College of Graduate Studies

Business Administration Program

Exports, imports and economic growth: Evidence from Palestine

الصادرات، الواردات والنمو الاقتصادي: أدلة من فلسطين

By

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This thesis is submitted in partial fulfillment of the requirements for the Degree of Master of Business Administration, Faculty of Graduate Studies & Academic Research, Hebron University, Palestine.

April, 2019

إجازة الرسالة

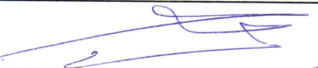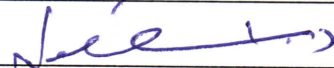الصادرات، الواردات والنمو الاقتصادي: أدلة من فلسطين

إعداد الطالبة

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إشراف

د. إسلام حسونة

نوقشت هذه الرسالة يوم الثلاثاء بتاريخ 2019/4/23م، وأجيزت من أعضاء لجنة المناقشة التالية أسماؤهم:

التوقيع		أعضاء لجنة المناقشة
		د. إسلام حسونة /مشرفاً ورئيساً
		أ. د. عبد الفتاح أبو شكر /ممتحناً خارجياً
		د. أسامة شهوان /ممتحناً داخلياً

الخليل – فلسطين

1440هـ - 2019م

Dedication

To my cresset, who always lit my path… My beloved mother.

To who never stop giving of himself in countless ways… My beloved father.

To those who pour support and encouragement, My dear brothers.

To fragrance of my life ... My sisters; my companion in the path who always supported me... Shorouq, Shahd & Gaida'.

To my friends; specially my dearest companion, who stands by me when things look bleak... Shaima'.

To my colleagues.... Students of science.

To my family, the symbol of love and giving.

To all the people in my life who touch my heart،

and to my homeland Palestine

I dedicate this research.

Acknowledgement

First and foremost, I must acknowledge my limitless thanks to Allah, Almighty, Who helped me to accomplish this scientific effort, which would have never become, without His guidance.

Peace and blessings be upon our Prophet Muhammad, who taught us the purpose of life.

Dr. Islam Hassouneh, It's a great honor for me to do my Master's thesis under his supervision. The words are racing and the phrases are crowded to organize the thanksgiving and gratitude for him. Who I drank from springs of his knowledge. He was a star brilliance illuminated my scientific path. He was and still giving without waiting for tender.

I also extend my thanks to the members of the teaching staff of the College of Graduate Studies at the Hebron University, who have not given up on the provision of scientific assistance and guidance during my years of study. I would also like to thank the members of the thesis Discussion Committee to discuss it.

Thanks to everyone who smiled at me and wished me goodness and success after all this fatigue ... you are God's gift to me.

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Abstract

Several studies have been conducted to investigate the relationship between exports, imports and economic growth and argue that the causal direction of the effect of exports and imports on economic growth is still debated. Therefore, this thesis investigates the relationship between exports, imports and economic growth in Palestine, an economy that has not been investigated yet. Quarterly data ranging from the first quarter of 2000 to the first quarter of 2018 are used to investigate this relationship. To do so, unit root and cointegration tests using Johansen's approach as well as vector error correction technique are used. Unit root test results indicate that all data series (exports, imports and economic growth) are integrated of order one. Findings of Johansen test confirm the presence of long-run equilibrium relationship between exports, imports and output growth. Results also support the existence of bidirectional long-run causality between exports, imports and output growth. As for the short-run causality, findings support both the export-led import and the import-led export hypotheses. Further, imports are found to Granger cause economic growth. Policy makers should be aware of the importance of trade to stimulate economic growth.

الملخص

ذهبت العديد من الأدبيات السابقة التي تناولت دراسة العلاقة السببية بين الصادرات والواردات و النمو الاقتصادي، إلى أن الإتجاه السببي لتأثير الصادرات والواردات على النمو الاقتصادي لا يزال محل نقاش. لذلك، هدفت هذه الرسالة إلى دراسة العلاقة بين الواردات، الصادرات والنمو الاقتصادي في فلسطين، الدولة التي لم يتم دراستها بعد. لدراسة هذه العلاقة، تم إستخدام بيانات ربعية تتراوح بين الربع الأول من عام 2000 إلى الربع الأول من عام 2018. من أجل تحقيق هذا الهدف، تم تطبيق إختبارات جذر الوحدة و التكامل المشترك، باستخدام طريقة جوهانسن، بالإضافة لتقنية تصحيح الخطأ. تشير نتائج إختبار جذر الوحدة إلى أن جميع سلاسل البيانات (الصادرات، الواردات والنمو الاقتصادي) متكاملة من الرتبة واحد (مستقرة بعد الفرق الأول). كذلك، تؤكد نتائج إختبار جوهانسن الى وجود علاقة توازن على المدى الطويل بين الصادرات والواردات والنمو الإقتصادي. كما تدعم النتائج وجود علاقة سببية ثنائية الإتجاه على المدى الطويل بين الواردات والصادرات والنمو الإقتصادي. بالنسبة للسببية على المدى القصير، تدعم النتائج كلا من الفرضيتين اللتان تشيران إلى أن الواردات تقود الصادرات والصادرات تقود الواردات. علاوة على ذلك، أشار إختبار السببية جرانجر إلى أن الواردات تسبب النمو الإقتصادي. من هنا يجب على صناع القرار إدراك أهمية التبادل التجاري في تحفيز النمو الاقتصادي في فلسطين.

Chapter 1

The general framework

1.1 Introduction

Economic growth is one of the prime long-run concerns of macroeconomists and policy makers. For a society to achieve an increasing standard of living, total output must growth. The economic growth is measured through the concept of Gross Domestic Product (GDP). Theoretically, the four components of GDP are personal consumption, business investment, government expenditure and net exports (export minus import). In this study, we focus on this issue by analyzing the impact of both export and import on economic growth.

