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# Impact of Foreign Exchange Reserve on Economic Growth of Ethiopia

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***Abstract***

*The study tries to examine the impacts of foreign exchange reserve on the economic growth of Ethiopia from 1981 to 2020 (40 Years) by using Ordinary least square (OLS) technique. Ordinary Least squares regression is used to predict the behavior of dependent variables: - Real GDP and with relationship between Independent variables: Foreign Exchange Reserve, Foreign Exchange rate, Money Supply, Capital Formation, Export and Import. The data were collected from National Bank of Ethiopia (NBE) and* Ministry of finance and economic development (*MoFED) to analyze the foreign exchange reserve on the economic growth of Ethiopia. To test for the properties of time series, Augmented Dickey-Fuller and Phillip-Perron test used to determine the stationarity of the variables and the study used Johansen Co-integration test employed to determine the order of integration while Vector Error Correction model (VECM) was employed to determine the speed of adjustment to equilibrium. The findings suggest that Foreign Exchange Reserve, Gross Capital Formation, Real Exchange Rate and import has positive and significant long run relationship between economic growths in Ethiopia. Broad Money supply and Export also showed a negative relationship in long run impact, but the impact is statistically significant on economic growth. The result further shows a long run relationship between Foreign Exchange Reserves and economic growth in Ethiopia for the period under review. Therefore, emphasis should be place on accumulating Foreign Exchange Reserves in Ethiopia, as this will accelerate growth and development in Ethiopia economy.*

***Key words:*** *Foreign exchange Reserves, economic growth, Ordinary least square.*

# 1. INTRODUCTION

Many of Least developed countries face a trade deficit as their import grows faster than their exports and in some cases, their exports decline. Sever measure taken by many developing countries to curb growth of imports likely to result in economic stagnation as probably hurts their import demands and in turn production and export. Policy makers in developing countries often need to balance the demand for foreign exchanges for imports against the desire to maintain adequate foreign exchange reserves. Because of these conflicting objectives, and

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widening gap between exports and imports, developing countries limit imports through rationing foreign exchange, as well as tariff and other non-tariff barriers. This also creates negative externalities such as parallel foreign exchange market and rent seeking individuals. A number of previous studies established an empirical relationship between imports and availabilities of foreign exchange and economic growth. For example, Lensink (1995) found that improvements of the economy growth in low-income countries depend on the availability of foreign exchange to import intermediate inputs. Polteroyich and Popov (2003) also found that developing countries with growing stock of foreign exchange tends to show higher growth of investment to GDP ratio and higher GDP growth rates. This implies that for many low-income countries the foreign exchange constraint needs to be considered as a vital determinant of production and employment.

In Ethiopian context, the heavy reliance of the industrial sector on imported intermediate goods and its foreign exchange requirement imposes serious externalities on the rest of the economy. Heavy foreign exchange requirement by any sector deprives other sectors access to scarce foreign exchange. Thus, the social cost of foreign exchange would be likely to be higher than its private cost. That means investment in the priority projects through directed domestic credit is squeezing the availability of credit and foreign exchange for the rest of the economy. The poor performance of exports in past years and the growing demands for imports in Ethiopia makes foreign exchange availability continue to be a challenge for business and the economy at large. Export has been on down-ward sides since the early 2010‘s. Exports of goods and services as a ratio of GDP declined from its peak 16.7% in 2011 to 8.9% in 2018 (ECA, 2019).

Ethiopia’s foreign currency supply available for importers and travelers alike is increasingly facing chronic shortages. The foreign currency shortage is so critical that opening a Letter of Credit (LC) takes as long as one year or even more, and even then, there is no guarantee that the requested amount of foreign currency will be availed; which highly shadows over the country economy growth (Addisbiz, 2016). In Ethiopia there are three big factors bring foreign currency shortages such are global economic slowdown, Ethiopia’s mega projects consuming huge loads of hard currency and the country’s widening trade balance, as the genesis of the shortage. Ethiopia’s mega projects in hydroelectric generation, sugar production, and rail transport, continue to drain the country’s hard currency reserves, with high demand for public investment. In addition, import of capital goods and construction-related services increased sharply in Ethiopia according to a June 2015 IMF report, utilizing large sums of hard currency. This in particular leaves country economy in a position to battle amongst each other for the remainder minimal amount of foreign currency, disabling them from meeting expected economic development in the country. Though Ethiopia’s exports have registered growth over the past years, the growth rate of its imports has been at a much faster pace, resulting in an ever widening gap in the overall trade balance of the country (Addisbiz, 2016).

Reports by National Bank of Ethiopia (NBE) demonstrate that the nation's export trade has been enlisting consistent decrease in the recent past, with exports out worth generally 3.25 billion dollars in 2013/14, diminished to 2.83 billion dollars in 2015/16 (NBE's Annual Report 2015/16), while the country’s imports have rise at a disturbing rate. NBE's information show that Ethiopia's imports have kept a powerful course of development throughout the years as the country imported merchandise worth generally 13.71 billion dollars in 2013/14, increased to 16.72 billion dollars in 2015/16 (NBE's Annual Report June 30,2015/16).

The other scenario that aggravates the scarcity of foreign currency is the launching of various projects as component of the development strategy by Government of Ethiopia. The projects are highly capital intensive and the government went through huge foreign loan contracts to finance these projects which threaten the country's future paying capability given that most of the projects do not help generate foreign currency. On December 20th,2016 the IMF Board approved a three-year USD 3 billion financing package (around 3% of GDP), with an immediate disbursement of USD 308 million.

