
# COLLEGE OF DEVELOPMENT STUDIES

## CENTER FOR REGIONAL, URBAN AND LOCAL DEVELOPMENT STUDIES

# DEPARTMENT OF REGIONAL AND LOCAL DEVELOPMENT STUDIES EFFECT OF EXCHANGE RATE ON TERMS OF TRADE IN ETHIOPIA

**BY: BIRUK LEMMA**

**A THESIS PRESENTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN REGIONAL AND LOCAL DEVELOPMENT STUDIES**

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## DECLARATIONS

I hereby declare that the thesis entitled effect of Exchange Rate on Terms of Trade the case of Ethiopia my original work that has not been submitted by any other person to any other academic higher institution for an award of any other Degree, and all sources of materials used for the thesis have been properly acknowledged.

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**ADDIS ABABA UNIVERSITY COLLEGE OF DEVELOPMENT STUDIES DEPARTMENT OF REGIONAL AND LOCAL DEVELOPMENT STUDIES**

Effect of Exchange Rate On Terms Of Trade In Ethiopia

**BY: Biruk Lemma**

Approved by Board of Examiners

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# List of Acronyms

| | |
|---|---|
| ADF | Augmented Dicky-Fuller test |
| CVAR | Co integrated Vector Auto regression |
| OLS | Ordinary Least Squares |
| TOT | Terms of Trade |

# Abstract

Notwithstanding the presence of products of hypothetical and observational considers that have inspected the relationship between exchange rate and terms of trade, there are still warmed wrangles about among researchers over the impact of depreciation of trade rate on terms of trade of nations. In this way , the point of this study lies in understanding how changes within the exchange rate influences the terms of trade within the long run and the short run in Ethiopia utilizing yearly time arrangement information from 1982 to 2017. The study used ADF to test stationery and connected Co integration Vector Autoregressive and Vector Error Correction modeling and set up the relationship and the impacts of the exchange and terms of trade. The study shows that exchange rate had a positive and significant impact on both the long run period and the short run alteration components on terms of trade. The studies recommend, the government must define approaches to guarantee the steadiness and competitiveness of the exchange rate for favorable exchange adjust within the worldwide market. Also, definition and usage of such approaches would improve the certainty of speculators thus make strides venture within the profitable segments. In expansion, the government ought to make exports of goods and services among the exchanging major exchanging accomplices and other nations.



**Keywords**: Exchange rate, Terms of Trade, Co integration, Vector Error Correction Mode

# CHAPTER ONE

# 1. INTRODUCTION

## 1.1 Background of the study

A country's exchange rate is essentially the cost of remote money in terms of residential money units or the reverse of this proportion. It is the mechanism by which domestic prices are quoted in terms of foreign currency. A country's exchange policy is, thus, a set of explicit or implicit rules by which the authorities control or guide the acquisition and disposition of foreign exchange in support of the formulations and implementations of other socio economic policy goals. Theoretically speaking the exchange rate policy is one of the policy instruments to alleviate the balance of payments difficulty by organizing the foreign trade sector. Exchange rate as a policy emerged in 1980s and opposed by developing countries for fear of its inflationary effect. Most of developing countries trade balance position and competitiveness is affected by the external shock resulted from developed countries. This results in direct effect on the terms of trade by increasing or decreasing volume of trade. Terms of trade are the ratio of export price to imports price and they measure how much can be obtained in imports per unit of export .it is an index showing the proportion change in the price of export and imports(Ferrad, 2018).

The study of the exchange rate in international commodity trade has been developed on the Theoretical base of the Marshall-Lerner (LM) condition and J-curve phenomenon. Studies related to the J-curve phenomenon detect the effects of currency-contracts, exchange rate pass-through, and quantity adjustments by which a country's trade balance will worsen immediately after the currency depreciation and begin to improve only some time later. Thereafter, international trade economists have examined the long-run and short-run effects of the exchange rate on the trade balance (Devereux and Engel, 2002; Coughlin, 2006; and Bahmani-Oskooee and Ratha, 2008). A deterioration of the terms of trade (devaluation) brings in a long run improvement in the trade balance that ML conditions explained. Since the short run elasticity is usually smaller than the long run elasticity, the trade balance may not improve in the short run. In fact, in the short run, the post-devaluation time path of the trade balance is theoretically ambiguous. While there are reasons to believe that the J curve phenomenon characterizes the short run dynamics, there are also reasons why it may not.

Indeed the empirical evidence has been rather mixed or inconclusive (Dey, Saha, & Akter, 2019).

The exchange rate policy of Ethiopia before the 1990, in imperial and Derg regime can strictly be regarded as fixed exchange rate. Birr was pegged to the US dollar in early 1948. However, due to devaluation of the US dollar in1971 and 1973 the exchange rate of birr against the US dollar was indirectly change by 7% and 11% respectively .The devaluation of Ethiopian birr (ETB) per US dollar officially began during the Ethiopian people revolutionary democratic front regime. Before that the nation utilized to have a settled trade rate with a rate of 2.07 birr per US dollar. A few investigates held amid 1970 and 1980 shows that Ethiopian birr was overvalued leading to trade deficit. These over valuation of currency discourage export and encouraged import in addition with foreign exchange reserve shortage. Under the structural adjustment program with the support of international monetary fund and World bank. Under this program starting from 1992/93 the Ethiopian birr was devaluated from 2.07birr to 5 birr per US dollar in real terms (Muhabaw, 2013).

The area of research that has drawn the attention of researchers is the exchange rate-trade balance relationship. The elasticity model of the balance of trade has shown the existence of a theoretical relationship between exchange rate and the trade adjusts. Observationally, various studies have been conducted to evaluate the impact of exchange rate on exchange adjust, with the objective of providing valuable inputs to policy makers on the effectiveness of exchange rate policy such as devaluation-based adjustment policies to balance a country's foreign trade exchange rate is assumed to change the real exchange rate and thus has a direct effect on the trade balance. Specifically, noted that in an effort to gain international competitiveness and help to improve its trade balance, a country may adhere to devaluation or allow her currency to depreciate. Devaluation or depreciation increases exports by making exports relatively cheaper, and discourage imports by making imports relatively more expensive, thus improving trade balance (Degfe, 1995).

## 1.2. Statement of the problem

For the growth of the economy a positive net export is highly advantageous. However Ethiopian export is very low compared to import and result in a negative net export, for the past few years the net export shows negative. Ethiopia recorded a trade deficit of 2806.20 USD Million in the first quarter of 2018. Adjust of Trade in Ethiopia found the middle value

of -2256.70 USD Million from 2006 until 2018, coming to an all-time high of -956.70 USD Million within the moment quarter of 2007 and record low of -3737USD million in the fourth quarter of 2014.

The export items of Ethiopia are mostly primary products and earn smaller amount of foreign exchange than its import demand. As a result, a deficit balance of payments is one major problem of the country.

Like any other countries, Ethiopia has been engaged in international trade for several decades. Nevertheless, the country has not been experiencing positive trade balance (Medina, 2015).The World Economic Forum in its global competitiveness report of 2016-2017 shows that Ethiopia's export are among the last competitive at world ranked 109th out of 138 countries. In theory, currency devaluation is used as one of the policy tools for enhancing exports. According to BjØrnskov (2015), depreciation of the local currency makes local products less expensive in the world market and the country to be more competitive internationally. Particularly, since the breakdown of the Bretton Woods Understanding in 1973, and the appearance of coasting exchange rates, there has been recharged intrigued to think about on the impact of depreciation on the exchange adjust of both created and creating nations (Borena, 2013). Economists often considered devaluation to be a tool for improving the export sector of an economy. According to the traditional views, devaluation has expansionary effect on output and aggregate demand (Asif, 2011). Contrary to the traditional view, some argue that devaluation would affect the supply side of the economy by increasing the cost of imported inputs used in production, resulting in a decline of the aggregate supply in the economy (Abebe, 2018). There was no serious controversy over the positive effects of devaluation on economic growth before 1970's recession took place in Latin America which implemented orthodox adjustment programs (Yolcu, 2014).

