

Trade Facilitation in ASEAN: Evidence from Japanese Affiliates' Import Cargo Release Time

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Abstract

With the completion of substantial intra-regional tariff elimination, the focus of ASEAN policy makers has shifted drastically towards trade facilitation. Meanwhile, for the private sector operating in Southeast Asia, effective trade facilitation measures stand at the most important and anticipated measures among those wide-ranged initiatives taken by ASEAN. In line with the interest and expectations of the private sector in the 10-member Association, this study focuses on import-related procedures across the region, in particular, the time taken for import cargo release at ports/airports. In contrast to a number of prior studies in this field which focus on country-to-country comparison, the measurement of the impact of import facilitation in this paper investigates how firm characteristics are related to import cargo release time. The estimates from the regression found that, among other characteristics, increase in (i) the number of employees, (ii) age (a period after the establishment), and (iii) share of exports in total sales will lead to the reduction of average time (in days) required for cargo release. Based on these results, it can be determined that ASEAN's policy implementation for customs facilitation should be more focused on supporting small and medium enterprises or newly established firms, encouraging effectual export promotion schemes, and expanding intra-ASEAN trade and its composition

Keywords: ASEAN; Trade Facilitation; Release Time; Customs Clearance; Japanese Affiliates

1. Introduction

While officially announcing the establishment of ASEAN Economic Community (AEC) at the end of 2015, ASEAN leaders adopted the AEC Blueprint 2025, which provides a vision and broad directions for the next phase of integration during the period 2016-2025. Subsequently in August 2016, ASEAN Economic Ministers (AEMs), recognizing the state of progress, announced the implementation and monitoring mechanisms for the AEC Blueprint 2025 and adopted nine strategies, action plans covering the four major pillars of integrations (a single market and production base, a highly competitive region, a region of equitable economic development, and a region fully integrated into the global economy). More specifically, the AEC 2025 Strategic Action Plans for Trade in Goods stipulates a series of continuous trade liberalization measures. Trade facilitation is a key area of focus for ASEAN member states. While AEMs have adopted the action plan in August 2016, they emphasized ASEAN's continued commitment to enhance trade facilitation through the implementation of various initiatives such as simplifying or expediting customs-related procedures.

Renewing the key achievements in the field of trade in goods through the last AEC Blueprint 2015 initiatives, the regional community's six early members - Brunei, the Philippines, Indonesia, Malaysia, Thailand, and Singapore - had abolished tariffs on practically almost all items, i.e., on 99.2 percent of all products. The four later members - Cambodia, Lao PDR, Myanmar, and Vietnam (commonly referred to as 'CLMV' countries) also eliminated

tariffs on 90.8 percent of all products by 2015. Consequently, 96 percent of all items traded among the 10 ASEAN member states have come down to zero tariffs. This made ASEAN one of the world's most liberalized free trade areas. Furthermore, by 2018, the average percentages of tariff elimination in CLMV countries and ASEAN 10 countries will be 97.8 percent and 98.7 percent, respectively. With the completion of substantial tariff elimination within the ASEAN region, the discussion of trade facilitation has become even more important in today's climate of ASEAN trade liberalization, expansion, and development contexts. In other words, those substantial achievements in tariff reduction have caused ASEAN policy makers to drastically shift their focus towards trade facilitation. As stipulated in the ASEAN Trade Facilitation Framework, officially adopted in August 2016, "trade facilitation is a recognized driver of economic development and regional integration. It plays a key role with respect to the realization of establishing ASEAN as a single market and production base".

Meanwhile, in the private sectors in ASEAN, effective trade facilitation measures are regarded as the most important and anticipated measures among those wide-ranged initiatives taken by ASEAN through the AEC Blueprint. As shown in Table 1, according to the Japan External Trade Organization (JETRO, 2015), 53.8 percent of Japanese affiliated firms operating in ASEAN expect "Simplified customs related procedures" to be achieved through AEC initiatives, which is the highest expectation.

Table 1: Expectations for the AEC among business sectors in ASEAN (%)

Rank	Answers (Multiple choices from 17 key measures under AEC Blueprint 2015)	2014 Survey	2015 Survey
1	Simplified customs related procedures (etc. Unified customs declaration documents, and introduction of a single-window system for import and export)	63.9	53.8
2	Mutual duty exemption among CLMV (Cambodia, Laos, Myanmar and Vietnam)	29.6	26.9
3	Avoidance of double taxation and correction of irregular withholding tax rates	32	25.8
4	Integration of interpretation and management concerning the rules of origin	28.2	25.6
5	Free movement of skilled labor	24.7	20.9
6	Infrastructure development in CLMV	15.9	20.9
7	Reduction of non-tariff barriers (license requirements and mandatory standards)	23.3	18.3
8	Relaxation of capital control in the service sector (ASEAN corporations at most 70%)	16	17.7
9	Introduction of harmonized standards, certification and labeling system for the ASEAN nations	20.9	15.7
10	Further deregulation of capital transfers (Financing by cross border, reinforcement of investment system by regional headquarters, etc.)	17.6	13.9

Source: JETRO Survey on Business Conditions of Japanese Companies in Asia and Oceania (Dec. 2014, Dec. 2015), Number of valid answers: 1987 for 2014 survey, 2067 for 2015 survey

In line with the above expectations and interest of actors in the private sectors in ASEAN, this paper focuses on import related procedures. In particular, the time it takes for import cargo release at the ports/airports is examined. This includes the time for customs clearance, duty payment, cargo handling, examination if applicable, procedural requirements for other government agencies, and inaction time. In contrast to a number of prior studies in this field that focus on country-to-country comparison, on the measurement of the impact of import facilitation (reduction of time) or on the investigation of the bottlenecks in each division of import procedure (e.g. Fernandes et al., 2015; Hayakawa et al., 2016), this paper investigates how firm characteristics are related to import cargo release time. For the purpose of this study, import cargo release time indicates the time (in number of days) from the arrival of goods to the port/airport to their release after clearance in importing. Specifically, this paper analyzes these issues in light of Japanese affiliates operating in Southeast Asian countries, all ASEAN members. To this end, this paper employs a unique dataset that was collected by JETRO.

