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The Influence of Exports and Imports on Economic Growth in Palestine

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Abstract: Economic, commerce, and job opportunities have been severely disrupted in the Palestinian territories (PTs) for the previous several decades. Palestinian external trade was plagued by several challenges, including Israeli restrictions on trade with neighboring nations and the rest of the globe. A country's trade balance is heavily influenced by its exports and imports. Exports are often regarded as a catalyst for economic growth and social progress because of their ability to reduce poverty. This paper aims to check whether the GDP (dependent variable) has a relationship with exports of goods and services and imports of goods and services (independent variables) in Palestine. An econometric model is built to examine the direct relations between the three variables: exports, imports, and economic growth in Palestine. An econometric model is constructed to explore the direct relations between the three variables: exports, imports, and the economic growth of Palestine. To accomplish this goal, yearly data (2007–2020) was tested using the OLS (Ordinary Least Squares), Engle-Granger Cointegration, and Gretl Causality tests, and the data was obtained from the Palestinian Central Bureau of Statistics (PCBS). The results show no relationship between the three variables in Palestine. However, we can observe strong evidence of the relationship between exports and economic growth.

Keywords: economic growth; Palestine; export; import; Gretl; econometric; model.

1 Introduction

The existence of economics gave the world a new way to view the globe. It has assisted people over the past decades in understanding the environment we live in. A large part of what economics has discovered has been helping countries and individuals to attain economic success (Mankiw, 2016). One of the main factors in assessing an economy's health is gross domestic product (GDP). It remains by far the best single sign to lead government policies, and disregarding it in favor of other indicators is likely to reduce people's overall quality of life. The results of a new study on 120 countries revealed that the average income of the bottom 40% of the community has grown at the same rate as GDP growth during the last 40 years. Thus, boosting GDP helps the poorest people worldwide (Romero, 2015). GDP is

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crucial due to economic growth, saving more than 1 billion humans from severe poverty. However, the significance of GDP extends far beyond income. When countries become more affluent, people will live there longer and have a lower child mortality rate (Bista and Tomasik, 2018). As a result, the government can invest more in health care. Likewise, high personal income allows people to purchase healthy food and other products for their families and make overall health decisions (Romero, 2015). Moreover, a high GDP helps nations and families have the funds for competent teachers, additional educational means, and children can spend more time in schools. Therefore, providing a better overall education is required. As a result, states with high GDP per capita tend to perform better in the United Nations Human Development Index (HDI), which tracks life expectancy, living standards, and educational attainment (Bista and Tomasik, 2018).

On the other hand, imports and exports play an essential part in defining a country's trade balance. It is recognized that exports are perceived as the central core of economic and social improvement due to their potential to stimulate economic growth and shrink destitution. They are the topics of growth strategies implemented by emerging countries, encouraged by the achievements of those in Latin and Southeast Asian countries. Latest domestic growth models underline the significance of imports as a vital port for external technology and information to stream into the national economy. The latest technologies could be incorporated into imports of producer goods like machinery and equipment, and work efficiency could increase when employees know about the new technology (Mehrara et al., 2013; Bista and Tomasik, 2018). Mainly, Palestine is considered one of the emerging countries still facing the influence of occupation for several decades. The predominant constraints to economic growth in Palestine are the limitations on trade, labor movement, and complete constraints on economic activities by the Israeli occupation. These circumstances impacted the progress of commerce, employment rates, and economic growth undesirably. Moreover, the Palestinian lands in the West Bank and the Gaza Strip have been described as having a constant shortage for more than 50 years. Furthermore, Palestine observed one of the highest levels of unemployment in the world and had fragile rates of economic progress, a position that obstructed growth (Abugamea, 2019). The purpose of this study is to determine if the GDP of Palestine is associated to goods exports and imports. Do these variables contribute to our understanding of how GDP and a country achieves economic success and stability? The following objectives guide this paper:

1. To build an econometric model that will be applied to the public to use GDP by the Palestinians and examine regression results.
2. To determine whether exports of goods and services and imports of goods and services are significant indicators of Gross Domestic Product in Palestine using econometric theories.

