

**T.C.**  
**ISTANBUL COMMERCE UNIVERSITY**  
**GRADUATE SCHOOL FOREIGN TRADE**  
**INTERNATIONAL TRADE DEPARTMENT**  
**INTERNATIONAL TRADE PROGRAM**

**EFFECT OF BILATERAL TRADE AND FOREIGN DIRECT INVESTMENT ON  
SOMALIA'S ECONOMIC GROWTH. ROLES OF TURKEY.**

**MA Thesis**

**SUMAYA ABDULLAHI HERSI**

**ID: 200019864**

**Istanbul, 2022**

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**Doç. Dr. Aşkım Nurdan TÜMBEK TEKEOĞLU**

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## ABSTRACT

The World Investment Report (2010) states that FDI stocks increased more quickly than exports and imports between 1990 and 2009, surpassing even the rise of intermediate goods exports/imports. Since the 1990s, there has been a sharp growth in regional trade agreements (RTAs)<sup>2</sup>, many of which have investment-related clauses, which has coincided with this sharp surge in FDI flows. Therefore, the primary goal of this research was to determine how foreign direct investment and bilateral trade affected Somalia's economic development. Turkish roles The data on bilateral trade, interest rates, government spending, exchange rates, gross domestic product, and terms of trade are taken from the Bank of Somalia, however, the parameters for foreign direct investment are obtained from the Somalian ministry of planning and economic development This study used time series analysis with semiannual information by the first half of 2007 and through regular season of 2020. The study also investigated causality, cointegration, and other time series tests. A VECM short run effect model and a VAR long run effect model were also used in the investigation. According to the Granger causality test, bilateral trade has a positive impact on GDP even though foreign direct investment does not. However, bilateral trade and foreign direct investment both work together to boost the nation's economic growth. Despite the fact that the study's results indicated there is no correlation between GDP and foreign direct investment. The cointegration between bilateral trade and foreign direct investment yielded different results. Data from the VECM suggested that there is a short-term relationship between the two variables. In particular, results showed that when FDI in Somalia is excessively high, it quickly converts to a low GDP rate. Additionally, it returns to an increase in FDI in the economy when the average GDP is in excess. Foreign direct investment, bilateral trade, and terms of trade may be disregarded when predicting future GDP rates, despite the fact that prior government spending, the currency rate, and interest rates are all very sensitive to changes in future GDP. To promote economic growth in the future, it is necessary to manage governmental spending, interest rates, exchange rates, and trade terms.

**Keywords:** interest rate, foreign direct investment, economic growth, bilateral trade.

## OZET

Dünya Yatırım Raporu'na (2010) göre, DYY stokları ihracat ve ithalattan neredeyse beş kat daha hızlı arttı, 1990'dan 2009'a ara malı ihracat/ithalatındaki büyümeyi bile fazlasıyla aştı. 1990'lardan bu yana, çoğu yatırım için hükümler içeren bölgesel ticaret anlaşmalarının (RTA)2 sayısı ve yoğunluğu. Bu nedenle, bu çalışmanın temel amacı, ikili ticaretin ve daruan yabancı yatırımın Somali'nin ekonomik büyümesi üzerindeki etkisini araştırmaktır. Türkiye'nin Roller. İkili ticaret, Faiz oranı, Devlet harcamaları, Döviz kuru, GSYİH ve Ticaret Şartları verileri Bank of Somali'den

doğrudan yabancı yatırım parametreleri ise Somali'nin planlama ve ekonomik kalkınma bakanlığından elde edilmektedir. Bu çalışmada, 2006Q1'den 2020Q4'e kadar olan üç aylık gözlemleri kullanan zaman serisi analizi kullanılmıştır. . Ayrıca çalışmada nedensellik, eşbütünleşme test edilmiş ve diğer zaman serisi testleri yapılmıştır. Buna ek olarak, çalışmada VECM kullanılarak bir kısa dönem etki modeli ve bir VAR kullanılarak bir uzun dönem etki modeli yürütülmüştür. Granger nedensellik testi, doğrudan yabancı yatırımın artmamasına rağmen, GSYİH üzerinde yüksek oranda iyileştğini, İkili ticaretin arttığını ortaya koydu. Bununla birlikte, hem doğrudan yabancı yatırım hem de ikili ticaret, birlikte ülkedeki ekonomik büyümeye katkıda bulunur. Çalışma, GSYİH ile doğrudan yabancı yatırımlar arasında bir eşbütünleşme olmadığını göstermiştir. Sonuçlar, ikili ticaret ve doğrudan yabancı yatırım arasındaki eşbütünleşme için aksini gösterdi. VECM'den elde edilen sonuçlar, iki faktör arasında kısa vadeli bir etki olduğunu gösterdi, özellikle sonuçlar, Somali'deki DYY çok yüksek olduğunda, bunun hızlı bir şekilde düşük GSYİH oranına dönüştüğünü gösterdi. Ayrıca, ortalama GSYİH fazla olduğunda, ekonomideki DYY artışına geri döner. Önceki hükümet harcamaları, döviz kuru ve faiz oranı, gelecekteki GSYİH'deki değişikliklere son derece duyarlıdır, ancak gelecekteki GSYİH oranları tahmin edilirken doğrudan yabancı yatırım, ikili ticaret ve ticaret hadleri göz ardı edilebilir. Gelecekte ekonomik büyümenin iyileşmesi için devlet harcamaları, faiz oranı, döviz kuru ve ticaret hadleri üzerinde kontrole ihtiyaç vardır.

**Anahtar Kelimeler:** ekonomik büyüme, doğrudan yabancı yatırım, faiz oranı, faiz Oran

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## LIST OF ABBREVIATIONS

|        |                                                        |
|--------|--------------------------------------------------------|
| FDI    | Foreign direct Investment                              |
| BOS    | Bank of Somalia                                        |
| GDP    | Gross Domestic Product                                 |
| HIPC   | Highly Impoverished Poor Countries                     |
| IMF    | International Monetary Fund                            |
| MoFPED | Ministry of Finance, Planning and Economic Development |
| SNBS   | Somali national Bureau of Statistics                   |
| SOMX   | Somali shillings                                       |
| VAR    | Vector Auto Regressive                                 |
| VECM   | vector error correction model                          |
| BOP    | Balance of payment                                     |
| TNC    | Trans-National Corporation                             |
| WTO    | World Trade Organization.                              |

## **1. INTRODUCTION**

Having a robust boom free whilst retaining a low and solid inflation free is one of the number one dreams for almost all of economies with inside the globe (Odongo, 2012).

For many years, it has been an intriguing topic to discuss how bilateral trade and foreign direct investment affect economic growth. Trade and foreign direct investment have been essential to the development of the African economy, according to policymakers, who also feel that these two factors increase the productivity of host nations and promote growth. One of the most frequently highlighted aspects of globalization is the recent rapid expansion of trade and foreign direct investment (FDI) flows.

FDI stocks increased over five times as quickly as exports and imports between 1990 and 2009, outpacing even the growth of intermediate products exports/imports, according to the World Investment Report (2010). Since the 1990s, there has been a sharp rise in the quantity and importance of regional trade agreements (RTAs), many of which have investment-related clauses. These developments have coincided with the sharp rise in FDI flows. From the standpoint of any potential complementarity or substitution effects between trade and FDI, their relationship is examined. In the past, the horizontal FDI was thought of as an alternate method for businesses to internationalize based on the principle of multinational enterprises. Because of this, when nations wish to expand their economies, the substitution impact between trade and FDI takes precedence over complementarity.

It is extensively mentioned that overseas direct funding (FDI) is a key motive force of monetary increase in growing countries Numerous researchers contend that funding transfers hyperlink centered investments and regionally mobilized reserves, boom earnings tax collection, generate jobs, and feature a huge effect at the labour pool in host countries (Mensah et al., 2021).

Furthermore, FDI improves the modern account of the stability of payments (BOP) through growing exports because of superior ability and competitiveness of nearby production, which in flip breaks the cycle of underdevelopment (Papers, 2020). One of the contentious subjects withinside the improvement literature is the contribution of overseas direct funding (FDI) to the acceleration of monetary boom. In the everyday Solow kind of boom model, overseas direct funding (FDI) permits host countries to gain funding that exceeds their very own home saving and strengthens capital formation. This concept claims that the capability high quality impact of FDI on output boom is constrained to the shortrun. Given the falling marginal

returns to bodily capital withinside the lengthy run, the recipient economic system ought to attain its consistent country boom fee as though FDI had in no way occurred, having no lengthy-time period outcomes at the enlargement of the economic system (Yeshineh, 2017).

Instead, then focusing on domestic markets, the current study defines "trade" as operations involving other nations. According to Kennedy (2009), there are two key aspects to the post-war era's vast development of global trade and industry. As compared to global production, the first development is the rapid growth of global trade. Second, commerce between developed and developing nations has expanded at a faster rate. The enlargement of the worldwide economic system and the advertising of competition, specialization, know-how transfer, and monetary scale past countrywide limitations are each in large part depending on global commerce ( (Sohail et al., 2021).

As a result, by importing and using cutting-edge and novel technology and industrial methods, international trade serves as a means of skill advancement (Kennedy, 2009).

Technology innovation, rivalry, specialization, economic size, and fundamental knowledge exchange between nations are all significantly influenced by international commerce. These elements are crucial for the growth of the world economy. Global economic expansion is influenced by international trade (UNCTAD, 2019). The participation of different nations in international commerce aids in the growth of their economies and the accomplishment of broad developmental objectives including gender equality, employment, food security, and environmental sustainability.

FDI has an impact on economic growth in developing nations through a number of different avenues. The most significant conduit is the transfer of technology from developed to underdeveloped countries (Dinh et al., 2019). It has been discovered that these diffusions occur as a result of the importation of high-tech items, the acceptance of foreign technology, the acquisition of human capital through a variety of channels, and research and development (R&D) activities carried out by multinational corporations (MNCs) (Gokmen, 2021). As a result, copying and applying this technology is required to increase growth rates in underdeveloped countries (Riddervold & Kristiansen, 2011).

The exchange of goods and services across national borders or borders of other countries is referred to as international trade. Bilateral agreements between two nations were initially used to govern trade. Most nations had high tariffs and numerous limitations on foreign trade during the hundreds of years while the Mercantilism technique was in place. This started to

alter in the 19th century as Britain underwent a radical transition and developed a belief in trade (Sukar & Ahmed, n.d.). Traditionally, international trade was carried out through amicable transactions between commercial enterprises based in various nations without the need of foreign direct investment (FDI).

But there has been a considerable change in this regard during the past few years. Trans-National Corporation (TNC) has been involved in more international intra-Finnish trade than ever before. According to estimates from the World Trade Organization (WTO), TNC exports to non-affiliates make up another third of TNC's worldwide intra-firm commerce at the annual level, which amounts for around one third of global trade. In order to distribute or allocate intermediate goods, materials, and/or final goods globally for manufacturing and/or distribution needs, TNCs now frequently use intra-Finnish commerce as a major international business channel. One or more manufacturing facilities or trade companies must be located outside of Finland in order for a Finn to create an international production or distribution network (Ari & Cergibozan, 2017).

Since the Nineteen Eighties, the quantity of FDI coming into growing international locations has sharply elevated. The majority of this FDI comes from Asian corporations organizing operations in different Asian international areas and Africa (Ndikumana & Verick, 2008). The quantity of general funding made with the aid of using growing nations elevated from around 1% of all overseas funding flows withinside the past due Nineteen Seventies to 4% withinside the center of the Nineteen Eighties and 6% with the aid of using 1990. It then reached its top withinside the Nineteen Nineties simply earlier than the Asian monetary disaster and has considering that remained at 6-7% of all FDI globally. Economic liberalization in rising international locations and a decline in protectionism in industrialized international locations are accountable for the increase. Compared to general FDI flows, South-South flows elevated from 5% in 1994 to 30% in 2000.

To maintain the allure of their economies, the majority of African countries have implemented numerous policies, often known as "sweeteners." The economy has been liberalized, financial incentives have been provided, barriers to foreign investment have been loosened, and the ability to repatriate profits has been allowed (Elboiashi et al., 2006). By devaluing their overvalued currencies, lowering inflation, and reducing their budget deficits, African nations have also preserved and restored macroeconomic stability (Sukar & Ahmed, n.d.). They have created Investment Promotion Agencies (IPAs) and joined multilateral

agencies just as the World Association of Investment Promotion Agencies (WAIPA) amongst others to grow investor confidence. Some of those agencies are famous for being a success and enforcing current strategies on all sides of promotion (Ndikumana & Verick, 2008).

Due to the absence of law and order in parts of Somalia for the past 20 years, the 1991 military rule was overthrown in Somalia, and this was established to enhance the authority of customary law. Although it has a tendency to preserve the interests of the local business elite above competition and the principles of opportunity, customary law does not emphasize the significance of modern commercial law either. According to a report by (UNACTAD) for the 2015 United Nations Conference on Trade and development, bilateral trade and FDI in Somalia decreased in 2014. According to the research, Somalia had a 7 percent decrease in foreign direct investment (FDI) inflows over the last year, falling to 106 million US dollars from 107 million US dollars garnered. As a result of a long-term structural trend, the importance of services in the foreign investment environment is highlighted in the 2014 FDI report. The increase in the percentage of services in worldwide FDI from 2001 to 2012, which was offset by a corresponding decline in the percentage of manufacturing, was 5% (to 63%)

With an annual GDP increase price of 8%, Somalia's economic system objectives to fulfill the Millennium Development Goals (MDGs) via way of means of 2030. However, Somalia's gross home financial savings as a percentage of GDP are extraordinarily low, and it's far implausible that the use can acquire this increase price via way of means of mobilizing the meager home resources (BOS, 2000 and 2007).

In addition, authorities spending and personal funding have accelerated past authorities' sales and home financial savings, ensuing in a home imbalance (useful resource hole) that might in flip reason an outside imbalance of imports exceeding exports, ensuing in a forex hole and stability of fee issues (et al., 2017). Policymakers are the usage of FDI specifically as a stopgap degree for you to make certain excessive and sustainable monetary increase because of this scarcity of resources, and those demanding situations have grown extensively in prominence (Kubik & Husmann, 2019). Given the insufficient nature of indigenous capital, the prevailing management has allowed overseas buyers into some of monetary areas. The authorities has introduced numerous funding and coverage incentives, which includes decrease import and export duties, decrease company tax rates, which includes tax holidays, the introduction of a one-prevent store to hurry up the approval and registration of

investments, a discount withinside the minimal capital requirement, the enlargement of markets thru monetary integrations, and warranty of political and economic stability.

Theoretically, it miles expected that bilateral alternate and overseas direct investment (FDI) will bring about financial profits with the aid of using offering capital, and technology, fostering competition, boosting home investments, and in the end fostering financial progress, as underlined by the aid of using Brooks and (Adarov, 2021). Although various among 3. five and five. Four percent annually, Somalia's financial increase continues to be gradual and sluggish, in keeping with a joint survey looked at with the aid of using the Bank of Somalia (BOS). For Somalia, the benefits of FDI are nevertheless uncertain, particular in phrases of fostering financial expansion. Therefore, it's miles crucial to analyse how FDI and bilateral alternate have an effect on financial increase. It is likewise vital to recognize the number one goals and economic hobbies of overseas buyers in a country's economy. Finding the elements that impact FDI in Somalia is so crucial.