Data for the Jetro survey, called “Survey on Business Conditions of Japanese Companies in Asia and Oceania,” have been conducted since 1987. The data collected include basic information on Japanese affiliates’ activities, such as the breakdown of their export destinations and procurement sources. In the 2016 survey, for the first time JETRO asked information on the average cargo release time in importing. Exploiting the answer to this question, this paper examines which Japanese affiliates experience the longest time in import procedure at ports/airports. In particular, we shed light on these firms’ characteristics such as their size, years in operation, export ratio, partnership with indigenous firms, and investigates whether those characteristics correlates significantly with release time.

There are already a number of research reports and datasets that identify, monitor, and evaluate the performance of trade facilitation in ASEAN member states (e.g. Dollar, Hallward-Driemeier, & Mengistae, 2006; Djankov, Freund, & Pham, 2010; Freund & Rocha, 2011; and Shepherd, 2013). Performance indicators include time needed for customs clearance, the number of documents for export/import procedures, the degree of electronization, the number of license or restrictions, and the cost at each stage of transactions. In this regard, international organizations represented by the World Bank, the World Customs Organization (WCO), the Asian Development Bank (ADB), or the United Nations (UN) are notably prominent with their extensive country-wise data collection capacity. In line with those prior studies, this paper zeroes in on the recognition of the impact of efficient trade facilitation on the improvement of business operations through cost and time reductions. According to ADB and the UN Economic and Social Commission for Asia Pacific (UNESCAP, 2013), intraregional trade could increase by over \$250 billion (or about 21%), assuming that trade facilitation reforms in port and customs efficiency, domestic regulations, and the e-business environment can bring countries in Asia and the Pacific with below-average trade performance closer to the regional average.

Several studies examine the effects of trade facilitation on performance indicators (e.g. Feenstra & Ma, 2014; Persson, 2013; Hornok & Koren, 2015). Country- or firm-level studies on the effects of customs clearance time on trade include among others Djankov et al. (2010), Freund and Rocha (2011), Portugal-Perez and Wilson (2012), Dollar et al. (2006), Li and Wilson (2009), and Shepherd (2013). These studies found that custom clearance time has a significantly negative effect on trade. A number of firm-level studies use actual shipment dates to measure the time in customs clearance; so does this paper. Moreover, whereas some studies, e.g. Martincus, Carballo, and Graziano (2015), investigate the effects of customs clearance time on firm-level export performances, others, e.g. Carballo et al. (2016a; 2016b), Fernandes et al. (2015), and Hayakawa et al. (2016) examine clearance time effect on firm-level imports performances. All these studies report negative effects on both export and import

performances. In contrast to these studies, this paper investigates how release time is related to firm characteristics. Of great import in this study, Hillberry and Zhang (2015) empirically investigates how customs clearance time is related to country characteristics. More specifically, they examine the effects of country characteristics on customs clearing time. They found that out of the 12 policy bundles, the 'good governance and impartiality' indicator is most clearly related to customs clearance time. In a departure from Hillberry and Zhang's (2015) research study, this paper sheds light on firm characteristics rather than on country characteristics. The findings from this study will therefore provide some novel insights on how customs clearance time is determined. The rest of this paper is organized as follows. After explaining our empirical framework in Section 2, Section 3 introduces our estimation results on the correlation of several variables of firm characteristics with release time. Last, Section 5 concludes the paper.

2. Empirical Framework

This section examines the role of firm characteristics in cargo release time in importing. Sample affiliates are restricted to Japanese affiliates locating and operating in ASEAN member states that are engaged in importing. For this reason, this study selects the explanatory variables from among variables that are available in our dataset and were examined in firm-level studies on overseas affiliates (e.g., Hanson et al. 2005; Kimura and Kiyota, 2006; Kiyota et al., 2008). Specifically, this study estimate the following equation by the ordinary least square (OLS) method:

$$\begin{aligned} \ln Days_{ics} = & \beta_1 Parent_i + \beta_2 Consumer_i + \beta_3 Local_i + \beta_4 \ln Age_i + \beta_5 \ln Labor_i \\ & + \beta_6 LIntesity_i + \beta_7 Export_i + \gamma_1 Imp_ASEAN_i + \gamma_2 Imp_China_i \\ & + \gamma_3 Imp_Japan_i + \gamma_4 Imp_Asia_i + \gamma_5 Imp_Europe_i + \gamma_6 Imp_US_i + u_c + u_s \\ & + \epsilon_{ics}. \end{aligned}$$

$Days_{ics}$ indicates the average number of days for cargo release at the port/airport in importing reported by affiliate i in country c in sector s . We estimate the above equation for Days in sea and air transportation separately.

This paper introduces various kinds of firm characteristics. $Parent_i$ is a dummy variable that taking the value one if affiliate i 's parent firm is a large-sized firm and zero otherwise. $Consumer_i$ is a dummy variable that taking the value one if affiliate i 's main customer is not firms but consumers and zero otherwise. $Local_i$ is a dummy variable that taking the value one if affiliate i is a joint venture with indigenous firms and zero otherwise. Age_i is affiliate i 's age, i.e., 2017 minus affiliate i 's entry year. $Labor_i$ is the number of employee in affiliate i . $Export_i$ is a share of exports in total sales. This paper also introduces various import dummy variables including Imp_{ASEAN_i} , Imp_{China_i} , Imp_{Japan_i} , Imp_{Asia_i} , Imp_{Europe_i} , and Imp_{US_i} , and each variable takes the value one if affiliate i have any import from ASEAN, China, Japan, the other Asian countries, Europe, and the U.S. and zero otherwise respectively. Last, country fixed effects (u_c) and sector fixed effects (u_s) are introduced.

