THE RELATIONSHIP BETWEEN TRADE AND ECONOMIC GROWTH: THE CASE OF AFGHANISTAN*

DIŞ TİCARET İLE EKONOMİK BÜYÜME ARASINDAKİ İLİŞKİ: AFGANİSTAN ÖRNEĞİ

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ABSTRACT

The impact of foreign trade on economic growth is both theoretically discussed and empirically investigated by economists. In this study, the relationship between foreign trade and economic growth for Afghanistan in the period between 1980 and 2017 was examined. For this purpose, cointegration and causality tests were conducted. As a result of Johansen cointegration test, cointegration relationship was determined between the variables. According to the results of the applied Granger causality test to determine the direction and existence of the relationship between variables, a two-way causality relationship was determined from export to economic growth and from economic growth to export. In addition, while there is a one-way causality relationship from imports to economic growth, no causality relationship between imports and exports has been achieved.

Keywords: Economic Growth, Foreign Trade, Cointegration, Granger Causality

ÖZ

Dış ticaretin ekonomik büyüme üzerindeki etkisi iktisatçılar tarafından hem teorik olarak tartışılmakta hem de ampirik olarak araştırılmaktadır. Bu çalışmada, 1980-2017 yılları arasındaki dönemde Afganistan için dış ticaret ve ekonomik büyüme arasındaki ilişki incelenmiştir. Bu amaçla çalışmada eşbütünleşme ve nedensellik testleri yapılmıştır. Johansen eşbütünleşme testinin sonucunda, değişkenler arasında eşbütünleşme ilişkisi tespit edilmiştir. Değişkenler arasındaki ilişkinin yönünü ve varlığını belirlemek amacıyla uygulanan Granger nedensellik testinin sonuçlarına göre ise, ihracattan ekonomik büyümeye ve ekonomik büyümeden ihracata doğru çift yönlü nedensellik ilişkisi saptanmıştır. Ayrıca, ithalattan ekonomik büyümeye tek yönlü nedensellik ilişkisi bulunurken, ithalat ve ihracat arasında herhangi bir nedensellik ilişkisi elde edilememiştir.

Anahtar Sözcükler: Ekonomik Büyüme, Dış ticaret, Eşbütünleşme, Granger nedensellik

1. Introduction

The concept of trade, one of the important factors of macroeconomics, dates back to the birth of economics. The emergence of foreign trade dates back to 2500 BC. Over the years, the form and scope of trade are expanding (Seyoum, 2009:1). Theoretically, Mercantilists put forward their views on the impact of foreign trade on economic growth, who emphasised that precious metals were the source of growth in the mid-15th century (Bagırtan, 2018:7-8). In the following period, Classical economists stated that besides exports, imports could have a significant impact on economic growth. Classic economists, especially Adam Smith, stated that foreign trade was the engine of economic growth (Ertek, 2005:289-290). Along with exports, imports also contribute to the speed of economic growth. The intermediate goods needed in the process of economic growth in underdeveloped countries such as Afghanistan needs to be imported. Thus, goods imported from abroad as intermediate goods contribute to the economic growth of the country.

Following theoretical debates on foreign trade and economic growth, empirical studies gained momentum, especially with the liberalisation of foreign trade after the Second World War. Thus, these countries have resorted to free foreign trade policies to develop their economies. Today, the liberalisation of foreign trade has become the most popular economic policy of developed and developing countries. With the globalisation of the world economy, countries play an active role in reducing trade barriers. The main purpose of progress towards free trade is to achieve the macroeconomic objectives of economies.

Afghanistan has a strategic and commercial transit position as it is located in the center of Central Asia. After gaining autonomy in foreign policy in 1919, Afghanistan started the modernisation process for the development of its economy, keeping the importance of trade in site agreements were made with other countries. Therefore, the macroeconomic structure based on agricultural products has gradually developed. After the Second World War, for the first time, a five-year economic development plan was prepared by the government. The second five-year development plan was prepared with the arrival of the presidential system after the end of the Kingdom era in the country (Habel, 2017:232).

For this reason, the economic factors of the country increased in the period between 1919-1979. However, the economic infrastructure, industry, banking system, agriculture, health, and education sectors of the country were almost destroyed due to the conflicts between 1979-2001. After 2001, with the end of the conflict, a new chapter was opened in the political and economic history of Afghanistan. From 2002 to 2013, the country displayed an average annual economic growth performance of 9% (World Bank, 2018:2). After the war period, different economic development plans were arranged by the government to improve the economy, increase exports and reduce imports (Ministry of Commerce and Industry, 2016:5-11). Therefore, Afghanistan's macroeconomic indicators have shown growth performance since 2001.

