>SACU</td>
<td>Southern Africa Customs Union</td>
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<tr>
<td>SCF</td>
<td>Standard Committee on Finance</td>
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<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
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<td>UK</td>
<td>United Kingdom</td>
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<tr>
<td>EAC</td>
<td>East African Community</td>
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<td>US</td>
<td>United States</td>
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<tr>
<td>VAT</td>
<td>Value Added Tax</td>
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<tr>
<td>WAEMU</td>
<td>West African states Economic and Monetary Union</td>
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CHAPTER 1- INTRODUCTION

1.1 Background

A variety of business income tax trend has been observed around the world in the past few decades. The trend in the OECD countries implies that there has been declining revenue with some inclination lately. This is attributable to business income tax rate falls. In fact the inclination in revenue is due to widening the tax base despite the reduction in rate.( Tomonori S.2012) On the other hand the United States of America witnessed fall in business income tax revenue from 1965-1985G.C. And this decline is attributed partially to government regulations regarding incentives and narrowed tax bases that is less profit along with more investment in capital assets.( Alan J. and James M. , 1987)

In countries where business income tax to GDP ratio is high the corporate sector contributes much to the revenue and is also profitable(Joanna P., Werner V.,2008) It is also explained that corporatization and income shifting from personal to corporate income tax contributed to increased tax revenue as tax rate reduced. This means where the countries are not well corporatized and the existing corporations are not profitable it follows that business income tax declines .As per the US case tax breaks contributed to business income tax decline for instance statistics indicates by the year 2003 the revenue foregone due to tax break for multi nationals, research and experimentation as well as US export subsidy amounted 11,000,000,000.00, 9,000,000,000.00 and 5,000,000,000.00 all in $ respectively.

In European Union Germany and Italy are among the nations where decrease in business income tax resulted for increased foreign direct investment .In addition this literature reveals that foreign direct investments can have adverse effect on corporate tax revenue due to competition and this has been manifested in some OECD countries. (Reint G.and Kristina K.,2000) .In tax policy for developing countries it has been mentioned that the impact of inflation and incentives is visible as well. It is mentioned in an article that depreciation rates and mechanisms should take in to account the likely price appreciation of fixed assets which in most cases is not adjusted for. This incorporation of inflation effect directly is applied on gross profit deductions influencing business income tax. More over in the same article it has been mentioned that cost – effectiveness of export incentives should be emphasized over it’s foreign investment attraction.
This is because as mentioned in the document some incentives are least effective like that of tax holidays and investment subsidies. It is also mentioned that incentive by discretion and indirectly have their own draw backs. (Vito T. and Howell Z.,2001)

From the literature sited: ( Mario Mansour,2014) for the period 1980-2010 the trend for trade taxes, indirect taxes, corporate taxes and direct taxes contribution has been disclosed. Declining trade , inclining indirect and static corporate as well as direct tax has been observed. Focusing on the area of the study the trend for corporate tax has been inclining exceptionally for Southern African countries. Regarding* EAC (East African Community) corporate tax trend is more like slight upward curve. The reasons can be like mentioned in the (OXFAM,2016) publication much corporate tax is foregone each year by different developing countries .In sub Saharan countries it mentions the governments have shifted to cut of development activities or taxes burdening low income society by taxes like VAT(It contributes about 67% in the region) compensating for the income lost in corporate income.

1.2 Statement of the problem

Ethiopian tax system is believed to have it’s base between 1942-1944. Then the tax system was composed of property taxes namely land and cattle. Then in 1950’s taxes on goods and services applied, followed by rate and structure amendment on income taxes in 1960’s. From 1974-1991 privet investments were nationalized so capital and surplus were transferred from such companies. (Alemayehu G. and Abebe S., 2005) Based on Income Tax Proclamation No. 173/1961 of the 1990’s Business income of juridical persons is taxable at the rate of 30%. Taxable Business Income other than that of Juridical Persons ranges from 10% -35% for yearly income earned categories running from 1,800 up to over 60,000 br. (Source: MOFEC)

Regarding the revenue generation trend of business income tax there is some irregularity. Data from 1974-2013 reveals that direct tax contribution to tax revenue has fallen from 37% in the Derg regime to 34% in EPRDF. Specific to pre and post reform periods in 2002 the revenue contribution of direct taxes has fallen from 36% to 33% respectively. (Delessa D., 2014)

*Note: EAC: East African Community ;ECOWAS: Economic Community of West African States (includes non-WAEMU members only);CEMAC: Economic and Monetary Community of Central African States ;SACU :Southern African Customs union; WAEMU: West African Economic and Monetary Union.
Hence this study was made before the personal income tax reform the decline can only be justified by narrowing tax base.

Returning to business income tax the trend as contributing to the total direct tax has the following issues: Observing the trend from 1979-2008, of the contribution personal income tax and business income tax made to the total direct tax, business profit tax takes the upper hand except for some interruptions in 1992. However 2003/04 onwards the trend shifts the opposite direction and the personal income tax begins to rise. (Tsegabirhan w., 2010) Trying to obtain the latest business income tax earnings from MOFEC the researcher discovered the nearly persistent contribution of business income tax revenue inclined for nearly two decades (Data:1997/98-2015/16).

The trend resembles that of the OECD counties unlike the US which still indicates decline in corporate tax. The case of Incentive strategies for US, foreign direct investment in some European countries and inflation as another likely cause has been justified in the background. Besides this foreign direct investment and inflation are proofed to be among the factors influencing business income tax revenue in Ethiopia (Tesfaye A., 2015). Another study also indicates incentives which in most cases are granted to the export sector are hazardous to Ethiopian business income tax revenue. (Million Timer J, Azime A. H. and Gollagari R., 2016) However these studies fall in short of determining the cause and magnitude of these variables in Ethiopian context.

Far beyond the studies reviewed the fact that incentives are provided in two streams in the prevailing duty free and investment directives, foreign direct investment is vigorously promoted and inflation especially the food inflation has always been acquainted with earning in personal income tax it is critical to place all their effect in model predicting the flourishing business’s income tax revenue in Ethiopia.

Because Incentives, Foreign direct investment and Inflation are believed to influence business income tax revenue in Ethiopia, this study aims at filling the information gap regarding the magnitude of this influence. In the study the variables considered are statistically analyzed so that a model explaining the numerical relationship between Business income tax and the respective explanatory variables Incentive, Foreign direct investment and Inflation is developed.
Hence the study forecasts the magnitude in effect of the aforementioned factors on Business income tax revenue of Ethiopian government.

1.3 Research question

From the above stated problem this study tries to answer the questions:

1. How much incentive changes for a unit change in business income tax revenue?
2. What is the coefficient of change in foreign direct investment that results in a unit change of business income tax revenue?
3. What is the extent of shift in inflation sufficient to result in a unit change in business income tax?
4. What the degree of model accuracy explaining the relationships is?

1.4 Research objectives

The general objective of this study is to investigate the factors affecting business income tax revenue in Ethiopia and give recommendation.

Specific objectives:

1.4.1 To explore the effect of incentives on business income tax

1.4.2 To examine the effect of foreign direct investment on business income tax

1.4.3 To evaluate the effect of inflation on business income tax

1.4.4 To establish the joint effect model for the three independent variables (factors) acting on business income tax revenue

1.5 Hypothesis to be tested

H₁: There is relationship between incentive and business income tax revenue

H₂: There is relationship between foreign direct investment and business income tax revenue

H₃: There is relationship between inflation and business profit tax revenue

H₄: There is positive relationship between incentives and business income tax revenue
H$_5$: There is negative relationship between foreign direct investment and business income tax revenue

H$_6$: There is negative relationship between inflation and business income tax revenue

1.6 Research Methodology

In general the purpose of this session is to discuss the techniques we used to bring the required output. Hence the target is to achieve representing, fit model that would explain the factors affecting business income tax along with their magnitude. Therefore, the model would indicate the possible forecast in business income tax revenue provided amendment in the predicted variables.

With respect to research approach, explanatory research method has been employed since our purpose is to clarify on the factors affecting business income tax revenue in Ethiopia and the extent there by. To enhance the process samples of Business income tax revenue, foreign direct investment, inflation and incentive data have been obtained just for 30 years because of inconveniences encountered. Ministry of Finance and Economic Cooperation, Ethiopian Investment Commission, Ethiopian Revenues and Customs Authority and the remaining from African Development Indicators-World Bank Data Base were the primary sources. In fact this adds to the secondary data sources obtained through books, journals, articles and different publications. These sources were back bone in establishing the conceptual frame work based on theories and empirical reviews. All quantitative data included are more or less representatives of the population as can be observed depicted in research methodologies chapter. Statistical Package for Social Sciences (SPSS-23) found to be adaptive and convenient for the data type (Scale in SPSS to mean Ratio or Interval data) and quantity was prime.

Further step required to come up with practical model was statistical operation on the data acquired. Relationship between the predicting variables and the resultant magnitude in the forthcoming business income tax revenue could only be foreseen from past data and hence both descriptive and inferential analysis was rendered. Some of the operations include measures of central tendency like sum mean, mode; measures of dispersion like range , variance and standard deviation measures of relations; like correlation and measures of the relation parameter like ANOVA , Multiple Linear Regression and coefficient of determination are made. Followed by
test of assumptions for multiple linear regression model to make sure the model doesn’t indicate exponential or logistic relationships.

Based on the model stated as:
\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e_i \]

Where \( Y \) = Total Business income tax revenue, \( \beta_0 \) = Y intercept, \( \beta_1 \) = Coefficient of incentives, \( X_1 \) = Incentives, \( \beta_2 \) = Coefficient of foreign direct investment, \( X_2 \) = Foreign direct investment, \( \beta_3 \) = Coefficient of inflation, \( X_3 \) = Inflation, and \( e_i \) = Error term

Finally conclusion is made up on the hypothesis tested, which are all stated in alternative hypothesis form where the negation or null is just the reverse, and the whole study concluded to lead to recommendations aligned to the research questions set.

1.7 Significance of the study

The political significance in this study is all about becoming influential in regional and international affairs. Basically more tax collection results in empowering government provided it has set the right administrative tools. So once the right administrative tools are employed the tax revenue in general and business income tax revenue in particular would be dependent on the tax structure. The structure is broadly composed of the rate and the rate and tax base. In our case the tax rate is fixed for the past three decades so it would be critical that government identifies the factors narrowing the tax bases.

The economic significance of this study is largely mentioned above. It helps build a nation further. So it enhances the investment on infrastructure and public services by the government. The other perspective by which the economy can benefit from this study is that it would comment on which macro and fiscal factors to focus so as enhance economic growth resulting from magnified business income tax.

The societal benefit of this study goes to identifying causes for reduction of business income tax revenue. This process benefits the society because unnecessary burdens on the low income society can be shared. On the other hand developed economy and politics lead to increased social services and social conscious.
Academically this study contributes to the development of tax accounting because it widens the knowledge on business income tax, it serves as spring board to further studies and intellectual debates regarding business income tax. Specific to Ethiopian business income tax revenue trend it helps academicians focus on it and the government take actions regarding the rate or base of the tax.

1.8 Scope of the study

The study observes the trend of business income tax revenue in the finalized two decades as a platform to identify the effect of factors involved. The theories and empirical reviews made are of foreign direct investment, inflation and incentives to set the concepts of how they affect business income tax. The quantitative approach is primarily used regarding the input data and it’s analysis and it does not incorporate the views of officials. This data is composed of reasonable time series data dating back 30 years from 2016 G.C. The geographic scope is limited to Ethiopia indicating absence of cross sectional data.

1.9 Limitation of the study

The lack of complete and well organized data regarding the interaction of the considered predictor and predicted variables made it hard to ensure relationship. Almost none discussion is available on the subject in secondary data sources that the researcher was forced to drop some critical predictor variables like transfer pricing were dropped. However the fragmented information obtained from web sources was thoroughly analyzed in order to figure out what sort of interaction and effect they had one another. Some articles even vividly indicated the financial statement aspect of the predictor variables considered. Another difficulty encountered was data availability. This problem in addition to dropping nominated variables led to use of international data sources. In addition to data unavailability on incentives dated beyond 10 years, the definition of incentives for world bank early period data and the contemporary ERCA data differs. To provide a clarified view in the earlier times incentive is considered only for local businesses which took the form of import tax relief, whereas as the contemporary legislations include another incentive wing for foreign direct investments and industrial parks. The model could fall in short of explaining the impact of these investment incentives however captures all of the incentives to support local producers. Time and finance constraints were also observable.
1.10 Organization of the study

The study is organized in such a manner that in chapter two the concepts of business income tax, incentives, foreign direct investment and inflation are discussed briefly in the conceptual literature work. The empirical review tries to navigate practical issues of the relationships in different parts of the world. So this wind-up the literature reviews part. Chapter three the methodology discusses the research approach and design, data type, sample design, statistical analysis, model presentation and tests for assumptions. Chapter four delivers the findings and at last the conclusion and recommendation is made in chapter five.
CHAPTER 2- LITERATURE REVIEW

This literature review part of the study discusses the definitions and concepts embracing the variables in consideration as well as their interaction. Another point in the conceptual framework to be discussed is the conceptual boundaries of these variables in this specific study. It also provides theoretical background for business income tax, foreign direct investment, inflation and export incentives. Empirical review on the relationships of the above mentioned variables cited from different publications would also be availed.

2.1 Conceptual literature

In this part the researcher tries to define and analyze the concepts of the variables included in the study so as to give a clue on the concept boundaries of the study and the interaction of the variables.