As mentioned in the introduction, the source of the data used in this paper is the JETRO survey, entitled "Survey on Business Conditions of Japanese Companies in Asia and Oceania." This survey has been conducted annually since 1987 to understand the current business activities of Japanese-affiliated companies operating in Asia and Oceania and to disseminate those findings widely. In this paper, the survey data of the 30th survey conducted in October-November 2016 is used. In this survey, questionnaires were sent to more than 10,000 Japanese affiliates operating in those regions, and 4,642 valid responses were received. Although JETRO is a quasi-governmental organization, survey participation is not mandatory. Nevertheless, the

survey has a sufficiently high response rate of more than 40 percent. In the 2016 survey, as shown in Table 2, there are 2,582 respondents from nine ASEAN member states (Thailand, Malaysia, Singapore, Indonesia, the Philippines, Vietnam, Cambodia, Laos, and Myanmar), 1,258 from Northeast Asia (China, Korea, Taiwan, and Hong Kong), 522 from South Asia (India, Bangladesh, Pakistan, and Sri Lanka), and around 280 from Oceania (Australia and New Zealand). Meanwhile, as shown in Table 3, the respondents come from 17 business sectors (11 are manufacturing sectors and 6 non-manufacturing sectors), that have been aggregated from total 39 sub-sectors.

Table 2: Number of firms surveyed by locating country (firms)

	Firms surveyed	Firms responding		Category		Valid responses (%)
		Valid	(%)	Manufacturing	Non-Manufacturing	
Total	10,983	4,642	100	2,335	2,307	42.3
ASEAN	7,019	2,582	55.6	1,401	1,181	36.8
Thailand	2,176	695	15	395	300	31.9
Vietnam	1,285	639	13.8	409	230	49.7
Indonesia	1,001	359	7.7	222	137	35.9
Singapore	824	315	6.8	77	238	38.2
Malaysia	941	287	6.2	169	118	30.5
Philippines	357	103	2.2	60	43	28.9
Cambodia	248	91	2	38	53	36.7
Myanmar	144	74	1.6	20	54	51.4
Laos	43	19	0.4	11	8	44.2
Northeast Asia	2,507	1,258	27.1	594	664	50.2
China	1,379	604	13	388	216	43.8
Hong Kong /Macau	388	270	5.8	45	225	69.6
Taiwan	531	209	4.5	80	129	39.4
South Korea	209	175	3.8	81	94	83.7
Southwest Asia	994	522	11.3	262	260	52.5
India	795	411	8.9	203	208	51.7
Bangladesh	121	54	1.2	32	22	44.6
Pakistan	42	31	0.7	17	14	73.8
Sri Lanka	36	26	0.6	10	16	72.2
Oceania	463	280	6	78	202	60.5
Australia	317	202	4.4	56	146	63.7
New Zealand	146	78	1.7	22	56	53.4

Source: 2016 JETRO Survey on Business Conditions of Japanese Companies in Asia and Oceania

Table 3: Number of firms surveyed by Sector (Industrial Category) (firms)

Sectors (industries)	Valid Responses	% in total
Manufacturing sector	2,335	50.3
Motor vehicles/Motorcycles	407	8.8
Electric machinery	379	8.2
Chemical/Pharmaceutical	344	7.4
Iron/Nonferrous metals/ Metals	335	7.2
General machinery	183	3.9
Food	150	3.2
Textiles	123	2.7
Precision machinery	91	2
Rubber/Leather	56	1.2
Wood/Pulp	46	1
Other manufacturing industries	221	4.8
Non-manufacturing sector	2,307	49.7
Wholesale/Retail	967	20.8
Transport	273	5.9
Construction	164	3.5
Communications/Software	143	3.1
Finance/Insurance	125	2.7
Other non-manufacturing industries	635	13.7

Source: 2016 JETRO Survey on Business Conditions of Japanese Companies in Asia and Oceania

Figures 1 and 2 show the primary aggregation of the responses concerning the import cargo release time. Respondents were asked to enter the average days required from the arrival of cargo at the port or airport to receipt (clearing customs) for both sea and air freight, with regard to the import of the items the respondents generally handle. From the primary results, we can find out the average days for cargo release listed and compared by respondents' locating country or sectors of business.

With regard to the difference in data by country, additional qualitative research through interviews suggests a need for an investigation on several possible factors correlating with cargo release time. For instance, in the case of Cambodia's shorter clearance time, interviews indicated that it is mainly because the majority of the respondents are export-oriented firms locating in Special Economic Zones (SEZs), where one stop service with their own custom office is provided. Cargo release time in this regard is shortened as customs at the ports/airports just release the goods and transfer them to each SEZ without clearance or examination.