In this study, the relationship between economic growth, import, and export in Afghanistan between 1980 and 2017 are examined. In this study, at first, Afghanistan's foreign trade and economic growth indicators are discussed. Then, after the literature review, economic growth for Afghanistan, relations between imports and exports will be analysed empirically. For this purpose, initially Extended Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests will be used. Accordingly, to examine whether a long-term relationship exists between the variable, the Johansen cointegration test will be applied. Finally, the Granger causality test will be applied based

on the vector error correction model to find out whether there is a causal relationship between economic growth, export, and import variables. Also, an analysis of variance decomposition will be performed.

2. Foreign Trade and Economic Growth of Afghanistan in the Pre-2001 Period

One of the basic conditions of economic growth and the development of foreign trade is the establishment of a solid trade relationship with foreign countries. The Afghan government first signed a trade agreement with the Union of Soviet Socialist Republics (USSR) in 1725 to increase trade. The dependence of the country's economy on agricultural products and the lack of a large domestic market, the need for foreign markets was felt. For this reason, Amanullah Kan signed trade agreements with England, USSR, Poland, Egypt, and Switzerland between 1919-1928 to further develop trade after gaining autonomy of foreign policy in 1919. By 1929, highways connecting north, south, east and west were built at home to increase the economic growth of Afghanistan and further expand its foreign trade. On the other hand, foreign trade agreements were signed with countries such as Japan, England, and Germany (Habel, 2017:230). In 1931, a state institution known as the Chamber of Commerce and Industry was established by Afghan merchants to unite trade and to remove and solve barriers and problems in trade. The Afghan National Bank in Afghanistan in 1932 and the Central Bank of Afghanistan in 1939 supported the modernisation process in the country (Sanjar, 2018:42-34). Thus, they contributed to the rapid development of foreign trade. The modernisation process started in Afghanistan continued until the Second World War. However, even though Afghanistan did not participate in the Second World War, Afghanistan's economy was negatively affected as it was located between the two major trade partners, India-England and the USSR. Table 1 presents the export and import figures of Afghanistan for the period 1939-1962.

Referring to Table 1, in the years 1939 and 1940, a surplus was recorded in Afghanistan's foreign trade. However, the trade balance was negative in 1941 and 1942 as it was affected by the Second World War. However, in the following years, again, a surplus was recorded in foreign trade. Since 1939, an increase in foreign trade volume was recorded except for years 1941 and 1942.

In 1956, the first five-year formal economic development plan was prepared by the government to stimulate the economy and boost foreign trade. With the first five-year economic development plan implemented, economic growth increased with the increase of foreign trade of the country (Habel, 2017:232). When Table 1 is considered, it can be seen from the foreign trade figures that the total trade volume increased after the country's first development plan. However, most of this increase was due to import figures. In the years 1957-1958, there was a surplus of foreign trade balance while in the following years, a negative trend was recorded in the foreign trade balance.

Table 1. Foreign Trade of Afghanistan Between 1939-1962 (Million $)

Year	Export	Import	Total Trade	Balance
1939	34,2	27,7	61,9	6,5
1940	41,0	32,8	73,8	8,2
1941	37,0	42,7	79,7	-5,7
1942	17,4	26,5	43,9	-9,1
1943	35,5	23,7	59,2	11,8
1945	56,5	48,2	104,7	8,3
1946	60,0	53,0	113	7,0
1947	54,2	50,0	104,2	4,2
1948	55,0	53,0	108	2,0
1957	51,2	46,2	97,4	5,0
1958	58,8	53,6	112,4	5,2
1959	46,4	72,7	119,1	-26,3
1960	60,3	80,9	141,2	-20,6
1961	49,8	86,7	136,5	-36,9
1962	53,3	99,0	152,3	-45,7

Source: (a) Zabioullah A. Eltezam. (1966). Afghanistan's Foreign Trade. (b) Franck, P. (1949). Problems of Economic Development in Afghanistan.

With the coming of the presidential system in Afghanistan after the end of the kingdom period between 1973-1978, the government prepared a second five-year economic development plan for the development of the country's economy. Moreover, the country's foreign trade relations were strengthened with USSR, Pakistan, China, India, the USA and other European countries (Sanjar, 2018:43-44). Therefore, the country's exports and imports increased. While Afghanistan's total exports were 53 million in 1962, this ratio increased to 84 million in 1970 and by 1978 this figure reached 269 million. This was the highest export figure after independence of country. On the other hand, in 1962, while the total imports were 99 million, this ratio increased to 109 in 1970 and by 1978 this figure increased to 450 million (Guimbet, 2004:12). Table 2 presents data on the economic growth indicators of Afghanistan for the period 1960-1978.

Table 2. Growth Indicators of Afghanistan Between 1960 and 1978

Afghanistan	1960-1970	1970-1978
GDP-current (AF billion)	48,3	101,2
GDP-fixed in 1975 (AF billion)	83,2	102,7
Annual growth	2,0	3,6
GDP (million $)	1,277	2,794
Population million people	11,2	14,6
Per capita income ($)	114	191

Source: World Bank, Structure of Performance of The Afghan Economy (Guimbet, 2004).

