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EFFECT OF BALANCE OF PAYMENTS ON ECONOMIC GROWTH IN ETHIOPIA

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As member of the board that examines the final MA thesis open defense examination we certify that we have read and evaluated the thesis prepared by Tesfaye Bijamo under the title "EFFECT OF BALANCE OF PAYMENTS ON ECONOMIC GROWTH IN ETHIOPIA" and we recommended this thesis to be accepted as it fulfills the thesis requirement for the Degree of Master of Arts in Development Economics.

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DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of MARU SHETE (PhD). All sources of materials used for thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

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ENDORSMENT

This thesis has been submitted to St. Mary's University, School of Developmental Studies for examination with my approval as a university advisor.

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ACRONYMS

BOP	Balance of payment
CA	Current account
CAD	Current account deficit
VAR	Vector autoregressive
CFA	Capital and Financial account
DSP	Debt Service Payment
EDS	External Debt Stock
ER	External Reserve
GDCF	Gross Domestic Capital Formation
GDS	Gross Domestic Saving
IMF	International Monetary Fund
IPR	Private Investment
MoFED	Ministry of Finance and Economic Development
MOT	Ministry of Trade
NBE	National Bank of Ethiopia
NI	National Income
SDR	Special Drawing Right
TDS	Total Debt Service
SPR	Private Saving
FDI	foreign direct investment
GDP	gross domestic product

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ABSTRACT

The effect of Balance of payments on economic growth in Ethiopia. Balance of Payments (BOP) is a statement or record of all monetary and economic transactions made between a country and the rest of the world within a defined period normally on yearly basis from 1987/88 to 2019/20. The balance of payments tracks international transactions. When funds go into a country, a credit is added to the balance of payments ("BOP") while when funds leave a country, a deduction is made. Thus, a Balance of payments (BOP) deficit, on the other hand, indicates that a country's imports are more than exports. Economic growth is the increase in the inflation-adjusted market value of the goods and services produced by an economy over time. A country's balance of payments tells you whether it saves enough to pay for its imports and it reveals whether the country produces enough economic output to pay for its growth and a balance of payments deficit means the country imports more goods, services and capital than it exports. Therefore, if growth is based on consumer spending and falling saving rates, this will tend to cause imports to rise faster than exports. To achieve the underlying objectives, the study employed autoregressive distributed lag model as well as co-integration analysis using the Johansen multivariate procedure. Pairwise Granger causality was also used. The Augmented Dickey unit root test indicated that all series are integrated of order one, i(1). That is, all series are stationary after 1st and 2nd differences. The causality result showed economic growth granger causes BOP. From the long run model export and FDI positive significant effect on the economic growth rate of Ethiopia both in the short-run and long-run. Based on the results obtained it is recommended that the government to sum it up Balance of Payments is a very important record of financial transactions and status of any nation and its economy because it highlights the direction of economic growth or otherwise of any country and is a ground on which many important policy decisions of countries are based.

Key Words:

Co-integration, BOP, Economic growth, Granger Causality, Autoregressive distributed lag (ARDL) Model, Ethiopia

CHAPTER ONE

1. INTRODUCTION

1.1Background of the Study

International Monetary Fund (IMF) defines the balance of payments (BOP) effect on economic growth as a term that is used to refer to an accounting record for all the monetary transactions conducted by a country with other countries within a specified period of time, usually one year. It comprises all types of transactions of a country like–exports and imports of goods and services, purchase and sale of foreign assets, foreign direct investment and portfolio investment as well as borrowing from and lending to the rest of the world. It is preferably presented in the country's domestic currency (IMF, 1996).In the BOP transactions if a country has received money, this is known as a credit, and if a country has paid or given money, the transaction is counted as a debit. Theoretically, the BOP should be zero, meaning that assets (credits) and liabilities (debits) should balance, but in practice, this is not happen and its effect on economic growth. The greatest importance's of balance of payments lie nits serving as an indicator of effects international economic growth position of any country. It can also be used to appraise a nation's short-term international economic growth prospects, to evaluate the degree of its international solvency, and to determine the appropriateness of the exchange rate of country's currency(Mundell,2017).Balance of payments' can be favourable (positive),unfavourable(negative)or in difference (around zero).(Kennedy,2018)argues that a country's favourable balance of payments cannot be taken as an indicator of effect economic growth prosperity or the unfavourable balance of payments is not a reflection of economic failure. A poor country may have a favourable balance of payments due to large inflow of foreign loans, foreign aids and equity capital. A developed country may have unfavourable balance of payments due to massive assistance given to developing countries. Thus, a deficit or surplus of balance of payments of a country per se should not be taken as a sign of economic growth failure or prosperity of the country. However, the longer the balance of payments deficit continues, the more it would imply some fundamental problems in that economic growth because of the following reasons.

If a balance of payment deficit and its effect on economic growth is financed through borrowing, it is unsustainable in the long term and countries was burdened with high interest payments .Countries with large interest payments have little left over to spend on domestic

investment For example Ethiopian budget proposal for debt service for the year 2017/18 is more than three times compared to the education budget.

If countries run a current account deficit, it means it needs to run a surplus on the capital account. Getting capital account surplus means foreigners have an increasing claim on the domestic assets, which they could desire to be returned at any time. There is also a risk that the countries best assets could be bought by foreigners; reducing long term income and increases the balance of payments deficit and its effect on economic growth. Ethiopia is selling many of its public enterprise like the brewery industry to foreigner in the form of FDI to mitigate the current account deficit. However, in the long run the current account deficit would return back through FDI profit expatriate.

A current account deficit may imply that countries are relying on consumer spending, and are becoming uncompetitive. This leads to lower economic growth of the export sector (Umar, 2017). This is particularly a problem for countries like Ethiopia which lack competitiveness in the international market that may be the reason for large current account deficits.

A Balance of payments deficit may cause a loss of confidence by foreign investors that the investors may remove their investments causing a big fall in the value of domestic currency (devaluation) and on the economic growth. This can lead to decline in living standards and lower confidence for investment (Imoisi, 2018.Therefore, it is prudent to know the factors or the variables that affect and understand the changes in the balance of payment to make an informed economic growth decision. This study investigates the determinants of balance of payments in Ethiopia for the period between1987/88-2019/20.The study also leads to a better understanding of the factors that affect the balance of payments, their significance and policy implications.

1.2 Statement of the Problem

Ethiopian National Bank Annual Reports have confirmed that since 1953 the state of the balance of payments of Ethiopia especially the current account has not been healthy except on the eve of the revolution (1973-74) in which the country had a positive trade balance of Birr 76 million. In every year since then, the balance has been not only negative but also widening and effect on economic growth. The same national bank annual reports also show that since 2004 Ethiopian economic growth rates became constantly high and stable but

produce the same deficit in the balance of payments. Source: Ministry of Finance and Economic Development and Staff computation based on the newly Revised Series (1999/00 Base)

Despite the relatively extensive theoretical, there is no consensus on the determinants of balance of payment effect on economic growth especially in individual developing countries. It means that the nature, performance and determinants of the balance of payment remain an empirical problem of economic growth in developing countries, (Ajayi.J.O.2014).This study aimed at identifying why Ethiopian balance of payment and its effect on economic growth is widening while Ethiopia has a stable and high economic growth.

1.3 Research Question

1. What are the main economic factors determining Ethiopian BOP problem?
2. What is the effect of BOP on the economic growth of the country?
3. What are the economic factors that influence the BOP?

1.4 Objective of the Study

1.4.1 General Objective

The general objective of this study was to fit a multivariate time series model among effect of BOP on Economic growth in Ethiopia from 1987/88 to 2019/20.

1.4.2 Specific Objectives

The study was specifically focused on the following research objectives

1. To determining main economic factors of Ethiopian BOP problems.
2. To assess the effects of BOP on economic growth.
3. To assess economic factors that influences the balance of payment.

1.4.3 Hypotheses of the Study

In fulfilling the main and specific objectives of the study expected to the hypotheses below:

1. There is significant relationship between Exports and economic growth;
2. There is significant relationship between Imports and economic growth;
3. There is significant relationship between FDI and economic growth;
4. There is a relation between BOP and economic growth in long-run.

1.5 Significance of the Study

The study of balance of payments effect on economic growth has become a matter of great interest to all concerned. It has been said that effect of Balance of Payments on economic growth is just like a financial statement of a bank or a business that reveals the financial condition of the country (Umo, 2018).

The analyses of the balance of payments and its effect on economic growth are important because:

(1) It helps in formulation of a country's monetary, fiscal and trade policies.

(2) It helps in determining the influence of foreign trade & transactions on the level of national income of a country and

(3) It was provided information to banks, firms, financial institutions and individuals which are directly or indirectly involved in international trade and finance. The findings of this study will shed light on the factors that has significance on the balance of payment and its effect on economic growth of Ethiopia. The result and recommendation of this study will be valuable to the respective policy maker uses as input for their policy analysis. Besides, this research proposal study was a basis for other researchers in similar topic.

1.6 Scope and Limitation of the Study

The study was covers the period between 1987/88 and 2019/20.One of the serious limitations of this study lies on the quality of the data. The study was used secondary sources from the Central Statistics Agency (CSA) and the National Accounts Department of the Ministry Finance and Economic Development. But neither organization has the institutional capability to collect reliable and accurate economic data. According to (IMF, 2018) in its assessment of data adequacy of the Ethiopian government finds out limitation on data quality on National account; Finance statistics; Monetary statistics, and in the Balance of payments and its effect on economic growth.

1.7 Organization of the Thesis

The study was having five chapters. The first chapter was contains the introductory part including statement of the problem, objectives, significance of the study and scope and limitation of the study. The second chapter was presents both theoretical and empirical literature review. The third chapter was presents data sources, data collection method and methodology of data analysis. The fourth chapter was includes analysis of Ethiopian balance

of payments and its effect on economic growth based on descriptive and inferential statistics. Finally, chapter five was gives conclusion and policy recommendations.

CHAPTER TWO

2. REVIEW OF LITERATURE

2.1 Definition of Concepts

Most of literatures were found in the miniature articles forms on same partial aspects of BOP. On the basis of information, collected from the existing articles, an attempt has been made to make an overview of the existing literature. Developing countries like Bangladesh should relax restrictions on imports more slowly than barriers to exports; this is because it takes longer for exporters to respond to trade liberalization than it does for imports to flood in, potentially causing seriously disruptive balance of payments difficulties. This study is the first major attempt to estimate in a rigorous and systematic way the impact of trade liberalization not only on export growth but also on import growth, the trade balance and the balance of payments. Previous studies have ignored the fact that if liberalization leads to a flood of imports, the balance of payments consequences may seriously disrupt economies because deficits cannot easily be financed. Hossain and Alauddin (2016) examine the process of Bangladesh's BOP effect on economic growth and structure of exports, imports, FDI, GDP and other macroeconomic variables. By using econometric investigation based on the ARDL and the ARDL co-integration techniques they empirically found BOP has had a positive effect on economic growth and have significantly effect on economic growth in the long run.

Economic growth is an increase in the production of goods and services over a specific period of time (year). It is primarily driven by improvements in productivity, also called economic efficiency. Economic Growth can be measured as the percentage change in gross domestic product (GDP), specifically the percentage change of the real GDP where increments are adjusted for the effects of inflation. Real GDP provides a more realistic assessment of economic growth than nominal GDP (unadjusted for inflation), because nominal GDP includes both price and economic growth. The ratio of nominal GDP to GDP deflator is the value of real GDP (Snowdon and Vane, 2017).

2.2 Theoretical Literature

Theories of Balance of Payments and its effect on economic growth are concerned with identifying possible determinants of BOP, and specifically analysis of policies for preserving BOP equilibrium. According to Johnson (1972) prior to 1930s, no

comprehensive theory of BOP and economic growth was available for analysis instead there is a well work out theory of mechanism of international adjustment under the gold standard. This approach is also known as the Classical Price-Specie-Flow mechanism. The mechanism assumes that citizens in deficit (surplus) country would experience a negative (positive) real balance effect on economic growth. And, because of changed relative prices and real balances, residents of deficit country would purchase less from abroad, and citizens of surplus country would increase their imports, a surplus BOP can boost economic growth. This process would continue until payments balance is restored. David Hume used this mechanism to refute the mercantilist belief that a country could achieve a persistent balance of trade surplus by the mercantilist policies of import protection and export promotion. However, in the real world both the mercantilist and David Hume theory of the balance of payment was not working and researchers engaged in studying the source of balance of payments disequilibrium and the mechanism to correct the disequilibria.

2.3 Source of BOP Disequilibrium effect on Economic Growth

The factors leading to disequilibrium (surplus or deficit) in balance of payments could be Economic factors (Mundell,2017).He further illustrates the economic factor as follow:

- Structural changes in the economy,
- Changes in exchange rates (overvaluation /devaluation),
- Changes in the level of foreign exchange reserves,
- Cyclical fluctuations,
- Inflation / deflation
- Developmental expenditure undertaken by developing countries- developing countries in the early stage of their development imports massive capital from developed countries.

2.3.1 Theory of an Adjustment of Disequilibrium in BOP effect on Economic Growth

An adjustment of disequilibrium in BOP and its effect on economic growth can broadly divide into two types: Automatic and Policy Induced or Deliberate (Johnson, 1977). According to Johnson (1977) under automatic adjustment, the BOP adjustment comes automatically; it is not brought deliberately by government policy or intervention. The burden of adjustment is on the economic growth and market forces and not on the government. If market forces of demand and supply are allowed to have a free play, in

course of time, BOP equilibrium was automatically restored and economic growth. Assuming fixed or flexible exchange rates, the automatic adjustment in BOP takes place through changes in prices, interest rates, income and capital flows. Thus, under automatic adjustment there is no government intervention.

However, it is to be noted that automatic adjustment does not confirm to reality and has unwanted side effects on economic growth. Johnson (1977) show Policy Induced approaches broadly divided in to: Absorption, Monetary and Elasticise Approach.

2.3.1.1TheAbsorption Approach:

According to Umo(1995),Alexander (1999)is the one who pioneered the development of the absorption to BOP adjustment in his article, "The effects of Devaluation on the Trade Balance". The absorption approach looking the BOP, not as a relation between the country's debits and credits on International account, but rather as an element in the relation between aggregate receipts and expenditures of the economic growth.

It concentrates on the relationships of real expenditure to real income and on the relationships of both of these to the price levels. The foreign balance (B) is the difference between total output of goods and services (Y), and the total absorption (A) of these goods and services by the home economy. Absorption here is the name given to the aggregate of domestic demand (C + Id+ G), that is the amount of goods and services taken off the market domestically. Thus, B =Y–A.

Where B, is the balance of payments (net) and

"Y" and "A" are stand for total domestic output and expenditure respectively.

If total output is larger than total expenditure, the country will have a surplus in its BOP effect on economic growth and if the total expenditure is larger than the total output the country will have a deficit, and if output equals expenditure, the BOP will be in equilibrium. If a country has a deficit it can, in principle, close the deficit in one of two ways; by reducing expenditure or by increasing output.

It is often difficult to increase output in the short-run especially if the country already has full employment. Therefore, the chief means for reducing a deficit is usually an expenditure reducing policy. It is sometimes said that there are two main ways in which a deficit can be corrected: by expenditure reducing or expenditure switching policies.

2.3.1.2 Monetary Approach

The Monetary approach to the balance of payments and its effect economic growth, which comes to popularity in the 1970s, emphasizes the monetary aspects of the balance of payments and economic growth. It will be looked beyond merchandise trade and incorporated the important role of financial assets (Melvin, 1992).Under this approach, money market disequilibrium is seen as a crucial factor provoking balance of payments disequilibrium and effect on economic growth. The stock imbalance between the demand for and supply of money causes external disequilibrium or balance of payments on economic growth.

All else equal, an increase in money demand will bring about a balance of payments surplus and an accompanying increase in the money supply that maintains money market equilibrium on economic growth. An increase in domestic credit raises money supply relative to money demand, all else equal: So the balance of payments must go into deficit to reduce the money supply and restore money market equilibrium (Melvin 1992).