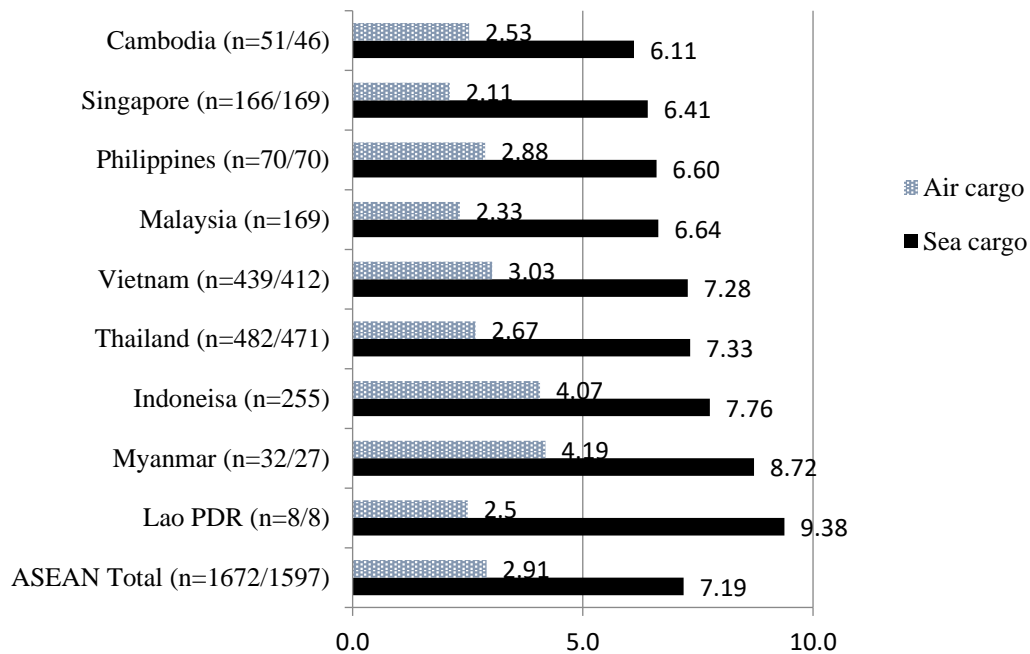


Figure 1: Average days for cargo release by locating country

Note: n indicates number of valid responses (for sea cargo/air cargo)

Source: Author, based on the result from 2016 JETRO Survey on Business Conditions of Japanese Companies in Asia and Oceania, JETRO (December, 2016)

By taking this distribution of data by locating country or by sector, the correlation of several firm characteristics with cargo release time will be estimated simply without country fixed effects (u_c) nor sector fixed effects (u_s), with each one of them, and with both of them.

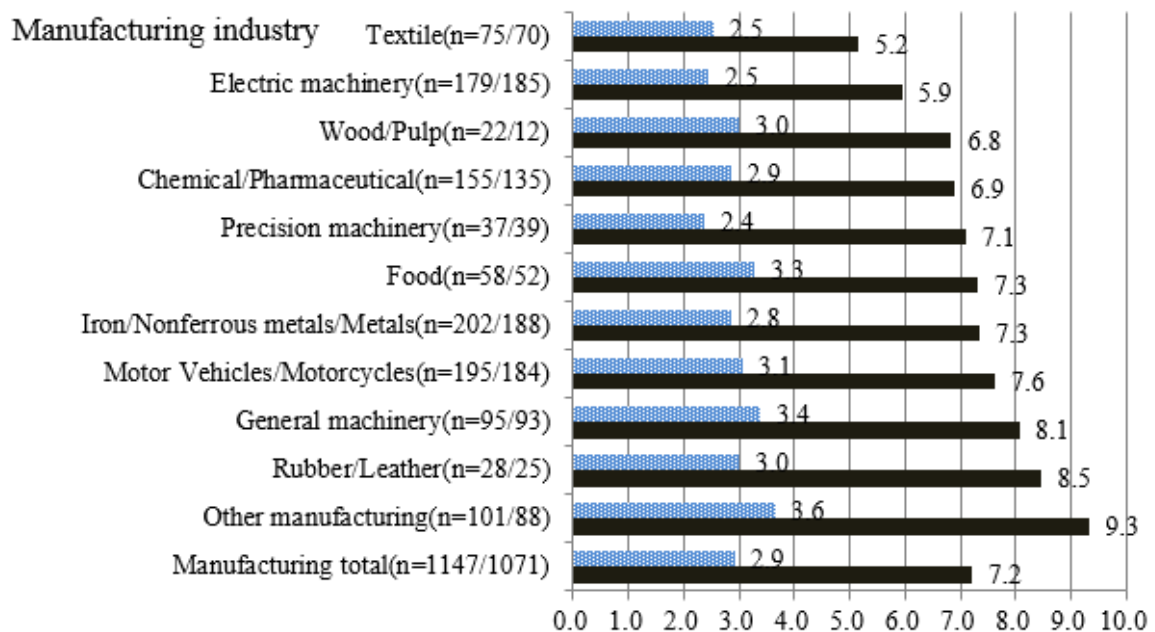
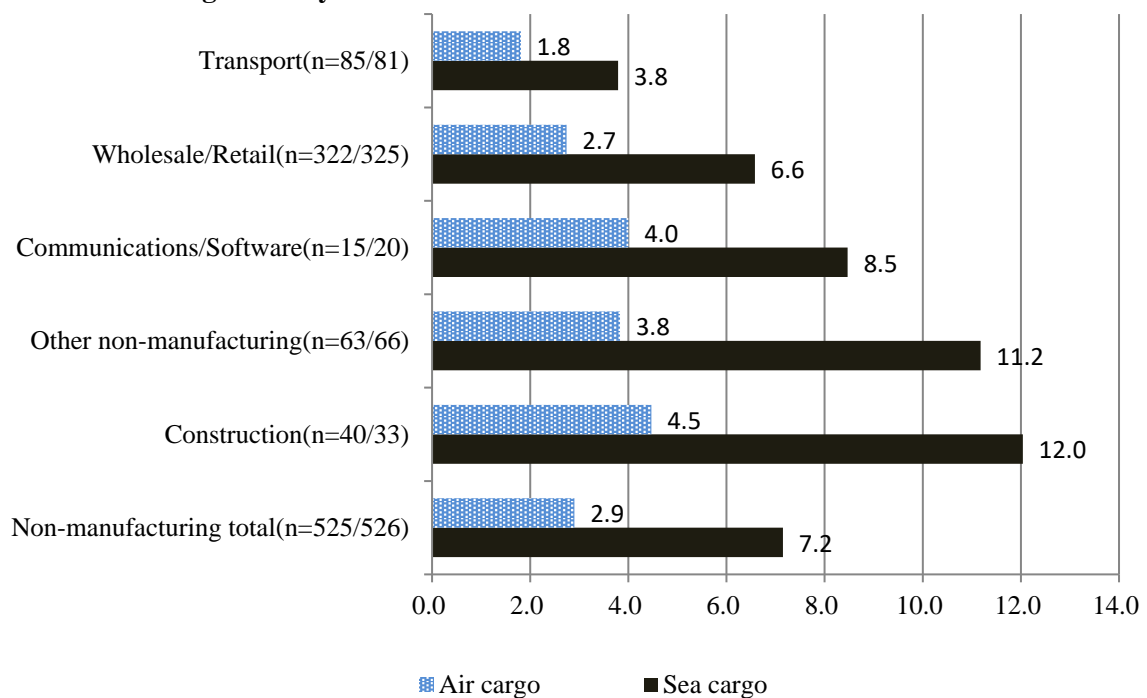