2.1.1 Business income tax

Business income tax corporate income taxes are defined as taxes dependent on business activities and profitability. In addition the business income tax is computed not just on the gross profit but after the allowable deductions according to each country’s legislation. In addition this tax claims the charge on businesses net profit from goods and services (Tākemoniwhiwhi, 2017) Business income tax Ethiopian context is defined as tax imposed on taxable business income/ net profit realized from entrepreneurial activity. Taxable business income is determined per tax period on basis of profit and loss account or income statement, which shall be drawn in compliance with generally accepted accounting standards. Corporate businesses are required to pay 30% flat rate of business income tax. For unincorporated or individual businesses the business income tax ranges from 10%-35%. (Atsbha T., 2016)

Where the concepts in business income tax of Pakistan is discussed implies the gross business income tax computed should consider deductions like reductions in tax liability, foreign tax credits, tax credits on donations, investment and tax credit on exempt share from association of persons. (Government of Pakistan, 2014) From this business income tax concept not only expenses but also other deductions involve in determination of the business income tax liability. Some of the deductions resemble incentive like in case of investment deduction. Others like that
of foreign tax credit seem controlling; donation deduction is also not applicable in other tax regimes.

In Ethiopian context the definition and concept of business income tax does not lay far behind what we discussed. The annual income less expense deduction concept is the same. It’s computation is guide line based income statement. Service and good provision, asset transfer or other income are considered. Deductions include administrative expenses, depreciation to the extent of operation, Interest excluding inter-banks, donation for national purpose and NGOs and loss carry forward. (Income tax – proclamation No.979-2008)

2.1.2 Incentives

To explain vividly the incentive on tax or foreign direct investment is the package of programs the government of a specific country under takes looking forward to in flow of capital and investment. The incentive may be designed in such a manner that it increases return or reduces the attached investment risk. The incentives in most cases are offered to specific sectors, industries, at times as narrow as companies or regions. (A global survey, 2000)

Classification of tax incentives (A global survey, 2000)

2.1.2.1 Reduced corporate income tax rate: these are incentives by the government to reduce the income tax payable by multinational companies or foreign investments in general. These incentives may be vested on all inclusive or requirement meeting investment basis. Hong Kong (China), Indonesia, Ireland, the Lao People’s Democratic Republic, Cambodia and Estonia are a few countries that use this type of incentive.

2.1.2.2 Loss carry forwards this is in short an accounting treatment of foreign direct investments to report the loss they incurred in the forth coming profit years as a shield to tough market penetration and profitable operation. Taken together, a low tax rate accompanied by loss carry forwards for tax purposes and accelerated depreciation is considered to be a major element in an effective tax system and one that is highly attractive to foreign investors. Loss carry forward is usually provided for periods ranging three to five years and there is threshold for the loss.
2.1.2.3 Tax holidays tax holidays are a common form of tax incentives used by developing countries and countries with economies in transition to attract FDI. Under a tax holiday, qualifying “newly established firms” are exempt from paying corporate income tax for a specified time period (e.g. five years). The provisions may exempt firms from other tax liabilities as well. Tax holidays eliminate tax on net revenues from investment projects over the holiday period, which, depending on the case considered, tends to encourage investment.

2.1.2.4 Investment allowances Investment allowances are deductions from taxable income based on some percentage of new investment (depreciation). They tend to lower the effective price of acquiring capital. Both investment allowances and investment tax credits are given as a specified percentage of qualifying investment expenditures. Because they are deducted against the tax base, however, their value to the investing firm depends, among other things, on the value of the corporate income tax rate applicable to the tax base — the higher (lower) the tax rate, the higher (lower) is the amount of tax relief on a given amount of investment allowance claimed. One of the investment allowances available is accelerated depreciation.

2.1.2.5 Investment tax credits investment tax credit is an incentive that takes into consideration the investment on cost of capital. This is like investment allowance in that it allows the company to recover on capital expenditure it made at a given percentage. There are also two forms of investment tax credit. The first flat rate and the second incremental rate. The flat rate considers the one time investment costs companies incurred so that they will be compensated. On the other hand the incremental investment tax credit considers the series of investment costs incurred by a company to constitute the overall tax credit.

2.1.2.6 Reduced taxes on dividends and interest paid abroad Governments generally levy taxes on dividends remitted abroad by foreign investors. These taxes may be reduced in order to attract foreign investment. Typically these taxes are about 10 per cent. Leaving aside the tax-shifting phenomenon, the lower the dividend tax, the greater the tax incentive. On the other hand, the lower the dividend tax, the lower the penalty for remitting dividends, and the lower the incentive to reinvest profits.

2.1.2.7 Preferential treatment of long-term capital gains this tax incentive is mainly focusing on investors with intention to keep their investment in the host country. Capital gain is the profit made by the multinational company in its investment abroad in this case. But it is not the profit
share of the investor by the amount which is allotted for reinvestment. Because this investment virtue provides host country with more capital inflow the government would attempt to give more incentive to re-investing owners. In the same manner this preferential capital gain tax relief is made to those who invest longer than who resign shortly.

2.1.2.8 Deductions for qualifying expenses in such cases where training and research and development are important for technology transfer, some countries allow more than full deduction for tax purposes of qualifying expenses. For example, they may allow double deduction of training expenses, R&D expenses, or export marketing expenses. This type of incentive may be considered in association with measures to encourage transfer of technology.

2.1.2.9 Zero or reduced tariffs primarily developing countries used to give import and export tariff incentives this is because the import tariff eases for the cost of capital investment. And the export tariff helps local producers to compete with the foreign multi nationals. However it is recommended by world trade organization that the two tariffs be exempted to benefit from international trade and to allow for free competition resulting from globalization. Therefore now the two tariffs are considered inefficient, high-cost, distorted industrial structure resulting incentives.

2.1.2.10 Employment-based deductions to encourage investment in specific sectors or geographic areas, Governments may reduce social security contributions or provide tax credits or allowances based on the number of employees hired. Bulgaria, on the other hand, offers tax incentives to further its social goal of providing employment to persons with disabilities.

2.1.2.11 Tax credits for value addition In order to promote domestic capacity building and discourage export of raw commodities, Governments may provide tax credits or allowances for value addition in processing or for the net local content of outputs (defined as the value of sales less depreciation of capital equipment, and the value of imported raw material and supplies).

2.1.2.12 Tax reductions/credits for foreign hard currency earnings one of the reasons many developing countries encourage export is in order to earn much needed foreign hard currency. Not only export processing, but also many industries in the services sector (e.g. tourism and hotels) are provided tax reductions or credits based on earnings of such hard currency.(Imtiaz Ahmad, 2015, Dorsati H. Madani & Natàlia Mas-Guix, 2011)

In Ethiopian context the intention to benefit more from the currency in flow remains intact. Therefore there are different schemes like provided in any part of the world. To begin with the
proclamation addresses it’s objective to be the increment in foreign currency and because it is a necessary tool to employ the export sector. Then it continues with the incentives

(a) Duty Draw-Back Scheme: This is refund on imported input tax

(b) Voucher Scheme: Allowed voucher candidates are import of raw materials tax exempted so long as they keep on exporting their product- they provide the voucher they are given to customs authority.

(c) Bonded export factory scheme: In this system the input is tax free and transport and proper consumption or disposal is under close watch of customs.

(d) Industrial zone scheme: In this system all the measures taken in”(c)” are undertaken in addition to controlling the local and export out puts. Based on the type of market tax is levied.

(e) Bonded export manufacturing warehouse scheme: This scheme is all about making inputs tax free controlling the inputs and out puts at warehouse and levying tax and penalty when inputs are compelled for sale locally.(Proclamation No. 768/2012 )

However there is one thing to note here in Ethiopian context there seem to be confusion regarding export incentive and investment incentive (Regulation No.312/2014) for investment incentives exempts industrial development zones of income tax for 10 and 15 years the incentive further discusses exemption based on export volume.

2.1.3 Foreign direct investment

As the academic literature does not always agree about the definition of FDI, it seems appropriate to turn to the definition of an official organization. According to OECD (1996), ‘foreign direct investment reflects the objective of obtaining a lasting interest by a resident entity in one country (‘direct investor’) in an entity resident in an economy other than that of the investor (‘direct investment enterprise’). The lasting interest implies the existence of a long-term relationship between the direct investor and the enterprise and a significant degree of influence on the management of the enterprise.’ To implement this statement, the OECD recommends that ‘a direct investment enterprise be defined as an [...] enterprise in which a foreign investor owns 10 percent or more of the ordinary shares or voting power of an [...] enterprise’. (Essay2000_02.pdf)
The important concepts of this definition are that FDI involves a ‘lasting interest’, a ‘long-term relationship’, and a ‘significant degree of influence’, although the latter part of the definition has increasingly become less important in recent years (Lipsey, 1999). Regarding the OECD scope foreign direct investment includes 10% investment with or without significant influence on decision making this is set to standardize data reporting across the countries (OECD, 2008).

The foreign direct investment in Ethiopian context begins with reserved investments for local investors.

- Banking and insurance
- Packing, forwarding and shipping
- Broadcasting
- Mass media
- Attorney and legal consultancy services
- Preparation of indigenous traditional medicines
- Advertising, promotion and translation works and
- Air transport using air craft with a seating capacity up to 50 passengers services (Investment Regulations No 270 - 2012)

As can be observed in the proclamation foreign investors can engage in numerous investment aspects except for the above services. From this it can be inferred that foreign direct investment being a lasting interest, long-term relationship and significant influence affects a country’s economy power. Therefore it is vivid why strategic sectors are reserved for citizens. On the other hand the proclamation for investment defines foreign investor as fully owning the foreign capital, jointly owning the local capital or capital owned by permanently foreign residing Ethiopian preferring foreigner treatment. (Investment proclamation No.769 of 2012)

2.1.4 Inflation

Because the term inflation is such a generic term used in many contexts, there is no commonly accepted definition of inflation, nor is there a common agreement on what constitutes acceptable levels of inflation, bad inflation, or hyperinflation. Generally it can be said that inflation is a measure of a general increase of the price level in an economy, as represented typically by an
inclusive price index, such as the Consumer Price Index in the United States. The term indicates many individual prices rising together rather than one or two isolated prices, such as the price of gasoline in an otherwise calm price environment. The inflation rate is typically expressed as an annual growth rate in prices (again, as measured by an index) even if measured over a shorter period of time. For example, if a radio report states that "consumer prices rose at an inflation rate of four percent last quarter," that would typically mean than the Consumer Price Index for All Urban Consumers (the most quoted index) rose over the last three months at an annualized rate of around four percent, and the press would generally refer to the current inflation rate as around four percent. (Inflation pdf, 2017)

The four concepts of inflation are believed to be deflation, reflation stagflation and disinflation. Deflation is exact opposite of inflation in that it is a persistent fall in price. reflation is a deliberate inflation adopted by governments when there is economic depression and any more production is discouraged to price fall. Stagflation is a persistent price increase accompanied with high unemployment and less production. Disinflation on the other hand is the measure a government takes to reduce increasing price without increasing unemployment. (Muhammad zubair, 2012)

Regarding inflation in Ethiopia some scholars agree it results from supply side of products like that of agricultural. Others say the monetary supply locally and international inflation have got both impact. And also some say the demand side should also be considered. (Sisay Menji, 2008) Otherwise the definition and concept are no different in Ethiopian case in fact the administration of the national bank of Ethiopia is limited to core (non-food) inflation. (national bank of Ethiopia, 2012)

To generalize this study concentrates on the relationships of the afore mentioned variables. As previously discussed at the core of business income tax is income obtained from goods and services operating in a specific year considering the net income. Incentive has basic aim of increasing foreign currency reserve. Whereas foreign direct investment is all about degree of influence lasting interest and long-term relationship. Inflation is all about price upward movement which is persistent, with It’s four concepts involving government intervention. The relation among business income tax, foreign direct investment and incentives is clear that both affect the first through economic resource and income gain. Inflation however largely relates
with business income tax because of the deterioration in value of what has been collected in fact inflation is a cause for a number of macro-economic and financial statement measures. conceptually the variables interact in the following manner:

![Diagram of economic variables interaction]

**Figure : 1 Self constructed from the above discussions.**

**2.2 Theoretical analysis**

In this theoretical review the researcher tries to assess the different theories of the variables under consideration and by the end tries to relate the theoretical relationships and interaction of the variables.

**2.2.1 Theories of business income tax**

An article reviewed begins by rising the questions are substantial expansion of revenues expected only from an increase in corporate income tax? Is it another form of business taxation? Is it income tax alone? and so on . This is answered by review of different theories of the same.

2.2.1.1 Corporate income tax as a form of business taxation

This theory states the different justifications why corporate tax should be levied and not. In addition it suggests what it’s base should be. The argument for the prevalence of this tax is basically the benefit approach. It is state that, the business in this case, the corporation benefits from infrastructure, skilled manpower, legal framework. It is also regarded that government is considered the silent partner facilitating profitability through conducive business environment.
Though is given less weight the ability to pay principle indicated it is better to charge individuals because whatever businesses save is invested on the society. The base is also suggested to be cost instead of profit which is more stable.

2.2.1.2 Corporate income taxes supplementing individual income taxes

In this theory what has been discussed deeply is the corporate income tax as a tool. As it is commonly understood individuals may have different form of earnings. One of the forms of income takes the form of dividend. As a corporation makes profit, it pays tax after the periodic interest payables are settled. Then is the turn for owners, provided dividend is declared individual owners pay tax on dividend income collected by the corporation. However whenever the investment is retained the individual tax liability remains unsettled. This is the case specially where there is no capital gain taxes therefore it is recommended to tax the undistributed profit hence it should be treated like any other saving.