According to IMF,(1996) an important contribution of the monetary approach was to stress that in many situations, balance of payments problems result directly from imbalances in the money market, and that a policy solution that relies on monetary policy is therefore most appropriate. A large balance of payments deficit may be the result of excessive domestic credit creation, for example. Even though this balance of payments deficit will generally involve both a current account deficit and a positive private financial account balance, it would be misleading to view it as fundamentally due to an exogenous fall in relative world demand for domestic goods or assets. There are many realistic cases, however, in which a balance of payments analysis and its effect on economic growth based on the monetary approach is roundabout and possibly misleading as a guide to policy. Suppose, for example, that a temporary fall in foreign demand for domestic products does occur. This change will cause a fall in the current account and in the balance of payments, but these effects can be counteracted (when rigid capital account restrictions are not in place) by a temporary expansionary fiscal policy on the economic growth. Because output and thus money demand fall, the monetary approach also predicts that a balance of payments deficit will result from a fall in export demand and economic growth. It would be wrong, however, for policy makers to conclude that because the balance of payments deficit is associated with a fall in

money demand and effect economic growth, a contraction of domestic credit is the best response. If the central bank were to restrict domestic credit to improve the balance of payments, unemployment would remain high and might even rise. While the monetary approach is an extremely useful analytical tool, it must be applied with caution in seeking solutions to macroeconomic problems. It is most useful for formulating solutions to policy problems that are a direct result of shifts in domestic money demand or supply. According to Harry, J.(1976) revolutionary model, "a BOP deficit is always and everywhere a monetary phenomenon" and investment is given priority. The monetary approach is basically founded on money demand and supply. It posits that BOP overall balance is determined by the transmission mechanism between money demand and supply such that if monetary supply is faster than its demand, such a country has an excess money supply and vice versa. In such a case, equilibrium in the money market will be stored by channelling surplus monies to increase consumption of both foreign and domestic commodities.

2.3.1.3 The Elasticity Approach

Johnson (1977) stated the elasticity approach tries to predict the outcome policy changes on the balance of payments and its effect on economic growth. This approach illustrates how exchange rates will affect the balance of payment and its effect economic growth. In theory, according to him, the exchange rate will have an impact on the current account. If there is depreciation in the exchange rate, then that particular country will experience a fall in the foreign price of its exports. It will appear more competitive and therefore there will be a rise in the quantity of exports. Assuming demand for exports is relatively elastic then depreciation will lead to an increase in the value of exports and therefore improve the current account deficit. Similarly a depreciation of the exchange rate, will also lead to an increase in the cost of buying imports. This will lead to a fall in demand for imports and also help to reduce the current account deficit. Theoretically, it is said that devaluation would:

(a) Encourage exports and discourage imports of goods and services and thereby improve trade balance and current account balance.

(b) It would encourage capital inflows and improve capital account balance. The two tendencies together would improve the overall BOP and its effect economic growth situation of the country. The effect of devaluation on terms of trade depends on demand and supply elasticity's for exports and imports.

According to Johnson (1975) the success of devaluation depends on some essential conditions such as:

1. The demand for exports & imports should be fairly elastic. In other words, it should satisfy Marshall –Lerner condition, the condition that an exchange rate devaluation or depreciation will only cause a balance of trade improvement if the absolute sum of the long-term export and import demand elasticity's is greater than unity:

$e_x + e_m > 1$ BOP is improved and its effect on economic growth.

$e_x + e_m < 1$ devaluation will worsen (increase the deficit) the BOP.

$e_x + e_m = 1$ devaluation has no effect on the BOP situation and economic growth.

Where e_x is the demand elasticity of exports

e_m is the demand elasticity for imports

2. The supply of exports should be adequate to meet the increased demand for exports after devaluation.

3. There should be domestic price stability after devaluation.

4. There should be international cooperation. In other words, the other countries should not adopt measures to counter the effects of devaluation. Such measures would include – increase in tariff duties, export subsidies, etc.

5. Devaluation cannot be successful in isolation, so it should be supported by monetary, fiscal and other trade policy measures.

2.3.2 The difference between monetary and elasticity approaches:

Monetary approach;

The problems in the BOP are solely due to the disequilibrium between the supply and demand for money. The approach emphasizes the importance of monetary factors in the adjustment of BOP to different disturbances. The main message of the monetary approach is that disequilibrium in the BOP reflects disequilibrium in the money market, excess demand or supply of money. The final cause of the BOP-disequilibria is the divergence between the quantity of money in existence and the optimum or desired quantity. Consequently, BOP analysis needs to focus on both the supply and demand for money. The fact that balance of payments is essentially a monetary phenomenon is obvious because the BOP has, by its very nature, to do with monetary magnitudes and the accounting relationships between real and financial flows in the economy: The variation in the official international reserves is nothing

but the overall balance of payments. The variation of international reserves is the difference between the variation in the stock of money and the variation in other financial assets. Thus it is obvious that the BOP is a monetary phenomenon.

Elasticity approach;

The BOP problems are due to the disequilibrium in the physical trade flows, namely exports and imports of goods and services. Thus it could be analyzed on the basis of partial elasticities of the exports and imports and the role of exchange rate in the adjustment of BOP to devaluation. The role of relative prices and the terms of trade BOP adjustment through exchange rate changes relies upon the effect of the relative prices of domestic and foreign goods on the trade flows with the rest of the world. This relative price, or terms of trade, is defined by the ratio of export and import prices in domestic currency. From the point of view of the country as a whole, the terms of trade represents the amount of imports that can be obtained in exchange for a unit of exports (or the amount of exports required to obtain one unit of imports). Therefore an improvement in the terms of trade means that a greater amount of imports can be obtained per unit of exports (or, equivalently, that a smaller amount of exports is required per unit of imports).The terms of trade may vary both because of a change in the prices expressed in the respective national currencies and because of the exchange rate changes. Depreciation in the exchange rate at unchanged domestic and foreign prices in the respective currencies, in fact, makes domestic goods cheaper in foreign markets and foreign goods more expensive in the domestic market. The opposite is true for an appreciation.

2.3.3 GDP Growth and BOP by Current Account

By definition, growth refers to an increase in production i.e. a continuous process by which productivity of an economy is augmented in order to increase national output and income (Enu et al., 2013). Given a production function, output growth is determined by the rate at which various factors of production are accumulated and how fast technical progress is adopted. Furthermore, accumulation of the factors of production depends on other variables like demand, political, social and demographic factors. Economic growth and current account deficits respond to dynamics of one another differently. High economic growth in the sovereign county worsens the CAD and vice versa. Economists have applied three major categories of economic models to explain the cause and the differences in growth that exist

among world economies. Namely, neoclassical growth (NCGM), new endogenous growth models (NGM) and the augmented neoclassical growth model (ANCGM). These models differ in terms of assumptions and explanatory variables subsequently building upon the weakness of one another. First, the neoclassical conventional model (NCGM). These long-run equilibrium growth models were mainly basedon availability of exogenous variables like population and technology, and not on endogenous factors (Barro, R. & Sala-i-Martin, X.1995). These models were characterized by diminishing returns to factor inputs and constant returns to scale Second, the NGM based on demand-determined growth equilibrium pioneered by Romer (1986), Lucas and Svensson,(1988), led to improved growth models that incorporated an expanded range of factors to explain long run growth rate. Specifically, technologies, capital accumulation, government policies like in education and health were identified as major variables to promote productivity. They proposed that innovation and imitation, driven by international trade and globalization to be considered in the model. Consequently, a variety of

11research was conducted to investigate association between international trade, technological advancement and growth. Finally, Mankiw,Romer and Weil (MRW, 1992) argued endogenous models were not reliable in explaining growth differences among nations. They proposed augmented Solow growth model, in which they challenged the assumption of diminishing factor productivity in the NCGM, and incorporated human capital to the model besides physical capital. They presented the assertion that considering transitional dynamics during steady state, the production function could exhibit increasing factor productivity and explain the different growth rates across countries. They show that the equilibrium income per capita is directly related to an augmented variable, which is closely linked to the level at which human capital is accumulated ceteris paribus.

2.4 Empirical Literature Review

Özer,M.et al. (2018) investigated current account deficit association with Montenegro growth, between 2011 and2016 period. He used ARDL bounds co-integration test. Results showed two major findings: First, the variables of interest were bound together. Second, there was bi-directional association between the two variables of interest.

Empirical studies in Ethiopia focused on the relationship between BOP and economic growth. The autoregressive distributed lag (ARDL) econometric procedure is used for data

analysis and the main conclusion of this study is that Bop effect on economic growth in Ethiopia. Based on the above theoretical and empirical foundations about the relation between BOP and economic growth of this macroeconomic monetary policy shocks transmitted from one to the other through transmission channels. Therefore, the researcher Autoregressive distributed lag (ARDL) model to show the dynamic relationship between BOP and economic growth ARDL for showing the transmission channels of monetary policy shocks.

A country's balance of payments is said to be always 'balanced' in accounting sense so there would be no 'imbalance' in a country's BOP. However, in practices there is so many economic and non-economic factors that disturbs the equilibrium of the balance of payments (Melvin 1992).

Obafemi (2018) investigated the long-run determinants of balance of payment dynamics and its effect on economic growth in Nigeria between 1961and1992, using econometric method of co integration and error correction mechanism. They found that all the variables except balance of payment, exhibited non-stationary. The results will be also indicate that balance of payment and economic growth co integrated with all the identified explanatory variables, suggesting that balance of payment fluctuations and economic growth in Nigeria could be caused by the level of:

1. Trade openness,
2. External debt burden,
3. Exchange rate movement and
4. Domestic inflation.

They concluded that a reduction in fiscal deficits, an increased domestic production through private investment, inflation targeting and regulated capital market integration are the cure to the negative fluctuation in the Nigerian balance of payment and economic growth.

Obafemi(2018)investigated the impact of exchange rate adjustments (devaluation) in Nigeria's balance of payments from 1960-1993.Their empirical results, based on two stage least squares estimating procedures and effective estimation showed that

1. The devaluation coefficient was statistically insignificant and was also of the wrong sign, the magnitude of the coefficient being far from unity, as a priori expected; implying that

devaluation may not correct the disequilibrium in Nigeria's balance of payments and economic growth, all else being equal.

2. The expansion in domestic credit was an important source leading to the worsening of the Nigeria's balance of payments position and its economic growth.

3. The coefficient on change in domestic credit was not only close to unity but different from unity as predicted by the monetary approach. That is, the domestic credit coefficient was found to be -0.8746 instead of -1.00 as a priori expected. The coefficient was statistically significant at about 5 per cent level.

4. The sterilization or neutralization coefficient was statistically significant at better than one per cent level. This result implies that the Central Bank of Nigeria carried out complete neutralization of the domestic money supply within the sampled period (i.e. 1960-1993).

5. Their model failed to track the actual effect of the 65 per cent devaluation in 1986 (where the Naira was devalued by 65 per cent, trading vis-a-vis the US dollar at $1 = N4.60 as against the administered rate of $1 = N1.60, during September 26, 1986 SFEM auction).

Based on their empirical results and analysis, they concluded that devaluation as a policy response to redress the disequilibrium in Nigeria's external sector was an inappropriate policy They went further to identify various factors responsible for the inapplicability of the monetary approach to devaluation in the Nigerian context to include the structure of Nigeria's production, imports and exports coupled with instability in the macro-economy, political instability and unpropitious institutional environment. However, their study indicated the crucial role of domestic credit in macro-economic adjustment.

Debelle (2015)guided by the theories of saving and investment, used cross-section and panel data to examine determinants of current account focusing on the extent to which the variables have been relevant in explaining current account balance across countries and over time for both industrial and developing countries between 1971 and 1993. His Ordinary Least Squares and fixed effects estimation results found significant impact on the stages of development and demographic factors in the cross-section. This implies that the more advanced the economy, the more likely it will experience smaller deficits and vice versa. On the other hand, a country that has an above average dependency ratio tends to have large current account deficits due to decreasing savings.

Dhliwayo(2017)argued that under a system of fixed exchange rates excess money supply induces increase expenditure, hence increased domestic demand for foreign goods and services. The high domestic demand needs to be financed by running down foreign exchange reserves, thereby worsening the balance of payments. He further explained that the outflow of foreign exchange reserves reduces money supply until it is equal to money demand, thereby restoring monetary equilibrium and halting an outflow of foreign exchange reserves. Therefore an excess demand for money leads to an opposite adjustment, which in turn induces foreign exchange reserves inflow, and hence causes a BOP surplus, there is increased economic growth. This triggers domestic monetary expansion and eventually a restored balance of payments equilibrium position and its effect on economic growth.

Umer(2010)studied the determinants of the balance of payments and its effect on economic growth of position typically focusing on explanatory variables that potentially influence investment and saving decisions. The variables usually included were:

(a) Competitiveness indicators, such as the real exchange rate (REER);

(b) catching up indicators, reflecting the state and speed of converge between countries with different income levels e.g. relative per capita income levels of the domestic economy and a reference foreign developed economy;

(c) Demographic factors, such as population growth and the old-age dependency ratio;

(d)Business-cycle indicators, such as the output gap;

(e) Degree of financial market deregulation e.g. ratios such as private sector credit-to-GDP or M3-to-GDP may provide useful proxies for assessing the impact of banking intermediation on domestic private savings and the current account position;

(f) The degree of integration with international goods, services and financial markets;

(g) Fiscal variables, such as the general government balance; and

(h) Other important variables, such as aggregate proxies of investor and consumer uncertainty (e.g. inflation volatility) and special factors having a temporary impact on the current account (e.g. deviation of oil prices and freight rates from their respective long-term averages).

(Kayikci, 2011) applied the Variance auto regression to get the determinants of the current account balance in Turkey. Current account balance, GDP growth rate, investment, savings, terms of trade and oil imports, inflation and real exchange rate were used as the variables in

the model. The results showed that the current account balance was mostly affected by the inflation and the values of current account themselves. In one of the quarters it was established that 40% of the forecast error variance of the current account balance is caused by innovations in its own past and 26% was caused by inflation. Current account balance is also influenced from the innovations in the growth, investment to GDP ratio, saving to GDP ratio, openness, oil prices, and real exchange rate. Other factors were innovations in growths, oil prices, openness savings, investments and real exchange rate.

Mayo (2012) found major challenge to the Ghanaian economy is the persistence disequilibrium in the balance of payments. Using an annual data set from 1980-2010. The study analyzes the balance of payments and its effect on economic growth for Ghana using a monetary approach with the aid of econometric models. The study shows that the balance of payment disequilibrium effect on economic growth in Ghana is not influence only by monetary variables. Out of the four monetary independent variables three were found to be significant. The results also show that domestic credit, GDP growth, and interest rate are found to be significant. Domestic credit and interest rate are negatively related to net foreign assets while GDP growth is positively related. Inflation however is insignificantly related to net foreign assets. However, government expenditure and public debt may influence the balance of payment in Ghana. The implication for policy is that to correct the disequilibrium in balance of payment and its effect on economic growth, government should give equal attention to other policy levels instead of relying solely on monetary tools to attain stability in the country's balance of payments account.

Kennedy (2013) investigated the long-run determinants of balance of payment dynamics in Kenya between 1963 and 2012, using co integration and error correction mechanism. The study uses annual time series data for Kenya.

The paper examined how the determinants of balance of payments lead to adjustments in removing disequilibrium in the balance of payments position and its effect on economic growth. In his study, he starts by specifying the long-run relationship between the following variables:

- ✓ Exchange rates,
- ✓ FDI and
- ✓ Balance of trade and he obtained the following result.

The result obtained from the regression shows that there is negative but significant impact of Foreign Direct Investment (FDI) on Balance of payments. This negativity in the coefficient of Foreign Direct Investment is in conformity to the prior sign that a negative impact of Foreign Direct Investment on Balance of payments worsens the country's balance of payments deficit and its effect on economic growth. The coefficient of exchange rate is negative contrary to the theoretical expectations. It indicates that a depreciation of the exchange rate causes worsening of the balance of payments. However it is found to be highly statistically significant. This supports the empirical analysis that the impact of the nominal exchange rate and the price differentials between domestic and foreign prices does not seem to play a strong role in terms of the movements in the balance of payments although the coefficient implies that exchange rate movements do have a negligible impact on balance of payments on the economic growth. This result is understandable since the direct impact of the exchange rate is felt on both the current and capital accounts and that is why the competitiveness of a country is determined through the real effective exchange rate. Thus an appreciation of the real effective exchange rate is associated with loss in competitiveness. Therefore the exchange rates seem not to be playing a direct role in the determination of balance of payments and its effect on economic growth in Kenya. He attributes this to other institutional and economic factors .That is, a fall in the real effective Exchange rate has the effect of reducing the trade deficit, though by a small amount. On the other hand the impact of trade balance on the balance of payments is negative and statistically insignificant.

