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FTA Utilization in the Philippines: Trends and Determinants

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Abstract

The Philippines has adopted free trade agreements (FTAs) as a major component of its trade policy in the last two decades. As it continues to pursue trade liberalization through joining these agreements, taking a closer look to the extent of FTA utilization in the country is important. This study attempted to reveal stylized facts on the trends of Philippine FTA utilization. Using the universe of trade transactions data, FTA utilization trends were observed both from the export and import perspectives. Throughout the 2010s, FTA utilization among exporters has been low; in contrast, utilization in imports has been expanding. The calculated utilization rates also revealed that Philippine imports have considerably utilized FTAs, with the exception of imports from Japan, South Korea, and Singapore. The study also identified key determinants of FTA use among Philippine manufacturing firms, using a micro data set that merged the trade transactions data with the firm survey/census data. Results of the regression analysis suggest the significance of acquiring sufficient productivity levels, as well as knowledge and experience on international trade activities, in firm FTA use. It was also notable that foreign ownership was a positive determinant of FTA use in exports, while exhibiting negative estimates on FTA import use. The state of competition at the industry level could negatively affect a firm's decision to use FTAs, while larger preferential tariff margins could persuade firms to trade under FTA schemes. With regard to the Philippine FTA policy, the findings of this study highlight the need to focus on stimulating FTA use among Philippine firms.

Keywords: FTA utilization, self-selection, matched data, firm knowledge

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List of Acronyms

AANZFTA – ASEAN-Australia-New Zealand FTA

ACFTA – ASEAN-China FTA

AEC – ASEAN Economic Community

AHKFTA – ASEAN-Hong Kong, China FTA

AHTN – ASEAN Harmonized Tariff Nomenclature

AIFTA – ASEAN-India FTA

AJCEP – ASEAN-Japan Comprehensive Partnership

AKFTA – ASEAN-Korea FTA

ASEAN – Association of Southeast Asian Nations

ATIGA – ASEAN Trade in Goods Agreement

AWSC – ASEAN-Wide Self Certification Scheme

BOC – Bureau of Customs

CO – certificate of origin

CPTPP – Comprehensive and Progressive Agreement for Trans-Pacific Partnership

CR4 – Four-firm Concentration Ratio

DBFTA – Doing Business in Free Trade Areas

DTI – Department of Trade and Industry

ECN – establishment control number

EFTA – European Free Trade Association

EPZ – export processing zone

EU – European Union

FDI – foreign direct investment

FOB – free on board

FTA – free trade agreement

HHI – Herfindahl-Hirschman Index

IPEF – Indo-Pacific Economic Framework

JPEPA – Japan-Philippines Economic Partnership Agreement

MFN – most favored nation

MNC – multinational company

MSMEs – micro-, small, and medium enterprises

NTM – non-tariff measure

OLS – ordinary least squares

PH-EFTA FTA – Philippines-EFTA FTA

PSA – Philippine Statistics Authority

PSCC – Philippine Standard Commodity Classification

PSIC – Philippine Standard Industrial Classification

R&D – research and development

RCEP – Regional Comprehensive Economic Partnership

RE – random effects

ROO – rule of origin

TRAINS – Trade Analysis Information System

WTO – World Trade Organization

FTA Utilization in the Philippines: Trends and Determinants

Francis Mark A. Quimba[1], Neil Irwin S. Moreno[2], and Abigail E. Andrada[3]

1. Introduction

International trade and production have become increasingly complex during the last few decades, compelling countries to pursue multilateral trade liberalization. However, the failure of the Doha Development Round resulted in members of the World Trade Organization (WTO) shifting to lowering trade barriers at the bilateral and regional levels. This resulted in the emergence of free trade agreements (FTAs), becoming an important policy tool in facilitating trade and providing access to foreign markets. Many FTAs have also covered various policy areas, such as labor standards, environment, and movement of capital and persons, in order to address behind-the border trade barriers.

Considered as a late participant in FTAs, the Philippines initially engaged in negotiations as a member of the Association of Southeast Asian Nations (ASEAN). However, significant developments have occurred in the country's FTA policy during the previous decade. Following its bilateral FTA with Japan, the Philippines was able to show its capacity to advance its interest as an individual party, through the establishment of an FTA with the European Free Trade Association (EFTA) and the impending formation of a bilateral FTA with South Korea, which is expected to be signed this year (Ochave 2022). The Philippines has even engaged in negotiations on bigger regional and multilateral agreements. The Regional Comprehensive Economic Partnership (RCEP)—the megaregional agreement of ASEAN with Australia, China, Japan, New Zealand, and South Korea—came into force on January 1, 2022. It has also expressed its interest in joining the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the Indo-Pacific Economic Framework (IPEF). However, the country's accession to these mega trade deals has been a matter of debate among policymakers and sectoral groups (Talosig-Bartolome 2022).

In light of these developments, conducting an intensive assessment of FTA utilization in the country would be important in guiding the country's next steps in its FTA policy. While research on FTAs have mostly assessed its significance at the macroeconomic level, there has been an increased attention in analyzing FTA utilization among firms. Firm-level studies revealed that not all firms necessarily utilize FTAs, even when trading with FTA partner countries (Hayakawa et al. 2016). This warrants a deeper analysis on whether these FTA have been substantially utilized in the country. While some studies have utilized surveys to establish a profile of FTA users and determinants of use among Philippine firms, this paper aims to provide a more comprehensive assessment based on actual trade transactions of Philippine firms. Using data containing the universe of export/import transactions, this study analyzed trends and presents stylized facts on the state of FTA utilization in the country. It also attempted to determine firm characteristics that influence firm FTA use in the country, by exploiting a rich micro data set that merges the Philippines' annual establishment survey/census data with the universe of export/import transactions.

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The rest of the paper is organized as follows: Section 2 provides a literature review on the emergence of FTAs and determinants of firm utilization, as well as a background on the Philippine FTA policy; Section 3 presents the data sources and the methodology in calculating FTA utilization rates and identifying the determinants of FTA use among Philippine traders; Section 4 reports the trends in FTA utilization in the Philippines; Section 5 compares FTA users and non-users in term of selected firm characteristics; Section 6 discusses the estimation results on the determinants of firm FTA use; Section 7 presents the conclusion and recommendations.

2. Literature Review

2.1 The Emergence of FTAs and Firm Utilization

The proliferation of free trade agreements (FTAs) has been an integral facet of international trade in recent decades. Multilateral trade liberalization through the World Trade Organization (WTO) decelerated, and several countries shifted to bilateral and regional trade FTAs to gain preferential access to foreign markets. This resulted in the exponential growth in the number of FTAs since the 1990s—the number of FTAs in force increased from 22 in 1990 to 354 in 2021. Much of this rise in FTAs occurred in the Asian continent. Baldwin and Kawai (2013) observed that since 2000, Asian countries were able to establish around 190 FTAs, both with their regional neighbors and countries in other regions and continents.

Much of the rise of FTAs in recent decades can be attributed to the increasing complexity of trade in the 21st century. While the multilateral trade liberalization under the WTO framework covered various areas other than tariff reduction (e.g., trade in services, investment promotion), important behind-the-border barriers are still not accounted for by the WTO (e.g., environment, e-commerce) (Urata 2005). This limitation compelled countries to pursue trade liberalization through establishing bilateral/regional FTAs. Baldwin (2011) noted that FTAs established since the 2000s are more complex and tend to contain provisions on emerging issues, such as competition policy, intellectual property rights, movement of persons and capital, and mutual recognition of professional qualifications and product standards (WTO, 2011).

For many countries, FTAs have been one of the most important policy tools for trade liberalization. The reduction and elimination of tariffs, as well as the extra-tariff provisions, are noted to stimulate trade creation in goods and services, as well as promote investments, by establishing an improved environment for businesses between trading partners (Kawai and Wignaraja 2008). However, trade creation effects could be offset by trade diversion, which indicates that FTA members could decrease their trade activities with highly efficient but non-member countries, in favor of fellow FTA members that are potentially less efficient (Urata and Okabe 2007).