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2 Literature Review

2.1 Model specification

Scholars and legislators conducted a wide range of research and studies on imports, exports, and economic growth. Their investigation uncovered a range of results about the link between the aforementioned factors. Lately, most research has focused on cointegration tests, OLS, and VAR (Vector Auto Regression) models (Dickey and Fuller, 1979; Abugamea, 2015; Taghavi et al., 2012; Bakari, 2018;). Additionally, the earliest empirical models sought to reflect the basic relationship between imports, exports, and GDP growth by including imports and exports into the total output function."(Balassa, 1978; Hussain, 2015a; Hussain, 2015b).

The enhanced output function, which includes exports and imports, is as follows:

$$\boldsymbol{GDPt} = (\boldsymbol{exports}, \boldsymbol{imports}) \quad (1)$$

The output function can be expressed in a log-linear econometric format as well, accordingly:

$$\mathbf{log}\,(\boldsymbol{GDP}) = \boldsymbol{\beta 0} + \boldsymbol{\beta 1}\mathbf{log}\,(\boldsymbol{exports}) + \boldsymbol{\beta 2}\mathbf{log}\,(\boldsymbol{imports}) + \boldsymbol{\varepsilon t} \quad (2)$$

Where:

- $\beta 0$: The constant term.
- $\beta 1$: coefficient of variable (exports)
- $\beta 2$: coefficient of variables (imports)
- t: The time trend.
- $\boldsymbol{\varepsilon}$: The random error term assumed to be normal, identically and independently distributed.

3 Methods Methodology

3.1 Dataset

The research examines the annual time series in Palestine from 2007 through 2020. The dataset contains an analysis of GDP, goods and service imports (in US dollars), and goods and service exports (in US dollars) (US dollars). The information was compiled using data from the Palestinian Central Bureau of Statistics (PCBS, 2020),

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the World Bank's national accounts (Worldbank, 2019), and the Organization for Economic Cooperation and Development's (OECD, 2019).

3.2 Methodology

The authors create an econometric model to examine the direct correlations between Palestine's exports, imports, and economic development. Annual data from 2007 to 2020 are used to evaluate the model using the most applicable technique. Thus, for the dependent variable Gretl, OLS regression and Engle-Granger cointegration and causality analyses were conducted. Then, we determined whether the variables included a unit root using the ADF unit root test. As a consequence, all variables were verified to be stationary at their initial differences. Also, Engle Granger Cointegration test is used to assess the long-term link between the variables. Granger Causality Test is employed to ascertain the relationship's direction among the variables. Additionally, data were treated/transformed and several models were tested. For instance, logs were transformed. This, however, had no effect on the quality of the regression models.

4 Results and Discussion

The researcher conducts several tests to validate the model; in the empirical investigation, OLS, Engle-Granger Cointegration Analysis, and Granger Causality Tests were used. The output of OLS on model 1 is shown in Table 1.

Table 1: OLS, using observations 2007-2020 (T = 14)

	Coefficient	Std. Error	t-ratio	p-value
Const	4.45056	1.27326	3.495	0.0050 ***
Imports	0.177744	0.318565	0.5580	0.5881
Exports	0.503401	0.216195	2.328	0.0400 **

Mean dependent var	9.107998	**SD dependent var**	0.230220
Sum squared resid	0.069385	**SE of regression**	0.079421
R-squared	0.899298	**Adjusted R-squared**	0.880989
F (2, 11)	179.7582	**P-value(F)**	3.97e-09
Log-likelihood	17.28487	**Akaike criterion**	-28.56974
Schwarz criterion	-26.65257	**Hannan-Quinn**	-28.74721
rho	0.547210	**Durbin-Watson**	0.897456

Source: Author's Creation based on the dataset (2007-2020).