Adam Smith observed that some nations are richer even if not all the individuals in that society work whereas other nations are extremely poor, even if all the individuals work. There has been expanding literature in this field but theories and empirical analyses about economic growth consistently diverge (Tridico, 2006) .

Ethiopia's foreign trade performance has been shown increasing trends both in value of exports and imports, but the ever-expanding trade deficit depletes the country's scarce foreign exchange, forcing the country to implement strict foreign exchange control measures

and procedures to avert the situation. Ethiopia's economic development policy over the past decade has focused on the development of the export sector as a major means of generating foreign exchange. The core assumption of the country's industrial development strategy of 2002 is the primacy of the free market and government support is only to be provided on a temporary basis in order to help domestic industry become internationally competitive. It is clear that the export led strategy must be complemented by other measures that help the widening trade deficit (Gebremariam, 2018).

A negative term of trade has a number of effects of the economic growth as there is a net income transfer to outside and result in shortage of foreign exchange reserve this results the country to need other source of financing like foreign aid and credit. According to Wondemu & Potts( 2016), exchange rate is one of the determinant factors for TOT (Wondemu & Potts, 2016). Ethiopian exchange rate has been devaluated for the past twenty years exchange rate might have a positive or negative effect according to elasticity theory of trade balance, ,exchange adjust of a country depends on the versatility of domestic demand for the imported goods in the nation. This means if a country devaluates its money, devaluating its money will have positive impact if the demand for import and export is elastic. If the demand is inelastic the effect of exchange rate will be negative (Genye, 2011).

To the best of My knowledge I can't find studies with full document evidence that shows the relationship between exchange rate and terms of trade in Ethiopia .Thus, the aim of this study was to examine the relationship between exchange rate and terms of trade.

## 1.3. Objective of the study

### 1.3.1. General objective

The general objective of the study was to realize the relationship between exchange rate and terms of trade in Ethiopia.

### 1.3.2 Specific objective

- To investigate the effect of exchange rate on TOT
- To see the long and short run effect of devaluation of money on export and import.

## 1.4. Research Questions

This paper will provide answer to the following questions

- Is there relationship between exchange rate and TOT?
- Does devaluating money can bring better performance in the export of an economy?

## 1.5 Significant of the study

This research uses the existing research and data in the area, especially in Ethiopia and developing countries, the finding of this study will help policy makers to give attention to the relationship between exchange rate and TOT and may help to fill the gap

## 1.6. Scope and Limitation of the study

The study attempt to find the impact of exchange rate on terms of trade in Ethiopia by analyzing the data the period from 1988-2017.There are many variables that affects terms of trade, but this study only include exchange rate the annual export import data and years of which Ethiopia's money (birr) was devaluated used with the average exchange rate of the year .the study will not cover many years' data.

## 1.7 Organization of the Study

The rest of the chapter are as follows the second chapter will be the related literature review including theoretical, empirical and conceptual frame work, the third chapter with research methodology, the fourth chapter data analysis and interpretation and the final chapter contains conclusion and recommendation of the study.

# CHAPTER TWO

# 2. LITERATURE REVIEW

This chapter provides a review of literature that has attempted to explain the relationship between exchange rate and terms of trade. It begins with the theoretical literature where it deals with basic theories on the topic then it will move to empirical literature followed by the conceptual framework.

## 2.1. Review of Literature

On the theoretical level the subject of exchange rate has been discussed by many authors. One can find at least a passing word about the subject in almost all works on international trade. The main items are summarized as follows.

To begin with, a country's exchange rate is the price of remote money in terms of domestic money. And the subject matter of exchange rate policy lies under the broader area the foreign exchange regime. This, however, does not imply that the impact of exchange rate policy is confined within the monetary sphere. It has its bearings on the domestic real economic activity through its influence on the foreign trade of a country.

Being one of the adjustment mechanisms, systems of exchange rates are usually discussed in relation to the balance of payments. Normally, there are two types of exchange rate systems; fixed and flexible. We talk of fixed exchange rate systems when the exchange rate of a country's fixed and varied by the government (this is the case in developing countries and some others). On the contrary, in fluctuate exchange rate system the exchange rate is let to fluctuate currency in the foreign exchange market. The foreign exchange market in turn is conditioned by the supply and demand of commodities (Edwards & Wijnbergen, 1987).

Both systems can work to correct the balance of payments disequilibrium. Under the flexible exchange rate system, a deficit in the balance of payments currency and hence to a decrease in the exchange rate i.e. a depreciation of the currency. This implies that imports now become expensive and as result will receive more home currency. At the same time exporters will receive more home currency for a unit of any foreign currency. This creates appositive

effect on exports. Thus, we have the case where imports decrease and exports increase as a result of which the deficit in the balance of payment is erased (BRADA & MENDEZ, 1988).

Ethiopia has experienced a long period of unfavorable trade balance shortages which implies the external division is characterized by auxiliary exchange deficits. To overcome this adverse situation, the government-initiated measures to bring about practical changes within the trade balance by means of its consumption exchanging approach such as currency devaluation. Ethiopian had experienced an exchange adjust excess as it were within the two periods , 1972/73 and1973/4 (Eshetu, 2017) where the exchange proportion (export/import) of Ethiopia was rising during the imperial government which convinced a to some degree liberal foreign exchange policy. However, amid the Derg regime where a profoundly controlled outside exchange approach was in place, the exchange proportion of Ethiopia was falling amid the complete periods which were somewhat due to the drop in trades but, taking after the demise of the communist government in 1991, the exchange ratio started to rise due to the then liberalization arrangement in Ethiopia. Therefore, according to this visual representation, though devaluation promotes export, it failed to cut imports and even the growth in values of import outweighs that of exports and led to continuous deterioration of the trade balance. The implication of this visual representation is that Ethiopia cannot bear to cut its imports as most of its imports are composed of capital merchandise and fuels which are exceptionally critical for the development of an economy. In spite of the continuous devaluation of birr, there has been a continuous rise within the values of imports and the rise in the values of sends out fizzled to out weight that of imports and at the conclusion of the day driven to the deterioration of the exchange adjust.

### 2.1.1 Exchange rate systems

There are two types of exchange rate mechanisms fixed and floating rate mechanisms

An exchange rate is the price of one money expressed in terms of another. An exchange rate system is the way in which the exchange rate is determined. These come in three types. They are:

1. Fixed - this is an exchange rate system where one currency is fixed in value against another. It involves the government working to keep the parity via intervention on the

currency markets. These give certainty but can cost vast sums of foreign exchange from national reserves.

2. Floating - this is an exchange rate which accepts that market forces will determine rates based on how they view a country's trade performance and its economic and political stability. These systems cost less to maintain but can result in vast swings and changes in currency values. This can seriously affect trade performance and confidence.

Managed or dirty float - which is where the rate is floating but between upper and lower limits that the domestic government keeps it to. It brings more stability but at less cost to the national reserves.

### 2.1.2 Trade theory

Standard trade theory relates trade in goods with the real exchange rate. Setting all other variables fixed, the trade theory states that the exchange rate can affect the economy´s imports and exports. A fluctuation in the exchange rate influences both the value and volume of trade. If the real exchange rate rises for the home country i.e. if there is a real depreciation, the households in the domestic country can get less foreign goods and services in exchange for a unit of domestic merchandise and administrations. Subsequently, a unit of foreign good would give more of domestic goods, resulting in domestic households buying less foreign goods and foreign households wanting to buy generally more domestic products. The higher the real trade rate the more surplus within the net trades the nation will get (Zhang, 2008). Lerner broadened standard trade theory by including price elasticity of demand for imports and exports as important elements in determining the impact of exchange rate fluctuations on the trade balance. An increase in exports and cut down on imports due to depreciation in the exchange rate does not necessarily mean a correction, or even an improvement, in the trade balance. The exchange adjust isn't concerned with the sums of physical merchandise but with their actual values (Lerner, 1945) .