## **2. LITERATURE REVIEW**

This chapter provides an overview of relevant literature on the impact of bilateral trade and FDI on economic development. The review of literature included both theoretical and empirical literature. This chapter also investigates whether similar studies on the long-run and short-run effects of bilateral trade and foreign direct investment on economic growth have been conducted.

### **2.1 Foreign direct Investment and Economic growth**

The growing discussion of the relationship between FDI and growth has sparked a lot of interest in this area. Researchers Benjamin Badeji and Olufunsho Abayomi (2011) examined the impact of FDI inflows on economic growth using data from 1998 to 2017 for the world's 30 largest economies. After controlling for factors such as consumer price index, trade openness, unemployment rate, and unemployment rate, the results of econometric analysis show that FDI has a significant positive impact on economic growth during the research period. Total fixed capital, industry, and credit to the private sector Sukar and Ahmed (n.d.) They collected 12-year macroeconomic factor data (1998-2010) from the European Bank for Reconstruction and Development (EBRD). The objective of the study was to find out how FDI affects the economy.

Economists have paid great attention to the study of differences in the flow of foreign direct investment and economic growth among developing countries. There is a large body of theoretical and empirical evidence on how foreign direct investment affects economic growth. But the available information is fragmentary.

Theoretically, FDI should benefit the host country through funding (and the resulting implications of commodities transfers), career opportunities (and the labor impact), improving trade conditions (and the influence of current account surplus), and encouraging innovation (technology effects). Mensah et al. (2021)), and other researchers emphasize that investment offers more even tangible assets, advanced methods, technical and managerial abilities and knowledge, best industry operating procedures of doing business, as well as output improvements.

Assets can be spread among domestic companies, which lead to greater innovation and productivity. FDI helps the local economy create new jobs by directly and indirectly

increasing local spending as a result of increased use of goods and services by additional workers.

Several theoretical defences exist for why poor nations would not benefit from FDI, despite some of the data provided in recent research. As a result of the adverse selection problem, (Argiro, 2003) contends that the host countries may not always benefit from the transfer of control from domestic to international enterprises. The ownership of businesses may be transferred from local to foreign, less productive corporations, if FDI is carried out during a crisis under the "Fire Sale" clause. This issue is particularly crucial for developing nations, like those in the SSA, since the government usually leases off sectors to multinational investors following privatization because they have access to more funding than domestic firms.

(Argiro, 2003) noted that unfair rivalry between foreign enterprises and domestic ones might potentially "crowd out" local production. There is also risk that the interested in the topic aspect of several export companies with its weak connections towards the economy in general could restrict the positive impact of spillovers to the economic development. A balance of payments may potentially worsen as a result of the probable future transfer of subsidiary earnings from overseas enterprises to their parent company. Furthermore, it is asserted that foreign businesses frequently engage in transfer pricing and develop improper items to appeal to the wealthy segment of the consumer base in the host nation.

Furthermore, empirical data on the relationship between FDI and economic growth is contradictory. In 2007, Khanq & Noy, substantiate FDI's beneficial benefits on economic growth. However, FDI does not always have a growth-enhancing effect; instead, it depends on several country-specific factors. According to (Benjamin Badeji & Olufunsho Abayomi, 2011), the benefit of FDI increases with a host country's degree of development. A higher degree of development enables nations to profit from the productivity boosted by foreign. For similar reasons, Susic et al. (2017) contend that significant relationships between FDI and productivity growth are dependent on the amount of intellectual capital. In theory, higher human capital endowments benefit more from the spillover effects of FDI-induced technology transfer than lower endowments. According to recent research (Paper et al., 2003), the benefits of FDI may also be dependent on trade openness. Because multinational corporations typically act as middlemen to move goods from one location to markets all over the world, FDI can help to expand access to export markets. To account for cross-country

heterogeneity in the causal link, (Papers, 2020) used a mixed fixed and random panel data estimate. Because multinational corporations frequently act as conduits for the delivery of goods from one country to markets in other countries, FDI can increase access to export markets. Similarly, (Papers, 2020) finds some evidence that FDI is more effective at raising future growth rates for more open economies, despite being heterogeneous across countries, when using a mixed fixed and random panel data estimation method to account for cross-country heterogeneity in the causal relationship..

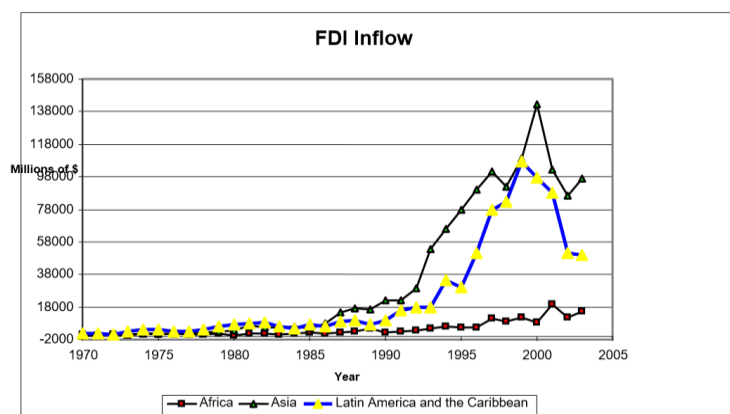
The sector (agriculture, services, manufacturing, etc.) that receives foreign direct investment is said to determine the impact of this investment on the host country's economic development (Korayem and Mashhoor, 2013). Riddervold and Christiansen (2011), for example, used data from 47 countries to examine the relationship between FDI inflows and economic growth between 1981 and 1999. Econometric studies were conducted independently on the primary and production sectors. Foreign direct investment in the manufacturing sector has been found to have a positive effect on economic growth, whereas foreign direct investment in the primary sector has the opposite effect.

### **2.1.1 Trends of FDI inflow in Africa**

Both the total amount of investment and the FDIS as a percentage of GDP increased dramatically in the 1980s. It is now widely dispersed by both foreign investors and recipient countries. The total amount of FDI invested in developing countries increased from 3.5 billion dollars in 1970 to 16.2 billion dollars in 2002. There is not an equal flow of foreign direct investment into emerging economies. Figure 1 depicts the trend of FDI inflows into Africa, Asia, and Latin America. Annual FDI inflows to Africa have lagged behind those to Asia and Latin America since comparable levels in the 1970s. In contrast to Asia, Latin America, and the Caribbean islands, where FDI inflows averaged \$1.6 billion, \$3.3 billion, and \$3.3 billion, respectively, the United States received \$1.6 billion, \$3.3 billion, and \$3.3 billion, respectively.

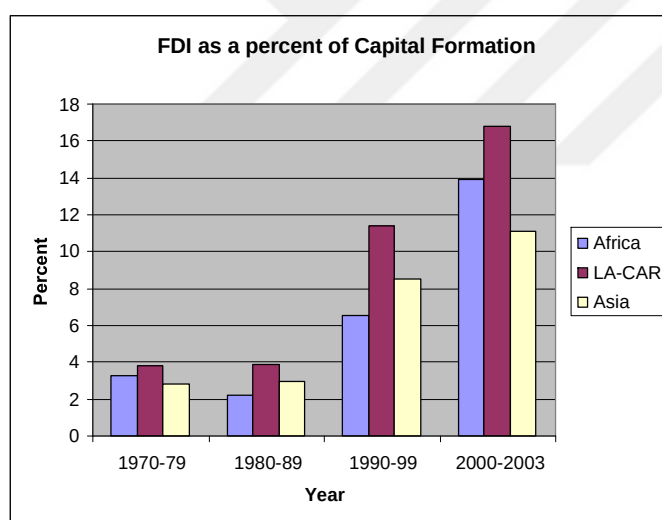
In 1970, Africa received an average of \$1 billion in FDI. In the 1980s, Africa received less money than Latin America and Asia combined a stark contrast to the continent's stagnant income.

### **FIGURE 1.1: Trends Inflows of Foreign Direct Investment into Developing Countries**



Although the flow of foreign direct investment into Africa is small in absolute terms, its economic impact far outweighs its size. Africa received 13.9 percent of FDI flows in gross domestic capital formation between 2000 and 2003, compared to 11.1 percent and 16.8 percent in Asia (Figure 2).

**FIGURE 1.2: FDI as a Percentage of Gross Fixed Capital Formation**



Many African political figures up until the 1980s had negative views about FDI and the growth of the private sector in general. There was widespread anxiety at the loss of authority over significant businesses, particularly if foreigners are engaged. Large-scale privatization initiatives did not start until the latter half of the 1990s. African governments resisted opening vital industries like banking, telecommunications, and energy even after privatization had begun. This hesitation probably hampered private investment. Numerous structural obstacles prevent capital from entering Africa, in addition to the absence of macroeconomic stability and economic advancement.

According to (Wilhelms, 1998), the perception that African nations are inherently dangerous may deter foreign direct investment from the continent. Risks connected to the likelihood of negative changes worry investors. The traditional causes of these dangers and pessimisms—war, starvation, widespread corruption, project failure, and weak governance—involve the possibility of spreading consequences despite the fact that numerous African countries have experienced better return rates than other developing countries, Africa has received only a small amount of FDI. This implies that countries in Sub-Saharan Africa face greater threats than those in other regions.

### **2.1.2 Determinants of FDI**

According to (Galvo & Raiher, 2019), market size and growth rate are the two most important long-term predictors for FDI in SSA. The suitability of economic expansion to attract FDI inflows into Africa is supported by the evidence found in (Baby & Sharma, 2017). (Asongu et al., 2018) further demonstrates that SADC member countries receive more foreign direct investment (FDI) than other countries in Africa after controlling for relevant country conditions. Some foreign investors, especially those from East Asian countries, have invested in Botswana to supply the South African market. The availability of natural resources has always been the main factor attracting FDI due to the need of industrialized countries in Europe and North America to ensure an affordable and reliable source of minerals and primary products (Wp01175.Pdf, n.d.). Despite the loss of relative relevance, the availability of natural resources remains an important factor for investment in resource-rich countries, despite the fact that the comparative advantage in these areas no longer exists. Sufficient to encourage FDI (Asante & Gyasi, n.d.).

Another important factor affecting FDI is the availability of cheap and skilled labor (Castro et al., 2013). Lower labor costs reduce production costs, keeping all other conditions constant (eg, Schneider and Frey, 1985). It is crucial, however, that wages reflect productivity rather than simply being low (Castro et al., 2013). Most people agree that skilled workers can learn and apply new technology faster and that their retraining will also be cheaper (Papers, 2020). Therefore, countries with abundant, cheap but talented human resources will attract more FDI.

(Sakali, 2013) provides evidence that improving infrastructure encourages foreign direct investment in Africa. However, the number of main telephone lines and the percentage of paved roads are two areas where Africa falls short, according to Kubick and Husmann

(2019). Sakali (2013) found that using fixed-effects panel estimates, also show that the marginal benefits of increasing infrastructure in the 1990s were lower than in the 1980s. Therefore, African countries need to improve their infrastructure if they are to attract investment to the same extent as in the 1980s. Sakali (2014) further demonstrates that from 1980-1989 to 1990-99, the growth in the availability, reliability, and growth of infrastructure in the SSA region is below the pace of all developing countries.

The most important issue for business owners is stability, both politically and macroeconomically, according to a survey of foreign businesses in Africa (Anyanwu and John, 2021). According to Moreira's empirical study on the social and political development of FDI in Africa, foreign direct investment (FDI) per capita is higher in less risky countries (2009). Furthermore, as demonstrated by Moreira (2009), political and macroeconomic insecurity in Africa deters foreign direct investment. Furthermore, (Wong, 2015) discovered a statistically significant negative relationship between FDI and the following predictors of political and economic instability in Africa: war, inflation, and the likelihood that the parallel market premium is greater than 50%. A detailed examination of the changing economic situation of Mali and Mozambique during the 1990s also shows that one of the factors contributing to their recent success was macroeconomic and political stability. (Fedderke & Romm, 2006) (Ahmed Nawaz Hakro, n.d.), claiming that the recent improvements in the economic environment of Mali and Mozambique are due to the implementation of international agreements regarding FDI. Both countries joined MIGA throughout the 1990s. Mali and Mozambique are both signatories to the International Convention for the Settlement of Investment Disputes Between States and Nationals of Other States (ICSID), and both joined the Free Industrial Zone and the World Intellectual Property Organization in 1994 and 1996, respectively. In addition, Mali has ratified the Convention on the Recognition and Enforcement of Foreign Arbitral Awards.

### **2.3 Bilateral trade and Economic growth**

The relationship between bilateral trade and economic growth has received a lot of attention in recent years (Kennedy, 2009). According to the export-led growth (ELG) hypothesis, trade and imports drive economic growth, implying that exports have a direct impact on a country's production of goods and services. Another way to look at the relationship between economic growth and exports is through the growth-led exports (GDE) hypothesis. It establishes an inverse relationship and the notion that trade flows are indeed influenced by economic

growth (Farahane & Heshmati, 2021). There is a substantial empirical literature on this subject. Previous studies have mostly concentrated on the relationship between bilateral trade and economic growth in developed or developing countries. In five developed countries (Germany, Italy, Japan, the United Kingdom and the United States), (Agbodji, 2008) investigated the relationship between bilateral trade and economic growth using the VAR model. Economic. From 1960 to 1990, they calculated VAR models with four variables: production, capital, labor, and exports. They discover that Japan and Germany are reliable candidates for the ELG hypothesis, with both countries exhibiting innovations in production factors. The freelancers' main point of view is that trade can serve as a driver of development and economic progress in LDCs (LDCs). For example, (Ahmed Hannan, 2016) contends that international trade was a major factor driving the growth of Canada, Australia, New Zealand, Sweden, and Denmark from less developed to developed countries in the region. on the development and growth of the so-called newly industrialized countries in the second half of the 20th century (Korea, Taiwan, Hong Kong and Singapore). However, some economists argue that the impact of trade on economic growth is unpredictable in practice. For example, the United Nations Economic Commission for Latin America and the Caribbean ((Sohail et al., 2021) insists that in LDCs, the foreign sector may lag behind domestic growth due to a lack of demand for their main products from industrialized countries and partly due to less developed nations' need to purchase capital goods from industrialized countries. Given the uncertainty surrounding the effect of exchange on the financial boom, knowing the actual results of each global exchange and the beginning of an RIA in the economies of the SADC nations is crucial.

This research, that also employs an econometric approach, brings to light alike new knowledge and a contribution to the literature on global exchange. The mechanism allows us to evaluate the validity of each model and its outcomes. Or have a look is relevant because it provides decision-makers with critical data to help them compare the benefits and drawbacks of their current rules. It also identifies the best strategies for Sub - saharan countries. Furthermore, it serves as a well-known next look at with inside the field (Stevens & Irfan, 2015). Using balanced panel records for SADC from 2005 to 2017, it has been empirically determined whether or not the hypotheses of a strong link between financial boom and specific exchange elements and whether or not the formation of SADC has improved the overall performance of its member countries' economies are correct (Ahmad, 1996).

In particular, the examine employs appropriate econometric strategies to calculate a boom regression for capital, labor, energy, and generation inputs, as well as for exchange-associated manipulate variables like exports, overseas direct investments, general debt service, the actual powerful change rate, openness to global exchange, terms of exchange, intercept dummy variable for the local integration agreement, and slope dummy variables as interactions among explanatory variables. The World Development Indicators internet site is in which the model's estimation is primarily based totally on records for SADC (Kuhn & Bernauer, 2006).

