The Impact of Trade Openness on Economic Growth in Somalia

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ABSTRACT

The objective of this study is to assess the effect of trade openness on economic growth in Somalia using time series data spanning 1985-2017. The study employed multivariate cointegration and a fully modified ordinary least square (FMOLS) cointegration method to achieve the objective of the study. The empirical findings of the multivariate cointegration test detected the presence of the long-run connection among the variables in Somalia. Moreover, the findings of the FMOLS method indicated that trade openness has a negative and significant effect on economic growth in the long run in Somalia. Besides, gross capital formation and labor force stimulate economic growth in Somalia in the long run. However, the study recommends the implementation of an effective policy to turn the unfavorable effect of trade openness on economic growth.

1. INTRODUCTION

The potential effect on economic development has been a contentious and important issue in both international trade and economic growth. According to numerous research, economic growth and trade openness are strongly related. Trade openness has many advantages, including the capacity to increase the possibilities of facilitating export and import while creating jobs. it can considerably accelerate economic growth. Therefore, trade openness is a very essential tool for economic growth for both developed and emerging economies [1].

Currently, there is no self-sufficient country in the world which produces all the goods it requires. Therefore, each nation tries to create the goods in which it has a competitive advantage. Part of those items is exchanged for other products produced more effectively by other nations. The basis of international trade has been substantially extended by the relative differences in factor endowments, technology, tastes, etc [2]. The main driver of economic growth, according to neoclassical economists, is trade growth. similarly, they asserted that there is a strong positive relationship between trade and economic growth. Given its importance, both industrialized and emerging nations are more focused on raising their output. For instance, output raises productivity levels and can satisfy the rising demand for products and services as a result of increased trade openness. In given circumstances, emerging market economies would afterwards emerge as the primary global "engine of fresh demand growth and spending power" [3]. Emerging market economies would have the largest economies in the world, possibly surpassing that of the G6 nations—the United States, United Kingdom, France Italy, Japan, and Germany - in 2050 [3].

International trade may increase efficiency, information diffusion, and technological innovation, and what ultimately matters most is inclusive growth and poverty reduction. In Somalia, the economy has always been very open, with imports and exports each contributing significantly to the gross domestic product (GDP) of the nation. Moreover, Somalia should restore its productive sectors, generate income and jobs, and reduce its enormous structural trade deficits, which have averaged over 80% of GDP since 2015, in order to increase export competitiveness [4]. Somalia exports to a relatively small number of markets. In 2018, more than 83per cent of all commodities exported were made up of its top five export goods. These exports, which are dominated by live animals, are mainly unprocessed primary commodities that do not have an impact on other economic sectors and are susceptible to shocks from the environment and other factors [4]. Additionally, Somalia only exports to a select group of nations; in 2018, 82 per cent of its goods were shipped to only five countries, primarily the United Arab Emirates, Oman, and Saudi Arabia. The selling of current exports to new markets and areas with untapped potential might greatly boost Somalia's annual export revenue for goods. Sesame seeds and fish have the greatest potential for export growth. By looking for new markets, there is also some possibility to enhance the export of livestock, although economic analysis indicates that several Gulf markets might already be saturated. Fruit, meat, and gums and resins (frankincense, myrrh) have the potential to see higher sales. East and South Asian nations provide the most potential for development. The national trade plan of Somalia might give priority to certain export potential. Many of Somalia's exporters are constrained by a limited or unstable domestic supply [4].

The findings of the trade openness studies are extensively examined in current literature due to their significance. Trade openness significantly boosts economic growth in regional as well as country specific for example, Trejos and Barboza [5] was done on the relationships between trade openness and economic growth in a panel of 23 Asian economies. The authors made the case that trade openness accelerates economic growth. Generally, their research showed that trade openness had a significant impact on those countries' ability to build their economies. Various trade openness measures are examined, and varied results are found.

First, while simply taking Latin American nations into account, a somewhat favourable association between trade openness and growth is discovered. Second, a negative link between the variables is discovered after eliminating outliers and taking into account all importer countries [6]. Overall, their research showed that trade openness had a significant impact on those countries' ability to build their economies. The researcher included these variables in the study since the authors also suggested that the labor force, technology, and financial development have all significantly contributed to raising the level of economic output across the globe. But according to the literature, none of this research looked at how trade openness affects economic growth in developing market economies. This research encourages us to experimentally examine how trade openness affects economic growth in the top trading economies in the globe.