Looking at the data of Afghanistan's gross domestic product, population and income per capita between the years 1960-1978, an increase in the figures related to these data is evident. Despite the fact that the inclusion of the Kingdom era in the years between 1960-1970; foreign trade, an increase in the economic growth and national income per capita in this period is recorded. Between the years of 1970-1978 after the Kingdom period, the economic variables increased considerably. Annual growth increased from 2.0% to 3.6%. Moreover, the country's population increased from 11.2 million in 1970 to 14.6 million in 1978. Also, per capita income increased from 114 dollars to 191 dollars.

The process of economic modernisation started with Amanullah Khan, who gained autonomy in foreign policy for Afghanistan. For this reason, the economic growth and foreign trade volume of the country increased between 1919-1978. In 1979, the USSR attacked the country under the pretext of unrest and chaos in Afghanistan. After the USSR attacked Afghanistan, clashes started in the country. These conflicts continued until 2001 (Dış Ekonomik İlişkiler Kurulu, 2012:2). The conflict between 1979 and 2001 caused great damage and became the reason for the destruction in the political, social and economic sphere of the country. These conflicts caused 5 million people to migrate to Pakistan and Iran as refugees and migration of an additional 2 million to the urban centers. Also, these conflicts led to the destruction of 20% of rural villages. This situation adversely affected the agricultural sector, resulting in a decrease in the previously produced domestic products and the importation of these products. Afghanistan was strained to import wheat from the USSR and India to meet domestic consumption Together with those above, the infrastructure of the country, the micro-industry, the banking system, agriculture, health, and education sectors, were also destroyed (Minkov ve Gregory, 2007:12-14). Figure 1 shows the graph of Afghanistan's foreign trade and GDP data in dollars between 1980-2001.
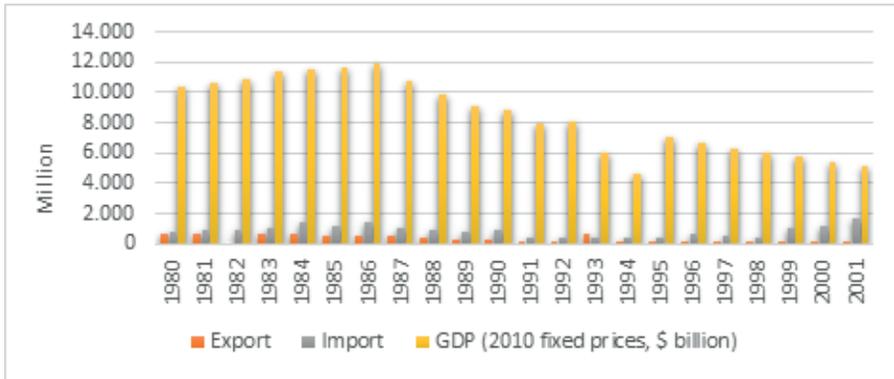

Figure 1. Foreign Trade and GDP of Afghanistan between 1980-2001
Source: World Bank and UN stats Database.

Referring to Figure 1, Afghanistan's exports decreased gradually between 1980-2001 while the country's import and GDP increased between 1980-1986. However, after 1986, the country's GDP decreased until 2001. The import figures also decreased until 1998. After 1998, an increasing trend was recorded in the country's import figures. Consequently, the negative effect of conflict on all economic indicators of the country is evident.

3. Afghanistan's Foreign Trade and Economic Growth in the Post-2001 Period

By the year 2001, after more than twenty years of war in Afghanistan, the country faced both economic and humanitarian crisis. There was no funding available to help the country recover from this situation. In 2001, a restructuring process was started in the country to revive the Afghanistan Economy. Other countries, especially the USA, financed the restructuring process initiated in the country. Dependent on foreign Aid, Afghanistan's economy has continued to develop since 2001 (SIGAR, 2012:4-5).

3.1. Economic Growth Performance

In 2001, the government of Afghanistan did not have any financial funds to revive the economy. A fund was created with financial assistance received from foreign countries. Table 3 shows the growth indicators of Afghanistan for different periods after 2001.

Table 3. Afghanistan's Growth Indicators

Afghanistan	2002	2014	2017	2018
GDP (2010 at constant prices) ($ billion)	4,367	20,616	20,815	20,959
Annual growth (%)	28,6	2,7	2,6	2,4
Per capita income ($)	184	625	550	548

Source: World Bank Database

Afghanistan's economic growth indicators have shown an increase after 2001. The country's GDP was around $5 billion in 2002, while it became more than $20 billion in 2018. Therefore, the country's GDP shows an upward trend after 2002. The country's economic growth has shown, on average 9% growth between 2002 and 2013. With the gradual decline of international security forces in 2014, foreign financial aid also decreased. For example, in 2009, foreign aid fell from $12.5 billion to approximately $8.8 billion in 2015. However, increasing violence and security problems, drought problems and political instability due to the 2014 presidential election hurt the economy. Therefore, the country's economic growth slowed to 2.72% in 2014, 2.66% in 2017 and 2.4% in 2018. In Table 4, per capita income increased from 184 dollars in 2002 to 625 in 2014. However, in later years, a decrease in per capita income is recorded (World Bank, 2018:2).