The theoretical attitude on the relationship between international exchange and the financial boom is supplied in this segment as a prelude to the empirical examination. Trade advertising of boom is a contentious topic. While traditional knowledge holds that exchange drives financial expansion, numerous humans withinside the twentieth century argued that exchange simply serves to exacerbate the underdevelopment of growing countries. In the conventional view, 4 key factors can be observed whilst studying the benefits of exchange for taking component LDCs, in accordance to (Vollrath & Hallahan, 2013 Trade, withinside the first place, affords the fabric resources (capital goods, machinery, uncooked materials, and semi-completed items) required for financial expansion. Second, trade serves as a method and an automobile for the importation and dissemination of technological knowledge, concepts, know-how, abilities, control prowess, and entrepreneurship. Third, exchange acts as a bridge for the waft of cash throughout global borders, substantially from advanced to negative nations. Last however now no longer least, loose trade the world over is the first-class antimonopoly method and the most powerful warranty for keeping open competition (Caporale et al., 2009). In order to bolster network or local trade, nations may want to undertake techniques to enhance global exchange thru extra openness or rules to bolster network or local exchange thru feasible cost chains inside local integration, in accordance to (Afesorgbor, 2018). Two fashions with fixed-results panels had been computed for this. Data from ECOWAS countries protecting the years 1995 to 2012 had been used to estimate the fashions. Their findings advised that so one can assist every u. s. attains its capability for sustained boom instead of the intermittent boom, local integration wishes to be bolstered and higher encouraged. They got here to the conclusion, primarily based totally on those findings, that local exchange connected to the improvement of cost chains is an advanced method of selling financial boom for ECOWAS participants than global trade.

## **2.4 Role of Turkey on Somalia's Trade and FDI**

Turkey, which assisted Somalia during the 2011 famine crisis, realized that humanitarian aid was insufficient and decided to support Somalia in development, state building, health, education, and other sectors, because Somalia had been in civil war for more than 20 years and had become a failed state due to the collapse of its institutions, which urgently needed new infrastructure so that its citizens could rebuild their lives. Rebuilding Somalia will undoubtedly take a long time and a large investment, both from Somalis and the international community. In addition, a suitable political and social environment must be created.

Unlike other countries, Turkey's development assistance plays an important role in Somalia's state-building and the restoration of peace and prosperity by implementing development-oriented solutions in problematic areas. Turkey contends that development in Somalia cannot occur without first achieving stability.

Turkish development policy for Somalia is not limited to humanitarian assistance, but also includes direct budget support, agriculture, health, security, reconciliation, and many other areas. Besides that, Turkish governmental and non-governmental organizations, including the Turkish Cooperation and Development Agency (TIKA), the Red Cross, the Disaster and Emergency Management (AFET), the Religious Affairs Directorate, the Ministry of Health, the Istanbul Municipality, and many others, are pioneering in Somalia's reconstruction and development. These organizations are attempting to meet Somali people's needs in areas such as education, health infrastructure, security, and agriculture.

Since 2011-2012, Somalia has been one of the first three countries to receive official development assistance from Turkey. In 2011, Turkish private companies donated \$365 million to Somalia, while the Turkish government contributed \$49 million (Yuekleyen and Zulkarnian, 2015). We would like to express our gratitude to the Turkish company for making this intensive campaign for Somalia possible. Over \$100 million has been invested in Somalia by the private sector (Milliyet, 2018).

TIKA has opened hundreds of water wells throughout Somalia to provide people with safe drinking water. TIKA's presence in Somalia began after Erdogan visited Mogadishu and established an office to carry out projects in many different areas throughout Somalia, particularly in Mogadishu. Religious foundations and other institutions have educated hundreds of Somali students. Some have graduated and returned to Somalia, where they are currently working to restore the Somali state. Throughout Somalia, Turkish non-

governmental organizations are actively engaged in humanitarian and development assistance.

IHH built the Anatolian Orphanages Education Complex in Mogadishu in 2013, where 100 orphanages receive free education. IHH has also provided free eye surgeries to those who have lost their sight. Turkey has also sent 300 medical personnel and 90 doctors to Mogadishu to serve the Turkish hospitals that have been built there. The majority of these hospitals were completely free of charge. Turkey also established a consulate in Somaliland in response to the needs of the Somali population in Somaliland. Humanitarian and development activities are being carried out in Somaliland by both government and non-governmental organizations, particularly in the education and health sectors.

Due to a lack of industrialization and manufacturing facilities, the Somali economy is almost entirely reliant on imports to meet its basic needs. However, the country's economy is recovering as a result of the country's relatively stable political environment. The country is looking for international companies as foreign direct investors, and many countries, including China, India, and Turkey, are interested in investing in Somalia. Turkey differs from these countries in this case because Turkey and Somalia share a common religion and culture. As a result, the country has attracted Turkish direct investors, and Turkish investors have benefited. Turkey's economic relations with Somalia have historically been poor. According to Turkish Deputy Prime Minister Recep Akda, Turkish investments in Somalia totaled \$2 million in 2003. (Milliyet, 2018)

### **Export and import between turkey and Somalia**

Turkey's involvement in Somalia has also increased trade volume between the two countries; in 2010, Turkish exports to Somalia were \$5.1 million; in 2016, trade relations increased to \$123 million. While the country's long-running civil war and lack of stability have scared off many investors, Turkey sees business opportunities in the country's strategic location and natural resources. The Somali-Turkish Businessmen's Association was founded in 2012 with the goal of improving commercial relations between the two countries; in 2018, another business conference was held in Istanbul. (Hurriyetdailynews, 2016).

According to a Heritage Institute article by (Mahad Wasuge, 2016) who interviewed many Somali officials, some of the interviewees raised concerns that the trade relations between Somalia and Turkey aren't balanced, and a civil society member urged Turkey to open its

market to some Somali exports. However, because the Somali government generates revenue from each of the companies, the annual government budget has increased.

Countries in an open economy focus on improving their citizens' quality of life, and quality of life is an indicator of economic development. Mishra (2011) studied the dynamic relationship between India's exports and economic growth. Vector error correction and cointegration estimations were used on time series data from 1970 to 2009. The findings indicate that India's export-led growth strategy is being rejected. Niishinda (2013) conducted another study on Namibia, this time looking at the relationship between exports and economic growth in the country. Data from 1972 to 2010 were used as time series.

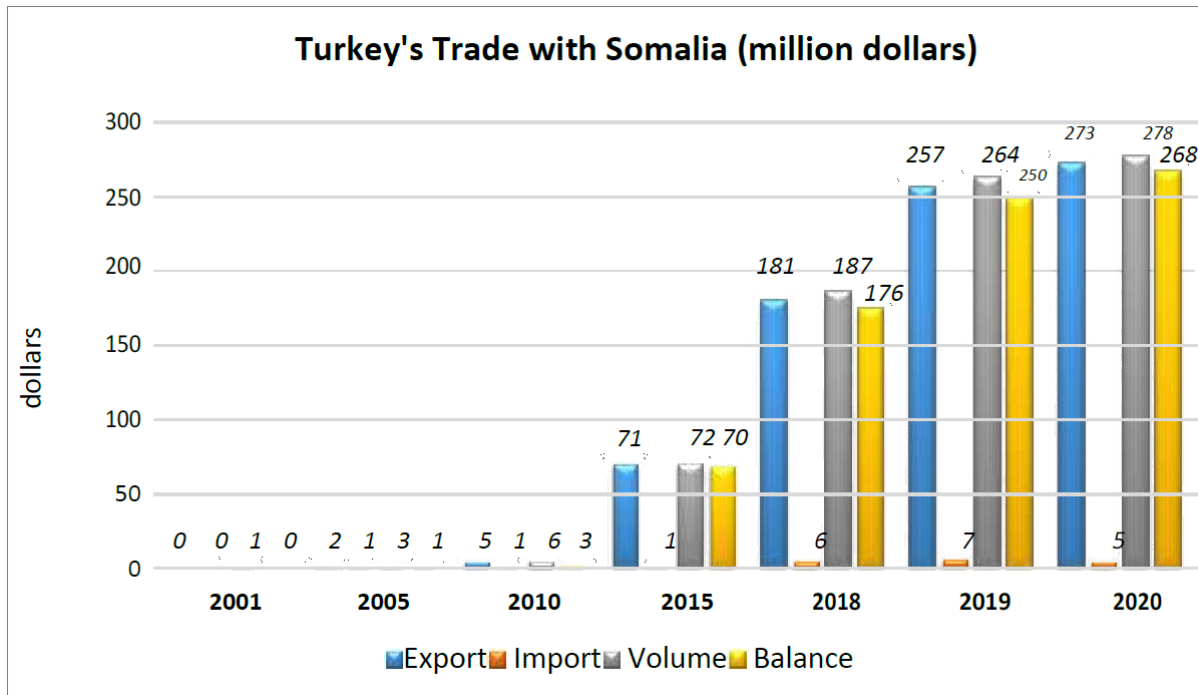
The vector-error correction model (VECM) and Granger causality tests were used to assess the nature of the relationship between the variables. The findings indicate that Namibia's economic growth is dependent on export performance.

Somalia exported \$1.36 million to Turkey in 2010 and imported \$4.8 million, resulting in a manageable trade deficit. However, after Albayrak Group took over management of Mogadishu Port, Turkish exports to Somalia increased exponentially, rising from \$37.5 million in 2011 to \$256 million in 2019, despite the fact that Somalia's exports to Turkey increased by only \$6.7 million during the same time period (OEC world 2019). In comparison, Somalia exported \$18 million to China and \$195 million to the UAE in 2019.

Despite the fact that Somalia has a port revenue-sharing agreement with Albayrak, which receives 45%, this has resulted in one-sided trade, with Turkish traders importing nearly 50 times more Somalia than Somali traders exported to Turkey in 2020. (daily Sabah, 2021).

## **General Status**

### **2.4.1 Turkey - Somalia Foreign Trade**



Somalia Ankara's economic relations with Somalia improved dramatically in 2011, with bilateral trade volume between the two countries exceeding \$140 million. In just six years, Turkey rose to become Somalia's fifth largest importer (TRT World, 2018). According to experts, these figures will rise rapidly, but the two countries must create a secure and appropriate investment environment for their businessmen. Today, a significant number of Somalis use Turkish textiles, particularly in the clothing sector, and Turkish businesses can easily export their products to Somalia.

#### **2.4.2 Airports and Ports**

Turkey realized that humanitarian aid was insufficient for Somalia and decided to support the country in areas such as development, state building, the health sector, education, and investment. However, Somalia requires significant international investment. Considering this opportunity and increasing Ankara's efforts to expand its business activities in Africa, Turkey relocated to Somalia for investment purposes. Following Erdogan's visit to Somalia in 2011, Turkey's investment accelerated (TRT World, 2018). However, Somalia is opening up a new market for Anatolian businessmen, which Ankara has benefited from due to its first mover advantage in Somalia. As a result, many Turkish companies have begun to expand their commercial activities in various areas of Somalia.

Turkey's development projects are visible in Somalia, particularly in Mogadishu, where the Turkish International Cooperation and Development Agency renovated and built the city's most important roads, which had been completely destroyed by the country's civil war. While

Turkish private companies carry out commercial projects in Mogadishu, for example, Favori LLC company has managed Mogadishu Aden Adde international airport since 2013, Turkey renovated and repaired the terminal. On September 15th, Favori LLC took over administration of the airport from SKA, a South African company. The Somali Prime Minister and the Minister of Internal Affairs attended the ceremony, and the contract is for 15 years (Dunya, 2013).

Favori LLC's goal is to bring Mogadishu Airport up to international standards as soon as possible and to open it to international flights from all over the world. The Albayrak group, on the other hand, took over administration of one of Somalia's most important ports, the Mogadishu port, for a period of 20 years, with the Somali government receiving 55% and Albayrak receiving the remaining 45%. (Albayrak, n,d).

After Turkish companies took over Mogadishu International Airport and Mogadishu Port, they increased Somalia's federal government's monthly income; Mogadishu Port is now the Somali government's largest source of income. There is no doubt that, in the absence of a strong government in Somalia, Turkish companies profit from these two sources. This is due to Turkish companies expanding significantly in order to increase their revenues over the previous years. Previously, the airport and port were managed by both domestic and foreign companies.

Turkish Airlines (THY) began operations in 2016. Turkish-Somali Relations The inauguration of THY international flights in September 2013 on State Identification and Foreign Policy for the economic revival of Somalia was very significant. "Albayrak," the country's largest international airport, has been in operation since 2013.

Due to the country's long-running civil war, the Somalia Aden Adde International Airport was largely destroyed and only provided very limited service to the people until 2015. In 2013, the Turkish company signed an agreement with the Somali government to operate, modernize, and build new buildings at the airport. The agreement specifies a 20-year projection. Furthermore, the airport will be operated by the company under the build-operate-transfer mode (BOT).

In 2015, the new airport was dedicated. The airport's aircraft capacity will be increased to 60 from 15 prior to 2015. Similarly, the airport's passenger capacity will increase from 60 to 5000 people. If necessary, the same Turkish company will build another airport in Mogadishu, according to the agreement ('Somali'ye) Turk Firma Havalimani Yapacak', 2015). A Turkish company (PGM) signed an agreement with the Ministry of Industry to begin operations in May 2015. According to the agreement, the Turkish firm will inspect the

quality of imports and exports products and implement quality assurance standards; since the 1990s, there have been no regulations on the country's market products ("Products in Somalia to be inspected as Government Contracts Turkish Firm",2015).

Albayrak, a Turkish company, has owned Mogadishu's largest seaport since 2014.

According to the agreement signed between the company and the government in September 2014, the government will receive 55% of the revenue, while the company will receive 45 percent of the revenue for seaport modernization. The Turkish company will operate the port for the next 20 years ("Turkish Company Transfers \$1,58200 to the Government of Somalia" As Port Revenue of a Month", 2015). The company has set aside \$80 million for seaport modernization ("Somali Hands Over Mogadishu Seaport to Turkish Company," 2015). On April 7, 2012, Turkish and Somali businessmen organized the first Somalia-Turkey Business Forum in Somalia. The forum was a watershed moment for Somalia because, due to the country's brutal civil war, no business forums with foreign countries had been organized since the 1990s ("Somali'de 20 yilsonra IsForumu", 2015).

### **Education**

Turkish officials have stated unequivocally that their aid is being invested in Somalia for the long term. Official assistance has shifted from humanitarian relief to bilateral development assistance primarily focused on physical infrastructure, health, and education. The Federal Government has also received capacity-building assistance and direct budgetary support for state building. Despite ongoing insecurity, Turkish officials believe they have been more willing than other donors to provide development aid, including education.

The Turkish government offers scholarships to many Somali students ranging from high school to Ph.D. levels. There are approximately 4.000 Somali students in Turkey, with half of them receiving Turkish government scholarships. Many other students also received private funding from Turkish institutions in 2011. Turkey also established nursing and technical schools in Mogadishu, as well as vocational training centers in central Somalia and Somaliland. The Yunus Emre Institute has a language and culture center in Mogadishu, and the Turkish Maarif Foundation opened its first schools outside of Turkey in Mogadishu. (TIKA, 2016).

TKA, in collaboration with the NGO Save Somali Women and Children, organized sewing classes for 100 female victims of gender-based violence in Somalia, as well as providing them with the necessary equipment to start their businesses and food during the four-month courses. TKA aimed to transform the women into individuals who generate economic value

for their families and society by assisting graduates of these courses in establishing their businesses.