In the context of Africa, this study has been able to establish the impact of trade openness on economic growth in Nigeria and the idea that commerce with other nations can improve individuals' quality of life, which in turn leads to quicker growth. Trade policy, imports, and exports have all helped the economy grow [7]. A variety of results are obtained from testing different trade openness indicators. First, when only Latin American nations are considered, there is a positive link between trade openness and growth. Second, a negative correlation between the variables was discovered after removing outliers and accounting for all importing nations [6].

The current study concentrated on Somalia, one of the least developed countries of sub-Saharan nations. The Somali people have endured years of devastation from war and crippling poverty. Somali economy is not diversified as its gross domestic product depends on agriculture. Agriculture represents 65% of domestic production [8-10]. According to the 2001 UN Human Development Report, Somalia was rated 161st out of 163 nations, with a 43 per cent poverty rate and a 73 per cent subsistence rate. Only 22% of primary school-age kids attend school and 22% of kids die before they turn five [11]. Therefore, the objective of this study is to ascertain the impact of trade openness with control variables on economic growth.

2. LITERATURE REVIEW

The relationship between trade openness and economic growth has gained significant attention in both theoretical and empirical literature during the last three decades. Theoretical literature suggests that trade openness impacts economic growth in a variety of ways, including rising factor price equalization, capital wealth, and knowledge effect.

Rivera-Batiz and Romer [12] outlined several ways that trade openness affects economic growth. Firstly, is the effect of distribution resources on economic growth since trade openness can boost the amount of human capital in top industries. Secondly, the spread of knowledge among nations is being facilitated through trade openness. This justification contends that trade openness enhances technological knowledge between nations hence contributing to long-term economic growth. Rivera-Batiz similarly described If a country's local resources are incompetent to utilize the technology created by trade openness, it is negatively correlated with economic growth. Thirdly, trade openness results in the problem of imitation or duplication which developed economies and less developed economies duplicate the technology. Finally, trade openness provides for a lower cost per unit and increased competition among domestic producers; improving the efficiency of resource allocation and thus increasing long-term economic growth [12].

Based on the empirical literature, several researchers used cross-country, panel, and individual-country case data to study the effect of trade openness on economic growth. Some empirical studies on the relations between trade openness and economic growth have concluded that trade openness stimulates economic growth while others concluded that trade openness hampers economic growth. For example, Intisar et al. [13] from 1985 to 2017 examined the effect of trade openness on economic growth in 19 Asian nations. They found a significant and positive relationship between trade openness and economic growth using the Fully Modified Ordinary Least Squares FMOLS and DOLS models. Rani and Kumar [14] assessed how trade openness affected economic growth in Cote d'Ivoire from 1965 to 2014 using the ARDL approach, and the results showed that trade openness has a positive effect on economic growth in both the short and long term.

Raghutla [1] evaluated, using data from 1993 to 2016, the effect of trade openness on economic growth in five developing counties. His analysis of long-run elasticities demonstrates that trade openness affects economic growth in a way that is favourable.

Rani and Kumar [14] demonstrated trade openness and economic growth nexus in BRICS countries. using FMOLS as well as DOLS models, they revealed that trade openness had a positive effect on economic growth in BRICS countries.

In contrast, other research indicates that trade openness has a negative influence on economic growth. for example, Ma et al. [15] studied how trade openness affected economic growth in five south Asian nations. The extended neoclassical growth model's panel co-integration approach is used using data from 1990 to 2017. They discovered that trade openness had a negative impact on South Asia's economic growth.

Elfaki et al. [16] used the ARDL model to examine how trade openness affected Indonesia's economic growth from 1984 to 2018. They found that the growth of Indonesia's economy was negatively impacted by trade openness. Hye and Lau [17], assessed the effect of trade openness on economic growth in India by employing the ARDL model, he suggested that trade openness had a negative effect on economic growth in the long term in India.

