IMPACT OF TRADE FACILITATION ON BILATERAL TRADE FLOWS BETWEEN VIETNAM AND ASEAN COUNTRIES

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ABSTRACT
Purpose: This paper focuses on examining the relationship between bilateral trade flows and trade facilitation and estimating the gains in trade derived from improvements in trade facilitation for ASEAN members.

Methodology/design/approach: The relationship between trade facilitation and bilateral trade flows is estimated using a gravity model that includes other standard variables. The paper uses panel data obtained from Vietnam and 8 ASEAN members over the period 2004 – 2015. Trade facilitation is measuring through UNCATD's Liner Shipping Connectivity Index.

Findings and originality: Based on the research results, the paper provides evidence that the marginal effect of the sea transport efficiency improvement on trade flows. The results also suggest that the impact of sea transport efficiency is somehow larger than the traditional variables including GDP per capita, distance and exchange rate. In addition the paper provides recommendations and solutions that encompass a series of policies to enhance ASEAN members' and Vietnam's capacity.

Research limitations: Limitation is related to the availability of the required assessment data. Choosing the impact of trade facilitation on Vietnam-ASEAN bilateral trade flows as a research subject limits us using various indicators in estimating, thus posing restriction on further results.

Keywords: Trade facilitation, Liner shipping connectivity index (LSCI), gravity model, bilateral trade flows, ASEAN, Vietnam.

INTRODUCTION

Over the past 30 years, with the major milestone of the participation of ASEAN Association of Southeast Asian Nations (ASEAN) and the normalization of relations with the United States, Vietnam has experienced the period of sustained economic growth. Beginning as a backward agricultural economy with 90% population living on agriculture, Vietnam has step by step enhanced its infrastructure, adopted science and technology to respond to industrialization modernization. Vietnam has experienced nearly 25 years of impressive growth: 8.2% per year (1991-1995), 7.6% per year (1996 - 2000), 7.34% per year (2001-2005), 6.3% per year (2006-2016). These achievement Vietnam has been obtained is thank to the integration into international economic relations. Vietnam – World trade relations developed rapidly by the actively establish and being come into force of many ambitious free trade agreements (FTAs). Formal trade barriers such as tariffs and non-tariff barriers will be soon abolished due to the effect of bilateral and regional trade agreements, thus enhancing the important of the issues relating to trade facilitation in the field of policy-making process.

The WTO (1998) introduced the definition of trade facilitation as "simplification and harmonization of international trade procedures, including practices, practices and procedures in the collection, presentation and communication and processing data and other information necessary for the transportation of goods in international trade." The importance of trade facilitation has been recognized when the Trade Facilitation Agreement (TFA) has officially become an Agreement under Annex 1A of the GATT 1994. TFA, which entered into force on 22 February 2017, is the first multilateral agreement to be negotiated successfully under the WTO. Trade facilitation has been existed in almost all Vietnam's

bilateral trade agreements, in other words, Vietnam is clearly aware of the benefits and essential roles of facilitating activities.

Despite being well-aware of the potential of trade facilitation, Vietnam has not full taken advantage of these benefits. This is reflected into the slow recovery of bilateral trade between Vietnam and ASEAN after the 2009 economic crisis. By 2016, the trade balance between Vietnam and ASEAN still remains deficit. After the formation of the ASEAN Economic Community, the tariffs of commodities almost reached zero, countries lost advantage against each others in terms of bilateral agreements. So, Vietnam trade balance, in the negative side, may be influenced badly and become more deficit.

Therefore, it is necessary to conduct an assessment on the impact of trade facilitation indicators, especially in Vietnam where no previous research has been done on this subject. This is a great opportunity to study this issue in Vietnam in terms of one of the most important factors contribution to promoting international trade.

The main objective of this paper is to quantify the quantitative impact of trade facilitation indicator on the bilateral trade between Vietnam and ASEAN countries through the Liner Shipping Connectivity Index represent shipping capacity. Based on the combined results of quantitative result and the qualitative analysis, the paper provides some recommendations for Vietnam to make use of these effects in the context of globalization.