### 2.1.3 Elasticity approach

The trade balance varies depending upon price elasticity of demand for imports and exports. The versatility of demand and supply are defined as the responsiveness of the quantity demanded of goods or services to a change in its price. Consideration of the balance of payments based upon the price elasticity of demand for imports and exports is known as the elasticity approach. The elasticity approach was initially developed by Bickerdike-Robinson-Metzler in the middle of the twentieth century (Chee-Wooi&Tze-Haw, 2008).The elasticity of a country's demand for foreign goods depends on the price sensitivity of demand for the different goods. The elasticity of a country's supply depends on a country's ability to provide goods demanded by both the foreign and domestic markets(Marshall, 1923/1997).

Lower prices in the domestic country will generally increase foreign demand for domestic country's good, but only if the foreign elasticity of demand is versatile. On the off chance that the outside versatility of demand for residential products is inelastic the amount of domestic products will not increment to the extent that it overcomes the diminish within the esteem of exports caused by the lower prices. Supposing the country begin with a zero-trade balance, lower prices under those circumstances result in a deficit in the trade balance. The situation could be offset by a decrease in the domestic quantity of imports, if the domestic demand for imports is elastic. If the domestic demand for remote merchandise is versatile, the cost alter in the household advertise will alter the domestic consumer's behavior. The customers will at that point switch to consume domestic instead of foreign merchandise causing the value of imports to decrease. On the off chance that the diminish in value of domestic imports is more noteworthy than the diminish in esteem of domestic trades at that point the exchange balance will move forward (Lerner, 1944). The flexibility approach is illustrated in reality by policymakers when a nation is facing a deficit in the trade balance. The policy makers have to take into account the responsiveness of imports and exports due to a change in the exchange rate to calculate to what extent devaluation would improve the trade balance. If the foreign demand for imports and domestic demand for imports are comparatively flexible a minor change in the spot rate can correct a deficit, and if they are relatively inelastic a large change in the spot rate is required to correct a deficit (Daniels & Van Hoose, 2004).

Attempts to integrate the elasticity approach with the Keynesian focus on national income resulted in the so-called absorption approach. The absorption approach shows feedback effect on the trade flows where devaluation improves the trade balance, although less than under the

Marshall-Lerner condition and the basic elasticity approach. The absorption approach made the researchers aware of the existence of what later was developed as the J-curve effect, explained below (Isard, 1995).

### 2.1.4 Marshall-Lerner condition

The Marshall-Lerner condition was developed by Abba Lerner, who used Alfred Marshall's model of trade to show the effect of a depreciation on the trade balance from different scenarios. The condition states that if policy makers devaluate a currency in order to get a positive effect on the trade balance, the demand for the country's exports and the nation's demand for imports needs to be sufficiently elastic. The condition under the simplest of circumstances is that the two elasticity's together must exceed one (Brown & Hogendorn, 2000).

If the elasticity of demand for imports is greater than zero by the same amount as the elasticity of demand for exports is less than one, then the two elasticity's of demand will add up to one, such as 0.4+0.6=1. Thus, the depreciation will have no effect on the trade balance. In general, if the sum of the two elasticity's is less than one then in reaction to depreciation the trade balance will decrease and if the sum is greater than one the trade balance will improve (Lerner, 1944).

The Marshall-Lerner condition could be a condition of stability. If the whole of the two demand elastic ties isn't more noteworthy than solidarity, the harmony is unstable and a demonstrate with an unstable equilibrium is not efficient for measuring the outcome (Calderón & Schmidt-Hebbel, 2008). The trade balance is only to be improved by a depreciation under the condition that the effects on quantity in statement 1 and 2 outweigh the price effect in statement 3 given below:

1. The depreciation will increase the demand for home's exports in the foreign country, given that the price of home's export in home's currency stays constant, the trade balance would improve, all else equal.

2. Domestic currency prices for imports will rise after a depreciation causing the demanded volume for imports to drop; resulting in an improvement of the domestic trade balance.

3. The home country must pay more for any remaining imports from the foreign country after depreciation; causing the trade balance to deteriorate (Gartner, 1993).

The reasoning above can also be explained by the volume effect and the value effect. For a depreciation to improve the trade balance the increase in export volume and decrease in import volume, that is the volume effect, would have to overcome the increase in import prices due to the value effect (Hacker & Hatemi-J, 2004). The value effect is reflected by the imports in domestic currency and will rise as in statement 3, and the volume effect is reflected in statements 1 and 2.If the trade balance is balanced from the start, a full Marshall-Lerner condition is met if the trade balance rises over its initial value.

### 2.1.5. J-Curve effect

The J-curve reflects how a devaluation of a country's exchange rate influences its balance of trade over time. Immediately after the depreciation, the domestic importers are facing increased import prices in terms of the domestic currency; hence, the net export initially falls. In terms of foreign currency, the foreign market faces lower export prices but since the demand for exports and imports are relatively inelastic in the short-run the export and import volumes needs some time to adjust to the change in price. The elasticity of demand is influenced by drowsiness in change of people's buyer behavior or the slack of renegotiating contracts. When the demand patterns adjust to the new exchange rate, the trade balance will start to improve (Mackintosh, Brown, Costello, Dawson, Tompson, & Trigg, 1996).

In the short term when prices are fixed the trade balance will face a decrease due to sticky prices and slowness to change. Goods will still be traded at the former price levels in the producer's currency and the home country will face a higher relative price for its imports and a lower relative price for its exports due to the depreciation of its currency. Thus, the trade balance and the terms of trade will worsen due higher value on the imports in the short-run. In the long-run the quantity will adjust to the new price level and the change in exchange rate; hence, the market and home country will experience an increase in its export volume and a decrease in its import volume and the trade balance will improve. The trade balance improves in the long-run and will increase to a higher level than before the depreciation. The dip and the recovery take the shape of the letter J, hence the term J-curve effect.

## 2.2 Ethiopia Exchange Rate regimes

The Ethiopian currency (birr) has been pegged to the US dollar from as early as 1965 since US has been an important trading customer of Ethiopia. However, the birr did not follow the dollar's realignment since the early 1970s.after the drop of Bretton Woods's framework in 1973, Ethiopian birr was revalued to 2.07 this rate stayed till the fall of the socialist government.

After the fall of the derg the transitional government of Ethiopia made a great change on the devaluation of the money, which is about 140% from 2.07 to 5.00 birr per us dollar. During this time the export of Ethiopia increased with volume and diversity being not dependent on coffee only which covers about 53% of the country total export revenue .but in 2008/ 2009, its share declined to 26% whereas the offers of other goods such as oilseeds, chat, gold, flower, leather and leather and leather products increased substantially(Eshetu , 2017).

Exports in 2017were estimates around US$3.5 billion, and imports at US$16 billion Ethiopia benefits from significant inflows from remittances estimated at US$4 billion, and so larger than physical exports. Donor funds (grants and soft loans) as well as Foreign Direct Investment (FDI) and other private inflows help cover the current account deficit. Given the exchange rate policy and current account deficit, foreign exchange on the official market is constrained leading to temporary shortages of foreign exchange and a government managed process of allocation of scarce foreign exchange. One of the challenges Ethiopia faces is to diversity and expands its exports to reduce balance of payment risks associated with exogenous shocks, provide a motor of continued economic growth as well as much needed formal employment. It needs to balance this with continued domestic-led growth, investment needs, as well as maintain economic stability. The exchange rate is one of the policy tools available to support this, and this part will see how this policy tool was used in other countries (Abdisa & Getachew, 2019).

### 2.2.1 Trends of import and Export in Ethiopia

Exchange rate policy is one of the mechanisms of controlling economic activity such as import , export and budget deficit . One the points of the trade rate arrangement could be to affect the trade adjust in a certain heading. In any case, after a century of inquire about within the field we still do not have a sharp hypothesis around the effect of exchange rate

depreciation and appreciation on the hinge adjust (Qiao,2005). The experimental discoveries in this direction are moreover blended (Koray and McMillin (1998) that is sum finding says there is direct relationship other say no direct relationship and no relationship at all.

