

2018

Trade Facilitation and Economic Growth (Arab Region)

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ملخص

تعالج الدراسة تأثير التجارة على النمو الاقتصادي بالعالم العربي وتقديم مقترح لزيادة التسهيلات التجارية لما لها من أهمية على زيادة حجم التجارة الدولية. تنقسم الدراسة الى أربعة أقسام تتناول خلفية نظرية عن التسهيلات التجارية وتأثير زيادة حجم التجارة على النمو الاقتصادي وينتقل البحث الى الدراسة التطبيقية باستخدام أسلوبين من التحليل التطبيقي هما: أولاً تحليل العلاقة السببية بين حجم الصادرات والواردات والتسهيلات التجارية باستخدام مؤشر التجارة عبر الحدود "trading across border" المعلن من قبل البنك الدولي، حيث أثبتت النتائج أن التسهيلات التجارية تسبب زيادة الصادرات والواردات. ثانياً تحليل العلاقة بين التجارة والنمو الاقتصادي من خلال نموذج قياسي باستخدام النمو الاقتصادي كمتغير تابع والصادرات والواردات كمتغيرات مستقلة وجد علاقة معنوية موجبة للصادرات والواردات على النمو الاقتصادي. نتيجة هذه النتائج يتضح أهمية التسهيلات التجارية على زيادة حجم التجارة والتي بدورها مسببة لزيادة النمو الاقتصادي وفي ضوء هذا اقترحت الدراسة تكوين شبك إقليمي موحد للتجارة بين دول الوطن العربي لرفع مستوى التجارة الدولية.

Abstract

The paper studies trade facilitation impact on volume of international trade and how does it affect economic growth in Arab region. The paper uses trading across borders data from ease of doing business World Bank report as proxy of trade facilitation. The paper studies the phenomena through economic literature and empirical analysis using two empirical methods first the Granger causality between trading across border which reflect the degree of trade facilitation and international trade, the results found that trading score Granger cause exports and Imports score in the period from 2006 to 2015 due to data availability. Second method is panel model analysis carried to study significance of exports and imports as explanatory variables on economic growth which found to be positively highly significant in the period from 1990 to 2016 for 22 countries mainly in Arab region. The paper conclude that further trade facilitation will increase economic growth which advise of implementing Arab regional single window to integrate trade between Arab countries for further economic growth in the region.

Introduction

International trade role in economic growth studied since Classical economic theory. Adam Smith (1776) mentioned in “wealth of nations” countries need to increase their exports for financing imports and increasing GDP “Gross Domestic Product” as nation’s main economic strength factor. Marshall (1890) stated that the main cause of nation’s economic progress is international trade. Since the sixties international trade impact on economic growth has been studied more thoroughly, Endogenous growth model stressed on the importance of economic openness as international trade facilitate transmission of technologies and knowledge internationally which lead to technological advancement that increase productivity and economic efficiency. Endogenous growth model provide good framework to study the relationship between international trade and economic growth as Romer (1986) stated that trade policies can promote long run economic growth through its effect on saving, investment and accumulation of capital which will cause permanent increasing of output growth rate.

Information and telecommunication technologies ICT allowed sharing and communication of information between participants of trade transactions; the customers interact with companies and business partners. Ports, suppliers and logistic firms made trade easier and reduced its costs, that improved trade facilitation, and lead to increasing of international trade volume that increase economic growth as stated by economic literature. That shows the importance of implementing regional single window connecting Arab countries single windows for higher trade facilitation and higher economic growth rates.

Paper Importance: trade facilitation, which increase international trade volume that increases economic growth. That shows the importance of

studying trade impact of economic growth in Arab countries and studying implementation of regional single window for Arab countries to improve trade facilitation in order to increase trade volume in the region.

Aims of the study: The paper will provide an empirical analysis trying to identify the relationship between trade facilitation on volume of international trade in Arab region in line with the available theoretical and empirical literature.

Hypotheses of the study: Empirical analysis will test three hypotheses as follow:

- Trade facilitation Granger cause Exports
- Trade facilitation Granger cause Imports
- Positive Impact of exports and imports on economic growth

Research methodology: Empirical analysis will use two methods, first Granger causality to test if trade facilitation using trading across border score Granger cause exports and Imports. Second panel model analysis carried to study the significance of exports and imports as explanatory variables on real GDP.