Firms mainly benefit from the greater market access provided by FTAs, as it enables economies of scale (due to lower unit costs) and participation in global value chains (GVCs). Hayakawa (2015) posited that the tariff reduction would decrease the market price of the exporters' products in the importing FTA members. This would increase the demand and, subsequently, the export quantities of their products. Moreover, the increase in exports would result in additional employment due to the expanded production. Aside from the effects on market access and trade flows, these agreements could also facilitate technology transfer, mainly

through trade in high-technology goods and services, as well as investment flows and spillovers in value chains (Keller 2004, Kreinin and Plummer 2012, Maskus 2016).

In order to understand the dynamics of FTA use among firms, it is important to acknowledge the presence of self-selection in international trade. This concept points to the notion that more productive firms have a higher tendency to participate in trade activities. This is due to additional costs from entering foreign markets, such as transport costs and marketing expenses, which only firms with sufficiently high levels of profit could afford (Clerides et al. 1998, Bernard and Jensen 1999, Melitz 2003). With using FTAs, traders are also faced with additional fixed costs associated with acquiring knowledge on FTA use. The tedious and complex processes in using FTAs also result in administrative and compliance costs (e.g., non-tariff measures [NTMs] and rules of origin [ROOs]) (Aldaba et al. 2015, Wignaraja et al. 2011). For instance, Hayakawa et al. (2009) noted that securing certifications of origin (COs) requires exporters to prepare the documents required by the investigating authorities. In East Asia, these procedures usually result in additional fixed costs, discouraging less productive firms from using an FTA scheme. Demidova and Krishna (2008) theoretically demonstrated the presence of self-selection in FTA use and showed that less productive firms only use general tariff rates since they are not capable to cover the aforementioned fixed costs.

2.2 Background of Philippine FTAs

Compared to its neighbors in the ASEAN and East Asian regions, the Philippines has been perceived to be a late participant in trade liberalization. Medalla and Mantaring (2009) noted that, despite its gradual trade liberalization since the 1980s, the country initially had reservations on FTA engagement. Its first FTA engagements in the 1990s and 2000s were mainly through its ASEAN membership, which enabled the country to forge agreements with China, Japan, South Korea, Australia, New Zealand, and India (Aldaba et al. 2015). The country's first bilateral FTA, the Japan-Philippines Economic Partnership Agreement (JPEPA), remains to be one of the most important Philippine FTAs, as its various extra-tariff provisions make it a prime example of a deep FTA (Medalla and Ledda 2013). The JPEPA notably contains provisions on smooth trans-border flow of people, as well as capital and information in various areas, such as investment, competition, government procurement, trade facilitation, cooperation in science and technology, human resource development, small and medium enterprises (MSMEs), and environment (Yap et al. 2006, as cited in Medalla and Ledda 2013).

On a positive note, the Philippines has recently started to take a more active stance in FTA engagement. As part of ASEAN, the country was able to establish an FTA with Hong Kong in 2019, and propose agreements with Canada, the European Union (EU), the Eurasian Economic Union, and Pakistan. More importantly, the Philippines' engagement outside its ASEAN membership has been gaining momentum, as it was able to forge an FTA with the European Free Trade Association (EFTA), which became effective in June 2018. Separate negotiations have also been initiated with the EU and South Korea. Table 1 shows the dates of signing and effectivity of each Philippine FTA.

Table 1. FTAs of the Philippines

FTA	Date of Signing	Date of Effectivity	Date of Full Implementation
ASEAN Free Trade Area (AFTA)/ASEAN Trade in Goods Agreement (ATIGA)	January 1992 (AFTA) February 2009 (ATIGA)	January 1993 (AFTA) May 2010 (ATIGA)	2010
ASEAN-China FTA (ACFTA)	November 2004 (Goods) January 2007 (Services)	January 2005 (Goods) July 2007 (Services)	2018
Japan-Philippines Economic Partnership Agreement (JPEPA)	September 2006	December 2008	2018
ASEAN-Japan Economic Partnership Agreement (AJCEP)	March 2008	December 2008	2018
ASEAN-Australia-New Zealand FTA (AANZFTA)	February 2009	January 2010	2020
ASEAN-India FTA (AIFTA)	August 2009 (Goods) November 2015 (Services)	November 2015 (Goods) July 2015 (Services)	2022
ASEAN-Korea, Republic of FTA (AKFTA)	August 2006 (Goods) November 2008 (Services)	October 2010	2016
Philippines-European Free Trade Association FTA (PH-EFTA FTA)	April 2016	June 2018	2027
ASEAN-Hong Kong, China FTA (AHKFTA)	November 2017	June 2019	2032

Source: World Trade Organization Regional Trade Agreements (WTO RTA) Database; Department of Trade and Industry, Philippines; ASEAN; Tariff Commission

The country's first FTAs have already exhibited substantial tariff reduction since their respective entries into force. By the 2010s, the bulk of tariff lines were already eligible for preferential rates. With the exception of AIFTA, all FTAs have reduced the tariff rates of at least 95% of their respective tariff lines. Minor changes could only be observed in terms of changes in the percentage of eligible products, since they were either fully implemented or nearly approaching full implementation (ATIGA, for instance, was already fully implemented in 2010).

Table 2. Eligible Tariff Lines (% of Total Tariff Lines, by FTA)

	ATIGA	AKFTA	AJCEP	AIFTA	JPEPA	ACFTA	AANZFTA
2012	99.74	96.27	97.57	85.74	95.94	96.53	99.00
2013	99.74	96.27	97.57	85.74	95.94	96.53	99.00
2014	99.74	96.27	97.57	85.74	97.46	96.53	99.00
2015	99.74	96.27	97.57	85.74	97.46	99.60	99.00
2016	99.74	97.74	97.57	85.74	97.46	99.60	99.00
2017	99.74	97.74	97.57	85.74	97.46	99.60	99.00
2018	99.74	97.74	97.57	85.74	97.46	99.60	99.00
2019	99.74	97.74	97.57	85.74	97.46	99.60	99.00
2020	99.74	97.74	97.57	85.74	97.46	99.60	99.00

Source: Authors' calculations based on the tariff schedules provided by the Philippine Tariff Commission.

Table 3 shows the percentage shares of product lines with zero tariffs. The percentages of zero tariff lines in ATIGA and AKFTA were fixed throughout the 2010s (as previously mentioned, ATIGA was already fully implemented in 2010). Meanwhile, AJCEP, JPEPA, and AANZFTA substantially eliminated tariffs during the decade, as they showed the most frequent increases in their respective percentages. By the end of the decade, ATIGA and JPEPA registered the highest percentages of zero tariff lines, at 98.6% and 97.5%, respectively. It is also important to note that, by 2018, the percentage shares of eligible products and zero tariff lines in JPEPA were already the same; this signifies that all eligible products under JPEPA already had their respective tariffs eliminated. While still having the lowest rate of tariff elimination, AIFTA had significant tariff elimination during the last two years of the decade. From only 3.5% in 2018, the percentage of zero tariff lines considerably increased to 55.8% in 2019, and 73.7% in 2020.