The Ethiopian major components of export and import and their performances over the period 1982/83 to 2017/18 will be briefly evaluated. That's, the performance of the components will be assessed on their normal values for the periods of (1982- 2017). Just to start with, it gets to be a common dialect that Ethiopia's outside exchange is characterized by exceeding fashion and product concentration (high an agricultural and single commodity (coffee) reliance no product diversification on export side, and tall capital and consumer concentration on import side) conjointly by high geographical concentration (to and from a specific goal and beginning -no market diversification). There has been a widely held that such product and geographic concentrations are the major causes for the instability in Less developed Countries' export profit to which Ethiopia isn't exceptional. This would make a country's economy defenseless to external stuns. Variables such as bad weather conditions, generation or showcasing problems, and universal cost stuns affecting one or two of these commodities can cause a tremendous swing in trade volumes, values, or both. This without a doubt inclinations enhancement of both commodities (Eshetu, 2017).

It is known truth that, Ethiopia's trade is overwhelmed by only many numbers of agricultural Commodities such as coffee, covers up and skins, chat, pulses, live creatures and oilseeds. In the 2013 seven things (coffee, oilseeds, Gold, chat, pulses, live animals and calfskin and leather products within the arrange of their diminishing share of total export) have the lion share of the export and which the export center needs diversification. This may brought the export center to be competitive and will avoid the trade deficit.

The increasing volatility of exchange rates after the fall of the Bretton Woods agreements has been a constant source of concern for both policymakers and academics. Especially for developing countries though many researchers have been done on exchange rate and terms of trade the result is different and contradictory.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2008/09** | **2009/10** | **2010/11** | **2011/12** | **2012/13** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** |
| **Commodity** | **(2001)** | **(2002)** | **(2003)** | **(2004)** | **(2005)** | **(2006)** | **(2007)** | **(2008)** | **(2009)** | **(2010)** |
| Coffee | 375.9 | 528.3 | 841.8 | 833.1 | 746.6 | 714.4 | 780.5 | 722.7 | 883.2 | 839.0 |
| Oilseeds | 356.1 | 358.5 | 326.6 | 472.3 | 443.5 | 651.9 | 510.1 | 477.2 | 351.0 | 423.5 |
| Leather and Leather products | 75.3 | 56.4 | 103.8 | 109.9 | 121.1 | 129.8 | 131.6 | 115.3 | 114.0 | 132.4 |
| Pulses | 90.7 | 130.1 | 137.9 | 159.7 | 233.3 | 250.7 | 219.9 | 232.4 | 279.9 | 269.5 |
| Meat Products | 26.6 | 34.0 | 63.3 | 78.8 | 74.3 | 74.6 | 92.8 | 96.4 | 98.7 | 101.7 |
| Fruits & Vegetables | 12.1 | 31.5 | 31.5 | 44.9 | 43.9 | 45.9 | 47.6 | 53.7 | 56.1 | 61.4 |
| Sugar | 16.4 | 0.0 | - | - | 0.0 | - | - | - | 9.7 | 5.4 |
| Gold | 97.8 | 281.4 | 461.7 | 602.4 | 578.8 | 456.2 | 318.7 | 290.7 | 208.8 | 100.2 |
| Oil Cakes | | | | | | | | | | |
| Live Animals | 52.7 | 90.7 | 147.9 | 207.1 | 166.4 | 186.7 | 148.5 | 147.8 | 67.6 | 61.1 |
| Chat | 138.7 | 209.5 | 238.3 | 240.3 | 271.3 | 297.3 | 272.4 | 262.5 | 273.0 | 263.2 |
| Petroleum Products | | | | | | | | | | |
| Bee's Wax | 1.6 | 1.6 | 1.8 | 2.2 | 2.6 | 2.7 | 4.8 | 2.4 | 2.7 | 3.0 |
| Electricity | | | 1.2 | 21.8 | 34.6 | 45.3 | 42.6 | 31.5 | 73.4 | 84.3 |
| Total | 1,243.8 | 1,722.0 | 2,355.7 | 2,772.6 | 2,716.3 | 2,855.6 | 2,569.3 | 2,432.6 | 2,418.1 | 2,344.6 |

**Table 0.1: Ethiopia's Export from 2008/2009-2017/2018**

## 2.3. Other countries experiences

This part investigated the side effects of change in exchange rate or devaluation as experienced in other countries. But it doesn't mean that whatever has happened elsewhere is inevitable in Ethiopia. Nevertheless, since the aim of devaluation chosen as a policy instrument is the same almost everywhere, the experience of other countries could help in formulating certain premises for investigating the case of Ethiopia.

### 2.3.1. Empirical Literature

Many empirical studies have been done on the effect of exchange rate on terms of trade .However the result of these studies show different and sometimes contradictory depending the country's export and import items.

According to Najia Saquib (2013), the effect of exchange rate on trade balance .empirical evidence from Saudi Arab economy. Saudi Arabia's financial system has been changed since the middle of 1970s .as many countries have been doing the Saudi Arabia's policy was fixed exchange rate .but after the crises of the Bretton woods system the country's policy changed and fixed to currency against the international monitory fund's special drawing rights (SDR).

Nsjia Saquib conducted his research by taking thirty year data and changing the currency value to U.S.D. using two steps Granger co integration technique, the study find a significant relationship between the exchange rate fluctuation and trade balance in the long run.

Ferrando (2011) examined the relationship between exchange rate appreciation and economic growth in china using the annual data between 1987 and 2008. Using the Generalized Method of Moment (GMM) technique, the study revealed that exchange rate has a negative effect on economic growth in China. Similarly, Brown (2012) studied the impact of real exchange rate volatility on economic growth in Kenya using the annual data for the period of 1993 to 2009. Using Vector Auto-regression (VAR) technique, the result revealed that exchange rate has a negative impact on economic growth in Kenya.

Mewadi (2013) explored the effect of genuine trade rate on economic development in South Africa using the annual data for the period 1994 to 2010 Using Ordinary least Square technique, the result showed that exchange rate has a negative long run impact on economic growth in South Africa. Musyoki (2010) examined the impact of real exchange rate misalignment on economic growth in Kenya using annual data between 1993 and 2009. Using generalized method of moment (GMM) technique, the result revealed a negative relationship between the two variables. Toulaboe (2007) examined the relationship between real exchange rate misalignment and economic growth in Brazil using the annual data for the period of 1980 to2005. Using Ordinary Least Square COLS) technique, the result revealed a negative relationship between exchange rate and economic growth in Brazil.

Tarawa lie (2010) investigated the relationship between the real exchange rate behavior and economic growth in Sierra Leone using the annual data for the period of 1990 to 2009. Using Ordinary Least square, the study revealed that real exchange rate is positively related with economic growth in Sierra Leone. Ullah (2013) analyzed the link between exchange rate and economic growth in Pakistan using annual data for the period of 1970 to 2007. Using Three-Stage least square technique, the result revealed that the exchange rate has a positive association with economic growth in Pakistan. Joans (2012) investigated the relationship between exchange rate depreciation and economic growth in South Africa using the annual data for the period of 1990 to 2010. Using ordinary least square technique, the result revealed that South African GDP response positively to depreciation of the rand.

Attah (2013) investigated the econometric analysis of the relationship between GDP growth rate and the exchange rate in Ghana, using the annual data for the period of 1980 to 2013. Using Ordinary least Square technique, the result revealed a positive relationship between exchange rate and economic growth in Ghana. Huang (2004) examined the effect of exchange rate movement on economic growth in Togo, using the annual data for the period of 1970 to 2000 Using Ordinary Least Square, the result revealed a negative relationship between exchange rate and economic growth in a shot run while a positive relationship exists in the long run. Pius (2006) investigated the relationship between exchange rate and economic growth in Ghana suing the annual data for the period of 1980 to 2005. Using ordinary least Square technique, the result revealed that there is a positive relationship between exchange rate and economic growth in Ghana.

Kennedy (2010) studied the relationship between exchange rate and economic growth in Kenya using the annual data for the period of 1970 to 2009. Using ordinary Least Square (OLS), the result showed a positive relationship between the two variables in Kenya. Sibanda (2012) studied the impact of real exchange rate and economic growth in South Africa using the annual data for the period of 1994 to 2010, utilizing ordinary least Square (OLS). The result uncovered that the exchange rate has a positive impact on financial development in South Africa.Alhayky (2011) examined the relationship between effective real exchange rate volatility and economic growth in Togo using annual data for the period of 1980 to 2004. Using fully modified ordinary Least Square technique; the result revealed that real exchange rate volatility negatively affected economic growth.

