Do Exports and Imports Affect the Gross Domestic Product in Palestine During the Period (2000-2020)?

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Abstract:
This paper examines the relationship between exports, imports, and GDP in Palestine. To achieve this, annual data from 2000 to 2020 was utilized. Johansen's test for cointegration analysis was employed to estimate the VAR model and conduct Granger-Causality tests. Based on the results of the analysis, the least squares (OLS) regression test indicated that there is no causal relationship between exports, imports, and GDP, as demonstrated by Granger's test. Additionally, the VAR test revealed that exports do not affect GDP. However, it is expected that imports have a positive impact on the GDP of Palestine. These findings confirm that imports influence GDP, suggesting that they are one of the contributing factors to economic growth in Palestine.

Keywords: Export, Import, Economic growth, Causality, Palestine

Type: Research paper

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1. Introduction

Economists and policymakers have a keen interest in understanding the long-term relationship of economic growth (Chokri et al., 2018). To achieve sustained economic development, a society must experience continuous growth in its total output. This growth is typically measured using the concept of Gross Domestic Product (GDP). In theory, GDP consists of four components: private consumption, business investment, government spending, and exports minus imports. In this study, we focus on the impact of imports and exports on GDP.

Export expansion is considered a crucial driver of economic growth as it serves as a significant source of foreign exchange earnings, helping to improve the balance of payments (Abu-Shihab et al., 2014). On the other hand, imports result in the outflow of domestic currency and can worsen the trade balance, potentially hindering economic development (Bakar & Mabrouki, 2017). However, in certain countries, imports can also be seen as a catalyst for economic growth. According to Krugman (1984), imports can contribute to long-term economic growth by providing intermediate goods that enhance production and increase the efficiency of economic resources. Furthermore, imports can facilitate knowledge transfer from developed to developing nations, thereby boosting production (Lawrence & Weinstein, 1999).

The objective of this study is to conduct a comprehensive analysis of the causal relationship between Palestinian imports, exports, and GDP. The examination of the Palestinian economy is particularly significant due to its unique circumstances, including

Israeli control over Palestinian territories and ongoing political instability. The researcher will employ various analytical techniques, including linear regression and vector autoregressive (VAR) modeling, to estimate the relationship between the variables. If cointegration is detected among the variables, a vector error correction model (VECM) will be utilized. The subsequent sections of the paper are structured as follows: Section 2 provides an overview of the volume of exports and imports in Palestine and their impact on GDP. Section 3 reviews relevant literature, including prominent theories and previous studies related to exports and imports. In Section 4, we present our hypotheses and research framework. Finally, Section 5 concludes the paper.

2. Import, Export, and Economic Growth in Palestine

For Palestine, exports play a crucial role in supporting the national economy. However, the country faces numerous security and economic constraints due to the occupation, which imposes challenging measures that hinder exports and contribute to its status as an import-dependent nation. The Palestinian economy is heavily influenced by the economy of the occupying state, making it difficult for Palestinian merchants to produce high-value goods (Qassem, 2018). As a result, the national economy is forced to rely on imports, which explains the substantial trade deficit (Qassem, 2018). The State of Palestine is a developing country with a relatively large population considering its land area. Moreover, it is the only country in the world under occupation. To meet the daily needs of its population, Palestine heavily relies on imports, primarily from Israel, encompassing goods, services, and equipment. Additionally, clothing and food imports come from Turkey. On the other hand, Palestine exports various products, including stone, gypsum, furniture, iron, vegetables, roots, herbs, shoes, tobacco, wood, oil, and others, as reported by the Palestinian Monetary Authority (PMA, 2021).