Table 3. Zero Tariff Lines (% of Total Tariff Lines, by FTA)

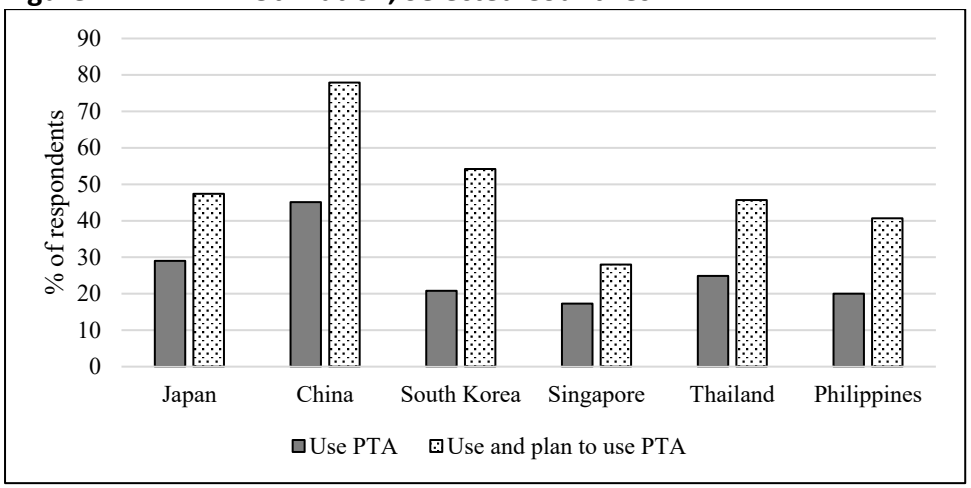
	ATIGA	AKFTA	AJCEP	AIFTA	JPEPA	ACFTA	AANZFTA
2012	98.63	88.10	58.89	3.47	62.02	86.84	78.05
2013	98.63	88.10	66.92	3.47	70.28	86.84	88.72
2014	98.63	88.10	67.13	3.47	71.82	86.84	88.72
2015	98.63	88.10	67.14	3.47	71.83	86.85	92.90
2016	98.63	88.10	67.14	3.47	71.83	86.85	92.90
2017	98.63	88.10	68.86	3.47	73.53	86.85	92.93
2018	98.63	88.10	92.88	3.47	97.46	86.85	93.22
2019	98.63	88.10	92.88	55.79	97.46	86.85	93.35
2020	98.63	88.10	92.88	73.74	97.46	86.85	94.43

Source: Authors' calculations based on the tariff schedules provided by the Philippine Tariff Commission.

Various studies have examined the FTA utilization in the country, utilizing different firm-level datasets. Kawai and Wignaraja (2011) assessed the utilization in six East Asian countries, including the Philippines. Out of the 841 East Asian firms surveyed, 28.2% utilize FTA preferences. Only 20% of the Philippine firms were FTA users—the second lowest among the surveyed countries. While more firms in the survey plan to use FTAs in the future, the respondents noted a number of impediments that need to be addressed. For Philippine firms, lack of information was the most common issue. Delays and administrative costs, as well as the availability of other schemes, such as those in export processing zones (EPZs), have disincentivized Philippine firms from utilizing FTAs. Other issues raised were rent-seeking behavior due to the inconsistent classification of product origin, product exclusions, confidentiality of information required in origin applications, small margins of preference, and non-tariff barriers imposed by FTA partners (Wignaraja et al., 2011).

Wignaraja (2014) utilized the Philippine firm-level data, together with new datasets for Indonesia and Malaysia, to investigate the determinants of FTA use in Southeast Asia. Results based on the Philippine data suggest that firms in the automotive sector, and those located in major industrial centers, are more likely to use FTAs. Firm knowledge in FTAs, as well as support from public/private sector organizations, are also significant determinants of FTA use. Meanwhile, firm size yielded non-significant estimates.

Figure 1. FTA Firm Utilization, Selected Countries



Note. Figure adapted from Kawai and Wignaraja (2011).

Aldaba (2016) utilized a single-year survey, consisting of 939 manufacturing firms, to assess the characteristics of FTA users (vis-à-vis non-users) and firm awareness on FTAs and the ASEAN Economic Community (AEC). The utilization rate was similar to that in Kawai and Wignaraja (2011), as 22% of the respondents were users, with large firms exhibiting a higher rate (39%) than MSMEs (16%). Among the Philippine FTAs, ATIGA was the most frequently used, followed by ACFTA and AJCEP. The findings also suggest that, compared to non-users, FTA users seem to have greater capabilities. In particular, FTA users are generally older and had higher sales and employment, as well as higher shares of large and foreign-owned firms, non-family businesses, members of industry associations. FTA users are also more exposed to production networks, as they are more oriented toward exports and sourcing of foreign inputs, and possess higher awareness of AEC and greater business relations with ASEAN firms. Furthermore, FTA users are more innovative, as they had higher research and development (R&D) expenditures, investments in machinery, and share of firms that conduct product and process innovation. The regression results of the study exhibited interesting findings on the determinants of FTA use among Philippine firms. Firm size, age, foreign ownership, exporter status, innovation, membership in industry associations, and AEC awareness were found to significantly and positively affect the probability of FTA use. However, the findings do not establish the presence of self-selection among Philippine firms, as labor productivity yielded non-significant estimates.

While these studies have provided valuable insights on FTA use at the firm level, they were not able to take into account actual FTA activities among the surveyed firms. Moreover, the FTA use indicators were not clear if the usage was in exports or imports. Thus, it could be important to establish stylized facts based on actual export and import figures to enhance one's understanding of FTA utilization in the country. This study aims to have a deeper assessment of the trends in FTA utilization and determinants of utilization among Philippine firms. It takes advantage of rich Philippine micro dataset to come up with firm-level panel data sets that would allow for the evaluation of FTA use, both from the export and import perspectives.

3. Data and Methodology

3.1 Data Sources

This study first analyzed the overall trade patterns and trends in firm FTA utilization, using the universe of export and import transactions of all Philippine firms. The analysis was limited to the years 2011-2020, since most of the Philippine FTAs were already in effect during this time period. Each trade transaction provides information on the firm trader (IMP) code, the 10-digit Philippine Standard Commodity Classification (PSCC) code, the country of destination/origin, the free on board (FOB) value in US$, and insurance and freight costs. More importantly, the trade transactions include information on the specific tariff scheme used, which allows for intensive evaluation of FTA use among Philippine firms.

Table 4 shows basic statistics of the trade data. The FOB values match the export and import statistics published by the PSA (see, for example, PSA 2021); this shows the reliability of the trade transactions data. Throughout the 2010s, the country was a net importer, as shown by the larger FOB value in imports, as compared to exports. Import activities also consist of a larger number of transactions, participating firms, and product lines. Meanwhile, diversification in terms of partner countries has been greater in exports, as the country exports to more destinations, although the number of import sources has steadily grown during the decade.

Table 4. Basic Description of the Trade Transactions Data, 2011-2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Transactions										
Export	135,648	103,521	90,425	78,178	79,247	103,641	121,084	92,358	75,745	62,503
Import	477,460	398,604	402,850	446,297	663,697	732,332	977,007	912,278	742,586	662,595
Number of firms										
Export	10,126	9,216	8,350	9,660	8,610	9,281	9,150	8,578	8,758	6,389
Import	19,070	20,874	20,787	19,396	19,910	18,731	14,905	15,980	16,689	16,047
FOB value (million $)										
Export	48,305	52,100	56,698	62,102	58,827	57,406	68,713	69,307	70,927	65,215
Import	60,496	62,129	62,411	65,398	71,067	84,108	96,093	112,841	111,593	89,812
Products										
Export	3,896	4,755	5,354	4,988	5,040	5,380	5,936	5,928	5,281	4,880
Import	9,359	9,882	9,805	9,857	10,595	10,078	10,512	10,723	9,953	9,545
Countries										
Export	217	216	219	222	216	221	222	218	226	217
Import	174	173	185	188	209	212	199	199	195	206

Source: Authors' calculations based on the trade transactions data of the PSA.

In order to assess the characteristics of FTA users (vis-à-vis non-users) and the determinants of firm FTA use, this study utilized a rich panel data set that combines survey/census data with the trade transactions data. This linked data set was originally a joint initiative of the Philippine Statistics Authority (PSA) and a consortium between the University of the Philippines and Erasmus University Rotterdam in 2013. The project resulted in the matching of the universe of trade transactions from 1991-2012 with the Annual Surveys/Censuses of Philippine Business and Industry from 1996-2012 (Balaoing-Pelkmans 2017). This micro dataset has been used to establish new stylized facts on firm-level trade, as well as assess the relationship between trade

activities and other firm characteristics (e.g., employment) among Philippine firms (see, for example, Balaoing-Pelkmans 2017, Mendoza 2020). Building on this significant development, the authors conducted the matching of survey/census and trade datasets for the years 2012-2018.[4] The PSA provided the concordance table for matching the establishment control number (ECN) and IMP codes. The table consists of more than 11,448 manufacturing firms.[5] Thus, analysis of firm characteristics was limited to the manufacturing sector.