The paper consists of four sections in addition to introduction. First section covers theoretical literature review and definitions of trade facilitation. Second section presents literature that identifies the effect of international trade on economic growth. Third section studies the empirical literature methodologies used in the paper, Granger-causality test and panel model analysis. Fourth section discusses the empirical analysis results. Finally, Fifth section presents recommendation and policy implication which suggest implementing regional single window connect Arab nations' single windows. The paper will end by presenting conclusion.

First: Literature Review

Trade facilitation as defined by ESCWA “How procedures and controls governing the movement of goods across national borders can be improved to reduce associated cost burdens and maximize efficiency while safeguarding legitimate regulatory objectives. These cost burdens may be a direct function of collecting information and submitting declarations or an indirect consequence of border checks in the form of delays and associated

time penalties, forgone business opportunities and reduced competitiveness. The cost burden category may also include the impact of a range of illegal or unethical activities, occurring at various critical stages throughout the formalities and logistics functions. The term trade facilitation is extended to address a wider agenda in economic development and trade to include: the improvement of transport infrastructure; the removal of Government corruption; the modernization of customs administration; the removal of other non-tariff trade barriers (NTB); and export marketing and promotion”.

The World Trade Organization defined trade facilitation as “the simplification and harmonisation of international trade procedures, which are the activities, practices and formalities involved in collecting, presenting, communicating and processing data required for the movement of goods in international trade”.

Trade facilitation defined by United Nations Centre for Administration Commerce and Transport (UN/CEFACT) as “the simplification, standardization and harmonisation of procedures and associated information flows required to move goods from seller to buyer and to make payment”.

Portugal Perez and Wilson (2010) referred trade facilitation to “reduction of trading across borders costs which they divided into hard and soft components. Hard components refer to infrastructure as roads, telecommunication and ports, and soft components are intangibles as transparency, business environment, customs management, all institutional aspects”.

Trade procedures reforms reduce required time and cost of completing trade transaction which generate more trade then increase economic growth. OECD (2009) estimated that reduction of 1 % in transaction cost of trade will generate gains of welfare by amount of \$40 billion.

Meltiz & Redding (2014), Bernard et. al (2006, 2003) suggested that decrease in costs of trade will increase exports and productivity of exporting goods due to learning by exporting effect which will reflect on higher productivity of the whole industry. Hoekman and Sheperd (2015) discussed the impact of trade facilitation on international trade and found that companies will participate more in international trade when trade costs decrease.

Literature found that trade facilitation contributes to survival of exporting companies, trade diversification which increase economic stability, as well as raises economic competitiveness, and reduce informal international trading. Trade facilitation indicators as stated in literature includes customs efficiency measured by time it takes, infrastructure as telecommunication, access to credit, and government regulations (Seck, 2016).

The current paper point of view that trade facilitation includes customs clearance procedures efficiency, quality of information and communication technologies infrastructure, efficiency and availability of logistics services, efficiency of ports operations, efficiency of governmental procedures and regulations. Better trade facilitation will increase volume trade which supposed to increase economic growth according to economic growth literature as discussed in next section.

Second: International Trade and Economic Growth:

Literature Review

Role of international trade in economic growth has been in interest since classical economic theory. Adam Smith mentioned in “wealth of nations” his main principle that countries need to increase their exports to finance imports and raise GDP as nation’s main economic strength factor. Exports increase will cause higher economic productivity which increase GDP levels improving country’s balance of payment. David Ricardo (1817)

stated that countries reach higher welfare gains through specialization in goods with lowest opportunity costs and higher comparative advantage. Marshall (1890) stated that the main cause of nation's economic progress is international trade (Kovac, et al, 2012).

Solow (1956) growth model stated main factor of production is technology; refereeing to international trade as the main channel for exchanging ideas and knowledge which lead to diffusion of technology. Solow own words: "Nearly everyone takes it for granted that the rate of growth of TFP is the same everywhere. The only thing that justifies this remarkable presumption is the fairly mechanical though that knowledge of new technology diffuses rapidly around the world. Maybe so, but productivity performance depends on many other influences besides the content of the latest engineering textbook" (Solow 2007, P.10).

Since the sixties international trade impact on economic growth has been studied more thoroughly, international trade role as growth engine emphasized by Nurkse (1961). McKinnon (1964) export led growth (ELG) hypothesis discuss exports impacts on economic performance due to economies of scale which improve productivity and enhance production technologies and efficiency as specialization upon comparative advantage lead to better resources allocation. Michaely (1977) Krueger (1978), Balassa (1978) stressed also on the impact of exporting on reaching economies of scale in production.