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Exports are a significant explanatory variable in the regression model output above, with a 0.04 level of significance. This suggests that at the 5% level, exports have a P-value that is considerably different from zero. The OLS test findings also provide estimations of the coefficients, which imply that a $1 million increase in exports translates in a $0.50 million rise in GDP. The import p-value, on the other hand, is 0.177. R2 = 0.90 denotes a solid model that accounts for 90% of the variation in the dependent variable; in other words, changes in imports and exports can explain 90% of the variation in GDP. This result could be explained as the underlying restraint on economic growth in Palestine due to the Israeli occupation's restrictions on commerce, labor mobility, and economic activity in general. This circumstance had a detrimental effect on commerce, employment, and economic growth. Since 1967, the Palestinian territories in the West Bank and Gaza Strip have been characterized by a persistent deficit. Additionally, Palestine has a high percentage of unemployment and slow economic growth, which impedes economic progress (Abugamea, 2019).

Engle-Granger Cointegration analysis

Tests for unit roots: ADF

Granger causality and cointegration tests are used to determine the stationarity and order of integration of the specified variables. We used the Augmented Dickey-Fuller (ADF) test to determine the variables' stationarity. The ADF test for the existence of a unit root is based on the regression model described below.

$$\Delta Yt = \beta 0 + \alpha t + \delta Yt\text{-}1 + \gamma 1 \Delta Yt\text{-}1 + \gamma 2 \Delta Yt\text{-}2 + \ldots + \gamma p \Delta Yt\text{-}p + \nu t \; t = 1, \ldots, T$$

Where Y is the dependent variable, "Δ" is the first difference operator, α, β0, γ1, …, γp are estimated parameters, t denotes a deterministic trend, νt is white noise, and T is the number of observations. Therefore, a stationary test like the ADF test will be used to do this task.

Table 2: ADF test

Variable	ADF		Order of Integration
	Test Statistic	Probability	
Log (GDP)	-2.09513	0.0394	I (1)
Log (Exports)	-3.73664	0.0511	I (1)
Log (Imports)	-4.31107	0.0004	I (1)

Source: Author's Creation based on the dataset (2007-2020).

The stationary test ADF findings in Table 2 indicate that all variables are included in order (1), more precisely in the first difference. We can reject the null stationarity hypothesis at 0.05 based on the ADF results, as the P-value is significant at that

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level; hence, the residuals are stationary. This indicates that at least one cointegration connection exists between these variables.

Table 3: Engle-Granger Cointegration test (T = 14).

	Coefficient	Std. Error	t-ratio	p-value
Const	4.45056	1.18869	3.744	0.0032 ***
Imports	0.177744	0.272826	0.6515	0.5281
Exports	0.503401	0.184699	2.726	0.0197 **

Mean dependent var	9.107998	**SD dependent var**	0.230220
Sum squared resid	0.069385	**SE of regression**	0.079421
R-squared	0.899298	**Adjusted R-squared**	0.880989
Log-likelihood	17.28487	**Akaike criterion**	-28.56974
Schwarz criterion	-26.65257	**Hannan-Quinn**	-28.74721
rho	0.547210	**Durbin-Watson**	0.897456

Source: Author's Creation based on the dataset (2007-2020).

Table 3 shows the outcomes of a cointegration regression with a high R2 of 0.90. As a result, the model accounts for 90% of the variation in the GDPReal. However, since the P-value is bigger than the 0.05 level of significance, the null hypothesis is not rejected. As a result of the series having a unit root, GDPReal, Imports, and Exports are not cointegrated. This suggests that the model can account for a large number of variances within the data, but it is not significant. However, export's influence on economic growth in Palestine is disproportionately large due to export's reliance on Israeli restictions in various aspects and sectors . Palestine's economic reliance on Israeli control should be reduced, and significant structural adjustments are required to do this (Abugamea, 2019) .

Table 4: Granger Causality Tests."