Figure 2: Average days for cargo release by sectors

Non-Manufacturing Industry

Source: Author, based on the result from 2016 JETRO Survey on Business Conditions of Japanese Companies in Asia and Oceania, JETRO (December, 2016)

3. Empirical Results

The estimates from the regression indicates that three variables of affiliates' characteristics, which are 1) number of employees in the affiliate ($Labor_i$), 2) age of the affiliate (Age_i), and 3) share of exports in total sales ($Export_i$) of the affiliate, significantly correlate with the affiliates' average number of days for cargo release in importing. In addition, as for sea transport cargo, affiliates with certain imports from ASEAN (Imp_{ASEAN_i}) show significance in correlation with the number of days for cargo release.

On the other hand, the results do not show significant correlation of other variables such as $Parent_i$ (whether the affiliate i 's parent firm is a large-sized firm or SMEs), $Consumer_i$ (whether affiliate i 's main customer is other firms or general consumers), $Local_i$ (whether affiliate i is a joint venture with indigenous firms or not), or Imp_{China_i} , Imp_{Japan_i} , Imp_{Asia_i} , Imp_{Europe_i} , and Imp_{US_i} (whether affiliate i respectively have any import from China, Japan, the other Asian countries, Europe, and the U.S, or not) with the affiliates' average number of days for cargo release in importing.

The first column (I) of Tables 5 and 6, which include neither country fixed effect nor sector fixed effect, shows that the above three variables are negatively correlated with the average number of days for cargo release in either case of maritime or air transport. More specifically, increase in (i) the number of employees in the affiliate, (ii) the age (a period after the establishment of the affiliate), and (iii) the share of exports in total sales will help to reduce the average time (in days) required for cargo release in the following correlations.

- 1) The double increase of the number of employees decreases cargo release days by 4.1% for sea transport and by 3.7% for air transport.
- 2) The double increase of affiliates' age decreases cargo release days by 8.8% for sea transport and by 9.6% for air transport.

- 3) If the share of export in total sales increases by 0.1 point (10 percentage points), the number of days for cargo release is expected to be reduced by 3.3% ($=10*(\exp(0.2842)-1)$) for sea transport and by 1.8% ($=10*(\exp(0.1685)-1)$) for air transport.

In addition, only for the case of sea cargo, the result shows that

- 1) If the affiliate has positive imports from ASEAN (Imp_{ASEAN_i}), the number of days for cargo release is expected to be shorter by 11.6% ($=100*(\exp(0.1097)-1)$) in comparing with affiliates which do not have any imports from ASEAN

On the other hand, if we see other column (II) and (III) of the same tables, which show the estimates with inclusive of Sector fixed effect (but without Country fixed effect) and with Country fixed effect (but without Sector fixed effect) accordingly, above three variables, namely (1) number of the employee in the affiliate ($Labor_i$), (2) age of the affiliate (Age_i), and (3) share of exports in total sales ($Export_i$) similarly show significance in correlation with number of days for cargo release.

When inclusive of both country fixed effect and sector fixed effect, as shown in column (IV) of these two tables, we can still see significant correlation of the three variables (i)-(iii) with the number of days for cargo release, which can be explained as follows:

- 1) The double increase of the number of employees decreases cargo release days by 4.6% for sea transport and by 4.4% for air transport.
- 2) The double increase of affiliates' age decreases cargo release days by 9.4% for sea transport and by 7.5% for air transport.
- 3) If the share of export in total sales increases by 0.1 point (10 percentage points), the number of days for cargo release is expected to be reduced by 2.7% ($=10*(\exp(0.2421)-1)$) for sea transport (no significant correlation, however, was shown for air transport cargo).
- 4) If the affiliate has imports from ASEAN (, the number of days for cargo release in sea transportation is expected to be shorter by 11.2% ($=100*(\exp(0.1064)-1)$), as compared with affiliates which do not (iii any import from ASEAN.

The above results indicate that (i) larger firms in terms of numbers of employees, (ii) Older firms in terms of years after establishment, (iii) Export-oriented firms in terms of share of exports in total sales, and (iv) Firms having import relations with other ASEAN member states are experiencing relatively shorter time in cargo release at ports. Accordingly, it can be concluded that ASEAN's policy implementation for customs facilitation should be more focused on supporting SMEs or newly established firms, encouraging effectual export promotion schemes, and expanding intra-ASEAN trade, and their composition.

Table 4: Basic statistics of the estimation samples in Tables 5 and 6

Variable	Obs.	Mean	Std. Dev.	Min	Max
Days (Air)	1,002	0.851	0.646	-1.609	3.401
Days (Sea)	1,077	1.629	0.786	0	4.500
Parent	1,077	0.441	0.497	0	1
Local	1,077	0.130	0.336	0	1
ln Labor	1,077	5.061	1.640	0	10.541
ln Age	1,077	2.492	0.810	0	4.477
Customer	1,077	0.082	0.274	0	1
Imp_Japan	1,077	0.873	0.333	0	1
Imp_ASEAN	1,077	0.438	0.496	0	1
Imp_China	1,077	0.375	0.484	0	1
Imp_Asia	1,077	0.282	0.450	0	1
Imp_US	1,077	0.051	0.220	0	1
Imp_Europe	1,077	0.072	0.259	0	1
Export	1,077	0.541	0.406	0	1

Table 5: Effect of firm characteristics on cargo release time (for sea transport cargo)