2.2.1.3 Corporate income tax as a technique of economic control

The presence of corporate income tax initially affects forms of organization. Which one is taxed more the corporate or the partnership affects the economy through the saturation of one. On the other hand another direct benefit marked is it diminishes monopoly through sharing what has been obtained by the company. The remaining are related to Undistributed profit taxation. The arguments support undistributed profit taxation because it is cause for ideal resource, capital market can benefit the economy than self financing, controlling can better catalyze the economic activity through capital market, reduces the economic power of single corporation which re invests its idle cash and the last but not the least people tend to take dividend and consume. (Gerhard C.,1940)

2.2.2 Theories of Incentives

According to an article here under mentioned export incentives can be of three sources. These sources are in most cases attached to economic development and profit making while others are related to wrong export promotions (Sarath R.,1993).

2.2.2.1 Distortion- correcting export promotion: In this category we have wrong government policies resulting in distortion in the economy. Therefore in order to minimize the effect of this
variables government induces export incentives/promotion skims/. Some of the possible distortions are:

- Import protecting and export encouraging policies these policies have the overall effect of trade performance and import is deprived of delivering its benefits to the economic sectors demanding it.
- Overvalued exchange rate policy would also have negative impact on countries export hence exporters would earn little from their investment. The other dimension of overvaluation is also reduced local purchase/ less import/ export and foreign direct investment which all damage a countries economy. A simple example to this effect is, if a country’s currency appreciate against US dollar it can be explained in that country one person would buy one item instead of two due to price appreciation, hence the individual would buy from somewhere cheap where it demands less US dollar to buy the same item.
- Tax on export would also negatively affect the economy hence is not encouraging trend. In order to reduce It’s diminishing income effect government can take export incentive actions.

2.2.2.2 Export promotion for it’s own sake: In this theory export brings about economic growth. This economic growth is brought about different means some of which are competition, use of economies of scale available for export exhaustively and access to improved technology. Literally speaking competition is a factor in every countries growth because consumer has the power to decide to which quality and price to incline. In that case least cost high quality product would be the standard of many companies to achieve that companies compete locally and internationally. The other point exhausting exporting capacity to the maximum is experienced by government and companies as well as other stake holders. This capacity building demanding duty synchronized with the availability of improved technology access give rise to improved export sector involving foreign direct investment.

2.2.2.3 Export promotion to capture larger share of global profits: This approach holds true for the basic reason that most export firms or multinational companies are oligopolistic in nature. This nature of these companies implicitly indicates the price they charge is more than the marginal cost. Hence marginal cost is the cost of producing additional unit of the product, these
companies set price considering the highest possible cost and their profit margin. Due to this advantage of oligopoly the literature says “Countries importing such a good pay rents to the exporting firm”. Therefore countries are in strategic position to have more of such multinational companies. (Sarath R., 1993)

2.2.3 Theories of Foreign direct investment

2.2.3.1. Capital theory

There are two theories of foreign direct investment according to an article written on foreign direct investments and multinational corporations. This article mentions the global issues behind foreign direct investment in detail. However, these factors are summarized to two theories the first one underlined the return on capital aspect of the foreign direct investments. It argues the higher rate of return attached to these investments due to the risk attaches to them is the source and cause of the foreign direct investments. The case observed in this analysis was the US investments in the UK. This investment is named as Capital theory of foreign direct investment.

2.2.3.2. International trade tradition theory

The other theory is named; The International trade tradition theory of foreign direct investment. This theory is divided into three as

A. Mundell & Heck Scher-Ohlin model emphasizing foreign direct investment is due to substitution of trade effect. This is for example like saying multinational companies move to countries where there is less import tariff or incentive. This way they take advantage of capital investment over export trading.

B. Kojma’s macroeconomic approach this is where the host country is considered comparatively advantageous to work in. It is like saying in other words where the multinational company has more privilege in the host country than the country of origin this will serve as a motive for migration of foreign direct investment.

C. Product cycle theory this model states that in this world where technology and market barriers are ample, the multinational companies serve as a means to mobilize resources and access market around the globe.
The other theories obtained from (Essay2000_02.pdf) explain some four more theories are behind the motives or flows of foreign direct investment. They are discussed in detail here under.

2.2.3.3 Industrial organization: This approach postulates that firm-specific characteristics (e.g. product technology, management skills, economies of scale) are the major determinant of FDI, as they confer certain advantages on foreign subsidiaries. One of the main assumptions of this model is that the investing firm cannot reap the benefits from these advantages simply by a licensing process. For example, an invention or a production process is very difficult to value, and in the presence of asymmetric information it is even more difficult to get two companies to agree on a price. However through patent or subsidiary establishment benefits from the parent can be obtained.

2.2.3.4 Cost of capital : (Graham and Krugman, 1995). A foreign firm might be willing to invest in a domestic firm because it applies a lower discount rate to expected cash flows. This approach focuses on firm-specific aspects.

2.2.3.5 Corporate investment theory: Here, locational aspects play the most important role in determining FDI. These include the importance of the size of the host market, factor prices, protection afforded to investing firms by tariffs and/or other measures.

2.2.3.6 Portfolio theory: (Brainard and Tobin, 1992). FDI is modeled as part of a portfolio choice of the investor. This theory is basically introducing FDI into the capital-asset-pricing model (CAPM). FDI leads to a diversification of the portfolio of the foreign company, which reduces overall risk. (Essay2000_02.pdf)

2.2.4 Theories of inflation

Monetary theory of inflation is a theory that strongly argues, inflation is due to the demand and supply of money. The monetary theory of inflation asserts that money supply growth is the cause of inflation. Faster money supply growth causes faster inflation. In particular, 1% faster money supply growth causes 1% more inflation. With other things constant, the price level is proportional to the money supply. Doubling the money supply would double prices. According to the article stated below there are what we call real fundamental factors. These factors in turn affect economic variables. They affect real quantities, price, wage and real interest rates. These
fundamentals affect the economic variables in the long run but money does not. These real fundamental factors are consumer preference, technology and resource endowment.

(Monetary Theory of Inflation, 2017)

The neo classical theory of inflation originating from monetary demand and supply factors is discussed by George L. as follows. He implies the inflation is result of monetary surprise in neo classical theory. In the mean time the discussion indicates the significance of the relation of employment and inflation. Mentioning the non-stop inflation in 1960s while it was possible to manage unemployment during this same period. Indicating reduced unemployment could be source of inflation. On the other hand it discusses the wage increase and inflation relation of Keynesian theory.

Within this Neo-Keynesian model of the macro economy, a Phillips curve represents the short-run response of wage inflation to cyclical variations in unemployment. Most prices are largely determined by the costs of inputs, the most important of which is labor. But the response of the average price level to cyclical fluctuations is magnified by the movement of volatile raw materials prices and by a small cyclical response of price-wage margins. The model also takes account of inertia in wage inflation and of some feedback from prices back to wages. Exogenous shocks to prices or wages are additive to the price or wage change generated by the Phillips curve-inertia mechanism.

An alternative view of the macro economy comes from the "new classical" or "pre-Keynesian school." It is rooted in a world of price takers and only transitory departures from full-employment equilibrium. Although rational expectations are neither necessary nor sufficient for most of its results, this Neo classical school is closely identified with the macroeconomic literature based on rational expectations about prices. In that literature, the observed Phillips curve reflects quantities fluctuating in response to unanticipated disturbances to prices. If price movements are anticipated, output will not depart systematically from its equilibrium path, and unemployment will not depart systematically from some natural or equilibrium rate. In most versions of these new classical models, unanticipated changes in prices come from monetary surprises. Expected changes in money are fully reflected in corresponding changes in the average price level and have no effects on output or employment (George L., 1997)
There are two theories of inflation the monetary and keynesian theories the monetary theorists argue that inflation is due to many factors in the short run but the factor affecting the inflation is the monetary supply alone. They disregard changes in the fiscal policy of the government, change in price of fuel or food items. On the other hands the keynesians’ argue inflation is due to demand pulled, cost pushed or concentrated industries. This school emphasizes that the inflation is either due to high capital investments, high labor cost or pricing trend of monopolistic and oligopolistic companies.(3040_s83,2015)

To conclude with business income tax has perspectives of benefit approach, means of collecting individual income tax and controlling the economy theories. Where as in case of Incentive on the other hand is composed of Distortion- correcting export promotion, Export promotion for it’s own sake, Export promotion to capture larger share of global profits. These theories are about the causes of incentives ranging from government policy distortion amendment through economic growth through different factors and finally owning large share of profit. For foreign direct investment there are a number of reasons and justifications/causes/ like; Capital theory, International trade tradition theory, Industrial organization, Cost of capital, Corporate investment theory, Portfolio theory. All these theories range from return advantage to incentive and considered discounting rate set by foreign direct investors. In case of inflation as well there are at least two causes. Inflation of Monetary and Keynesian theory. In these theories the cause for inflation is monetary supply along with demand pull, cost push and concentrated industries factors respectively.

Finally what we can grasp from our theoretical review is that foreign direct investment through It’s theories like portfolio, corporate and cost of capital theories largely relate to the benefit approach of business income tax theory.. This is because as these factors determine where to locate investment, where they benefit from the country is where they need to pay business income tax. If they do not pay as much as they gain then there is a problem. On the other hand inflation whether demand pulled or cost pushed can stabilize through taxing undistributed profit and minimizing money supply. This proves negative relation between the two variables. Incentives are on the other hand associated to control of the economy theory .This is because the theory deals with control of the finance and financial system where the export sector is active.
Therefore weighting the benefits from export against the losses of encouraging it falls to be the concern of the economy.

2.3 Empirical review

In this part of the literature review the researcher tries to magnify the impact of incentives foreign direct investment and inflation. This is facilitated through the observation of the arguments in different studies as well as the model measured effects of those factors in as much countries as data is available and possible. By the end the researcher hopes to establish a link between the prevailing empirical findings and the statement of the problem through the background information.

2.3.1 Incentives

China is often quoted as an example of effective (tax) incentive policies. During its transition period between the mid-1980s and mid-2000s, it experimented with a wide range of industrial policy instruments, including tax incentives for special economic zones, reduced tax rates for FDI, and tax holidays for strategic industries. FDI inflows accelerated during this period and the country became a top destination for many multinationals. In a panel of 29 regions between 1985 to 1995, Chen and Kwan (2000) find, for instance, that special economic zones systematically boosted FDI inflows. Examples of less effective tax incentives can be found in Africa. Providing more generous tax incentives did not have any demonstrable effect on FDI (Van Parys and James, 2010).

Evidence for 40 Latin American, Caribbean and African countries between 1985 and 2004 suggests that changes in the length of tax holidays systematically increased FDI inflows. These FDI inflows did not, however, increase total investment, nor did they increase economic growth. This suggests full displacement of domestic by foreign capital (Klemm and Van Parys, 2010). In 2000, the government of India removed incentives for exporters, except those located in export processing zones or qualified as export-oriented units. Investment behavior hardly changed due to this reform. Indeed, firms that lost their incentives maintained the same level of investment as before, despite higher tax rates, similar to the control group that kept their
incentives. However, reported profits did respond aggressively to the loss of incentives. In particular, reported pre-tax profits dropped by half on average in firms that lost their incentives, despite little change in sales. (James, 2007). And hence countries are under taking tax expenditure analysis with the help of international organizations. These countries include Kenya, Morocco, South Africa and Tanzania from Africa. (Reside, 2006)

The World Bank Group finds that a few politically connected firms have captured tax incentives in Egypt and Tunisia. This selective access caused a dual economy with large differences in profitability between insiders and outsiders, undermining a level playing field and reducing competition, significantly reducing job growth (Shiffbauer et al., 2015).

There are several examples of considerable discretionary interpretation. For instance, the recently promulgated Foreign Investment Law of Myanmar loosely defines eligibility for tax exemptions over a “suitable period” for businesses that are “beneficial for the State.” (Myanmar Foreign Investment Law, 2012). The Gambia’s investment promotion authority confers a special status on investors, which are then awarded special investment certificates entitling them to benefit from incentive packages; the investment promotion authority states that, “Apart from these specific incentive packages, others can be negotiated with the Agency depending on the strategic nature of the investment.” (James, 2014). Tanzania’s ‘Strategic Investor Status’ allows companies investing over US$ 20 million to negotiate individual tax breaks. These “special concessions to individual companies … have never formally been made public” (Tax Justice Network, 2012). Haiti’s Investment Code covers virtually any economic activity and provides no selection criteria to be applied by the inter-ministerial committee in charge of granting discretionary incentives, which include both a 15-year CIT holiday and accelerated depreciation (Investment law of Haiti, 1989).

In 2013, Jamaica undertook a major tax reform, eliminating many of its generous and discretionary tax incentives. The Minister of Justice said: “The Jamaican economy has not been well served by the existing regime of sector based incentives. The consensus is that such incentives may have been partly responsible for Jamaica’s lackluster record of growth by encouraging the misallocation of limited economic resources in our country.” (James, 2013)

In 2009, India’s Ministry of Finance released a draft Direct Taxes Code and a discussion paper on the bill, which recommended that India should move away from profit-based tax incentives in
favor of expenditure-based tax incentives. A final bill was sent to Parliament in 2010, and passed to a Standing Committee on Finance (SCF), which released its report in March 2012. The SCF report concurred with the Ministry of Finance that profit-based incentives facilitate artificial tax planning, and that this form of incentive should no longer be granted (while existing tax holidays previously granted for firms in special economic zones would continue to be respected) (Standing Committee on Finance 2011-12).

Egypt passed a new income tax law in mid-2005 that provided for the phasing out of tax holidays while grandfathering current beneficiaries. Between 2005 and 2006, FDI into Egypt doubled. (Keen and Mansour, 2010)

In 2006, Mauritius normalized the taxation of its export processing zone companies with that in other sectors and removed all provisions relating to tax credits and tax holidays (except for a four-year income tax holiday for small business). At the same time, the corporate tax rate was gradually reduced from 25 to 15 percent in 2008. (Keen and Mansour, 2010)

In his latest budget speech, the Finance Minister of India proposed to reduce the corporate tax rate from 30 to 25 percent over the next 4 years, accompanied by rationalization and removal of various tax incentives and exemptions, which, he argues, have led to pressure groups, litigation and loss of revenue. The Minister expects base broadening and rate reduction to lead to higher levels of investment and growth and more jobs (Government of India, Ministry of Finance, February 28, 2015).