Endogenous growth model stressed on the importance of economic openness which lead to technological diffusion through learning by doing as international trade facilitate transmission of technologies and knowledge internationally which lead to technological advancement that increase productivity and economic efficiency (Sun & Heshmat, 2010). Endogenous growth model as Romer (1986) discussed the role of trade policies on long

run economic growth through its effect on saving, investment and accumulation of physical and human capital as referred to Lucas (1988) which will lead to permanent increasing of output growth rate. Grossman & Helpman (1991) argued that international trade increase economic growth as it put importance on research and development which enhance innovation, improvement of labor force skills through learning by doing, using new techniques in production and management processes reaching higher economic efficiency.

Lee (1995) stated that increasing imports will facilitate higher manufacturing production due to availability of intermediate goods and capital needed in production process. Lin and LI (2002), Cui et al (2009) studied the impact of imports as an important factor in promoting growth. Afonso (2001) and Humpage (2000) stressed on the importance of imports specially capital goods which help diffusion of technologies from developed to least developed countries which encourage production of new products and invention of new production processes which increase productivity and speed convergence between countries. Wagner (2007) discussed the importance of raising exports in increasing competition which improve productivity. Thirlwall (2000) identified exports as a catalyst to economic growth, but its role differ with the type of exported products the higher the technological sophistication of goods the higher powerful impact on economic growth.

Kavoussi (1984) found positive correlation between international trade and economic growth in middle and low income countries. Balassa (1986) and Dollar (1992) found that open economies achieve higher economic growth rates than closed economies. Daumal and Ozyurt (2011) explored impact of trade on economic growth in Brazil through the period from 1989 to 2002 using growth rate as dependent variable regressed over international trade flows and number of control variables which are initial

income level, labor force growth rate, human capital as well as public and private capital. The study found that trade impact is higher when it's accompanied with high initial income level per capita. Sachs and Warner (1995) studies impact of openness to trade on economic growth in 122 countries and found that countries open to trade experienced higher growth rate than closed economies, same results found by Frankel and Romer (1999) studying 63 countries in year 1985 which found that trade has robust large positive effect on income. Calderon et al. (2004), Dollar and Kraay (2004) also stated the positive significance of trade openness on economic growth they studied the top third of developing countries and found that trade GDP ratio doubled in twenty years and that went along reduction of tariff rates. Goldberg et al. (2010) studying trade liberalization in India proved its positive impact on gross domestic product. Sun and Heshmati (2010) discussed international trade impact to economic growth in 31 provinces in China in the period from 2002 to 2007 the study found international trade stimulate rapid economic growth. Kim (2011) found positive impact of trade on economic growth in developed countries and the inverse in the developing countries. Were (2015) investigated the role on international trade on investment and economic growth over the period from 1991 to 2011 on sample of 85 countries and found that international trade has positive significance on economic growth. Antunes (2012) studied impact of international trade on economic growth in Portugal and Netherland from 1970 to 2010 the results found significance impact of exports in both countries and significances of imports only in Portugal.

Gries and Redlin (2012) found positive significance of trade openness on economic growth in long run in studying 158 developing and developed countries while in short run its negative relationship in lower income nations and positive in higher income nations. Yanikkaya (2003) studying 1000

developing and developed countries found positive significance of trade volume on growth. Tan (2012) studying Singapore data in the period from 1965 to 2009 found that trade openness affected positively economic growth. Chang et al. (2009) found that GDP per capita increases only with free trade.

Third: Methodology Description

3.1 Granger Causality Test

Granger (1969) created a technique to study the causal relationship in time series. “If past values of variable X are significant predictors of current values of variable Y then X Granger causes Y”.

Dumitrescu and Hurlin test (DH) used to “test Granger causality in panel data sets”. One concern in carrying the test is choosing the correct number of lags. Based on Akaike, Bayesian and Hannan-Quinn an extension of DH test has been added to facilitate this task (Lopez, Weber, 2017) which will be used in the current paper using Stata 14. Since “ $x_{i,t}$ and $y_{i,t}$ are the observations for individual i in period t , coefficients can differ across individuals”. To determine “causality test for significant effects of past values of x on the present value of y tested as in Granger (1969) the lag assumed to be identical for all individuals and the panel must be balanced”.