	(I)	(II)	(III)	(IV)
Parent	-0.0454 [0.0526]	-0.0607 [0.0550]	-0.0464 [0.0533]	-0.0603 [0.0556]
Local	0.0503 [0.0729]	0.0569 [0.0743]	0.0162 [0.0743]	0.0255 [0.0755]
ln Labor	-0.0409** [0.0180]	-0.0382** [0.0193]	-0.0473** [0.0191]	-0.0459** [0.0205]
ln Age	-0.0882*** [0.0327]	-0.0863** [0.0340]	-0.1015*** [0.0385]	-0.0940** [0.0394]
Customer	0.1196 [0.0864]	0.128 [0.0910]	0.1282 [0.0867]	0.1386 [0.0913]
Imp_Japan	-0.0161 [0.0705]	-0.03 [0.0729]	-0.018 [0.0714]	-0.0339 [0.0737]
Imp_ASEAN	-0.1097** [0.0504]	-0.1029** [0.0516]	-0.1125** [0.0517]	-0.1064** [0.0529]
	(I)	(II)	(III)	(IV)

Imp_China	-0.0577 [0.0516]	-0.0418 [0.0548]	-0.0501 [0.0516]	-0.0337 [0.0548]
Imp_Asia	0.0162 [0.0528]	0.0538 [0.0544]	0.0058 [0.0528]	0.0417 [0.0545]
Imp_US	0.1823 [0.1108]	0.1394 [0.1136]	0.1667 [0.1111]	0.1342 [0.1139]
Imp_Europe	-0.0917 [0.0941]	-0.1024 [0.0962]	-0.0667 [0.0943]	-0.0784 [0.0963]
Export	-0.2842*** [0.0618]	-0.2802*** [0.0661]	-0.2501*** [0.0649]	-0.2421*** [0.0688]
Sector FE	NO	YES	NO	YES
Country FE	NO	NO	YES	YES
Number of observations	1,077	1,077	1,077	1,077
R-squared	0.074	0.0949	0.0882	0.1084

Notes: ***, **, and * represent significance at the 1%, 5%, and 10% statistical levels, respectively. Standard errors are in brackets.

Table 6: Effect of firm characteristics on cargo release time (for air transport cargo)

	(I)	(II)	(III)	(IV)
Parent	0.0161 [0.0449]	-0.0133 [0.0467]	0.0177 [0.0447]	-0.0166 [0.0464]
Local	0.1407** [0.0638]	0.1206* [0.0649]	0.071 [0.0637]	0.0657 [0.0645]
ln Labor	-0.0372** [0.0152]	-0.0252 [0.0162]	-0.0596*** [0.0160]	-0.0444*** [0.0170]
ln Age	-0.0959*** [0.0282]	-0.0983*** [0.0291]	-0.0667** [0.0323]	-0.0747** [0.0329]
Customer	0.0769 [0.0761]	0.1164 [0.0797]	0.0778 [0.0746]	0.1228 [0.0783]
Imp_Japan	-0.0271 [0.0643]	-0.0396 [0.0662]	-0.0571 [0.0633]	-0.0737 [0.0652]
Imp_ASEAN	-0.044 [0.0434]	-0.0392 [0.0442]	-0.0576 [0.0436]	-0.0584 [0.0444]
Imp_China	-0.0235	0.0158	-0.0063	0.0269
	(I)	(II)	(III)	(IV)
	[0.0444]	[0.0471]	[0.0434]	[0.0461]

Imp_Asia	-0.0229 [0.0455]	-0.0148 [0.0464]	-0.044 [0.0444]	-0.0393 [0.0454]
Imp_US	0.1203 [0.0982]	0.0949 [0.0999]	0.0928 [0.0960]	0.0783 [0.0977]
Imp_Europe	-0.0724 [0.0814]	-0.107 [0.0834]	-0.0414 [0.0798]	-0.0699 [0.0817]
Export	-0.1685*** [0.0534]	-0.1237** [0.0568]	-0.1137** [0.0551]	-0.0723 [0.0581]
Sector FE	NO	YES	NO	YES
Country FE	NO	NO	YES	YES
Number of observations	1,002	1,002	1,002	1,002
R-squared	0.0647	0.0973	0.1222	0.1503

Notes: ***, **, and * represent significance at the 1%, 5%, and 10% statistical levels, respectively. Standard errors are in brackets.

4. Evaluation and Policy Recommendations

There are many conceivable reasons for the empirical results reported in Section 3. Concerning the factors which significantly affect cargo release time, this section pinpoints the priority issues for policymakers in ASEAN to focus their effort on specific measures and makes recommendations for future challenges.

First, as for the size and age of firms, SMEs tend to have difficulties to engage international trade business and related procedures. Limited numbers of dedicated staff or limited resources force them to shoulder higher costs and spend more time in getting regulatory related information or handling cumbersome paper works. Whilst several customs facilitation schemes, such as Authorized Economic Operators (AEO), Green-lanes, or selected traders schemes, give preferences in clearance with lesser examination of cargoes, they essentially operate in favor of large-sized companies. The main reasons is that those schemes usually have certain criteria of past import record, tax payment, appropriate workplace or facilities, and internal assessment/management systems. The situation affecting SMEs is similar to the difficulties expererinced by newly-established firms which, like most SME, have limited resources, skilled staffs, and practical experience.

It ensues that the priority challenge to resolve the disparity between SMEs and large firms, and between newly established and older firms is the improvement of access to relevant information. The World Trade Organization (WTO, 2016) indicated that SMEs needs to face the cost of gathering information. The lack of knowledge about regulations could for instance result in products not complying with importing country regulations, which, in turn, could cause the firm to face the costs of product rejection at the border of the target country. The problem or difficulty for SMEs in the absence of timely and up-to-date information are identified in several proposals made by ASEAN-based business councils, such as the ASEAN Business Advisory Council (ABAC), the ASEAN-EU Business council, or the Federation of Japanese Chambers of Commerce and Industry in ASEAN (FJCCIA). In this regard, the ASEAN Trade Repository (ATR) and the National Trade Repository (NTR) of each ASEAN member state, referred to as “trade facilitation platforms” in the ASEAN Strategic Action Plan for Trade in Goods, can play a key role to enable easier access to information.