### **Health**

Since the fall of the central government, Somalia's health sector has been in disarray, exacerbated by repeated wars and droughts. From 2011 to the present, Turkish government institutions and non-governmental organizations (NGOs) have played a significant role in providing health services in almost all parts of Somalia. In addition to Somaliland, Turkey renovated and built hospitals in Mogadishu and surrounding areas, including the Recep Tayyip Erdogan Hospital, which provides new services that were previously unavailable; the hospital is the most advanced in East-Africa. The Turkish Ministry of Health also made significant contributions to the country's health sector.

The Ministry of Health has deployed 265 medical personnel to Somalia. Turkish doctors in Somalia have examined and operated on thousands of patients (Ministry of Health, 2012).

Recep Tayyip Erdoan Hospital was built by Turkish Housing Development Administration (TOK) on the site of the former Dikfer Hospital in Mogadishu and was fully equipped by TKA. Based on an area of 44.632 m<sup>2</sup>, the hospital will be operated jointly by the Turkish Ministry of Health and the Somali Ministry of Health for the next five years, and it is one of the most advanced hospitals in the East African Region in terms of equipment and capacity. The hospital has polyclinics for internal diseases, gynecology, paediatrics, and urology, as well as a 28-bed emergency department, 4 operating rooms, and 20 intensive care units. The hospital, run jointly by Turkish and Somali doctors, has helped to resolve long-standing crises in Mogadishu's health service and, in the long run, has contributed to the vocational formation of Somali doctors, nurses, and health administrators, providing a long-term contribution to Somali health infrastructure. (TIKA, 2016).

According to Addow (2015), Turkish governmental and non-governmental hospitals in Somalia have built or renovated more than four hospitals, with more planned to be built or renovated soon. TIKA has worked on construction projects in Somalia, particularly in Mogadishu, and has renovated some of the city's most important roads. TIKA has also contributed to the construction of schools, hospitals, parliament buildings, ministerial buildings, and the Turkish military academy in Mogadishu.

## **2.5 Empirical studies on Control Variables**

### **2.5.1 Government Expenditure and Economic growth**

As economists and policymakers try to figure out how financial development affects economic growth, their relationship with macroeconomic variables has gotten a lot of attention. Because of the lack of agreement on the results and conclusions reached. In theory, Keynesians believe that government spending has a positive impact on economic growth, whereas Classical and Neoclassical economists believe that government spending has a negative impact on economic growth (Jawaid, Syed Tehseen, & Raza, 2012). There are also those who believe that there is a happy medium in which government spending has a positive effect on economic growth up to a certain point, after which the effect is thought to be negative (Bosworth, 2014).

Despite the fact that economists, lawmakers, and policymakers have all paid attention to the relationship between government spending and economic growth over time, the debate continues. It is debatable whether the size of government has a significant, insignificant, or insignificant effect on economic growth. On this contentious subject, various schools of thought have reached opposing conclusions. Government spending, according to Keynesian theory, has a positive effect on economic development. According to Keynesians, fiscal expansion leads to economic growth in direct proportion to the amount of government spending (Matarr & Momodou, 2021). The idea is that as government spending rises, production will fall, stimulating general demand and, as a result, GDP will rise.

Mustaq and Siddiqui (2016) conducted an empirical study of growth factors for nearly 100 different countries using data from 1960 to 1995. Government spending and investment were two major factors influencing key components of the report. One of the study's key findings was that public investment spending contributes to economic growth. It was decided to support public investment spending in order to promote economic development. (Caporale et al., 2009) concluded that public spending has a positive effect on economic growth based on a sample of developing countries. They investigated the relationship between public spending and growth in the Group of 30 developing countries, focusing on the decline in public spending in the 1970s and 1980s.

Economic growth and public investment spending are both positively and significantly correlated. According to a study that used a method that took into account the effects of budget constraints as well as potential biases due to omitted factors. Furthermore, after taking into account budget constraints and missing variables, the only expenditures that had a

positive effect on economic growth at the disaggregated level were government investment in education and total education expenditures.

### **2.5.2 Interest rate and Economic growth**

Interest rates can have a significant impact on the rate and pattern of economic growth by influencing the quantity and efficiency of investment as well as the volume and disposition of savings. This is especially true in countries with advanced financial markets or where private investment accounts for a sizable portion of total investment. Even in countries with less developed financial markets or where the public sector is primarily in charge of investment, interest rates can have a significant impact on household savings mobilization and investment decisions (di Giovanni & Shambaugh, 2008).

According to (Taderera, Christie, Runganga, Simbarashe and Mishi, 2021), there is a poor correlation between interest rates and economic growth. On the other hand, interest rates are not a significant factor when making investment decisions, according to Ribaj and Mexhuani (2021). From 1970 to 2002, they looked at investment trends in 21 emerging Muslim countries. They come to the conclusion that using the fixed effects model, debt service has a negative effect on investment while all other variables, such as investment lag, real GDP growth per per capita, domestic savings, institutional development, and trade openness have negative effects. Positive impact.

Foreign aid and loans to the private sector have favourable and significant effects, but the results are unreliable. Most estimates place the peak of global interest rates at or around 1990, when a long period of steady decline began. As a result, research gradually focused on efforts to explain what turned out to be an unusually low interest rate. (Anaripour, 2011) presents an in-depth analysis of the behaviour of nominal and real long-term bond yields in the major OECD countries. They base their estimates of the real rate on surveys of inflation expectations, limiting much of their study to the years starting in 1990 or the H-P average of real inflation over a period of time. Longer time.

They city the overall decline in long-term interest rates in all economies since the mid-1980s, the relatively flat yield curve, and the compressed risk premium as supporting evidence. The greater credibility of monetary policy, which has already narrowed the range of projected future interest rates, changes in global saving and investment behaviour, and the growing

preference of portfolios. Portfolios for safe-haven bonds versus risky actions are all considered to be responsible for these changes.

### **2.5.3 Exchange Rate and Economic Growth**

Economists retain to vigorously dispute the theoretical literature on the connection between monetary boom and foreign money fees. According to the take a look at with the aid of using Diamond (1990), theoretically speaking, the home economic system can also additionally go through if the government's economic regulations and alternate fees are uncertain, as this could result in a decline in the nominal hobby fee and growth inside the fee of the home foreign money. The effect of alternate fee volatility on the fitness of the economic system, on the alternative hand, is depending on how charges are established, in accordance (Kimaro et al., 2017).

Exchange fee volatility is an end result of the cyclical nature of macroeconomic forces and the dynamism of the commercial enterprise environment. A foreign money's fee will increase while its actions upward, whilst a downward motion implies a lack of fee (depreciation) in the evaluation of different currencies (Mostafa, 2021). The effect of fluctuating foreign money fees on charges and global alternate among the US and Germany changed into studied with the aid of using (Alice, n.d.). According to the studies, which changed into finished between 1965 and 1975, alternate fee uncertainty has a bad effect on alternate but a good effect on the pricing of products in which the exporter is a hazard-taker. Importers had been observed to have a variable bad effect on marketplace pricing, while uncertainty is expressed as the same old deviation of spot and ahead alternate fees over a three-month period.

(Nyasha & Odhiambo, 2019) used the Autoregressive Distributed Lag (ARDL) version of their studies to study the consequences of alternate fee hazard on alternate flows withinside the quick- and long-time period for twelve African international locations between 1971Q1 and 2015Q4. Compared to different co-integration-primarily based totally methodologies, the ARDL approach presents benefits in forecasting. Exports and imports may be advanced or worsened with the aid of using alternate fee volatility; however, the impact is extra reported withinside the quick time period (Aluthge et al., 2021). In a comparable vein, (Jiranyakul, 2013) investigated the consequences of alternate fee volatility on Turkey's alternate with the 15 European international locations between 2002 and 2013, the use of Generalized Autoregressive Conditional Heteroscedasticity (GARCH) (1, 0) to calculate volatility. In order to calculate volatility for time collection information, the GARCH version is a statistical version this is appeared as being dependable. The key empirical end result from

Jiranyakul (2013) is that, withinside the quick time period; foreign money fees have a bad effect on export flows. Long-time period effect on import-associated industries, however, is mixed. In addition, the fluctuation in foreign money fees has little effect on Turkey's alternate with international locations withinside the EU.

#### **2.5.4 Terms of Trade and Economic Growth**

Compared to the studies on the consequences of phrases of alternate volatility, that's older and extra debatable, the literature on the connection between monetary boom and secular traits in phrases of alternate (Blattman et al., 2003). On the situation of the way long-time period modifications in alternate phrases have an effect on the boom, there may be simply no absolutely well-articulated theory, an awful lot much less a consensus. According to 1 institution of analysts, alternate phrases and profits boom may be undoubtedly correlated. Just above, we referred to Singer's locating that growing phrases of alternate can bring about surpluses for long-time period capital accumulation. This thesis seems to be supported by the aid of using the empirical investigations which have been reviewed (Mandl et al., 2008). Although Singer's paintings is maximum famous for any other assertion, now no longer this one. There have been a few current theoretical and empirical help for the effect of structural variations among production and number one output on alternate phrases. According to a theoretical version advanced with the aid of using Awel and Desalegn (2018), growing international locations can also additionally end up imprisoned with the aid of using the specialization that changed into handed right all the way down to them from in advanced generations for a collection of products with inelastic fee and profits levels.

Prebisch-Singer technique sees productiveness upgrades translating into decreased charges as opposed to better wages. In extra current years, (Parikh, 2011) advanced a version of fee willpower withinside the number one product and production sectors, treating wages and charges in number one output as competitively decided whilst the ones in production are set with the aid of using mark-up pricing and union-enterprise negotiations.

They locate proof to help the Prebisch-Singer speculation of losing pricing of number one merchandise relative to the ones of producers the use of fee and salary information from the post-World War II period. The speculation that secular phrases of alternate upgrades and monetary growth withinside the principal product-generating outer edge do now no longer correlate favorably has little helping information.

For instance, (Farahane & Heshmati, 2021) observed that despite the fact that modifications in phrases of alternate among 1870 and World War I helped exporters of number one merchandise, they hindered their growth. Asymmetry withinside the boom effect among the center and the outer edge is likewise strongly supported with the aid of using their findings. However, they did now no longer study the effect of volatility and simplest covered a small variety of the growing international locations that remained impoverished as much as World War II of their pattern. In order to decide the effect of phrases of alternate boom and volatility over the term that gave an upward push to the Prebisch-Singer dispute withinside the first place, a big pattern of growing international locations has to be employed (Growth & Mobility, 1997).

## **2.6 Summary of the Literature**

in this chapter, the literature on the monetary boom, bilateral alternate, and overseas direct funding has been reviewed. The several empirical strategies used by one-of-a-kind pupils have additionally been reviewed. The dating among bilateral alternate, overseas direct funding, and the monetary boom have been the situation of diverse research and the use of diverse methodologies. Early research that checked out the connection among bilateral trade and monetary boom tended to the consciousness of advanced economies' studies and produced various findings. Therefore, there may be nevertheless an understanding hole approximately whether or not excessive bilateral trades have an effect on monetary boom episodes, especially in a low GDP USA like Somalia. Assuming both implicitly or explicitly that bilateral alternate performs no function or that its consequences are not directly captured with the aid of using different variables, the bulk of research which has been performed simply determines the elements that affect overseas direct funding. They do now no longer, however, consist of bilateral alternate of their regressions. This takes a look at will as a result upload to the frame of understanding concerning the effect of bilateral alternate and overseas direct funding on the monetary boom.

### 3. Research and Methodology

The strategies and methods used on this study takes a look at to perform the favored targets are defined on this chapter. These encompass the information supply and type, variable choice and description, pre-estimation checks, version formulation, diagnostic checks, and moral considerations.

#### 3.1 Data Sources and Variable Definition

In this investigation, secondary data were employed. Data on bilateral trade, interest rates, government spending, exchange rates, gross domestic product (GDP), and terms of trade are derived from the Bank of Somalia, however information on foreign direct investment is obtained from the Somalian ministry of planning and economic development. To examine the impact of bilateral trade and foreign direct investment on Somalia's economic growth, the study used time series data with quarterly observations spanning from 2006Q1 to 2020Q4.

#### 3.1 Variable Definition and Measurement

| Variable                        | Definition                                                                                                                                                                                                                                                           | Unit of measurement      | Expected sign |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|
| Gross Domestic Product (GDP)    | GDP is the monetary value of all a country's goods and services.                                                                                                                                                                                                     | Billion Somali shillings | +/-           |
| Foreign direct investment (FDI) | FDI is a funding with inside the shape of a controlling possession in an enterprise in a single use through an entity primarily based totally in any other use. It is accordingly outstanding from an overseas portfolio funding through a belief of direct control. | Percentage               | +             |
| Exchange rate (ER)              | The Exchange rate is the rate of 1 foreign money in phrases of any other foreign money.                                                                                                                                                                              | Shillings/US\$           | +/-           |
| Bilateral trade                 | A bilateral alternate is alternate solely among states, particularly, barter alternate primarily based totally on bilateral offers among governments, and without the use of difficult foreign money for payment.                                                    | Billion Somali shillings | +             |
| Government expenditure (GE)     | Government expenditure refers back to the sources allotted via way of means of the authorities to social items and offerings consisting of fitness care, training and                                                                                                | Billion Somali shillings | +             |

|                   |                                                                                                                                                           |                   |   |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---|
|                   | infrastructure.                                                                                                                                           |                   |   |
| Interest rate (I) | Interest rate is the charge a borrower will pay for using borrowed cash from a lender/economic establishments or price paid on borrowed assets.           | Percentage        | - |
| Terms of trade    | Terms of Trade are the common charge of exports via way of means of the common charge of imports. It is a degree of a country's relative competitiveness. | Billion shillings | + |

### 3.2 Data Analysis

Data was analyzed using E-views (version 9.0). The reliability analysis, which was a log-log model, was used to determine the long run dynamics of the model, and graphs were used to check for some characteristics of the variables. The Granger causality test was used to examine causality.

### 3.3 Pre- Estimation Tests

The following tests were performed to determine the validity and reliability of the study's conclusions because using time series data raises a number of economic concerns about the robustness of the regression results.

#### 3.3.1 Testing for Normality for The Variables

The Jarque-Bera statistic check was used to determine whether or not the variables were allotted normally. The statistical analysis contrasts the null hypothesis—that the collection is normal—with the alternative hypothesis—that the collection is not normal. When the probability of the statistic exceeds the 0.05 level of significance, the collection is considered normal, and vice versa.

### 3.3.2 Augmented Dickey-Fuller Test for Stationarity (Unit Root Test)

The first step in time series analysis is to determine whether the data is stationary, because using non-stationary data will yield false results, resulting in skewed relationships between the data. variable. Argumented Dickey Fullur (ADF) was used in this study to test the data's stability. The following regression estimate is used in the test: 
$$Y_t = \alpha_1 + \alpha_2 t + \alpha_3 Y_{(t-1)} + \epsilon_t \quad (3.1)$$
 where  $t$  is the time trend,  $\epsilon_t$  is the pure white noise error term,  $m$  is the maximum number of delays, and  $Y_{(t-1)} = Y_{(t-1)} - Y_{(t-2)}$ ,  $Y_{(t-2)} = Y_{(t-2)} - Y_{(t-3)}$ , and so on. The ADF test hypotheses are determined as follows:  $H_0 = 0$  and  $H_a = 0$ .