Figure (1): Total imports, exports, and GDP in Palestine during the period between 2000 and 2020 (in million) US dollars
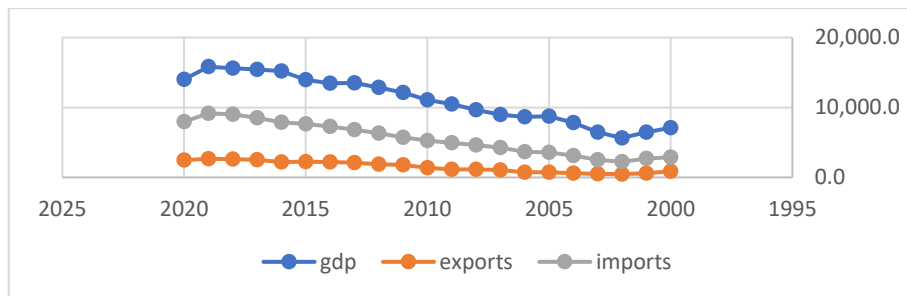
It is evident from Figure 1 that Palestine achieved its highest exports to date in 2019, amounting to $2,659.3 billion, while imports reached $9,161.7 billion. Additionally, the gross domestic product (GDP) reached $15,829.00 billion in 2019. However, in 2020, the global outbreak of the Covid-19 pandemic led to a decline in international trade and significant economic losses due to quarantine measures imposed by various governments. Foreign trade decreased by 17%, with exports reaching $2,495.8 billion, imports amounting to $7,948.5 billion, and GDP standing at $14,015.40 billion (PMA, 2021). Despite these challenges, Palestine needs to overcome the situation and revive its economy to pre-Covid-19 levels. It should seek agreements with Israel to improve the export situation. The objective of this study is to explore the economic relationships between trade and economic growth in Palestine, using annual data from 2000 to 2020.

Specifically, the study aims to empirically investigate whether exports drive economic growth, imports drive economic growth, or if economic growth drives exports and imports. To achieve this goal, the paper is organized as follows.

3. **Literature Review and Theoretical Background**

Numerous researchers have conducted studies and published articles on this topic. Hossain and Dias (2004) found that total exports and product exports have positive and statistically significant effects in the short and long term. Abu Jamea (2005) concluded that Palestinian exports declined primarily due to forced integration with Israel and the moral effect of foreign trade with Egypt and Syria. Hoque and Yusop (2010) observed that trade liberalization, through lower import tariffs, led to significant increases in total imports in the short term but with a substantial impact in the long term. Ozurumba and Chigbu (2013) suggested a causal relationship between global trade and production. Alavinasab (2013) found a positive correlation between exports, real exchange rates, and Iranian economic growth. Al-Astal (2014) determined that foreign trade had a minor impact on the economic development of Palestine. Mitra and Khan (2012) discovered a non-significant positive impact of imports and exports on the Indian economy. Zahee et al. (2014) found a positive correlation between Pakistan's imports, exports, and GDP. Akhter (2015) revealed that exports were positively correlated with economic growth, whereas imports had a negative correlation in the long run. Helles (2016) highlighted that foreign trade negatively affected GDP due to debt accumulation. Halder (2019) concluded that both exports and imports had a positive impact on GDP growth, while other factors such as exchange rate and inflation did not affect GDP growth. Fannoun (2019) suggested a bidirectional causal connection between imports, exports, and economic growth in the long term. Bakari, Fakraoui, and Mabrouki (2020) discussed the challenges faced by Peru in achieving economic development through trade openness and domestic investment. Badwan and Atta (2021) concluded that capital inflows had higher thresholds for Palestinian industrial exports. Ali, Hasan, and Oudat (2021) found no causative connection between exports, imports, funds, and economic development. These findings will contribute to formulating export control policies and promoting sustainable economic growth.

In 1776, Adam Smith presented in his publication "The Wealth of Nations" the theory of absolute advantage, which focused on differences in the abilities of countries to produce goods of better quality than other countries. He believed that governments should not interfere in the market and that trade should flow by the forces of supply and demand within the economy (Ahmed, 2001). Ricardo agreed with this in 1817 in his book "On the Principles of Political Economy and Taxation," where he introduced the theory of comparative advantage, which explains the existence of differences in the production of goods between countries (Abu Sharara, 2006). However, Ricardo stressed that each country has a certain advantage with which it can engage in profitable trade, given the differences in resources among countries (Qaddo, 2009). There are many criticisms of the theory of comparative advantage, the most prominent of which is that it does not address the definition of a plan for trade exchange between countries (Awad Allah, 2011). Therefore, John Stuart Mill proposed a solution to this problem through his analysis of international values and the determination of exchange rates for goods. The theory of international values states that parity in demand must be achieved between countries to achieve international trade balance, meaning that exports and imports should be equal for all countries (Ghozlan, 1975). On another front, both Heckscher and Ohlin developed

Ricardo's theory of comparative advantage with fundamental differences. They introduced the role of production factors in facilitating trade, where the exchange is not just in goods, but also involves the relative costs of production factors and the establishment of relative prices for these factors (Peter & Thomas, 1997).