To achieve the main objectives discussed above, the study seeks to answer the following questions:
(a) What is the current status of bilateral trade between Vietnam and ASEAN countries and their current trade facilitation index?
(b) Whether trade facilitation affects bilateral between Vietnam and ASEAN countries positive or negative, and what are the implications for that?
(c) What should Vietnam pay attention to, in other words, the recommendation for Vietnam?

The paper is structured into four sections. First, overview of Vietnam trade facilitation index is presented. The literature review on trade facilitation and determinants affect bilateral trade is then discussed. In the third part, the methodology section presents the regression method applied and the data collection in this paper. Finally, the findings from the study presents the regression result and explain impact dimension of major variable (LSIC represents for trade facilitation). The recommendations regarding a set of measures for improving Vietnam trade facilitation implementation.

OVERVIEW OF VIETNAM TRADE FACILITATION INDEX

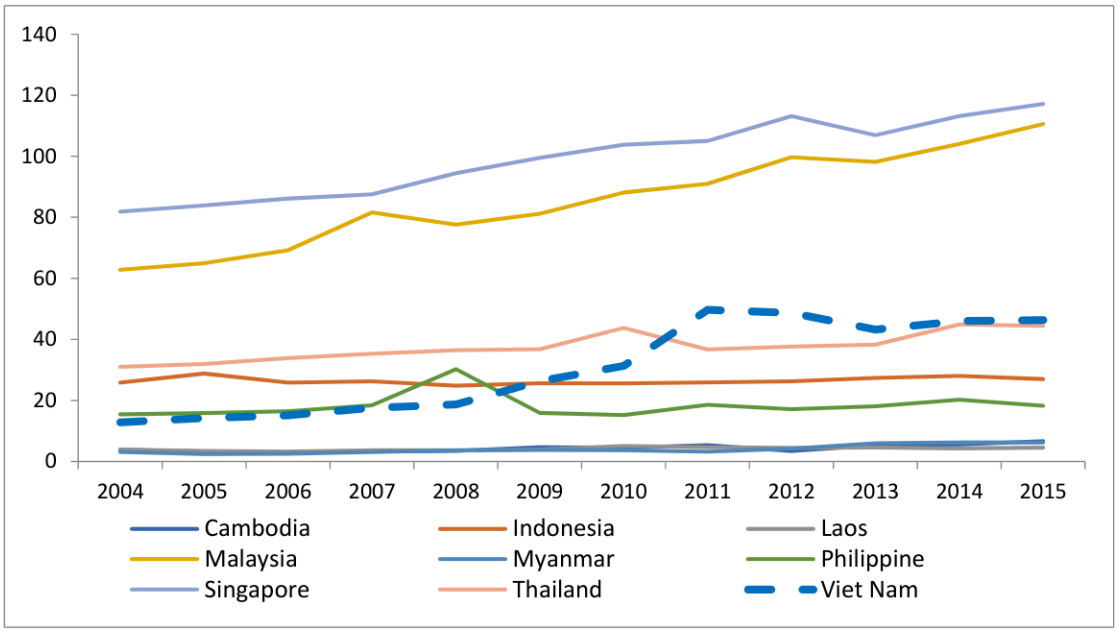

Figure 1: Vietnam and ASEAN Liner Shipping Connectivity Index 2004 – 2015
Source: UNCTAD, http://unctadstat.unctad.org/wds/TableViewer/tableView.aspx

In the period of 2004 - 2008, Vietnam LSCI was relatively low and was considered to be less developed than Thailand, Indonesia, Philippines. But in the coming period of 2009 - 2015, Vietnam has improved its maritime transport capacity and its value is increased gradually with the figure leveling off at the higher level than the above countries. Vietnam has overtaken Thailand and Indonesia as described in Figure 1. However, Vietnam LSCI is far lower than the two top countries in the region such as Malaysia and Singapore. Interestingly, Vietnam has the fastest growth speed in ASEAN.