Of 7,000 companies in 19 Sub-Saharan African countries active in agriculture, mining, manufacturing, utilities, construction, and services sectors. Investors were asked to rank the importance of twelve location factors and to assess how they might have changed, improved and worsened. The results suggest that tax incentives packages ranked 11th out of 12 in importance; and this importance fell over time. (UNIDO, 2011). In addition a serious of discussions are taking place among the western eastern and southern Africa states in order to set collective tax incentive frame work where their interest is safeguarded. (Cebotari et al., 2013). hence it can be concluded that there are numerous advantaged through incentive while some have regrets and amendments for it’s short falls.
2.3.2 Foreign direct investment

Though the exact effect of tax competition on tax revenue is ambiguous It’s cause is deep rooted in foreign direct investment attraction. The OECD have declared tax competition to be harmful while the Monetary Union of West African States have decided to harmonize their tax incentives for foreign direct investments. (Jacques M. and Neda P., 2000)

On the other hand there is evidence that tax competition and foreign direct investment have adverse effect on corporate tax revenue. In fact, these effects may have already become evident in the sharp decline in corporate tax revenue in some member countries of the OECD. It is interesting that the countries experiencing revenue declines also offer the least attractive corporate tax regimes within the OECD. Although part of the decline can be attributed to business-cycle variations or changes in tax codes, its extent and persistence suggest that additional factors may be at work, including the direction and size of FDI flows. (Reint Gropp and Kristina Kostial, 2001)

A study examining the effect of foreign direct investment on the host country’s tax revenue considers such variables as relevant to the contribution of the economy: 1. competition effect 2. demand creation effect 3. technology transfer costs and 4. technology spillovers analyzing these variables using a model, the outcome suggests the competition effect reduces production of domestic firms and thereby, lowers the level of corporate tax revenue. (Huu Thanh Tam Nguyen, Manh Hung Nguyen, Aditya Goenka, 2010)

Publics across the world, forced to bear the pain of tax increases or cuts to public services – even as just 62 people own half the world’s wealth – have had enough. In response, world leaders are saying things must change. If governments want to make change happen and end the race to the bottom in corporate taxation, they must launch a new generation of comprehensive international tax reforms. This suggestion of the publication is summarized from the idea that corporate tax payers are paying less tax for the sake of multi nationals’ attraction. As a result the government is either facing financial (revenue) problem to tackle poverty or it is compensating the loss through taxing the poor which has double effect on the poverty alleviation. (OXFAM, 2016)
2.3.3 Inflation

The impact of inflation on the business income tax has already been observed that countries have adjusted their tax for inflation. In countries like Argentina, Brazil and OECD have already been adjusted and further is recommended for countries that have not yet. For high, average and low inflation countries some adjusting methods have been recommended because even if the rate of inflation is low it has its own impact on business income tax. For example, if the inflation rate is 2 percent and the real rate of interest is 4 percent, the inflationary component is one-third the nominal interest rate of 6 percent. The absence of inflation adjustment can result in a substantial incentive to borrow in order to earn tax-deferred income. (Victor Thuronyi, 1998)

Inflation can alter the characteristics of tax- and contribution systems in numerous ways. A novel European tax-benefit model was used to look at the distortions of the tax schedule in Germany, The Netherlands and the UK. The integrated framework provided by the model permits the use of common income concepts across countries and therefore enables one to make informative comparisons of the distributive consequences of the inflation induced erosion of tax-band limits, thresholds, deductions, tax credits, etc.

Real income tax revenues rise and receipts from employee social insurance fall when policy rules are not adjusted for inflation. The revenue effects can be very substantial – even at the presently prevailing low inflation rates. If tax and contribution rules were left unadjusted, Dutch income tax payers would experience the largest tax increases. In Germany, where there is no statutory up rating regime and where income taxes are relatively more important than in The Netherlands, the increase in tax revenues is also large.

The inflation adjustment regimes used in The Netherlands and the UK are successful in counteracting the distortions during times of inflation. However, tax revenues and contributions can still vary depending on (1) whether inflation rises or falls; (2) the size of the time lags built into the adjustment process; and (3) differences between the consumer price index and the index used for up rating. (Herwig Immervoll, 2016)

From another regression model the analysis suggests that the inflation rate in a country was significant and directly affect the components of tax revenue especially taxes on goods and services (GST). The higher inflation rate in low and middle income countries has the highest percentage of GST to total tax revenue ratio. (Taufik Abdul Hakim and Imbarine Bujang, 2012)
To conclude several countries in the world have had different incentives in most cases to attract foreign direct investment. Some countries have benefited like China, in sub-Saharan countries it is demanded countries like Kenya, Tanzania, S. Africa are under taking studies. Some like Mynamar, Gambia, Mauritius have it in their laws and some countries like Jamaica, Egypt and India are working on it’s deduction as a result of inefficiency. With regard to foreign direct investment OECD countries are observed to loss income due to this where as African poverty alleviation is affected by missed corporate tax for the sack of multi nationals attraction even West African countries are working on harmonizing their incentives to cut the competition for foreign direct investment. Inflation is claimed to have it’s effect directly towards increased borrowing or debt financing in addition to the increased personal income tax and contribution it results in Germany and Netherlands .In Netherlands and UK as well it has it’s own impact unless controlled by the inflation adjustments measures taken by those countries .In low and middle income countries to it is believed to have an impact on tax for goods and services. These taxes although not directly observed affect interest expense, contribution and salary expense which have negative impact on business income tax revenue and also increased goods and services tax which could result in market loss and revenue decline.

To summaries inflation effect can be observed as follows which is just specimen income statement:

<table>
<thead>
<tr>
<th>Description</th>
<th>Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue / Sensitive to indirect taxes/</td>
<td>xxxxxxxxxx</td>
</tr>
<tr>
<td>Cost of goods sold/ Sensitive to input and labor driven inflation/</td>
<td>xxxxxxxxxx</td>
</tr>
<tr>
<td>Gross profit</td>
<td>xxxxxxxxxx</td>
</tr>
<tr>
<td>Salary &amp; benefits/ Sensitive to food inflation and cost driven inflation/</td>
<td>xxxxxxxx</td>
</tr>
<tr>
<td>Depreciation &amp; related expenses/ Sensitive to appreciating asset market/</td>
<td>xxxxxxxx</td>
</tr>
<tr>
<td>Utilities expense/Sensitive to escalating public services/</td>
<td>xxxxxxxx</td>
</tr>
<tr>
<td>Advertising &amp; promotion/Sensitive to controlled inflation/</td>
<td>xxxxxxxx</td>
</tr>
<tr>
<td>Interest expense/ Sensitive to macro stabilized inflation/</td>
<td>xxxxxxxx</td>
</tr>
<tr>
<td>Net income</td>
<td>xxxxxxxx</td>
</tr>
<tr>
<td>Business income tax liability</td>
<td>xxxxxx</td>
</tr>
</tbody>
</table>

Table: 1 Self constructed sample income statement
It can be deduced that in order to earn more in business income tax all incentives, foreign direct investment and inflation can be used. This is because incentive targets increased currency reserve; foreign direct investment can also serve as a means to achieve this while inflation simply escalates product prices which are nearly offset by expenses and further regulated by taxes. Based on theories incentive is solely revenue agent while foreign direct investors look after their returns. Inflation theories set macro and fiscal policy to be basic drivers which allow interaction and instrument for benefit and economic control theories of business income tax. Practice indicates many countries are rushing in to incentives with some reservations. Stiff competition for foreign direct investment even damaging some OECD countries and inflation prevails on both income and expense of firms.
CHAPTER 3- RESEARCH METHODOLOGY

As it is a well established fact that research methodology at the core of any valuable study, this chapter tries to discuss the means and techniques applied to enhance the quality of the same. It tells of the road map the researcher depicted to achieve the results aimed at the beginning of the study. It also justifies the reasons for the structures of the road map.

3.1. Research approach and design

This research is of the type that tries to explain the relationship between different variables based on quantitative data. Explanatory studies look for explanations of the nature of certain relationships. Hypothesis testing provides an understanding of the relationships that exist between variables (Research Methods_Some Notes.pdf,)

Because of this reason the study is explanatory, however the study is not ignorant of descriptive statistical tools in analyzing the variables. Regarding the analysis based on the data obtained quantitative analysis is intended. (John W., 2003). In this study time series data is obtained from the Ethiopian investment commission, ministry of finance and economic cooperation, Ethiopian customs and revenue authority. As well as World Bank African development indicators database. These data compiled by SPSS version 23 would be used to assess and quantify the relationship among the variables considered. By the end the quantitative data analysis would result in the appropriate recommendations to assist policy makers.

3.2. Data types

In this study primary and secondary data sources are used. As it is well known primary data is first hand information from the source that has not been extracted and organized before while secondary data is a well organized data. Accordingly primary data sources incorporate Data and Original Research, Diaries and Journals, Speeches and Interviews, Letters and Memos, Autobiographies and Memoirs, Government Documents, Census Statistics, Organizational Records, Documentaries, Photographs and Internet communications. On the other hand Secondary sources are comprised of Most journal articles (unless written at the time of the event), Most published books (unless written at the time of the event), Abstracts of articles, Paraphrased quotations, Dictionaries and Textbooks.(Source: www.concordia.edu/library)
The primary data are critical in revealing the statistical relation between the aforementioned variables along with the dimension and direction. To facilitate this 30 years data of the foreign direct investment, inflation rate and incentives provided would be compared to business income tax data for the same period. These are quantitative data obtained from record and publications of the respective institutions. The publications, records, archives and data banks of those institutions have been considered for completeness.

The secondary data have played irreplaceable role in establishing the concepts, theories and evidences serving as a springboard for the attainment of the study objective. The various issues regarding business income tax trend, the causes for the fluctuations and the related scenarios observations all lied It’s foundation in these secondary data sources. The study was framed to overview prevailing issues in the background and then elaborate the relations in the review of related literature. To increase the credibility of the study wider investigation on the influencing factors of business income tax revenue generation has been made. The sufficiency of the available data for acute influencing variables has also been assessed. The preliminary evaluation on the subject, scope and variables of the study are facilitated through the secondary data sources in addition to observation and discussion with tax specialists .In particular secondary data sources are obtained through the internet communication. A number of data availed in the form of website information, manuals, and journals and largely in the form of published and unpublished articles. It is indicated in the reference part that over 80 sources are sited.

3.3. Sample design

In every sampling concept population definition comes first the wide pool from which we have to pick the sample .This population has certain characteristics and behaves in a certain pattern. For us to exhaust all data form the whole population would be time consuming and cumbersome so we apply the concept of sampling .Sampling is a technical process of selecting representative individual respondent or data that can represent the population under observation. (https://en.wikipedia.org/wiki/Sampling_(statistics)).

The next point to rise is the issue of sampling technique applied to result in representative data. Valid data is similarity of the researcher and data source definition for the same population while the reliability is about data parameter definition overtime and the accuracy of the data obtained there by (Research Methods STA630.). For quantitative data, which we have in this study, the
time laps considered is 30 year record of the variables considered. This data is sufficient for the analysis required both in terms of manifesting the relevant, useful model and statistical recommendation for the applied data processing software i.e. SPSS (23). All of the data for the specified duration is selected instead of random or any other systematic selection. The reason for sampling variability is the population size, the representation, data management and interaction of final, time and data collector skills in addition to the very nature of variables involved (C.R.Kothari,1985). In order to result in realistic regression model output it is necessary and vital to include all the possible observations. To generalize there are three justifications for selecting up to 30 years data for each institution data:

I. The unavailability of well organized data for prior periods
II. The representativeness of this data as majority from all the available data in the institutions
III. The analysis is based on time series data so it should be analogous

<table>
<thead>
<tr>
<th>Data type with source</th>
<th>Total number of years for which data is available</th>
<th>Number of years considered for the study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign direct investment- Ethiopian Investment Commission</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>Incentives- Ethiopian Revenues and Customs Authority source</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Incentives- African development indicators/ World bank data base</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>Inflation- Ethiopian Ministry of Finance and Economic</td>
<td>36</td>
<td>30</td>
</tr>
</tbody>
</table>
This quantitative data is obtained through personal administration. Approaching the mentioned institutions personally helped to obtain the demanded data in the most refined and complete form. Besides It helped to screen out that are not valid or relevant as organized for the data processing. The personal administration also helped in obtaining exhaustive data for the variables measured. In addition it helps to look in to data loopholes if any and device alternative course of action before processing the data. In accordance the data gap in the incentives variable is amended through application of regression analysis which is most fit in keeping the effect of missing variables constant.

The data has then been fed to SPSS (23); through data import function of the menu capable of importing other file formats, to obtain the desired tabular presentation of the data. All this data will be marked scale because of It’s capacity to go through mathematical computations (which means it is not interval but ratio data type, and no nominal or ordinal data involved). The analysis is divided in two broad categories as descriptive and inferential. Through the statistical procedure analyze descriptive statistics. The analysis for missing value, multi co linearity, normality, heteroscedasticity and outliers is undertaken along with the standard, hierarchical and stepwise regression analysis. The tabular presentation of data for descriptive and regression analysis is made so that the appropriate interpretations and conclusion is reached proving or disproving the hypothesis test. Then the appropriate recommendation is made based on the research questions ignited in chapter one.
3.4 Statistical Analysis

I. Descriptive Analysis

A. **Range** is the crudest measure of dispersion. It measures in what range the foreign direct investment, inflation and export incentive falls. This helps analyze the trend of past performance of each variable in order to determine the future contribution of each variable.