Export expansion is viewed as a key determinant of economic growth since it's considered as one of the most important sources of foreign exchange earnings that ease the pressure on the balance of payments and create employment opportunities (Abu-Shihab et al., 2014). Unlike export, import leads to the exit of the local currency and a deterioration of the trade balance and thereby weakening economic growth (Bakari and Mabrouki, 2017). However, in some countries, import can be considered as a source of economic growth. More specifically, according to Helpman and Krugman (1985), import can serve as a channel for long-run economic growth as it provides intermediate goods which in turn increases capital formation and thereby stimulate economic growth. Furthermore, import can encourage output growth by serving as a medium for the transfer of knowledge from developed to developing countries (Lawrence and Weinstein, 1999).

Empirical studies in the literature argue that the causal direction of the effect of trade (exports and imports) on economic growth is still debated. Generally, results from previous studies vary between in-favour and not in-favour of four main hypotheses: Export-Led Growth (ELG), Growth-Led Export (GLE), Import-Led Growth (ILG) and

Growth-Led Import (GLI). More specifically, many empirical studies argue that export growth and openness to foreign countries is an important determinate of economic growth (see, Awokuse, 2007, Adjaye and Chakraborty, 1999). However, empirical support for GLE hypothesis is relatively stronger (Ghartey, 1993; Kubo, 2011). According to Krugman (1984), export growth could be stimulated by productivity gains caused by increases in domestic levels of skilled-labor and technology. Other empirical studies argue that imports are the economic engine of growth. As mentioned above, imports provide local firms with access to needed foreign intermediate goods and technology that contribute to the increase in economic growth. The fourth hypothesis suggests that economic growth may lead to import expansion (see, Saaed and Hussain, 2015; Hye, 2012; Hye et al. 2013).

1.2 Problem of the study

The Palestinian economy, in all its components, including the foreign trade sector, suffers from deep structural distortions resulting from the policies of the Israeli occupation authorities. These policies have led to weakening the Palestinian economy and increasing its dependency on the Israeli economy. The problem of the study is concentrated to reveal the relationship between both exports and imports and economic growth in Palestine, a market that has a unique political, socio-economic and developmental situation.

1.3 Study hypotheses

The present study aims to test the following main hypotheses:

$H0_1$: Exports does not Granger cause economic growth.

$H0_2$: Economic growth does not Granger cause Export.

$H0_3$: Imports does not Granger cause economic growth.

$H0_4$: Economic growth does not Granger cause import.

$H0_5$: Import does not Granger cause exports.

$H0_6$: Exports does not Granger cause imports.

1.4 Study objectives

The objective of this study is to formally assess the causal relationship between exports, imports and economic growth in Palestine. In particular, two specific objectives have been defined in this thesis:

   a. First, to assess if there is long run relationship among economic growth, export and import.

   b. Second, to study the causality relationship among economic growth, export and import.

1.5 Study importance

The analysis of the Palestinian economy is important due to its unique situation. More specifically, the Israeli control over the Palestinian territory as well as the political instability has made the Palestinian economy an exceptional economy. According to Palestinian Central Bureau of Statistics (PCBS, 2018), in 2017 the real GDP of Palestine, using 2010 as the base year, was around $10.8 billion, compared with $10.4 billion in 2016 and $10 billion in 2015. In 2017, Palestine exported $935 million and imported $4.78 billion, resulting in a negative trade balance of $3.8 billion. The huge gap between exports and imports raises another important issue to investigate the relationship between exports, imports and economic growth in Palestine.

1.6 Outline of the thesis

The rest of the study is structured as follows: The second chapter presents an overview of the Palestinian economy since the beginning of the Israeli occupation in 1948 and some information on both exports and imports. The theoretical framework as well as the literature review of previous research, on the relationship between trade and economic growth, are presented in chapter three. The fourth chapter is devoted to present the methodological aspects of our empirical application. We first briefly review the techniques used to assess time series data characteristics (unit roots and cointegrating relationships). Second, an error correction technique is applied to test for both long and short-run causality between exports, imports and economic growth. The

discussion of the results is presented in the fifth chapter. The thesis concludes with the concluding remarks and recommendation chapter.

Chapter 2

Overview of the Palestinian economy

2.1 Export, import and economic growth in Palestine

The occupation is continuing from its first moment to achieve its goal to obliterate all aspects of Palestinian identity and establish the State of Israel in Palestine (ملحم 2016). The Palestinian economic sector is one of the most affected sectors as a result of the measures taken by the Israeli occupation aimed at seizing Palestinian economic resources and linking the Palestinian economy to the Israeli counterpart. More specifically, the development of Palestinian economy has become captive to an unbalanced and coercive relationship with Israel economy, a more larger and sophisticated economy (صبيح 1992). We now present some details on the Palestinian economy since the establishment of Israel in Palestine in 1948 and provide information on both exports and imports.

2.1.1. The Palestinian economy between 1948-1967

The establishment of the state of Israel in Palestine has made the Palestinian economy an exceptional economy. In 1948, Israel occupied 76.7% of the historic land of Palestine and more than 700,000 Palestinians were expelled from their homes to refugee camps in the West Bank, Gaza Strip and neighboring Arab countries (McDowall and Palley, 1987; Hassouneh, 2017).

During the war in 1948 (known in Arabic as the Nakba) the Gaza Strip and the West Bank were inundated with a huge influx of Palestinian refugees that the economy could not absorb. In particular, 360,000-380,000, of the 700,000 expelled Palestinians, moved to the West Bank and the Gaza Strip. This has put pressure on the limited

domestic resources of the economy, with an unprecedented increase in basic refugee needs from housing, food, health and education services (Gilbar, 1997; 2016 سليم). The Palestinian of the West Bank and the Gaza Strip from 1948 until the 1967 war, were administrated by Jordan and Egypt, respectively, and thus involuntary economic orientation to these countries was observed.

2.1.2 *The Palestinian economy between 1967-1993*

In June 1967, Israel gained control over the West Bank and Gaza Strip in the course of the Six-Day war, or Naksah. The economy of both territories was then re-oriented to Israel's economy. After 1967, Israel policy and strategy were to extend and strengthen its presence through the confiscation of Palestinian land as well as the construction of a series of Jewish settlements on the confiscated land. Moreover, Israel imposed restrictions on Palestinian access to their natural resources and controlled Palestinian imports and exports through controlling the borders. Simultaneously, Israel introduced regulations in order to reduce the entry of Palestinian products and goods into its own market. On the contrary, Israel heavily subsidized its products and goods that could be sold in Palestine (Fanack, 2017). These coercive policies lead to a further weakening of the Palestinian economy and increasing its dependency on the Israeli economy and thus hampering the development of the Palestinian economy as it should. (Samara, 2000).