Mwangi (2014) studied the determinants of current account balance in Kenya. Results of the VECM approach indicate that variables with notable effects are GDP growth rate, exchange rate, balance of trade and inflation. Kenya has been experiencing persistent current account deficits which may be considered as a structural problem that may persist in future. The response of shocks from variables to current account and the magnitude of the variables are key in determining the action to take to salvage the current account situation of Kenya. The growth rate, current account, exchange rate, balance of trade, budget deficit affects the level of saving and investments. Inflation is factor that has most influence on the current account it has considerable impacts on saving and investment. It affects saving positively and investment negatively by representing macroeconomic uncertainty which causes current

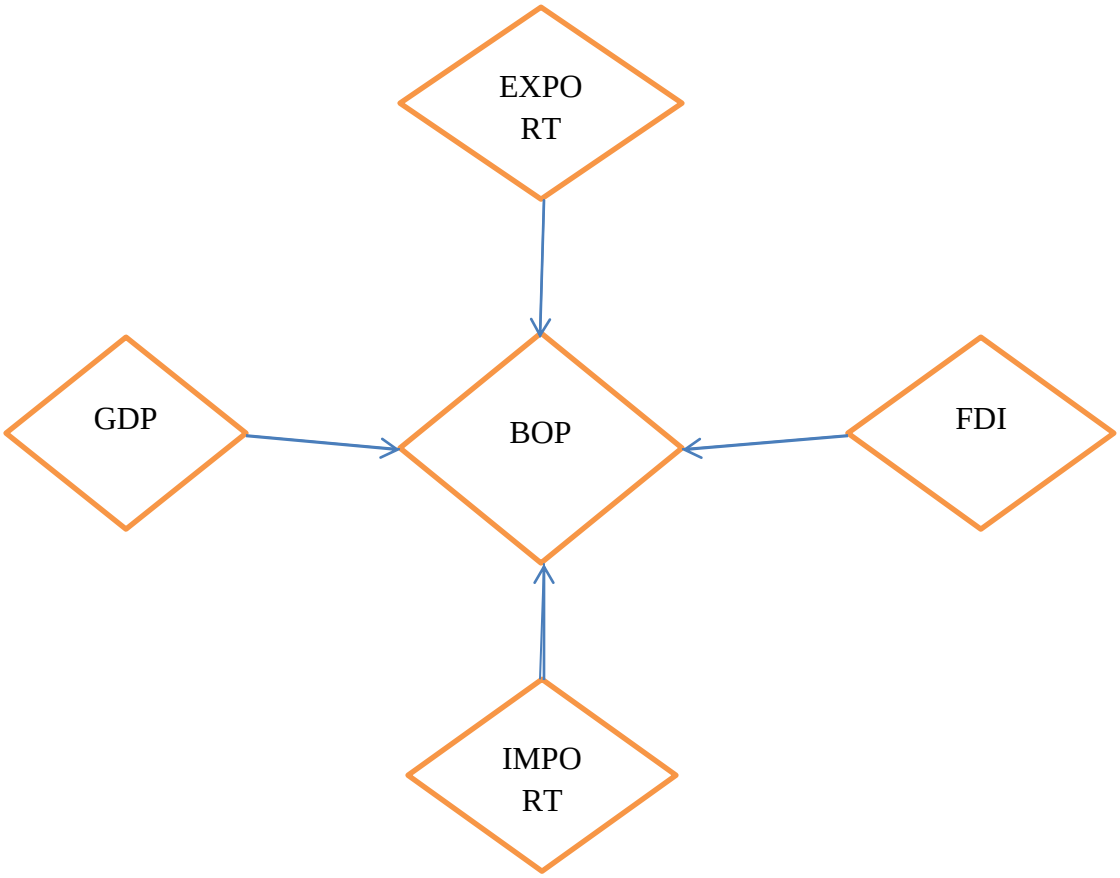
account balance to Improve. Exchange rate, balance of trade and growth rate together with inflation have long lasting influence on the current account.

2.5 Conceptual Framework

Mueller (2011) has laid down the balance of payment accounting framework as follow

BOP = FDI + (EX-_IM) +GDP…….……..... (I)

Figure 1: Conceptual framework of the study



In the above equation and framework demonstrates that when independent variables foreign direct investment (FDI), real gross domestic growth (GDP), export (EX) and import (IM). Dependent variable balance of payment (BOP).

When one country has a deficit in the import more than export, some other country or group of countries must have a surplus in export goods of service more than import goods of service. If the countries that have a BOP surplus finance the deficit country by exporting capital, there will be no balance of payment problem and economic growth in the short run. It may seem as if a country could go on forever importing more goods and services than it

exports. There seems to be no reason for concern, and usually this is where a conventional analysis would stop probably only adding that flexible exchange rates will do the balancing act. But while in fact the game can go on for a long time, limits will show up sooner or later.

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1 Research Design and Approach

In this study research approach is quantitative approach. This type of research design approach is usually highly detailed and structured and results can be easily collected and presented statistically.

Before conducting any study it is necessary to come up with a plan of the study's methodology and how that plan fits with the study's purpose. These plans direct decisions on when, how, where and how often to collect and analyse data. This is what is basically known as a research design. More generally, there are four main types of research designs, namely cross-sectional, time series, case studies and experimental. In studies covering a long span or period of time, time series research designs are generally preferred to the other types of research designs because it is easier to collect data on their variables since the data are often readily available and they are also easy to analyse and interpret.

3.2 Data type and Source

This data for the study will be collected from National Bank of Ethiopia, Ministry of Finance and Economic development and the Central Statistics Agency (CSA), The World Bank Group and IMF. All the Ethiopian's Balance of payment account data will be collected from the National Bank of Ethiopia. According to National Bank of Ethiopia Report (2000) the legal basis for the compilation and the dissemination of the BOP relies on Proclamation No. 83/1994 which gives the Bank power to prepare periodic economic studies, together with forecasts of the BOP and its effect on economic growth, money supply, prices and other relevant statistical indicators of the Ethiopian economic growth. Therefore, the collection of data will be based on administrative records and on banking reports. The Balance of Payments and International Economic Conditions Follow-up Division (BOP Division) of the National Bank of Ethiopia (NBE) obtains statistics from a number of agencies and institutions, such as:

- ✓ Ethiopian Customs Authority
- ✓ The banking system
- ✓ The Ministry of Finance and Economic Development,
- ✓ Ethiopian Air Lines,

- ✓ Ethiopian Shipping Lines,
- ✓ Ethiopian Telecommunication Corporation and other government agencies.

According to the National Bank of Ethiopia annual report (2000) the following description shows how the data was collect by respective agency.

- Export and import of goods
- Services
- Income
- Current and capital transfers
- Foreign direct investment
- Official reserve assets
- Exceptional financing

3.3 Methods of Data Analysis and Econometrics Model Specification

As mentioned in the previous chapter for hypothesis. The several factors of BOP effect on economic growth of the variables such as; FDI, GDP, imports; exports and etc.

In estimating the below equation the ARDL regression method will be use the concept of regression refers to the study of dependence relationships between variables. In essence, this involves statistically will be predicting the mean value of a variable Y based on the fixed value of another variable(s) X. In this case the variable Y is called the regress and or dependent variable while X is the repressor or explanatory or independent variable. It should be noted, however, that linear regression involves analysing the dependence among statistical variables. BOP effect on the level of real GDP (economic growth).

The analyses were carried out based on Descriptive statistics, National Accounting Framework and Econometric technique. Model specification

$$\mathbf{y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + e_i}$$

Where:

y =Balance of payments

X_1=Exports

X_2=Imports

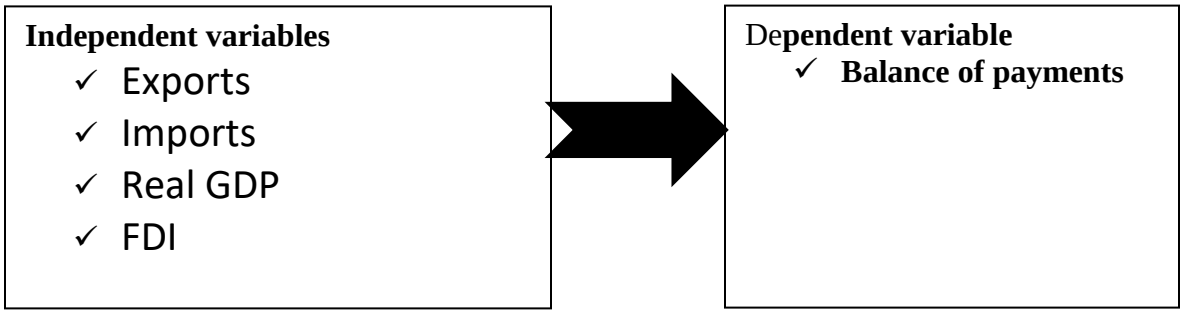
X_3=Real GDP

X_4=FDI (foreign direct investment)

a= Intercept

b_1, b2, b3, b4= Slopes

e_i = error term



3.4 Description of Independent Variables

Exports: are goods and services that are produced in one country and sold to buyers in another. Exports, along with imports, make up international trade. Exports are incredibly important to modern economies because they offer people and firms many more markets for their goods. One of the core functions of diplomacy and foreign policy between governments is to foster economic trade, encouraging exports and imports for the benefit of all trading parties. Export is measured as "Exports of goods and services (BoP, current US$). Exports of goods and services comprise all transactions between residents of a country and the rest of the world involving a change of ownership from residents to non-residents of general merchandise, net exports of goods under merchanting, nonmonetary gold, and services" (WDI, 2017).

Import: is a good or service bought in one country that was produced in another. Imports and exports are the components of international trade. If the value of a country's imports exceeds the value of its exports, the country has a negative balance of trade, also known as a trade deficit. Countries are most likely to import goods or services that their domestic industries cannot produce as efficiently or cheaply as the exporting country. Countries may also import raw materials or commodities that are not available within their borders. (WDI, 2017).

Real GDP Gross domestic product (GDP) is defined as the monetary value of the final goods and services produced in a country for a given period of time. Or similarly, it can be defined as the value added by all actors involved in production activities within a country (Mankiw, 2014). An increase in real GDP calculated as the percentage rate is a measure of

economic growth and hence it is used for this purpose in this study.One thing people want to know about an economy is whether its total output of goods and services is growing or shrinking. But because GDP is collected at current, or nominal, prices, one cannot compare two periods without making adjustments for inflation. To determine "real" GDP, its nominal value must be adjusted to take into account price changes to allow us to see whether the value of output has gone up because more is being produced or simply because prices have increased. A statistical tool called the price deflator is used to adjust GDP from nominal to constant prices. GDP measures the monetary value of final goods and services—that is, those that are bought by the final user—produced in a country in a given period of time (say a quarter or a year). It counts all of the output generated within the borders of a country. GDP is composed of goods and services produced for sale in the market and also include some nonmarket production, such as defence or education services provided by the government. An alternative concept, gross national product, or GNP, counts all the output of the residents of a country. So if a German-owned company has a factory in the United States, the output of this factory would be included in U.S. GDP, but in German GNP.

Foreign Direct Investment (FDI): FDI inflows (FDI): "FDI inflow is measured as Foreign direct investment net inflows (BoP, current US$). Foreign direct investment refers to direct investment equity flows in the reporting economy. It is the sum of equity capital, reinvestment of earnings, and other capital. Direct investment is a category of cross-border investment" (WDI, 2017). Generally, FDI takes place when an investor establishes foreign business operations or acquires foreign business assets in a foreign company. However, FDIs are distinguished from portfolio investments in which an investor merely purchases equities of foreign-based companies.

3.5 Stationariy Tests

Presence of stationary was verified using the Augmented Dickey Fuller (ADF) test, which has an advantage over other methods because it maintains validity of the test by ensuring that the error terms are white noise.

3.6 Determinants of Optimal Lag Length

A Critical element in the specification of VAR models and co-integration analysis is the determination of the lag length that could optimally suit for the model, since all inferences in the model depend on the correct lag order specification. The estimates of a model whose

lag length differs from the true lag length are inconsistent. (Braun and Mittnik, 1993). In this study, determination of optimal lag order for the VAR model is performed using the Akaike information criterion (AIC), Schwarz information criterion (SC) and Hannan-Quinn information criterion (HQ). In each criterion, the lag with a minimum criterion value is selected as an optimum lag length for the model. Assuming that the data series of the five macroeconomic variables follow a VAR model, we applied the information criteria to specify the order.

3.6.1 Co-integration Test

The Bounds test discovered by pesaranet al. (2001) was used to investigate for co-integration. In this case factors were found to be mutually integrated and co-integrated of order one. Prior to carrying out co-integration test, lag selection criterion was carried out.

3.6.2 Granger Causality Test

From the Johansen test for co-integration, we established that our variables exhibited the short run association. Therefore, we conducted Pairwise Granger test to investigate whether in the short run balance of payments is significantly caused by the respective variables.

CHAPTER FOUR

4. RESULT AND DISCUSSION

4.1 Descriptive Analysis

The study was used the yearly time series data observed from1987/88 to 2019/20.In this chapter the results of the VAR model estimation. The discussion begins by describing the nature of the series and results from the model selection procedure. Then after, results would be interpreted and discussed. This study aimed at examining the relationship between BOP and economic growth (GDP) in Ethiopia. The indicator variables, namely: real economic growth (RGDP), exports of goods, import of goods and foreign direct investment (FDI).In the result below from appendix (A) shows the average GDP growth rate for the periods 1987/88 and 2019/20 was 40,145.56 with a standard deviation of 17,494.90. Ethiopia registered highest economic growth of 71,175.95 and worst economic performance of 22,705.37 for the periods under study. Lumps in economic performance were attributed to external shocks in oil prices, poor climate conditions, and unpredictable political environments. On the average, BOP deficit to GDP ratio stood at 338.66 with a standard deviation of 358.81.

	BOP	EXPORT	FDI	REAL_GDP	IMPORT
Mean	338.6545	1356.696	571.7535	74771.99	5950.517
Median	205.7005	601.8254	51.89784	32694.92	2586.867
Maximum	1384.200	3300.055	4170.800	1324803.	16725.25
Minimum	6.516008	153.7952	0.000000	2039.264	820.9190
Std. Dev.	358.8073	1144.887	990.3177	215036.8	5764.484

4.1.1Real GDP Trend

Macroeconomic statistic that measures the value of the goods and services produced by an economy in a specific period, adjusted for inflation. Essentially, it measures a country's total economic output, adjusted for price changes. Governments use both nominal and real GDP as metrics for analysing economic growth and purchasing power over time. This is done using the GDP price deflator (also called the implicit price deflator), which measures the changes in prices for all of the goods and services produced in an economy.

As we have seen from the figure every year the Real GDP between the years between 2003/04 to 2014/15 went up from $ 1,843.59 million to $ 2,039.26 million in Ethiopia.

Figure 2: Real GDP trend

Source: Data from National Bank of Ethiopia between 1987/88 to 2019/20

4.1.2 Export Trend

According to (NBE, 2019/20) Ethiopia's export has been limited to few primary products, which are mainly agricultural commodities like coffee, live animals, chat (a mildly narcotic amphetamine-like leaf), fruit and vegetables. In 2019/20, Ethiopia's major exports.

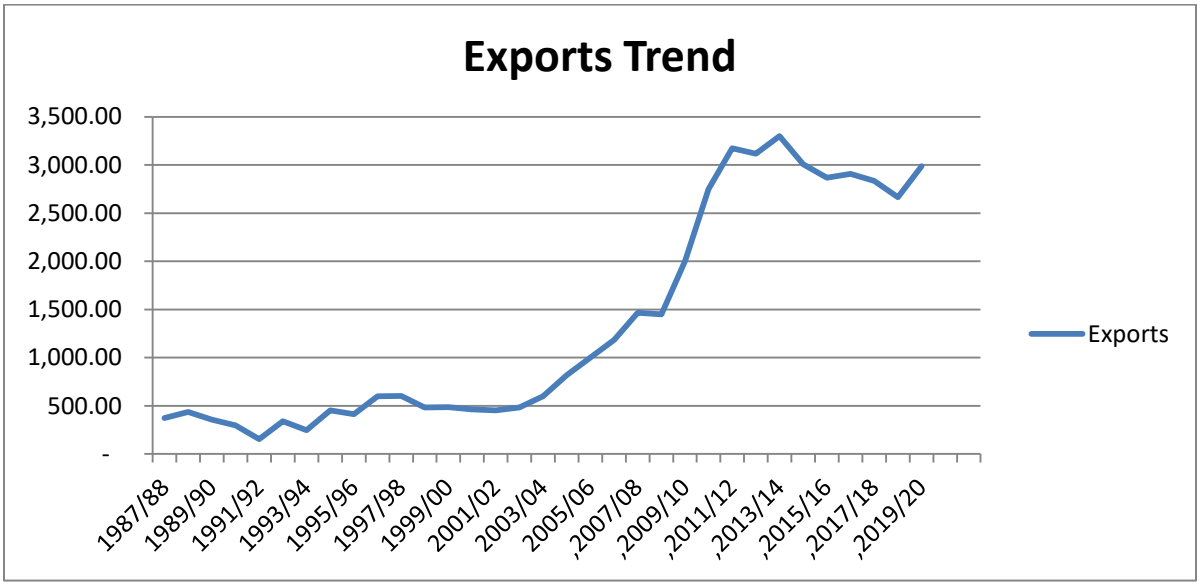


Figure 3: Export trend

Source: Data from National Bank of Ethiopia between 1987/88 to 2019/20

Although Ethiopia's total exports have been growing at an average rate of 13.57 per cent or from $373.74 million to $2987.67million between 1987/88 to 2019/20. The export is still small; evidenced by the lower export/GDP ratio. Exports of goods in Ethiopia are only about 7 per cent of GDP. According to (Hailu, 2018), the sizes of Ethiopian export market are small which entails high transaction cost in trading and the absence of benefits from economies of scale. This is aggravated by severe competition from other relatively developed countries and emerging economies such as China and India. He further elaborated that Ethiopian exports suffer from serious structural issues which need to be addressed primarily by the industry itself.