B. **Minimum** is the lowest possible observation in all the considered variables. It is highly related to the measure of dispersion range but only observes the minimum amount recorded of the variables considered.

C. **Maximum** this is the reciprocal of the minimum values; it considers only the upper most value of the variables under observation. The figure says the highest amount each observed variable registered in the past 30 years.

D. **Sum** is a statistical method listed among measures of central tendency. It implies the total quantity of foreign direct investment, inflation and export incentives for the given years. It helps us analyze the total amount obtained, exposed or provided during all the observation period.

E. **Mean** measures the average value for the sample distribution. This is another measure of central tendency. It helps understand the average (not the maximum or minimum)value of foreign direct investment, inflation as well as business income tax and incentives. There are types of mean each of which are applicable to different types of distribution. Here applied is arithmetic mean there are also geometric and harmonic means.

F. **Standard deviation** this is a widely known measure of dispersion. It indicates how dispersed the individual observations are about the mean. This value is presented with the mean to express the range of the data dispersion to the right and left of the mean value with a given level of confidence interval. The more this value the more the data is scattered about the mean.

G. **Variance** the other well known measure of dispersion equally expressing the squared sum of the distance of observations from the mean divided by the number of observations. It explains the same thing as standard deviation tells but the figures vary since the standard deviation is the square root of variance .In both case we observe how far on average individual observations are away from the mean of the population.
H. Skewness is a measure of normality. It measures how the observations distribute across increasing value straight line. A straight line across the distribution graph shows whether the observations are abundant at the lower values at the upper values or just at the middle indicating the normality of the distribution. Skewed to the left tells the majority of the observations fall below the mean value. Skewed to the right on the other hand means majority of the observations fall above the mean. Normal distribution is expected to have a skewness approaching zero.

I. Kurtosis is a measure of normality which tells how frequent the distributions are. It measures the height of the distribution curve and the expected kurtosis value for normal distribution is more than three. There are three forms of kurtosis curves namely: Leptokurtic - high and thin, Mesokurtic - normal in shape and Platykurtic - flat and spread out.

J. The frequency distribution for this model has intentionally been omitted in this study because the other functions like mean sum, maximum, minimum, and distribution plots of each variable in addition to mode and median computations have been incorporated in the descriptive analysis. However, the mode and median are irrelevant for the data type considered. This is because data for all variables is neither nominal nor ordinal but scale. This implies quantitative data capable of going through different statistical computations. Scale data in SPSS means ratio or interval variable. But the mode and median apply to and are relevant for categorical data namely categorical scores and ordinal data respectively. The sum, maximum and minimum have been discussed in detail formerly. With respect to distribution curve of the involved variables the histogram plots are presented. Once the frequency analysis is made it automatically generates the number of observations along with missing values.

II. Inferential Analysis

K. Correlation is the measure of degree of association between two variables. It explains the degree to which each of the variables under consideration are related. This analysis has got two dimensions. The first one the relation or co movement of the dependent variable with it’s respective predictors/independent variables/. The other perspective is it measures the co movement between the independent variables themselves. In fact higher percentage correlation in this case is a pre caution on the existence of multi co linearity. There is specific test conducted for this phenomenon, to be discussed later on. This procedure helps us determine the value for hypothesis H₁, H₂ and H₃. Since they are concerned about the relationship between business
income tax and foreign direct investment, inflation and incentives respectively, the association if
any and the level of this association is obtained from the correlation matrix.

L. Coefficient of determination ($R^2$) measures to what extent the total variability in the
dependant variable is explained by the independent variables. The $R^2$ is not just about relation or
covariation it tells of the possible impact the independent variables have on the examined
dependant or predicted variable. In practice the $R^2$ value tends to increase with the number of
independent or predictor variables but this does not mean coefficient of determination has no
significant implication on the validity of the model. For more reliability the adjusted $R^2$ is
considered. This means we need to reduce redundant values in $R^2$ while computing the adjusted
$R^2$ which makes it more reliable. In other words $R^2$ is about the precision in percentage of the
model.

M. ANOVA Analysis of variance comes in to picture just before preceding the coefficient table
analysis in applying multiple regressions. ANOVA is used to compare two means from two
independent (unrelated) groups using the F-distribution. The null hypothesis for the test is that
the two means are equal. Therefore, a significant result means that the two means are unequal. It
determines whether the model is statistically significant in explaining the relationship of the
variables. To ensure the significance the null hypothesis is always considered to be the
independent variables are identical or have the same mean. Therefore to prove the variability the
significance column is checked for. If the significance is less than 0.05 then the null hypothesis
which says the variables are of the same mean and identical is rejected; which means the
variables are tested fit for model formulation and there is justifiable association among them. If
greater than 0.05 the reverse holds true.

N. Test for multiple linear regressions It is based on statistician’s recommendation that the time
series data has been increased from 10 to 30 years to reduce model specification errors. This
analysis is performed in order to obtain the magnitude and direction of the relationship among all
the variables. Multiple linear regressions is applied in cases where more than one independent
variable has impact on the change in the given dependent variable. The name multiple stands for
the number of determinant or at least influencing factors compelled on the dependent variable
business income tax. Because there are three independent variables relating to business income
tax, in this specific study, this test explains H₄, H₅ and H₆. From this analysis all the coefficients for X₁, X₂ and X₃ in addition to the value of the constant or the slope of the equation are obtained. To make it easy for understanding, the regression model has been computed trice. This is not just redundancy but it enables readers what impact the independent variables have on the dependent variable business income tax through Standard multiple, Hierarchical and Stepwise regression analysis clearly indicating what factors to focus on. Therefore the model applied in chapter one is applied in the following manner.

### 3.5 Model Presentation

\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e_i \]

Where \( Y = \text{Total Business income tax revenue} \)
- \( \beta_0 = \text{Y intercept} \)
- \( \beta_1 = \text{Coefficient of foreign direct investment} \)
- \( X_1 = \text{Foreign direct investment} \)
- \( \beta_2 = \text{Coefficient of inflation} \)
- \( X_2 = \text{Inflation} \)
- \( \beta_3 = \text{Coefficient of incentives} \)
- \( X_3 = \text{Incentives} \)
- \( e_i = \text{Error term} \)

So this model would find the appropriate numerical values explaining how the predictor variables affect the business income tax revenue in Ethiopia. Once the model is formulated the rest of the analysis will be to define and interpret the observed relation. The coefficients of the foreign direct investment, inflation and incentives indicate the **unit change in the respective variables required** to bring about a single unit change in the dependent variable that is business income tax. On the other hand the constant explains how much the value of business income tax will be if all the independent variables did not exist.

### 3.6 Tests for Assumptions

In any study that involves statistical analysis there are standards or bench marks to ensure the credibility of the analysis. As model formulation and regression analysis is among the many
there are tests for such recognition. Some of the tests for assumptions considered, which are basic in any multiple regression analysis, are impacts of missing variable, test for normality, presence of multi co linearity, test for homoscadasticity and test for out layers. The reason why these tests are mandatory is. The existence of one or many of these phenomenon results in disqualification of the analysis. Unless the impact of these incidences is kept constant or minimal they usually result in worthless conclusion and recommendation.

**Test for missing variables** test for missing values can be checked by frequency distribution table. In this analysis the total number of observations along with the missing values number can be found. In fact missing value can result in miss leading conclusion. However there are methods to reduce the effect of these missing data. According to Environmental Management center – Mumbai note: Missing values or data gaps could be filled out in any of these techniques.1) Use the average of the distribution to fill in data gaps.2) Taking mean of adjacent values, 3) Linear interpolation and 4) Using a “Regression model”. In this specific study it was quite an opportunity as the SPSS (23) supports missing value damage neutralizing system through exclusion of case pair wise. Just found in the regression analysis menu of options button, so here applied is the same.

**Test for normality** this normality check is not similar to the one mentioned in the descriptive analysis methodology. This is because in the descriptive analysis the concern was all about the distribution of each variable considered, while in this test the predictive capacity of the model is checked. The graph is plotted using continuous predicted values against the resulting residuals. This all about computing the likely hood of the model telling what exactly could happen. In the regression analysis plot button is indicated the inclination to the diagonal straight line (The model) of the values proving tobe predictive through the normal p-p plot.

**Test for multi co linearity** if the independent variables are related each other it is impossible to explain their association to the dependent variable free of the self-association effect. This implies highly correlated independent variables should be discarded. The reason is the model fails to measure the impact of the independent variables up on the dependent or predicted because the relationship among the independent variables themselves is out shining how they appeared to be factors influencing the dependent. VIF (Variance Inflation Factor) is the standard test for
presence of such a case. Under normal circumstances the value should not exceed 6 and 10 is quite a confirmation that there is multi co linearity among the independent variables. Alongside is used the tolerance level which indicates the same. However the standard bench mark is more than 0.10.

**Test for homoscadasticity** this can also be said hetroscadasticity .It is all about explaining the homogeneity or variability in variance .This is usually detected in scattered plots in SPSS where the standard predicted values are regressed over the standard residuals .This is to mean the homogeneity or variability explains the relationship between the error estimates as the predicted values increase. Any sort of pattern in the scattered plot indicates the presence of some kind of co movement and hence it can only be concluded; there is increase, decrease or consistency that results in the model prediction error aligning the predictor variables movement. Therefore it leads to the assertion that one or more of the predictor variables are explaining the error term. For this reason the errors in estimates should be inconsistent, exhibiting hetroscadasticity in the scattered plot, throwing out in different directions.

**Test for Outliers** outliers can be the most abundant test in SPSS both in terms of tests and outputs.This is to say the Case wise diagnosis, the Mahalanobi’s test and scattered plot can be jointly used to explain whether which values are outliers, are those tolerable and how they appear respectively. In case of case wise analysis the standard says no more than2% of the observations should be outliers otherwise the model is misleading. In similar fashion the Mahalanobi’s test sets standard of maximum figure for three independent variables to be 16.27 and any case (observation) above that should be excluded from the analysis or else it destroys the model. Cook’s distance also confirms the maximum value should not exceed 1 or else there is significant outlier. Scattered plot is simply the observation of the plot predicted Vs residuals it surely shows which and how many values went to the extreme corners.

To conclude the Research approach and design, Data types, Sample design and processing for quantitative data, Statistical analysis, Model presentation and Tests for assumptions have been so far discussed to stimulate readers proceed to the next chapter.
CHAPTER 4- ANALYSIS

4.1 Findings

Most of the subjects discussed in this part of the study are pertaining to the statistical outputs generated by the SPSS (23). The data are presented in tabular and chart format. This facilitates understanding of the data facts in collaboration with the analysis with the analysis notes provided closer. This discussion and analysis are all based on the research methodology road map set previously.

4.1.1 Data summary

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Incentives</th>
<th>Inflation</th>
<th>Foreign direct investment</th>
<th>Business income tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Valid</td>
<td>21</td>
<td>30</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>Missing</td>
<td>9</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Table: 3 Frequency table

With regard to the data details the observations and missing values are tabulated in the above manner and as can be observed the larger number of missing values are present in incentive observation which have been taken care of through “Regression model” as mentioned in the research methodology chapter.
4.1.2 Distributions

Histograms

In this normal distribution curve of incentives data, it indicates the data is not normally distributed but rather skewed to the left. This indicates that data at the lower incentives level have pooled the graph towards the left taking the mean down. This is despite the data gap quantified in the aforementioned table. But the open bar in the histogram only show absence of specific value in that data range.
Figure: 3 Data distribution graph
The graph for inflation does seem somehow normal since the curve is symmetric as it folds to the other side. However this does not mean there are no ups and downs. There are even missing values for which data was not found. This only implies mean, median, and mode of the distribution are found around the same place or are equal because they are not affected by extreme values.
Figure 4: Data distribution
As can be observed from the normal distribution curve of foreign direct investment data, it does not witness to be normally distributed but skewed to the left. This indicates that data at the lower investment level have pooled the graph towards the left taking the mean down.
Figure: 5 Data distribution graph
Here also the business income tax curve indicates the majority of the observation or earning to be less than 1 trillion ETB. This leads to affecting the average revenue to far less than the maximum amount collected.

From the normality curve distributions it can be observed that almost for all the variables considered except inflation which is relatively normal high frequency data are observed at the lowest scale cells in the graphs which tell a lot more needs to be worked.