According 1st quarter 2020 economic-research bnpparibas.com if fiscal deficits seem to be under control, external accounts remain a major weakness of the Ethiopian economy. The large trade deficit (-14% of GDP) contributes to large deficits in the current account balance despite the positive contribution of transfers from private funds and public donors. In net value, these total transfers represent 55% of total current account receipts. The current account deficit reached an average of 8.6% of GDP between 2014 and 2018. Even though the country continues to attract the largest share of FDI in East Africa, net FDI has recently moderated and covers about 70% of the current account deficit. The rest is financed through external debt, mostly on concessional terms. Foreign exchange reserves are also partly channeled to service external debt (around 8% of total foreign-exchange earnings in 2018). The central bank's purpose is to maintain currency depreciation under control. It thus draws on its foreign reserves to contain exchange rate fluctuations. The Birr depreciated by around 10% against the USD in 2019. However, central bank's resources are limited as foreign exchange reserves are below the warning level of three months of good &supply imports. At end-2019, forex reserves were around USD 3.6 billion, covering only 2.2 months of goods & service imports. As a result, capital controls are also in place, which strongly constrain imports. Pressures on the Birr thus remain considerable, and the gap between official and black markets is around 40%.

Policy failures to develop effective financial institutions, widespread invisible corruption in the privatizing of the public sector, and devaluation of the currency are all considered as the perceived causes, which have led the country to the financial crises of the past 30 years, and resultantly created the country's reserve currency problems.

Therefore, this study intends to fill this gap by adding the likely Evaluation of the impact of foreign exchange reserve beyond output growth; especially on participation on foreign trade, domestic credit constraint, and government expenditure. In general, the problem of foreign currency reserve is a more recent popular phenomenon in view of the fact that the country is highly dependent on imported goods. Therefore, this paper provides evidence for the impact of foreign exchange reserve on economic Growth in case of Ethiopia from the period between 1981 and 2020 GC.

# 2. LITERATURE REVIEW

Changes in FX saves in African nations have chiefly reflected strategy reactions to send out incomes, moves (counting laborers' settlements), and capital streams lately. For instance, the 2014 decrease in oil costs corresponded with a fall of 33% in the FX reserve of oil trading nations, as the specialists' opposed descending tension on their trade rates. Variances in the terms of exchange appear to have made a difference principally in center pay nations, which will in general have a higher fare share, including of assembling merchandise. Political flimsiness is by

all accounts another significant factor, especially in the lower-pay nations. Overall, foreign exchange reserves structure a vital piece of a country's self-protection.

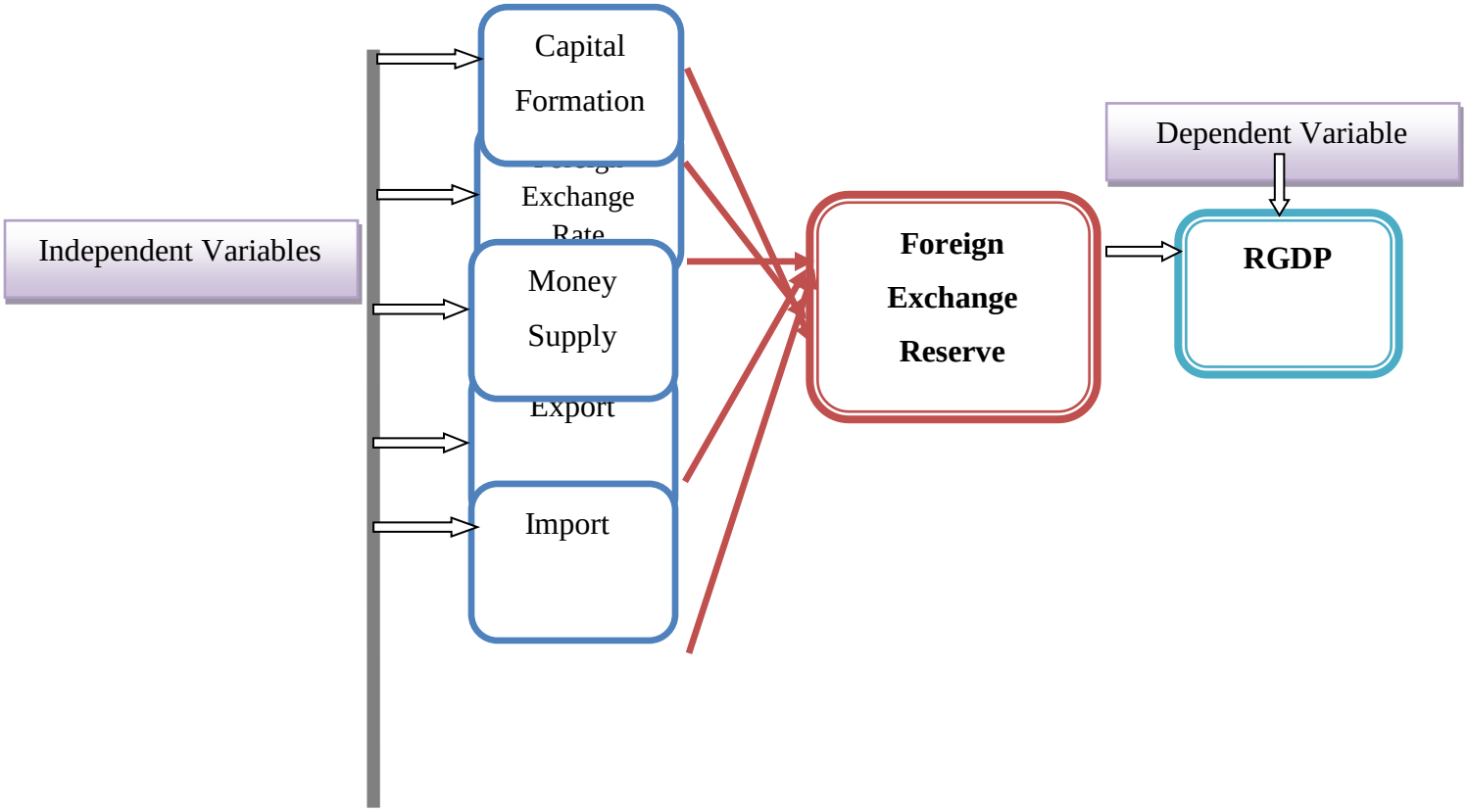
This is especially so in low-income countries, where the government usually provides insurance against foreign currency shortages. In comparison with emerging market economies (EMEs), the private sector in the region holds few foreign assets or none that could easily be repatriated in times of need: the median share of foreign portfolio assets in GDP is 3%, which compares with 11% for emerging market economies (EMEs) outside Africa. The benefits associated with foreign exchange reserves are substantial. For one, they provide a buffer to finance required imports or pay back FX debt if FX funding becomes unavailable or extremely expensive. Such foreign currency shortages materialize at times of severe macroeconomic, financial or political instability, putting a higher premium on adequate foreign exchange reserves levels. In addition, even in less extreme circumstances foreign exchange reserves provide policy space to maintain price and financial stability in the face of large exchange rate swings. In general, most African countries intervene regularly in currency markets.