### 3.3.3 Lag Order Selection Criteria

The ideal variable lag time was chosen using Akaike's Information Criterion (AIC), which minimizes the natural logarithm of the residual sum of squares (adjusted for the number of observations) and the number of parameters included in the model.

$$AIC = \log |\hat{\Sigma}| + \frac{2k}{T} \quad (3.2)$$

Where:

$\Sigma$  is the residuals' variance-covariance matrix,  $k$  is the number of regressors, including the intercept, and  $T$  is the number of observations.

### 3.3.4 Johansen Test for Co-integration

The cointegration test was used in the study to determine whether there were any long-term linkages between the variables in the model due to the non-stationarity of various time series data. The method developed by Johansen (1988) and Johansen and Juselius (1990) is widely accepted as preventing variables that are expected to have some theoretical economic link from diverging over time. Although these variables may diverge in the short term, they tend to converge to equilibrium over time. Using this method, the study was able to reach conclusions that were consistent with economic theory while avoiding data loss due to non-stationary series differencing.

The framework for estimating maximum likelihood proposed by Johansen and Juselius (1990) can be expressed as: .....

(3.3) weeks;  $p$  is the optimal delay length,  $\pi_i$  is the tracking statistics matrix (I-A1 -A2 - ... - Ak),  $\pi$  is the eigenvalue statistics matrix - (I-A1 -A2 - ... -Ak),  $\epsilon_t$  is the inappropriate error term, and  $\Delta$  is the first difference operator of

### 3.3.5 Pairwise Granger Causality Tests

We examine the causal relationship between the variables using the Granger causality paradigm. When there is a long-run relationship, the granger-causality test requires that a lagged error correction component be included in a vector error correction model (VECM). Ordinary linear regression does not always reveal which variable influences another and in which direction based on the variables' relationships. In time series regression, however, if event A occurs before event B, it is possible that A causes B to occur, but the converse is never true. This study will employ the vector auto-regression method to establish positive relationships between variables (VAR). Typically, the formula is tested within linear regression models. Consider the following two-way linear autoregressive model, which has two variables, X and Y:

The granger causality for this study is expressed as follows:

$$Y_t = \alpha_0 + \sum_{i=1}^p \alpha_i X_{t-i} + \sum_{j=1}^p \beta_j Y_{t-j} + \epsilon_t \quad \dots\dots\dots (3.4)$$

$$X_t = \lambda_0 + \sum_{i=1}^p \lambda_i Y_{t-i} + \sum_{j=1}^p \gamma_j X_{t-j} + \mu_t \quad \dots\dots\dots (3.5)$$

Where;

$X_t$  and  $Y_t$  are time collection variables, in which  $X_t$  stands for our impartial and manipulate variables and  $Y_t$  is our established variable (inflation);  $\varepsilon_t$  and  $\mu_t$  are residual phrases of regressions;  $t$  suggest time, and  $i$  and  $j$  display lag length.  $\alpha$ ,  $\beta$ ,  $\lambda$  and  $\gamma$  are coefficients  $P$  is the widest variety of lagged observations blanketed inside the model when the opportunity cost is much less than 0, the null speculation ought to be rejected. 0.05 And it could be concluded that  $X$  Granger reasons  $Y$  with inside the first regression and vice versa within side the 2nd regression.

### 3.4 Model Specification

#### 3.4.1 The Long Run Model

The Vector Autoregressive (VAR) model, developed by Sims (1980), is one of the most successful, adaptable, and simple models for the analysis of multivariate time series. It is used to comprehend the interdependence of numerous time series. The VAR model has proven to be very useful for forecasting and characterizing the dynamic behavior of economic and monetary time series. Every variable in a VAR model is treated symmetrically in terms of structural treatment; each variable has an equation that describes its evolution using both its own lags and the lags of the other variables in the model. To investigate how bilateral trade, foreign direct investment, and economic growth interact, a vector autoregressive (VAR) model is the best choice.

The VAR models **with** lag  $P$  used in this study can be represented in the model description:

$$GDP_t = \beta_0 + \sum_{i=1}^p \beta_1 GDP_{t-1} + \sum_{i=1}^p \beta_2 BT_{t-1} + \sum_{i=1}^p \beta_3 FDI_{t-1} + \varepsilon_{1t} \dots \dots \dots (3.6)$$

$$BT_t = \beta_{10} + \sum_{i=1}^p \beta_{11} BT_{t-1} + \sum_{i=1}^p \beta_{12} GDP_{t-1} + \sum_{i=1}^p \beta_{13} FDI_{t-1} + \varepsilon_{2t} \dots \dots \dots (3.7)$$

$$FDI_t = \beta_{20} + \sum_{i=1}^p \beta_{21} FDI_{t-1} + \sum_{i=1}^p \beta_{22} GDP_{t-1} + \sum_{i=1}^p \beta_{23} BT_{t-1} + \varepsilon_{3t} \dots \dots \dots (3.8)$$

Where;

GDP denotes gross domestic product at time  $t$ , FDI denotes foreign direct investment at time  $t$ , BT denotes bilateral trade at time  $t$ , and  $P$  denotes the maximum number of lags.  $\beta_0$ ,  $\beta_{10}$ ,  $\beta_{20}$  are intercepts.  $\beta_1$ ,  $\beta_{11}$ ,  $\beta_{12}$ ,  $\beta_{13}$ ,  $\dots$ ,  $\beta_{23}$  are slope coefficients.  $\varepsilon_{1t}$ ,  $\varepsilon_{2t}$ ,  $\varepsilon_{3t}$  are the error terms.

### 3.4.2 The Short-Term Model

Our VAR Model in levels with non-stationary variables may produce erroneous results, and our VAR Model in first differences with co-integrated variables is incorrectly defined, according to Engle and Granger (1). In the latter case, the error correction term, which represents the long-term relationship between the variables, is reintroduced into the VAR. The model that results is known as the Vector Error Correction Model (VECM). If the time series were stationary and did not co-integrate, the Vector Error Correction Model (VECM) was used to investigate the short-run dynamics between variables. The VECM estimate outperforms both the conventional least square and orthodox VAR estimates once the variables are non-stationary but co-integrated. The following short-term dynamics were proposed based on the error correction model:

$$\Delta GDP_t = \alpha_0 + \sum_{i=1}^p \alpha_i \Delta GDP_{t-i} + \sum_{i=0}^p \beta_i \Delta X_{t-i} + \theta_1 ECT_{t-1} + \varepsilon_t \dots \dots \dots (3.9)$$

Where;

$\Delta$  is the difference operator,  $\Delta [INF]_t$  is the first difference of inflation at time t,  $\Delta X_{(t-i)}$  is the first difference matrix of the regressors at lag t-i.  $[ECT]_{(t-1)}$  represents the error correction term at the first lag, p represents the optimal lag length, and 0 1 represents the rate of adaptation after the variables have been imbalanced and  $\varepsilon_t$  is the error term.  $\alpha_0$ ,  $\alpha_1$  and  $[\beta]_i$  are the parameters to be calculated.

### 3.5 Post Estimation Tests (Diagnostic Tests)

The data was examined for normality, serial correlation, heteroscedasticity, multi-collinearity, model specification, and stability between variables because an econometric model is represented by its parameters.

#### 3.5.1 Jarque-Bera (JB) Normality Test

The normality test will be performed to determine whether the computed skewness and kurtosis values deviate from norms of 0 and 3. The underlying test is as follows:

$$JB = n \left[ \frac{s^2}{6} + \frac{(k-3)^2}{24} \right] \sim \chi^2(2) \dots \dots \dots (3.10)$$

For a variable with skewness  $s=0$  and kurtosis  $k=3$ , where  $S$  is skewness,  $K$  is kurtosis, and  $n$  is the sample size. Thus, the Jarque-Bera method is used to test the joint hypothesis that  $s$  and  $k$  are 0 and 3, respectively. If the program's calculated p-value for the JB statistic is low enough, we reject the null hypothesis that the residuals are normally distributed and JB is distributed as a chi-square statistic with two degrees of freedom (Damodar & Dawn, 2009). However, if the p-value is large enough, we cannot rule out normality.

### **3.5.2 LM Test of Breusch-Godfrey Serial Correlation**

Series correlations are common in time series data. A formal method for determining serial correlation is the Breusch-Godfrey test. To avoid problems with the Durbin-Watson test for autocorrelation, Brusch and Godfrey (1978) independently developed the autocorrelation test (Gujarati and Porter, 2004). This test determines whether the gradient of the unbounded likelihood function in the bounded approximation is close to zero. The Lagrange Multiplier (LM) principle underpins it. If the p-value at the 5% significance level is less than 0.05, the null hypothesis is rejected; otherwise, the null hypothesis is accepted.

### **3.5.3 Breusch-Pagan-Godfrey Test (Heteroskedasticity Test)**

Heteroscedasticity of variance in regression testing, also known as the Brush-Pagan-Godfrey test (or simply the Brush-Pagan test), is a test. The terms "non-constant" and "continuous variance" denote heteroscedasticity and homoscedasticity, respectively.

The Breusch-Pagan-Godfrey test statistic is:  $N * R^2$  (with  $k$  degrees of freedom)

Where  $N$  = sample size and  $R^2$  =  $R^2$  (Coefficient of Determination) of the regression of squared residuals from the original regression.

$K$  is the number of independent variables. The test statistic approximates the chi-square distribution. The null hypothesis for this test is that the error variances are all equal. The alternative hypothesis is that the error variances are not equal. Specifically, as  $Y$  increases, so do variances (or decrease).

### **3.5.4 Error in Regression Equation Specification Test (RESET)**

The regression equation specific error test (RESET) was used throughout this study. The purpose of this test was to determine whether the model was adequately specified. Specific deviations or model-specific errors can occur if the model is not precisely defined. Some of these errors may include using inappropriate variables, using incorrect function forms,

omitting a decision variable, and measurement problems. If the calculated  $F > \text{critical value } F$  ( $F_C$ ) = 2.60, the null hypothesis  $H_0$  was rejected at the 5% significance level. Otherwise, we do not reject the null hypothesis because the model used is misspecified. The statistic (or  $F$  ratio) was defined by  $F = \frac{(SSR_r - SSR_{ur})/q}{SSR_{ur}/(n-k-1)} \dots \dots \dots (3.11)$

Where;

$SSR_r$  = The restricted model's sum of squared residuals.

$SSR_{ur}$  = The sum of the unrestricted model's squared residuals.

$q$  = The degree of freedom difference between the restricted and unrestricted models.

$n$  = number of observations.

$k$  = number of independent variables in the model.

### 3.6 Ethical Consideration

Prior to conducting the study, the Ministry of Finance and Economic Planning, the Bank of Somalia, and the University were all consulted for approval. During the conduct of this study, the protocols used in the research were followed. The study carefully used the available data for research purposes only and not for any other purpose. All information was kept confidential and treated with reasonable discretion. Thus, our study did not support literature bias or plagiarism.

## 4. Data Analysis and Findings

This chapter presents the findings of the analysis. It includes pre-test results such as normality, stationary, and optimal lagged sampling tests, as well as model estimation for short-run effects using VECM and VAR for long-run effects.

### 4.1 Descriptive Statistics

For descriptive analysis, visual time series charts were used for foreign direct investment, bilateral trade, exchange rate, interest rate, GDP, and terms of trade.

#### 4.2.1 GDP

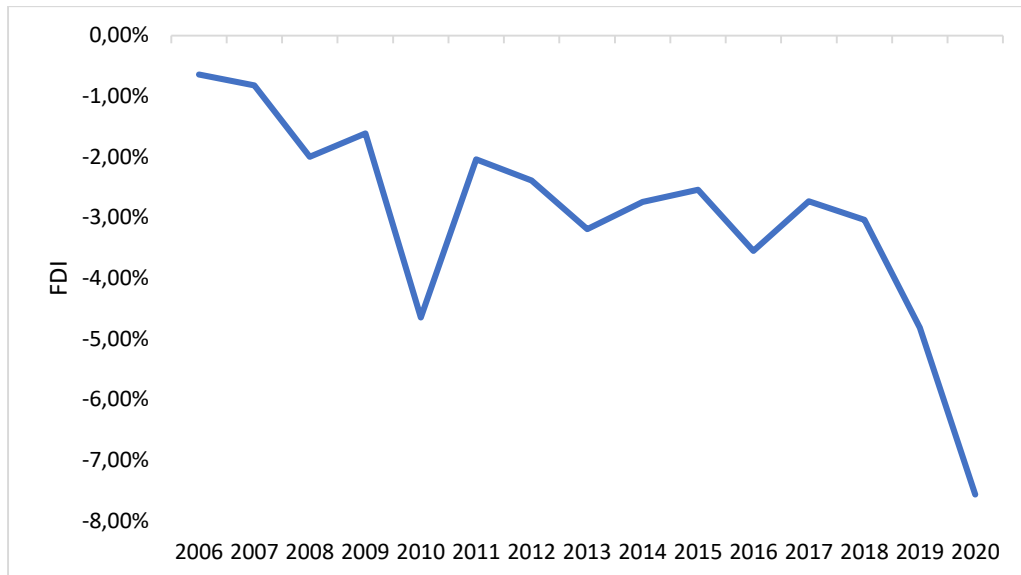
Figure 4. 1: GDP for Somalia



The level of economic activity of the republic was negatively affected by the development of interest rates and exchange rates. According to the table, Somalia's GDP has about four regular declines and only three irregular peaks. The drop in GDP is due to an increase in interest rates and the exchange rate.

### 4.2.2 FDI

Figure 4.2: FDI for Somalia



Since there are few possibilities created by these types of investment for Somalis abroad, the changes in the FDI outflows from Somalia have had no negative effects on employment rates in the economy. Therefore, after domestic investment, FDI inflows continue to be Somalia's biggest source of employment possibilities. Nevertheless, there is hardly any difference between the two employment sources.

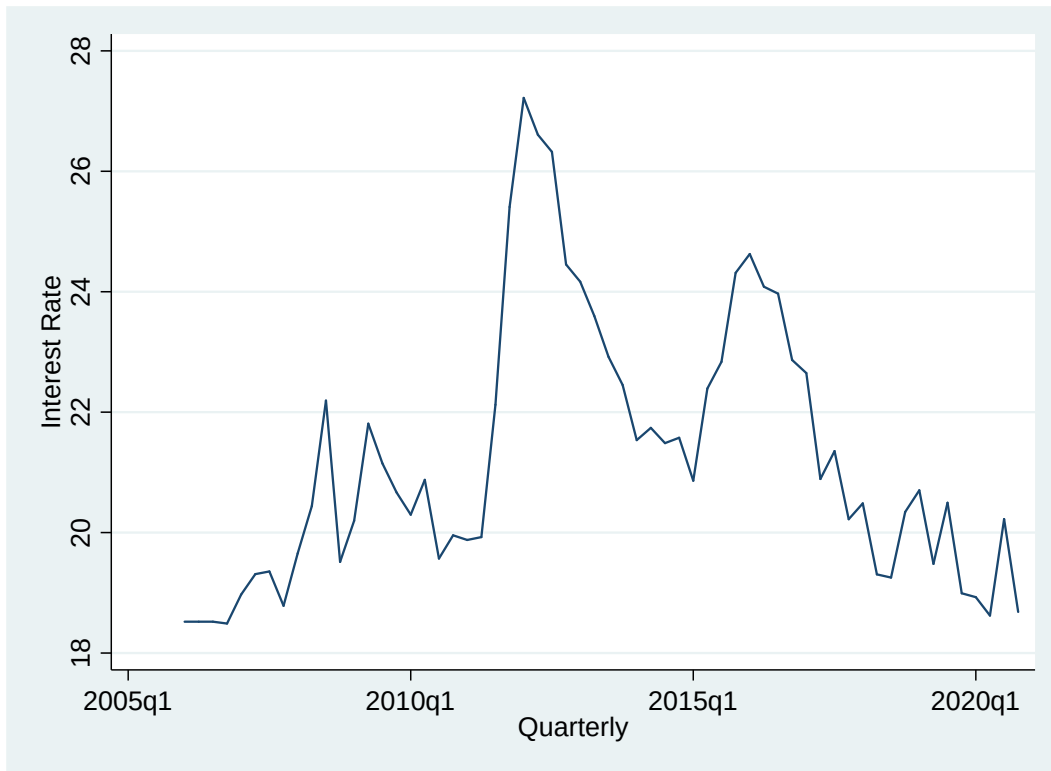
### 4.2.3 Exchange Rate

Figure 4. 1: Exchange Rate for Somalia

The exchange rate in Somalia fluctuates greatly despite being constantly rising. Three years, 2009, 2013, and 2018, had notable rises. The years 2009, 2012, and 2014 saw a decline in the exchange rate. However, for the next five to six years, the exchange rate has been rising steadily. Due to the country's weak USD performance, fluctuating oil prices, and the high demand for imported goods, which causes the national currency to lose out and depreciate, these factors are to blame.