Hye [18] examined, in the context of Pakistan, the long-term impact of trade openness on economic growth from 1971 to 2009. By using the autoregressive distributed lag (ARDL) approach. They found that trade openness has a negative significant relationship with economic growth in the long run in Pakistan. Malefane and Odhiambo [19] used ARDL bound test to examine the relationship between trade openness and economic growth in Lesotho, and the results showed that trade

openness had an insignificant impact on growth in both the short and long term.

3. METHODOLOGY

3.1 Data

Time series data for Somalia from 1985 to 2017 were used in this study. The World Bank and the Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC) provided the information for all variables. Trade openness, labour force, gross fixed capital formation, and economic growth are all factors in the model. Natural logarithms were constructed out of all the variables. Table 1 outlines the data sources and description, while Figure 1 shows the time charts for the indicators examined in the study.

Table 1. Variable description and sources

Variable	Symbol	Unit of measurement	Source
Economic growth	EG	Real gross domestic product	(SESRIC).
Trade openness	TO	Import plus export divided by GDP	(SESRIC).
Labour force	LP	Population growth	World bank
Gross fixed capital formation	GFCF	Gross fixed capital formation	(SESRIC).

3.2 Econometric modelling

To accomplish the goal, this study adhered to the specifications of the model of [13, 15, 16, 19] considered not only economic growth but added additional variables to their model specification, like inflation, FDI, financial development which are essential to the model's health and soundness. The model is expressed mathematically as follows:

$$\ln EG_t = \beta 0 + \beta 1 \ln TO_t + \beta 2 \ln LF_t + \beta 3 GFCF_t + \varepsilon_t \qquad (1)$$

$\ln EG_t$ is the log of economic growth in year t, $\ln TO_t$ is the log of trade openness in year t, $\ln LF$ is log of the labour force in year t, $\ln GFCF$ is log gross fixed capital formation in year t. Finally, εt describes the error term in time t.

We performed unit root analysis as one of the procedures to verify whether the variables are stationary or not. Prior to doing a cointegration analysis, this is the initial stage in the time series analysis process.

The reason for this is that we were avoiding finding any unreliable findings. Due to this, we utilized the two tests that are often used in time series econometrics. The Augmented Dickey Fuller (ADF) and Philips Perron (PP) tests were used to identifying the order of integration of the variables employed in this investigation. The variables of the attention must be combined at a level I (0) or first difference I (1) in order to proceed with the detection of cointegration in the model. To do this, we used the cointegration approach proposed by Johansen and Juselius in 1990. this cointegration strategy is recommended above other competing cointegration approaches because it identifies the cointegrating vectors in an

unconstrained vector autoregressive (VAR) system using the maximum likelihood method.

The rank of the matrix is first determined before we begin estimating the co-integration approach of Johansen and Juselius. Eq. (2) illustrates how this enables us to split the cointegrating rank matrix into the long run and the speed of adjustment.

$$\prod = \alpha\beta \qquad (2)$$

where, vector speed of adjustment is α, and the long-run equilibrium vector is β. The presence of at least one vector in the model can be inferred if the rank of the matrix rises to one. This can be used to demonstrate the co-integration and correlation between the model's variables.

The next step is to determine the elasticity of the long-run coefficient of the variables after estimating the long-run relationship between the variables in our model. to do this, we use the Fully Modified Ordinary Least Squares (FMOLS) approach, one of the many estimating techniques. This estimate approach was chosen because it can address diagnostic issues with serial correlation and endogeneity problems. The ability of FMOLS to offer reliable and effective estimators even for data with a small sample size is another benefit. The FMOLS approach produces outcomes that are completely accurate, efficient, and consistent. The residual's symmetric and one-sided long-run covariance matrices were used as initial estimates by this estimator.
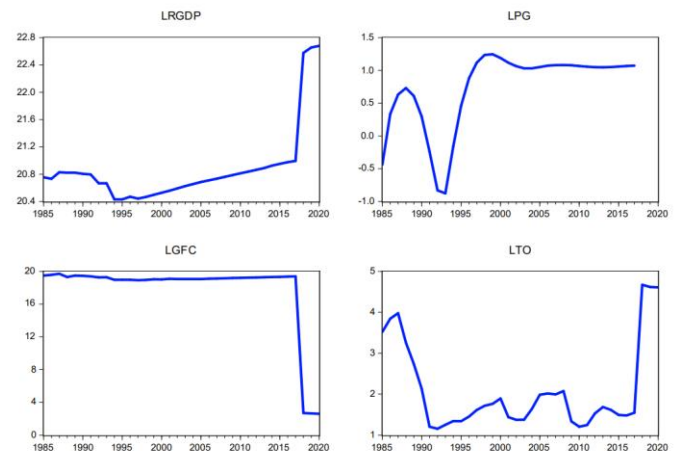