Ethiopia keeps on encountering broadening current record shortfalls and a fluctuating foreign exchange reserves. The interest for foreign exchange reserves to fund import bills of different products has been developing from one year to another, halfway because of public and private speculation blast: capital merchandise, transitional sources of info, and customer merchandise. Notwithstanding, the stock side for unfamiliar money is obliged by helpless fare area execution and sporadic unfamiliar guide inflow. This hole between the interest for and supply of foreign exchange reserves continue broadening through time thus bringing about exhaustion or, in all likelihood variance in the hold position. In any case, one of the major contributing elements towards understanding the monetary development as set in the Development and Transformation Plan is sufficient foreign exchange reserves holding of the country. This is on the grounds that accessibility of foreign currency capacitates the economy to satisfy the need for investment henceforth economic growth over the long run and empowers the Financial Position to make stable macroeconomic execution in the short run, in expansive sense (Fiseha Haile, 2019). Economic theory and country experiences tell us that financial capital flows to a country could be linked to increases and decreases in aggregate local investment, domestic savings, the current account balance, output growth and employment, and inflation and asset prices. The effect of capital flows on the real economy depends on the reason for their entry into an economy, and as to how they are used once they arrived. From the balance of payments identity point of view, if a country buys more goods and services from abroad than it sells, the resulting current account deficit should be financed by any one or a combination of the following: borrowing from abroad (a net capital inflow), selling domestic or foreign assets (a net capital inflow) and selling some of its foreign exchange reserves (Alberto Botta, 2018).

## Conceptual Frame Work

The below chart describes the list of all variables with their direction of impacts on the Dependable variable (RGDP). All Independents variables (Capital Formation, Foreign Exchange Rate, Foreign Exchange Reserve**,** Money supply, Export & Import) direction to Foreign Exchange Reserve and all the variables are their direction on Real Gross Domestic Product.

**Figure 2. 1 The Conceptual Frame Work of the Study**




***Source:*** *Self constructed*

# 3. RESEARCH DESIGN AND METHODOLOGY

## Model specification

In this study, to evaluate the impact of foreign exchange reserve on economy growth in Ethiopia yearly data over the period of 1981 up to 2020 GC was used. The Real GDP is dependent variable of the study while the independent variables are Real Exchange Rate(RER), Gross Capital Formation (GCF),Foreign Exchange Reserve(FER), Money supply growth rate (M2) ,Export(Exp)and Import(IM).

The variables are taken from empirical literatures taking into consideration the availability of data. For economic analysis, many variables are used in logarithm (log). In time series analysis, this transformation is often considered to stabilize the variance of a series (Gujarati, 2004). Thus, from the beginning, the variables are transformed into log data to avoid hetroscedasticity and to show elasticity of the variables.

The study uses the Ordinary Least Square methods to analysis the short and long run effects of variables on economic growth. Because the model is more appropriate to investigate the endogenous relationship among GDP, RER, GCF, FER, M2, EX, IM variables and for the variables co-integrated and integrated at different order. Furthermore to find the short run and log run relationship between foreign exchange reserve and economic growth and other variables, the study used Vector error correction model in the following framework.

$$LnRGDP+c+\beta 1"Ln\ RER+\beta 2LnM2+\beta 3LnGCF+\beta 4LnFER+\beta 5LnExp+\beta 6LnIM+\beta 7ECM+\in \quad "$$

Where,

- *InGDPC*, stand for the value of value of economic growth in per capita form.
- *LnRER*, stand for the value of Real exchange rate
- Ln M2, denote the value of Money Supply
- LnGCF, symbolize the value of Gross Capital Formation
- *InFER*, denotes the value of available foreign exchange reserve.
- *InEXP*, denotes the value of exports.
- *InIM* represents the value of imports.
- ECM and $\in$, represents the vector error correction terms and disturbance terms respectively.