Further efforts to enhance the ATR's function as an information platform as well as more user-friendly interface of each NTR should be pursued. Through the ATR and NTRs, the public can freely access tariff, regulatory, and procedural information for trade. In addition, a relatively medium-to-long-term challenge for ASEAN policymaker to focus the target sector more effectively is the engagement and collaboration with the private sector. ASEAN policymakers should collaborate with the representatives of Business Councils/business associations to promote key messages on SMEs, and conduct regular dialogues with the private sector at the regional level to collect useful input from the target sector. Each council or association should also encourage and deepen its own mechanism for identifying actual barriers for SMEs, proposing direct claims to the targeted member states, as well as securing dialogue opportunities with relevant ASEAN sectoral bodies on these matters.

Second, based on the empirical results showing that export-oriented firms are experiencing relatively shorter time in import cargo release, increasing the export ratio of ASEAN firms by sector-focused promotion schemes can be considered an efficient policy measure which contribute to trade increase as well as customs facilitation. One of those main reasons for the difference in cargo release time by export ratio is export promotion zones or facilities schemes, including Special Economic Zones, Export Processing Zone, Bonded Warehouse, Free Zone or any other zonal incentives where locating companies can be provided with one-stop service centers with customs offices facilities as well as application and issuance of licensing, permission, and administrative procedures in each zone. Generally, raw materials or parts to be used for export production can be brought into the zone free from import duty or bonded treatment with simplified and expedited customs procedures. Accordingly, efforts by member state to facilitate and expand those zonal incentives and one-stop services will undoubtedly contribute overall trade facilitation.

As to regional initiatives for export promotion or expansion, with the strategy of "Integration into the Global Economy" as the fourth pillar of the AEC Blueprint, as we saw in the introduction, ASEAN has concluded ASEAN+1 FTAs with key trading partners in the Asia Pacific region. However, there are several challenges still left for ASEAN policy makers as rules and procedures for the implementation of FTAs/EPAs are so complicated, that practical issues and problems frequently occur at business sites in virtually every member states. According to a questionnaire survey conducted by JETRO Bangkok in February 2016 in Bangkok, 48% out of 139 valid responses pointed out "Troublesome procedure for Certificate of Origin (CO) issuance" as problems/difficulties linked with the utilization of FTAs as part of the export process. This was followed by "Handling of different Rules of Origin by each FTA/EPA" (32%) and "Description Requirement on CO such as FOB price indication" (27%). To encourage exporters to utilize existing ASEAN-centralized FTAs, the harmonization of different Rules of Origin and operational certification procedures under ASEAN Trade in Goods Agreement (ATIGA) and ASEAN+1 FTAs should be a priority for policy makers.

The last empirical result is the import relations with other ASEAN member states, which contributes to the reduction of cargo release time. This also has several implications for ASEAN policymakers. Because lesser time for import cargo release in intra-ASEAN trade, as compared to extra-ASEAN trade, simply means that the AEC's trade facilitation initiatives have been making certain tangible outcomes. Those initiatives are, for instance, launch of trade information portal such as ATR/NTRs, the computerization of customs documents and procedures in each member state under ASEAN Single Window (ASW) initiatives, the implementation of the unified tariff nomenclature based on ASEAN Harmonized Tariff Nomenclature (AHTN), cooperation in customs valuation and classification among ASEAN Customs officers, etc. In view of customs facilitation, among other initiatives, the launch of the ASW is a key measure as it includes a one-stop service for every clearance and port-related

procedure and has on-line connection to every involved port, ministry and government agency, and a paperless electronic data linkage system. ASW also leads regional efforts to reduce the room for human intervention, which may cause individual officers' discretionary judgment. As a first step towards the implementation of ASW, the ten member states should commit their own customs clearance procedures to be under the e-system, together with an e-payment system for custom duties, and an e-application for a Certificate of Origin to utilize ATIGA.

The establishment of AEO programs, to which the AEC Blueprint refers as “key strategic measures” for trade facilitation, is another key measure to be pursued by each member state. It should also seeks mutual recognition among member states. For the practical implementation of the AEO programs, criteria and conditions for SMEs to apply and be approved with AEO status should be relatively flexible and relaxed, considering all the disadvantages SMEs face as discussed earlier.

5. Conclusion

This paper empirically investigated how firm characteristics are related to import cargo release time in sea and air transportations. We found that (1) larger firms in terms of the number of employees, (2) older firms in terms of years after establishment, (3) export-oriented firms in terms of share of exports in total sales, and (4) firms having import relations with other ASEAN member states experience relatively shorter time in custom clearance procedure. These results imply that ASEAN's policy implementation for customs facilitation should be more focused on supporting small and medium enterprises or newly established firms, encouraging effectual export promotion schemes, expanding intra-ASEAN trade, and their composition. Priority measures to be taken by ASEAN policymakers include improving information access by web-portal, engaging and collaborating with the private sector through dialogue, encouraging export incentives, harmonizing the different Rules of Origin of effective FTAs, computerizing customs documents and procedures towards gradual ASW formation, and ensuring mutual recognition of AEO program among member states. Those measures should be mutually developed through state-level and ASEAN-level initiatives.

References

- ADB, UNESCAP (2013). Designing and Implementing Trade Facilitation in Asia and the Pacific 2013updates https://aric.adb.org/pdf/Trade_Facilitation_Reference_Book.pdf
- ASEAN Secretariat. (2008). "ASEAN economic community blueprint". Jakarta: ASEAN Secretariat. <http://asean.org/wp-content/uploads/archive/5187-10.pdf>
- ASEAN Secretariat (2015). ASEAN Economic Community Blueprint 2025. Jakarta: ASEAN Secretariat. Retrieved from <http://astnet.asean.org/docs/AEC-Blueprint-2025-FINAL.pdf>
- ASEAN Secretariat. (2017). "ASEAN Economic Community 2025 Consolidated Strategic Action Plan". Jakarta: ASEAN Secretariat. <http://asean.org/storage/2017/02/Consolidated-Strategic-Action-Plan.pdf>
- Carballo, J., Graziano, A., Schaur, G., & Martincus, C. (2016a). The Heterogeneous Costs of Port-of-Entry Delays, Mimeograph.
- Carballo, J., Graziano, A., Schaur, G., & Martincus, C. (2016b). Endogenous Border Time: Ports, Customs, Storage?, Mimeograph.
- Djankov, S., Freund, C., & Pham, C. (2006). Trading on Time, World Bank Working Paper No. 3909.
- Djankov, S., Freund, C., & Pham, C. (2010). Trading on Time, Review of Economics and Statistics, vol. 92(1), pp. 166–173.