4.1.3 Descriptive Statistics

Here analyzed are most of the measures of central tendency and dispersion. To understand the prevailing facts let’s look at some facts. The total value has much implication for all the ETB quantified variables and is $183,480,382,108.04, 301,476,176.00$ and $176,031,971,168.00$ for Incentives, Foreign direct investment and Business income tax respectively. In addition the means along with standard deviations are: $8,737,161,052.76 \pm 11,979,862,018.06$ for Incentives, $9.25 \pm 10.88$ for Inflation, $3,852,059,047.04 \pm 4,129,632,925.79$ for Foreign direct investment and $5,867,732,372.27 \pm 4,979,445,966.05$ for Business income tax revenue respectively. **Table:4 Descriptive table**

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Range Statistic</th>
<th>Minimum Statistic</th>
<th>Maximum Statistic</th>
<th>Sum Statistic</th>
<th>Mean Statistic</th>
<th>Std. Deviation Statistic</th>
<th>Variance Statistic</th>
<th>Skewness Statistic</th>
<th>Kurtosis Statistic</th>
<th>Std. Error Statistic</th>
<th>Std. Error Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incentives</td>
<td>21 &amp; 37369302731 .81 &amp; 6000000.00 &amp; 37375302731 .81 &amp; 183480382108.04 &amp; 8737161052.763 &amp; 8 &amp; 11979862018.06 &amp; 814 &amp; 14351709397195 &amp; 1710000.00 &amp; 1.340 &amp; .501 &amp; .770 &amp; .972</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign direct investment</td>
<td>25 &amp; 13848586987 .00 &amp; 57276299 .00 &amp; 13905863286 .00 &amp; 96301476176.00 &amp; 3852059047.040 &amp; 0 &amp; 4129632925.790 &amp; 83 &amp; 17053868101775 &amp; 727000.00 &amp; 1.030 &amp; .464 &amp; -.043 &amp; .902</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
4.1.4 Inferential Statistics

4.1.4.1 Regression Output - Standard multiple regression/

Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business income tax</td>
<td>5867732372.2667</td>
<td>9798445966.05434</td>
<td>30</td>
</tr>
<tr>
<td>Incentives</td>
<td>8737161052.7638</td>
<td>11979862018.06814</td>
<td>21</td>
</tr>
<tr>
<td>Inflation</td>
<td>9.2451</td>
<td>10.88161</td>
<td>30</td>
</tr>
<tr>
<td>Foreign direct investment</td>
<td>3852059047.0400</td>
<td>4129632925.79083</td>
<td>25</td>
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</table>

Table: 5 variables information
<table>
<thead>
<tr>
<th></th>
<th>Business income tax</th>
<th>Incentives</th>
<th>Inflation</th>
<th>Foreign direct investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Business income tax</td>
<td>1.000</td>
<td>.969</td>
<td>.170</td>
<td>.255</td>
</tr>
<tr>
<td>Incentives</td>
<td>.969</td>
<td>1.000</td>
<td>.172</td>
<td>.308</td>
</tr>
<tr>
<td>Inflation</td>
<td>.170</td>
<td>.172</td>
<td>1.000</td>
<td>.494</td>
</tr>
<tr>
<td>Foreign direct investment</td>
<td>.255</td>
<td>.308</td>
<td>.494</td>
<td>1.000</td>
</tr>
<tr>
<td>Sig. (1-tailed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business income tax</td>
<td>.</td>
<td>.000</td>
<td>.184</td>
<td>.109</td>
</tr>
<tr>
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<td>.000</td>
<td>.</td>
<td>.229</td>
<td>.123</td>
</tr>
<tr>
<td>Inflation</td>
<td>.184</td>
<td>.229</td>
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<td>.006</td>
</tr>
<tr>
<td>Foreign direct investment</td>
<td>.109</td>
<td>.123</td>
<td>.006</td>
<td>.</td>
</tr>
<tr>
<td>N</td>
<td>30</td>
<td>21</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>Incentives</td>
<td>21</td>
<td>21</td>
<td>21</td>
<td>16</td>
</tr>
<tr>
<td>Inflation</td>
<td>30</td>
<td>21</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>Foreign direct investment</td>
<td>25</td>
<td>16</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>

Table: 6 Correlation matrix
This table named correlation matrix implies the degree of relation between the variables involved as depicted in the chart, the relation between business income tax and incentives is \textbf{.969 (96.9\%)} whereas the relationship of inflation and foreign direct investment to the same is \textbf{.170(17\%)} and \textbf{.255(25.5\%)} respectively. On the other hand incentive with foreign direct investment and inflation have such relationship as \textbf{.308(30.8\%)} and \textbf{.172(17.2\%)} in sequence. Inflation is also related to foreign direct investment by \textbf{.494(49.9\%)}

**Variables Entered/Removed**

<table>
<thead>
<tr>
<th>Model</th>
<th>Variables Entered</th>
<th>Variables Removed</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Foreign direct investment, Incentives, Inflation (^b)</td>
<td>b</td>
<td>Enter</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Business income tax

b. All requested variables entered.

**Table: 7 Regression information**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.971(^a)</td>
<td>.942</td>
<td>.928</td>
<td>2636099368.12478</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Foreign direct investment, Incentives, Inflation
b. Dependent Variable: Business income tax

Table:8 Coefficient of determination

ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>1356754911701765000000.000</td>
<td>3</td>
<td>452251637233921600000.000</td>
<td>65.081</td>
<td>.000</td>
</tr>
<tr>
<td>Residual</td>
<td>83388238543534310000.000</td>
<td>12</td>
<td>6949019878627859500.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1440143150245299400000.000</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Business income tax
b. Predictors: (Constant), Foreign direct investment, Incentives, Inflation

Table:9 ANOVA table
From the model summary and ANOVA tables’ important inferences can be made. That is the first table discusses the coefficient of determination and the second discusses the result for F test and the hypothesis for variable means. Regarding coefficient of determination (R^2) it determines the degree or percentage at which the predictor or independent variables explain the predicted or dependent variable. To have a more accurate estimate the adjusted R^2 is considered. In this specific test the value is .928(92.8%) which means the independent variables are found to explain .928(92.8%) of the variability in the dependent variable. The other table depicting ANOVA standing for **Analysis Of Variance** implies the comparison of means computed in terms of sum of squares. The null hypothesis (H_0) being the mean of the variables under consideration is equal. The criteria for accepting this hypothesis is significance of P value >0.05 while the rejection criteria is significance P value of <0.05. According to the significance P value we have obtained in our ANOVA table is .000 which is less than the P value we have set as standard. This implies that we have to reject the H_0 concluding the means of the considered variables are different. As previously mentioned in the research methodology chapter this is a good sign that we do not have the same data or identical variables to perform further analysis on. The remaining tables are self-explanatory.
<table>
<thead>
<tr>
<th>Model</th>
<th>Un standardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>95.0% Confidence Interval for B</th>
<th>Correlations</th>
<th>Co linearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td>t</td>
<td>Sig.</td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>-101278</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>8498373</td>
<td>1197.03</td>
<td>-.838</td>
<td>.418</td>
<td>-305598056.617</td>
</tr>
<tr>
<td>Incentives</td>
<td>.804</td>
<td>.060</td>
<td>.983</td>
<td>13.462</td>
<td>.000</td>
</tr>
<tr>
<td>Inflation</td>
<td>3004699</td>
<td>719379</td>
<td>-.033</td>
<td>.418</td>
<td>-.126692275.833</td>
</tr>
<tr>
<td>Foreign direct investment</td>
<td>-.152</td>
<td>.196</td>
<td>-.064</td>
<td>-.776</td>
<td>.453</td>
</tr>
</tbody>
</table>
a. Dependent Variable: Business income tax

Table: 10 Coefficients table
From this table the coefficients of beta both unstandardized and standardized ,the upper and lower data limits where in 95% of each variable observations fall in and correlations along with multi co linearity test are availed.

The coefficients of beta the unstandardized indicate the coefficients of each independent variable that would result in a unit change in the dependent variable business income tax revenue. Generally depicted as:

**Business income tax = .804(Incentives) - .152(Foreign direct investment) + 30,046,993.585(Inflation) - 848,937,390.864**

This is the model obtained under standard multiple regression. Once the researcher proceeds with hierarchical and stepwise regression, the move shall be on to the model interpretation considering the differences.

The confidence interval is the interval between which the aforementioned beta estimates hold true with 95% confidence. This values are estimated for all the dependent and independent variables given by lower and upper limits. Correlation is on the other side the same relationship that has been stated in the correlation matrix except it is calculated in partial and part standards other than the zero-order correlation.

The other important part of this table is test for multi co linearity and it is explained by two columns named Tolerance and VIF. In practice both imply the same thing but the minimum standards vary for the simple reason that Tolerance is the result obtained by dividing constant term 1 to the VIF. The standards emanate from this and any variable registering above 6 and most precisely 10 is believed to be multi collinear to the other independent variables. The reciprocal or Tolerance value is expected to exceed 0.10 to ensure no multi co linearity and as mentioned in the above table we do not have multi co linearity because the Tolerance figures are all above 0.10 and the VIF are all less than 10.
Co linearity Diagnostics

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimension</th>
<th>Eigenvalue</th>
<th>Condition Index</th>
<th>(Constant)</th>
<th>Foreign direct investment</th>
<th>Inflation</th>
<th>Foreign direct investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>2.893</td>
<td>1.000</td>
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<td>.03</td>
<td>.04</td>
<td>.03</td>
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<td>2</td>
<td></td>
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<td>2.357</td>
<td>.00</td>
<td>.03</td>
<td>.22</td>
<td>.03</td>
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<tr>
<td>3</td>
<td></td>
<td>.325</td>
<td>2.984</td>
<td>.96</td>
<td>.08</td>
<td>.16</td>
<td>.08</td>
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<tr>
<td>4</td>
<td></td>
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<td>3.327</td>
<td>.00</td>
<td>.85</td>
<td>.58</td>
<td>.85</td>
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</table>

a. Dependent Variable: Business income tax

Table:11 Co linearity table

<table>
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<tr>
<th>Case Number</th>
<th>Std. Residual</th>
<th>Business income tax</th>
<th>Predicted Value</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>3.952</td>
<td>3.65E+10</td>
<td>26119768116.4509</td>
<td>10416676775.54914</td>
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</tbody>
</table>
a. Dependent Variable: Business income tax

Table 12: Outliers table

<table>
<thead>
<tr>
<th>Residuals Statistics</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicted Value</td>
<td>-1090058880.000</td>
<td>28763006976.000</td>
<td>8054037484.9615</td>
<td>9953916793.20955</td>
<td>16</td>
</tr>
<tr>
<td>Std. Predicted Value</td>
<td>-0.732</td>
<td>2.407</td>
<td>0.230</td>
<td>1.047</td>
<td>16</td>
</tr>
<tr>
<td>Standard Error of Predicted Value</td>
<td>943516480.000</td>
<td>1907888000.000</td>
<td>1389835279.908</td>
<td>360754049.735</td>
<td>16</td>
</tr>
<tr>
<td>Adjusted Predicted Value</td>
<td>-174355072.000</td>
<td>27241498624.000</td>
<td>6947286457.4968</td>
<td>8728837640.09152</td>
<td>16</td>
</tr>
<tr>
<td>Residual</td>
<td>-3249144832.000</td>
<td>10416676864.000</td>
<td>1967771928.66351</td>
<td>3515876472.26868</td>
<td>16</td>
</tr>
<tr>
<td>Std. Residual</td>
<td>-1.233</td>
<td>3.952</td>
<td>0.746</td>
<td>1.334</td>
<td>16</td>
</tr>
<tr>
<td>Stud. Residual</td>
<td>-1.786</td>
<td>5.525</td>
<td>0.927</td>
<td>1.749</td>
<td>16</td>
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<tr>
<td>Deleted Residual</td>
<td>-6823356416.000</td>
<td>20360839168.000</td>
<td>3074522956.12818</td>
<td>6183636536.98012</td>
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</tr>
<tr>
<td>Stud. Deleted Residual</td>
<td>-1.996</td>
<td>6.332</td>
<td>0.882</td>
<td>1.951</td>
<td>15</td>
</tr>
<tr>
<td>Mahal. Distance</td>
<td>0.984</td>
<td>6.920</td>
<td>3.495</td>
<td>2.213</td>
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</tr>
<tr>
<td>Cook's Distance</td>
<td>0.001</td>
<td>7.284</td>
<td>0.698</td>
<td>1.789</td>
<td>16</td>
</tr>
<tr>
<td>Centered Leverage Value</td>
<td>.066</td>
<td>.461</td>
<td>.233</td>
<td>.148</td>
<td>16</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Business income tax
Table 13: Outliers test table
In most cases the co linearity diagnostics table is considered irrelevant since the test is displayed in the coefficients table. However the case wise diagnosis and the residual statistics table through Mahalanobi’s and cook’s distance indicate the outliers. The case wise diagnosis directly indicates which case number appears to be outlier and the benchmark forbids the outliers not to exceed 2% of the total observation for the specific variable identified. The Mahalanobi’s and Cook’s distance have maximum critical value that should not be exceeded which is 16.27 and 1 respectively. Hence both critical values do not exceed those numbers in our specific case we do not consider significant outliers.

Charts

Figure: 6 Normal distribution graph
Figure: 7 Scattered plot

From graph number 5 and 6 it can be observed that the model depicted as straight line depicts much of the predicted values in fact with some degree of residuals. All the residuals can fall in another parallel line which does not fall far from the normal line. It is not scattered or at least falling apart from the model. On the other hand the scattered plot tells of outliers and the presence of non-consistent variance explained as heteroscedasticity in research methodology chapter.
4.1.4.2 Regression /Hierarchical multiple linear regression/

Many of the outputs in this analysis are not expected to differ. But the step taken can help understand how the relationships between the three independent predictor variables are affecting the dependent variable business income tax revenue. In this procedure the dependent variables considered to be less relevant are induced first keeping the effect of the rest constant then, the next variable with greater effect is added and finally all of the independent variables induced would give the result in all the three scenario. This helps understand the change in the model explaining status and which model best suits including why not the rest. The variables excluded in model 1 are foreign direct investment and incentives while excluded in model 2 is incentive alone. Model 3 has all the independent variables in. Here excluded variables are equivalent to independent variables controlled for. The correlation matrix nearly reveals the same fact as in the previous standard regression model.