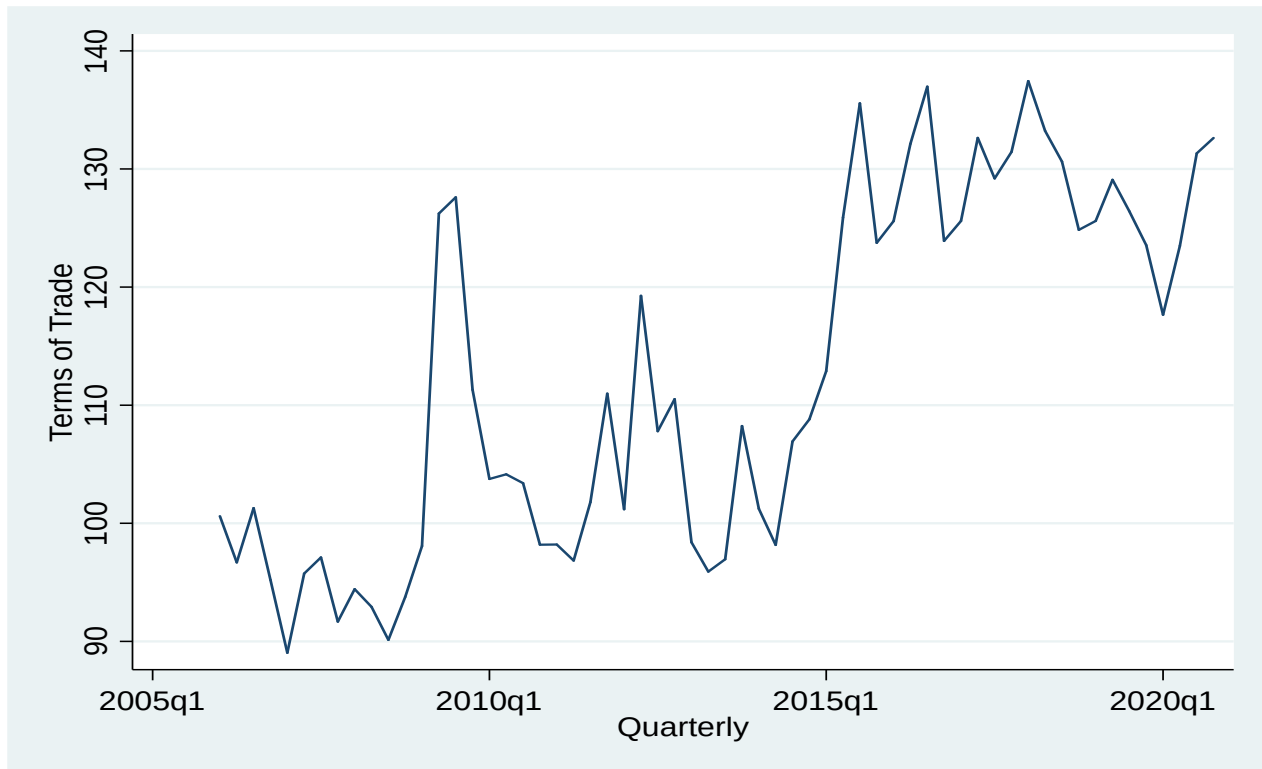
#### 4.2.4 Interest Rate

Figure 4. 2Interest Rate for Somalia



The performance of interest rates in Somalia is incredibly erratic. Consequently, investing in it is very risky. As can be seen, the line plot increased considerably between 2011 and 2016 and then increased again between 2016 and 2019. From the third quarter of 2005 to the first quarter of 2011, it was stochastic, and then it increased between 2016 and 2019. Following this, the Bank of Somalia intervened and lowered the CBR to under 10% in an effort to stabilize interest rates; nonetheless, commercial banks and other financial institutions playing the game have had little success in bringing down rates. The leptokurtic distribution of interest rates makes them extremely risky for business and investment. Because of this, Somalia's economic development is hindered.

#### 4.2.5 Terms of Trade



Significant fluctuations in the country's terms of trade were observed between 2012 and 2014. The terms of trade significant fluctuations in the country's terms of trade were observed between 2012 and 2014. index is then found to exhibit very consistent fluctuations from 2017 to the present. The country's desire to have more imports than exports is what causes the index to fluctuate. The meager income from camel manufacturing is ultimately spent on hefty, opulent automobiles. For the economy, this is quite risky.

#### 4.3 Normality Testing

The Skewness and Kurtosis tests were used in the study to determine whether the predicted variable (GDP) violated the normalcy assumption. This was done after a multiple regression model output was used to determine whether the fitted values or regression residuals were obtained. Second, the study examined the Shapiro-Wilks test to confirm the normality assumption result and to ascertain the validity of the normality result.

**Table 4. 1: Normal data Shapiro-Wilk W test**

| <b>GDP</b> | <b>Obs</b> | <b>W</b> | <b>V</b> | <b>Z</b> | <b>Prob&gt;z</b> |
|------------|------------|----------|----------|----------|------------------|
| Residuals  | 60         | 0.93165  | 3.715    | 2.829    | 0.00234          |

**Table 4. 2: Normality Skewness/Kurtosis tests**

| <b>GDP</b> | <b>Normality Skewness/Kurtosis tests</b> |                     |                     |                                          |                     |
|------------|------------------------------------------|---------------------|---------------------|------------------------------------------|---------------------|
|            | <b>Obs</b>                               | <b>Pr(Skewness)</b> | <b>Pr(Kurtosis)</b> | <b>----- joint -----<br/>adj chi2(2)</b> | <b>Prob&gt;chi2</b> |
| Residuals  | 60                                       | 0.6972              | 0.0000              | 17.70                                    | 0.0001              |

The output deviates from normalcy, as can be shown in Tables 4.1 and 4.2. Due to a modest standard error and thus a comparatively low p-value of 0.00234, the Wilks test statistic ( $W = 0.93165$ ) was on average stronger than the other statistics generated. Since the residuals weren't normally distributed, The low p-value disproved the null hypothesis, favoring the alternative hypothesis (that the GDP residuals were normal). The normality assumption was also not met, as indicated in Table 4.2, because the p-value for Kurtosis was very low.

#### 4.4 Stationarity Test

The following were the results of the subsequent hypothesis: There is no such thing as  $H_0: = 0$ . (i.e., there is a unit root or the time series is nonstationary, or it has a stochastic trend).  $H_1: 0$  is an alternative possibility (i.e., the time series is stationary, possibly around a deterministic trend).

**Table 4. 3 showing stationarity test results**

| <b>Variables</b> | <b>Statistic for ADF tests</b> | <b>Critical Value of 5%</b> | <b>Z's MacKinnon p-value (t)</b> | <b>Conclusion</b> |
|------------------|--------------------------------|-----------------------------|----------------------------------|-------------------|
| FDI              | -1.049                         | -2.923                      | 0.7349                           | Non-stationary    |
| Exchange Rate    | -0.508                         | -2.923                      | 0.8905                           | Non-stationary    |
| Interest Rate    | -1.936                         | -2.923                      | 0.3152                           | Non-stationary    |
| GDP              | -1.650                         | -2.923                      | 0.4569                           | Non-stationary    |
| Bilateral trade  | 3.145                          | -2.923                      | 1.0000                           | Non-stationary    |

| After First Difference |        |        |        |                |
|------------------------|--------|--------|--------|----------------|
| Terms of Trade         | -1.843 | -2.923 | 0.3592 | Non-stationary |
| FDI                    | -3.939 | -2.924 | 0.0018 | Stationary     |
| Exchange Rate          | -6.275 | -2.924 | 0.0000 | Stationary     |
| Interest Rate          | -7.163 | -2.924 | 0.0000 | Stationary     |
| GDP                    | -3.938 | -2.924 | 0.0018 | Stationary     |
| Bilateral trade        | -8.963 | -2.924 | 0.0000 | Stationary     |
| Terms of Trade         | -8.206 | -2.924 | 0.0000 | Stationary     |

The ADF results showed that all of the series considered were non-stationary, with  $p > .05$ . After the first difference, however, all of the series became stationary,  $p < .05$ .

#### 4.5 Optimal Lag Selection

**Table 4. 4: Order of selection criteria**

| Sample:                             | 5 – 60   |         |    |       | Number of obs |          | =        | 56       |
|-------------------------------------|----------|---------|----|-------|---------------|----------|----------|----------|
| Lag                                 | LL       | LR      | DF | P     | FPE           | AIC      | HQIC     | SBIC     |
| 0                                   | -582.166 |         |    |       | 239225        | 20.8988  | 20.9408  | 21.0073  |
| 1                                   | -296.663 | 571.01  | 9  | 0.000 | 12.3145       | 11.0237  | 11.1919  | 11.4577  |
| 2                                   | -255.492 | 82.342* | 9  | 0.000 | 3.91582*      | 9.87471* | 10.1692* | 10.6342* |
| 3                                   | -247.907 | 15.17   | 9  | 0.086 | 4.15052       | 9.92525  | 10.3459  | 11.0103  |
| 4                                   | -239.793 | 16.228  | 9  | 0.062 | 4.34546       | 9.9569   | 10.5038  | 11.3674  |
| Endogenous: GDP FDI Bilateral trade |          |         |    |       |               |          |          |          |
| Exogenous: _cons                    |          |         |    |       |               |          |          |          |

#### 4.6 The Causal Effect (Granger causality Wald tests)

**Table 4. 5: Granger causality Wald tests**

| Equation        | Excluded        | Chi2   | DF | Prob > chi2 |
|-----------------|-----------------|--------|----|-------------|
| GDP             | FDI             | 1.5373 | 2  | 0.464       |
| GDP             | Bilateral trade | 7.545  | 2  | 0.023       |
| GDP             | ALL             | 10.206 | 4  | 0.037       |
| FDI             | GDP             | 11.36  | 2  | 0.003       |
| FDI             | Bilateral trade | 10.739 | 2  | 0.005       |
| FDI             | ALL             | 33.449 | 4  | 0.000       |
| Bilateral trade | GDP             | 4.7332 | 2  | 0.094       |
| Bilateral trade | FDI             | 6.3099 | 2  | 0.043       |

|                 |     |        |   |       |
|-----------------|-----|--------|---|-------|
| Bilateral trade | ALL | 12.329 | 4 | 0.015 |
|-----------------|-----|--------|---|-------|

The Wald test findings reveal that the two lags of direct investment in the GDP equation have a combined coefficient of zero. Furthermore, because the p-value is 0.464, the null hypothesis that FDI does not raise GDP cannot be discarded. As a result, FDI is not the primary driver of GDP in the long or near term. However, it is obvious that GDP growth encourages both short and long-term foreign direct investment. The Wald test reveals that the coefficients of the two bilateral trade delays contained in the GDP equation are equal and oppositely skewed. Furthermore, the null hypothesis that bilateral trade has no effect on GDP is firmly rejected (p-value. 05). According to the findings, bilateral trade boosts GDP.

The third test looks at the hypothesis that all other endogenous variables' coefficients are equal to zero at their two delays. Given the findings, the P value of 0.037 implies that this is rejected. It is possible to infer that bilateral trade and foreign direct investment both contribute to the GDP of the economy.

#### 4.7 Johansen tests for GDP and FDI cointegration

**Table 4. 6: Johansen tests for *Cointegration* between GDP and FDI**

| Cointegration tests of Johansen |          |                   |            |           |          |
|---------------------------------|----------|-------------------|------------|-----------|----------|
| Trend:                          | Constant | The number of obs |            |           | = 58     |
| sample:                         | 3-60     | Lags              |            |           | = 2      |
| 5%                              |          |                   |            |           |          |
| highest Rank                    |          |                   | trace      |           | critical |
|                                 | Parms    | LL                | eigenvalue | statistic | value    |
| 0                               | 6        | -528.40628        | .          | 29.2402   | 15.41    |
| 1                               | 9        | -515.00957        | 0.36995    | 2.4468*   | 3.76     |
| 2                               | 10       | -513.7862         | 0.04131    |           |          |

According to the TA, the study did not reject the null hypothesis of cointegration's existence (zero level) and that the two-time model contains only one or perhaps two cointegration equations. The study's findings reveal that there is no long-run or short-run relationship between GDP and bilateral trade since GDP and bilateral trade do not cointegrate.

#### 4.8 Johansen tests for GDP-Bilateral Trade Cointegration

**Table 4. 7: Johansen tests for *GDP and bilateral trade cointegration***

| Johansen tests for cointegration |                 |                           |
|----------------------------------|-----------------|---------------------------|
| <b>Trend:</b>                    | <b>Constant</b> | <b>Number of obs = 58</b> |

|                |              |           |                   |                  |                 |   |
|----------------|--------------|-----------|-------------------|------------------|-----------------|---|
| sample:        | 3-60         |           |                   | Lags             | =               | 2 |
| 5%             |              |           |                   |                  |                 |   |
| <b>maximum</b> |              |           |                   | <b>trace</b>     | <b>critical</b> |   |
| <b>Rank</b>    | <b>Parms</b> | <b>LL</b> | <b>eigenvalue</b> | <b>statistic</b> | <b>value</b>    |   |
| 0              | 6            | 136.09349 | .                 | 5.7116*          | 15.41           |   |
| 1              | 9            | 138.84874 | 0.09063           | 0.2011           | 3.76            |   |
| 2              | 10           | 138.94931 | 0.00346           |                  |                 |   |

The analysis significantly rejects neither the null hypothesis of no cointegration (at rank zero) nor the null hypothesis of just one cointegrating equation in the bivariate model. Because GDP and bilateral commerce do not cointegrate, the study's findings suggest that there is no long- or short-term link between GDP and bilateral trade.