Figure 1. The trend of data series. Legend: LRGDP, LPG, LFGC, and LTO stand for the natural logarithm of real gross domestic per capita, population growth, gross fixed capital, and trade openness, respectively

4. EMPIRICAL RESULTS AND ANALYSIS

4.1 Descriptive statistics

The first step of the Statistics summary and correlation matrix for the variables considered to express the features of the raw data are shown in Table 2. Regarding economic growth, real gross domestic product per capita has the highest mean (20.712), while population growth has the lowest mean (0.735). The highest maximum (20.994) and lowest minimum (-0.875) values are found for real gross domestic product per capita and population growth, respectively. Compared to other

economic growth indicators, trade openness has the highest standard deviation (1.6673), which suggests that trade openness values deviate more from the mean. The Jarque-Bera test also suggests that the data are identical and normally distributed. In addition, Table 1 shows a correlation matrix. Real gross domestic product per capita and gross fixed capital have a positive correlation with trade openness, whereas population growth has a negative correlation among them. Furthermore, the correlation confirms that there is no multicollinearity between the regressions.

Table 2. Descriptive statistics

	LRGDP	LLF	LGFC	LTO
Mean	20.71279	0.735127	19.20654	1.855888
Median	20.73499	1.050222	19.19710	1.613430
Maximum	20.99417	1.245716	19.69339	3.977998
Minimum	20.43155	0.875480	18.92181	1.153732
Std. Dev.	0.165617	0.595213	0.197088	0.761197
Skewness	-0.240277	-1.566714	0.497645	1.667392
Kurtosis	2.053183	4.263970	2.530313	4.741208
Jarque-Bera	1.550167	15.69699	1.665409	19.45981
Probability	0.460665	0.000390	0.434872	0.000059
Sum	683.5220	24.25918	633.8157	61.24431
Sum Sq. Dev.	0.877733	11.33691	1.243001	18.54149
Observations	33	33	33	33
Correlation				
LRGDP	1			
LLF	0.0688	1		
LGFC	0.7398	-0.3476	1	
LTO	0.1832	-0.1114	0.60741	1

4.2 Unit root

The main goal of analysing time series data is to make sure that the variables are stationary because they may have a unit root problem that might result in spurious findings. The ADF and PP tests are used to determine whether a unit root issue exists in the variables. The null hypothesis of ADF and PP suggests the existence of a unit root problem, while the alternative hypothesis confirms its absence. As a result, we ignore the null hypothesis that the data is non-stationary and fail to deny the null hypothesis that the data is stationary if the t-statistic of the variable is higher than the variable's assigned critical t-value. The results of the unit root tests reported in Table 3 show all the sampled variables are stationary at the first difference level (I (1)), but they have unit root problems in level I (0).

However, the important variables are stationary at the first difference according to both unit root tests (PP and ADF), denying both the alternate hypothesis of stationarity and the null hypothesis of the unit root problem. This suggests that the multivariate cointegration test, Fully Modified Ordinary Least Squares (FMOLS) and Canonical Cointegrating Regression (CCR) are appropriate for the characteristics of our data.

The purpose of the cointegration test is to observe the long-term equilibrium correlation between the non-stationary variables using a fixed linear combination. Johansen's cointegration method was used in this work to conduct cointegration tests, which have the constraint that the variables being examined must be stationary variables to the same degree.

The statistical value of the trace proves that the maximum eigenvalue is higher than the critical value as presented in Table 4. It can be explained that there are at least two cointegrating vectors. After determining the long-run co-

integration results, we can proceed to estimate the long-run results for FMOLS and CCR.