LITERATURE REVIEW

Gravity models have been extensively used in economic literature dealing with international trade issues. They were first introduced in 1961 by Linder, then used by Tinbergen in 1962 and followed by Linnemann in 1966. Their basic is used to explain that trade among countries is directly affected by their economic size and inversely affected by the distance between the countries, measured as distance between their economic centers. The basic form of the gravity model has been augmented by adding additional factors that influence international trade. Recently, a number of "theoretical" gravity models have been developed and they use various micro-founded theories of international trade to develop gravity-like models (Shepard, 2012). Some of these are based on technological differences – Ricardian model (Ricardo, 1817), factor endowments – Heckscher-Ohlin model (Ohlin, 1933), emphasize the importance of monopolistic competition and increasing returns to scale – Helpman and Krugman model (Helpman and Krugman, 1985) or capture the multilateral resistance relationships – Anderson and van Wincoop model (Anderson and Van Wincoop, 2004).

In this paper, we add a variable to examine the impact of trade facilitation on bilateral trade flows. Recent developments in the literature focus on choosing the right estimation procedure. ESCAP (2013) outlines four sets of potential indicators to become viable variables assessing the impact of trade facilitation on bilateral trade such as the WB Logistics Performance Index (LPI), the WB Ease of Doing Business (EoDB), the OECD Trade Facilitation Indicators (TFIs) and the UNCTAD Liner Shipping Connectivity Index (LSCI).

Using a gravity model approach, Wilson *et al.* (2003) find that enhancing facilitation in the Asia-Pacific Economic Cooperation (APEC) countries will increase intra-APEC trade by as much as $254 billion or a 21% increase. In a follow up paper (Wilson *et al.*, 2005), using global bilateral trade data, the authors show that improving the different components of trade facilitation increases trade flows by $377 billion.

Djankov *et al.* (2006) use data on time taken to export and import from the World Bank's Doing Business Survey to estimate the impact of delays on trade. They show that each additional day taken to move the goods from the firm's warehouse to the ship reduces trade by at least 1%. This is equivalent to increasing the distance of a country from its trade partners by 70 km.

Limão and Venables (2001) show that deterioration in the infrastructure from the median to the 75th percentile reduces trade volumes by 28%, which is equivalent to being 1,627 km away from trading partners. Hertel and Mirza (2009) by using LPI show that trade facilitation reforms in South Asia translate into a 75% increase in intra-regional trade and a 22% increase in trade with the other regions.

OECD (2011, 2013) used the TFI found out that 5 out of 11 factors namely: Information availability, Formalities - procedures, Formalities - automation, Governance and impartiality and Border agency cooperation have a significant impact on trade flows between countries. Further details showcase that the 1% increase in the total TFIs improves the value of the country's trade would by 12%.

ESCAP (2015) used LSCI as the major variable to assess the impact of trade facilitation on trade flows of APEC member economies. The study shows the positive effects on commodity trade. The 10% LSCI improvement will increase 1.4% of trade between these countries. The study also pointed out that the 10% increase in the number of freight services, the number of shipping companies, and the fleet's ability can low trade costs down to 0.8%, 0.7% and 0.5% contributing to promoting APEC's bilateral trade.

In general, past studies on trade facilitation using different measures (either incorporating all the possible dimensions of trade facilitation or by focusing on the specific components) show that there are gains in trade from improving trade facilitation. Djankov *et al.* (2006) use time taken to export and import, from the World Bank's Doing Business Survey, to measure the ease of moving goods from firm's warehouse to the ship. Hertel and Mirza (2009) use the World Bank's LPI (World Bank, 2007a) to capture the quality of trade facilitation. ESCAP (2015), like this paper, use the UNCTAD LSCI to assess the impact of improving transportation (especially marine transportation) capabilities towards bilateral trade.

There are, however, important differences between this study and that of ESCAP (2015). First, we tackle directly the problems arising from zero trade observations by eliminating them. Second, we use 2004 - 2014 data for 9 ASEAN countries (ESCAP (2015) use a sample of 21 APEC countries in 5 years).