Paradoxically, during the first years of the occupation, a substantial part of the Palestinian workforce flew to Israel due to higher employment opportunities and wages. According to official numbers, the number of Palestinian workers in Israel increased, from 20,000 in 1970, to 55,000 in 1972 and to 89,000 in 1985, which was equivalent to

about 36% of the Palestinian labor force (Fanack, 2017). By the mid of 1980s, remittances from Israel to Palestine contributed to more than a quarter of the Gross National Product (GNP) of Palestinian territories (Farsakh, 2002).

In 1987, as a response to a military truck that killed Palestinians at a checkpoint, the first intifada started. The first intifada also had negative effects on the Palestinian economy. More specifically, Israel restricted the movement of goods within the Occupied Territories in addition to imposing restrictions on the number of Palestinian workers wishing to enter Israel.

2.1.3. The Palestinian economy after the period 1993

At the beginning of the 1990s, international efforts to resolve the Israeli-Palestinian conflict started, leading to the Oslo Accords of 1993. The Accords led to create the Palestinian Authority (PA) in the West Bank and Gaza Strip. In 1994, the Protocol on economic relations (Paris Protocol), which regulates the economic relationships between Israel and Palestine, was signed. Both agreements (Oslo and Paris) ignored the issue of Palestinian sovereignty over land and instead increased the dependency of the Palestinian economy on the Israeli counterpart. More specifically, based on the Paris Protocol, Israel retained full control over the Palestinian trade and tax revenues. The difference was that Israel collects taxes on Palestinian imports on behalf of the PA and transfers the money to the Palestinian treasury on monthly basis after deducting 3% from each transfer to cover Israel's administrative costs in collecting these taxes and in handling matters related to them (Israel Ministry of Foreign Affairs, 1995). In addition to Israel supervision imposed on the Palestinian imports and exports,

the Paris Protocol explicitly restricts the PA to specific quantities of goods that can be imported and exported, especially in agriculture (Samara, 2000).

Under the Oslo Accords, West Bank has been divided into three administrative divisions: Areas A, B and C (see Figure 2.1). Area A, which covers about 3% of the total area of West Bank and around 26% of the population, is subject to a complete Palestinian civil and security control. This area includes the eight major Palestinian cities (Bethlehem, Hebron, Jenin, Jericho, Nablus, Qalqilya, Ramallah, and Tulkarem). Area B, which is subject to Palestinian civil control but Israeli security control and consists of villages on the outskirts of Area A cities, covers around 24% of the West Bank area and around 70% of the population. Area C, which is subject to a complete Israeli civil and security control, covers approximately 73% of the West Bank area and contains 4% of population (Kersel, 2014 and PASSIA, 2012). This division has certainly played a major role in obstructing the movement of Palestinians and disrupting economic activities due to the absence of market unity, where Palestinians cannot move from areas A to B without crossing from Area C.

Figure 2.1: Map of Areas A, B and C under the Oslo Accord.
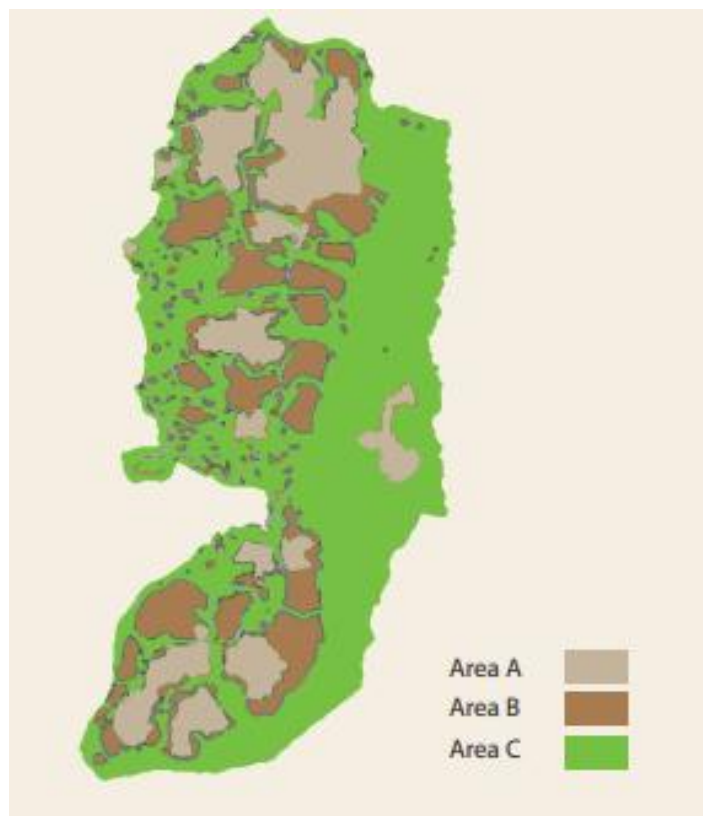
Source: PASSIA (2012).

As a result of all the policies and procedures carried out by the Israeli occupation, it succeeded in linking the Palestinian economy to the Israeli economy and making it subordinate to it. This has had a significant impact on reducing the operational capacity of the Palestinian economy and thus pushing many Palestinian workers to work in Israeli markets. The high employment opportunities as well as the high wages are also among the important factors that increased the flow of Palestinian labor to Israel (Hassouneh, 2018). According to PCBS (2017), the number of Palestinian workers going to Israel reached its peak of about 136 thousand workers in the third quarter of 2000. As a result of the second Intifada, which began in 28

September 2000, the number of Palestinians employed inside Israel has dramatically fell reaching a trough in the second quarter of 2002 with 33,100 workers. The Palestinian labor flows to Israel returned to increase by the end of the second Intifada reaching about 125,000 in the second quarter of 2018.