3.2. Development of Foreign Trade

Afghanistan's foreign trade declined due to the conflicts between 1980 and 2001. However, after 2001, the Government of Afghanistan signed trade agreements with foreign countries to increase the volume of foreign trade. Afghanistan's economic system in the pre-2001 was a centrally planned and semi-centrally planned economic system. After 2001, when the new government took over, the country's economic system was determined as a free market system. Afghanistan, which follows a free foreign trade policy to improve trade, is seen to be more liberal than the countries in its vicinity since it has a 60% degree of openness (Sanjar, 2018:46-47).

Afghanistan's trade policy is designed to regulate domestic and foreign trade to protect national interests, accelerate economic growth and diversify exports. After 2001, Afghanistan, in

general, has become a consumer country. 90% of the goods needed in the country are imported from abroad. Imports prohibited are explosives, firearms, alcohol, and pig products (T.C. Kabil Büyükçiliği Ticaret Müşavirliği, 2017:28). Figure 2 shows the graph of Afghanistan's foreign trade data in terms of dollars between 2002-2017.
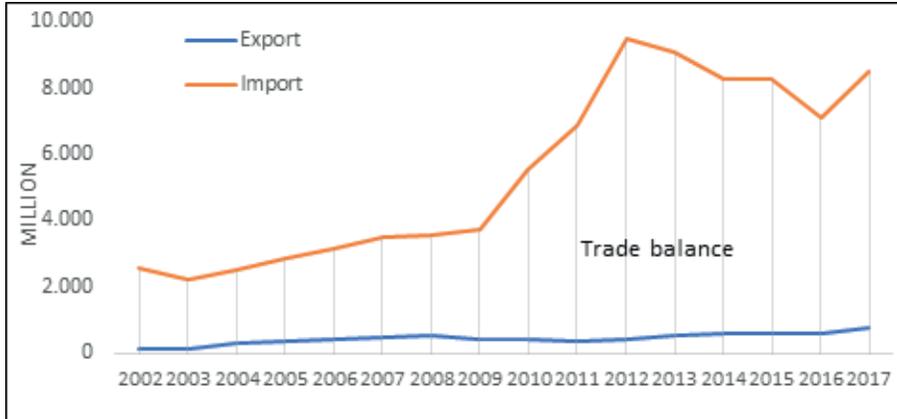

Figure 2. Foreign Trade of Afghanistan Between 2002 and 2017
Source: World Bank Database.

Internal and external conflicts have destroyed Afghanistan's economic infrastructure. When the new government took power after 2001, to revive the shattered economy, the economic system was changed with importance given to foreign trade. As can be seen from Figure 2, after the war period, the country's foreign trade figures have seen an increasing trend since 2002. Despite exports, imports increased further.

Along with the import figures of Afghanistan, the foreign deficit has increased further. The country has become an importer. Afghanistan's foreign trade generally began to open after the Second World War. This deficit increased further with the arrival of the new government. Afghanistan's foreign deficit is largely covered by foreign financial aid. Exports were $ 100 million in 2002, while imports were $ 2,45 billion. With the country's further growth in 2009, imports also increased continuously until 2012. In the following years, with the decrease in foreign financial aid, the country's imports decreased while on the other hand, an increase in the export figures stands at a low rate.

To improve the economy for the first time after 2001, a five-year industrialisation plan of 2011-2015 was prepared by the Ministry of Industry and Trade of the country to increase exports, reduce imports, increase international competitiveness and reduce poverty. Following this plan, an upward trend was seen in the export figures (Ministry of Commerce and Industry, 2016:5-11).

After the incumbent President, Dr.Ashraf Ghani came to office in 2014, some reforms and plans were aimed to revive the country's economy. The second five-year development plan has been designed for the period between 2016 and 2020 which will assist to raise the country's economy on its own, to free itself from external dependence, to increase trade and reduce external deficit, to increase government revenue, to increase per capita national income, to reduce poverty, to attract domestic and foreign investors, to reduce unemployment, to support private sectors and

to ensure balanced growth. Despite these development plans, the country's economy still faces major challenges. The main challenges are a security problem, comprehensive administrative corruption, weak infrastructure, lack of access to financial services, limited and insufficient human capital (Ministry of Commerce and Industry of Afghanistan, 2016:5-11). To apprehend the issues mentioned, finally, for the period 2019-2025 the Ministry of Economy prepared another plan by the name of 'Import Substitution Strategy (Productive Afghanistan Strategy)' for industrialisation and commercialisation of economy (Ministry of Economy, 2018:1).