While it was a key development in evaluating trade activities of Philippine firms, the matched data set possesses key issues that needed to be addressed, which influenced the coverage period of the analysis. As survey/census questions have changed over time, it was difficult to integrate many survey/census indicators across the years. This was crucial for computing various indicators, such as value added. Another important concern were the changes in industry and product classifications used. For instance, the PSCC 2004 was used in the trade data from 2007-2016; this was changed to PSCC 2015 in the 2017 data. With regard to the industry codes, the Philippine Standard Industrial Classification (PSIC) 1994 was the basis for classifying firms from 1996-2009; by 2010, the industry classification was changed to PSIC 2009.

Table 5. Distribution of Firms by Manufacturing Sector, 2012-2018

2-digit PSIC Code	Description	ASPBI/CPBI	Matched with Exports	Matched with Imports
C10	Food Products	22.6	11.6	12.0
C11	Beverages	2.4	0.7	0.6
C12	Tobacco Products	0.3	0.5	0.4
C13	Textiles	3.6	3.1	3.7
C14	Wearing Apparel	6.5	8.4	6.2
C15	Leather and Related Products	2.3	1.7	1.6
C16	Wood and Wood Products	3.3	3.0	2.0
C17	Paper and Paper Products	3.0	2.4	3.9
C18	Printing and Reproduction of Recorded Media	3.2	0.8	1.5
C19	Coke and Refine Petroleum Products	0.3	0.2	0.3
C20	Chemicals and Chemical Products	5.6	4.1	6.4
C21	Pharmaceutical Products	1.1	1.1	1.5
C22	Rubber and Plastic Products	6.6	8.8	9.9
C23	Other Non-metallic Mineral Products	4.2	3.0	3.4
C24	Basic Metals	3.6	4.3	5.0
C25	Fabricated Metal Products	6.9	6.3	7.8
C26	Computer, Electronic and Optical Products	4.8	14.3	11.1
C27	Electrical Equipment	3.0	5.1	4.8
C28	Machinery and Equipment nec	3.3	3.8	3.7
C29	Motor Vehicles, Trailers and Semi-trailers	2.3	4.9	4.2
C30	Other Transport Equipment	1.3	1.6	1.5
C31	Furniture	3.4	3.9	3.2
C32	Other Manufacturing	4.1	5.8	4.4
C33	Repair and Installation of Machinery and Equipment	2.4	0.6	0.8
	Total	**41,892**	**6,661**	**8,997**

Source: Authors' calculations based on the ASPBI/CPBI and the trade transactions data.

[4] The PSA did not conduct the ASPBI in 2011, while firm-level data for 2019 and 2020 were not yet available when this study was conducted.
[5] The number of ECN-IMP pairs is not final, as the PSA has not yet finished the matching during the conduct of this study. This resulted in the exclusion of some trading firms from the microdata.

The matching of the trade transactions data with the survey/census data resulted in the exclusion of many observations. For the 2012-2018 period, the survey/census data consist of 41,892 observations. Matching with the exports data retained only 15.9% of the total number of observations. On the other hand, the percentage of retained observations was higher on the import side (21.5%). A comparison of the sectoral distribution of firms between the original survey/census data and the matched data shows that the most notable changes in the distribution occurred in the food manufacturing and electronics sectors. Looking at Table 5, food products accounted for 22.6% of the total number of observations. After matching with exports and imports data, the percentage of observations under the food manufactures decreased to 11.6% and 12.0%, respectively. Meanwhile, the percentage share of the electronics sector increased after the matching, from 4.8% to 14.3% (exports) and 11.1% (imports).

3.2 Calculation of FTA Import Utilization

The trade transactions data are valuable for determining the actual utilization rates of each FTA. Thus, the study aims to take advantage of these data sets and calculate the utilization rates for each FTA and country-partner. The utilization rates were computed using the following formula:

$$FTAutil_{fg,t} = \frac{FTAfob_{fg,t}}{FTAeligfob_{fg,t}} \quad (1)$$

where $FTAutil_{fg,t}$ is the FTA utilization rate for country-partner *f* and FTA scheme *g* in year *t*; $FTAfob_{fg,t}$ is the total imports from partner *f* under FTA scheme *g* in year *t*; and $FTAeligfob_{fg,t}$ is the total imports from partner *f* that are eligible (but not necessarily transacted) under FTA scheme *g* in year *t*.

The authors used the respective tariff schedules of the FTAs to determine the eligible products for each year. Due to time constraints, the authors were not able to gain access on the tariff schedules of FTA partners; thus, only the FTA utilization rates on imports could be calculated. The tariff schedules were provided by the Philippine Tariff Commission[6]; however, the schedules are reported using the ASEAN Harmonized Tariff Nomenclature (AHTN) 2012 (which is in line with the PSCC 2015). Since the PSCC 2015 was only used in reporting trade activities for the years 2017-2020, the authors were only able to calculate the utilization rates for these years.

The tariff lines are reported using the 8-digit AHTN 2012 codes. It should be noted, however, that not all tariff lines correspond to a single 8-digit code. For instance, 0301.99.40A (breeding carp) and 0301.99.40B (other freshwater fish, nes) are considered as different tariff lines. In a number of cases, 8-digit codes are not entirely eligible for some FTAs, as some tariff lines under these codes are non-eligible. With the trade transactions data only providing the 8-digit code of the imported product, it was not possible to verify the eligibility of transactions under those codes. Thus, the authors decided to assume that, if at least one tariff line is eligible, the entire 8-digit code is eligible. Products under chapter 98 (commodities and transactions not classified elsewhere) were not included in the tariff schedules. Since it was not possible to verify their eligibility, the import transactions of these products were excluded from the calculation. While they might possess issues in terms of accuracy, the results could still give an idea on the current landscape of FTA utilization in the country.

[6] The tariff schedule for EFTA was not yet available. Thus, it was excluded from the calculation of FTA utilization.

3.3 Empirical Specification: Determinants of FTA Use

In evaluating the determinants of firm FTA utilization, this study conducted panel logit regressions, using the micro dataset. Separate regressions were performed for FTA export and import utilization, in order to assess the similarities and differences in the determinants of firm FTA use between exports and imports. The outcome variable—FTA user status—was proxied by a binary variable, which takes a value of 1 if the firm has at least one transaction conducted under an FTA scheme (i.e. total value greater than US$0).

$$FTAuseX(M)_{isj,t} = \begin{cases} 1 \; if \; FTAfobX(M)_{isj,t} > 0 \\ 0 \; if \; FTAfobX(M)_{isj,t} = 0 \end{cases} \quad (2)$$

The study then utilized the matched panel data sets to conduct random-effects (RE) logit regressions. The RE model is generally expressed as:

$$\log\left(\frac{p}{1-p}\right) = \beta_0 + \boldsymbol{X}_{isj,t} + \boldsymbol{X}_{s_3,t} + \mu_s, + \delta_j + \varphi_t \quad (3)$$

where p is the probability of firm i in 2-digit PSIC industry s and region j to use FTA at time t. The probability is conditional on various firm- and industry-level characteristics, as well as industry, region, and time fixed effects. The firm-level variables attempt to capture fundamental characteristics, such as age and firm size, as well as firm productivity. They also include innovation-related indicators and proxies for knowledge on trade activities. Meanwhile, the industry-level variables mainly capture the state of competition in the industry. These include the Herfindahl-Hirschman Index (HHI) and Four-firm Concentration Ratio (CR4). It should be noted however, that these indicators are in the 3-digit PSIC level. The authors deemed that the 2-digit level might be too aggregated to detect signs of market power, while the 4-digit level might be too specific and overstate shares of market power.