# 4. RESULTS AND DISCUSSIONS

## Vector Error Correction Model

The long run and short run regression result analysis for dependent variable: Real Gross Domestic Product and independent variables: Foreign Exchange rate, foreign Exchange reserve, and Gross Capital formation, Money Supply, Export and Import are presented. Initially, the study incorporated six independent variables are strongly correlated to one other. Therefore, the study run the regression variables having high correlation value to make the model more reliable, the regression model result that incorporated six variables of long run and short run regression result obtained from Vector error correction.

The result of ADF and Johansen co-integration tests supported the existence of long-run equilibrium relationships among the Real Gross Domestic Product, Real Exchange rate, foreign Exchange reserve, and Gross Capital formation, Money Supply, Export and Import. The existence of a long-term equilibrium relationship among the variables necessitates the use of the Vector Error correction model (VECM).Because; it contains information on both the long run and the short run. The long run regression analysis for dependent variable: Real Gross Domestic Product and independent variables: Real Exchange rate, foreign Exchange reserve, and Gross Capita formation, Money Supply, Export and Import are presented below.

**Long Run Relationship**

The table 4.1 depicted below shown that the long term effect of the Real Exchange rate, foreign Exchange reserve, and Gross Capital formation, Money Supply, Export and Import on Real Gross Domestic Product. The result of the error correction in the table 4.1 confirm that long term causality between those variable, since the result revealed that ECM (-1) was statistically significant and negative sign which implies the existence of co-integration among variables and hence, the presence of stable long-run relationship.

After identifying the number of co integrating equations, we can estimate the long run relationship between endogenous variable real gross domestic product (RGDP) and exogenous variables, Real Exchange rate, foreign Exchange reserve, and Gross Capital formation, Money Supply, Export and Import by using Johansen maximum likelihood method. Since all variables were used in the logarithmic form, the estimated coefficients can directly be interpreted as long-term elasticity. All the variables are significant at 5%, because its t- statistics value is greater than 1.96 in absolute term.

**Table 4.1 The Estimated Long-Run Model for LnRGDP**

| Variable | LNRGDP (-1) | LNFER(-1) | LNCF(-1) | LNM2(-1) | LNRER(-1) | LNEXP(-1) | LNIMP(-1) | C |
|---|---|---|---|---|---|---|---|---|
| Coefficient | 1.000000 | -0.23025 | -0.392812 | 0.197884 | -0.08393 | 0.077135 | -0.255475 | -2.755 |
| Standard Error | | -0.01698 | -0.01503 | -0.01831 | -0.00816 | -0.01005 | -0.01454 | |
| T-statics | | [-13.5611] | [-26.136] | [10.8081] | [-10.2865] | [7.67715] | [-17.5658] | |
| **R-squared.....0.84** | | | | | | | | |
| **Adj.R-Squared.....0.72** | | | | | | | | |

**Note:** T-statistics ration more than 1.96 is statically significant.

**Source:** E-view-10 Long run result. (2021)

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

LnRGDP= 2.755+ 0.230LnFER +0.392LnCF– 0.197LnM2+ 0.08393LnRER- 0.077LnEXPOR+ 0.255LnIMPORT

(0.01698) (0.01503) (0.01831) (0.00816) (0.01005) (0.01454)

In the above table 4.1, long run equilibrium equation, Foreign Exchange rate, Gross Capital formation, foreign Exchange reserve, and Import have significant and positive effect on Real

Gross Domestic Product. Whereas as Money Supply and Export has significant but negative effect on Real Gross Domestic Product in the long run.

In this study the decision rule to reject the null hypothesis and accept the alternative one is based on the T-statistic value .When the T-statistic value is equal or less than 1.96, reject the null hypothesis and accept alternative. If T-statistic is more than 1.96, we accept the null hypothesis and reject alternative hypothesis. The hypotheses tested are presented below:-

**Foreign Exchange Reserve:**

Therefore, do not reject since the regression result shows that Foreign exchange reserve has a long run impact on economic growth in Ethiopia; because the t-statics value of this variable is 13.5611, which is more than 1.96 as shown in the above table 4.7 long-term equation model. It indicates Foreign exchange reserve affects the economic growth in the long run significantly. The beta value, coefficient, of this variable is 0.23025 which indicates there is positive long run causal relationship between Foreign exchange reserve and Real GDP.This implication showed that, a 1% increase Foreign exchange reserve will result in increase of 23.025 percent on dependent variable Real GDP, which might be due to most of the goods are row material and thus make demand for importing of goods from abroad is inelastic. Thus, induce the trade balance deficit to increase, as a result inflation push up and hider economic growth in the long run. This confirms the study of Uwem Effiong (2020) who stated that there is a positive relationship between FER and GDP.

**Gross Capital formation:**

The Gross capital formation (LNCF) had a positively and statistically significant effect on economic growth of Ethiopia in the long run. This indicated that The Gross capital formation will increase by 1% results in impact on Real GDP increased by 39.3% of the Country economy. This shows that from investment side LNCF is an important element of the RGDP growth. The result is consistent with the study of Pareira, 2000, seetanah, (2008) and Arin, 2004.

**The Broad Money Supply:**

The broad money supply (LNM2) has a negative and significant long run effect on Real GDP of country and the regression result shows that Money supply (M2) has significant negative effect on Real GDP; because the t-statics value of this variable is 10.808 which is more than the standard limit (1.96) as shown in the above table 4.6 long term equation model. It indicates Money Supply affects the Gross Domestic Product of the country in the long run significantly.