**Descriptive Statistics**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business income tax</td>
<td>586732372.2667</td>
<td>979845966.05434</td>
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</tr>
<tr>
<td>Inflation</td>
<td>9.2451</td>
<td>10.88161</td>
<td>30</td>
</tr>
<tr>
<td>Foreign direct invest</td>
<td>3852059047.0400</td>
<td>4129632925.79083</td>
<td>25</td>
</tr>
<tr>
<td>Incentives</td>
<td>8737161052.7638</td>
<td>11979862018.06814</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Business income tax</td>
<td>Inflation</td>
<td>Foreign direct investment</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------</td>
<td>-----------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td></td>
<td></td>
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<tr>
<td>Business income tax</td>
<td>1.000</td>
<td>.170</td>
<td>.255</td>
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<tr>
<td>Inflation</td>
<td>.170</td>
<td>1.000</td>
<td>.494</td>
</tr>
<tr>
<td>Foreign direct investment</td>
<td>.255</td>
<td>.494</td>
<td>1.000</td>
</tr>
<tr>
<td>Incentives</td>
<td>.969</td>
<td>.172</td>
<td>.308</td>
</tr>
<tr>
<td>Sig. (1-tailed)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Business income tax</td>
<td>.</td>
<td>.184</td>
<td>.109</td>
</tr>
<tr>
<td>Inflation</td>
<td>.184</td>
<td>.</td>
<td>.006</td>
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<tr>
<td>Foreign direct investment</td>
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<td>.006</td>
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<td>Incentives</td>
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<td>30</td>
<td>25</td>
</tr>
<tr>
<td>Inflation</td>
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<td>30</td>
<td>25</td>
</tr>
<tr>
<td>Foreign direct investment</td>
<td>25</td>
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<td>25</td>
</tr>
<tr>
<td>Incentives</td>
<td>21</td>
<td>21</td>
<td>16</td>
</tr>
</tbody>
</table>
Table:15 Correlation matrix

Variables Entered/Removed\textsuperscript{a}

<table>
<thead>
<tr>
<th>Model</th>
<th>Variables Entered</th>
<th>Variables Removed</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Inflation\textsuperscript{b}</td>
<td>.</td>
<td>Enter</td>
</tr>
<tr>
<td>2</td>
<td>Foreign direct investment\textsuperscript{b}</td>
<td>.</td>
<td>Enter</td>
</tr>
<tr>
<td>3</td>
<td>Incentives\textsuperscript{b}</td>
<td>.</td>
<td>Enter</td>
</tr>
</tbody>
</table>

Table:16 Regression information

a. Dependent Variable: Business income tax

b. All requested variables entered.
### Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>R Square Change</th>
<th>F Change</th>
<th>df1</th>
<th>df2</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.170a</td>
<td>.029</td>
<td>-.040</td>
<td>9994059511.27422</td>
<td>.029</td>
<td>.419</td>
<td>1</td>
<td>14</td>
<td>.528</td>
</tr>
<tr>
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<td>.068</td>
<td>-.076</td>
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<td>.039</td>
<td>.539</td>
<td>1</td>
<td>13</td>
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</tr>
<tr>
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<td>.928</td>
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</tr>
</tbody>
</table>

- a. Predictors: (Constant), Inflation
- b. Predictors: (Constant), Inflation, Foreign direct investment
- c. Predictors: (Constant), Inflation, Foreign direct investment, Incentives
- d. Dependent Variable: Business income tax
Table: 17 Coefficient of determination
The model summary tells out the change in unadjusted and adjusted $R^2$'s and as one can observe the adjusted $R^2$ enlarges from -.040 through -.076 to .928 (92.8%) in the 3rd model. This is not the only manifestation but also the ANOVA table shows significance p value of more than 0.05 which is strong base to accept the null hypothesis assumption of the variables have equal means making it difficult to mark the difference between the impact of the predictor variables.

ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>1</td>
<td>418059930368289000000.000</td>
<td>.419</td>
<td>.528</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>14</td>
<td>99881225514890740000.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
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<td>1440143150245299400000.000</td>
<td></td>
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</tr>
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<td>15</td>
<td>1440143150245299400000.000</td>
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<td>3</td>
<td>Regression</td>
<td>3</td>
<td>45225163723921600000.000</td>
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<td>.000</td>
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<td>6949019878627859500.000</td>
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<td>15</td>
<td>1440143150245299400000.000</td>
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a. Dependent Variable: Business income tax

b. Predictors: (Constant), Inflation

c. Predictors: (Constant), Inflation, Foreign direct investment

d. Predictors: (Constant), Inflation, Foreign direct investment, Incentives

Table: 18 ANOVA table

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>95.0% Confidence Interval for B</th>
<th>Correlations</th>
<th>Co linearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td>t</td>
<td>Sig.</td>
</tr>
<tr>
<td>1</td>
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<td></td>
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<td>449360405.132</td>
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<td>Foreign direct investment</td>
<td>(Constant)</td>
<td>Inflation</td>
<td>Foreign direct investment</td>
</tr>
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<td>----------------------</td>
<td>-----------</td>
<td>---------------------------</td>
<td>------------</td>
<td>-----------</td>
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<td>-.152</td>
<td>.196</td>
<td>-.064</td>
<td>-.776</td>
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</tbody>
</table>

a. Dependent Variable: Business income tax
The model generated in all the 3 hierarchies is depicted as follows:

\[ M_1 \text{Business income tax}=153,419,491.965 \text{ (Inflation)} + 4,449,360,405.13 \]

\[ M_2 \text{Business income tax}=52,946,151.839 \text{ (Inflation)} + .536 (\text{Foreign direct investment}) + 3,311,813,310.721 \]

\[ M_3 \text{Business income tax}=30,046,993.585(\text{Inflation}) - .152(\text{Foreign direct investment}) + .804(\text{Incentives}) - 848,937,390.864 \]

These models are to be considered along with the coefficients of determination previously given. Regarding the outliers the case wise diagnosis the Mahalanobi’s and Cook’s distance indicate the same figures as in the previous standard multiple regression.

### Excluded Variables

<table>
<thead>
<tr>
<th>Model</th>
<th>Beta</th>
<th>In</th>
<th>Sig.</th>
<th>Partial Correlation</th>
<th>Tolerance</th>
<th>VIF</th>
<th>Minimum Tolerance</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Foreign direct investment</td>
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<td>.734</td>
<td>.476</td>
<td>.200</td>
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<td>1.322</td>
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<tr>
<td></td>
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<td>.968b</td>
<td>13.949</td>
<td>.000</td>
<td>.968</td>
<td>.971</td>
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</tr>
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<td>.000</td>
<td>.968</td>
<td>.905</td>
<td>1.105</td>
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</table>
a. Dependent Variable: Business income tax

b. Predictors in the Model: (Constant), Inflation

c. Predictors in the Model: (Constant), Inflation, Foreign direct investment

**Table: 20 Regression information**  
**Collinearity Diagnostics**

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimension</th>
<th>Eigenvalue</th>
<th>Condition Index</th>
<th>(Constant)</th>
<th>Inflation</th>
<th>Foreign direct investment</th>
<th>Incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1.660</td>
<td>1.000</td>
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<td>.17</td>
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<td></td>
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<td></td>
<td>2</td>
<td>.340</td>
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<td>.83</td>
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<td></td>
</tr>
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<td>.06</td>
<td>.06</td>
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<td></td>
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<td>.09</td>
<td>.52</td>
<td>.90</td>
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<td>1.000</td>
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<td>.04</td>
<td>.03</td>
<td>.04</td>
</tr>
<tr>
<td></td>
<td>2</td>
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<td>2.357</td>
<td>.00</td>
<td>.22</td>
<td>.03</td>
<td>.76</td>
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<td>2.984</td>
<td>.96</td>
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<td>4</td>
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<td>3.327</td>
<td>.00</td>
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<td>.07</td>
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</table>
a. Dependent Variable: Business income tax

Table:21 Co linearity table

<table>
<thead>
<tr>
<th>Case Number</th>
<th>Std. Residual</th>
<th>Business income tax</th>
<th>Predicted Value</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>3.952</td>
<td>3.65E+10</td>
<td>26119768116.4509</td>
<td>10416676775.54914</td>
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a. Dependent Variable: Business income tax

Table:22 Outliers table

<table>
<thead>
<tr>
<th>Residuals Statistics^a</th>
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<tbody>
<tr>
<td>Minimum</td>
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<tr>
<td>Predicted Value</td>
</tr>
<tr>
<td>Std. Predicted Value</td>
</tr>
<tr>
<td>Standard Error of Predicted Value</td>
</tr>
<tr>
<td>Maximum</td>
</tr>
<tr>
<td>Predicted Value</td>
</tr>
<tr>
<td>Std. Predicted Value</td>
</tr>
<tr>
<td>Standard Error of Predicted Value</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Predicted Value</td>
</tr>
<tr>
<td>Std. Predicted Value</td>
</tr>
<tr>
<td>Standard Error of Predicted Value</td>
</tr>
<tr>
<td>Std. Deviation</td>
</tr>
<tr>
<td>Predicted Value</td>
</tr>
<tr>
<td>Std. Predicted Value</td>
</tr>
<tr>
<td>Standard Error of Predicted Value</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Predicted Value</td>
</tr>
<tr>
<td>Std. Predicted Value</td>
</tr>
<tr>
<td>Standard Error of Predicted Value</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Adjusted Predicted Value</td>
</tr>
<tr>
<td>Residual</td>
</tr>
<tr>
<td>Std. Residual</td>
</tr>
<tr>
<td>Stud. Residual</td>
</tr>
<tr>
<td>Deleted Residual</td>
</tr>
<tr>
<td>Stud. Deleted Residual</td>
</tr>
<tr>
<td>Mahal. Distance</td>
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<tr>
<td>Cook's Distance</td>
</tr>
<tr>
<td>Centered Leverage Value</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Business income tax

Table:23 Outliers test table
Charts

Figure 8: Normal distribution graph

Dependent Variable: Business income tax
Figure: 9 Scattered plot

With regard to the normal p-p plot and scattered distribution of the hierarchal regression model it is more or less similar to the graph of the standard multiple regression test. The output is similar in such a way that the residuals in normal distribution are closer to the model representing linear line and the scattered plot represents the heteroscedasticity in the observed error terms.
4.1.4.3 Regression / Stepwise multiple linear regression/

In this regression model similar procedures of multiple regression analysis are applied. However, the output differs this is because the step wise analysis completely discards the independent variables have least effect and regresses up on those which it considers relevant. The output is displayed in the model as it will be discussed later on. The main reason why the researcher considered this analysis is that the difference in the variables considered, their predictive capacity and the significance can be used for the purpose of comparing the outcomes under the different regressions and which one best explains the relationship hypothesized at the beginning of the study and the practical effect the predictor/independent variables have by the end.

### Descriptive Statistics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business income tax</td>
<td>5867732372.26</td>
<td>9798445966.05</td>
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</tr>
<tr>
<td>Incentives</td>
<td>8737161052.76</td>
<td>11979862018.0</td>
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<tr>
<td>Inflation</td>
<td>9.2451</td>
<td>10.88161</td>
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</tr>
<tr>
<td>Foreign direct investment</td>
<td>3852059047.04</td>
<td>4129632925.79</td>
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</table>

Table:24 Variables information
### Correlations

<table>
<thead>
<tr>
<th></th>
<th>Business income tax</th>
<th>Incentives</th>
<th>Inflation</th>
<th>Foreign direct investment</th>
</tr>
</thead>
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<tr>
<td>Pearson</td>
<td></td>
<td></td>
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<td>.000</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>.170</td>
<td>.172</td>
<td>1.000</td>
<td>.494</td>
</tr>
<tr>
<td></td>
<td>.255</td>
<td>.308</td>
<td>.494</td>
<td>1.000</td>
</tr>
<tr>
<td>Sig. (1-tailed)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.000</td>
<td>.000</td>
<td>.184</td>
<td>.109</td>
</tr>
<tr>
<td></td>
<td>.000</td>
<td>.000</td>
<td>.229</td>
<td>.123</td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>.109</td>
<td>.123</td>
<td>.006</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>30</td>
<td>21</td>
<td>30</td>
<td>25</td>
</tr>
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<td></td>
<td>25</td>
<td>16</td>
<td>25</td>
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</table>
Table: 25 Correlations matrix

Variables Entered/Removed<sup>a</sup>

<table>
<thead>
<tr>
<th>Model</th>
<th>Variables Entered</th>
<th>Variables Removed</th>
<th>Method</th>
</tr>
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<tr>
<td>1</td>
<td>Incentives</td>
<td>.</td>
<td>Stepwise (Criteria: Probability-of-F-to-enter &lt;= .050, Probability-of-F-to-remove &gt;= .100).</td>
</tr>
</tbody>
</table>

<sup>a</sup> Dependent Variable: Business income tax

Table: 26 Regression information

Model Summary<sup>b</sup>

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
</table>
a. Predictors: (Constant), Incentives

b. Dependent Variable: Business income tax

Table: 27 Coefficients of determination
Discussion on the correlation matrix and the coefficient of determination. It is observed that the correlation matrix indicates similar relationships between the dependent and independent variables as mentioned in both the standard and hierarchical multiple regression models, considering all the independent predictor variables. With respect to the coefficient of determination or $R^2$ the adjusted figure for the step wise multiple regressions indicates the .935 (93.5%). This coefficient is less than the $R^2$ obtained in the standard and hierarchical multiple regressions which should be marked.