Table 2.1 shows the GDP, exports and imports of Palestine from 2002 to 2017 in 2010 prices. If we look at the GDP, we can notice that Palestinian GDP show apparent increasing trend. GDP in Palestine increased from $4,439 million in 2002 to $10,754 million in 2017. Table 2.1 also shows that both imports and exports experience an increasing trend. In particular, Palestine exported $935 million and imported $4,778 million in 2017, resulting in a negative trade balance of $3,843 Million.

Table 2.1: Palestinian GDP, exports and imports in millions of dollars.

Year	2002	2005	2008	2011	2014	2017
GDP	4,439	6,187.7	6,723.6	8,878.2	9,627.8	10,754.1
Imports	2,101.8	3,305.5	3,687	4,251.3	5,194.5	4,777.9
Exports	333.8	415.7	595.8	724.2	862.5	935.2

Source: Authors' elaboration based on the data set published by PCBS (2018), (2010=100).

It is worth noting that most of imports and exports originated from Israel. In 2017, around 55% of total Palestinian imports were from Israel. On the other hand, Israel is the main importer of Palestinian exported goods. In 2017, the percentage of overall Palestinian exports directed to the Israeli market was about 82% (PCBS, 2018).

Chapter 3

Theoretical framework and the literature review

3.1. Theoretical framework

Economic growth is one of the most important indicators of a country's well-being. Economists tend to interpret the fluctuations in economic growth by interpreting the relationship between trade (exports and imports) and economic growth. Exports are considered as one of the most important sources of foreign currency income that ease the pressure on the balance of payments and create employment opportunities and thus income. But exports are just half of the trade equation. Imports also play an important role in enhancing economic growth if properly managed. It provides many jobs in the local country as well as imported goods can be used to re-manufacture them again. Imports can also generate an overall economic growth as it provides local firms access to foreign technology and knowledge. Furthermore, imports have a large positive effect on productivity growth through its effect on local innovation and research and development through import competition (Hashem and Masih, 2014).

The allegation that justifies the role of international trade in economic growth is not new. It goes back to the classical economic theories by Adam Smith and David Ricardo, who argued that international trade is a key factor in economic growth (Abu-Shihab, et al., 2014). In 1776, the father of modern economics, Adam Smith, stated in his book The Wealth of Nations (Smith, 1776) that in order to achieve the wealth of nations and to make all nations gain from international trade, free and specialized trade must be pursued according to their absolute advantage, otherwise it would be impossible for all nations to become rich at the same time. For example, if both the United States (US) and Japan are producing cars, but Japan can produce cars of a high quality using fewer inputs than the US, which means that Japan has an absolute

advantage in the auto industry. It might be better for the US to devote its resources to another industry in which it has an absolute advantage, rather than trying to compete with Japan. David Ricardo (Ricardo, 1817) later on reshaped the startlingly simplistic notion to the more dynamic concept of comparative advantage. While absolute advantage refers to the higher production abilities of one nation against other nations, comparative advantage is based on the concept of opportunity cost. Opportunity cost represents the benefits lost when choosing one alternative over another.

The theories of Smith and Ricardo did not specify exactly what factors would give a country a trade advantage. In order to overcome the shortcomings of these theories, economic theories were developed in the 20th century that explain international trade in more details. More specifically, two Swedish economists, Heckscher (1919) and Ohlin (1933), focused their studies on how a country could gain comparative advantage by producing products that utilize their abundant factor of production. The Swedish economists argued that comparative advantage arises from differences in local resources of production in the nation, which is land, labor and capital, rather than differences in productivity (Prakash and Anand, 2014). Their theory states that the cost of any factor depends on the supply and demand function. The factor is cheaper if the supply is greater than the demand and it is more expensive if the demand is greater than the supply (Sachithra at al 2012). Therefore, an important reason for the international exchange between two countries is the possibility of obtaining the goods from abroad at a cost lower than the cost of producing locally.

According to Awokuse (2005), trade theory does not provide a definitive guidance on the causal relationship between exports, imports and economic growth and that the debate is usually informed by inferences based on empirical analyses. Details on empirical studies are now presented.

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3.2. Literature review

Economic theory states that trade between countries is not a win-loss situation, but rather each country becomes better off (Mankiw, 2016). Trade is of great importance to the economies of countries and is considered as one of the most important means of exploiting the economic resources available, and providing the operational requirements necessary for the production of goods and their disposal to the domestic and foreign markets. In other words, exports and imports play an important role in the development of economies as it allows for an interaction between the local economy and other economies in the world and thus providing the necessary resources and skills needed to produce certain goods and services (Vijayasri, 2013).

The empirical studies regarding the causal relationship between export, import and economic growth have gained special attention of many researchers over the past decades (see, for example, Awokuse, 2007; Ramos, 2001 and Çetintaş and Barişik, 2009). The attention given to these studies has been partly motivated by the recent developments in time series analyses. It is now recognized that traditional methods applied to study the dynamic path of non-stationary variables may produce spurious outcomes and can be improved (Hassouneh et al. 2010).

Many empirical studies have been made to study the causal relationship between exports, imports and economic growth and show that the dynamic relationship among these three variables gives mixed results. More specifically, results from previous studies can be categorized into three main categories: unidirectional causality, bi-directional causality and no causality between trade (export and import) and economic growth. Unidirectional causality results can be further classified into two groups: export

(import)-led growth and growth-led export (import). Differences in results can be explained by the sampling period used, the methodologies applied as well as the different countries studied. Reviews of previous literature and their findings are presented below.

Using annual data during the period 1960 and 1973, Balassa (1978) investigates the relationship between exports and economic growth in 11 industrial developing countries (Argentina, Korea, Taiwan, Chile, India, Maxico, Brazil, Colombia, Israel, Yugoslavia, Singapore). His results suggest a positive relationship between GNP and Export growth in Argentina, Chile, Colombia, India, Maxico, and Yugoalavia. Further, a negative relationship between GNP and export growth is found in Brazil, Israel, Korea, and Taiwan.