#### 4.9 Model of Vector Error Correction (Short Run Relationship)

**Table 4. 8: Model of Vector Error Correction (Short Run Effect)**

|                |               |            |          |           |
|----------------|---------------|------------|----------|-----------|
| <b>Sample:</b> | <b>3 – 60</b> | <b>Obs</b> | <b>=</b> | <b>58</b> |
|                |               | AIC        | =        | 18.0693   |
| Log likelihood | -515.0096     | HQIC       | =        | 18.19383  |
| Det (Sigma_ml) | 176874.7      | SBIC       | =        | 18.38902  |

| Equation | Parms | RMSE    | R-sq   | chi2     | P>chi2 |
|----------|-------|---------|--------|----------|--------|
| D_GDP    | 4     | 1.41402 | 0.7112 | 132.9983 | 0.0000 |
| D_FDI    | 4     | 319.766 | 0.6859 | 117.8926 | 0.0000 |

|       |      | Coef.     | Std. Err. | z     | P> z  | [95% Conf. Interval] |       |
|-------|------|-----------|-----------|-------|-------|----------------------|-------|
| D_GDP |      |           |           |       |       |                      |       |
|       | _ce1 | -.0053793 | .0104607  | -0.51 | 0.607 | -.0258               | .0151 |
|       | L1.  |           |           |       |       |                      |       |
| GDP   |      |           |           |       |       |                      |       |
|       | LD.  | .5604276  | .1132423  | 4.95  | 0.000 | .3384                | .7823 |
| BT    |      |           |           |       |       |                      |       |
|       | LD.  | -.000401  | .0005252  | -0.76 | 0.445 | -.0014               | .0006 |

|       |       |           |          |       |       |          |         |
|-------|-------|-----------|----------|-------|-------|----------|---------|
|       | _cons | .6849868  | .5811908 | 1.18  | 0.239 | -.4541   | 1.824   |
| D_FDI |       |           |          |       |       |          |         |
|       | _ce1  |           |          |       |       |          |         |
|       | L1.   | -13.30551 | 2.365582 | -5.62 | 0.000 | -.4541   | 1.8241  |
| GDP   |       |           |          |       |       |          |         |
|       | LD.   | -79.70162 | 25.60855 | -3.11 | 0.002 | -17.941  | -8.669  |
| BT    |       |           |          |       |       |          |         |
|       | LD.   | -.5792685 | .1187776 | -4.88 | 0.000 | -.81206  | -.34646 |
| _cons |       | -.0002769 | 131.4302 | -0.00 | 1.000 | -257.598 | 257.598 |

### Equations of cointegration

| Equation | Parms | chi2     | P>chi2 |
|----------|-------|----------|--------|
| _ce1     | 1     | 223.1309 | 0.0000 |

### Normalization constraint imposed by Johansen

| Beta  | Coef.     | Std. Err. | z      | P> z  | [95% Conf. Interval] |           |
|-------|-----------|-----------|--------|-------|----------------------|-----------|
| _ce1  |           |           |        |       |                      |           |
| GDP   | 1         | .         | .      | .     | .                    | .         |
| FDI   | -.0100407 | .0006722  | -14.94 | 0.000 | -.0113581            | -.0087232 |
| _cons | -82.38604 | .         | .      | .     | .                    | .         |

The table of initial estimates displays short-term parameter estimations together with accompanying standard errors, z-statistics, and confidence ranges. The two coefficients in L.ce1 are model fit matrix parameters. The estimated cointegration vector parameters for this model, along with their standard errors, z statistics, and confidence ranges, are provided in the second estimation table. We approximated the following using these notations:

Where  $\beta$  are the cointegrating equation parameters; and are the correction coefficients.

These are short-run coefficients

$$\hat{\alpha} = (-.0053793, -13.30551) \quad \hat{\beta} = (1, -.0100407) \quad \hat{\nu} = (1, -.0100407)$$

$$\hat{\tau} = \begin{bmatrix} .5604276 & -.000401 \\ -79.70162 & -.5792685 \end{bmatrix}$$

The results show that the model is generally adequate. The coefficient of foreign direct investment in the cointegration equation is statistically significant. Although the FDI adjustment parameter was statistically significant, this was not the case for the GDP adjustment parameter. We can observe that the parameter estimates corresponding to the rapid adjustment to equilibrium are correct. GDP is larger than its equilibrium value if the predictors of the cointegration equation are positive, since the GDP coefficient in the cointegration equation is positive. The estimated coefficient [D BIP] L. cel is -.0053793. This indicates that foreign direct investment in Somalia is swiftly reflected in the country's GDP. However, the estimated coefficient of [D\_FDI] L.\_cel is -13.30551

#### 4.10 Vector Auto Regression Model (Long Run Effect)

|                |               |            |          |            |
|----------------|---------------|------------|----------|------------|
| <b>Sample:</b> | <b>3 – 60</b> | <b>Obs</b> | <b>=</b> | <b>58</b>  |
| Log likelihood | =             | -862.3667  | AIC      | = 33.35747 |
| FPE            | =             | 787374.7   | HQIC     | = 34.81043 |
| Det (Sigma_ml) | =             | 19373.17   | SBIC     | = 37.08759 |

|                 |     | Coef.     | Std. Err. | Z     | P> z  | [95% Conf. Interval] |           |
|-----------------|-----|-----------|-----------|-------|-------|----------------------|-----------|
| GDP             |     |           |           |       |       |                      |           |
| GDP             |     |           |           |       |       |                      |           |
|                 | L1. | 1.274833  | .1121762  | 11.36 | 0.000 | 1.054972             | 1.494695  |
|                 | L1. | -.3770762 | .1085029  | -3.48 | 0.001 | -.5897379            | -.1644145 |
| FDI             |     |           |           |       |       |                      |           |
|                 | L1. | .0001955  | .0004372  | 0.45  | 0.655 | -.0006614            | .0010524  |
|                 | L1. | .0004958  | .0004553  | 1.09  | 0.276 | -.0003965            | .0013881  |
| Bilateral trade |     |           |           |       |       |                      |           |
|                 | L1. | 41.45896  | 36.98834  | 1.12  | 0.262 | -31.03686            | 113.9548  |
|                 | L1. | -38.37718 | 39.51357  | -0.97 | 0.331 | -115.8223            | 39.06799  |
| Exchange Rate   |     |           |           |       |       |                      |           |
|                 | L1. | .0048672  | .0015256  | 3.19  | 0.001 | .001877              | .0078573  |
|                 | L1. | -.0045152 | .0016131  | -2.80 | 0.005 | -.0076768            | -.0013535 |
| Interest Rate   |     |           |           |       |       |                      |           |

|                |     |           |          |       |       |           |           |
|----------------|-----|-----------|----------|-------|-------|-----------|-----------|
|                | L1. | .4555088  | .1776592 | 2.56  | 0.010 | .1073031  | .8037146  |
|                | L1. | -.0138866 | .1849565 | -0.08 | 0.940 | -.3763945 | .3486214  |
| GDP            |     |           |          |       |       |           |           |
|                | L1. | .7978648  | .2387903 | 3.34  | 0.001 | .3298444  | 1.265885  |
|                | L1. | -.6192212 | .2199872 | -2.81 | 0.005 | -1.050388 | -.1880543 |
| Terms of Trade |     |           |          |       |       |           |           |
|                | L1. | -.03128   | .0227709 | -1.37 | 0.170 | -.0759102 | .0133502  |
|                | L1. | .0154287  | .0243379 | 0.63  | 0.526 | -.0322726 | .0631301  |
| _cons          |     | -1.872423 | 3.596562 | -0.52 | 0.603 | -8.921554 | 5.176708  |

## Dynamic models

These are models that have behavioural consequences beyond the period of their origin. For example, ARDL, VAR, etc. There are two things to note about the VAR model. The lag of the endogenous variable is one of the explanatory variables. The terms vector and autoregressive refer to the fact that the lagged value of the dependent variable appears on the right-hand side and that the vector we are dealing with consists of two (or more) variables. If the GDP increases by one unit compared to the previous year, the rate of GDP growth is expected; coefficient = 1.274833; p-value = 0.000. GDP is expected to decline by about -0.4 cents in the quarter if the country's GDP is not accompanied by strong efforts and productivity. VAR demonstrates the independence of bilateral trade and FDI in predicting economic inflation. Control variables, such as interest rates and currency rates, supplied useful information. Exchange rate appreciation, like GDP, forecasts adverse Q1 GDP and reduces after exchange rate appreciation (devaluation).

Similar to how a brief hike in interest rates forecasts a 45 percent boost in GDP while forecasting a 1 percent decline in GDP in the following quarter. Similar to this, GDP forecasts an increase in FDI of around 80% in the first quarter and a corresponding decline of roughly 60% in the following quarter. The GDP rate changed in neither of the two quarters according to the terms of trade.

## 4.11 Diagnostic Tests

### *Post-estimation Diagnostic Tests*

| Test                | Statistic           | Significance                          | Conclusion            |
|---------------------|---------------------|---------------------------------------|-----------------------|
| Normality           | Shapiro-Wilk W test | $W=0.93165; p=0.00234$                | Not normal            |
| Heteroskedasticity  | Breusch-Pagan       | $\chi^2(1) = 0.21; p=0.6498$          | Homoscedastic         |
| Autocorrelation     | Breusch-Godfrey     | $\chi^2(1) = 29.696; p= 0.0000$       | Serially correlated   |
| Variable Bias       | Ramsey RESET test   | $F(3, 50) = 33.26; p= 0.0000$         | Has omitted variables |
| Multicollinearity   |                     |                                       |                       |
| FDI                 | VIF=29.72           | $1/VIF = 0.033644$                    | Multicollinear        |
| Exchange Rate       | VIF=24.30           | $1/VIF = 0.041145$                    | Multicollinear        |
| Bilateral trade     | VIF=5.00            | $1/VIF = 0.200140$                    | Not Multicollinear    |
| Terms of Trade      | VIF=4.09            | $1/VIF = 0.244590$                    | Not Multicollinear    |
| GDP                 | VIF=3.04            | $1/VIF = 0.329193$                    | Not Multicollinear    |
| Interest Rate       | VIF=1.98            | $1/VIF = 0.504409$                    | Not Multicollinear    |
| Parameter stability | Cumulative sum test | $\text{Recur} = 0.8052; 5\% = 0.9479$ | No structural break   |

## **5. Conclusion, Discussion and Recommendations**

### **5.1 Discussion of the study**

The final study's most crucial result is that the variables in all three categories are connected. Future research is needed; however, this might suggest that the number of nations has a greater impact on the relationship between these characteristics in a cross-country analysis. This demonstrates that there is no stable relationship between FDI and trade flows; however, depending on the country's level of economic development, the type of investment, the country's capacity to absorb the investment, the period, or the measurement method used in the experimental research may differ.

A more in-depth examination would be one at the industry level because this analysis also depends on the sectoral level. Studies in this area take into account aggregate data, although this data can conceal the underlying relationship. Future research can focus on industry and product-based analyses to address this because key industry and product features, such tradability, have a significant impact on the outcomes (Panitchpakdi 2006). The statistics above also indicate that there is a higher likelihood of a complimentary link than a causal one between FDI, GDP, and trade flows. Therefore, FDI investment boosts trade flows. This conclusion is consistent with the research, which implies a complementary relationship on a macroeconomic level (Raybaudi 1996).

A host country's capacity and exporting ability increase as a result of FDI because it gives them a competitive edge. In addition to bringing modern technology and organizational know-how to the host countries, international collaboration that invests in other nations creates more productive and efficient businesses, which can also improve the productivity of domestic businesses. Pelinescu and Radulescu (2009) concentrate on the Romanian economy during the period of transition and "think that exports are supported by FDI, which create output primarily for export and that FDI generates an increase in the competitiveness of Romania." Goh and Tham (2013) observed a favorable association between inward FDI and trade and an insignificant correlation between outbound FDI and trade for the home country. The authors link their results on outbound FDI to Malaysia's status as a developing country and the services industry. In mature economies, trade and foreign direct investment (FDI) are more likely to complement one another. Market- and efficiency-driven enterprises in developed economies create linkages with their home countries, which benefits commerce. According to Djokoto's (2012) examination of Ghana's agricultural trade and FDI, the two are

either complementary (vertical) or substitutive (horizontal). The distance coefficient is no longer significant when the FTA variable is added.

An FTA reduces the influence of distance on bilateral trade. Both Freeman and Pienknagura (2016) and Baier and Bergstrand (2009) observed that the log of the bilateral distance between the nations decreases when an FTA is implemented. Furthermore, Freeman investigated how economic integration agreements influenced the distance between two trade partners. They observed that FTA assists trading partners in overcoming this barrier and minimizes the impact of distance on bilateral trade. Finally, the negative and significant distance coefficient demonstrates that distance reduces the volume of commerce. The inclusion of the FTA, on the other hand, Distance has less of an influence on the amount of commerce done bilaterally.

First, growing foreign capital flows, such as FDI and trade, is critical to filling the gap in private capital inadequacy produced by Somalia's enormous physical capital shortfall. Despite the country's changeable and declining physical capital, FDI and spending have been increasing in Somalia. For example, foreign direct investment increased from USD 30,000,000 in 1985 to USD 1,205,54,000,000 in 2012 before declining to USD 1,146,13,000,000 in 2014. At the same moment. Because Somalia is the world's least developed country, outside investment is critical to encouraging economic progress. Second, factor productivity is critical for a country to attain positive returns to scale even if factor inputs do not grow. The preliminary assessment indicates low TFP in this area. As a result, Somalia's GDPGR swings and falls, limiting the country's potential to develop economically. Rising returns-to-scale are required; otherwise, a country's TFP will fall. With advancements in government policy, human capital, and technology, a country cannot maintain a steady state of progress. This suggests that Somalia's economic development can continue even if factor inputs stay static. However, due to macroeconomic instability, such as growing inflation, the country cannot experience increasing returns to scale. According to Figure 2.5, the CPI increased to 216.05 percent per year in 2014 after declining to 103.20 percent per year in 2006 from 154 percent per year in 1985.

SMEs can flourish in this way, which in turn promotes economic expansion, job creation, and the eradication of poverty. Last but not least, a country's ability to absorb products and services is what determines how quickly its economy may grow.

In addition, Somalia's imports from Turkey do not appear to be significantly correlated with the country's economic growth. This is most likely because domestic consumption was slowed by the economic downturn and Ringgit depreciation between 2008 and 2016; as a result, there was a negative correlation between Somalia's imports from Turkey and the country's economic growth. This discovery supports the observation by Aftab and Rehman (2017) that Somalia's import demand is unstable due to currency rate volatility. However, it is also implied that the Somalian import demand for Turkish goods in particular industries may be elastic. Import demand decreases when a currency appreciates. On the other side, demand for imports increases when a currency depreciates. This may be the reason why our research indicates that imports from Turkey had a negligible overall impact on Somalia's economic development.

Finally, due to economic liberalization and the globalization of the production pattern, Somalia's FDI in Turkey has a substantial impact on Somalia's economic growth. The expansion of Somalia's economy is also negatively impacted by the FDI that Somalia sends to Turkey. This could be because Somalis are unable to export any unique technology or human resources that would help Turkey's GDP develop as a result of the bulk of investment in Turkish products. In a country with limited financial resources and an unreliable financial system, Wang, Lin, and Yang (2017) explain that outbound FDI may raise domestic interest rates by moving money outside of the country of origin, reducing domestic enterprises' intentions to borrow. Therefore, foreign direct investment (FDI) from abroad may reduce local investment, encouraging domestic companies to finance their foreign investments internally due to high interest rates. This suggests that Somalia uses domestic financing for FDI activities in Turkey to support the production but is unable to drive Somalia's economic growth due to the challenges associated with transferring created intellectual property back home.

## 5.2 Summary of The Findings

Given a unit increase in GDP over the previous year, the GDP rate is expected to rise, coef. = 1.274833, p-value = 0.000. GDP is predicted to fall by roughly -.4 cents in the quarter if the country's GDP is accompanied by hard work and productivity.