Adeniran (2012) studied the impact of exchange rate fluctuation on the Nigerian economic growth using annual data for the period of 1980 to 2010. Using ordinary least square (OLS) technique, the study revealed that exchange rate has positive effect on economic growth in Nigeria. Dada (2012) investigated the impact of exchange rate instability on economic growth in Nigeria using the annual data for the period of 1970 to 2009. Using Vector Auto-regression (VAR) technique, the studied revealed that economic growth is negatively related to exchange rate in the long run while in the short run, a positive relationship exist between the two variables in Nigeria.

Oyeranti (2010) examined the association between devaluation rate and macroeconomic aggregate in Nigeria utilizing annual data of the period 1970 to 2009. Using a Vector Auto-regression technique, the study revealed that there is no strong direct relationship between exchange rate and economic growth, rather Nigeria's economic growth has been directly affected by fiscal and monetary policies. Asher (2012) examined the impact exchange rate fluctuation on the Nigerian economic growth using annual data for the period of 1980 to 2010. Using Ordinary Least Square (OLS) technique, the study revealed that exchange rate has a positive effect on GDP. Aloku (2009) analyzed the effect of interest rate, exchange rate on the Nigerian economic growth using the annual data between 1975 and 2008. Using Ordinary Least Square technique, the result revealed that interest rate and exchange rate exerted negative impact on economic growth in Nigeria. Obansa (2012) investigated the relationship between exchange rate, interest rate anal economic growth in Nigeria using annual data for the period of 1970 to 2010. Using Vector Auto-regression(VRR) technique, the study revealed that exchange rate has a significant impact on economic growth in Nigeria.

**Table 0.2:Summary of literature review for exchange rate and terms of trade**

| No | Author | Country | Methodology | Results |
|---|---|---|---|---|
| 1 | GhulamMujtabachaudhary | South Asian & South East Asian countries | Autoregressive distributed lag (ARDL) | The relationship between exchange rate & import found only in one sample country |
| 2 | NajiaSagib | Saudi Arabia | Granger co integration | Significant relationship between exchange rate & trade balance |
| 3 | Uduakobangsinam&EnohongC.umobang | Nigeria | OLS & Granger Causality Test | Positive & insignificant relationship between exchange rate & economic growth in Nigeria |
| 4 | Caporale&Doroodian | G-7 Economics | Auto repressive (GARCH) conditional hetrodiasticity | Significant negative effect on import. |
| 5 | Chowdhury | G-7 | Multivariate error correction | Negative impact on export volume |
| 6 | Kennedy (2010) | Kenya | Ordinary least square (OLS) | Exchanges rate & Economic growth have positive relationship |
| 7 | Attah (2013) | Ghana | Ordinary least square (OLS) | Positive relationship between exchange rate and economic growth. |
| 8 | Hung (2004) | Togo | Ordinary least square (OLS) | Negative relationship between exchange rate & economic growth in short run while a positive relationship exists in the long run. |

# CHAPTER THREE

# 3. RESEARCH METHODOLOGY

## 3.1. Research Design

The purpose of this study will be to determine the relationship between exchange rate and its effect on terms of trade on the long run and short run. to investigate this the study will use quantitative method of data analysis.

## 3.2. Data Type and Source

This research used a secondary data that is obtained from the Ethiopian import export data of 1982/1983 up to 2017/2018 years and average annual exchange rate data from commercial bank of Ethiopia and other sources.

## 3.3 Model Specification

### 3.3.1 Theoretical model

This study focuses to investigate the relationship between exchange rate and terms of trade in Ethiopia. Hence, the study signifies Ethiopia's terms of trade performance as a function exchange rate.

TOT =f (EXR)……..3.1

Thus to determine Ethiopia's terms of trade performance, a log-linear form of exchange rate.

### 3.3.2 Empirical model

A log-linear form single equation of terms of trade determination model of equation is used to capture whether exchange rate has impact in Ethiopia is shown below:

Ln tot=β0+ β1ln exr +εt …….3.2

Where,

**tot = Terms of trade**

**exr=exchange rate**

**β‘s are coefficients to be estimated**

**t = time in years from 1982/1983 to 2017/2018**

**ε = random terms**

### 3.3.3 Definition of Variables

**Exchange rate (ER:** The significance of keeping a realistic actual exchange rate is being propagated as a policy remedy to guarantee the competitiveness of exports in the international market (Prasad, 1992). Index of trade weighted real effective exchange rate is encompassed in the present study, to empirically test the association between this variable and the level of exports. The expected sign of this variable is positive.

**Terms of trade:** this is one of the determinants of export performance in both developing and developed nations. Favorable terms of exchange are related to expanded export growth rate and unfavorable terms with low trade growth rates .Svedberg (1990) contended that within the 1990s, sub-Saharan Africa had unfavorable terms of exchange which negatively affected on exports.

**Export (Exp)** is one component of international trade**.** Exports are the supply of goods and services produced in one country and purchased by countries from abroad. It can be good or service. It can be send at any means. It can be shipped, sent by email, or carried in personal luggage on a plane. **(EXP)** represent the annual export value of Ethiopia. In this study export of goods and services valued in US dollar.

## 3.4. Methods of data analysis and presentation

### 3.4.1 Methods of Estimation and Procedure: test used

#### 3.4.1.1 Stationary test

The standard classical strategies of estimation which are used within the connected econometric work are based on a set of assumptions one of which is the stationary of the factors. A variable is said to be covariance (pitifully) stationary in the event that the mean and the fluctuations of the variable are constant over time and the covariance between two periods depends as it were on the gap between the periods, and not the genuine time at which this covariance is considered through a non stationary series has a different mean at different points in time and its variance increases with the sample size (Gemechu, 2002).

According to Madala (1992), a time series is said to be strictly stationary if the joint distribution of any set of N observations Y1, Y2------Yt is the same as the joint distribution of Y1 +k, Y 2 +k…Y t+ k for all N and K. The distribution of Yt is independent of time and thus it is not only the mean and the fluctuation that's steady but also all higher values of t are autonomous of t. In time series analysis, most experienced arrangement is in fact non-stationary. Opposite to the situation of the stationary handle which varies around their mean, the inversion to a settled value rarely happens for the non-stationary processes. On the off chance that a nonstationary time series is regressed on one or more non-stationary time series, the results are inclined to spurious regression problems. This can be a situation where results gotten propose there are statistically critical connections between the factors within the relapse show when in truth all that is gotten is prove of contemporary relationships instead of important causal relations (Muhabaw, 2013).Therefore, it is vital to check whether or not the variables included within the demonstrate are stationary or not before getting to the following step which is relapse analysis.

**Unit root test**

The time series data exhibit a non-stationary process and if Ordinary Least Squares (OLS) is applied directly, it gives spurious results, which arise with the regression of the non-stationary series that are unrelated hence indicating that the series are correlated (Wooldridge, 2003). Thus, unit-roots are vital to check the stationary of time-series data. In order to test if the series, employed have unit-roots we apply a test based on the work of Fuller (1976) and

Dickey and Fuller (1979,1981). The ADF test is a similar but modified version of the Dickey-Fullertest employed when error term is not a white noise. While testing for stationary, if a variable becomes stationary at level, then it is said to be integrated of order zero, I (0). Otherwise if the variable is stationary at its 1st difference, it is said to be integrated of order one I (1). Likewise, if a variable can be transformed to stationary series by differencing n times, then it is integrated of order n, I (n) (Muhabaw, 2013).