In 1961, Stephen Linder developed the theory of product similarity between countries, which emphasized that exporting companies must explore different markets to meet customer preferences. This provides a great opportunity for commercial success by exporting manufactured goods to countries with similar income levels, making trade within this industry popular (Hatem, 2005). Raymond Vernon introduced the product life cycle theory in 1963, which states that the production of a commodity is initially concentrated in its country of origin. This justified the American dominance in the global industry after World War II. Finally, the theory of global strategic competition emerged in the 1980s by Krugman and Lancaster, which emphasizes that firms gain competitive advantages by entering new markets (Mucchielli, 1987). Economists believe that income growth is a result of countries integrating into the global economy. International trade, as confirmed by recent theories, becomes a key driver of economic development and growth through the effective allocation of available resources, fostering broad state development and the dissemination of information. Continuous promotion, development, and competition in external and internal markets contribute to product development by improving production processes and enhancing product quality (Blavasciunaite et al., 2020). Therefore, both exports and imports play an essential and important role in achieving economic development in theory (Hussain, 2015).

Exports of goods and services are a vital driver of social and economic development for many reasons. Companies operating in any country require exports to work, innovate, and maintain their market share, which ultimately leads to profitability (Ruranga & Musabanganji, 2019). Moreover, exports have a significant ability to reduce market fluctuations by operating within the global economy. They can adapt to changes in client demand and the seasonal variations that frequently occur in domestic markets. Increasing exports can facilitate easier access to foreign exchange, thereby boosting national income and the financial turnover rate. This contributes to improving living standards. However, it is important to note that not all export outcomes may be profitable. High competition and unfamiliarity of products in other markets, as well as market instability and difficulties in advertising, can hinder the contribution of exports to economic growth (Bakar & Mabrouki, 2017). Additionally, high costs can pose challenges. On the other hand, imports reflect the state's inability to meet its demands and its dependence on foreign exporting countries, resulting in a trade deficit that weakens the development of the economy (Carmenage, 2014). Imports and exports involve the displacement of hard currencies, such as the dollar, weakening the trade balance. However, in certain cases, imports can contribute to economic growth by increasing the purchase of equipment and appliances that enhance and refine investment, or by including goods that require value-added productivity from importing firms (Yüksel & Zengin, 2016).

4. Conceptual Framework and Development of Hypothesis

Data

The analysis conducted in this study covers the yearly time series data from 2000 to 2020 in Palestine. The dataset includes GDP (measured in US dollars), exports of

merchandise and services (measured in US dollars), and imports of merchandise and assistance (measured in US dollars). The data was obtained from the PMA (2020).

Methodology

The researcher employed a degree of integration for each variable and combined all variables to estimate linear regression. If all variables were included in the first difference, the estimation would be based on the VAR model. Different types of VAR models were considered, and if the variables were found to be stationary in the first difference, co-integration tests and Granger causality tests were conducted. If co-integration was found, a VECM (Vector Error Correction Model) was used.

Model Specification

The study tested various empirical formulas to analyze causality and understand the relationship between exports, imports, and GDP. The total production function, commonly used in previous studies (Ramos, 2002; Titus, 2007; Güngör & Bernard, 2014; Afaf & Hussain, 2015; Bakar & Mabrouki, 2017; Ruranga & Musabanganji, 2019), was employed. The function can be expressed as follows:

$$GDPt = f(exports, imports) \ ... \ (1)$$

The function can also be represented in a log-linear econometric format thus:

$$LGDPt = \beta 0 + \beta 1 (LEXPORTS)t + \beta 2 (LIMPORTS)t + \varepsilon t \ ... \ (2)$$

Where:

β0: The constant term

β1 (LEXPORTS): export logarithm

β2 (LIMPORTS): imports logarithm

t: The time trend

ε: The random error term

Hypotheses Development

Based on the previous literature, the following hypotheses were formulated:

H01: There is a negative relationship between exports and GDP.

H02: There is a negative relationship between imports and GDP.