- Low value added and poor quality products fetching low international prices;
- little or no efforts on the part of industry to improve their workers' skills;
- Industry spending less money on research and development and;
- Lacking capacity to meet bulk orders as well as meeting requirements of consumer's request.

(Hailu, 2018) also figure out the external constraints of Ethiopian export. According to him the export constraint are usually occurred from the nature of the products and the level of technology that employed in the process of production of the country's exports.

4.1.3 Import Trend

Ethiopia, as an agrarian economy it is little to expect to import more agricultural products than it exports. However, the ever increasing total trade deficit in Ethiopia comes from both agricultural and manufacturing goods. The country reported a huge individual trade deficit in some agricultural product where it has potential to narrow the ever increasing aggregate trade deficit.

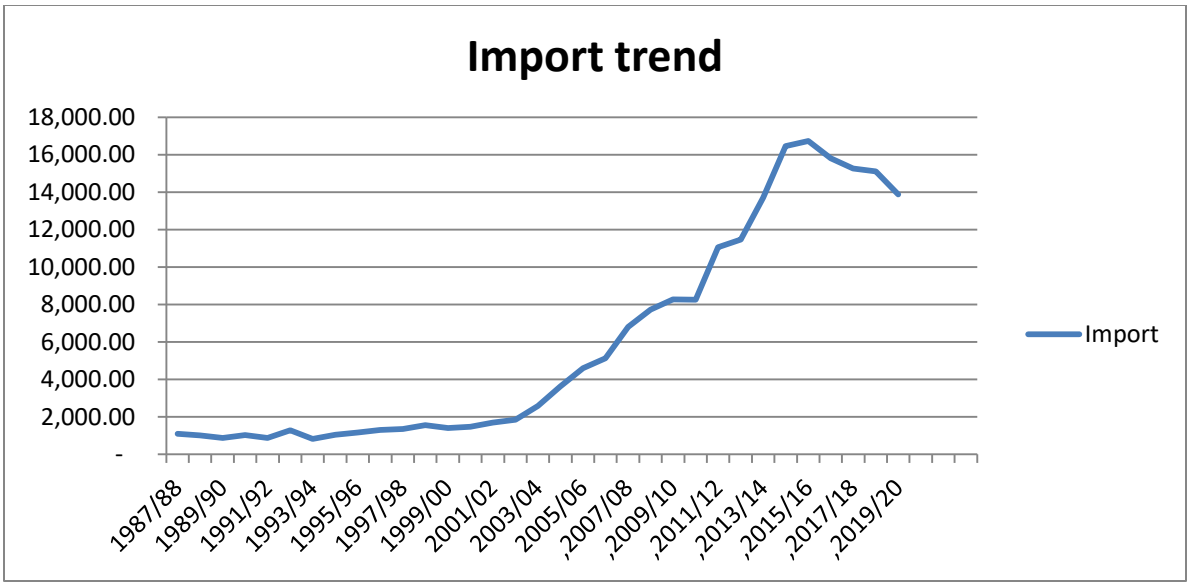


Figure 4: import trend

Source: Data from National Bank of Ethiopia between 1987/88 to 2019/20

Ethiopia imports progressively increasing on average by 59.51% per annum between 1987/88 and 2019/20. The rise in imports has aggravated the trade deficit, which from $1,098.84 million in 1987/88 to $13,881.30 million in 2019/20.

4.1.4 Trade balance Trend

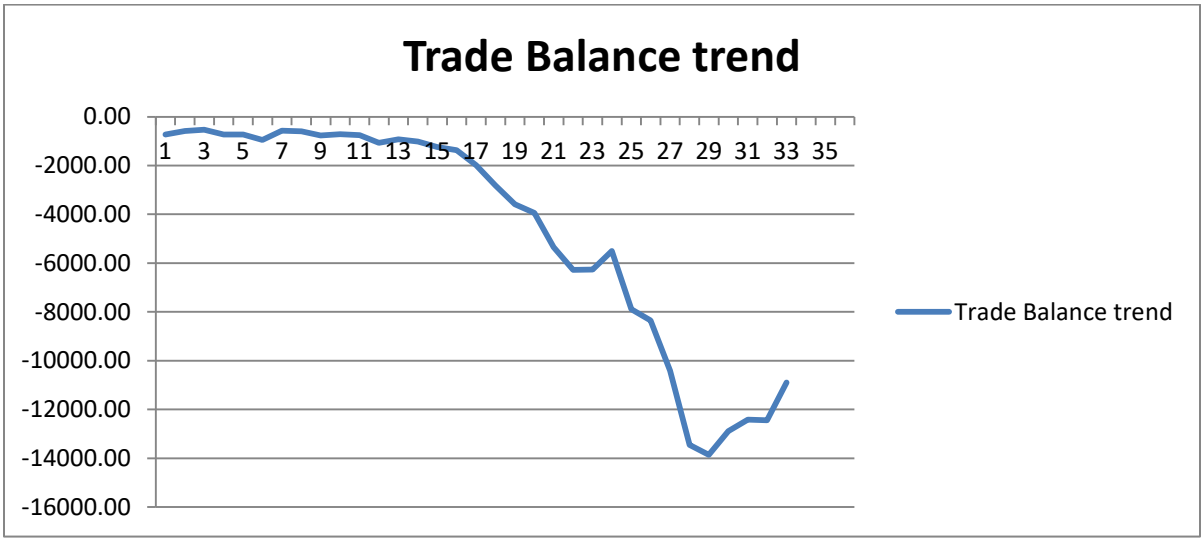


Figure 5: Trade Balance Trends

Source: National Bank of Ethiopia Annual Report between 1987/88 to 2019/20

Ethiopian balance of trade deficit has grown from $725.10 billion to $ 10,893.63 between 1987/88 to 2019/20. This huge deficit was highly contributed to balance of payments deficit.

4.1.5 Foreign Direct Investment (FDI) Trend

Currently, Ethiopia registered a significant increase in FDI. According to (NBE, 2016/17) foreign direct investments inward stock reached close 4,170.8 million dollars in 2016/17, up from 0 dollar in 1987/88.

To attract more FDI, the government of Ethiopia is currently pursuing accession to the World Trade Organization, while maintaining their goal of attaining least developed country status.

It is actively pursuing improving the current investment climate through adopting more efficient bureaucratic processes in the areas of registration, logistics, and tax processes.

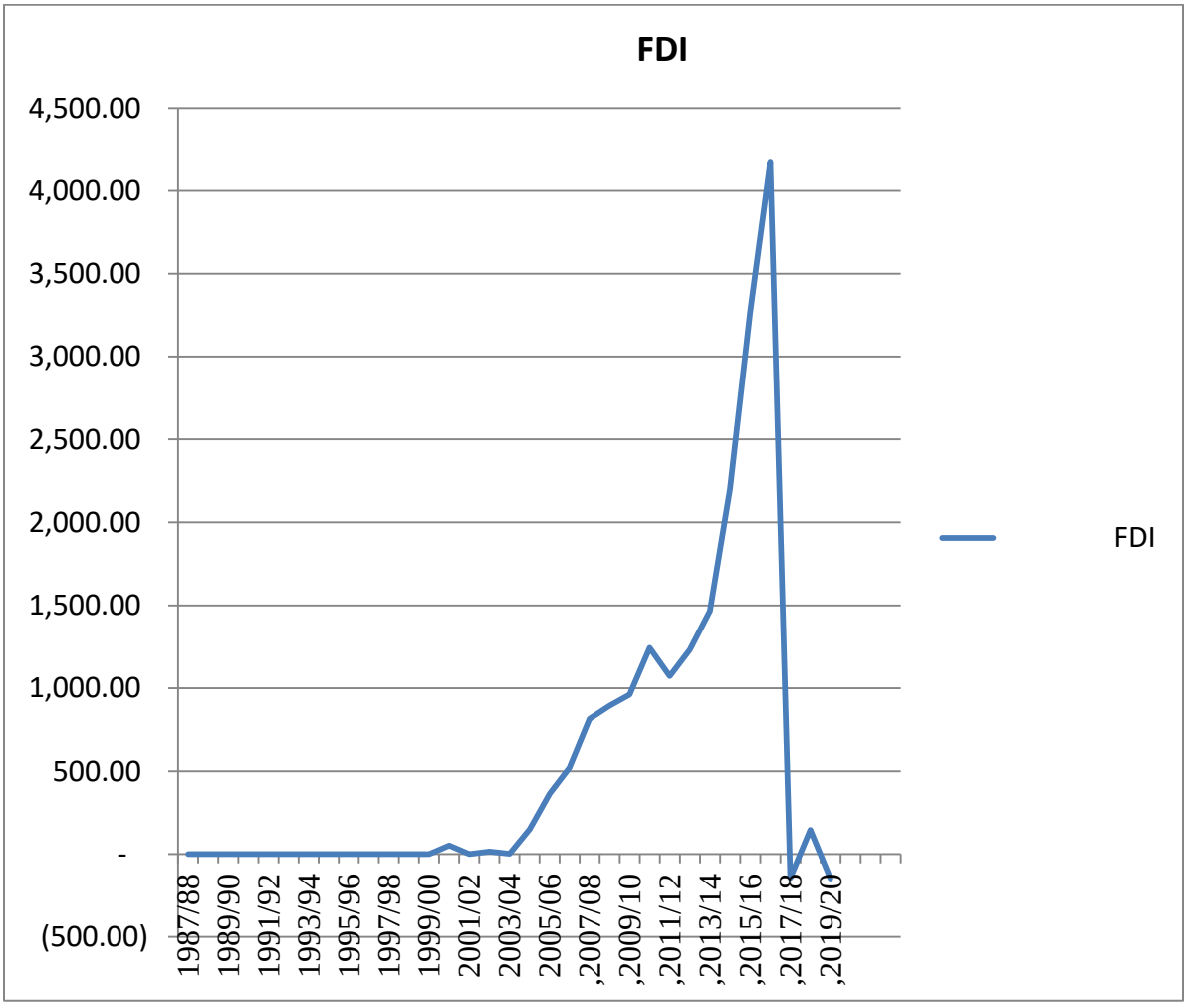


Figure 6: Trend of FDI

Source: Data from National Bank of Ethiopia between 1987/88 to 2019/20

4.1.6 BOP and Economic Growth Relation

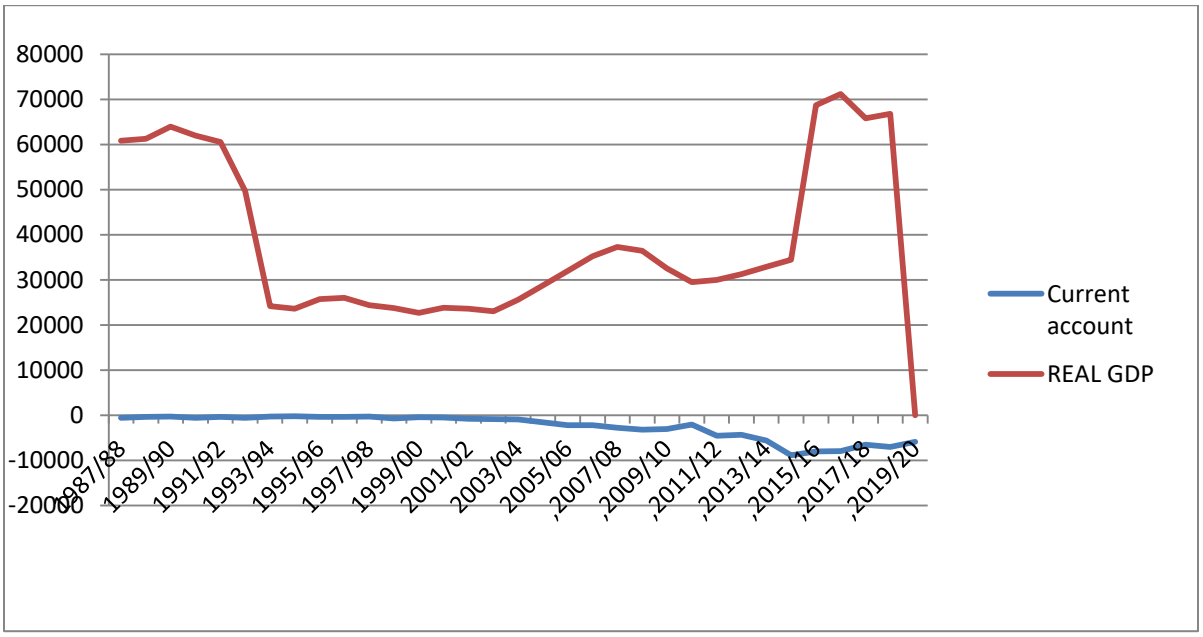


Figure 7: Ethiopia economic growth and current account balance

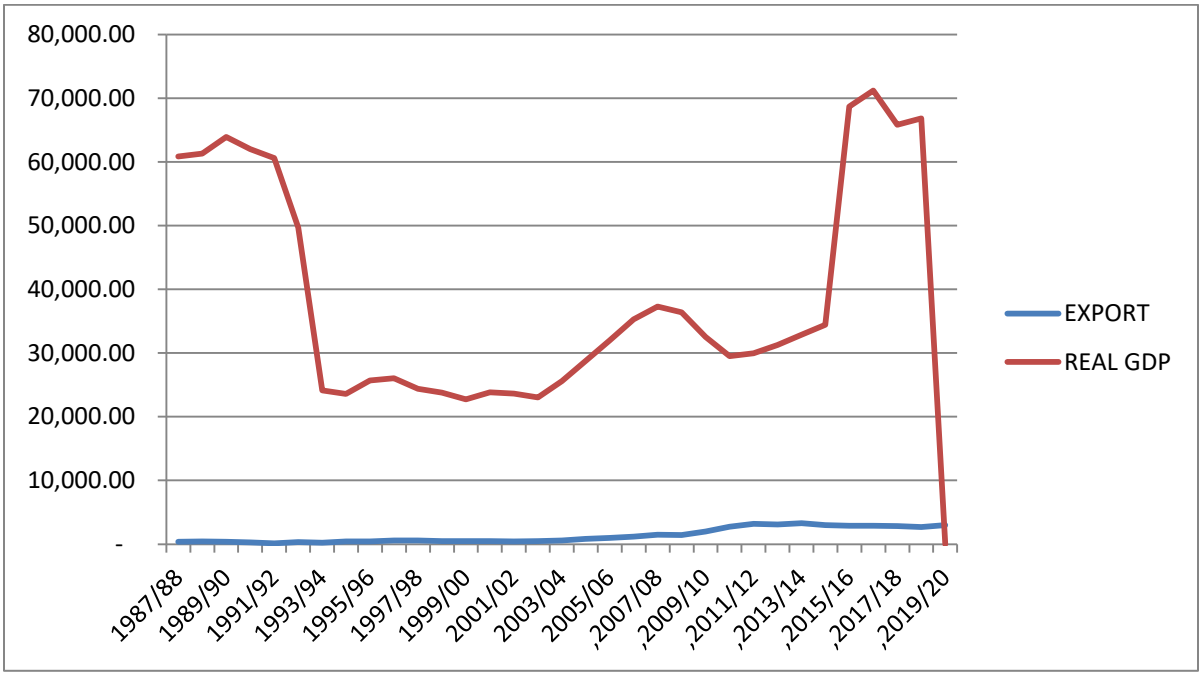


Figure 8: Ethiopia economic growth and Exports

Both economic growth and balance of payments are macroeconomic objectives.

- Economic growth is an increase in real GDP – leading to higher living standards.
- Balance of payments stability refers to a sustainable or limited current account deficit/surplus. (i.e. avoid very high deficit/surplus)

4.1.7 Current Account

According to several NBE annual reports, Ethiopia has never showed a surplus current account balance almost for the last half century. The deficit of the current account balance has largely come from its merchandise trade balance. However, the same NBE annual report shows external resource flows, such as Foreign Direct Investment (FDI), grant, external loan and remittances of migrants could play a vital role on offsetting the worsening of current account deficit shows external resource flows, such as Foreign Direct Investment (FDI), grant, external loan and remittances of migrants could play a vital role on offsetting the worsening of current account deficit.