The restructuring process started in Afghanistan after 2001 has continued to the present day. After more than 30 years of conflict, with the arrival of the new government, the economic system and economic policy of the country were changed to stimulate the country's economy and increase foreign trade. The Government of Afghanistan is pursuing a free trade policy to establish a good trade framework with some countries. For this purpose, Afghanistan joined several trade organisations. The most important of these are (Sanjar, 2018:47): South Asia Free Trade Zone (SAFTA), South Asia Regional Cooperation (SAARC), Central Asian Region Economic Council (CAREC), Organization for Economic Cooperation (ECO), Afghanistan-Pakistan Transit and Trade (APTTA), World Customs Organization (WCO), World Trade Organization (WTO) Afghanistan Regional Economic Cooperation (RECCA).

4. Literature

Until today, studies have been conducted in different countries to determine the relationship between foreign trade and economic growth. As a result of these studies, the relationship between foreign trade and economic growth was determined in some countries. On the other hand, in some countries, it has not been concluded that there is any relationship between foreign trade and economic growth. There are many econometric studies in the national and international area examining the relationship between export, import, and economic growth. However, no study analyses the relationship between foreign trade and economic growth for Afghanistan. Therefore, the studies examining the relationship between foreign trade and economic growth of developed and developing countries are summarized in Table 4.

Table 4. Studies on the relationship between export, import, and economic growth.

Author	Period	Country	Variables	Method	Results
Tuncsiper and Rencber (2016)	2002-2016	Turkey	Export, import, and GDP	Granger causality test	The existence of a one-way causality relationship from imports to GDP and exports was determined.
Ata and Eren (2017)	1969-2014	Iran	Export, import, and GDP	Granger causality test	Foreign trade is the cause of economic growth.
Gul, Kamacı and Konya (2013)	1994-2010	Turkish Republics and the case of Turkey	Export, import, and GDP	Cointegration and Granger causality test	Bidirectional export and GDP in the long run and a one-way causality relationship from imports to growth have been observed.

Table 4. Studies on the relationship between export, import, and economic growth (continues)

Author	Period	Country	Variables	Method	Results
Ozer and Erdogan (2006)	1987-2006	Turkey	Export, import, and GDP	Cointegration and Granger causality test	From export and import to GDP one-way, the existence of a one-way causality relationship from exports to imports was also determined.
Ucan and Kocak (2014)	1990-2011	Turkey	Export, import, and GDP	Johnson cointegration and Granger causality test	The existence of a long-term relationship was determined. There was a two-way causality link between imports and GDP and a one-way causality link from exports to GDP.
Izgi and Yılmaz (2018)	1992-2016	Turkey	Export, import, and GDP	Johnson cointegration and Granger causality test	A cointegration relationship was determined. A one-way causality relationship from exports to GDP was found.
Gokmenoglu, Amin and Taspinar (2015)	1967-2013	Pakistan	Export, Import, GDP, and financial development	Johnson cointegration and Granger causality test	A Long-term relationship was found between all variables. Results show that international trade and financial development stimulate economic growth in Pakistan.
Tuncer (2002)	1980-2000	Turkey	GDP, imports, exports, and investments	Granger causality test with Toda Yamamoto	There was a two-way relationship between GDP and imports, a one-way relationship from GDP to exports, and a two-way relationship between GDP and investments.
Gumus (2017)	1995-2016	BRIC Countries	Export and economic growth	Panel Data Analysis	In Brazil, Russia, and China, a positive relationship was found between exports and GDP, but this result was negative for India.

Table 4. Studies on the relationship between export, import, and economic growth (continues)

Author	Period	Country	Variables	Method	Results
Bozgeyik and Yologlu (2015)	2002-2014	Turkey	Tourism and GDP	Causality test with Least Square	It has been proven that tourism revenues positively affect economic growth and development.
Bagırtan (2018)	1991-2018	Turkey	Foreign trade and economic growth	Granger causality test	The existence of a bilateral causality relationship between exports and GDP was found.
Sen (2007)	1980-2005	Turkey	Economic growth and foreign trade	Time-series techniques	Hypotheses of growth based on exports to Turkey were concluded to be valid.
Iqbal, Hameed and Devi (2012)	1960-2009	Pakistan	Export and economic growth	Granger causality test	It is determined that there is a one-way causality relationship from GDP to exports.
Dilara (2018)	1969-2016	Turkey	Economic growth and foreign trade	Johnson cointegration and Granger causality test	A Long-term relationship between the variables was determined. Also, a causality relationship between exports and imports and a causality relationship between imports and growth have been found.
Arı andYıldız (2017)	1988-2015	Turkey	Youth	Cointegration Analysis	Population growth and higher education rates have proven to have a positive long-term contribution to youth unemployment.
Uzunoz and Akcay (2012)	1970-2010	Turkey	Growth and energy	Causality and cointegration testing	The existence of a long-term relationship between variables was found and one-way causality from GDP to energy consumption.