### 3.4.2 Estimation Technique

The regression analysis was done using different statistical tests . The Vector Auto Regression (CVAR) was employed to see the long run relationship between terms of trade and the exchange rate. The co integrated vector auto regression employed preferred when it shows the long run relationship among variables besides establishing the long run and short run effects through the vector error correction model. If there is co integration this shows the presence the long run relationship in the series (Wooldridge, 2003). Thus, the co-integration was established and the parsimonious model by use of Vector Error Correction Model (VECM) was done to launch the short run relationship. Besides, the impulse-response function and the variance decomposition technique were adopted to also investigate the long-run relationship and the short-run adjustment (Shao, 2009).

### Co integration test

Thus, co-integration is used to see as there is long run equilibrium associations among the variables under contemplation (Gujarati, 2003). According to Alemayehu, et.al (2009), the co-integration test shows that; though the variables taken distinctly are not stationary, i.e., are I(1), their linear combination can be stationary. Ins uch a case the variables are known to be co integrated series but not spurious and thus, it equipped to establish long run association among independent and dependent variables. Johansen maximum likelihood approach is technique of testing which employed to see the presence of co-integration among variables. According to Gujerati (2004), by using Johansen, in the first step ,the long run model in the level form which is integrated of order one, I(1) ,is estimated. Then, the residual form the long run model is tested for its stationary. If the residual is found to be stationary, then the variables are co- integrated. Thus, there exists long run equilibrium relationship among the variables. This study used Johansen approach to test the co-integration using ADF tests.

**The error correction model (ECM)**

The error correction model used to capture both the long run and short run model. Co integration test only shows long run association but not short run. That is why error correction model is important. To elucidate the short run association among independent and dependent variables that are co-integrated, error correction model is used.

As Guajarati (2004), though the variables of the model are co-integrated, there might be disequilibrium in the short run. Error correction model expresses how much time it takes to adjust this short run shocks. Consequently, the residual of the long run model can be treated as the equilibrium residual and it can be used to associate the short run behavior the model‘s dependent variables to its long run value. The error correction model is too important meanwhile it conveys information for the speed of adjustment from short run disturbance to long run equilibrium. If the variables are stationary at first difference, the short run model, error correction model can be given as:

Where, Δ=is the first difference

Et= the disturbance (error) term

Ut-1= the one year lagged of the long run residual value, it called ECM

Xt= represent the short run disturbance in Yt

Ut-1= represents the speed of adjustment towards the long equilibrium

# CHAPTER FOUR

# 4. RESULT AND DESCUSSION

## 4.1 Introduction

In this part of the paper the estimation results of the Ethiopian data (1988-2017) have been discussed. As argued before, the purpose of the research is to look at the relationship between terms of trade and exchange rate.

Before start the regression in time serious analysis, first it is important to check the stationary in order to not be susceptible to spurious regression. As a result all variables were tested . Augmented Dickey-fuller test was applied to test stationary of the variables.

## 4.2 Descriptive Analysis

Table 4.1: Descriptive Analysis

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| lntot | 30 | -1.302052 | .3021625 | -1.740239 | -.6397895 |
| lnexr | 30 | 2.078714 | .7254915 | .7275486 | 3.175968 |
| export | 30 | 1.26e+09 | 1.15e+09 | 1.69e+08 | 3.43e+09 |
| import | 30 | 5.37e+09 | 5.52e+09 | 4.72e+08 | 1.69e+10 |

From the descriptive statistics result we can see that the average terms of trade (in Million)-0.272 with minimum 0.1755 and maximum 1.9. The average, maximum and minimum values of exr (exchange rate) were 9.984581, 23.95and 2.07respectively with standard deviation of 2.07. The average import value is 5.52*10 ^9 millions of dollar and the average export is 1.15 *10^9 . It indicates the poor performance of export sector.

## 4.3 Stationery Test

**Table 4.2: Augmented Dickey-fuller unit root test for variables**

| Variable | t-statistics | Critical value at 1% | Critical value at 5% | Critical value at 10% | p-value |
|---|---|---|---|---|---|
| **lntot** | **2.559** | **4.352** | **3.588** | **3.233** | **0.2933** |
| **lnexr** | **2.832** | **4.352** | **3.588** | **3.233** | **0.1855** |

As it can see from Table above of the Augmented Dickey-fuller test results of lntot (terms of trade) and lnexr (exchange rate), the absolute value of each of the t statistics is smaller than the absolute values of each of the critical value. Specifically in the case of lntot, the t statistic is equals 2.559, which is less than the critical t value at 5 percent level of significance or -3.588. Thus, it is impossible to reject the null hypothesis; which was claiming the variable to be non- stationary at level. Similarly, in the case of liner, the t statistics is less than the 5% critical value (2.832 < 3,588). Thus, can't reject the null hypothesis meaning that, the variables are non- stationery at level.

Since the variables (lntot and lnexr) have unit root, it's impossible to estimate the model directly and it need to fix the problem by taking the first difference of the variables and check it again if it's stationary. The original data need to be changed in to its first difference and Dickey fuller test need to be checked once again.

Table 4.3:Augmented Dickey-fuller test on the of first difference

| Variable | t-statistics | Critical value at 1% | Critical value at 5% | Critical value at 10% | p-value | Order of Integration |
|---|---|---|---|---|---|---|
| **dlntot** | **4.696** | **4.362** | **3.592** | **3.235** | **0.0007** | **I(1)** |
| **dlnexr** | **2.395** | **2.15** | **1.714** | **1.319** | **0.00126** | **I(1)** |

The result from the above Augmented Dickey fuller test results of Table 4.2, the t statistics are greater than that of the critical values and the p value of the variables are significant (which are less than 1%) and this enables us to reject the null hypothesis (non-stationary). The DF test has applied for all dlntot, dlnexr, became stationary after their first differences are taken in to account.

## 4.4 Co integration Analysis

Within the case of co integration investigation, the lag length for the VAR show was utilized to optimize the multivariate co integration test. The slack length is decided by the determination criteria which comprise the Swartz-Bayesian data criteria, the Akaike's information criteria, Final Prediction Error criteria, modified LR test insights, and the Hannan and Quinn data criteria (Gujarati, 2003). These criteria are utilized to recognize the ideal slack length by selecting the most reduced esteem in each measure but the slack length ought to be backed by the lion's share criteria. These criteria and the individual lag length appeared within table 4.4

**Table 4.4:Optimal lag selection**

| Lag | LL | LR | df | P | FPE | AIC | HQIC | SBIC |
|---|---|---|---|---|---|---|---|---|
| 0 | -21.3678 | | | | 0.20689 | 1.79753 | 1.82539 | 1.8943 |
| 1 | 24.8435 | 92.423 | 4 | 0.000 | 0.000806 | -1.4495 | -1.3659 | -1.15917 |
| 2 | 31.8064 | 13.926* | 4 | 0.00806* | 0.000647 | -1.67742* | -153807* | -1.19353* |
| 3 | 35.167 | 6.721 | 4 | 0.151 | 0.000691 | -1.62823 | -1.43315 | -0.950791 |
| 4 | 38.6717 | 7.0085 | 4 | 0.135 | 0.000742 | -1.59013 | -1.33932 | -0.719143 |

***Note:* * shows the lowest lag in those selection criteria**

Table 4.4 indorses the optimal slack length of 2 since for criteria (FPE, AIC, HQIC and SBIC) this slack length as having the least value. On the other hand, LR suggests the optimal slack length of which isn't suggested agreeing to this series. It is additionally noted that a few factors had float and slant terms amid the modeling handle and hence this is assimilated within the co integration investigation at 5 percent level of significance. After propelling the lag length, the Johansen co integration test is done to test the long run relations between the factors. These tests take two shapes; the co integration test utilizing follow measurement and the most extreme Eigen value. The results are shown in table 4.5.