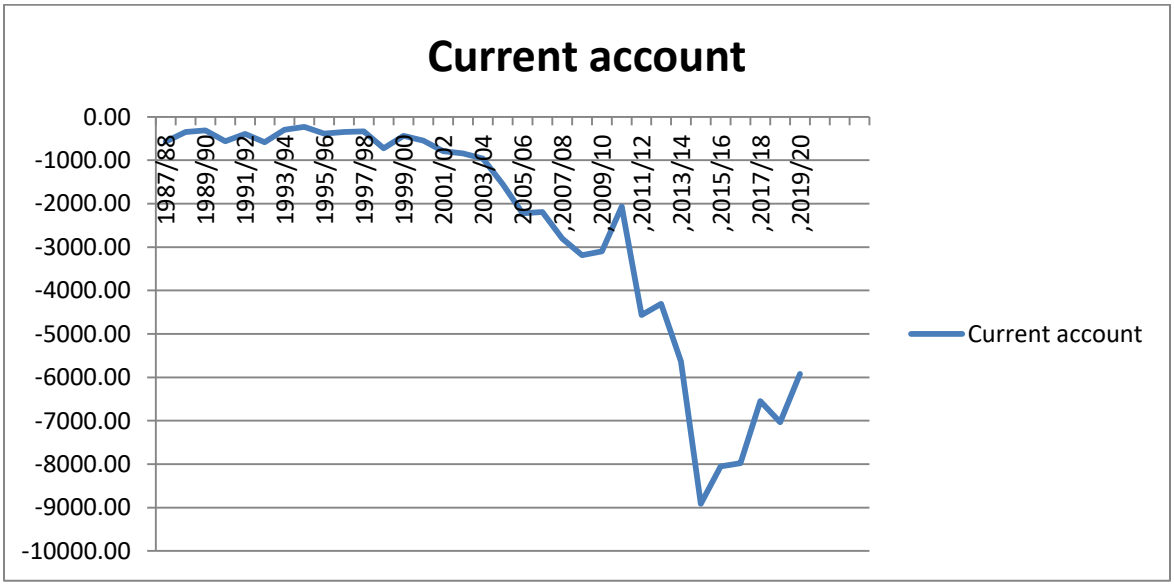


Figure 9: Current account trend

Source: Data from National Bank of Ethiopia between 1987/88 to 2019/20

As we have seen from the figure every year the current account balance is in deficit. The deficit between the years between 2003/04 to 2014/15 went up from $ 569.16 million to $ 5,921.38 million. The number could be much worse if we take off the unilateral current transfer. To look the current account balance in detail, it is better to see the component of the current account, particularly the following elements:

- Merchandise Trade
- Transfer payment mainly the remittances and
- Service income

4.2 Factors Affecting the Balance of Payments

A current account deficit could be caused by factors such as.

1. **The rate of consumer spending on imports**. For example, during an economic boom, there will be increased spending and this will cause a deficit on the current account.
2. **International competitiveness.** If a country experiences higher inflation than its competitors, exports will be less competitive leading to lower demand.
3. **Exchange rate.** If the exchange rate is overvalued, it makes exports relatively more expensive leading to deterioration in the current account.
4. **Structure of economy** – deindustrialization can harm the export sector

The balance of payment is the most important statistical document in the external sector of an economy .It describes a country's economic links with the rest of the world. The balance of payments is a statistical statement that summarizes the economic transactions of an economy with the rest of the world for a specific time period. That includes all transactions between residents and non-residents for goods, services, and income; financial claims on and liabilities to the rest of the world; and those classified as transfers.

4.3 Econometric Analysis

This analysis of the study and their interpretation based on the regression model that was estimated using the vector autoregressive (VAR) method by Eviews-10 Software. However, before the regression was run and interpretations made, several time series diagnostic states were conducted on the data and the model to ensure the robustness of the results. Thereafter, the regression model was estimated using the VAR method and results interpreted as shown after statinarity below.

4.4 Stationarity Test

4.4.1 Time Plot of the Series

When presented with a time series, the first step in the analysis is usually to plot the data and obtain simple descriptive measures of the main properties of the series. Figure (10) below showed that exports and imports have an upward (increasing) trend within the sample

period and RGDP, BOP and DI are moves up and down horizontally at the period time.

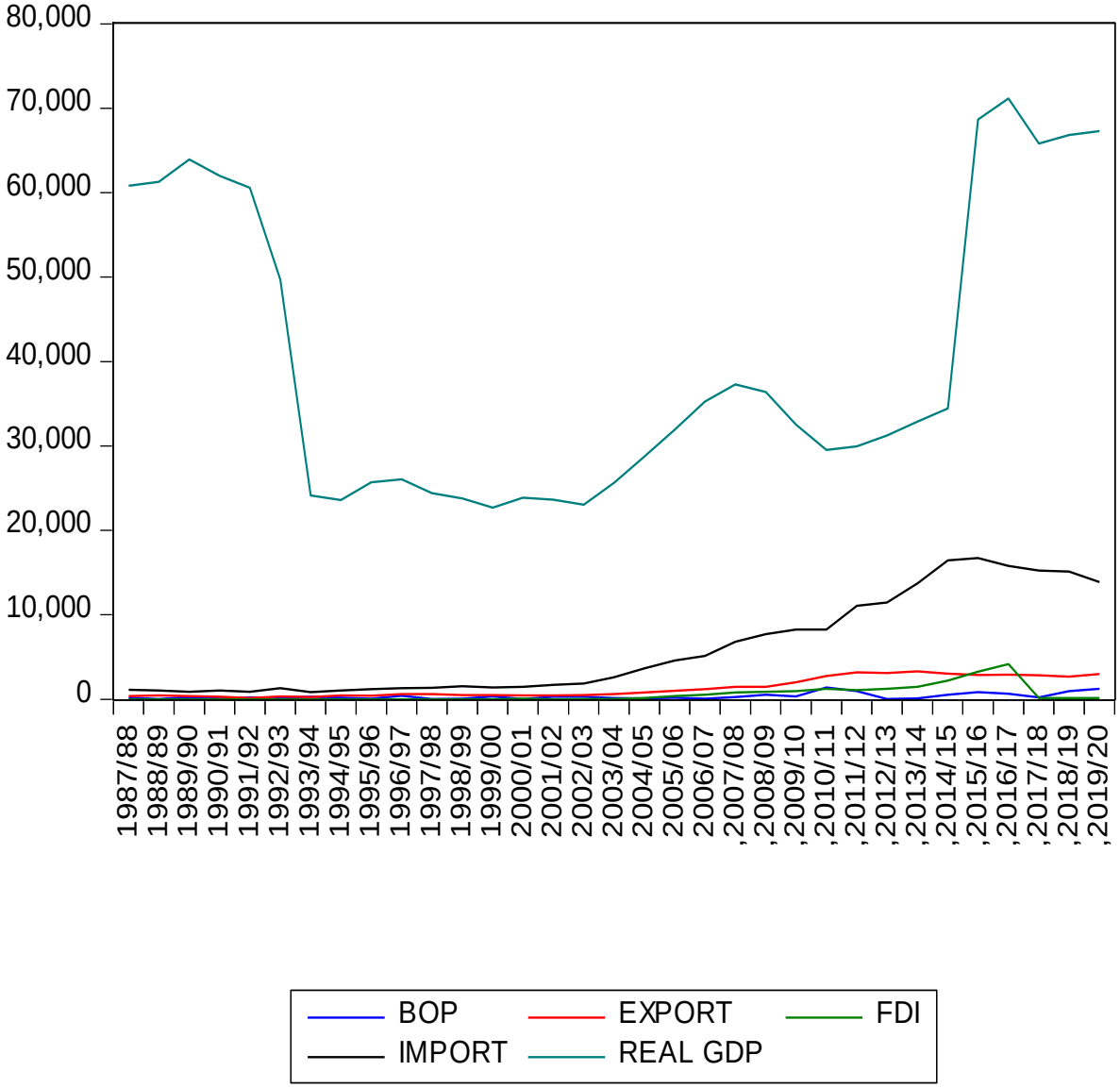
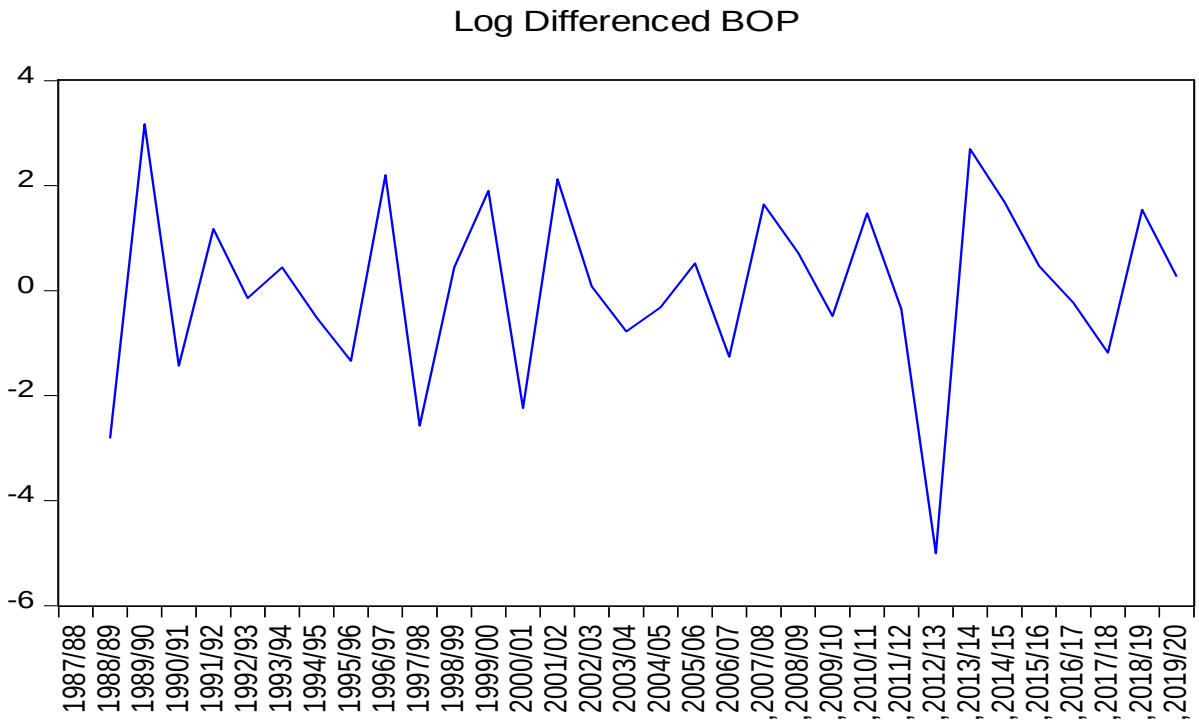


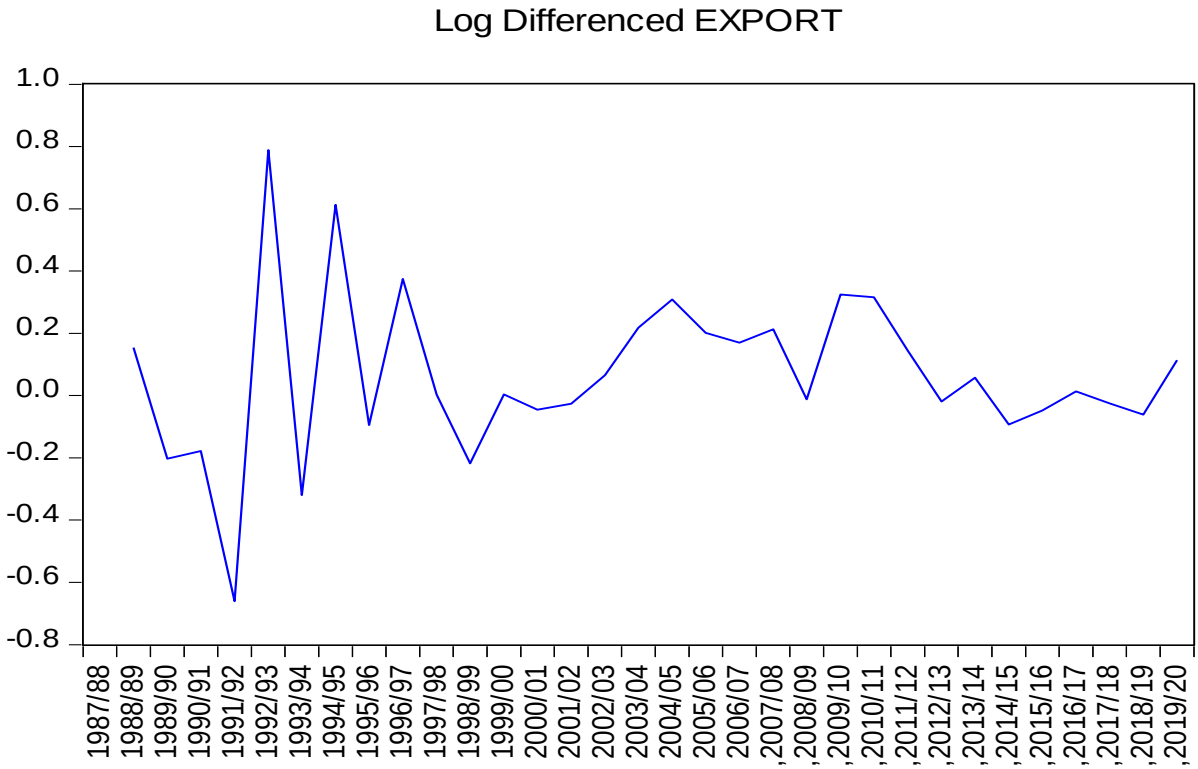
Figure10. The Time Plot of Study Variables at their level

The time plot of all the study variables after taking their first difference are shown in figures 4.2 (a-e) below but FDI was second difference and indicated that the trend is removed and all the series looks weak (covariance) stationary as the plot line revolves nearly around the mean of zero although it's drift from strict stationary.

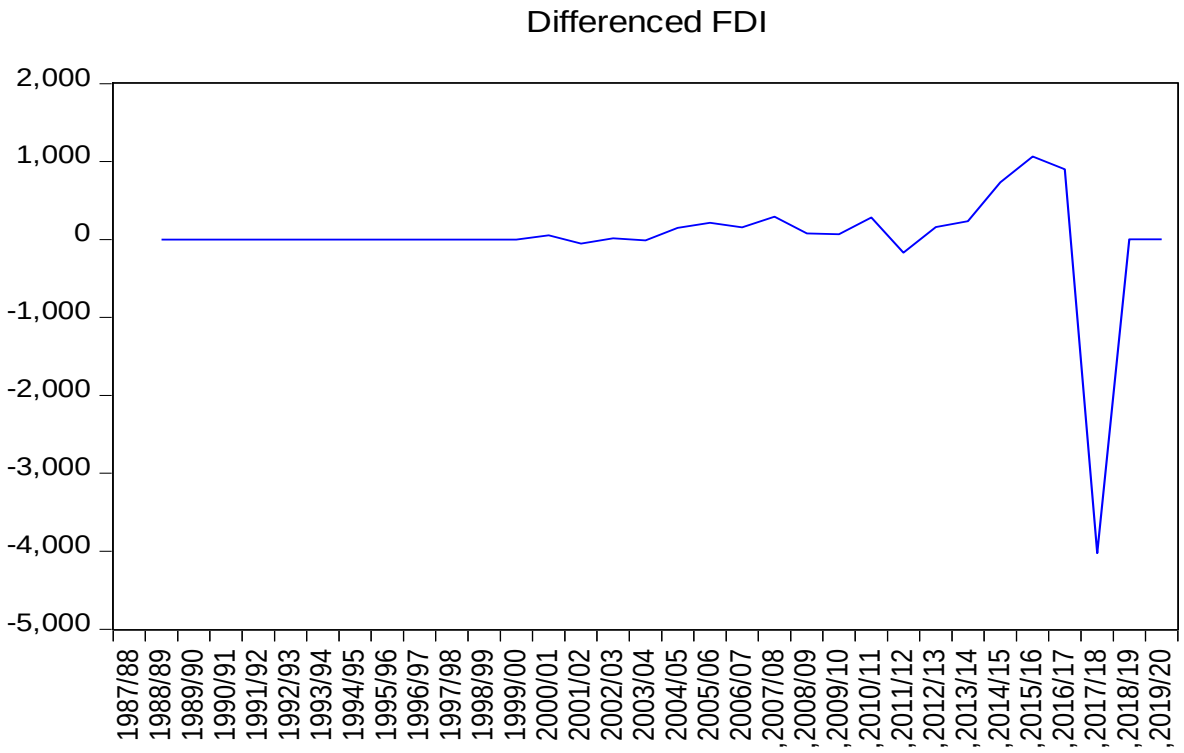
Figures 4.2(a) stationary at 1st difference BOP