The impact of export instability on imports of capital goods and domestic investment is investigated by Love (1989) using annual data form 1960 to 1984 within 12 developing countries (Barazil, Colombia, Morocco, Honduras, Mexico, Philippines, El Salvador, Ghana, Guatemala, Costa Rica, Ethiopia, Nicaragua). Results indicate that export instability does lead instability in capital goods imports and in domestic investment. The analysis by Ghartey (1993) studies the causal relationships between exports and economic growth for Taiwan, the US and Japan using Vector Autoregression (VAR) approach. His results suggest that exports growth causes economic growth in Taiwan and economic growth causes exports growth in the US. Results also suggest a feedback causal relationship between exports and economic growth in Japan.

Islam (1998) uses a multivariate Vector Error Correction Model (VECM) to study the causality relationship between exports and economic growth in 15 Asian

countries over the period 1967-1991. His results show that a long-run equilibrium relationship exists between exports and GDP in five countries (Bangladesh, India, Nepal, Sri Lanka and Fiji) and that exports cause economic growth in two-thirds of these countries. Awokuse (2007) examines the causality between exports, imports and economic growth in Bulgaria, Czech Republic and Poland using multivariate cointegration VAR approach. The paper results suggest a bi-directional causal relationship between exports and growth in Bulgaria and a unidirectional causality running from imports to economic growth in the Czech Republic and Poland.

Kim et al. (2007) investigates the relationship between exports, imports, and economic growth in Republic of Korea using quarterly data from 1980 to 2003. In doing so, they apply a VECM. Their results indicate that while imports have a significant positive effect on productivity growth, exports do not. Their results further indicate that imports Granger cause GDP growth due to competitive pressures arising from consumer goods imports and technological transfers from developed countries. The relationships between export, import and economic growth, for the 13 transition economies (Armenia, Belarus, Bulgaria, Czech Republic, Estonia, Hungary, Kazakhstan, Latvia, Lithuania, Poland, Russia, Slovak Republic and Slovenia), were investigated by Cetintas et al. (2009). To do so, they apply cointegration test as well as VECM. Their results show that there is long run equilibrium relationship between economic growth, import and export. VECM findings support the GLE hypothesis in the studied countries. Zang and Baimbridge (2012) focus on analyzing the relationship between exports, imports and economic growth for South Korea and Japan by constructing a VAR model. Results indicate that the three variables are cointegrated for both countries, implying that a long-run equilibrium relationship exists. Results also provide evidence of bi-directional causality between imports and economic growth for both countries. Further,

Japan seems to experience export-led output growth, while GDP growth in South Korea has a negative effect on export growth.

Hye (2012) examines the relationship between exports, imports and economic growth in the case of China from 1978 to 2009 by using the Autoregressive Distributed Lag (ARDL) technique and modified Granger causality test. Their results support the existence of the bidirectional long run relationship between the economic growth and exports, economic growth and imports, and exports and imports. The study done by Velnampy and Achchuthan (2013) investigates the impact of export and import on the economic growth in Sri Lankan between 1970 and 2010. Their results show a strong positive relationship among export and import and that both export and import have a significant impact on the economic growth. Ronit and Divya (2014) analyze the relationship between exports and GDP growth in the context of India by using annual data for the period between 1969 and 2012. In order to achieve this purpose, a VAR model, Granger causality test as well as an Impulse Response Function (IRF) are used. Their results lead to rejection of the null hypothesis that ELG in favor of the alternative, GLE. The IRF proves that shocks to output growth affect exports, while the converse is not true.

Using annual data during the period 1990 and 2015, Bakari (2016) investigates the relationship between exports, imports, and economic growth in Canada. Data was tested by using Johansen cointegration analysis of VAR model and the Granger-causality tests. While his results show that there is no cointegration relationship between exports, imports, and output growth, a strong evidence of bidirectional causality from imports to economic growth and from exports to economic growth are found. The analysis by Yuksel and Zengin (2016) studies the causal relationships between imports, exports and economic growth for six developing countries (Argentina, Brazil, China,

Malaysia, Mexico and Turkey) by using annual data from 1961 to 2014. Engle-Granger co-integration analysis, VECM and Toda Yamamoto analysis are used. The results suggest that export causes higher growth rate in Argentina. Moreover, findings indicate that there is a causal relationship from import to export in China and Turkey. Furthermore, a positive relationship between export and import is found in Malaysia.

Akter and Bulbul (2017) investigate the comparative influence of import and export on economic growth of eight developing countries (Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan and Turkey) using annual data from year 2001 to year 2015. In doing so, the techniques of cointegration and VECM are applied. The paper provides evidence for the existence of a cointegration between the variables and that both import and export are important to drive growth of an economy in both short run and long run.

In addition to the above analyses that evaluate the relationship between exports, imports and economic growth across different world markets, a number of studies have been conducted on this topic in Arab and Middle East markets. Some of these studies are reviewed in this thesis.

The paper by Abou-Stait (2005) is focused to examine the causal flow from exports to economic growth for the Egyptian economy during 1977-2003. Cointegration analysis, VAR and IRF analyses are used in this paper. Results from Johansen cointegration test indicate that exports, imports and GDP are not cointegrated, and that exports Granger cause GDP growth. Results also show that shocks to exports lead to a significant response in GDP. Wong (2007) examines the relationship of exports, domestic demand and economic growth in the Middle East countries, namely Iran, Bahrain, Oman, Saudi Arabia, Qatar, Syria, and Jordan by estimating a VECM Granger

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causality test. The results show that there is a bidirectional Granger causality between exports and economic growth for Bahrain, Oman, Qatar and Jordan. Abu-Shihab at el. (2014) investigate the causality between exports and economic growth in Jordan over the period 2000–2012. Johansen cointegration approach as well Granger causality test under VECM are applied to test the existence of a long-run relationship and the direction of the causality between variables, respectively. The results reveal the existence of a long-run relationship between variables studied. Also, it provided support for GLE hypothesis in the case of Jordan.