5. Empirical Analysis

Test for unit root

Since most of the time, series are characterized by instability and to avoid obtaining false results, the researcher conducted the Augmented Fuller-Dickey test.

Table 1: Tests for unit root: ADF

Var	result	ADF	Lag period	Probability	differences	the level
Log(GDP)	stationary	-4.849441	1	0.0013	1	%1
log(exports)	stationary	-3.874660	1	0.0091	1	%1
log(imports)	stationary	-4.819986	1	0.0014	1	%1

Unit root tests were conducted using the Augmented Dickey-Fuller (ADF) test to account for instability in time series data. The results indicated that all variables were stationary in the first difference at the 1% significance level. Accordingly, we repudiate

the null hypothesis (H0), which stated that time series data are not stable, and we accept the alternative hypothesis (H1) which stated that the time series is stable.The VAR lag hierarchy criteria suggested using 1 lag. Consequently, the researcher proceeded with the VAR model estimation.

Cointegration Analyze: Johansen Examination

The results showed no co-integrative relationship among the research variables. Therefore, the VAR model estimation and Granger causality tests were employed.

Table 2: Cointegration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05Critical Value	Prob.**
None	0.738899	39.83344	42.91525	0.0984
At most 1	0.398582	14.31934	25.87211	0.6312
At most 2	0.217439	4.658488	12.51798	0.6459

VAR estimation

The VAR model estimation aimed to identify the effects, whether positive or negative, of the independent variables on the dependent variable.

Table 3: VAR Estimates

	LGDP	LEXPORTS	LIMPORTS
	1.346365	1.591244	0.976112
	(0.58515)	(0.98034)	(0.70694)
LGDP(-1)	[2.30088]	[1.62316]	[1.38075]
	0.351014	0.824878	0.320184
	(0.23495)	(0.39363)	(0.28385)
LEXPORTS(-1)	[1.49399]	[2.09558]	[1.12800]
	-0.457690	-1.120831	0.031342
	(0.63843)	(1.06960)	(0.77131)
LIMPORTS(-1)	[-0.71690]	[-1.04790]	[0.04063]
	3.263996	-6.915609	-0.640706
	(2.22917)	(3.73466)	(2.69314)
C	[1.46422]	[-1.85174]	[-0.23790]

Standard errors in parentheses & t-test in brackets

LGDP = C(1)*LGDP(-1) + C(2)*LEXPORTS(-1) + C(3)*LIMPORTS(-1) + C(4)

	C	Std. Err	t	Prob.
C1	1.169719	0.576894	2.027613	0.0596
C2	-0.194881	0.166164	-1.172825	0.2580
C3	0.087326	0.498888	0.175042	0.8632
C4	-0.886696	1.834149	-0.483437	0.6353

The estimated coefficients showed that the variable representing imports had a positive impact on GDP, but it was not statistically significant. On the other hand, the variable representing exports harmed GDP, but it was also not statistically significant.

Granger Causality Test

The Granger causality test was conducted to examine the causal relationship between the variables.

Table 4: Granger Causality Tests

Null Hypothesis	Result	Prob
LEXPORTS / LGDP	rejected	0.4433
LGDP / LEXPORTS	rejected	0.0877
LIMPORTS / LGDP	rejected	0.6865
LGDP / LIMPORTS	rejected	0.4391
LIMPORTS / LEXPORTS	rejected	0.1933
LEXPORTS / LIMPORTS	rejected	0.3289

The results indicated that exports and imports did not have a significant effect on GDP, and vice versa. Therefore, there was no causal connection between exports and imports.

Multiple least squares regression(OLS)

The OLS regression test was used to determine whether there was a statistically significant effect between the study variables.

Table 5: Multiple least squares regression (OLS)

V	Coefficient	Std. Err	t	Prob.
C	2.935979	0.300161	9.781338	0.0000
LE	-0.057627	0.069459	-0.829651	0.4176
LI	0.791020	0.090764	8.715131	0.0000
R^2	0.989581			
Adj R^2	0.988424			

The results in Table 5 showed a statistically significant positive impact of imports on GDP at the 1% significance level. An increase in imports by 1% led to an approximate 7.91% increase in real GDP. However, the impact of exports on economic growth was negative but not statistically significant.

Residual Diagnostics Tests

To demonstrate the adequacy of our observed results and the reliability of our estimation, we conducted a series of residual diagnostics tests.