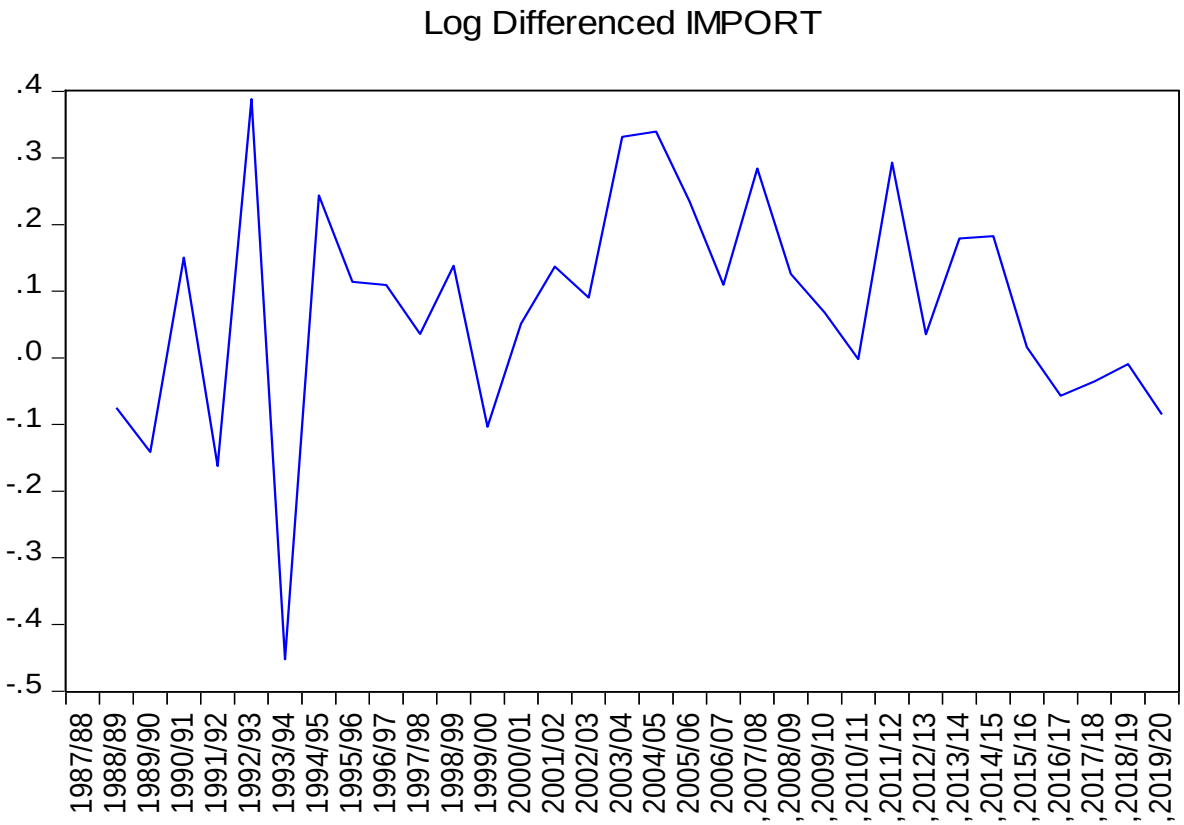
Figures 4.2(b) stationary at 1st difference Export



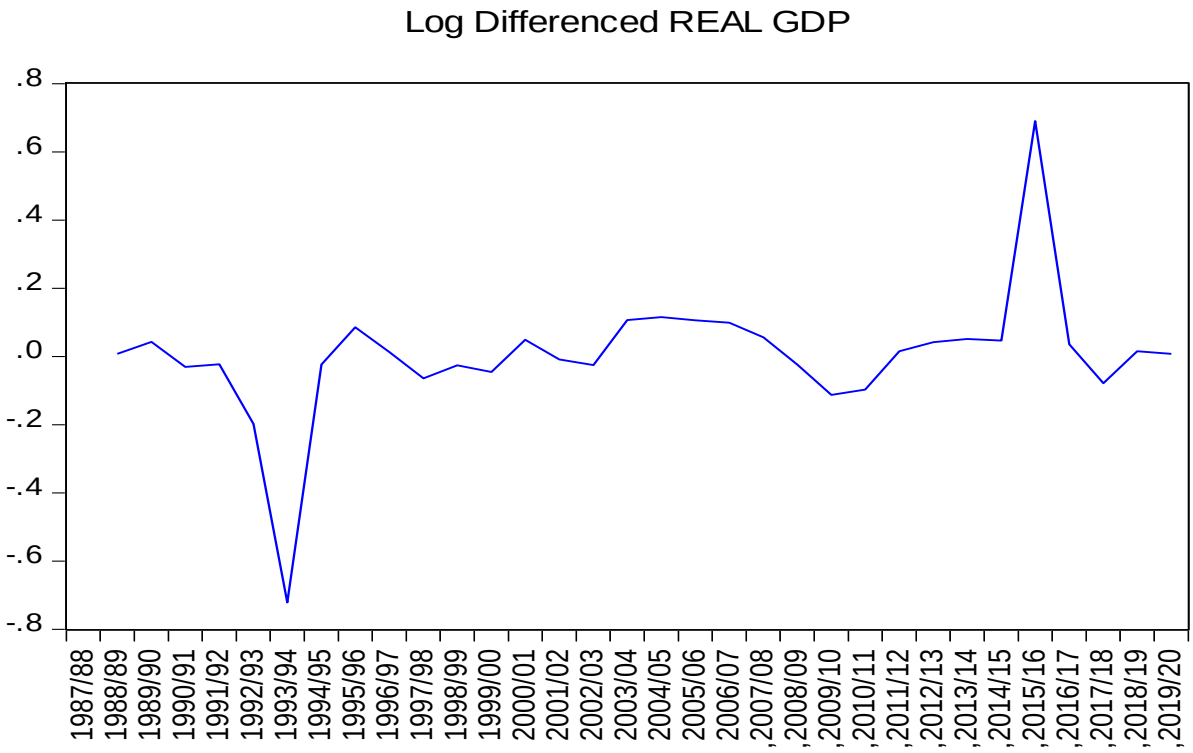
Figures 4.2(c) stationary at 2st difference FDI



Figures 4.2(d) stationary at 1st difference Import



Figures 4.2(e) stationary at 1st difference GDP



Figures 4.2(a - e) the Time Plot of Study Variables at their First and Second Difference non-stationary in to stationary.

4.4.2. Time Series Unit Root Test (s)

The time series under consideration should be checked for stationary before one can attempt to fit a suitable model. That is, variables have to be tested for the presence of unit root(s) and the order of integration of each series. The above time plot suggested that the series have non-stationary behaviour at levels and stationary at their first and second differences .In this study, the Augmented Dickey Fuller (ADF) unit root tests were employed to test for the time series properties of model variables. The null hypothesis is that the variable under investigation has a unit root against the alternative that it does not. The decision rule is reject the null hypothesis if the ADF test statistic value exceeds (in absolute value) the critical value at a chosen level of significance, usually 5%. The results are presented in Eviews-10 appendix (B up to K).

The result obtained below Real GDP unit root test ADF suggested that the series is non-stationary at levels since their test of t-statistic absolute value (-1.303052) is less than the

absolute critical values at 5% of (-3.557759) and the p-value is greater than 0.05 of (0.8690) insignificant.

	ADF& P-V	Test critical value (5%)
t-statistics	(-1.303052) 0.8690	(-3.557759)

As a result, the null hypothesis of a unit root is not rejected for the series and shows the result from in appendix B.

The result obtained below Real GDP unit root test ADF result for the series at first difference. The null hypothesis of a unit root is rejected as the test t-statistic absolute value (-4.261219) is greater than the 5% of absolute critical value (-2.960411) in magnitude, as well as the p-values is less than 0.05 of 0.0022 significant.

	ADF& P-V	Test critical value (5%)
t-statistics	(-4.261219) 0.0022	(-2.960411)

Therefore, the series is stationary at 1st difference (period to period change). Thus the conclusion in the series under investigation is integrated. (I.e. I (1)).So, co-integration analysis is plausible for this series and shows the result from appendix C.

The result obtained below Export unit root test ADF suggested that the series is non-stationary at levels since their test of t-statistic absolute value (-2.216099) is less than the absolute critical values at 5% of (-3.562882) and the p-value is greater than 0.05 of (0.4646) insignificant.

	ADF& P-V	Test critical value (5%)
t-statistics	(-2.216099) 0.4646	(-3.562882)

As a result, the null hypothesis of a unit root is not rejected for the series and shows the result from appendix D.

The result obtained below Export unit root test ADF result for the series at first difference. The null hypothesis of a unit root is rejected as the test t-statistic absolute value (-3.624176) is greater than the 5% of absolute critical value (-2.960411) in magnitude, as well as the p-values is less than 0.05 of 0.0110 significant.

	ADF& P-V	Test critical value (5%)
t-statistics	(-3.624176) 0.0110	(-2.960411)

Therefore, the series is stationary at 1st difference (period to period change). Thus the conclusion in the series under investigation is integrated. (I.e. I (1)).So, co-integration analysis is plausible for this series and shows the result from appendix E.

The result obtained below FDI unit root test ADF suggested that the series is non- stationary at levels since their test of t-statistic absolute value (2.367274) is less than the absolute critical values at 5% of (-3.603202) and the p-value is greater than 0.05 of (1.0000) insignificant .

	ADF& P-V	Test critical value (5%)
t-statistics	(-2.367274) 1.0000	(-3.603202)

As a result, the null hypothesis of a unit root is not rejected for the series and shows the result from appendix F.

The result obtained below FDI unit root test ADF result for the series at first difference. The null hypothesis of a unit root is rejected as the test t-statistic absolute value (-4.313771) is greater than the 5% of absolute critical value (-2.998064) in magnitude, as well as the p-values is less than 0.05 of 0.0028 significant.

	ADF& P-V	Test critical value (5%)
t-statistics	(-4.313771) 0.0028	(-2.998064)

Therefore, the series is stationary at 2st difference (period to period change). Thus the conclusion in the series under investigation is integrated. (I.e. I (1)).So, co-integration analysis is plausible for this series and Shows the result from appendix G.

The result obtained below Import unit root test ADF suggested that the series is non-stationary at levels since their test of t-statistic absolute value (-2.571376) is less than the absolute critical values at 5% of (-3.603202) and the p-value is greater than 0.05 of (0.2948) insignificant.

	ADF& P-V	Test critical value (5%)
t-statistics	(-2.571376) 0.2948	(-3.603202)

As a result, the null hypothesis of a unit root is not rejected for the series and shows the result from appendix H.

The result obtained below Import unit root test ADF result for the series at first difference. The null hypothesis of a unit root is rejected as the test t-statistic absolute value (-3.430788)

is greater than the 5% of absolute critical value (-2.960411) in magnitude, as well as the p-values is less than 0.05 of 0.0174 significant.

	ADF& P-V	Test critical value (5%)
t-statistics	(-3.430788) 0.0174	(-2.960411)

Therefore, the series is stationary at 1st difference (period to period change). Thus the conclusion in the series under investigation is integrated. (I.e. I (1)).So, co-integration analysis is plausible for this series and Shows the result from appendix I.

The result obtained below BOP unit root test ADF suggested that the series is non-stationary at levels since their test of t-statistic absolute value (1.311048) is less than the absolute critical values at 5% of (-3.603202) and the p-value is greater than 0.05 of (0.9999) insignificant .

	ADF& P-V	Test critical value (5%)
t-statistics	(-1.311048) 0.9999	(-3.603202)

As a result, the null hypothesis of a unit root is not rejected for the series and Shows the result from appendix J.

The result obtained below BOP unit root test ADF result for the series at first difference. The null hypothesis of a unit root is rejected as the test t-statistic absolute value (-4.460970) is greater than the 5% of absolute critical value (-3.562882) in magnitude, as well as the p-values is less than 0.05 of 0.0066 significant.

	ADF& P-V	Test critical value (5%)
t-statistics	(-4.460970) 0.0066	(-3.562882)

Therefore, the series is stationary at 1st difference (period to period change). Thus the conclusion in the series under investigation is integrated. (I.e. I (1)).So, co-integration analysis is plausible for this series and Shows the result from appendix K.

4.5 Specification of VAR Order

A Critical element in the specification of VAR models and co-integration analysis is the determination of the lag length that could optimally suit for the model, since all inferences in the model depend on the correct lag order specification. The estimates of a model whose lag length differs from the true lag length are inconsistent. (Braun and Mittnik, 1993). In this study, determination of optimal lag order for the VAR model is performed using the Akaike

information criterion (AIC), Schwarz information criterion (SC) and Hannan-Quinn information criterion (HQ). In each criterion, the lag with a minimum criterion value is selected as an optimum lag length for the model. Assuming that the data series of the five macroeconomic variables follow a VAR model, we applied the information criteria to specify the order. The all criteria select a VAR (4) as shown in Appendix (A**1**).

4.6 Co-integration Test

Persistent non stationary of data series may lead to spurious relationship. To avoid this problem, co-integration test was conducted to establish whether the variables exhibited long-run or short run relationship. We used Johansen test for co-integration as indicated in the Appendix (A2) whereby we established that our variables were not Co-integrated.

The hypotheses tested were;

H0: There is no co-integration

Ha: There is co-integration

The trace and max statistic were lower than compared to the 5% critical values implying that we failed to reject the null hypothesis. There was no long run relationship between BOP and its independent variables.

Since variables were not co-integrated, we could not run vector error correction model but we run unrestricted vector autoregressive model (VAR). Our trace and max statistics told the same thing. Note that trace statistic of maximum rank zero represents the null hypothesis of no co-integration whereby it is expected to be less than the critical value at 5% significance level of which it is not as per our study findings. We further determined the short run causality since our findings indicated no presence of long run association.

From the results of Johansen co-integration test result presented in the appendix (A2) above. For both the trace and maximum-eigenvalue tests, the first test has a null hypothesis that there are no co-integrating relationships, with the alternative hypothesis for the trace test being that there are more than zero relationships while that for the maximum-eigenvalue test is that there is at least one co-integrating equation. The test statistics are compared with the critical values and if the calculated statistics are higher than the test critical values, the null hypothesis is rejected. From the result, it can be observed that the trace test or estimated LR statistic (147.9571) exceeds the respective critical value (69.81889) with P-value (0.0000). The maximum eigenvalue test also supports the same conclusion (i.e. 65.29653>33.87687)

with p-value 0.0000. This implies that the null hypothesis of no co-integration relations is rejected at the 5% level of significance over the alternative hypothesis. But, when we observe the second hypothesis there is at most one co-integrating equation is not rejected at 5% level of significance.

4.7 Bounds co-integration test ARDL model result

The co-integration test should be performed on the level form of the variables and not the 1st difference.

The hypothesis is stated as:

H0: no co-integration equation

H1: H0 is not true

The decision for bounds tests of co-integration the rejection of the 10%, 5% and 1%. If the calculated F-statistic is greater than the critical P-value upper bound *I*(1), when we can conclude that there is co-integration . That is, there is a long-run relationship. Reject the null hypothesis. Estimate the long-run model which is error correction model (ECM). If the calculated F-statistic is lower than the critical P-value upper bound *I*(0), when we can conclude that there is no co-integration . That is, there is a short-run relationship. Do not reject the null hypothesis. Estimate the short-run model which is autoregressive distributed lag model (ARDL).

Short-run bounds of co-integration test.

F-statistics	Significant level	lower bound *I*(0)
	10%	2.45
20.90639	5%	2.86
	1%	3.74

The result calculated F-statistic is (20.90639) not lower than the critical P-value lower bound *I*(0) of 10%, 5% and 1% are 2.45, 2.86 and 3.74 respectively , when we can conclude that there is co-integration . That is, there is not short-run relationship.

Reject the null hypothesis. Do not Estimate the short-run model but a long-run relationship and shows the result from appendix A3.

Long-run bounds of co-integration test.

F-statistics	Significant level	lower bound *I*(1)
	10%	3.52
20.90639	5%	4.01
	1%	5.06

The result from shows in appendix (A3) calculated F-statistic (20.90639) is greater than the critical P-value upper bound *I*(1) are 3.52, 4.01 and 5.06 respectively, when we can conclude that there is co-integration . That is, there is a long-run relationship. Reject the null hypothesis. Estimate the long-run model which is error correction model (ECM).

The estimated coefficients of the long-run relationship are significant for export, import and FDI but not significant for economic growth (GDP). Export and FDI have a positive significant impact on BOP at the 5% level. The import variable is negatively signed and significant at the 5% level. This is indicative of the increasing import problem and the BOP deficit in Ethiopia. Considering the impact of GDP, it is insignificant at 5% probability and has a positive impact on BOP. Following the research papers of Odhiambo (2017) and Narayan and Smyth (2018), we obtain the short-run dynamic parameters by estimating an error correction model associated with the long-run estimates. The long-run relationship between the variables indicates that there is Granger-causality in at least one direction which is determined by the F-statistic and the lagged error-correction term. The short-run causal effect and is represented by the F-statistic on the explanatory variables while the t-statistic on the coefficient of the lagged error-correction term represents the long-run causal relationship Odhiambo, 2017; Narayan and Smyth, 2018). The equation where the null hypothesis of no co-integration is rejected is estimated with an error-correction term (Narayan and Smyth, 2018).