A detailed explanation of the variables is shown in Table 6. Labor productivity, foreign ownership, R&D employment and expenditure, e-commerce sales, number of trade partners, and firm age are expected to be positive determinants of firm FTA use. As noted in Section 2, the self-selection hypothesis could be applicable in firm-level FTA use—more productive firms tend to use FTAs, as they are more capable of covering the additional costs associated with FTAs. A firm's type of ownership—whether it is a local firm or a firm with foreign direct investment (FDI)[7]—could also influence its trade activities and, subsequently, decision to use FTAs. Foreign linkages, especially with multinational companies (MNCs), are crucial in foreign market entry, as they provide channels of productivity spillovers and knowledge transfers that stimulate firm learning (Fujita 2012). These benefits enhance the capacity of FDI firms to use FTAs.

R&D employment and expenditures, and e-commerce sales could indicate a firm's involvement in innovation activities and building of technological capabilities. Acquiring new technical competencies require substantial investments in applying new information and adopting advanced technologies (Wignaraja 2014). These would subsequently enhance a firm's operation efficiency and level of productivity. The number of trade partners served as a proxy for firm knowledge and experience in international trade—firms that engage with multiple countries are more likely to be accustomed with various trade regulations, including FTA

[7] The classification of FDI firms was based on the definition of the Organisation for Economic Co-operation and Development (OECD) (i.e., at least 10% foreign ownership).

preferences (Wignaraja 2014). It could also indicate a firm's productivity level. A number of studies have observed that more productive firms have been more capable of trading with a larger number of countries, since some of the additional fixed costs could recur for each foreign market (Wagner 2012).

Firm age is another potential determinant of FTA use. Among traders, older firms are considered to be more experienced and have undergone accumulated substantial knowledge and capabilities to participate in foreign markets. Thus, they are expected to be more familiar with FTAs, and better equipped to utilize them. However, the model also incorporates a squared term, as the impact of age on firms could be non-linear (see, for example, Loderer and Waelchli 2010).

Table 6. Variable Operationalization

Variable	Definition
$FTAuseX(M)_{isj,t}$	FTA use dummy—1 if firm *i* exported (imported) under an FTA scheme in year *t*; 0 otherwise
$ln(Labprod_{isj,t})$	natural logarithm of labor productivity (value added divided by total number of employees) in year *t*
$Age_{isj,t}$	age of firm *i* year *t* (number of years)
$Age^2_{isj,t}$	square of age
$MSME_{isj,t}$	MSME status dummy—1 if firm *i* has less than 200 employees in year *t*; 0 otherwise
$FDI_{isj,t}$	FDI status dummy—1 if firm *i* has at least 10% foreign ownership; 0 otherwise
$Researchexppct_{isj,t}$	Research and development (R&D) expenditures of firm *i* in year *t* (percentage of total expenditures)
$Researchemppct_{isj,t}$	R&D personnel of firm *i* in year *t* (percentage of total employment)
$Ecommercepct_{isj,t}$	e-commerce sales of firm *i* in year *t* (percentage of total income)
$HHIpsic3_{s3,t}$	Herfindahl-Hirschman Index (HHI) of industry *s* in year *t* (3-digit PSIC level)
$CR4psic3_{s3,t}$	Four-firm Concentration Ratio (CR4) of of industry *s* in year *t* (3-digit PSIC level)
$Numpartners_{isj,t}$	number of export (import) partners of firm *i* in year *t*

Other independent variables, particularly the MSME status and the HHI and CR4 indicators, are perceived to generate negative estimates. Firm size (typically represented by the number of employees) has been a common indicator of firm capabilities.[8] Specifically, micro, small, and medium enterprises (MSMEs) have been perceived to possess lesser capabilities than large firms, making them vulnerable to various constraints, such as lack of access to finance and modern technology (Aldaba 2014). Consequently, these constraints could affect a trader's capability and decision to utilize FTAs. On the other hand, HHI and CR4 denote the degree of market concentration. If market power is mostly concentrated among a small number of firms, it is possible that the rest of the industry players are having difficulties competing with these top firms. As such, they could be deprived of opportunities to thrive in the market and build their respective capabilities.

In order to make clear inferences from the results, the estimates of the panel logit regressions were used to calculate the marginal effects of the regressors on FTA user status. Marginal

[8] This study used the firm size classification of the PSA. The following are the corresponding number of employees for each firm size category: micro – 1-9 employees, small – 10-99 employees, medium – 100-199 employees, large – at least 200 employees.

effects signify the change in the probability of a firm using FTA when a certain explanatory variable changes (other regressors held constant). The results of the marginal effects analysis were then reported in Section 6.

4. FTA Utilization in the Philippines: Stylized Facts

4.1 FTA Utilization in Philippine Exports

Overall export activities of the Philippines did not exhibit substantial growth during the 2010s. Although the total export value increased in some parts of the decade, the trend was not evident. Export activities in terms of transactions also had a decreasing trend during the decade; except for 2015-2017, total export transactions decreased throughout the decade. Meanwhile, the number of exporters stagnated throughout the period, and noticeably decreased in 2020 (potentially due to the COVID-19 pandemic limiting firm operations).

Actual export transactions reveal the low utilization of FTAs among exporters. While exports under FTA schemes accounted for around 4-5% of total exports during the early part of the 2010s, its share nosedived to 0.6% in 2017, before rebounding to 3.4% in 2020. A similar trend has been observed in the number of FTA export transactions, as well as the number of exporters that have used FTAs. While 14.3% of exporters used FTAs in 2011, the share of FTA users gradually decreased, down to 3% in 2017. This subsequently recovered to 8.6% in 2020.

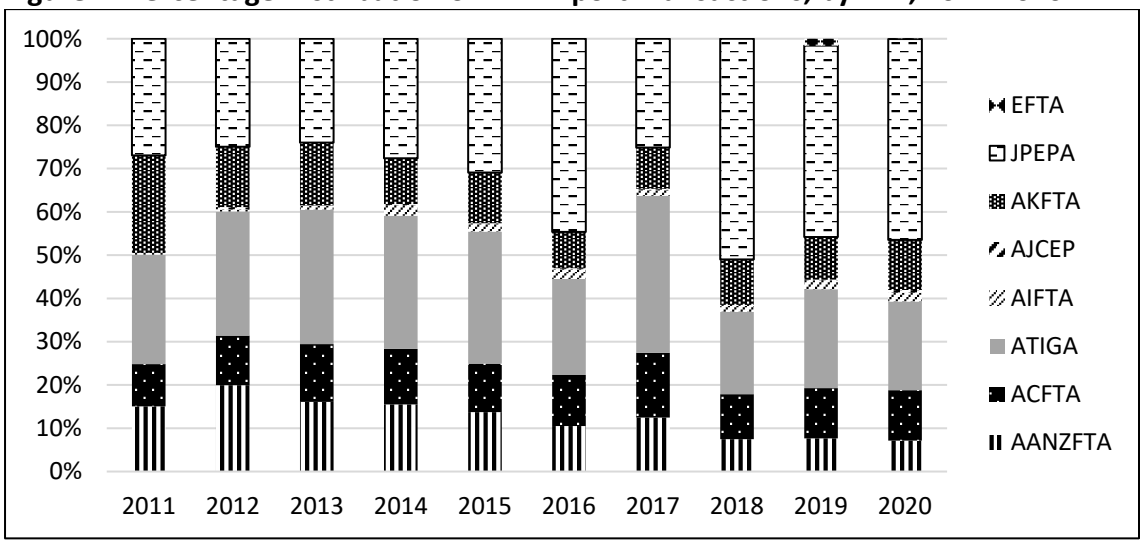
Table 7. FTA Use Patterns in Exports, 2011-2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Transactions	**135,648**	**103,521**	**90,425**	**78,178**	**79,247**	**103,641**	**121,084**	**92,358**	**75,745**	**62,503**
FTA	4.9	4.8	2.4	1.8	1.7	1.4	0.9	2.6	3.1	2.3
MFN	92.2	92.2	96.3	96.9	97.1	97.8	98.5	95.0	94.4	96.0
Other Schemes	3.0	3.1	1.2	1.3	1.3	0.7	0.5	2.5	2.6	1.7
Number of firms	**10,126**	**9,216**	**8,350**	**9,660**	**8,610**	**9,281**	**9,150**	**8,578**	**8,758**	**6,389**
Users	14.3	14.0	9.4	5.8	5.9	6.2	3.0	7.9	8.3	8.6
Non-users	85.7	86.0	90.6	94.2	94.1	93.8	97.0	92.1	91.7	91.4
FOB value (million US$)	**48,305**	**52,100**	**56,698**	**62,102**	**58,827**	**57,406**	**68,713**	**69,307**	**70,927**	**65,215**
FTA Partners	*56.2*	*57.4*	*57.3*	*57.4*	*52.4*	*52.6*	*50.6*	*49.7*	*50.7*	*52.7*
FTA	5.8	5.9	5.1	4.4	3.0	2.2	0.6	2.1	1.6	3.4
MFN	92.3	92.8	94.2	95.1	96.4	97.5	99.3	97.2	97.8	95.6
Other Schemes	1.9	1.3	0.7	0.5	0.5	0.2	0.1	0.8	0.5	1.0