Table 6: Residual Diagnostics Tests

R^2	0.989581
Adj R^2	0.988424
F	854.8458
Prob(F)	0.000000
LM Test	0.1452
Breusch-Pagan-Godfrey test	0.6858

All of the residual diagnostics tests indicate that our model is sufficient and well-treated. The R-squared value is greater than 60%, the probability associated with the F-statistic is less than 5%, and both the LM Test and Breusch-Pagan-Godfrey test are above 5%.

Figure (2): Normality test
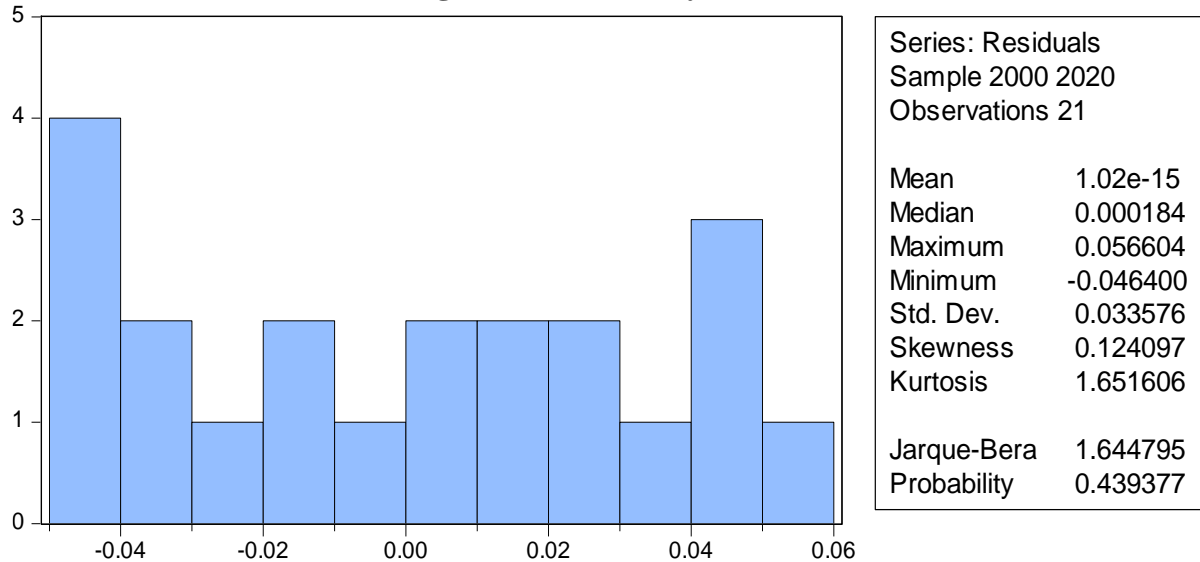
The null hypothesis is that the residuals follow a normal distribution while the alternate hypothesis is the residuals do not follow a normal distribution. Since the probability is not significant and we have insufficient evidence to reject the null hypothesis, we conclude that our residuals are normally distributed.

6. Conclusion

Our findings have led to the discovery of no significant effect or causal relationship between exports, imports, and GDP, as indicated by the VAR test and Granger sigma test. However, it was unexpected to find that imports have a positive impact on GDP in Palestine. These research outcomes align with the studies conducted by Mitra & Khan (2012), Zahee et al. (2014), and Halder (2019), which also found a positive effect of imports on economic growth measured by GDP. However, there is a difference in our results, as we found a negative and statistically insignificant relationship for exports. The researcher attributes this disparity to the crucial role played by imports within the economy. Imports encompass various production factors and commodities that are challenging to manufacture domestically. A considerable portion of these imports are intended to meet local market demands, leading to a modest but long-term positive impact on domestic product growth. This explains the positive influence of imports on Palestinian economic growth.

This study faced certain limitations, including the availability of multiple data sources such as PCBS, the World Bank, and the PMA, with significant discrepancies between the reported numbers from these institutions. Nevertheless, the researcher selected the most logical data based on the previous results. In light of these findings, our study recommends conducting more in-depth research on the impact of imports and exports on GDP, studying each variable separately. Specifically, exploring the positive impact of imports using the ARDL model is recommended.

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