**Table 4.5:Cointegration rank test (trace statistic Eigen value)**

| Maximum Rank | Eigen value | Trace statistic | 5% Critical Value |
|---|---|---|---|
| **0** | | **23.5552** | **15.41** |
| **1** | **0.57708** | **0.3195** | **3.76** |
| **2** | **0.01176** | | |

**Table 4.6: Co integration rank test (Maximum Eigen value)**

| Maximum Rank | Eigen value | Maximum Eigen value | 5% Critical Value |
|---|---|---|---|
| **0** | | **23.5552** | **14.07** |
| **1** | **0.57708** | **0.3195** | **3.76** |
| **2** | **0.01176** | | |

Tables 4.5 and 4.6 shows that there's a rank of 1 in both the trace, test and the maximum eigenvalues test implying that there's got to dismiss the null hypothesis of no co integration in support of the alternative hypothesis of the presence of co integration. So, there's one co integrating equation at 5 percent level of importance, based on both tests and hence the presence of the long-run relationship among terms of trade and exchange rate. These come about lead within the modeling of the parsimonious show utilizing the Vector Error Redress Model to set up short-run adjustment.

## 4.5 The VECM Modeling

Using the co integration analysis, the VECM is based on one rank and two lag. But before the analysis of the vector error correction model, there was need to do the assumption tests.

### 4.5.1 The Long Run Effects

**Table 4.7:Johanson normalization**

| | Coef | Std.Err | z | p>z |
|---|---|---|---|---|
| Lntot | 1 | . | . | . |
| Lnexr | 0.2770729 | 0.140198 | 1.98 | 0.048 |
| constant | 1.014167 | | | |

The long-run coefficient within the above table shows the long-run impacts among the variable in terms of trade which is normalized to 1 (being the subordinate variable). The relationship is shown below;

$$lntot = 0.14 + 0.277lnexr$$

The comes about show that the trade rate incorporates a positive impact (0.277) on trade adjust. This impact is significant at 5 percent level. The positive sign of the coefficient of trade rate was the one evaluated by the model. This deduces that a rise within the real trade rate leads to improvement of the terms of trade. In this way, the terms of trade of Ethiopia would have been more regrettable in the event that depreciation of the real exchange rate reduces would not have played a part to diminish the shortfall. In this manner, devaluation arrangements need to encouraged for improved trade balance. In any case, the government makes a few mediation moreover to control the level of the genuine trade rate development with the other monetary standards particularly the USA dollar.

### 4.5.2 The Short Run Adjustment Analysis

**Table 4.8:Short run adjustment analysis**

| | Coef. | Std.err | Z | p |
|---|---|---|---|---|
| L1 | -.2517684 | 0.2069295 | -1.22 | 0.00224 |
| lntot | -.4272686 | 0.1816249 | -2.35 | 0.019 |
| lnexr | 0.9345878 | 0.3714861 | 2.52 | 0.012 |
| constant | -0.498156 | 0.0881632 | -0.57 | 0.00572 |

$$\Delta \text{lntot} = -0.4985156 - 0.4273\Delta \text{lntot} + 0.9345878\Delta \text{lnexr} - 0.251768\text{ect}$$

The short-run adjustment coefficients are shown in table above. From the comes about, the terms of trade adjusts to balance by -0.4985156 and this adjustment is critical at 10 percent significance level.

Also, from the comes about, the trade rate has a positive sign and thus move forward exchange adjust towards equilibrium.

This adjustment within the short run is critical at a 5 percent level and the extent of the coefficient of trade rate is 0.9345878. This implies the alteration of the exchange adjusts to balance would take a longer time. Subsequently, the trade rate approaches to depreciate the trade rate within the short run would have a critical impact in diminishing terms of trade. Too, the arrangements to move forward trades within the remote showcase make progresses the outside profit that reduces exchange shortfall within the short run.

Hence, from the short run and long run investigation attempted in this study, it is watched that there exists a long run relationship between the terms of trade and the exchange rate. Hence, the trade rate has both positive and significant impact within the long run and within the short run adjustment coefficients on the terms of exchange. In any case, the adjustment within the short run is significant but with little size which needs a long time to reach balance. Maddala and In-Moo Kim (1998: 175) contends that, “Economic speculations are gathered to be approximately long-run behavior and there's exceptionally small that can be said almost short run behavior”. Consequently, the short run impacts /significance may fail clarify more on the anticipated financial outcomes.

## 4.6 Assumption tests

### 4.6.1 Normality Test

**Table 4.9:Jarque-Bera test**

Jarque-Bera test

| Equation | chi2 | df | Prob > chi2 |
|---|---|---|---|
| D_lntot | 0.729 | 2 | 0.69440 |
| D_lnexr | 3.340 | 2 | 0.18821 |
| ALL | 4.070 | 4 | 0.39664 |

Both the dependent and independent variables are not normally distributed and the overall normality test
result also shown us there is no normality distribution.

### 4.6.2 Autocorrelation test

**Table 4.10:Autocorrelation test**

Lagrange-multiplier test

| lag | chi2 | df | Prob > chi2 |
|---|---|---|---|
| 1 | 7.3718 | 4 | 0.11750 |
| 2 | 5.4857 | 4 | 0.24099 |

H0: no autocorrelation at lag order

Based on our p-value result we can reject the null hypothesis (no serial correlation). So the var estimation of import equation is free from correlation problem at lag order 2.

### 4.6.3 Estimate stability

**Table 4.11: Eigenvalue stability test**

**vecstable**

Eigenvalue stability condition

| Eigenvalue | Modulus |
|---|---|
| 1 | 1 |
| .5470046 + .1623111i | .570578 |
| .5470046 - .1623111i | .570578 |
| -.4524691 | .452469 |

The VECM specification imposes a unit modulus.

# CHAPTER FIVE

# 5. CONCLUSION AND RECOMMENDATION

## 5.1 Conclusion

The purpose of this paper is to look at the result of exchange rate on terms of trade and result of devaluating cash on trade gap. As we've seen from chapter four of the analysis there's direct relationship with terms of trade and exchange rate. Most of the time countries devaluate their currency to attain totally different objectives like decreasing trade deficits through increasing export revenue and decreasing import expenditure, attract foreign direct investment and holidaymaker.

The foreign trade of African nation is usually characterized by a deficit balance of trade (payments).Ethiopia is one of African countries and devaluating the money. Even if the country began to devaluate cash and to encourage export the increasing want for industrial product, Machines and inputs for the big projects the country has started cannot defend the country from negative deficit because of high import and fewer export things of the country.

However, the export sector activity has not been well. As a result total export volume has been declining. Since the key and most of the export commodities is primary product, they face deteriorating world value from time to time, and even then, apart from few of the export commodities, the bulk isn't competitive. As a result the Export typically operates with grant from the government budget; illegal trade has been additionally worsening the problem.

Mostly it is argued that the decline is export supply, but competitiveness within the world market and illegal trade are principally the results of the overvalued rate that acted as a rational motive to exporters (producers). Thus it's advised that devaluing the rate can improve the export sector. Devaluation according with some, by supporting exporters (producers) to earn a lot of in domestic currency can push them to supply a lot of. The negative effects of this policy are to be satisfied by different deflationary financial and monetary policies.

One fact of the entire argument being this, we tend to on the opposite hand have seen within the main body of this paper that classical devaluation isn't probably to be helpful given the prevailing production conditions in African nation. First of all the most drawback of the export sector lies not within the in competitiveness of the export commodities although this might seem to be the case sure enough export commodities. it's rather one of limited supply due to low level of production.

As an example, it's been shown that low, that is that the main export item of African nation doesn't lack aggressiveness. However as a results of offer deficiency a doable gain of interchange to the quantity of 321.2 USD million birr has been lest throughout the amount 1985/86 and reached 138 USD in two017/18. Relating to this vital export trade goods, there's additionally another constraint outside of the sphere of activity of the country.

In general, the technological and institutional constraints area units terribly robust on overshadow the importance of costs as a determinant of offer.

The main preconditions of devaluation area (1) below economic condition within the export sector, (2) economic and social conditions that allow reduction of imports and (3) applicable wage, value and different money policies to travel beside devaluation. We've seen, however, that just about all the required conditions aren't existent or couldn't be adopted within the gift context of African nation. Especially given the shackled economic structure of African nation devaluation won't bring any sizeable amendment in boosting exports.

All the higher than isn't, however, to deny the very fact that devaluation by incentivizing exporters (producers) may bring a smallest increase of offer of some exports, however there are a unit different facet effects of devaluation that will offset its restricted benefits. . There we've additionally seen that the tight financial and monetary policies that may be used to curb the inflationary pressure can preferably be harmful below the prevailing economic and social conditions within the country.