Source: Authors' calculations based on the trade transactions data.

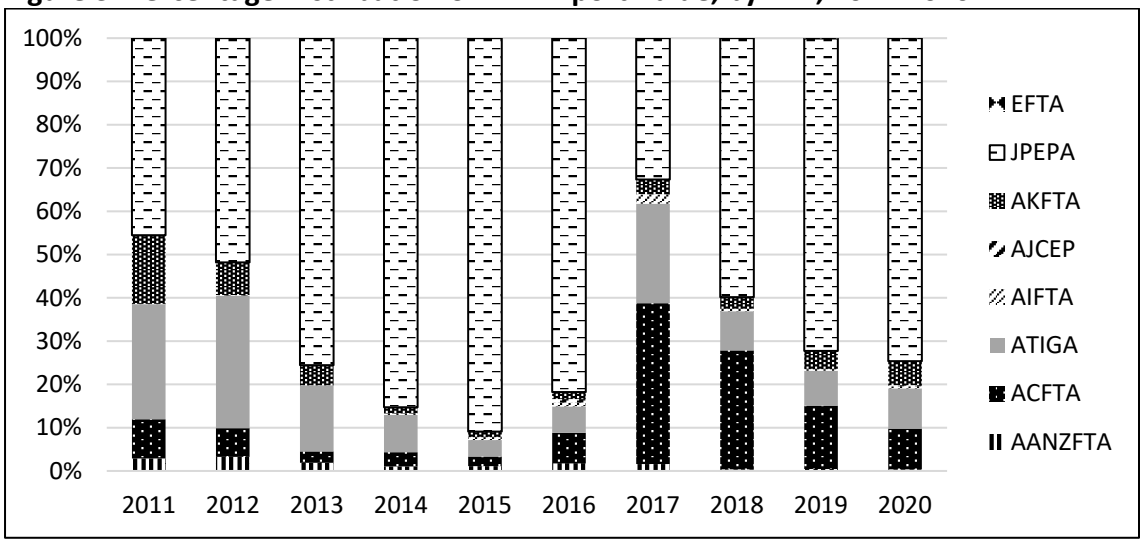
Figures 2 and 3 show the shares of FTAs in the number of transactions and the total export values. The most frequently used FTAs during the decade were JPEPA and ATIGA. The two FTAs have accounted for more than half of the FTA export transactions during the decade. The share of JPEPA also had an increasing trend during the period. During the first half of the 2010s, its share stood around 24-30%; by the latter half of the decade, its share averaged around 42%. Meanwhile, AANZFTA and AKFTA exhibited decreases in their respective shares during the period, from 15.1% and 22.6% in 2011, to 7.2% and 11.6% in 2020.

Figure 2. Percentage Distribution of FTA Export Transactions, by FTA, 2011-2020



Source: Authors' calculations based on the trade transactions data.

Figure 3. Percentage Distribution of FTA Export Value, by FTA, 2011-2020



Source: Authors' calculations based on the trade transactions data.

In terms of total export value, FTA use was dominated by JPEPA. During the first two years of the 2010s, it covered around half of total FTA exports. Its share then substantially increased to at least 70% in the following years, with the exception of 2017 (32.7%) and 2018 (59.8%). In contrast, the respective shares of ATIGA and AKFTA had generally decreasing trends during the period. A shift in terms of having the second highest share could also be observed between ATIGA and ACFTA. Albeit decreasing, the share of ATIGA was the second-highest from 2011-2015. By the second half, ACFTA has already surpassed ATIGA, despite the fluctuations in its share during the period.

Table 8 shows the leading products exported under FTA schemes. The top ten products already accounted for 37.5% of total FTA exports for the 2018-2020 period, half of which were covered by the top three products alone. The top export belonged to electrical machinery and equipment, followed by two wood products. The rest of the list include plastic products, iron and steel products, chemical products, as well as bananas.

Table 8. Highest Exports Under FTAs, 2018-2020

PSCC 2015 code	Description	Total Value (US$ million)	Share (%)
85414021	Photovoltaic cells, not assembled	320.5	6.7
44189090	Builders' joinery and carpentry of wood, including cellular wood panels, assembled flooring panels, shingles and shakes; nes	304.7	6.3
44071000	Wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or end-jointed, of a thickness exceeding 6 mm.; coniferous	288.8	6.0
39259000	Builders' ware of plastics, not elsewhere specified or included	162.9	3.4
73089099	Structures (excluding prefabricated buildings of heading 94.06) and parts of structures, of iron or steel; plates, rods, angles, shapes, sections, tubes and the like, prepared for use in structures, of iron or steel.; nes	151.4	3.1
29012200	Propene (propylene)	149.5	3.1
39249090	Tableware, kitchenware, other household articles and hygienic or toilet articles, of plastics.; nes	125.3	2.6
85444219	Other electric conductors, for a voltage not exceeding 1,000 V, fitted with connectors; nes	111.4	2.3
08039000	Bananas, including plantains, fresh or dried., nes	107.3	2.2
39174000	Fittings (for example, joints, elbows, flanges), of plastics	86.4	1.8

Source: Authors' calculations based on the trade transactions data.

4.2 FTA Utilization in Philippine Imports

Unlike in exports, the country's import performance steadily grew during the 2010s. Total import value increased from US$60.5 billion in 2011, to US$112.8 billion in 2018 (slight decreases were observed in the succeeding years). However, the number of transactions and actual importers fluctuated throughout the decade. Nonetheless, the figures shown in Table indicate that the country has been more active in imports, as compared to exports. However, what is more striking is the usage of FTAs in imports, which is in stark contrast with the findings from the export data. The share of FTA imports in total value substantially grew during the period—from 8.3% in 2011 to 30.5% in 2020. In terms of the number of importers, FTA users already accounted for 24.4% of importers in 2011—a rate that is already higher than FTA export users for any year. It is also interesting to note that the share substantially increased throughout the period, peaking at 56.1% in 2020.

Major differences could also be observed in terms of the distribution of FTA imports. Import transactions under FTAs were dominated by ACFTA and ATIGA, as their combined shares stood around 90% of the total number of transactions during the 2010s. The bulk of transactions was actually covered by ACFTA alone; from 62.5% in 2011, its share gradually increased to 80.9% in 2020. On the other hand, ATIGA was the second most-used FTA in imports; however, as in exports, its share gradually decreased—from 28.8% in 2011, to 12.3% in 2020.