El Alaoui (2015) analysis the relationship between export, import and economic growth using annual time series data for the Moroccan economy over the period 1980-2013. Cointegration approach as well as Granger causality test based on VECM are applied to achieve the paper objective. Cointegration results confirm the existence of the long-run relationship among the variables studied. The result of Granger causality test shows that there is a long-run causality between exports, imports and economic growth. Test also shows short-run causality between variables. Recently, Saaed and Hussain (2015) investigate the impact of exports and imports on the economic growth of Tunis for the period from 1977 to 2012 using Johansen Cointegration approach as well as Granger causality test in VECM framework. Their results suggest a unidirectional causality between exports and imports and between exports and economic growth. More recently, Kalaitzi and Cleeve (2017) investigate the causality between exports and economic growth in the United Arab Emirates (UAE) over the period 1981–2012. Johansen cointegration approach as well Granger causality test under VECM are applied to test the existence of a long-run relationship and the direction of the causality between variables, respectively. The cointegration test reveals the existence of a long-run relationship between variables studied. Evidence to support a bi-directional

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causality between exports and economic growth in the short-run as well as economic growth causes exports in the long-run for UAE are found.

As far as the studies on Palestine are concerned, the empirical literature is limited. One notable study by (Abugamea 2015) analyzes the relationship between external trade and economic growth using annual data for the period 1968 to 2012. Cointegration and error correction models were employed. The Johansen cointegration test shows the long run relationship between the variables, and VECM results support ILG hypothesis at long run. Another notable study by (الطلاع 2017) examines the relationship between exports, trade openness, direct foreign investment, foreign aid and economic growth in Palestine over the period 1994-2014. In doing so, the author uses the cointegration test as well as the VECM. Results confirm the existence of a long-run relationship between variables. In addition, the study provides evidence of a causal relationship running from exports to GDP at both short-run and long-run levels.

Unlike the above studies, this research offers a more complete picture by considering the impact of both exports and imports on economic growth in Palestine, which represents a contribution of this research to the existing literature.

Chapter 4

Methodology

4.1 Methodology

Causal relationship between export, import and economic growth has been widely assessed by previous research. Many of the early empirical analyses on this topic (see, for example, Balassa 1978, or Love 1989) are based on non-stationary time series, but use econometric methods that ignore such characteristic which leads to spurious regressions. The problem of spurious regression can be avoided by applying time series procedures that are appropriate for dealing with non-stationary data. Furthermore, many empirical studies have examined the causal link between real GDP, real exports and real imports and found that time series involved are not stationary (Adjaye and Chakraborty, 1999; Uğur, 2008; Vardari, 2015). Hence, in this thesis, our first step in the empirical application is to test for non-stationarity in the time series being studied. A series is said to be non-stationary, if the mean, variance and covariance of the level series are not constant over time.

4.1.1 Unit root

Many statistical tests have been developed to test for the presence of unit roots (non-stationary) in time series. The pioneers in this field were Dickey and Fuller (1979). Dickey and Fuller (1979) actually consider three different regression equations that can be used to test for the presence of a unit root:

$$\Delta GDP_t = \gamma GDP_{t-1} + u_t \tag{4.1}$$
$$\Delta GDP_t = \alpha_0 + \gamma GDP_{t-1} + u_t \tag{4.2}$$
$$\Delta GDP_t = \alpha_0 + \alpha_1 t + \gamma GDP_{t-1} + u_t \tag{4.3}$$

According to Enders (1995), the difference between the three regression equations concerns the presence of the deterministic elements α_0 and $\alpha_1 t$. Specifically, the first equation (Eq. 4.1) is a pure random walk model, the second equation adds a constant or drift term and the third equation (Eq. 4.3) includes both the constant and linear time trend.

The parameter of interest in the above three equations is gamma (γ). A value of gamma close to zero indicates that series contains a unit root (not stationary). The test involves estimating any of the three equations above using Ordinary Least Square (OLS) regression in order to obtain the estimated value of gamma and associated standard error. Comparing the obtaining t-statistics with the appropriate value reported by Dickey and Fuller (1979) or Mackinnon (1991) allows us to determine whether the series tested is stationary or not.

4.1.2 Cointegration and error correction models

Engle and Granger (1987) explain that a long-run equilibrium relationship among non-stationary variables may be exist. The long-run equilibrium relationship between two or more variables, also known in the econometrics literature through the concept of cointegration. According to Engle and Granger (1987), two conditions must

be satisfied for variables to be cointegrated. First, the individual series must be integrated of the same order. Second, the linear combinations of the non-stationary variables, derived from an OLS regression, must be stationary. The cointegration relationship among a three series using the Palestinian economic growth as the normalization variable, can be expressed as follows:

$$GDP_t = \beta_1 EXP_t + \beta_2 IMP_t + e_t \tag{4.4}$$

where GDP_t, EXP_t and IMP_t denote the real GDP, the real exports and the real imports in Palestine at time t, respectively and e_t is the deviation from the long-run equilibrium relationship, i.e., the Error Correction Term (ECT). According to Engle and Granger (1987), If GDP_t, EXP_t and IMP_t each are non-stationary, but they become stationary after the first differencing, and are found to be cointegrated, then a VECM should be applied to study the short- and long-run causality between variables. The VECM can be specified as follows:

$$\Delta GDP_t = \alpha_1 + \lambda_{GDP} e_{t-1} + \sum_{i=1}^{n} \alpha_{11}(i) \Delta GDP_{t-i} + \sum_{i=1}^{n} \alpha_{12}(i) \Delta EXP_{t-i} + \sum_{i=1}^{n} \alpha_{13}(i) \Delta IMP_{t-i} + u_{1,t} \tag{4.5}$$

$$\Delta EXP_t = \alpha_2 + \lambda_{EXP} e_{t-1} + \sum_{i=1}^{n} \alpha_{21}(i) \Delta GDP_{t-i} + \sum_{i=1}^{n} \alpha_{22}(i) \Delta EXP_{t-i} + \sum_{i=1}^{n} \alpha_{23}(i) \Delta IMP_{t-i} + u_{2,t} \tag{4.6}$$

$$\Delta IMP_t = \alpha_3 + \lambda_{IMP} e_{t-1} + \sum_{i=1}^{n} \alpha_{31}(i) \Delta GDP_{t-i} + \sum_{i=1}^{n} \alpha_{23}(i) \Delta EXP_{t-i} + \sum_{i=1}^{n} \alpha_{33}(i) \Delta IMP_{t-i} + u_{3,t} \tag{4.7}$$

where Δ denotes the first difference operator; n is the number of lags, $u_{1,t}, u_{2,t}$ and $u_{3,t}$ are random error terms; e_{t-1} ($GDP_{t-1} - \beta_1 EXP_{t-1} - \beta_2 IMP_{t-1}$) is the one period

lagged of the ECT, which is derived from the long-run cointegration relationship. The α terms are all short-run dynamics parameters and λ_{GDP}, λ_{EXP} and λ_{IMP} are known as the speed of adjustment parameters and represent the deviation of dependent variables from the long-run equilibrium relationship.