4.8 Granger Causality Test

From the Johansen test for co-integration, we established that our variables exhibited the short run association. Therefore, we conducted Pairwise Granger test to investigate whether in the short run balance of payments is significantly caused by the respective variables. We revealed from the Appendix (A4) that all variables were highly significant in granger causing balance of payments in the short run. Further we found that when all of these factors were combined, they were all significant in causing balance of payments.

Appendix (A4) showed the calculated p-values for the F-test of Granger causality at 95% level of confidence. From the result the lagged values import granger-cause the BOP as the null hypothesis is rejected at 5%level of significance with p-value but not the reverse. That is, Import provides important information to forecast future value of BOP. There is a bidirectional causal relationship between economic growth and BOP which means BOP granger causes economic growth. The very low p-values in type of causality tests (Granger causality) we reject non-causality, supporting possible causation. We have determined a causal relation; because there are macroeconomic reasons to believe in a causal relation is at all plausible. From the result the lagged values BOP granger-cause of GDP as the null hypothesis is rejected at 5%level of significance with p-value is 0.0110 but not the reverse.

In summary, the study found statistically sound evidence to conclude that there was no direct causality from export of goods and services to current real economic growth of Ethiopia as measured by GDP, whereas import of goods and services significantly affects and Granger causes both economic growth and export of goods and services. It is interesting since according to the import-led growth theory, imported raw materials should be used in the goods to be exported, which in turn promote the economic growth. The presence of a causal link between export and growth has implications of great consequence on development strategies for developing countries .If export causes economic growth, and then the achievement of a certain degree of development may be a prerequisite for the country to expand its exports. Thus, exports were important in fuelling economic growth of Ethiopia for the whole study period (1987/88-2019/20).

4.9 Vector Autoregressive Model Estimation

This study was concerned with identifying the analysis of BOP effect on economic growth in Ethiopia. We identified and estimated the effect of FDI, Import, Exports, GDP and political instability on BOP and its effects on economic growth in Ethiopia. We employed unrestricted VAR model after conducting the pre- estimation tests for non stationarity and non-co-integration which are important before estimation to avoid spurious results and model misspecification. The VAR model showed that all variables and their lags based on selection criteria were highly significant. Therefore we found that Bop, FDI, exports, Imports, GDP and Pol with their lags significantly affected balance of payment and its

effects of economic growth in Ethiopia. The model is given below and the interpretations are done as shown below;

BOP = 158.97 - 0.361267410811*BOP (-2) - 0.164983794943*FDI (-1) + 0.558857503432*EXPORT (-1) - 0.799486443579*EXPORT (-2) + 0.123679771768*IMPORT (-2) ---------- (EQ1)

Where Bop is the balance of payment, FDI is the first difference of the FDI, Export is the first difference and second difference of Export and Import is the second difference of the Import. All of these variables were lagged to four time periods. Shows from Appendix (A5)

The VAR model (see eq1) shows that if all factors are held constant, BOP will be Ethiopia 158.97 million. A unit change in the first and second lags of BOP led to an increase in current BOP whereas the first and second lag led to a decline in the current balance of payment. The first difference of the FDI, through its first and second export lags led to a decrease in the current balance of payment while the fourth lag increased the current balance of payments in Ethiopia. Similarly, the first and second lags of import reduced current balance of payment in Ethiopia while the second lag increases the current Ethiopia BOP. Finally, we found that all lags of political instability in Ethiopia led to a reduction in balance of payments.

4.10 Regression Results for the Autoregressive Distributed Lag (ARDL) Model

It was further revealed that all variables with their respective lags were highly significant in analysis of BOP effect on economic growth in Ethiopia since the p values of 0.000 was less than the significance level of 5%. Also, we found that all variations from the (R-squared) results ARDL model of the BOP effect on economic growth in Ethiopia. The ARDL regression equation result interpretation is:

Dependent Variable (Y) Balance of payments

Independent variable: (X1) Exports

(X2) Imports

(X3) GDP

(X4) FDI

Y=158.24+0.001690(Export)-0.120630(Import) - 0.001719 (GDP) +0.286099(FDI)

$Y=158.24+ 0.001690X_1 – 0.120630X_2 – 0.001719X_3 + 0.286099X_4$---------- **(4.1)**

The ARDL Regression Result model shows Appendix (A6)

The regression result tells us 91.355% of the Ethiopia balance of payment deficit can be explained by the Import, FDI and Export. Both variables Export and FDI are 99 % statistically significant and Import 90% statistically significant. The result also shows import has a negative coefficient; export and FDI have a positive coefficient. However, the GDP depreciation is statistically insignificant. Then in this case Bop Export goods increases and money incoming also rises and increases economic growth in country. But the ratio of import to GDP is rise economic growth is decreases of the country.

Discussion

From the regression result we can understand that import, FDI and Export are the main determinants of Ethiopian balance of payments. Therefore, to improve Ethiopian balance of payments these variables should be considered. Then in this regression result was also shows BOP surplus/deficit effect on economic growth of Ethiopia.

Export Coefficient

The equation (4.1) ARDL regression results from Eviews-10 show that Export have a 0.00169 coefficient which is also statistically significant at a 99 percent level of significance i.e. it has a smaller p-value(0.0001) relative to the critical value (0.05). From this it is clear that a 1 percent expansion in the level of export triggers a 0.169 percent increases in BOP and increases economic growth in Ethiopia. The strong statistical significance and strongly positive coefficient shows that export hypothesis truly holds in Ethiopia. The positive relationship between export and BOP is also supported by macroeconomic theory which argues that services are an injection or an addition to the circular flow of income, and an increase in their level results in the expansion of the aggregate BOP and economic growth. Then BOP surplus export goods of services rise the money income increasing it should be economic growth also increase. Therefore the relationship BOP surplus the economic growth increases.

FDI Coefficient

The eq(4.1) ARDL regression results from Eviews-10 show that services have a 0.286099 coefficient which is also statistically significant at a 5 percent level of significance i.e. it has a smaller p-value(0.0032) relative to the critical value (0.05). From this it is clear that a 1 percent expansion in the level of FDI triggers a 28.6099 percent increases in BOP and its effect was on economic growth of Ethiopia raised at that amount. The strong statistical

significance and strongly positive coefficient shows that services hypothesis truly holds in Ethiopia. The positive relationship between FDI and BOP is also supported by macroeconomic theory which argues that FDI are an injection or an addition to the circular flow of income, and an increase in their level results in the expansion of the aggregate BOP. Then in this case the relationship between BOP and GDP the same direction.

Import Coefficient

The eq(4.1) ARDL regression results from Eviews-10 show that imports have a -0.120630 coefficient which is also statistically significant at a 10 percent level of significance i.e. it has a smaller p-value(0.0596) relative to the critical value (0.10). From this it is clear that a 1 percent expansion in the level of imports trigger a 12.95 percent decreases in BOP. The strong statistical significance and strongly negative coefficient shows that imports hypothesis truly holds in Ethiopia. The negative relationship between imports and BOP is also supported by macroeconomic theory which argues that imports are an injection or an addition to the circular flow of outcome, and a decrease in their level results in the expansion of the aggregate demand of BOP. Then BOP deficit, the trade balance is negative or import of good service more than export goods service i.e. payment is more than receipt. Therefore the economic growth decreases by case of BOP deficit.

R-Squared (R^2)

Basically the R^2 is a measure of goodness of fit of the ARDL regression model. It explains how best the model fits the data. From the Appendix (O), the adjusted R^2 value (0.91355) shows that 91.355 percent of the variations in the regress and/dependent variable (BOP) is explained by the regressors (exports, imports, FDI and GDP). This implies that the remaining 8.245 percent or 0.08245 of the changes in the BOP are not explained by the regressors of this model but by other factors outside the model. But on the whole, the above R^2 shows that the regression model has a very low explanatory power. Then increasing or decreasing of GDP effect of BOP affected by causes of dependent variables.

Chapter Summary

Chapter four sought to estimate the regression model and interpret the results that emerged from the study. After conducting several time series diagnostic tests on the data, there was no evidence of multicollinearity, heteroskedasticity, autocorrelation or incorrect model specification. This therefore eliminated any possibility of conducting spurious regression

and the validity and robustness of the regression model were ensured. After running regression on the data using the ARDL method, it was found that services have had a positive effect on BOP and economic growth (GDP) in Ethiopia from 1987/88 to 2019/20. However, the variable only services results were statistically significant at a 5 % level of significance and imports were found to have a negative and significant effect on the BOP and economic growth of the country at a 5 % level of confidence during the aforementioned period. The other variables (export and FDI) results were statistically significant at a 5 % level of insignificance. A higher rate of economic growth will cause higher levels of consumer spending. Therefore, there will be a rise in import spending – which will tend to cause a deterioration in the current account (determinant of BOP). Furthermore, with higher economic growth, the economy will get closer to full capacity and therefore, it will put upward pressure on prices and inflation. If there is a rise in the inflation rate, then it will make Ethiopia exports less competitive and imports relatively cheaper. This will also worsen the current account deficit. An increase in economic growth may not cause a current account deficit in all circumstance. Firstly, if economic growth is sustainable – if growth is close to the long-run trend rate, then inflationary pressures will not increase and domestic supply is able to keep up with domestic demand. In this circumstance, there is less need for consumers to switch to imports from abroad. The nature of economic growth. The second factor is that it depends on the nature of economic growth. If economic growth is fuelled by capital investment and export demand – then economic growth can be consistent with a current account surplus. Through increasing international competitiveness, they are able to increase export demand at a faster rate than domestic consumption.

Chapter Five

5. Conclusion and Recommendations

5.1 Summary and Conclusion

The major objective of this study was to apply multivariate time series model to investigate the nexus between BOP and GDP in Ethiopia. Over the time period considered, all series were non-stationary at level but stationary after first and second difference. Thus, all the series are integrated of order one. The optimal lag length selection criteria for the vector autoregressive models indicate VAR (1) found to be appropriate and optimality test (lag exclusion test) approved the selected lag order. Additionally, export formation is significantly affected by its lagged value and lagged value of economic growth rate and export in the short run but no long-run relationship. From Granger causality test it is inferred import and export formation granger causes economic growth rate of Ethiopia. The lagged values import granger-cause the BOP as the null hypothesis is rejected at 5%level of significance with p-value but not the reverse. That is, Import provides important information to forecast future value of BOP. There is a bidirectional causal relationship between economic growth and BOP which means BOP granger causes economic growth. The very low p-values in type of causality tests (Granger causality) we reject non-causality, supporting possible causation. We have determined a causal relation; because there are macroeconomic reasons to believe in a causal relation is at all plausible

The broad objective of this research was to establish the determinants of the balance of payment in Ethiopia and the specific objective were: to determine the macro-economic variables that affect the balance of payment and economic growth in Ethiopia, to determine the magnitude of each variable and to come up with the policy options of addressing the balance of payment deficit and its effects on economic growth in Ethiopia. Since the aim was to determine the variables which contribute to the balance of payment. There is a reasonable consensus among development economists that theoretically international trade (export and import promotion) leads to economic growth. As a result, Ethiopia and many other developing countries have implemented trade-led economic growth policies in order to achieve economic development and poverty alleviation. However, empirical studies conducted in several different countries give very conflicting results, a situation which has generated serious doubts about the validity of the export and import-led growth consensus.

This is the sole reason that motivated the undertaking of this study in order to find out whether or not the trade-led hypothesis holds for Ethiopia and regression Models was applied. The model proved that resource gap such as export, import, GDP and FDI are the primary candidate for the balance of payment deficit and effects on economic growth in the last 32 years. The empirically investigating the impact of exports and imports on economic growth in Ethiopia during the period spanning from 1987/88 to 2019/20. In fulfillment of the above objective, specific null hypotheses were tested investigating whether or not exports and imports, in combination with other factors such as services and FDI contribute to the rise in the level of BOP effect on real GDP. In addition, the structure of international trade in Ethiopia was analyzed through reviewing past and present Government of Ethiopia policies on exports and imports. The study then went on to review both theoretical and empirical literature on the nature of the relationship between exports, imports and economic growth through some of the main economic growth theories and empirical studies.

5.2 Policy Implications/ Recommendations

Disequilibrium in balance of payment in any country is adjusted through both monetary and fiscal measure. The policy implication for the Ethiopian economy is that, increases in resource gap deficit leads to an increase balance of payment deficit. Thus, monetary authorities should pay special attention to domestic saving expansion. Domestic saving expansion can be achieved through vibrant financial market such as stock market. Stock market is non-existent in Ethiopia; the development of secondary stock market is long overdue. Ethiopia should launch a secondary equity market as soon as possible. The establishment of Independent Security and Exchange Commission is a crucial prerequisite for launching the equity market. The monetary authority also should address the minimum nominal deposit rate. Inflation should be reduced or minimum nominal deposit should be raised.

Ethiopian Government operates in fiscal deficits. The expansion in fiscal deficit leads to increase in domestic credit which has been shown to impact negatively on balance of budget, thus leading to balance of payment deficits. Fiscal measures that would limit earmarked government expenditures should be put in place to be in harmony with revenue generation. This requires prudent government consumption and viable taxation policies that will ensure wide taxation base and increased revenue collection.

5.3 Limitations of the Study

This study had its fine share limitation. We have no enough time and busy. The other limitation of support reading materials on the topic of title not related done research in any countries.

5.4 Areas for Further Research

The study has concentrated effect of few determinants of Ethiopian BOP on economic growth. There are so many other factors that could be directly or indirectly affecting real GDP which are not investigated. It is therefore recommended that effects of factors such as domestic credit, Gross domestic products, reserves, Inflation rates and fiscal balance on balance of payments be done in future.

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Table (1) Collected data

	BOP	CURRENT_...	EXCHANGE...	EXPORT	FDI	GROSS_SAV...	IMPORT
1987/88	-185.16908...	-569.15845...	2.07	373.740096...	0	306.280193...	1098.84057...
1988/89	-11.111111...	-348.81497...	2.07	436.112560...	0	397.149758...	1019.51690...
1989/90	-265.31400...	-314.82318...	2.07	355.944927...	0	333.333333...	885.164251...
1990/91	-63.381642...	-561.38937...	2.07	297.770048...	0	491.884057...	1029.15942...
1991/92	-205.70048...	-392.00193...	2.07	153.795169...	0	747.439613...	874.830917...
1992/93	-177.98219...	-587.53982...	2.804775	338.345500...	0	986.389282...	1290.22827...
1993/94	277.587281...	-296.71428...	5.7744	245.820816...	0	499.099473...	820.918998...
1994/95	166.118987...	-229.29239...	6.2505	453.592333...	0	720.758339...	1047.31957...
1995/96	-43.554694...	-382.18553...	6.3178	412.689248...	0	705.023900...	1173.96243...
1996/97	-392.76712...	-351.04687...	6.5007	600.192400...	0	481.545316...	1309.28766...
1997/98	29.8472761...	-334.07511...	6.8817	601.825388...	0	540.492703...	1356.92532...
1998/99	-46.564609...	-724.35398...	7.5111	484.251243...	0	465.911178...	1557.96500...
1999/00	-312.70037...	-435.71373...	8.1426	486.061201...	0	590.562834...	1404.75864...
2000/01	33.3817649...	-548.07171...	8.3279	464.295394...	51.8978373...	774.224607...	1478.63398...
2001/02	278.964258...	-790.17275...	8.5425	452.364068...	0	783.192422...	1695.67330...
2002/03	303.231465...	-842.63329...	8.5809	482.741429...	14.2525842...	1094.79600...	1856.40924...
2003/04	139.337235...	-963.13578...	8.6197	600.559665...	1.19991647...	1347.21285...	2586.86718...
2004/05	-101.40959...	-1550.4670...	8.6518	817.893826...	150	1772.70591...	3633.29425...
2005/06	-170.83224...	-2218.465	8.68099999...	1000.29	365.1	1982.263	4592.8
2006/07	48.3394891...	-2190.4146...	8.7943	1185.11500...	521.200000...	2764.7753	5126.17
,2007/08	-250.42570...	-2804.9610...	9.2441	1465.74832...	814.6	3706.5253	6810.78367...
,2008/09	513.440610...	-3186.0911...	10.4205	1447.92285...	893.7	4258.08	7726.6
,2009/10	316.642795...	-3098.4944...	12.8909	2003.12958...	960.3	4615.176	8268.90000...
,2010/11	1384.2	-2062.6073...	16.1178	2747.11650...	1242.5	4615.74900...	8252.82388...
,2011/12	-972.78553...	-4565.9638...	17.2536	3174.51459...	1072.1	5033.733	11061.1674...
,2012/13	-6.5160076...	-4310.2526...	18.19471	3115.76685...	1231.62247...	5105.38653...	11460.5776...
,2013/14	-96.888284...	-5631.4118...	19.0748	3300.05518...	1466.96575...	5577.48415...	13712.2844...
,2014/15	-521.41273...	-8914.6832...	20.0956	3007.81243...	2202.17407...	6389.51104...	16458.5873...
,2015/16	-830.86022...	-8052.8263...	21.1059	2867.74899...	3268.68575...	7819.63344...	16725.2454...
,2016/17	658.620509...	-7977.7467...	22.4137	2907.46715...	4170.8	6913.63716...	15802.7288...
,2017/18	-201.59381...	-6544.0071...	26.1082	2836.07453...	-145.24537...	7326.42614...	15255.3484...
,2018/19	-941.64000...	-7034.9085...	28.0543	2666.53333...	146.111255...	8061.89065...	15111.9966...
,2019/20	-1227.2775...	-5921.3753...	31.3427	2987.66504...	-149.41019...	6710.72041...	13881.2972...