Table 3. Unit root tests

Variable	ADF		PP	
	Level intercept	Intercept and trend	Level intercept	Intercept and trend
LRGDP	0.546870	0.9798	0.9887	0.9874
LLF	0.1225	0.2080	0.1832	0.4150
LGFC	0.9200	0.9357	0.9200	0.9357
LTO	0.6554	0.9226	0.5630	0.9299
	First difference intercept	Intercept and trend	First difference intercept	Intercept and trend
LRGDP	0.0001***	0.0001***	0.0001***	0.0001***
LLF	0.6445	0.0564*	0.0181**	0.0893*
LGFC	0.0000***	0.0001***	0.0000***	0.0001***
LTO	0.0002***	0.0002***	0.0002***	0.0001***

***, **, and * show significance level at 10%, 5%, and 1%, respectively

4.3 Multivariate and FMOLS results

Table 4. Johansen cointegration result

Hypothesis	Trace test	5% Critical Value	Prob.**
None *	136.6274	47.85613	0.0000
At most 1 *	42.69856	29.79707	0.0010
At most 2	6.068805	15.49471	0.6874
At most 3	0.020126	3.841466	0.8871
Max-Eigen Statistic			
None *	93.92885	27.58434	0.0000
At most 1 *	36.62976	21.13162	0.0002
At most 2	6.048679	14.26460	0.6070
At most 3	0.020126	3.841466	0.8871

Trace and Max-eigenvalue tests indicate 2 cointegrating equation(s) at the 0.05 level

The result of fully modified least squares (FMOLS), presented in Table 5, shows that trade openness significantly undermines the economic growth in Somalia. The results highlighted that a 1% increase in trade openness declines economic growth by 0.18%, in the long run, keeping other things constant. These findings are consistent with the existing studies such as [16-18, 20] for Indonesia, India, and Pakistan, respectively. However, this finding contradicts other previous findings such as [13] in 19 Asian countries, [1] in five emerging countries, [6] in Latin America, and [21]. they discovered a significant and positive relationship between trade openness and economic growth.

Table 5. Dependent variable: LRGDP
Method: Fully Modified Least Squares (FMOLS)

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LLF	0.111911	0.033612	3.329455	0.0024
LGFC	1.101516	0.119495	9.218079	0.0000
LTO	-0.180667	0.031265	-5.778653	0.0000
C	-0.202013	2.270069	-0.088990	0.9297
R-squared	0.771914	Mean dependent var		20.71149
Adjusted R-squared	0.747476	S.D. dependent var		0.168098
S.E. of regression	0.084472	Sum squared resid		0.199796
Long-run variance	0.009626			

Table 6. Dependent variable: LRGDP
Method: Canonical Cointegrating Regression (CCR)

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LLF	0.098584	0.038286	2.574936	0.0156
LGFC	1.161208	0.153718	7.554123	0.0000
LTO	-0.184240	0.033700	-5.467084	0.0000
C	-1.332157	2.923385	-0.455690	0.6521
R-squared	0.751976	Mean dependent var		20.71149
Adjusted R-squared	0.725402	S.D. dependent var		0.168098
S.E. of regression	0.088087	Sum squared resid		0.217261
Long-run variance	0.009626			

Furthermore, the labour force is significantly linked to economic growth in Somalia. It is interpreted as a 1% increase in the labour force leading economic growth to increase by 0.11% in the long run. This finding is in line with [22-24]. Nevertheless, this finding is contradictory to the previous research finding of [25], Who reported that the labour force has a negative impact on economic growth in Ethiopia. Similarly, some recent papers have also reported a negative impact of the labour force on the economic growth of China and Bangladesh [26, 27].

Furthermore, the findings also show that gross fixed capital has a positive influence on economic growth in Somalia. The result shows that a 1% increase in gross fixed capital formation improves economic growth by 1.10% in the long run. This empirical evidence is in line with the existing studies such as [28-31] in Pakistan, 18 Asian countries, 32 developing countries, and China respectively. However, this finding is contradictory with the research findings of [32] in Indonesia and Sri Lanka respectively. They found that gross fixed capital undermines economic growth. The differences in these studies could be attributed to the various methodologies applied, the discrepancies in data used and the geography of the understudied countries.