The long-term impact of an increase in the money supply is more difficult to predict. Throughout history, there has been a strong tendency for the prices of assets such as housing and stocks to artificially raise following an increase in the money supply, or anything those results in a high level of liquidity entering the economy. This misallocation of capital can lead to waste and speculative investments, which can result in the rapid escalation of asset prices followed by a contraction (an economic cycle known as a bubble) or an economic recession, a significant decline in economic activity. On the other hand, if prices are not misallocated, and the prices of assets do not artificially inflate, it's possible that in the long-term, the only impact of an increase in the money supply is higher prices than consumers normally would have faced. Which, money supply variable was a negative relationship on GDP growth but demand deposits variable was positive in these countries. Therefore, this study can be explained that the increase in money supply maybe cannot increase in long run economic growth of country. The result is consistent with the study of *Akindele, (2010).* Which, money supply (M1) variable was a negative

relationship on GDP growth in Indonesia, Philippines and Laos, but demand deposits variable was positive in these countries. For Vietnam, money supply (M1) was positive relationship on GDP growth, but demand deposits is negative.

Therefore, this study can be explained that the increase in money supply (M1) maybe cannot impact on increase in short run economic growth for Indonesia, Philippines and Laos. Which, money supply (M1) variable was a negative relationship on GDP growth in Indonesia, Philippines and Laos, but demand deposits variable was positive in these countries. For Vietnam, money supply (M1) was positive relationship on GDP growth, but demand deposits is negative.

**Real Exchange Rate (RER)**

The regression result shows that exchange rate has significant positive effect on Real GDP of the country in the long run, because the t-statistics value shown in the table 4.6 is greater than 1.96 i.e. 10.286 and the beta value, coefficient, of this variable is 0.08393, the result of this study is as expected. There is positive significant causal relationship between exchange rate and Real GDP in the long run. Meaning, a 1% increase Exchange rate (Devaluation of currency) will result in a rises of 8.393 percent on dependent variable Real GDP, which might be due to most of the goods are row material and thus make demand for importing of goods from abroad is inelastic.

Thus, induce the trade balance deficit to increase, as a result inflation push up and hider economic growth in the long run. The result is consistent with the study of Muluken (2016).

As described by Muluken N.,2016 of IMF, 2010; MOFED, 2009, After the devaluation in 1992 the exchange rate is changed from fixed to managed floating exchange rate in order to control overvaluation through a gradual depreciation of domestic currency every year. The gap between the unofficial and official rate also decreased compared to the period when the exchange rate was fixed. However during the fiscal year 2007/08 the rate of depreciation against other foreign currencies increased compared to the previous years. In the 2009/10 and September 2010/2011 the Ethiopian Birr was devalued to 23.7% and 16.5% respectively against the US dollar. This huge devaluation was expected to "decrease overvaluation and increase competiveness".

Also Muluken N., 2016 in his thesis pointed by NBE, 2010 of literature review is that the increase in depreciation rate was expected to encourage the export sector. The higher increase in export rate, the better the rate of growth of the economy. The export of goods and services was 11% of the GDP in 2009 and yet the trade balance is negative. The world financial crisis where the major importing countries decreased their import quota might have a negative role in the decrease of the export as well as low growth since export is one part of the GDP.

The level of real exchange rate is important on economic growth as it determines the value of imports and exports of a country. Walters and De Beer (1999) explain by Muluken N., 2016 that a country's exchange rate is an important determinant of the growth of its cross-border trading and it serves as a measure of its international competitiveness.

## Export:

The regression result shows that Export has significant but negative effect on Real GDP; because the t-statics value of this variable is 7.677 which is more than 1.96 as shown in the above table 4.7 long term equation model. It indicates Export affects the Real GDP in the long run significantly. The beta value, coefficient, of this variable is -0.077135 which indicates there is negative long run causal relationship between Export and Real GDP. This study also can be

moved to check the effects of export diversification policies on export instability problem. The result is consistent with the study of Akindele, (2010).

As Abdurrahman M. 2014 his thesis suggested that many agricultural nations have endeavored to seek after the East Asian development model in ongoing many years. This model is generally seen to have been founded on export-led growth. Ethiopia, as other non-industrial-countries, pursued the export-led growth strategy since 1992 following quite a while of execution of the import replacement procedure during the Imperial and Derg systems. Following the export-led growth strategy, Ethiopia's economy, just as, its export composition remained profoundly subject to agriculture.

Abdurahman M. 2014 sited NBE, 2010/11; Agriculture contributes about 41% and over 80% to national GDP and export sector, respectively. The export earnings contribution, Agriculture contributes about 41% and over 80% to national GDP and export sector, respectively (NBE, 2010/11). The export earnings contribution, from 1960 to 2010, accounted to 11% of the GDP on average Jarra, 2013 as sited by Abdurrahman M. 2014. This is very low when compared with 30% contribution to GDP in Sub Saharan African countries Hailu, 2011 sited by Abdurrahman M. 2014 Such a low figure proposes that much must be done in the Ethiopian export sector to accomplish the desired economic growth level.

Numerous examinations have been led in least developed countries (LDCs) on the commitment of export earnings to economic growth. Although the majority of the experimental works support the export-led economic growth speculation, there is no agreement over this issue. Some economists, Krueger (1978), Tyler (1981), Kavoussi (1984), Ram (1987), Chow (1987), and Salvatore and Hatcher (1991), seem to generally agree that export has a positive and significant impact on countries economic growth; others, Medina-Smith E.J, (2001), Mishra, P. K., (2011), Abbas,S. (2012), doubt the existence of such a relationship. Therefore, the evidence regarding export-economic growth nexus is somewhat ambiguous and mixed globally in general. Furthermore, previous studies on this issue in the context of Ethiopia are only few; and even the limited available ones provide mixed evidences. For instance the study conducted by Gemechu,(2002) support the contribution of real exports to economic growth in the context of Ethiopian economy in the short run whereas, Chemeda (2001) says the contribution of real exports to economic growth in the context of Ethiopian economy is greater in the long run than in the short run.