METHODOLOGY

The gravity model that we use in this study is as follows:
Export model:

$$\ln(EX_{vjt}) = \beta_0 + \beta_1 \ln(GDPPC_{vt}*GDPPC_{jt}) + \beta_2 \ln(DIST_{vj}) + \beta_3 \ln(ER_{vjt}) + \beta_4 \ln(DIST_{jj}) + \beta_5 \ln(LSCI_{ji}*LSCI_{vt}) + \beta_6 \text{ BORDER} + \beta_7 \text{ LANDLOCKED}$$

Import model:

$$\ln(IM_{vjt}) = \beta_0 + \beta_1 \ln(GDPPC_{vt}*GDPPC_{jt}) + \beta_2 \ln(DIST_{vj}) + \beta_3 \ln(ER_{vjt}) + \beta_4 \ln(DIST_{jj}) + \beta_5 \ln(LSCI_{ji}*LSCI_{vt}) + \beta_6 \text{ BORDER} + \beta_7 \text{ LANDLOCKED}$$

where *v* denotes the Vietnam and *j* denotes the trading partner. The dependent variable, $ln(EX_{vjt})$ and $ln(IM_{vjt})$ are the export value and import value of Vietnam with ASEAN countries. The variables are defined as follows. D_{ij} is the distance between Vietnam and country *j*. Size is captured by the GDP per capita of Vietnam (and country j). *ERvjt* is the real effective exchange rate in year *t* of Vietnam and country *j*. $DIST_{jj}$ is the internal distance, measureing of average distance between producers and

consumers in a country[6]. $LSCI_{vt}$, $LSCI_{ji}$ is the liner shipping connectivity index of Vietnam and country j. We are most interested in the coefficients of LSCI, our measure of trade facilitation. Landlocked is a dummy variable that takes on the value 1 if the country j is landlocked, and 0 otherwise. Border is also a dummy variable that takes on the value 1 if Vietnam and the trading partners share a common border, and 0 otherwise.

With panel data, we can use Pooled OLS, Fixed Effect Estimation (FE), and Random Effect Estimation (FE and RE) for estimation. The choice to use one of three OLS regression models, the fixed-effects model and the random-effects model depends on the existence or non-existence of the individual characteristics of each observation and the correlation between these characteristics with the explanatory variables in the model. The following convention will call these distinct characteristics u_i.

The (pooled) OLS is a pooled linear regression without fixed and/or random effects. The pooled OLS posits no difference in intercept and slopes across airline and time period. When there is no u_i model OLS will produce the best results. A fixed group model examines group differences in intercepts. The model does not evaluate the effect of constant variables over time, so it is inappropriate to estimate the model in the paper using fixed variables over time. A random effect model examines how group and/or time influence error variances (Park, 2011). The random-effects model considers the effect of random change u_i, so it can be used to estimate the model using fixed variables over time. However, it is necessary that all observations must be random.

To find the most suitable model of the three models, Park (2011) proposed two approaches:

1. First, comparing two regression results of OLS and the FEM through F-test. The F-test based on loss of fit is the case. If the result do not reject the H_o hypothesis, the OLS model is the model that yields the best estimate; otherwise, the FEM is the one. Then the Hausman test is performed. If Hausman's hypothesis is not rejected, the REM will be the model yields best estimate; otherwise, the FEM will be the chosen model.
2. Secondly, comparing two regression results of OLS and the REM through the Lagrange Breusch Pagan factor (LM test). If the result do not reject the LM test hypothesis, the OLS model yields the best estimate, otherwise, the REM is the one. Then the Hausman test is performed. If Hausman's hypothesis is not rejected, the REM will be the model yields best estimate; otherwise, the FEM will be the chosen model.

In this paper the regression model 1 and 2 will be approached in the second way.

Data used in this paper comes from a variety of sources. The key data on bilateral trade flows comes from United Nations statistics division of Commodity and Trade (UN COMTRADE) database. Given the data availability for other countries, especially the LSCI, we are left with 8 countries. This results in 96 observations. According to the documentation accompanying the BACI dataset, data does not include trade flows below US$ 1,000. Consequently, after aggregating trade flows, any trade flow less than US$ 1,000 is treated as zero trade, thus eliminating.