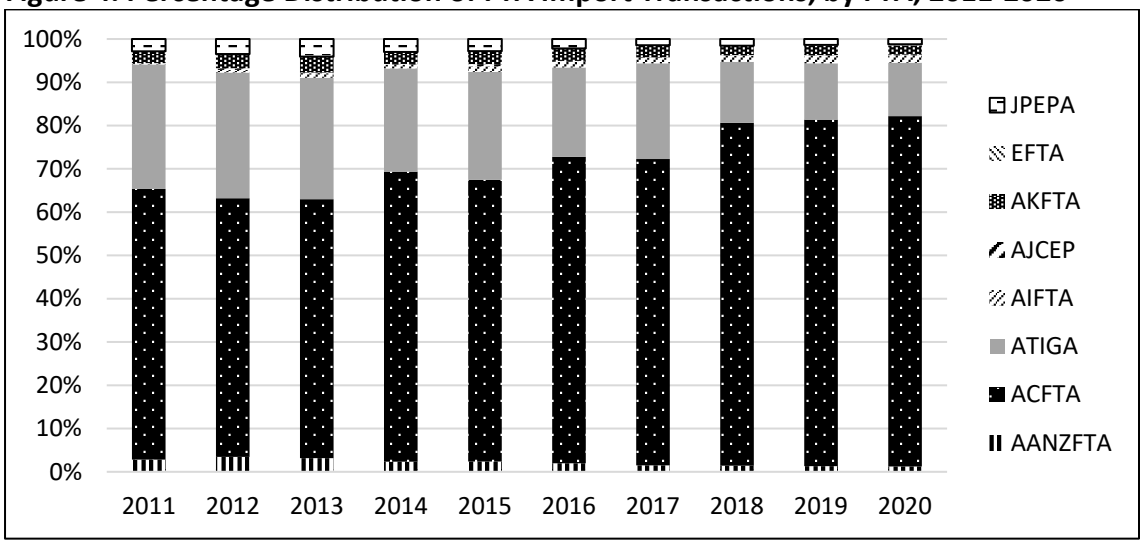
Table 9. FTA Use Patterns in Imports, 2011-2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Transactions	**477,460**	**398,604**	**402,850**	**446,297**	**663,697**	**732,332**	**977,007**	**912,278**	**742,586**	**662,595**
FTA	7.3	10.8	12.3	15.2	10.8	12.7	11.4	13.6	18.5	20.4
MFN	92.7	89.2	87.7	84.8	88.9	87.2	88.5	86.3	81.4	79.6
Other Schemes	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.1	0.1	0.1
Number of firms	**19,070**	**20,874**	**20,787**	**19,396**	**19,910**	**18,731**	**14,905**	**15,980**	**16,689**	**16,047**
Users	24.4	27.9	32.3	36.1	32.4	34.5	47.6	51.5	54.8	56.1
Non-users	75.6	72.1	67.7	63.9	67.6	65.5	52.4	48.5	45.2	43.9
FOB value (million US$)	**60,496**	**62,129**	**62,411**	**65,398**	**71,067**	**84,108**	**96,093**	**112,841**	**111,593**	**89,812**
FTA Partners	*56.1*	*55.9*	*54.8*	*58.8*	*60.8*	*67.0*	*69.1*	*68.2*	*69.9*	*70.6*
FTA	8.3	14.0	14.8	18.5	23.5	27.6	24.2	25.0	29.1	30.5
MFN	91.7	86.0	85.2	81.5	74.6	71.4	75.3	74.8	70.7	69.2
Other Schemes	0.0	0.0	0.0	0.0	1.9	1.0	0.5	0.2	0.3	0.2

Source: Authors' calculations based on the trade transactions data.

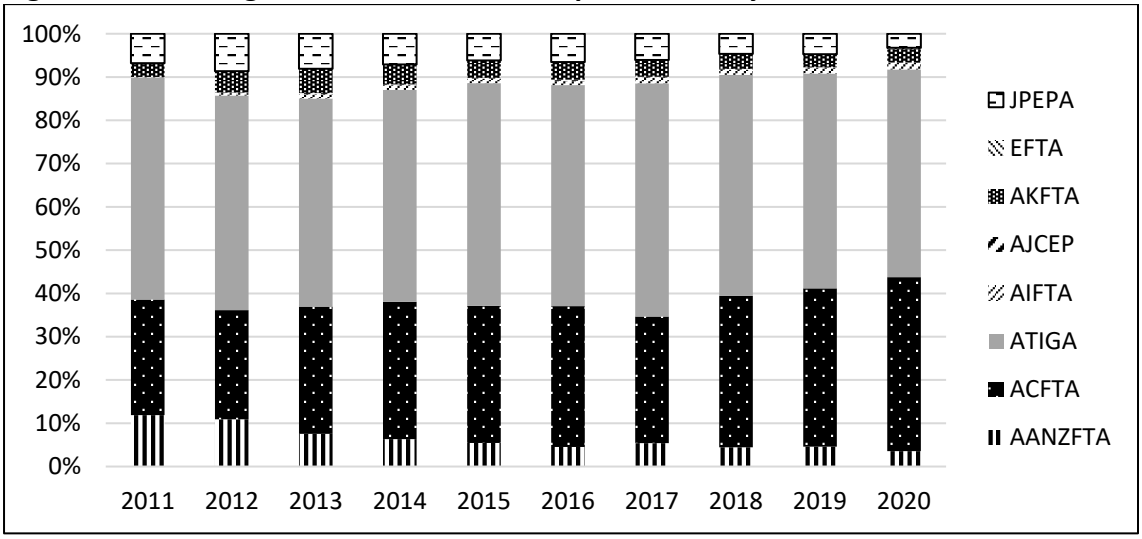
The two aforementioned FTA also accounted for much of the total FTA import value. The combined shares of ACFTA and ATIGA were more than 70% for all years of the 2010s. however, what is interesting is that ATIGA accounted for the higher shares; it covered around 48-53% of total FTA import value during the decade. On the other hand, ACFTA registered smaller but increasing shares; from 26.7% in 2011, the share of ACFTA gradually rose to 40.2% in 2020.

Figure 4. Percentage Distribution of FTA Import Transactions, by FTA, 2011-2020



Source: Authors' calculations based on the trade transactions data.

Figure 5. Percentage Distribution of FTA Import Value, by FTA, 2011-2020



Source: Authors' calculations based on the trade transactions data.

Looking at the leading imports under FTAs, it could be observed that the country's FTA importation has been relatively less concentrated. The top ten products only accounted for 21.2% of total FTA imports, with the top import, bituminous coal, comprising only 3.9% of total import value. Vehicles products had the greatest number of products in the top ten FTA imports, with five products. Meanwhile, two of the top ten products belong to mineral fuels and oils.

Table 10. Highest Imports Under FTAs, 2018-2020

PSCC 2015 code	Description	Total Value (US$ million)	Share (%)
27011900	Bituminous coal, nes	3,449.5	3.9
87042129	Other vehicles, with compression-ignition internal combustion piston engine (diesel or semi-diesel); g.v.w. not exceeding 5 t; nes	3,257.9	3.7
10063099	Semi-milled or wholly milled rice, whether or not polished or glazed; nes	2,128.8	2.4
87032219	Other vehicles, with spark-ignition internal combustion reciprocating piston engine of a cylinder capacity exceeding 1,000 cc but not exceeding 1,500 cc; nes	2,087.7	2.4
87033259	Other vehicles, with compression-ignition internal combustion piston engine (diesel or semi-diesel), of a cylinder capacity exceeding 1,500 cc but not exceeding 2,500 cc; nes	1,829.5	2.1
15180031	Oils and their fractions, boiled, oxidised, dehydrated, sulphurised, blown, polymerised by heat in vacuum or in inert gas or otherwise chemically modified excluding those of heading 15.16; of the fruit oil palm and palm kernels	1,664.8	1.9
21011290	Preparations with a basis of extracts, essences or concentrates or with a basis of coffee; nes	1,235.5	1.4
87021089	Motor vehicles with compression-ignition internal combustion piston engine, (diesel or semi-diesel); nes	1,152.3	1.3
27011290	Bituminous coal; nes	1,018.8	1.2
87039090	Electrically-powered vehicles; nes	878.7	1.0

Source: Authors' calculations based on the trade transactions data.