## Import:

As shown the above Table 4.7 the regression result reveals that Import has positive and significant impact on the Real GDP of the country in the long run because the t-statics result is 17.5658 which is more than 1.96 as shown in the above table 4.6 long term equation model.

The coefficient, of this variable also is 0.2554; the result of this study is as expected. There is positive significant causal relationship between Import and Real GDP in the long run. This implies Import increase by 1% will increase by 25.54% of the Real GDP of the country. The result is consistent with the study of Charles ruranga (2020).

As indicated by the NBE yearly report, 33.3% of all out import burning through ($5.03 billion) was on capital merchandise and 28.3% ($4.27 billion) on consumer goods. U.S. exports to Ethiopia in 2019 rose to $1.5 billion, a 14% increment from that of the earlier year, representing 10% of Ethiopia's all out imports. Ethiopia's imports from the United States have expanded

consistently all through the previous decade, addressing around a fivefold increment from 2007 through 2019.

**Short-Run Relationship**

After obtaining of the long run relationship, establishing the coefficient of the short run dynamics is conducted by estimation of Vector Error Correction mechanism (VECM). It is crucial to specify how short run adjustment of the variables took place (Mulugeta 2012). The most important thing in the short run analysis is the speed of adjustment term. The value of error correction term should be negative and it should be significant in order to decide as the model converges to the equilibrium in the long run. According to Bannerjee (2003) as sited by Tewodros (2015), highly significant error correction, term confirms the existence of a stable long run relationship. As shown in the Vector error correction model result's table below, the value of ECM (-1) is -0.627872 which implies, the economy will converge to its equilibrium by 62.8% per annum. In other words, the long run equilibrium will be restored after (100%/62.8) 1.6 years.

**Table 4.2 Short-Run Coefficients dependent variable D (LnRGDP)**

| Dependent Variable: D(LNRGDP) | | | | |
|---|---|---|---|---|
| Method: Least Squares | | | | |
| Date: 06/08/21 Time: 00:39 | | | | |
| Sample (adjusted): 1983 2020 | | | | |
| Included observations: 38 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -0.033889 | 0.029764 | -1.138609 | 0.2639 |
| LNFER(-1) | 0.008385 | 0.009311 | 0.900543 | 0.3750 |
| D(LNM2(-1)) | 0.256589 | 0.178803 | 1.435044 | 0.1616 |
| D(LNCF(-1)) | 0.024924 | 0.046991 | 0.530397 | 0.5997 |
| D(LNRER(-1)) | 0.037217 | 0.059551 | 0.624958 | 0.5367 |
| D(LNEXPORT(-1)) | -0.018104 | 0.044078 | -0.410739 | 0.6842 |
| D(LNIMPORT(-1)) | 0.127135 | 0.073408 | 1.731885 | 0.0936 |
| ECM(-1) | -0.627872 | 0.177952 | -3.528325 | 0.0014* |

**Source:** E-view-10 Short run result.(2021)

The table 4.2 above shows that, All variables(Independents variables:- Foreign Exchange rate, Gross Capital formation, foreign Exchange reserve, Money Supply, Export and Import are not significant in short run) have no significant effect on economic growth in the short run.

# 4. CONCLUSIONS AND RECOMMENDATIONS

## Conclusion

The empirical results of the study conclude that, lnFER, LnM2, lnCF, lnRER, and export and lnImport matter for the economic growth in Ethiopia. The Johanson test for co integration was used in order to gain the long run relationship between the dependent variable GDP and

independent variables (foreign exchange reserve, broad money supply, capital formation, real exchange rate, export and import). Thus, the long run result revealed that foreign exchange reserve, capital formation, real exchange rate and import have positive and significant impact on economic growth in Ethiopia and both broad money supply and export have negative and significant impact on GDP in the long run.
The short run dynamics of VEC model showed that export has negative and lnFER, LnM2, lnCF, lnRER, and lnImport have positive and all are insignificant effect on GDP in the short run.

## Recommendation

This paper has provided descriptive and empirical results on the impact of foreign exchange reserve on economic growth in Ethiopia. The empirical finding depicts that there is a number of essential policy implications for the growth of Ethiopian economy. Therefore, based on the finding of this study, the following recommendations are forwarded.
The foreign exchange reserve should increase its country economy. This is because the study found that foreign exchange reserve affect economic growth positively.
Capital formation is important issue for achieving long run economic growth base on the finding. Capital formation should be encourage by all means because it will affect economic growth and development positively.
Real exchange rate is one of the most important factors to change economy growth of the country. Study finds a positive association between RER levels and economic growth, in Ethiopia during study period.
In long run Import is statistically significant and a one percent increase had caused real economic growth to come. The long-term impact of an increase in the money supply is more difficult to predict. Throughout history, there has been a strong tendency for the prices of assets–such as housing and stocks–to artificially raise following an increase in the money supply, or anything those results in a high level of liquidity entering the economy. This misallocation of capital can lead to waste and speculative investments, which can result in the rapid escalation of asset prices followed by a contraction (an economic cycle known as a bubble) or an economic recession, a significant decline in economic activity. On the other hand, if prices are not misallocated, and the prices of assets do not artificially inflate, it's possible that in the long-term, the only impact of an increase in the money supply is higher prices than consumers normally would have faced. Which, money supply variable was a negative relationship on GDP growth in Ethiopia. Therefore, this study can be explained that the increase in money supply maybe can impact on decrease in long run economic growth for Ethiopia during study.
Finally, the impact of export is found to be negative and significant. This implies the study also can be moved to check the effects of export diversification policies on export instability problem.