In each equation, the change in the dependent variable depends not only on ΔGDP_{t-i}, ΔEXP_{t-i} and ΔIMP_{t-i}, but also on the one period lagged of the equilibrium error term, e_{t-1}. Given such a specification, the VECM is applied for investigating short- and long-run causality. Let us consider equation 4.5. If the estimated coefficients on lagged values of exports ($\alpha_{12}s$) are statistically different from zero, then the implication is that real exports Granger-causes real GDP in the short run. By testing the significance of the lagged values of imports coefficients ($\alpha_{13}s$), the short run causality running from real imports to real GDP can be checked. The long-run causality can be tested be examining the significance of the error correction parameter (λ_{GDP}).

Our particular estimation methodology can be outlined as follow. First, standard unit root and cointegration tests are applied in order to decide whether real GDP, real exports and real imports series are stationary and whether they are cointegrated, respectively. Specifically, standard augmented Dickey and Fuller (1979), Phillips and Perron (1988) and Kwiatkowski–Phillips–Schmidt–Shin (KPSS, 1992) tests for each series are applied. The Johannsen's maximum likelihood (Johansen, 1988) cointegration test procedure is then used to investigate the presence of long-run relationship among series studied.[1] Second, a linear VECM is utilized to fit the data analyzed.

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[1] Several methods have been developed to test for long-run linkages among series. In this paper and in line with the recommendation by Enders (1995), when studying three or more variables, Johansen (1988) cointegration test is applied.

Chapter 5

Data sources and Empirical analysis

5.1 Data sources

Our empirical model utilizes three series of real GDP (base year 2010), exports and imports. The data set is quarterly and covers the period from the first quarter of 2000 to the first quarter of 2018, yielding a total of 73 observations. Data used for all variables are obtained from the PCBS (2018) and are expressed in million Dollars. Both exports and imports are deflated by consumer price index, using 2010 as the base year. Figure 5.1, shows the time series of real GDP growth (GDP), real exports (exports) and real imports (imports) in Palestine during the study period. The mean of GDP, exports and imports are 1,883.2, 155.3, and 961.1 million dollars, respectively, and the standard deviation are, respectively, 520.8035, 50.7263 and 226.0951 million dollars.

Figure 5.1: Quarterly Palestinian real GDP, real exports and real imports.
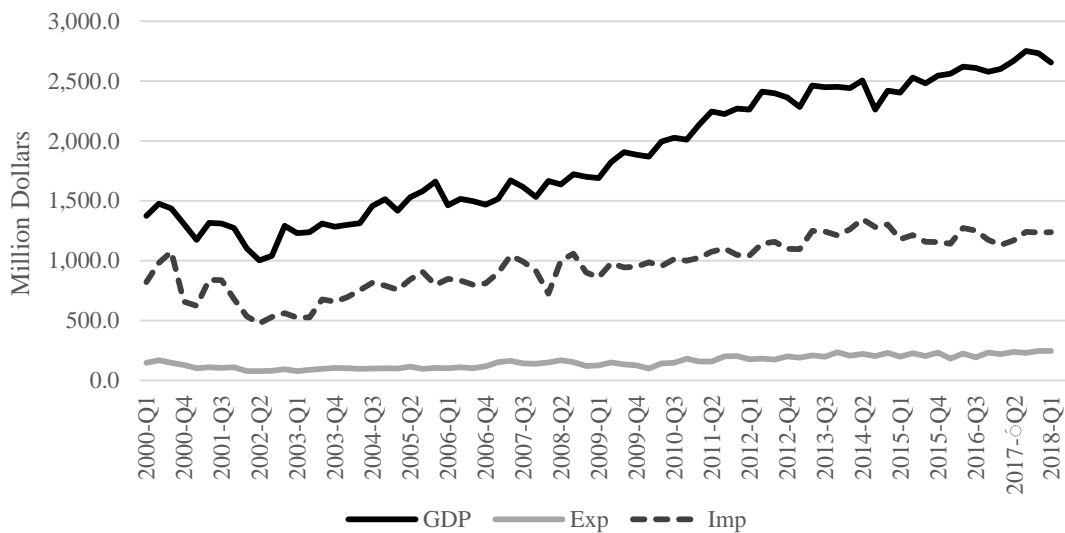
5.2 Empirical analysis

Our empirical analysis is based on a logarithmic transformations of time series data. A log transformation is applied to reduce heteroscedasticity. As we mentioned earlier, standard augmented Dickey-Fuller (1979), Phillips and Perron (1988) and KPSS (Kwiatkowski et al., 1992) tests are applied to each series in order to determine whether time series data contain unit root or not. As shown in Table 5.1, results assure that the GDP, export and import are non-stationary at level. However, non-stationarity can be rejected when applied to first-differenced time series at the 5% significance level. In other words, variables are integrated of the same order I(1).

Table 5.1: Unit Root Tests.

Variables	ADF test statistics		PP test statistics		KPSS test statistics	
	Level	First difference	Level	First difference	Level	First difference
GDP	-0.139	-7.664	-0.213	-9.839	1.089	0.090
EXP	0.026	-8.158	-1.112	-12.099	0.962	0.265
IMP	-0.735	-10.436	-1.688	-12.771	0.930	0.206
5% critical value	-2.903	-2.903	-2.903	-2.903	0.463	0.463
10% critical value	-2.589	-2.589	-2.589	-2.589	0.347	0.347

Note: Critical values for the ADF, PP tests are obtained from Mackinnon (1991) and the KPSS test from Kwiatkowski et al. (1992). Each test uses an intercept and no trend.