Null Hypothesis:	F-Statistic	Prob.
LOG(EXPORTS) does not Granger Cause LOG(GDP)	6.6544	0.0297
LOG(IMPORTS) does not Granger Cause LOG(GDP)	0.29410	0.6008
LOG(EXPORTS) does not Granger Cause LOG(IMPORTS)	3.8478	0.0814

Source: Author's Creation based on the dataset (2007-2020).

The results from the Granger causality test in Table 4 show that exports are directed toward economic progress in Palestine, and imports do not lead to economic growth. Furthermore, the results show a poor causality between exports and imports at the

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0.10 level. The findings are supported by Abugamea (2015), who examined the link between imports, exports, and economic development in Palestine from 1968 through 2012, using yearly time series data. The findings, based on the Granger Causality test, indicate that there is no causal relationship between the three variables of exports, imports, and economic growth, with the exception of exports toward economic growth. Krugman (1986) demonstrated empirically that the flexibility of labor demand increases with increased trade openness in the presence of imperfect competition. Additionally, Tsegaye (2015) used a vector error correction model and the granger causality test to evaluate the relationship between economic growth in South Korea. This study found that exports and economic growth in Korea were unidirectional in the long term, but imports were bidirectional. Additionally, it discovered unidirectional short term causality between exports and imports and economic development. Anderson and Babula (2008) mention that a developing country's capacity implies to increase productivity through trade is contingent on a number of things, including education facilities that protect property rights and help establish institutions (Anderson and Babula, 2008). As well, several studies examine or study the relationship between trade and economic growth, or between trade, labor, and economic growth. According to Abugamea (2008), his study concluded that the Palestinian demand (economic activity) had a considerable positive effect on imports from and exports to Israel, both global and Israeli demand growth (GDPs) had a negligible effect on Palestinian exports. The result above could be explained by the fact that the Palestinian economy has faced numerous obstacles, primarily due to the Israeli occupation, which restricts access to resources (telecommunications, water, electricity, knowledge, cultural heritage, and land, among others) and opportunities of investment. These include industrialization and the dominance of the service sector. In addition to controlling border crossings, customs revenues, and trade flows (MNE, 2020).

Conclusion

Globalization has brought countries into close contact through trade in products and services, as well as in the financial services industry. Those countries classified as emerging economies, in particular, participate more extensively in this trade network. A country's efficiency rises as a result of the growth of this trade network, its technology advances, and its economy may flourish. This paper examines the relationship among the variables (exports, imports, and economic growth) in Palestine. To accomplish this purpose, the annual dataset from 2007 to 2020 was analyzed using the OLS, Engle-Granger Cointegration, and Causality tests. The tests are used to determine the correlation between these three variables. The findings indicate that there is no correlation between the three factors in Palestine. There is, nevertheless, compelling evidence of a link between exports and economic development. Additionally, the cointegration regression models and causality results reveal that exports are a strong predictor of the dependent variable (GDP).

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However, one of the primary reasons for these outcomes is that the economies, commerce, and employment rate in the Palestinian territories in the West Bank and Gaza Strip have experienced various strikes and insecurities over the last fifty years. Palestinian foreign trade witnessed many troubles, specifically Israel's command of constraint on Palestinian commerce with the bordering countries and the remaining states of the world. For the time being, unemployment rates in Palestine have declined severely due to Israeli restraints, which have forced the Palestinian work movement into Israel since 1994. Regardless of the mentioned challenges, the outcomes prove that exports are perceived as one of the sources of economic growth in Palestine. Lastly, various policy implications can be drawn from the study results. Government and private sector participation in economic policies is required, and the policies that impact trade, import, and export aspects make trade more active, therefore affecting both employment and economic activity. Also, removing any constraints on Palestinian commerce is vital in any form. Consequently, trade, jobs, and growth in the economy will be more closely connected.

References

[1] Abugamea, H., (2005). The Palestinian External Merchandise Trade: Determinants and Stability Investigation during 1968-1968, An Najah University J. Research (H.Sc.), Vol.19 (1), 267-294.

[2] Abugamea, H., (2008). Palestinian Import-Export Trade Modeling for the Period 1968-1998, An Application of Seemingly Unrelated Regression Equations, Studies in Business and Economics-Qatar University Journal, Vol.14 (2), 51-64.