According to VAR data, bilateral trade and foreign direct investment are separate predictors of GDP. On the other hand, control factors such as exchange rates, interest rates, and business conditions revealed some important information.

A rise in exchange rates indicates that GDP would be negatively impacted in the first quarter and then drop (depreciation). Similar to how a small rise in interest rates predicts a growth in GDP during the following quarter as opposed to a 1 percent decline. Finally, the terms of trade did not predict changes in the GDP rate in either of the two quarters.

## 5.3 Conclusions

The Granger causality test shows that bilateral commerce enhances GDP whereas foreign direct investment does not. However, bilateral trade and foreign direct investment, when combined, enhance GDP. Despite the fact that the study's findings demonstrate no link between GDP and foreign direct investment, the results of bilateral trade and GDP cointegration suggest the reverse. The VECM data revealed that the two variables had a short-run association. The findings, in particular, demonstrated that excessive foreign direct investment in Somalia soon leads to low GDP levels. Furthermore, when GDP is very large, the amount of economic transactions grows on average. The findings of VAR reveal that historical government expenditure, currency rates, and interest rates are very sensitive to changes in future GDP, whereas foreign direct investment, bilateral trade, and trade terms may be ignored for projecting future GDP growth.

## **5.4 Recommendations**

The findings revealed that bilateral trade and foreign direct investment, when combined, improve GDP. The Bank of Somalia can use these series to forecast future GDP, thus reducing the associated risk. The cointegration test showed that FDI and GDP showed some degree of cointegration. The two cointegrating variables GDP and FDI are self-regulating according to the VECM model. Without the transmission mechanism provided by the central bank, the two can adapt to changes in the economic system. In order to enhance GDP in the future, interest and exchange rates must be under control.

For anybody interested in investing in Somalia, I would say that the country has a significant potential in natural resources, including agriculture, cattle, fishing, telecommunications, energy, manufacturing, ICT, construction, tourism and hospitality, and hydrocarbons. Somalia presents chances to invest in its agricultural sector because it is now significantly reliant on imports of food, such as raw sugar, rice, wheat, pasta, and other food-related items. Investors would be interested in export promotion and greater investment in domestic supply chain development. Investing in banana, grapefruit, mango, orange, lemon, lime, guava, papaya, watermelon, tomatoes, lettuce, onions, peppers, cabbage, legumes, maize, rice, sesame, and date palm is also a potentially high rate of return farming activity.

Somalia has no performance criteria for international investors because the Foreign Investment Law 2015 provides all foreign investors to incentives and facilities, including long-term leases of up to 99 years for major projects that comply with the applicable legislation. And amenities.

## **5.5 Suggestions for Additional Research**

When studying the impact of interest rates, currency rates, and terms of trade on GDP, future research should include foreign direct investment and bilateral trade as control variables.

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## APPENDICES

### APPENDIX I: Distribution of Selected Economic Variables Before Transformation

|                    | <b>GDP</b> | <b>FDI</b> | <b>B-trade</b> | <b>EX-rate</b> | <b>IN-rate</b> | <b>T-trade</b> |
|--------------------|------------|------------|----------------|----------------|----------------|----------------|
| <b>Mean</b>        | 7.577654   | 98.14487   | 22.54889       | 21.08331       | 917.6506       | 20.95596       |
| <b>Maximum</b>     | 16.93687   | 112.2000   | 39.35839       | 27.66875       | 2078.000       | 27.21843       |
| <b>Minimum</b>     | 0.790392   | 85.90000   | 7.610495       | 9.373063       | 265.8000       | 17.72683       |
| <b>Skewness</b>    | 0.6972     | 0.99636    | 0.288196       | -0.660091      | 0.460033       | 1.105750       |
| <b>Kurtosis</b>    | 0.0000     | 0.868939   | 1.464805       | 2.146259       | 2.147034       | 3.407587       |
| <b>Probability</b> | 0.0001     | 0.169490   | 0.054305       | 0.068718       | 0.181728       | 0.004177       |

### APPENDIX II: Distribution of Selected Economic Variables After Transformation

|                    | <b>GDP</b> | <b>FDI</b> | <b>B-trade</b> | <b>EX-rate</b> | <b>IN-rate</b> | <b>T-trade</b> |
|--------------------|------------|------------|----------------|----------------|----------------|----------------|
| <b>Mean</b>        | 4.781631   | 4.583965   | 2.992605       | 3.003471       | 6.664896       | 3.036653       |
| <b>Maximum</b>     | 5.153191   | 4.720283   | 3.672709       | 3.320304       | 7.639161       | 3.303894       |
| <b>Minimum</b>     | 4.254482   | 4.453184   | 2.029528       | 2.237840       | 5.582744       | 2.875079       |
| <b>Skewness</b>    | -0.410783  | 0.216953   | -0.003513      | -1.011630      | -0.248234      | 0.916498       |
| <b>Kurtosis</b>    | 1.783684   | 1.837791   | 1.437901       | 2.801246       | 1.853184       | 3.045309       |
| <b>Probability</b> | 0.096914   | 0.188764   | 0.071108       | 0.111362       | 0.184187       | 0.026197       |

### APPENDIX III: Results of stationarity test

| <b>Variables</b> | <b>ADF test<br/>Statistic</b> | <b>5%<br/>Critical Value</b> | <b>MacKinnon<br/>p-value for<br/>Z(t)</b> | <b>Conclusion</b> |
|------------------|-------------------------------|------------------------------|-------------------------------------------|-------------------|
| FDI              | -1.049                        | -2.923                       | 0.7349                                    | Non-stationary    |
| Exchange Rate    | -0.508                        | -2.923                       | 0.8905                                    | Non-stationary    |
| Interest Rate    | -1.936                        | -2.923                       | 0.3152                                    | Non-stationary    |
| GDP              | -1.650                        | -2.923                       | 0.4569                                    | Non-stationary    |
| Bilateral trade  | 3.145                         | -2.923                       | 1.0000                                    | Non-stationary    |
| Terms of Trade   | -1.843                        | -2.923                       | 0.3592                                    | Non-stationary    |

**After First Difference**

|                 |        |        |        |            |
|-----------------|--------|--------|--------|------------|
| FDI             | -3.939 | -2.924 | 0.0018 | Stationary |
| Exchange Rate   | -6.275 | -2.924 | 0.0000 | Stationary |
| Interest Rate   | -7.163 | -2.924 | 0.0000 | Stationary |
| GDP             | -3.938 | -2.924 | 0.0018 | Stationary |
| Bilateral trade | -8.963 | -2.924 | 0.0000 | Stationary |
| Terms of Trade  | -8.206 | -2.924 | 0.0000 | Stationary |

#### APPENDIX IV: Optimal Lag Selection

|                                     |          |         |    |       |               |          |          |          |
|-------------------------------------|----------|---------|----|-------|---------------|----------|----------|----------|
| Sample:                             | 5 – 60   |         |    |       | Number of obs |          | =        | 56       |
| Lag                                 | LL       | LR      | DF | P     | FPE           | AIC      | HQIC     | SBIC     |
| 0                                   | -582.166 |         |    |       | 239225        | 20.8988  | 20.9408  | 21.0073  |
| 1                                   | -296.663 | 571.01  | 9  | 0.000 | 12.3145       | 11.0237  | 11.1919  | 11.4577  |
| 2                                   | -255.492 | 82.342* | 9  | 0.000 | 3.91582*      | 9.87471* | 10.1692* | 10.6342* |
| 3                                   | -247.907 | 15.17   | 9  | 0.086 | 4.15052       | 9.92525  | 10.3459  | 11.0103  |
| 4                                   | -239.793 | 16.228  | 9  | 0.062 | 4.34546       | 9.9569   | 10.5038  | 11.3674  |
| Endogenous: GDP FDI Bilateral trade |          |         |    |       |               |          |          |          |
| Exogenous: _cons                    |          |         |    |       |               |          |          |          |

#### APPENDIX V: (Granger causality Wald tests)

| Equation        | Excluded        | Chi2   | DF | Prob > chi2 |
|-----------------|-----------------|--------|----|-------------|
| GDP             | FDI             | 1.5373 | 2  | 0.464       |
| GDP             | Bilateral trade | 7.545  | 2  | 0.023       |
| GDP             | ALL             | 10.206 | 4  | 0.037       |
| FDI             | GDP             | 11.36  | 2  | 0.003       |
| FDI             | Bilateral trade | 10.739 | 2  | 0.005       |
| FDI             | ALL             | 33.449 | 4  | 0.000       |
| Bilateral trade | GDP             | 4.7332 | 2  | 0.094       |
| Bilateral trade | FDI             | 6.3099 | 2  | 0.043       |
| Bilateral trade | ALL             | 12.329 | 4  | 0.015       |

#### APPENDIX VI: Vector Error-Correction Model (Short Run Relationship)

|         |        |     |   |         |
|---------|--------|-----|---|---------|
| Sample: | 3 – 60 | Obs | = | 58      |
|         |        | AIC | = | 18.0693 |

|                |           |      |   |          |
|----------------|-----------|------|---|----------|
| Log likelihood | -515.0096 | HQIC | = | 18.19383 |
| Det (Sigma_ml) | 176874.7  | SBIC | = | 18.38902 |

| Equation | Parms | RMSE    | R-sq   | chi2     | P>chi2 |
|----------|-------|---------|--------|----------|--------|
| D_GDP    | 4     | 1.41402 | 0.7112 | 132.9983 | 0.0000 |
| D_FDI    | 4     | 319.766 | 0.6859 | 117.8926 | 0.0000 |

|       |       | Coef.     | Std. Err. | z     | P> z  | [95% Conf. Interval] |         |
|-------|-------|-----------|-----------|-------|-------|----------------------|---------|
| D_GDP | _ce1  | -.0053793 | .0104607  | -0.51 | 0.607 | -.0258               | .0151   |
|       | L1.   |           |           |       |       |                      |         |
|       | GDP   |           |           |       |       |                      |         |
|       | LD.   | .5604276  | .1132423  | 4.95  | 0.000 | .3384                | .7823   |
|       | BT    |           |           |       |       |                      |         |
|       | LD.   | -.000401  | .0005252  | -0.76 | 0.445 | -.0014               | .0006   |
|       | _cons | .6849868  | .5811908  | 1.18  | 0.239 | -.4541               | 1.824   |
| D_FDI | _ce1  |           |           |       |       |                      |         |
|       | L1.   | -13.30551 | 2.365582  | -5.62 | 0.000 | -.4541               | 1.8241  |
|       | GDP   |           |           |       |       |                      |         |
|       | LD.   | -79.70162 | 25.60855  | -3.11 | 0.002 | -17.941              | -8.669  |
|       | BT    |           |           |       |       |                      |         |
|       | LD.   | -.5792685 | .1187776  | -4.88 | 0.000 | -.81206              | -.34646 |
|       | _cons | -.0002769 | 131.4302  | -0.00 | 1.000 | -257.598             | 257.598 |

#### APPENDIX VII: Vector Auto Regression Model (Long Run Effect)

|                |        |           |      |    |          |
|----------------|--------|-----------|------|----|----------|
| Sample:        | 3 – 60 | Obs       | =    | 58 |          |
| Log likelihood | =      | -862.3667 | AIC  | =  | 33.35747 |
| FPE            | =      | 787374.7  | HQIC | =  | 34.81043 |

Det (Sigma\_ml) = 19373.17 SBIC = 37.08759

|                 |     | Coef.     | Std. Err. | Z     | P> z  | [95% Conf. Interval] |           |
|-----------------|-----|-----------|-----------|-------|-------|----------------------|-----------|
| GDP             |     |           |           |       |       |                      |           |
| GDP             |     |           |           |       |       |                      |           |
|                 | L1. | 1.274833  | .1121762  | 11.36 | 0.000 | 1.054972             | 1.494695  |
|                 | L1. | -.3770762 | .1085029  | -3.48 | 0.001 | -.5897379            | -.1644145 |
| FDI             |     |           |           |       |       |                      |           |
|                 | L1. | .0001955  | .0004372  | 0.45  | 0.655 | -.0006614            | .0010524  |
|                 | L1. | .0004958  | .0004553  | 1.09  | 0.276 | -.0003965            | .0013881  |
| Bilateral trade |     |           |           |       |       |                      |           |
|                 | L1. | 41.45896  | 36.98834  | 1.12  | 0.262 | -31.03686            | 113.9548  |
|                 | L1. | -38.37718 | 39.51357  | -0.97 | 0.331 | -115.8223            | 39.06799  |
| Exchange Rate   |     |           |           |       |       |                      |           |
|                 | L1. | .0048672  | .0015256  | 3.19  | 0.001 | .001877              | .0078573  |
|                 | L1. | -.0045152 | .0016131  | -2.80 | 0.005 | -.0076768            | -.0013535 |
| Interest Rate   |     |           |           |       |       |                      |           |
|                 | L1. | .4555088  | .1776592  | 2.56  | 0.010 | .1073031             | .8037146  |
|                 | L1. | -.0138866 | .1849565  | -0.08 | 0.940 | -.3763945            | .3486214  |
| GDP             |     |           |           |       |       |                      |           |
|                 | L1. | .7978648  | .2387903  | 3.34  | 0.001 | .3298444             | 1.265885  |
|                 | L1. | -.6192212 | .2199872  | -2.81 | 0.005 | -1.050388            | -.1880543 |
| Terms of Trade  |     |           |           |       |       |                      |           |
|                 | L1. | -.03128   | .0227709  | -1.37 | 0.170 | -.0759102            | .0133502  |
|                 | L1. | .0154287  | .0243379  | 0.63  | 0.526 | -.0322726            | .0631301  |
| _cons           |     | -1.872423 | 3.596562  | -0.52 | 0.603 | -8.921554            | 5.176708  |

## APPENDIX VIII: Diagnostic Tests

|      |           |              |            |
|------|-----------|--------------|------------|
| Test | Statistic | Significance | Conclusion |
|------|-----------|--------------|------------|

|                     |                     |                                       |                       |
|---------------------|---------------------|---------------------------------------|-----------------------|
| Normality           | Shapiro-Wilk W test | $W=0.93165; p=0.00234$                | Not normal            |
| Heteroskedasticity  | Breusch-Pagan       | $\chi^2(1) = 0.21; p=0.6498$          | Homoscedastic         |
| Autocorrelation     | Breusch-Godfrey     | $\chi^2(1) = 29.696; p= 0.0000$       | Serially correlated   |
| Variable Bias       | Ramsey RESET test   | $F(3, 50) = 33.26; p= 0.0000$         | Has omitted variables |
| Multicollinearity   |                     |                                       |                       |
| FDI                 | VIF=29.72           | $1/VIF = 0.033644$                    | Multicollinear        |
| Exchange Rate       | VIF=24.30           | $1/VIF = 0.041145$                    | Multicollinear        |
| Bilateral trade     | VIF=5.00            | $1/VIF = 0.200140$                    | Not Multicollinear    |
| Terms of Trade      | VIF=4.09            | $1/VIF = 0.244590$                    | Not Multicollinear    |
| GDP                 | VIF=3.04            | $1/VIF = 0.329193$                    | Not Multicollinear    |
| Interest Rate       | VIF=1.98            | $1/VIF = 0.504409$                    | Not Multicollinear    |
| Parameter stability | Cumulative sum test | $\text{Recur} = 0.8052; 5\% = 0.9479$ | No structural break   |