Once confirmed that GDP, export and import series are integrated of order one I(1), Johansen's (1988) cointegration test is applied to detect any possible long-run equilibrium relationship between the I(1) variables.[2] Results of Johansen cointegration, as shown in Table 5.2, suggest the existence of a single cointegration relationship between economic growth, export and import series.[3] Other analyses have also found evidence of cointegration between economic growth, export and import (see, El Alaoui 2015; Ucan et al. 2016 and Guntukula 2018).

The cointegration equation indicates that both exports and imports positively influence economic growth at the long run. More specifically, the test results suggest that a 10% increase (decrease) in exports lead to a 5.7% increase (decrease) in output growth. Results also show that a 10% increase (decrease) in imports will be followed by a 3.9% increase (decrease) in GDP. While, the positive relationship between exports and economic growth is consistent with the economic theory, the positive effect of import on GDP growth is not. These results are not surprising and are consistent with the Palestinian context. Specifically, imports are likely to promote economic growth due to the fact that intermediate goods and capital goods (i.e., new technology) constitute an important proportion of Palestinian imports (2004 نصر الله وآخرون). Obviously, the increase in foreign intermediate and capital goods can accelerate production and enhance the domestic investment which is positively associated with economic growth. These findings are in line with previous literature that has shown that imports led output growth (see, for example, Iscan, 1998; Damooei and Tavakoli, 2006 and Maina, 2008).

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[2] According to Hassouneh et al. (2012), once time series data is integrated of order one and present a cointegration relationship, then the VECM is an appropriate method to be used.

[3] It is worth noting that Engle and Granger (1987) cointegration technique is also performed and suggests that the hypothesis of no cointegration can be rejected at the 5% significance level.

Table 5.2: Johansen cointegration test and cointegration equation.

Ho	Ha	λ_{trace}	P-value
$r = 0$	$r > 0$	32.605	0.039
$r \leq 1$	$r > 1$	13.165	0.281
$r \leq 2$	$r > 2$	5.019	0.270
Cointegration relationship			

$$GDP - 0.570EXP^{**} - 0.394IMP^{**} - 2.028^{**} = 0$$

$$(0.152) \qquad (0.200) \qquad (0.704)$$

Notes: r is the cointegration rank. ** denotes statistical significance at the 5 % level. Standard errors in parenthesis.

After confirming the presence of cointegration, the VECM is applied to investigate both the short- and long-run causality of the series. Results of the VECM are presented in Table 5.3. Each column represents an equation for each of the three variables in the system. As stated above, e_{t-1} coefficients (a one period lag of the cointegration equation) indicate whether there is a long-run causal relationship between variables or not. To examine the short-run causality, the lagged first differences of all the endogenous variables in the system are used. The lag lengths to be used in the VECM model, are chosen by using Akaike's Information Criterion (AIC). In our analysis, AIC criteria recommends using only one lag.

Table 5.3: Granger causality test results based on VECM.

Dependent variable	GDP equation	Export equation	Import equation
e_{t-1}	-0.119* (0.068)	0.637**(0.141)	0.388** (0.140)
ΔGDP_{t-1}	_	0.070 (0.247)	-0.266 (0.283)
ΔEXP_{t-1}	0.021 (0. 056)	_	0.220* (0.115)
ΔIMP_{t-1}	0.243** (0.065)	0.376** (0.135)	_

Notes: Number in parentheses are standard errors.

** and * denote statistical significance at the 5% and 10% significance levels, respectively.

We first focus on the long-run causality. It can be seen that the coefficients of the error correction term (e_{t-1}) in the GDP, export and import equations are statistically significant which suggests a long-run feedback causal relationship between exports, imports and output growth in Palestine. More specifically, results indicate that the hypotheses, export (import)-led growth and growth-led export (import), are supported at the 10% significance level. Other studies have also found a bidirectional long-run causality among export, import and economic growth (Sharma. and Smyth, 2009). The statistically significant error correction term also shows evidence in support of long-run causal relationship from exports to imports and the reverse long-run causation from imports to exports is also supported. These results indicate that both exports and imports are viewed as key determinants of economic growth in Palestine.

We now focus on discussing the short-run model results. Results suggest that imports Granger causes GDP at the 5% significance level (0.243), but the reverse short-run causation from output growth to imports is not supported. The empirical results also

indicate that both the export-led import and the import-led export hypotheses are statistically significant at the 10% level. Results can be explained as a part of capital goods and raw materials that are imported for merchandise exports. Therefore, it is quite that as merchandise exports increases it could lead to increased imports. Also, when imported raw materials increase, this is a source of production of exported goods.

Chapter 6

Conclusion and recommendations

6.1 Conclusion and recommendations

Over the last decades, there has been much interest devoted to the role of foreign trade as an engine of economic growth. However, the Palestinian economy has not received any attention within these empirical analyses. This study contributes to the literature also by studying the causal relationship between exports, imports and economic growth in Palestine, a country that has a unique political, socio-economic and developmental situation.

To achieve the study objective. First, standard unit root tests are applied in order to determine whether price series are stationary or not. Second, cointegration and error correction technique are conducted to test for both long and short-run causality between exports, imports and real economic growth. Standard unit root test results suggest that all data series are integrated of order one. Cointegration tests provide evidence of a long-run equilibrium relationship between exports, imports and economic growth, series. The estimated error correction approach suggests a long-run bidirectional causality among exports, imports and economic growth in Palestine. On other hand, short run results provide evidence to support export-led import and import-led export hypotheses.

Although there are many factors that contribute to output growth, increasing economic growth in Palestine requires increasing both exports and imports. Hence, a policy for increasing exports and imports, is likely to stimulate economic growth for Palestine. Efforts must be made to encourage Palestinian government to develop strategies that can promote trade. Hence, policy makers should help local companies find export opportunities by sensitize companies and provide them with information and

procedures that they need. For example, how to tailor their products to the global markets with respect to the quality and price. Also how to do logistics work and develop a marketing plan. It is also necessary to manage imports accurately and encourage companies to import products that can be reinvested in the process of production. The government may reduce taxes and customs duties on imports of raw materials and modern technology.

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