3.2 Panel Model Specification

This section investigates the impact of import and export on economic growth in Arab countries from 1990 to 2016 for 22 countries mainly in Arab region the panel model is regressing import and export on Real GDP to identify the significance and direction of relationship between import and export as proxy of international trade on real GDP used as proxy of economic growth. The model specified as follows:

$$RGDP_{it} = a_0 + a_1 imp_{it} + a_2 exp_{it} + \varepsilon_{it} \quad (1)$$

- RGDP: real GDP
- imp: “Imports of goods and services (constant 2010 US\$)”

- exp: “Exports of goods and services (constant 2010 US\$)”
- a_0 : intercept parameter
- a_1, a_2 : are the coefficients of the independent variables
- ε stochastic error term

The pooled ordinary least square (OLS), panel random and fixed effect methods are employed then Hausman test carried which found that the random effects model best fits the data.

Data retrieved from “World Bank - World Development Indicators database” last updated November 2018. The data covers the period from 1990 to 2016 for 22 countries mainly in Arab region.

Definitions of the Variables

Real GDP is the dependent variable in the model used as indicator of growth and development in the studied countries.

Imports of goods and services constant values used based on literature Lee (1995), Afonso (2001) and Humpage (2000), Lin and LI (2002), Cui et al (2009), studied the impact of imports as an important factor in promoting growth as increasing imports will facilitate higher manufacturing production due to availability of intermediate goods and capital needed in production process.

Exports of goods and services constant values used based on literature Adam Smith (1776) main principle countries need to increase their exports to raise revenues to finance imports and increase GDP as nation’s main economic strength factor. McKinnon (1964) export led growth (ELG) hypothesis discuss exports impacts on economic performance due to economies of scale which improve productivity and enhance production technologies and efficiency as specialization upon comparative advantage lead to better resources allocation. Wagner (2007) discussed the importance

of raising exports in increasing competition which improve productivity. Thirlwall (2000) identified exports as a catalyst to economic growth.

Trading Across border score used as proxy of trade facilitation based on literature, reforms of trade procedures reduce required time and cost of completing trade transactions which generate more trade which will increase economic growth. Meltiz & Reddding (2014), Bernard et. al (2006, 2003) suggested that decrease in costs of trade will increase exports and increase productivity which will reflect on higher productivity of the whole industry. The score data retrieved from “Doing Business report published by World Bank Group” is a yearly report. Trading across borders score “measures time and cost (excluding tariffs) associated with three sets of trade procedures: documentary compliance, border compliance and domestic transport within the overall process of exporting or importing”. The score calculation is “a simple average of the scores for the time and cost for documentary compliance and border compliance to export and import”.

Fourth: Empirical Results and Discussions

4.1 Results of Granger Causality Test

Dumitrescu and Hurlin test used to test Granger causality in panel datasets covering the period from 2006 to 2015 in 22 countries, the test carried twice first to study if better score of trading across border cause higher value of exports then carrying same test to check if it cause higher values of imports. The test objectives to specify the impact of using regional single window which improve trade facilitate procedures on international trade in the region.

4.1.1 Causality between Trade Facilitation and Exports

Causality test between trading across border score as proxy of trade facilitation and exports carried according to the following steps

- First the data was balanced as the test require that all data must be balanced
- Second running the test to check the following hypothesis
H0: trading doesn't granger-cause Exports
H1: trading does granger -cause Exports for at least one panel var (id)
- Third: carrying DH lag test for choosing the optimal number of lags which found to be 1 year lag with very high significance.

The results accepted the alterative hypothesis that trading does granger -cause Exports. The causality impact found to be very high significant starting from one year lag which goes with literature that improving trading across borders procedures will increase exports.

4.1.2 Causality between Trade Facilitation and Imports

Causality test between trading across border score as proxy of trade facilitation and imports carried according to the following steps.

- First the data was balanced as the test require that all data must be balanced
- Second running the test to check the following hypothesis
H0: trading doesn't granger-cause Imports
H1: trading does granger -cause Imports for at least one panel var (id)
- Third: carrying DH lag test for choosing the optimal number of lags which found to be 1 year lag with very high significance.

The results accepted the alterative hypothesis that trading does granger -cause imports. The causality impact found to be very high significant starting from one year lag which goes with literature that improving trading across borders procedures will increase imports.