[3] Abugamea, H., (2010). The competitiveness of the Palestinian foreign trade: A cointegration analysis. Economic Research Forum Working Papers, No. 541:1-14.

[4] Abugamea, H., (2015), External Trade and Economic Growth Relationship under Trouble: Time Series Evidence from Palestine, Swift Journal of Economics and International Finance, Vol. 1(2), 10-16.

[5] Abugamea, H., (2015). The competitiveness of the Palestinian foreign trade: A cointegration analysis. In Economic Research Forum Working Papers (No. 541).

[6] Abugamea, H., (2018). Determinants of Unemployment: Empirical Evidence from Palestine, *MPRA,* Paper No. 89424, [online] Available at: https://mpra.ub.uni-muenchen.de/89424. [Accessed 9 Nov. 2021].

[7] Abugamea, H., (2019). The Nexus of Trade, Employment and Economic Growth: Empirical Evidence from Palestine. *Journal of Smart Economic Growth*, 4(3).

[8] Anderson, L. - Babula, R., (2008), The link between openness and long run economic growth. *Journal of International Commerce and Economics*, 1(20).

[9] Bakari, S. (2018). Impact of Exports and Imports on Economic Growth in Canada: Empirical Analysis Based on Causality. *International Academic Journal of Innovative Research*, 05(01), pp.17-29.
[10] Balassa, B. (1979). Exports and economic growth: Further evidence. *Journal of Development Economics*, 5(2), pp.81-189.
[11] Bista, R. - Tomasik, R. (2018). Time zones, GDP & exports. *Applied Economics Letters*, 26(6), pp.496-500.
[12] CountryEconomy. (2019). *State of Palestine GDP - Gross Domestic Product 2018*. [online] Available at: https://countryeconomy.com/gdp/palestine [Accessed 3 Dec. 2021].
[13] Dickey, D. - Fuller, W. (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root. *Journal of the American Statistical Association*, 74(366), p.427.
[14] Dickey, D. - Fuller, W. (1981). Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root. *Econometrica*, 49(4), p.1057.
[15] Hussain, A. (2015a). Impact of Exports and Imports on Economic Growth: Evidence from Tunisia. *Journal of Emerging Trends in Economics and Management Sciences*, 6(1), pp.13-21. ISSN: 2141-7016.
[16] Hussain, A. (2015b). The causality relationship between exports, imports and economic growth in Jordan: 1977-2012. *EPRA International Journal of Economic and Business Review*, 3(7).
[17] Krugman. P. (ed) (1986). Strategic Trade Policy and New International Economics, Cambridge. The MIT Press.
[18] Mankiw, N. (2016). The GDP and its discontents. *Science*, 353(6297), pp.356-356.
[19] MNE. (2020). *Palestintian Ministry of National Economy* [online] Available at: https://www.mne.gov.ps [Accessed 1 Jan. 2022].
[20] *PCBS.* (2020). *Palestinian Central Bureau of Statistics*. [online] Available at: http://www.pcbs.gov.ps/default.aspx [Accessed 10 July. 2021].
[21] Romero, J. (2015). Exports, Imports, FDI and GDP in Mexico: 1989-2013. *Journal of Economics and Development Studies*, 3(1).
[22] Taghavi, M. - Goudarzi, M. - Masoudi, E. - Gashti, H. (2012). The Impact of Export and Import on Economic Growth in Iran. *Journal of Basic and Applied Scientific Research.*, 2(12)(12), pp.12787-12794.
[23] Tsegaye, D. (2015). Trade and Growth Nexus in South Korea: Analysis using Vector Error Correction Model and Granger Causality Test. *Global Development Network*, (88), New Delhi.
[24] WorldBank (2020). *GDP in Palestine (current US$) | Data*. [online] Available at: https://data.worldbank.org/indicator/ny.gdp.mktp.cd [Accessed 3 July. 2021].