Data source from NBE

Table (2) Collected data

	BOP	INVESTMENT	PRIVATE	PUBLIC	REAL_GDP	SERVICES
1987/88	-185.16908...	64.9275362...	118.502415...	187.777777...	60838.6099...	37.4396135...
1988/89	-11.111111...	80.3381642...	187.971014...	209.178743...	61288.7730...	46.6183574...
1989/90	-265.31400...	75.4589371...	171.304347...	162.028985...	63930.5129...	43.0917874...
1990/91	-63.381642...	99.7584541...	199.951690...	291.932367...	62003.4924...	29.9516908...
1991/92	-205.70048...	86.3285024...	315.797101...	431.642512...	60582.7443...	13.2367149...
1992/93	-177.98219...	124.323697...	377.178205...	609.211077...	49705.0576...	12.8352541...
1993/94	277.587281...	60.8548074...	248.389443...	250.710030...	24154.9208...	29.9944582...
1994/95	166.118987...	67.8665706...	311.159107...	409.599232...	23590.8383...	53.2757379...
1995/96	-43.554694...	72.9209534...	313.400234...	391.623666...	25700.8990...	65.6874228...
1996/97	-392.76712...	31.6858184...	257.533060...	224.012256...	26035.1776...	100.515329...
1997/98	29.8472761...	28.5534932...	312.305965...	228.186737...	24400.5794...	108.718854...
1998/99	-46.564609...	30.0521213...	276.918585...	188.992593...	23766.5157...	72.4411881...
1999/00	-312.70037...	47.9341197...	380.849405...	209.713429...	22705.3674...	102.134308...
2000/01	33.3817649...	51.4123578...	379.218488...	395.006119...	23846.9671...	87.0483829...
2001/02	278.964258...	50.3039789...	348.587532...	434.604890...	23627.7489...	104.548947...
2002/03	303.231465...	26.3054561...	494.934089...	599.861910...	23028.3999...	36.1004288...
2003/04	139.337235...	63.5774674...	776.668864...	570.543988...	25613.6650...	246.502864...
2004/05	-101.40959...	35.7715206...	1022.78624...	749.919669...	28745.2627...	242.147165...
2005/06	-170.83224...	1.7	1226.345	755.918	31954.4398...	147.7
2006/07	48.3394891...	30.3999999...	1565.64030...	1199.135	35263.1931...	185
,2007/08	-250.42570...	20.6000000...	2394.0743	1312.451	37296.8119...	145.999999...
,2008/09	513.440610...	33.4	2706.686	1551.394	36405.3967...	385.900000...
,2009/10	316.642795...	55.3	2709.576	1905.6	32520.4425...	457.7
,2010/11	1384.2	69.5000000...	2755	1860.749	29510.6962...	688.099999...
,2011/12	-972.78553...	96.2000000...	3245.789	1787.944	29966.2990...	74.9000000...
,2012/13	-6.5160076...	112.644938...	3575.46337...	1529.92315...	31241.6272...	459.094747...
,2013/14	-96.888284...	152.798637...	4114.20890...	1463.27524...	32869.3951...	666.608489...
,2014/15	-521.41273...	266.623174...	4881.62143...	1507.88960...	34446.4391...	345.529747...
,2015/16	-830.86022...	378.551811...	6428.55676...	1391.07668...	68672.5986...	623.886626...
,2016/17	658.620509...	506.432786...	5485.28741...	1428.34975...	71175.9539...	567.772470...
,2017/18	-201.59381...	436.546863...	6074.76191...	1251.66422...	65795.2102...	199.495074...
,2018/19	-941.64000...	603.577206...	5975.19402...	2086.69663...	66823.5991...	564.639245...
,2019/20	-1227.2775...	607.173657...	5185.71427...	1525.00614...	66982.52	213.457412...

Data source from NBE

Appendix (A) Descriptive statistics

	BOP	EXPORT	FDI	IMPORT	REAL_GDP
Mean	338.6545	1356.696	571.7535	5950.517	40145.56
Median	205.7005	601.8254	51.89784	2586.867	32520.44
Maximum	1384.200	3300.055	4170.800	16725.25	71175.95
Minimum	6.516008	153.7952	0.000000	820.9190	22705.37
Std. Dev.	358.8073	1144.887	990.3177	5764.484	17494.90
Skewness	1.509534	0.605753	2.243982	0.745339	0.648470
Kurtosis	4.403323	1.614831	7.732729	1.957915	1.709990
Jarque-Bera	15.24061	4.656350	58.49325	4.548588	4.600997
Probability	0.000490	0.097473	0.000000	0.102870	0.100209
Sum	11175.60	44770.96	18867.87	196367.1	1324803.
Sum Sq. Dev.	4119766.	41944551	31383332	1.06E+09	9.79E+09
Observations	33	33	33	33	33

Appendix (B) Real GDP non-stationary

Null Hypothesis: REAL_GDP has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.303052	0.8690
Test critical values:	1% level	-4.273277	
	5% level	-3.557759	
	10% level	-3.212361	

Appendix (C) Real GDP stationary

Null Hypothesis: D(REAL_GDP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.261219	0.0022
Test critical values:	1% level	-3.661661	
	5% level	-2.960411	
	10% level	-2.619160	

Appendix (D) Export non-stationary

Null Hypothesis: EXPORT has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 1 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.216099	0.4646
Test critical values:	1% level	-4.284580	
	5% level	-3.562882	
	10% level	-3.215267	

Appendix (E) Export stationary

Null Hypothesis: D(EXPORT) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.624176	0.0110
Test critical values:	1% level	-3.661661	
	5% level	-2.960411	
	10% level	-2.619160	

Appendix (F) FDI non-stationary

Null Hypothesis: FDI has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 7 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		2.367274	1.0000
Test critical values:	1% level	-4.374307	
	5% level	-3.603202	
	10% level	-3.238054	

Appendix (G) FDI stationary

Null Hypothesis: D(FDI,2) has a unit root
Exogenous: Constant
Lag Length: 7 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.313771	0.0028
Test critical values:	1% level	-3.752946	
	5% level	-2.998064	
	10% level	-2.638752	

Appendix (H) Import non-stationary

Null Hypothesis: IMPORT has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 7 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.571376	0.2948
Test critical values:	1% level	-4.374307	
	5% level	-3.603202	
	10% level	-3.238054	

Appendix (I) Import stationary

Null Hypothesis: D(IMPORT) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.430788	0.0174
Test critical values:	1% level	-3.661661	
	5% level	-2.960411	
	10% level	-2.619160	

Appendix (J) BOP non-stationary

Null Hypothesis: BOP has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 7 (Automatic - based on AIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		1.311048	0.9999
Test critical values:	1% level	-4.374307	
	5% level	-3.603202	
	10% level	-3.238054	

Appendix (K) BOP stationary

Null Hypothesis: BOP has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 1 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.460970	0.0066
Test critical values:	1% level	-4.284580	
	5% level	-3.562882	
	10% level	-3.215267	

Appendix (A1) VAR Lag Order Selection Result

VAR Lag Order Selection Criteria
Endogenous variables: BOP EXPORT FDI IMPORT REAL_GDP
Exogenous variables: C
Date: 05/20/21 Time: 14:14
Sample: 1 33
Included observations: 29

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1247.723	NA	2.28e+31	86.39468	86.63042	86.46852
1	-1139.623	171.4682	7.63e+28	80.66368	82.07813	81.10667
2	-1100.357	48.74448	3.38e+28	79.67979	82.27294	80.49193
3	-1031.958	61.32367*	2.77e+27	76.68673	80.45858	77.86802
4	-972.4844	32.81276	8.80e+26*	74.30927*	79.25982*	75.85972*

Appendix **(A2) Johansen Co-integration**

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.894748	147.9571	69.81889	0.0000
At most 1 *	0.782205	82.66658	47.85613	0.0000
At most 2 *	0.495849	38.46477	29.79707	0.0039
At most 3 *	0.447285	18.60327	15.49471	0.0164
At most 4	0.047418	1.408787	3.841466	0.2353

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.894748	65.29053	33.87687	0.0000
At most 1 *	0.782205	44.20180	27.58434	0.0002
At most 2	0.495849	19.86150	21.13162	0.0745
At most 3 *	0.447285	17.19448	14.26460	0.0167
At most 4	0.047418	1.408787	3.841466	0.2353

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Appendix (A3) Bounds Co-integration test ARDL model

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	20.90639	10%	2.45	3.52
k	4	5%	2.86	4.01
		2.5%	3.25	4.49
		1%	3.74	5.06

Appendix (A4) Pairwise Granger Causality Test

Pairwise Granger Causality Tests
Date: 05/24/21 Time: 13:42
Sample: 1 33
Lags: 6

Null Hypothesis:	Obs	F-Statistic	Prob.
EXPORT does not Granger Cause BOP	27	4.95266	0.0065
BOP does not Granger Cause EXPORT		3.68938	0.0207
IMPORT does not Granger Cause BOP	27	2.60054	0.0660
BOP does not Granger Cause IMPORT		6.13308	0.0025
REAL GDP does not Granger Cause BOP	27	0.96127	0.4850
BOP does not Granger Cause REAL GDP		4.35083	0.0110
FDI does not Granger Cause BOP	27	2.30627	0.0927
BOP does not Granger Cause FDI		6.03114	0.0027
IMPORT does not Granger Cause EXPORT	27	5.48189	0.0042
EXPORT does not Granger Cause IMPORT		3.12627	0.0370
REAL GDP does not Granger Cause EXPORT	27	0.63791	0.6987
EXPORT does not Granger Cause REAL GDP		5.36150	0.0046
FDI does not Granger Cause EXPORT	27	1.38208	0.2881
EXPORT does not Granger Cause FDI		4.76475	0.0076
REAL GDP does not Granger Cause IMPORT	27	1.24135	0.3437
IMPORT does not Granger Cause REAL GDP		6.49608	0.0019
FDI does not Granger Cause IMPORT	27	2.37739	0.0853
IMPORT does not Granger Cause FDI		20.3033	4.E-06
FDI does not Granger Cause REAL GDP	27	4.03574	0.0148
REAL GDP does not Granger Cause FDI		2.73906	0.0564

Appendix (A5) Vector Auto regression Estimates

Vector Autoregression Estimates
Date: 05/21/21 Time: 14:07
Sample (adjusted): 3 33
Included observations: 31 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	BOP	FDI	EXPORT	IMPORT	REAL_GDP
BOP(-1)	0.031302	0.105485	0.023904	-0.792144	3.738817
	(0.19791)	(0.44275)	(0.15680)	(0.47920)	(5.64918)
	[0.15816]	[0.23825]	[0.15245]	[-1.65304]	[0.66183]
BOP(-2)	-0.361267	-0.614706	0.167525	-1.527159	-6.282955
	(0.21131)	(0.47275)	(0.16742)	(0.51167)	(6.03192)
	[-1.70962]	[-1.30027]	[1.00062]	[-2.98466]	[-1.04162]
FDI(-1)	-0.164984	0.328298	-0.020872	0.135374	-0.319302
	(0.07952)	(0.17790)	(0.06300)	(0.19255)	(2.26988)
	[-2.07475]	[1.84539]	[-0.33130]	[0.70307]	[-0.14067]
FDI(-2)	-0.082544	-0.004142	-0.192529	0.132002	1.731486
	(0.10210)	(0.22841)	(0.08089)	(0.24722)	(2.91435)
	[-0.80848]	[-0.01813]	[-2.38014]	[0.53395]	[0.59412]
EXPORT(-1)	0.558858	-0.184099	1.330169	2.550743	-15.00204
	(0.26774)	(0.59898)	(0.21212)	(0.64829)	(7.64251)
	[2.08733]	[-0.30735]	[6.27074]	[3.93457]	[-1.96297]
EXPORT(-2)	-0.799486	0.641481	-0.656177	-0.143496	17.26901
	(0.31760)	(0.71053)	(0.25163)	(0.76902)	(9.06575)
	[-2.51729]	[0.90282]	[-2.60775]	[-0.18660]	[1.90486]
IMPORT(-1)	0.010829	0.340434	-0.031564	0.587434	2.759781
	(0.08044)	(0.17996)	(0.06373)	(0.19477)	(2.29608)
	[0.13463]	[1.89177]	[-0.49528]	[3.01604]	[1.20195]
IMPORT(-2)	0.123680	-0.366476	0.131749	-0.001621	-2.793075
	(0.07282)	(0.16291)	(0.05769)	(0.17632)	(2.07857)
	[1.69848]	[-2.24958]	[2.28365]	[-0.00919]	[-1.34375]
REAL_GDP(-1)	-0.003924	0.031517	-0.006440	-0.006505	0.916309
	(0.00720)	(0.01610)	(0.00570)	(0.01743)	(0.20546)
	[-0.54511]	[1.95722]	[-1.12932]	[-0.37325]	[4.45975]
REAL_GDP(-2)	0.004000	-0.036535	0.002095	-0.001747	-0.137219
	(0.00672)	(0.01504)	(0.00533)	(0.01628)	(0.19190)
	[0.59500]	[-2.42919]	[0.39337]	[-0.10734]	[-0.71507]
C	127.3472	168.0853	182.4898	462.0361	5679.514
	(158.970)	(355.647)	(125.949)	(384.925)	(4537.77)
	[0.80108]	[0.47262]	[1.44892]	[1.20033]	[1.25161]

Appendix (A6) ARDL

Dependent Variable: BOP
Method: ARDL
Date: 05/22/21 Time: 14:35
Sample (adjusted): 5 33
Included observations: 29 after adjustments
Maximum dependent lags: 4 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (4 lags, automatic): EXPORT FDI IMPORT REAL_GDP

Fixed regressors: C
Number of models evalulated: 2500
Selected Model: ARDL(4, 4, 0, 4, 2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
BOP(-1)	-0.701413	0.132782	-5.282454	0.0004
BOP(-2)	-0.837720	0.150806	-5.554966	0.0002
BOP(-3)	-0.361640	0.209094	-1.729556	0.1144
BOP(-4)	-0.580070	0.183341	-3.163891	0.0101
EXPORT	1.001690	0.163545	6.124854	0.0001
EXPORT(-1)	0.424804	0.312733	1.358359	0.2042
EXPORT(-2)	-0.779026	0.333580	-2.335350	0.0417
EXPORT(-3)	0.050047	0.329544	0.151868	0.8823
EXPORT(-4)	0.590297	0.215304	2.741692	0.0208
FDI	0.286099	0.074219	3.854787	0.0032
IMPORT	-0.120630	0.056796	-2.123921	0.0596
IMPORT(-1)	-0.007982	0.069870	-0.114246	0.9113
IMPORT(-2)	-0.290214	0.078197	-3.711298	0.0040
IMPORT(-3)	0.036239	0.087239	0.415401	0.6866
IMPORT(-4)	0.261054	0.057731	4.521944	0.0011
REAL_GDP	-0.001719	0.004776	-0.359894	0.7264
REAL_GDP(-1)	-0.002989	0.005918	-0.505157	0.6244
REAL_GDP(-2)	0.006401	0.003891	1.644913	0.1310
C	158.2461	102.6312	1.541891	0.1541

R-squared	0.969127	Mean dependent var	367.2629
Adjusted R-squared	0.913555	S.D. dependent var	372.4453
S.E. of regression	109.5048	Akaike info criterion	12.47545
Sum squared resid	119912.9	Schwarz criterion	13.37126
Log likelihood	-161.8940	Hannan-Quinn criter.	12.75601
F-statistic	17.43914	Durbin-Watson stat	2.432359
Prob(F-statistic)	0.000029		

*Note: p-values and any subsequent tests do not account for model selection.