We use GDP per capita form 2004 to 2015 and both are measured in PPP terms. They are taken from the World Development Indicators. The geographic distance between Vietnam and the trading partner, the internal distance between producers and consumers and the data for landlocked and border are derived from the CEPII database. In our sample of 8 countries, there are 1 landlocked country and 2 countries sharing land borders with Vietnam. The exchange rate is aggregated from the International Monetary Fund (IMF) database.

The key variable of interest in this paper is the measure of trade facilitation. We use the UNCTAD Liner Shipping Connectivity Index (UNCTAD, 2015). We use the overall LSCI to examine the impact logistic facilitation on bilateral trade. LSCI captures how well countries are connected to global shipping networks by 5 components: number of ships, their container-carrying capacity, maximum vessel size, number of services, and number of companies that deploy container ships in a country's ports.

[6] Head and Mayer (2002), "Illusory Border Effects", CEPII Working Paper No. 2002-01

FINDINGS AND DISCUSSIONS

Independent Variables	OLS_EX (1)	Random_EX (2)	OLS_EX (robust) (3)
$lnGDPPC_{jvt}$	0,739***	0,739***	0,740***
	(0,067)	*(0,067)*	*(0,071)*
$lnDIST_{jv}$	-0,769***	-0,769***	-0,773***
	(0,206)	*(0,206)*	*(0,141)*
$lnER_{jvt}$	0,181***	0,181***	0,181***
	(0,030)	*(0,030)*	*(0,023)*
$lnLSCI_{vjt}$	0,880***	0,880***	0,882***
	(0,099)	*(0,099)*	*(0,089)*
$lnDIST_{jj}$	0,300***	0,300***	0,303***
	(0,070)	*(0,070)*	*(0,062)*
BORDER	2,566***	2,566***	2,567***
	(0,224)	*(0,224)*	*(0,150)*
LANDLOCK	-2,863***	-2,863***	-2,860***
	(0,237)	*(0,237)*	*(0,140)*
Constant	4,333**	4,333**	4,313**
	(2,094)	*(2,094)*	*(1,645)*
Observations (N)	96	96	96
R^2	0,923	0,940	0,924
LM test	1,000		
Ramsey Reset Test	0,000		
VIF test	4,78		
White test	0,000		
Skewness/Kurtosis Test	0,000		

legend: * p<.1; ** p<.05; *** p<.01

Table 1: OLS, Random Effect, OLS Robust Regression result for export flow

Independent Variables	OLS_IM (1)	Random_IM (2)	OLS_IM (robust) (3)
$lnGDPPC_{jvt}$	0,449***	0,449***	0,446***
	(0,070)	*(0,070)*	*(0,065)*
$lnDIST_{jvt}$	-0,998***	-0,998***	-1,008***
	(0,214)	*(0,214)*	*(0,290)*
$lnER_{jvt}$	-0,137***	-0,137***	-0,137***
	(0,031)	*(0,031)*	*(0,047)*
$lnLSCI_{vjt}$	1,146***	1,146***	1,151***
	(0,103)	*(0,103)*	*(0,091)*
$lnDIST_{jj}$	0,121	0,121	0,121
	(0,073)	*(0,073)*	*(0,082)*
BORDER	0,438*	0,438*	0,442
	(0,233)	*(0,233)*	*(0,381)*
LANDLOCK	-0,948***	-0,948***	-0,951***
	(0,247)	*(0,247)*	*(0,264)*
Constant	10,957***	10,957***	11,049***
	(2,176)	*(2,176)*	*(2,545)*
Observations (N)	96	96	96
R^2	0,9160	0,9788	0,916
LM test	1,000		
Ramsey Reset Test	0,000		
VIF test	4,78		

White test	0,000		
Skewness/Kurtosis Test	0,000		

legend: * p<.1; ** p<.05; *** p<.01

Table 2: OLS, Random Effect, OLS Robust Regression result for import flow

Based on the regression results in tables 1 and 2, the author provides an export and import model to assess the impact of trade facilitation on commodity trade between Vietnam and ASEAN.