5. Data Set and Methodology

In this study, the relationship between foreign trade and economic growth for Afghanistan in the period between 1980 and 2017 is analyzed with the help of time series techniques. For this purpose, Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests were performed to examine whether the logarithms of the series used in the study meet the stationary condition. Then, after determining the lag length, the Johansen cointegration test was performed to examine whether there is a long-run relationship between export, import and GDP variables

and the results are interpreted. Also, the Granger causality test based on the Vector Error Correction Model was conducted to determine the presence and direction of the relationship between exports, imports, and economic growth. Finally, variance decomposition analyses were performed to look at the changes in the series over each other.

The data used in the study were collected from various sources. The data of the export and import goods in terms of Dollar is taken from the World Bank database. Real gross domestic product data (in 2010 fixed prices, in dollars) was obtained from the UN stats database. All of the data used in the study were analyzed by using algorithms in Eviews 9 package program.

5.1. Unit Root Tests

In general, it is seen that most of the series used in econometric studies do not meet the stagnation condition in their level values. The average of non-stationary series varies with time, usually having a decreasing or increasing trend. Sometimes stagnation may disappear due to excessive fluctuations in the series. To achieve a significant result in econometric studies, it is necessary to stabilise the series that do not meet the stagnation condition in the level values. The most commonly used tests to stabilise the series are Extended Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests (Kutlar, 2005:252). Therefore, when the graphs of the variables used in the studies are examined, it is observed that they contain a trend. Therefore, equality, which expresses the constant and trendy model of ADF, is shown in 1.

$$\Delta Y_t = \alpha_0 + \lambda y_{t-1} + \alpha_2 + \sum_{i=2}^{p} \beta_j \Delta Y_{t-1+1} + u_t \tag{1}$$

In Equation 1, Δ shows the first-order difference processor, Y is the dependent variable, t trend, a constant, u_t shows the error term, and P shows the appropriate delay length (Gokmenoglu, Amin ve Taspinar, 2015: 492). Table 6 shows the ADF and PP unit root test results of GDP, export and import variables. It is decided according to the H_0 hypothesis whether the series is stationary or not. Table 5 shows that the level values of the data are not stationary. The H_0 hypothesis could not be rejected because the probability value is higher than 0.05% in all three variable level values. If the H_0 hypothesis is accepted, the series is not stable. However, if the probability value is less than 0.05% and the H_1 hypothesis is accepted, the series is stable. Therefore, after taking the difference of the first order of all three series, the probability value was less than 0.05%, the series became stagnant. Thus, the H_1 hypothesis was accepted.

Table 5. ADF and PP Unit Root Test of GDP, Export and Import Variables

Variables			ADF Probability value	PP Probability value
GDP	In level	Trend and intercept	0.9220	0.9224
	First difference	Trend and intercept	0.0001	0.0001
Export	In level	Trend and intercept	0.5779	0.9224
	First difference	Trend and intercept	0.0000	0.0000
Import	In level	Trend and intercept	0.8139	0.7857
	First difference	Trend and intercept	0.0001	0.0001

As a result of the ADF and PP unit root test presented in Table 5, it is shown that all three variables are stable in the first difference.

5.2. Johansen cointegration test

In econometric studies, if it is found that the variables meet the same degree of stasis condition, the next step is to examine the long-term relationship between the variables (Gokmenoglu, Amin ve Taspinar, 2015:492). Johansen cointegration test is used to make the variables used in the study become first-order stationery. For analysis using the Johansen method, the VAR model must be established first. While the most appropriate lag number should be determined by VAR analysis. Critical values, such as Akaike, Schwarz, and Hannan-Quinn are used to determine the number of lags. In the VAR analysis, the model with multiple asterisks is determined as the appropriate delay length. Table 6 presents the appropriate lag length test of the variables.

Table 6. Lag Lengths

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-62.04101	NA	0.009208	3.825942	3.960621	3.871871
1	12.41233	131.3883	0.000197	-0.024255	0.514461*	0.159463
2	27.61736	24.14916*	0.000138	-0.389256	0.553496	-0.067751*
3	37.52716	13.99031	0.000136	-0.442774	0.904015	0.016519
4	48.15316	13.12623	0.000132	-0.538421*	1.212404	0.058661

Not: * shows the appropriate number of delays according to the relevant criterion.

Referring to Table 6, two of the five criteria have more stars (LR, HQ). Thus, it is seen that the appropriate lag length for the VAR model is two.

According to the results of the Johansen cointegration test presented in Table 7, the presence of at least one cointegration relationship among the variables is seen from 5% critical and probability values. More specifically, a long-term relationship between variables can be mentioned. These variables act together in the long run. If the existence of the cointegration relationship between the variables is proved, then there may be at least one causality relationship between the variables.