Given the bulged promoting margin for many of the export commodities. whether or not the incentives that manifest itself by devaluation can reach the last word producer is additionally questionable. And even though we tend to assume that the incentives reach the producer, there's another probable negative consequence within the absence of raised production. The financial incentives may lead the producer to decrease the value of the commodities and

become a lot of competitive within the world market. However on the opposite hand because of variety of constraints be cannot increase production with an equivalent case. In such instances, therefore, the country may loss interchange.

The general manner of argument we tend to developed to this point is additionally applicable to the case of multiple rate systems looked upon as various to general devaluation. Most of the issues rose higher than area unit relevant to the multiple rates likewise on the thus known as "Unique" exchange rate system. Because it was detailed within the main body of this paper, these systems but, have sure benefits over devaluation. They offer area to aware leading of the export sector by the govt. as they're discriminatory devices. Such management may therefore facilitate resource allocation in step with the nation's demand. Inflationary impacts are but within the case of devaluation. As a result these alternatives could also be most popular to general devaluation once the time is ripe for the introduction of such financial policies. The time construct is mentioned here so as to worry the purpose that different "real" changes ought to be established or one ought to take care that they'll accompany the financial measures. Before such policy instruments are a put into use. Currently address think about what these real changes area unit.

It has been created clear that the author doesn't hold the read that value incentives can add nothing to the provision of export commodities in the slightest degree. Because of value incentives as an example assortment of low may decrease, etc even at the prevailing technique of production. However even then there are a unit sure measures that ought to be undertaken if the value incentives (that would come back through any policy) can be helpful in any tangible sense.

There ought to be the mechanism that would prohibit the ever growing promoting margin and ensure that the incentives reach the last word producers.

Inadequate producer incentives are the results of the scant taste of export costs to producers. Such is that the case as an example with low exports because of the low surtax. So, it's necessary to regulate the producer value to be mirrored in export costs.

Monetary incentives won't be any enticing unless the producer is furnished with the required factory-made consumption product. Otherwise, shortage of basic commodity in rural area

unitas because of inadequate domestic production and restricted imports are probably to scale back the result of the value incentives.

Shortage of production inputs to support the assembly of export (and food) product act as a brake within the result of value incentives. Agricultural inputs like fertilizers, pesticides, etc and placental mammal inputs like medication etc ought to be provided to the producer.

Some of the measures mentioned higher than that ought to complement value incentives area unit associated with structural issues. however we must always boost these different issues of technical, physical and institutional nature that has to be tackled if any financial or value policy is to stimulate production of exports. we tend to could 1st think about the case of low export.

The export system of coffee can be modified and even changed if i) the coffee disease which has affected up to 30 percent of the ration's coffee trees is eradicated ii) the best types of coffee trees are tested and provided to the grower iii) transportation facilities are improved iv) farmers are taught new methods of cultivation by extension agents. These measures for the most part, should be undertaken by expenses from the government budget. In the very short run V) reduction of the tax burden on coffee exports, apart from encouraging to produce more will discourage the contraband trade in coffee. This measure could also be considered as an alternative to devaluation vi) relaxing the inter regional labor movement restriction could alleviate the seasonal labor shortage in coffee regions and thus could bring positive results.

The export volume of oil seeds and pulses has been increasing since the 1978's. But rather than exporting it without adding any value it is better to export it as oil. This was due Increase in domestic consumption and unfavorable government price policy. As for the lass point, AMC's buying prices are not likely to create any incentive in particular in the absence of technological improvement, because in the absence of improved technology their yield per unit of land on average is below that of cereals which compete for the same land. Therefore improving the price policy could bring some positive results, but we should not forget that there is another constraint is the limitedness of land, to surmount this problem, there should be increased productivity in the production of other food crops so as to minimize the competition for the same type of land. If we ignore this fact and concentrate on cash crop production by incentivizing producers by way of devaluation or anything else, is will have

adverse nutritional effects on the population. Given the absolute food shortage in the country such measure will appear anti-social.

Price incentives could have relatively an immediate effect on cattle, bides and skins exports. In particular they could help to discourage illegal trade in cattle. However such problems as poor health of cattle and transportation problems have to be avoided in order to have satisfactory results.

The above are thus the most necessary measures that could improve the production of the major export commodities and hence the export sector at large, however, one can go on enumerating a number of other measures as well. The important point in any case is to approach the problem of the export sector in the context of the whole economy. The low level of investment in the economy, the inadequate infrastructure, the shortage of skills in trade promotion and the like are all problems that basically affect the export sector and the whole economy at large, but could only be solved withies the general, national development framework.

Exchange rate adjustment (devaluation) is therefore the main area of focus to bring a radical and substantial improvement in the export sector and the trade balance as a whole. In addition, attention should be given to tackling the technological and institutional constraints together with some other policy oriented problems.

## 5.2 Recommendations

Based on the findings of this study the taking after approach suggestions may be drawn: The model delineated that there's a positive and critical relationship between the exchange rate and terms of trade . So the government must guarantee a steady trade rate approach in arrange to maintain a strategic distance from the trade rate risk connected to the resources, import prices and profit contemplations of coordinate financial specialists that contributes to improve and promote the export development sector. The fact that trade rate could be a significant determinant of the country's terms of trade within the long run suggests that improved competitiveness through strict quality control as well as a move within the structure of generation and exchange towards pay versatile items such as producers is vital within the longer time skyline.

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# Appendix

Ethiopia's Export from 2008/2009-2017/2

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2008/09** | **2009/10** | **2010/11** | **2011/12** | **2012/13** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** |
| **Commodity** | **(2001)** | **(2002)** | **(2003)** | **(2004)** | **(2005)** | **(2006)** | **(2007)** | **(2008)** | **(2009)** | **(2010)** |
| Coffee | 375.9 | 528.3 | 841.8 | 833.1 | 746.6 | 714.4 | 780.5 | 722.7 | 883.2 | 839.0 |
| Oilseeds | 356.1 | 358.5 | 326.6 | 472.3 | 443.5 | 651.9 | 510.1 | 477.2 | 351.0 | 423.5 |
| Leather and Leather products | 75.3 | 56.4 | 103.8 | 109.9 | 121.1 | 129.8 | 131.6 | 115.3 | 114.0 | 132.4 |
| Pulses | 90.7 | 130.1 | 137.9 | 159.7 | 233.3 | 250.7 | 219.9 | 232.4 | 279.9 | 269.5 |
| Meat Products | 26.6 | 34.0 | 63.3 | 78.8 | 74.3 | 74.6 | 92.8 | 96.4 | 98.7 | 101.7 |
| Fruits & Vegetables | 12.1 | 31.5 | 31.5 | 44.9 | 43.9 | 45.9 | 47.6 | 53.7 | 56.1 | 61.4 |
| Sugar | 16.4 | 0.0 | - | - | 0.0 | - | - | - | 9.7 | 5.4 |
| Gold | 97.8 | 281.4 | 461.7 | 602.4 | 578.8 | 456.2 | 318.7 | 290.7 | 208.8 | 100.2 |
| Oil Cakes | | | | | | | | | | |
| Live Animals | 52.7 | 90.7 | 147.9 | 207.1 | 166.4 | 186.7 | 148.5 | 147.8 | 67.6 | 61.1 |
| Chat | 138.7 | 209.5 | 238.3 | 240.3 | 271.3 | 297.3 | 272.4 | 262.5 | 273.0 | 263.2 |
| Petroleum Products | | | | | | | | | | |
| Bee's Wax | 1.6 | 1.6 | 1.8 | 2.2 | 2.6 | 2.7 | 4.8 | 2.4 | 2.7 | 3.0 |
| Electricity | | | 1.2 | 21.8 | 34.6 | 45.3 | 42.6 | 31.5 | 73.4 | 84.3 |
| Total | 1,243.8 | 1,722.0 | 2,355.7 | 2,772.6 | 2,716.3 | 2,855.6 | 2,569.3 | 2,432.6 | 2,418.1 | 2,344.6 |