Table (1): Dumitrescu and Hurlin Granger- Causality test

Variable	F- stat	P-value	Number of lags
Exports	10.5846	0.0000	1 lag
Imports	5.0755	0.0000	1 lag

Source: Author's computation using Stata 14

4.2 Panel Model Results

Table (2) showing results using the random effect model, the R_2 coefficient of determination which means that about 85% of total variations in GDP are explained by all independent variables in the carried percent model.

Table (2): Panel Model Regression Results

Variables	Coefficient	p> t
Export	3.335086	0.000
Import	0.1665584	0.077
Constant	-5.9909	0.839
R. Squared	0.8592	

Source: Author's computation using Stata 14

As show from the results all explanatory variables used are very highly positively significant to GDP which goes with literature. From the table 1% increase in exports will on average cause 3.33% increase in real GDP, and 1% increase in FDI will cause on average to 0.16% increase in real GDP.

Fifth: Recommendation and Policy Implication

The paper recommends implementation of Arab Regional single window to connect Arab trading countries' national single windows. The United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) defines Single Window (SW) as "A facility that allows

parties involved in trade and transport to lodge standardized information and documents with a single entry point to fulfill all import, export, and transit related regulatory requirements. If information is electronic, then individual data elements should only be submitted once".

As stated by Escwa (2011) Report “National single window is an integration of government official single window for formalities and regulatory compliance”, and logistics single window linked to port community system, the main components of each window shown in table(3).

National single window (NSW) main target to allow: single point of access, single submission of data which prevents duplication and multiple conflicting versions of information, a single point of payment and decision making through a gateway to online banking facilities. The main objectives of National Single Window are:

- Automation of business process
- Replacing paper documents by electronic forms
- Replacing original signature by e-signature
- Replacing cash payments by online payment
- Replacing face to face meetings required to get approvals by online approvals

Table 3: National Single Window (NSW) components

NSW		
official SW	logistics SW	
Clearing center for trade as: Customs declaration, supporting documents, import and export licenses and certificates of origins Consists of friendly user software, to be used for completing and loading forms from official websites.	ICT systems that integrate sea ports, all logistics gateways and terminals and form two main functions	
	Shipping services	Cargo Movement
	Consists of all shipping services as - Arrival and departure of Vessels.	Consists of all cargo operations and services as

<p>Gives traders and ministries the ability of electronically lodge license applications and customs declarations.</p> <p>It connects governmental authorities system to process received data and trade requests and send the appropriate decision back whether approval, rejections or request for further information.</p>	<ul style="list-style-type: none"> - Ports operations “pilotage, berth allocation, arrival/voyage booking, billing” - Issuing of certificates “ship papers covering vessel and crew, and non-cargo contents of vessel”. 	<ul style="list-style-type: none"> - “Bulk, general cargo and container handling”. - Labor (stevedore). - Container storage - Physical inspection - Facilities of governmental authorities - Gate management - Transport booking
<p>Integrated with PCS give the ability for tracking and tracing of cargo using the automated port system from point of vessel arrival to point of departure.</p>		

Source: Created by author depending on data from Escwa 2011 Report

Conclusion

Better trade facilitation will increase volume of trade which increases economic growth according to literature. Empirical analysis used two methods, first Granger causality between international trade using exports and imports data, and trading across border score measure the degree of trade facilitation, the results found that trading score Granger cause exports and Imports which state the positive relationship between trading facilitation and international trade volume. Second panel model analysis carried to study the impact of exports and imports as explanatory variables on economic growth using real GDP which found to be positively highly significant. From the empirical results the paper found that upgrading international trade procedures will reduce time needed, number of documents used and cost of trading which have positive significant impact on exports and imports. Panel model analysis results show the positive significance of international trade using exports and imports variables on real GDP shows the importance of upgrading trading procedures.

The paper concludes that further trade facilitation will increase economic growth, the paper recommend implementation of a regional single window to integrate trade between Arab countries for further economic growth in the region.

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Annex 1 Country Names

Algeria

Bahrain

Djibouti

Egypt, Arab Rep.

Iraq

Jordan

Kuwait

Lebanon

Libya

Mauritania

Morocco

Oman

Qatar

Saudi Arabia

Sudan

Syrian Arab Republic

Tunisia

Turkey

United Arab Emirates

West Bank and Gaza

Yemen, Rep.