Table 7. Johansen Cointegration Test Results

Cointegration	Eigenvalue	Trace statistics	5% critical value	Probability value
None	0.500715	37.22881	29.79707	0.0058
At most 1	0.290179	12.91857	15.49471	0.1178
At most 2	0.026015	0.922537	3.841466	0.3368
Trace test indicates a cointegrated relationship of 5%				
Unconstrained cointegration Eigenvalue Rank Test (Eigenvalue)				
None	0.500715	24.31025	21.13162	0.0172
At most 1	0.290179	11.99599	14.26460	0.1108
At most 2	0.026015	0.922573	3.841466	0.3368
The maximum eigenvalue test indicates a cointegrated relationship at the level of 5%				

5.3. Granger Causality Test

If the existence of a cointegration relationship between the variables is proved, the Vector Error Correction Model can be used. The Vector Error Correction Model is a constrained VAR model for the use of non-stationary variables with. Therefore, in the study, it has been demonstrated by the cointegration tests that foreign trade and GDP are cointegrated, and there is a long-term balance between these three variables. Also, the Granger causality test based on the "vector error correction" model is performed to determine the direction and existence of the relationship between export, import and economic growth (Esen, 2007:157).

The Granger causality test is easy, and it is the most commonly used test in the literature to determine the causality relationship between variables. Granger causality test was performed based on the estimated VEC model and the result of the test is shown in Table 8. The hypotheses established in Table 8, as the first dependent variable for GDP, The H0 hypothesis is that the export and import variables are not the Granger cause of the GDP variable. On the contrary, the H1 hypothesis means that the export and import variables are the Granger cause of the GDP variable. Therefore, if the H0 hypothesis is accepted, then the export and import variables are not the Granger cause of the GDP variable. However, if the H1 hypothesis is accepted, then the export and import variables are the Granger cause of the GDP variable. It is decided according to the probability values of the variables. When the probability values are considered, hypothesis H0 for export and import variables is rejected because it is less than 0.05%. It means exports and imports have been identified as the cause of economic growth.

Table 8. Granger Causality Test Results

VEC Granger Causality/Block Exogeneity Wald Tests Sample: 1980 2017			
Dependent Variables: GDP			
Independent Variables	**Chi-sq**	**Df**	**Possibility**
Export	50.47929	1	0.0000
Import	5.22829	1	0.0222
Dependent Variables: Export			
Independent Variables	**Chi-sq**	**Df**	**Possibility**
GDP	7.542812	1	0.0060
Import	0.052574	1	0.8186
Dependent Variable: Import			
Independent variables	**Chi-sq**	**Df**	**Possibility**
GDP	2.514706	1	0.1128
Export	0.924673	1	0.3363

Similarly established Hypotheses, for export as a dependent variable, the H_0 hypothesis shows that GDP and import variables are not Granger causes of an export variable. As the opposite hypothesis, the H_1 hypothesis shows that the GDP and import variables are the Granger cause of the export variable. So, if the hypothesis H_0 is accepted, GDP and import variables are not the Granger reason for the export variable. However, if the H_1 hypothesis is accepted, GDP and import

variables are the Granger cause of the export variable. When the probability values are considered, The H_0 hypothesis for the GDP variable was rejected because it was less than 0.05%. In other words, the GDP variable is determined as the Granger cause of the export variable. However, the H_0 hypothesis could not be rejected as the probability value of the imported variable was greater than 0.05. So, it is concluded that imports are not the cause of exports. Finally, considering the probability values of the imported variable, The H_0 hypothesis was assumed to be greater than 0.05% for GDP and export variables. Therefore, the GDP and export variables were found not to be the reason for the imported variable.

5.4. Variance Decomposition

Variance decomposition expresses the shocks caused by the variables on themselves and other variables as a percentage. Variance decomposition shows how many percents of the variance in the model variables is caused by itself and how many percent is caused by other variables. Table 9 shows the results of variance decomposition covering ten years for all three variables.

Table 9. Variance Decomposition of Variables in Model

Period	GDP	Export	Import	GDP	Export	Import	GDP	Export	Import
1	100.000	0.000	0.000	5.350	94.649	0.000	0.795	0.007	99.197
2	91.287	5.345	3.367	21.806	75.783	2.410	1.684	0.0278	98.287
3	51.346	17.892	30.760	22.612	74.880	2.506	1.161	0.300	98.538
4	32.408	25.501	42.089	19.442	78.526	2.031	0.830	1.473	97.696
5	25.860	26.269	47.869	19.716	78.597	1.685	0.700	2.106	97.193
6	20.084	28.189	51.726	19.689	78.837	1.473	0.592	2.571	96.836
7	16.213	30.012	53.774	18.867	79.718	1.414	0.504	3.090	96.405
8	13.957	30.869	55.173	18.424	80.193	1.382	0.445	3.499	96.054
9	12.283	31.523	56.193	18.164	80.483	1.351	0.402	3.805	95.792
10	10.999	32.122	56.878	17.819	80.828	1.351	0.365	4.072	95.561

Looking at the three variables in the first period, a change in the GDP variable is due only to itself; that is, the export and import variables do not affect. However, the effect of export and import variables on the GDP variable is increasing gradually as a percentage from the first period to the tenth period. Considering the last period, at around 10% the source of the shock is the variable itself while at 32.122% and 56.878% the shock source is identified as the export and import variables.