**ANOVA**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
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<tr>
<td>Model</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
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<td>1352541452312</td>
<td>216.155</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>688500000.000</td>
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<td>688500000.000</td>
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<td>6257264138043</td>
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</tr>
<tr>
<td></td>
<td>0850000.000</td>
<td></td>
<td>631600.000</td>
<td></td>
<td></td>
</tr>
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<td>Residual</td>
<td>1440143150245</td>
<td>15</td>
<td>1440143150245</td>
<td></td>
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</tr>
<tr>
<td>Total</td>
<td>2994000000.000</td>
<td></td>
<td>2994000000.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
a. Dependent Variable: Business income tax
b. Predictors: (Constant), Incentives

**Table 28 ANOVA table**

The ANOVA and coefficients table indicate the fitness and beta values for this regression model respectively. The ANOVA table, which as discussed before indicates the hypothesis test of the equality between the means of the observed variables, implies the hypothesis is rejected for the significant P value is less than 0.05. By this it is disclosed the comparison of the means did have no implication on the similarity of the variables considered. However, the coefficients value tells the beta value for the selected independent variables under the stepwise analysis and thereby the value of constant involved. This model formulated is depicted as follows:

**Business income tax = 0.793(Incentives) - 1,057,720,651.561**

In this model unlike the other two models, the standard regression and hierarchical regression, considers the incentive to be the only factor explaining the relationship. However, the coefficient of variation ($R^2$) is lesser than those in the two models. This by itself may not be the problem because $R^2$ tends to increase as the number of independent variables increases. But when the normal p-p plot is observed there are missing values for the predicted values plotted against the residuals. There is a place where the points aligning the linear line representing the model break. Implying we cannot rely on this variable alone to explain the relationship between business income tax revenue, foreign direct investment, inflation and incentives as numerically depicted considering Ethiopian case. With regard to the scattered plot it sure has some pattern at the beginning but disperses out instead of keeping intact.
<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Std. Error</th>
<th>Beta</th>
<th>t</th>
<th>Sig.</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
<th>Zero-order</th>
<th>Partial</th>
<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
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<td></td>
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<td></td>
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<tr>
<td></td>
<td>20651.561</td>
<td>942.386</td>
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<td></td>
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</tr>
<tr>
<td>Incenitives</td>
<td>.793</td>
<td>.054</td>
<td>.969</td>
<td>14.702</td>
<td>.000</td>
<td>.677</td>
<td>.908</td>
<td>.969</td>
<td>.969</td>
<td>.969</td>
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<td>1.000</td>
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</table>

Table: Coefficients table
Excluded Variables

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<th>Beta</th>
<th>t</th>
<th>Sig.</th>
<th>Partial Correlation</th>
<th>Collinearity Statistics</th>
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<tbody>
<tr>
<td></td>
<td>Inflation</td>
<td>.004 b</td>
<td>.061</td>
<td>.953</td>
<td>.017</td>
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<tr>
<td></td>
<td>Foreign direct investment</td>
<td>-.048 b</td>
<td>-.679</td>
<td>.509</td>
<td>-.185</td>
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</table>

a. Dependent Variable: Business income tax

b. Predictors in the Model: (Constant), Incentives

Table: 30 Regression information

Co linearityDiagnostics

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimension</th>
<th>Eigenvalue</th>
<th>Condition Index</th>
<th>Variance Proportions</th>
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<td></td>
<td></td>
<td>(Constant)</td>
</tr>
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</table>
a. Dependent Variable: Business income tax

Table:31 Co linearity table

### Residuals Statistics

<table>
<thead>
<tr>
<th></th>
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<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicted Value</td>
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<td>28567566336.0000</td>
<td>5867732372.2667</td>
<td>9495758534.95545</td>
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</tr>
<tr>
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<td>1908670038.11429</td>
<td>3107511220.03473</td>
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</tr>
<tr>
<td>Std. Predicted Value</td>
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<td>2.391</td>
<td>.000</td>
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</table>

a. Dependent Variable: Business income tax

Table:32 Outliers test table
Charts

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Business income tax

Expected Cum Prob

Observed Cum Prob
Figure: 10 Normal distribution graph
Figure: 11 Scattered plot
To summaries with the findings of this study, for at least two reasons, the model given below is most fit to explain the effect Incentives, Foreign direct investment and Inflation have on Ethiopian business income tax revenue. This is because through two regression analysis techniques namely standard and multiple linear regressions tests this model has been proved to be statistically fit. The second reason being ,the effect of incentives in isolation is less explanatory or illustrative and inconsistent, as confirmed by the stepwise multiple regression analysis. Therefore, the model for this study is given by:

**Business income tax=** 0.804(Incentives) - 0.152(Foreign direct investment) + 30,046,993.585(Inflation) - 848,937,390.864

or

\[ Y = -848,937,390.864 + 0.804X_1 - 0.152X_2 + 30,046,993.585X_3 + e_i \]

for

\[ Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e_i \]

Where \( Y = \) Total Business income tax revenue

\( \beta_0 = \) Y intercept

\( \beta_1 = \) Coefficient of incentives

\( X_1 = \) Incentives

\( \beta_2 = \) Coefficient of foreign direct investment

\( X_2 = \) Foreign direct investment

\( \beta_3 = \) Coefficient of inflation

\( X_3 = \) Inflation

\( e_i = \) Error term

The interpretation being:

**In order to earn a unit(birr) revenue in Business income tax in Ethiopia, Incentives should be increased by 0.804 birr, Foreign direct investment should be decreased by 0.152 birr and inflation should be increased by 30,046,993.585 which in reality could not happen hence this is measured in terms of rate and Business income tax would decrease by 848,937,390.864 birr had all of these factors not been considered.**
5. CONCLUSION AND RECOMMENDATION

5.1 Conclusion

In conclusion the cause for this study as discussed at the beginning is the business income tax trend in the World (at least significant economies), African and Ethiopian context. In fact the trend is not the immediate cause for this study, rather the factors observed to be influencing these trends were striking facts behind the study. Hence some literatures revealed the same so the researcher declined to the specific factors incentives, foreign direct investment and inflation affecting business income tax revenue in Ethiopia to measure their quantitative relationship based on statistically computed model.

The hypothesis tested initially were:

- \( H_1 \): There is relationship between incentive and business income tax revenue
- \( H_2 \): There is relationship between foreign direct investment and business income tax revenue
- \( H_3 \): There is relationship between inflation and business profit tax revenue
- \( H_4 \): There is positive relationship between incentives and business income tax revenue
- \( H_5 \): There is negative relationship between foreign direct investment and business income tax revenue and
- \( H_6 \): There is negative relationship between inflation and business income tax revenue

Based on the literatures reviewed business income tax is income obtained from goods and services operating in a specific year considering the net income. Incentive has basic aim of increasing foreign currency reserve. Whereas foreign direct investment is about degree of influence, lasting interest and long-term relationship among businesses or nations. Inflation deals with price upward movement which is persistent. The relation among business income tax, foreign direct investment and incentives is clear that both affect the first through economic resource and income gain. Inflation however largely relates with business income tax because of macro-economic and financial statement components.

Theories indicate business income tax has perspectives of benefit approach, means of collecting individual income tax and controlling the economy theories. Incentive on the other hand is
composed of Distortion-correcting export promotion, Export promotion for it’s own sake, Export promotion to capture larger share of global profits. Where as in case of investment there are a number of reasons and justifications/causes/ like; Capital theory, International trade tradition theory, Industrial organization. Cost of capital, Corporate investment theory, Portfolio theory. In case of inflation there are at least two causes inflation of monetary and Keynesian theory.

Empirically reviewed a number of countries in the world have had different incentives in most cases to attract foreign direct investment. Some countries have benefited others are on the study process. Those like Myanmar, Gambia & Mauritius have it in their laws and countries like Jamaica, Egypt and India are working on it’s deduction as a result of inefficiency. With regard to foreign direct investment OECD countries are observed to loss income due to this. While African poverty alleviation is affected by missed corporate tax for the sack of multi nationals’ attraction. Inflation is leading to increased borrowing or debt financing in addition to the increased personal income tax and contribution in Germany as well as Netherlands .In low and middle income countries to it is believed to have an impact on tax for goods and services which indirectly affect interest expense, contribution and salary expense which have negative impact on business income tax revenue. Increased goods and services tax result in market loss and revenue decline.

The data processed by SPSS (23) to obtain the desired tabular presentation of the data. All this data marked scale because of It’s capacity to go through mathematical computations (which means it is not interval but ratio data type, and no nominal or ordinal data involved). The analysis was divided in two broad categories as descriptive and inferential .Through the statistical procedure analyze descriptive statistics .The analysis for missing value, multi co linearity, normality, hetroscadasticity and outliers is undertaken along with the multiple, hierarchical and stepwise regression analysis. The tabular presentation of data for descriptive and regression analysis was made so that the appropriate interpretations and conclusion is reached proving or disproving the hypothesis test. So that the appropriate recommendation is made based on the research questions ignited in chapter one.
In general the analysis part has discussed that, the descriptives and inferentia analysis have been made in accordance with the blueprint in the research methodology part as broadly categorised.

As it can be observed the frequency table values along with missing values has been presented. The normality graph using histogram has then been displayed for all the predicted and predictor variables(dependant and independent). Next the descriptive statistics incorporating measures of central tendency and dispersion have been discussed. Some of these include sum, mean, minimum, maximum range, standard deviation along with skewness and kurtosis.

Then moved on to the regression analysis part which contained a large proportion of the inferential statistics. Three types of the same have been made. Namely standard, hierarchial and stepwise multiple regression analysis. In all the regressions the descriptive statistics, the correlation matrices, the removed variables, the ANOVA, the coefficients, the colinearity diagnostics, the casewise analysis, the residuals table along with the p-p normal plot and scattered plot are presented.

From the analysis important factors such as the correlation matrix, ANOVA, coefficients tables along with P-P normal plot and scattered plot have been discussed in detail. The correlation matrices which turned out to be the same for all regression analysis types revealed the following facts.

The correlation matrix on the other hand implies, the relation between business income tax and incentives is .969 (96.9%) where as the relationship of inflation and foreign direct investment to the same is .170(17%) and .255(25.5%) respectively. Incentive with foreign direct investment and inflation as .308(30.8%) and .172(17.2%) in sequence. Inflation also relates to foreign direct investment by .494(49.9%). Based on the ANOVA tables the listed significant P values are detected to examine the hypothesis of mean equality against <0.05 significant P value which serves as a standard bench mark for the rejection of mean equality hypothesis. .000b for Standard multiple regression model, .528b for model -1 of the hierarchical multiple regression, .634c for model -2 of the same, .000d for model-3 and .000b for the stepwise multiple regression model.
The models formulated are all presented as follows. This is observed in standard, hierarchal and stepwise multiple regression models respectively.

**Business income tax** = 0.804(Incentives) - 0.152(Foreign direct investment) + 30,046,993.585(Inflation) - 848,937,390.864

M<sub>1</sub> Business income tax = 153,419,491.965 (Inflation) + 4,449,360,405.13

M<sub>2</sub> Business income tax = 52,946,151.839(Inflation) + 0.536(Foreign direct investment) + 3,311,813,310.721

M<sub>3</sub> Business income tax = 0.804(Incentives) + 30,046,993.585(Inflation) - 0.152(Foreign direct investment) - 848,937,390.864

**Business income tax** = 0.793(Incentives) - 1,057,720,651.561

The P-P normal curve and the scattered plot nearly show the same distribution and dispersion respectively except for the stepwise regression model P-P normal distribution where the distribution indicates some sort of abnormally broken line.

The most fitting model being:

**Business income tax** = 0.804(Incentives) - 0.152(Foreign direct investment) + 30,046,993.585(Inflation) - 848,937,390.864

It is interpreted as:

In order to earn a unit (birr) revenue in Business income tax in Ethiopia, Incentives should be increased by 0.804 birr, Foreign direct investment should be decreased by 0.152 birr and inflation should be increased by 30,046,993.585 which in reality could not happen hence this is measured in terms of rate and Business income tax would decrease by 848,937,390.864 birr had all of these factors not been considered.

Finally the hypotheses tested are concluded for here under. The conclusions for hypothesis 1-3 are based on the correlation matrix while the rest consumed the model formulated.
H₁: There is relationship between incentive and business income tax revenue
   ❖ This hypothesis is accepted because they have relationship and it amounts to 0.969 (96.9%).

H₂: There is relationship between foreign direct investment and business income tax revenue
   ❖ This hypothesis is as well accepted for there is 0.255 (25.5%) correlation.

H₃: There is relationship between inflation and business profit tax revenue
   ❖ This third hypothesis is also accepted as a result of 0.170 (17%) relation.

H₄: There is positive relationship between incentives and business income tax revenue
   ❖ This hypothesis should be accepted because just like the theoretic base the data indicated positive relationship detected as 0.804

H₅: There is negative relationship between foreign direct investment and business income tax revenue
   ❖ This hypothesis is accepted because of the negative direction of the independent variable’s coefficient noticed as -0.152

H₆: There is negative relationship between inflation and business income tax revenue
   ❖ This hypothesis is as well rejected because the coefficient of the inflation did not affect business income tax revenue in Ethiopia negatively. It is as well less relevant compared to the other independent variables amounting to 30,046,993.585.
5.2 Recommendation

Based on the study conducted and chapters covered so far, alternative courses of action that proceed are recommended. To keep on the consistency, the recommendations depend on the research questions given at the beginning of the study.

- Hence the purpose of the study was to explore the effect of incentives on business income tax and the correlation output reveals \(0.969\ (96.9\%)\). The coefficient pertaining for a unit change in revenue is \(0.804\) in incentives. The concerned authorities should give due emphasis on which incentives to concentrate and what combination they should have to enhance business income tax revenue.

- In this study the effect of foreign direct investment on business income tax revenue has been examined. As a result, there is correlation of \(0.255\ (25.5\%)\). The coefficient pertaining for a unit change in revenue is \(-0.152\) in foreign direct investment. It is therefore critical to evaluate the increasing foreign direct investment from a business income tax perspective. Because fears tax competition is damaging the same in other parts of the world.

- The study managed to evaluate the effect of inflation on business income tax as well. \(0.170\ (17\%)\) individual correlation is observed. The coefficient pertaining for a unit change in revenue is \(30,046,993.585\) in inflation. This could be minimal and not striking because of the minimal inflation prevailing. But it is also recalled that tax is among the macro measures to stabilize inflation.

- The model established based on the study defines the joint effect for the three independent variables (factors) acting on business income tax revenue. The model has already been depicted and interpreted for in the previous discussions. Incentive has positive significant contribution, foreign direct investment has negative impact and inflation has insignificant effect in generating a unit of business income tax revenue. Policy makers should therefore consider the trends in these variables in forecasting the business income tax revenue.

- The remaining general recommendation would be scholars should further investigate factors affecting business income tax, encouraging scholarly debates on the remaining tax categories which could enhance up to date and convenient tax policies, generating better income, enhancing financial reporting and benefiting the society at large.
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