Export model

$$\ln(EX_{vjt}) = 4{,}313 + 0{,}740 \ln(GDPPC_{vt}*GDPPC_{jt}) - 0{,}773 \ln(DIST_{vj}) + 0{,}181 \ln(ER_{vjt}) + 0{,}303 \ln(DIST_{jj}) + 0{,}882 \ln(LSCI_{jt}*LSCI_{vt}) + 2{,}567 BORDER - 2{,}860 LANDLOCKED$$

Import model

$$\ln(IM_{vjt}) = 11{,}049 + 0{,}446 \ln(GDPPC_{vt}*GDPPC_{jt}) - 1{,}008 \ln(DIST_{vj}) - 0{,}137 \ln(ER_{vjt}) + 0{,}121 \ln(DIST_{jj}) + 1{,}151 \ln(LSCI_{jt}*LSCI_{vt}) + 0{,}442 BORDER - 0{,}951 LANDLOCKED$$

Table 1 and table 2 show the regression results. The first two columns of the two tables both show the OLS estimates, and the fix random model in logarithms. Column 3 presents the results from Robust regression, which…. The result of LM test, with p-value is 0,000, show that the OLS model yields the best estimate.

Column 3 presents the main results of the paper and the beta coefficients (to allow for direct comparison of the importance of different variables) are shown in the formula 1 and 2. Our results are in line with the results found previously in the literature. Specifically, decrease in distance by 1% increases export by 0.79% and import by 0.99%. The size of the trading partners positively and a statistically significant impact on trade flows. Landlocked exporters (importers) trade less than coastal exporters (importers). Countries with a common border trade more than countries that do not share a common border. Distance between producers and customer has a positive and a statistically significant impact on exports flows; whereas it does not have any impact on import.

As expected, our key variable of interest is LSCI. The variable represents the combined effect of maritime transport capacity of Vietnam and its partner on the bilateral trade flow. LSCI has a positive coefficient and is statistically significant, for both export and import flow. The 1% LSCI increase will improve 0.881% of Vietnam's export turnover, and 1.151% of Vietnam's import turnover. It is clear that maritime transport ability has more impact on imports than exports, in case of Vietnam. This may mean that Vietnam tends to import more from countries with higher LSCI scores. The fact remains that Singapore and Malaysia are the two countries with the highest LSCI among ASEAN countries and also is the two largest partners of Vietnam.

Interestingly, the impact of trade facilitation (represented by LSCI) in both export model (0.881) and import model (1.151) are greater than the two traditional factors: the GDP per capita (0.739) (0.446) and the geographical distance (0.773) (1,008), and also the exchange rate (0.181) (0.137). This may mean that improving the LSCI score (which represents the maritime transport capacity) will also bring a greater impact on trade flows than the other variables. Therefore, in this fast-changing world, Vietnam should pay more attention to enhance maritime transport capacity to promote bilateral trade not only with ASEAN countries but with the others also.

RECOMMENDATIONS AND CONCLUSIONS

The LSCI can be considered a proxy of the accessibility to global trade and is used by UNCTAD as an indicator to assess the impact of trade facilitation on bilateral trade. The higher indicator is, the higher trading value is, by facilitating the export and import process of one country. Specifically in the case of Vietnam, because of the characteristics of exported commodity such as low value, large volume so that marine transport is the most popular one. Beside, almost ASEAN countries are bordering on the sea, especially for four island countries: Malaysia, Indonesia, Philippines and Singapore; thus marine shipping is considered to be the best choice. The ability of shipping may either directly influence the demand for

goods, or it may impact on the costs and/or levels of service of one or more freight transport modes. Therefore, improving maritime transport capacity, in particular by reducing time and costs, develop the national fleet, will boost the export turnover, reduce trade deficit.

The authors arrive to draw some conclusions:

Firstly, based on the regression results, the trade facilitation factor represented by the LSCI has a positive and statistically significant impact on trade flow and its value is greater than the two traditional factors: GDP per capita (represented to the size of the economy) and geographical distance. Secondly, the results also showcase of the trade facilitation status of Vietnam and some key markets in the ASEAN region, indicating that Vietnam are facing more difficulties in implementing trade facilitation compared to other countries.