Looking at the table 9 for the export variable, the change occurred in the first period is caused by the export variable itself, which is around 94% and is caused by 5.350% of GDP. The import variable has no effect on the export variable in the short term. Likewise, the imported variable has little effect on the export variable in the long run. Therefore, the effect of the GDP variable on the export variable has increased gradually after the first period.

Finally, for the imported variable, at around 99%, the variance in the first period is due to itself while the GDP and export variable induced variance stands at 0.795% and 0.007% respectively. In

later periods, although the effect of GDP and export variables on import variable has increased slightly, the variance in import variable is mainly due to itself. Therefore, these results are in parallel with Granger causality test results.

6. Conclusion and Discussion

With the beginning of the modernisation process in Afghanistan after independence in 1919, foreign trade agreements were made with the countries of the world by giving importance to foreign trade. Since Afghanistan's economy is predominantly based on agricultural products, the needs for the foreign markets are felt strongly. Two five-year economic development plans were put forwarded by the government, between the years 1956-1978, to increase the foreign trade and encourage economic growth. Therefore, the country's economic growth has grown by 2% between 1960 and 1970 and by an average of 3.6% between 1970 and 1978. Accordingly, an increase in the export and import figures were observed, which are the foreign trade factors. Consequently, Afghanistan's economic growth and foreign trade rates increased gradually from 1919 to 1979. However, in times of conflict, these macroeconomic growths have declined considerably. The conflicts in Afghanistan between 1979 and 2001 became the reason for the destruction of infrastructure, industries, banking systems, agriculture, health, and education sectors which were built to facilitate foreign trade. At the same time, millions of people migrated, died and become disabled, human capitals flee to other countries, women left education and works, drugs were cultivated, and mines were placed on agricultural lands.

After the establishment of a democratic government after 2001, a rising trend is recorded in the country's macroeconomic indicators again. After 2001, the free market policy was adopted to develop the economy and boost trade. The aid received from foreign countries played an important role in the development of the economy between 2002-2013. From 2002 to 2013, the country achieved an outstanding economic growth performance with an average annual growth of 9%. For the first time after the period of war, a five-year industrialisation plan was prepared between 2011 and 2015 to increase exports, reduce imports, increase international competitiveness and reduce poverty. An increase is recorded in the export figures with the implementation of this plan. Targets such as self-development of the national economy, reducing dependence on foreign aid, increase of international trade, decreasing the foreign deficit, increasing the income of the government and increase in the national income per capita were considered within the scope of this plan. Besides, the second five-year development plan was designed between 2016 and 2020 to reduce poverty, attract domestic and foreign investors to the country, reduce unemployment, support the private sector and achieve balanced growth. Even though the recorded increasing trend in the export figures with the increase in economic growth following the implementation of two economic development plans, the country's economy still faces major obstacles. Among the main reasons; Security problems, comprehensive administrative corruption, weak infrastructure, lack of access to financial services, limited and insufficient human capital. Finally, a plan, known as the "Import Substitution Strategy" (Productive Afghanistan Strategy) for industrialisation and commercialisation between 2019-2025, was prepared by the country's Ministry of Economy. The main objective of this plan is to increase economic growth, boost the exports and reduce the imports of the country by 2025.

The time series method is used in this study to examine the relationship between foreign trade and economic growth for Afghanistan in the period between 1980 and 2017. The GDP, export and import variables used in the study became stable in the first order. Therefore, after

determining the number of lag, the Johansen cointegration test was performed to see whether these variables act together in the long run. As a result of the Johansen cointegration test, the existence of a cointegration relationship was determined. However, the Granger causality test based on the Vector Error Correction Model was performed to determine the presence and direction of the relationship between the variables. According to the results of the Granger causality test, a two-way causality relationship was determined from export to economic growth and from economic growth to export. In this case, the increase in exports encouraged economic growth and increased income with economic growth contributes to the increase in trade. At the same time, there was a one-way causality relationship from imports to economic growth, but no causal relationship exists between imports and exports. Therefore, this implies that the import-based growth hypothesis is valid.

Finally, variance decomposition analysis was performed to look at the changes in variables induced by the other variables. In the analysis of applied variance decomposition, it is seen that the contribution of exports and imports to economic growth is numerically high. On the other hand, it is observed that the contribution of economic growth and exports to imports is numerically low. Thus, these obtained results are parallel to the Granger causality test.

Ethics Statement

No human studies are presented in this manuscript.

Author Contributions

The authors confirm being the sole contributor of this work and have approved it for publication.

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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