# REFERENCE

Abdurahman M.,(2014) ,EXPORT DIVERSIFICATION AND GROWTH: A CASE OF ETHIOPIA ,KDI School of Public Policy and Management

Ahuja, H. L. (2011). Macro-economic Theory and Policy.7thRevised Edition. S. Chand &Company Ltd, New York.

Adrian Hewitt, Sheila Page, Benu Schneider and Henri-Bernard Solignac-Lecomte World Commodity Prices and their Impact on Developing Countries, January 2003 to December 2003.

AfDB, OECD, UNDP (2017), African Economic Outlook.

Afolabi (1999) Monetary Economics Revised Edition. Lagos: Top Golden Nigeria Ltd.

Aizenman, J. and J. Lee. 2005. International Reserves: Precautionary versus Mercantilist Views, Theory and Evidence National Bureau of Economic Research (NBER). Cambridge,

AlemayehuGeda and BirhanuGega (1999), The Ethiopia Economy performance and Evaluation, Proceeding of the Eight Annual conferences on the Ethiopian Economy, Nazerth, Ethiopian.

Asmamaw, H., The Impact of devaluation on trade balance, University of Oslo, 2008

Asmerom K., (1999),Real exchange rate on price and agricultural supply response in Ethiopia: The case of perennial crops, University of Asmara, Eritrea a paper presented to African Economic Research Consortium, Nairobi(Kenya)

Ayalew, (2007), Explaining the Current Source of Inflation in Ethiopia National Bank of Ethiopia, Addis Ababa, Ethiopia (2007).

Balassa, B. (1964) The Purchasing Power Parity Doctrine: A Reappraisal. Journal of Political Economy, Vol. 72, pp. 584-96.

Biresaw, (2013), Determinants and impacts of dynamic inflation in Ethiopia. A granger causality model approach Thesis Norwegian University of Sciences, Norway (2013)

Blanchard, O. and Perotti, R. (1999), an empirical characterization of the dynamic effects of changes in government spending and taxes on output, technical report, National bureau of economic research.

Calvo, G.A., Reinhart, C.M., and Vegh, C.A (1994). Targeting the real exchange rate Theory and evidence, International Monetary Fund,

Carboug, R.J (2006). International economics, New York, Mc Millan publishing company

Chenery, H. B. and A. M. Strout (1966), foreign assistance and economic development, American Economic Review

Cottani, J.A., Cavallo, D.F., Khan, M.S., (1990): ―Real Exchange Rate Behavior and Economic Performance in LDCs,‖ Economic Development and Cultural Change 39(1), 61-76

CSF (2015) Statistical report on the 2015 Urban Employment Unemployment Survey, Central Statistical Agency, Addis Ababa

Dorosh, Paul, Sherman Robinson and Hashim Ahmed (2009) Economic Implications of Foreign Exchange Rationing in Ethiopia. Development Strategy and Governance Division, International Food Policy Research Institute. Ethiopia Strategy Support Program 2, Ethiopia. No ESSP 2009.

Easterly W. (1999), The Ghost of Financing Gap: Testing the Growth Model used in the International Financial Institutions, Journal of Development Economics

Easterly, W., (2001): ―The Middle Class Consensus and Economic Development,‖ Journal of Economic Growth 6(4), 317-35

Eichengreen B., (2007): ―The Real Exchange Rate and Economic Growth,‖ Institute for Social and Economic Studies, University of California, Berkeley.

Faini, R., L. Pritchett and F. Clavijo. (1988). "Import Demand in Developing Countries,"

Fratzscher, M., Lo Duca, M. and Straub, R., *ECB Unconventional Monetary Policy Actions: Market Impact, international Spill overs and Transmission Channels*, IMF, 2014.

Friedman, M. (1968).The role of monetary policy. The American Economic Review, 58(1), 1-17.

GRANGER, C.W.J. and NEWBOLD (1974). – « Economic Forecasting: The atheist's Viewpoint, in G.A Renton (ed.) », Modeling the economy. London: Heinemann.

Griffin K. (1970), Foreign Capital: A Reply to Some Critics, Bulletin of the Oxford 64 University Institute of Economics and Statistics

Gupta, K. L. (1970). Foreign capital and domestic savings: A test of Haavelmo's hypothesis with cross-country data: A comment. Review of Economics and Statistic

H. Plecher, Nov 18, 2020Ethiopia: Share of economic sectors in the gross domestic product (GDP) from 2009 to 2019

Hansen H. and Tarp F (2001), Aid and Growth Regressions, Journal of Development Economics.

H.A. Ahmed, T. Tebekew, J. Thurlow, 2010/11 Social Accounting Matrix for Ethiopia: A Nexus Project SAM International Food Policy Research Institute (IFPRI), Washington, DC (2017)

Habtamu, N. (2012), "Determinants of Bank Profitability": An Empirical Study on Ethiopian Private Commercial Banks, MSc thesis, Addis Ababa University, Addis Ababa Ethiopia.

Hair, J F, Black, W C, Babin, B J, Anderson, R E, and Tatham, R L (2006), Multivariate Data Analysis, 6th edn., New Jersey: Pearson Education.

IFRPI (2009) Economic implications of foreign exchange rationing in Ethiopia, Discussion Paper ESSP 009, Ethiopia Strategy Support Program 2

IMF (2018b). World Economic Outlook April 2018.

International Food Policy Research Institute. Food Needs 0/ Developing Countries: Projections 0/Production and Consumption to 1990. IFPRI Research Report Number 3, Washington, D.C. Dec. 1977.