The Somali economy continually accumulated trade imbalances between 1985 and 2017 as a result of imports always exceeding exports. Somalia's reliance on imports for food, fuel, construction materials, and manufacturing products has led to a systematic trade imbalance in the nation. Livestock, fish, skins, bananas, scrap metal and charcoal are the primary export commodities. Yemen, Saudi Arabia, and the United Arab Emirates are Somalia's top commercial partners. It turns out that a country's export products are less than total imports for several reasons.

Firstly, the Somali livestock industry was reliant on Saudi Arabia as its sole market, making it susceptible to external shocks from that market. As a result, the Saudi Arabia government's ban on the import of Somali livestock adversely affected the Somali economy. In addition, livestock production has suffered from natural disasters (mainly droughts), which has led to a decrease in livestock production. Secondly, the banana export, on the other hand, was negatively damaged by inadequate management, a lack of investment, unpredictable weather, a shortage of water, political instability, and poor transportation. Thirdly, along with this, domestic food consumption was quickly rising, and people preferred imported food, fuel, and construction materials, especially in urban areas. This permanent trade deficit, which was part of a larger balance of payments deficit, forced the

Somali government to rely on foreign aid and borrowing to finance the deficit. Therefore, the Somali government must maintain a healthy balance between imports and exports. Because export and import activities could have an effect on economic growth in Somalia.

4.4 Robust analysis

The result of Canonical Cointegrating Regression (CCR), reported in Table 6, shows trade openness has a negative and significant impact on economic growth. The findings highlighted that a 1% increase in trade openness declines economic growth by 0.184% in the long run, keeping other things constant. Moreover, the labour force has a positive significant effect on economic growth which indicates that a 1% increase in the labour force leads to economic growth by 0.0.09% in the long run. Finally, the findings also show gross fixed capital significantly and positively affects economic growth. The findings demonstrate that a 1% rise in gross fixed capital over time enhances economic growth by 1.1%.

5. CONCLUSION AND POLICY IMPLICATIONS

The purpose of this research is to ascertain how trade openness affects Somalia's economic growth between 1985 and 2017. The study employed the multivariate cointegration and FMOLS model to assess the long-run association between the variables; CCR method is used for a robustness check. The PP and ADF tests presented that the series are integrated at first difference. The findings of the Johansen cointegration test approve that the presence of the long-run connection among the variables in Somalia. Moreover, the results of the FMOLS model demonstrated that trade openness had a significant, negative long-term effect on Somalia's economic development. Besides gross capital formation and labour force stimulates economic growth in Somalia. However, trade openness and economic growth nexus is an issue that is currently being debated in the literature. In some research, this relationship was found to be positive, whereas in others it was found to be negative or perhaps insignificant. The analytical approach and country-specific features may be held responsible for the inconsistent outcomes.

Based on the empirical findings, the study demonstrates the necessity of implementing policies intended to increase economic activity and investment in crucial industries such as implementing trade reforms that will boost exports and economic growth. In order to further encourage economic growth, create job opportunities, foster innovations, and ensure effective resource allocation, the industrial base must be expanded.

Implementing a policy to turn the unfavourable effect of trade openness on economic growth into a positive and supporting factor will assure favourable trade which supports long-term economic growth. This was carried out as a result of research showing that trade openness hinders economic growth. Additionally, these measures to reduce the trade deficit include making efficient trade and monetary policies, stabilizing inflation, encouraging exports, and increasing the productivity of endowment factors. Therefore, a Somali government must maintain a healthy balance between imports and exports activities because it impacts economic growth in Somalia.

Despite the promising results, this study suffers from some limitations. This study has been conducted using the Fully Modified Least Squares method (FMOLS). Another method like an Autoregressive Distributed Lag (ARDL) analysis of the nexus between trade openness and economic growth in Somalia would be better to use in future research. One of the advantages of the ARDL test is that it estimates the short-term and long-term relationship over FMOLS which states only long-term effects between the variables. Further, alternative measures of openness can also be used in future research.

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