- Dollar, D., Hallward-Driemeier, M., & Mengistae, T. (2006). Investment Climate and International Integration, *World Development*, vol. 34(9), pp. 1498–1516.
- Economic Research Institute for ASEAN and East Asia (ERIA) (2012). "ASEAN Economic Community Blueprint Mid-term Review: Integrative report". Jakarta: ERIA.
- Sukma, R. (2014). ASEAN Beyond 2015: The imperatives for Further Institutional Changes" *ERIA Policy Brief NO.2014-05*. Jakarta: ERIA.
- Federation of Japanese Chambers of Commerce and Industry in ASEAN (FJCCIA). (2015). "Request from Japanese Business Community in ASEAN". FJCCIA.
- Fernandes, A., Hillberry, R., & Alcantara, A. (2015). Trade Effects of Customs Reform: Evidence from Albania, Policy Research Working Paper 7210, The World Bank.
- Freund, N., & Rocha, N. (2011). What Constrains Africa's Exports? *World Bank Economic Review*, vol. 26(1), pp. 361–386.
- Feenstra, R., & Ma, H. (2014). Trade facilitation and the extensive margin of exports. *Japanese Economic Review*, 65(2), 158-177.
- Hanson, G., Mataloni, R., & Slaughter, M., (2005). Vertical production networks in multinational firms. *Review of Economics and Statistics*, 87(4), 664-678.
- Hayakawa, K., Laksanapanyakul, N., & Yoshimi, T. (2016). Effect of import time on export patterns. IDE Discussion Paper. No. 566.
- Hillberry, R., & Zhang, X. (2015). Policy and Performance in Customs: Evaluating the Trade Facilitation Agreement, Policy Research Working Paper 7211, The World Bank.
- Hornok, C., & Koren, M. (2015a). Administrative barriers to trade. *Journal of International Economics*, 96, 110-122.
- Hornok, C., & Koren, M. (2015b). Per-shipment costs and the lumpiness of international trade. *Review of Economics and Statistics*, 97(2), 525-530.
- Hummels, D. L., & Schaur, G. (2013). Times as a trade barrier. *American Economic Review*, 103(7), 2935-2959.
- Intal, P. (2015). AEC Blueprint implementation Performance and Challenges: Trade Facilitation. *ERIA Discussion Paper*, 41.
- JETRO (2016). 2016 JETRO Survey on Business Conditions of Japanese Companies in Asia and Oceania, Japan External Trade Organization (JETRO)
- Kasahara, H., & Lapham, B. (2013). Productivity and the Decision to Import and Export; Theory and Evidence, *Journal of International Economics*, vol. 89(2), pp. 297–316.
- Kimura, F., & Kiyota, K. (2006). Exports, FDI, and productivity: Dynamic evidence from Japanese firms. *Review of World Economics*, 42(4), 695-719.
- Kiyota, K., Matsuura, T., Urata, S., & Wei, Y. (2008). Reconsidering the Backward Vertical Linkages of Foreign Affiliates: Evidence from Japanese Multinationals, *World Development*, vol. 36(8), pp. 1398-1414
- Kropf, A., & Sauré, P. (2014). Fixed costs per shipment. *Journal of International Economics*, 92(1), 166-184.
- Li, Y., & Wilson, J. (2009). Trade Facilitation and Expanding the Benefits of Trade: Evidence from Firm Level Data, Asia-Pacific Research and Training Network on Trade, Working Paper Series, No. 71.
- Martincus, C., Carballo, J., & Graziano, A. (2015). Customs. *Journal of International Economics*, 96, 119-137.
- Muuls, M., & Pisu, M. (2009). Imports and Exports at the Level of the Firm: Evidence from Belgium, *The World Economy*, vol. 32(5), pp. 692–734.
- Nguyen, A. T., Nguyen, T. T., & Hoang, G. T. (2016). Trade facilitation in ASEAN countries: Harmonisation of logistics policies. *Asian Pacific Economic Literature*, 30(1), 120-134.
- Otsuki, T. (2011). Quantifying the Benefits of Trade Facilitation in ASEAN. *Toward a Competitive ASEAN Single Market: Sectoral Analysis*, 2010-03.

- Persson, M. (2013). Trade facilitation and the extensive margin. *Journal of International Trade & Economic Development*, 22(5), 658-693.
- Portugal-Perez, A., & Wilson, J. (2012). Export Performance and Trade Facilitation Reform: Hard and Soft Infrastructure, *World Development*, vol. 40(7), pp. 1295–1307.
- Rauch, J. E. (1999). Networks versus markets in international trade. *Journal of International Economics*, 48(1), 7-35.
- Shepherd, B., & Wilson, J. S. (2009). Trade facilitation in ASEAN member countries: Measuring progress and assessing priorities. *Journal of Asian Economics*, 20(4), 367-383.
- Shepherd, B. (2013). Trade Times, Importing, and Exporting: Firm-level Evidence, *Applied Economics Letters*, vol. 20 (9), pp. 879–883.
- World Trade Organization (2015). *World Trade Report 2015*, World Trade Organization.
- World Trade Organization (2016). *World Trade Report 2016, Levelling the trading field for SME*, World Trade Organization
- Yan, L., & Cadot, O. (2016). *Facilitating ASEAN Trade in Goods* (No. DP-2016-20). Economic Research Institute for ASEAN and East Asia (ERIA).