To sum up, trade facilitation is turning to become a key factor that needs to be addressed to improve Vietnam – ASEAN trade deficit. In order to successfully implement trade facilitation, Vietnam needs to focus on improving transportation infrastructure and information technology infrastructure, national transport connectivity, and institutional framework for trade facilitation.

However, the paper has some limitations. The chosen study space ASEAN create a limited sample research. It is possible to provide a quantitative assessment by several indicators as well as to analyze the impact of the sub-indexes. For further study, the authors wish to develop in two directions: (1) approach with VAR estimate; and (2) expand the study space to ASEAN +3, APEC, the EU or WTO members, thus combining several sets of indicators or using sub-indexes of the indicators. As space expands, the LPI, TFIs, EoDB, ETI, will meet the sample requirements.

References:

- Anderson, J.E. and Van Wincoop, E., 2003*, Gravity with gravitas: a solution to the border puzzle*, The American Economic Review, 93(1), pp.170-192.
- Anderson, J.E. and Van Wincoop, E., 2004, *Trade costs*, Journal of Economic literature, 42(3), pp.691-751.
- Dennis, A. and Shepherd, B., 2011, *Trade facilitation and export diversification*, The World Economy, 34(1), pp.101-122.
- Djankov, S., Freund, C. and Pham, C.S., 2010, *Trading on time,* The Review of Economics and Statistics, 92(1), pp.166-173.
- Drysdale, C.M., McGraw, D.W., Stack, C.B., Stephens, J.C., Judson, R.S., Nandabalan, K., Arnold, K., Ruano, G. and Liggett, S.B., 2000, *Complex promoter and coding region β2-adrenergic receptor haplotypes alter receptor expression and predict in vivo responsiveness*, Proceedings of the National Academy of Sciences, 97(19), pp.10483-10488.
- Hertel, T.W. and Mirza, T., 2009, *The role of trade facilitation in South Asian economic integration. Study on Intraregional Trade and Investment in South Asia*, Asian Development Bank (ADB), Manila.
- Hummels, D. and Schaur, G., 2012, *Time as a trade barrier (No. w17758)*, National Bureau of Economic Research.
- Isabelle Pellan, M. and Wong, M.H., 2013, *Trade facilitation in ASEAN and ASEAN+ 1 FTAS: An analysis of provisions and progress*, Journal of World Trade, 47(2), pp.243-279.
- Limao, N. and Venables, A.J., 2001, *Infrastructure, geographical disadvantage, transport costs, and trade*, The World Bank Economic Review, 15(3), pp.451-479.
- Linnemann, H., 1966, *An econometric study of international trade flows (Vol. 234)*, Amsterdam: North-Ho.
- Moïsé, E. and Sorescu, S., 2013, *Trade Facilitation Indicators: The Potential Impact of Trade Facilitation on Developing Countries' Trade (No. 144)*, OECD Publishing.
- Park, H.M., 2011, *Practical guides to panel data modeling: a step-by-step analysis using stata*, Public Management and Policy Analysis Program, Graduate School of International Relations, International University of Japan.

- Shepherd, B. and Wilson, J.S., 2009, *Trade facilitation in ASEAN member countries: Measuring progress and assessing priorities*, Journal of Asian Economics, 20(4), pp.367-383.
- Stone, S. and Strutt, A., 2010, *Transport Infrastructures and Trade Facilitation in the Greater Mekong Subregion*, Trade Facilitation and Regional Cooperation in Asia, p.156.
- Wilson, J.S., Mann, C., Woo, Y.P., Assanie, N. and Choi, I., 2002, *Trade facilitation: A development perspective in the Asia Pacific Region*, APEC, October.
- Wilson, J.S., Mann, C.L. and Otsuki, T., 2003, *Trade facilitation and economic development: A new approach to quantifying the impact*, The World Bank Economic Review, *17*(3), pp.367-389.
- Yann Duval, 2013, *Application of Gravity and Related Methods in Trade Facilitation Research*, ESCAP Publications, pp. 7-14.