Irwin, D.A (2012) Trade Policy Disaster: Lessons from the 1930s, the MIT Press Cambridge, Massachusetts London, England

Jevons, W.S (1900) Money and the Mechanism of Exchange, D. Appleton and company,New York

Johnson, H.G (1976) *the Monetary Approach to the Balance of Payments*, Chicago University, and Geneva University Switzerland .

Jochen Schanz,( 2019),Foreign exchange reserves in Africa: benefits, costs and political economy considerations, By Monetary and Economic Department.

Kemal Dervi., Jaime de Melo and Shlerman Robinson (1981) A General Equilibrium Analysis of Foreign Exchange Shortages in a Developing Economy: The Economic Journal, 9I (December 1 98 1), 89 l-906Printed in Great Britain.

Kenton, W. (2018). What is the monetarist theory?Available online at: https://www.investopedia.

Khabo, V.S. (2002). The impact of monetary policy of the economic growth of a small and openEconomy: The case of South Africa.Department of Economics, University of Pretoria.

Kimberly, A. (2018). Monetarism explained with examples, role of Milton Colander, D. C. (2004) Microeconomics, Fifth edition, published by McGraw Hill/Irwin pp 461.

Krugman, P. R. (2008). International Economics: Theory and policy, 8/E: Pearson Education India.

Lensink, Robert (1995) Foreign exchange constraints and developing countries. Economic Modeling

Levy Yeyati, E. 2006 The Cost of Reserves, 2006. World Bank Working Paper No. 585. Washington, DC: World Bank.

Lucas RE (1988) on the mechanisms of economic development. Journal of Monetary Economics

Mamo Esayas Ambe(2019) Journal of Economics and Sustainable Development www.iiste.orgISSN 2222-1700 (Paper) ISSN 2222-2855 (Online) DOI: 10.7176/JESD Vol.10, No.3, 2019 111 Determinants of Trade Balance in Ethiopia

McGillivray et al (2005), it works; It doesn‘t; It can, But that Depends…:50 years of Controversy over the Macroeconomic Impact of Development Aid

McKinnon, Ronald I. (1964) Foreign Exchange Constraints in Economic Development and E¢ cient Aid Allocation. The Economic Journal 65

Moran, Cristian (1989) ,Import under a Foreign Exchange Constraint. The World Bank Economic Review.

M. Amiti, O. Itskhoki, J. Konings(2014) **Importers, exporters and exchange rate disconnect** Am. Econ. Rev., 104 (7) (2014), pp. 1942-1978.

Muluken N., (2016),The effect of exchange rates on economic growth in Ethiopia

Ncube M.Lufumpa C.and Ndikumana (2010), Ethiopia‘s Economic Growth Performance: Current Situation and Challenges, Economic Brief

Obstfeld, M. and Rogoff, K (1997) the mirage of fixed exchange rate, working paper No.5191, Cambridge, 1995, 2

Obstfeld, M. and K. Rogoff. 1997. *Foundations of International Macroeconomics*. Cambridge, MA: The MIT Press.

Obstfeld, M. and K. Rogoff. 2004. The Unsustainable US Current Account Position Revisited. Cambridge, MA: NBER.

Papanek, G. (1972) the effect of aid and other resource transfers on savings and growth in less developed countries, Economic Journal.

Polterovich, Victor and Vladimir Popov (2003) Accumulation of Foreign Ex-change Reserves and Long Term Growth.

Prasert C., Kanchana C., Chukiat C., Monekeo K.,(2015) ,Money Supply Influencing on Economic Growth-wide Phenomena of AEC Open Region

REPORT ON THE ETHIOPIAN ECONOMY Volume VI 2006/07 Ethiopian Economic Association (EEA)

Rodrik, D. 2006 The Social Cost of Foreign Exchange Reserves. International Economic Journal

Senbeta, S. R. (2013).Foreign exchange constraints and macroeconomic dynamics in a small open economy, Technical report, University of Antwerp, Faculty of Applied Economics.

Stiglitz, Joseph E., Jose Antonio Ocampo, Shari Spiegel, Ricardo Ffrench-Davis, and Deepak Nayyar (2006) Stability with Growth: Macroeconomics, Liberalization, and Development, Oxford University Press.

Stock JH, Watson MW (1993) a simple estimator of co integrating vectors in higher order integrated systems. Econometrical 66

S. Ahmed, M. Appendino, M. Ruta(2017),Global value chains and the exchange rate elasticity of exports B. E. J. Macroecon., 17 (1) (2017), pp. 1-24

Taylor L. (1994), Gap models. Journal of Development Economics 45:17-34.

Thapa N.B. (2002), an Econometric Analysis of the Impact of Real Effective Exchange Rate on Economic Activities in Nepal; Research Department, Nepal Rastra Bank, NEPAL.

Thirwall, A.P. 1979. The balance of payment constraint as an explanation of international growth rate difference Banca Nationally del lavoro, Quarterly Review, March.

Verbeek, M. (2004).A guide to modern econometrics. 2nd edn: Erasmus University Rotterdam.

Wolf, M. (2002). Exchange rates in a world of capital mobility. The Annals of the American Academy of Political and Social Science, 579(1), 38-52.

World Bank (2017), World Bank, World Development Report, Oxford University Press, New York, 1982 and earlier reports.

Wyplosz, Charles (2007) the Foreign Exchange Reserves Buildup: Business as Usual?

Paper presented on Workshop on Debt, Finance and Emerging Issues in Financial Integration, 6-7 March 2007, Commonwealth Secretariat, Marlborough House, London.