4.2.1 FTA Utilization Rates in Philippine Imports

The calculated utilization rates, which are shown in Table 11, reveal that most of the FTA imports from ASEAN utilized ATIGA. However, it could also be observed that for some ASEAN partners, some of the imports utilized ASEAN+1 FTAs. For instance, there were imports from Vietnam that utilized AANZFTA and ACFTA. Meanwhile, small percentages of imports from Singapore were under ACFTA and AJCEP. Overall, imports from the ASEAN partners have substantially utilized ATIGA. A generally increasing trend could also be seen in the ATIGA utilization rates in Indonesia, Myanmar, Malaysia, Singapore, and Vietnam.

In terms of utilization among ASEAN+1 partners, the imports from Australia and New Zealand have consistently exhibited high levels of AANZFTA utilization. The utilization of AANZFTA in Australian imports grew from 48.4% in 2017 to 72.6% in 2020, while more than 80% of imports from New Zealand were under AANZFTA. Imports from China also registered substantial utilization of ACFTA, with utilization rates increasing from 40.6% in 2017 to 58.2% in 2020. In contrast, imports from Korea and Japan had relatively low levels of FTA utilization. Utilization rates of AKFTA in Korean imports only ranged from 13-20%; on a positive note, AKFTA utilization rates gradually increased during the 2017-2020 period. Utilization rates among Japanese imports show that both AJCEP and JPEPA were utilized. Between the two, JPEPA was more preferred; however, the utilization rates were still relatively low (around 11-16%). Meanwhile, utilization rates of AJCEP did not reach 1%.

5. Characteristics of FTA Users and Non-users

The matching of the export and import transactions data, and the survey/census data yielded two panel data sets, consisting of 6,661 (exports) and 8,997 (imports) observations covering the period 2012-2018. The matched data exhibited higher rates of FTA users than the trade transactions data for the covered period. In the matched data, FTA users comprised 13.2% of the total number of exporters—higher than the 7.4% share when accounting for all export transactions. In terms of imports, the percentage share of FTA users in the matched data stood at 44.3%; in comparison, the universe of import transactions for the 2012-2018 period revealed that the percentage of FTA users was 36.6%. While the abovementioned figures show that they do not fully capture the degree of trade activities and firm FTA utilization in the country, the matched data sets are still valuable in establishing a profile of FTA users, both on the export and import sides. Moreover, they could be used to observe notable differences in firm characteristics between users and non-users, as well as show potential determinants of FTA use at the firm level.

Table 12 shows sectoral distribution of exporters and importers. Overall, notable differences could be observed in the food manufacturing, chemicals, and electronics sectors. Relative to the distribution of non-users, food manufacturing and chemical products accounted for higher shares among FTA users, while electronics had substantially lower shares. On the export side, the automotive sector comprised 10% of FTA users, more than double the percentage among non-users. On the import side, a similar observation could be made for paper products; the sector covered 5.7% of FTA users, higher than the 2.5% share among non-users.

Table 11. Utilization Rate of FTAs by FTA Partner, 2017-2020 (in Percent)

	AANZFTA				ACFTA				ATIGA			
	2017	2018	2019	2020	2017	2018	2019	2020	2017	2018	2019	2020
AUS	48.4	52.3	70.9	72.6								
BRN									17.1	36.7	9.6	3.5
KHM									70.2	59.3	27.8	67.0
CHN					40.6	46.9	50.3	58.2				
IND												
IDN								0.01	73.1	78.0	90.2	89.7
JPN												
KOR												
LAO									99.1	74.5	98.8	98.0
MMR								0.2	67.4	76.8	86.2	97.3
MYS				0.0				0.01	42.0	39.8	42.2	48.6
NZL	85.4	81.1	84.9	90.5								
SGP				0.0		0.03	0.1	0.03	14.1	13.6	14.5	16.9
THA								0.01	69.8	68.1	72.4	69.7
VNM	0.04	0.1	0.1	0.2	0.1	0.4	0.1	0.2	46.1	48.3	62.7	67.8

	AIFTA				AJCEP				AKFTA				JPEPA			
	2017	2018	2019	2020	2017	2018	2019	2020	2017	2018	2019	2020	2017	2018	2019	2020
AUS																
BRN																
KHM																
CHN																
IND	20.0	23.1	28.9	27.5												
IDN	0.01											0.0				
JPN					0.5	0.5	0.3	0.3					15.8	13.6	16.4	11.8
KOR									13.5	15.5	16.1	20.3				
LAO																
MMR																
MYS	0.0						0.0			0.0		0.0				
NZL																
SGP	0.0				0.01	0.0	0.0	0.02								
THA					0.0		0.0									
VNM																

Source: Authors' calculations based on import transactions data from the PSA, and the tariff schedule data from the Philippine Tariff Commission.

Table 12. Distribution of Firms by Manufacturing Sector and FTA Use

Manufacturing Sector	Exports		Imports	
	Non-users	Users	Non-users	Users
Food Products	10.8	16.9	5.8	19.8
Beverages	0.7	0.7	0.3	1.0
Tobacco Products	0.4	0.9	0.2	0.6
Textiles	3.1	3.5	3.1	4.4
Wearing Apparel	8.8	6.0	8.6	3.3
Leather and Related Products	1.6	2.2	1.8	1.4
Wood and Wood Products	2.8	4.2	1.9	2.3
Paper and Paper Products	2.6	1.0	2.5	5.7
Printing and Reproduction of Recorded Media	0.8	0.6	1.6	1.4
Coke and Refine Petroleum Products	0.2	0.0	0.5	0.2
Chemicals and Chemical Products	3.7	7.4	3.4	10.1
Pharmaceutical Products	1.1	0.9	1.2	1.8
Rubber and Plastic Products	8.7	9.9	8.9	11.1
Other Non-metallic Mineral Products	2.9	3.5	2.5	4.5
Basic Metals	4.5	3.1	4.7	5.4
Fabricated Metal Products	6.7	3.6	7.8	7.8
Computer, Electronic and Optical Products	15.8	4.4	17.9	2.5
Electrical Equipment	5.3	3.7	5.6	3.9
Machinery and Equipment nec	3.9	3.1	4.8	2.3
Motor Vehicles, Trailers and Semi-trailers	4.1	10.0	5.1	2.9
Other Transport Equipment	1.7	1.1	1.8	1.1
Furniture	3.7	5.4	2.8	3.8
Other Manufacturing	5.5	7.8	6.3	2.1
Repair and Installation of Machinery and Equipment	0.6	0.0	1.1	0.5
Total	**5,780**	**881**	**5,010**	**3,987**

Source: Authors' calculations based on ASPBI/CPBI and trade transactions data.

Majority of Philippine traders are located in the CALABARZON, NCR, Central Luzon, and Central Visayas regions. Most of the country's major industrial centers are located in these regions. Thus, firms are more likely to participate in international trade, as they benefit from knowledge spillovers and exchanges, as well as fiscal and non-fiscal incentives offered by special economic zones and industrial parks (Wignaraja 2014, Mendoza 2020). Looking at Table 13, the bulk of exporters were located in CALABARZON; the region accounted for 46.3% among users, which was higher than the 40.5% share among non-users. However, Central Luzon and NCR exhibited slight decreases in shares among FTA export users. Meanwhile, the differences between users and non-users were evident on the import side. While almost half of the non-users consisted of firms located in CALABARZON, NCR-based firms dominated the FTA import users. The share of importers from Central Visayas was also lower among FTA users.

Table 13. Distribution of Firms by Region and FTA Use

Region	Exports		Imports	
	Non-users	Users	Non-users	Users
Ilocos Region	0.1	0.0	0.2	0.3
Cagayan Valley	0.1	0.0	0.1	0.1
Central Luzon	12.4	9.2	10.9	10.5
CALABARZON	40.5	46.3	49.3	20.8
Bicol Region	0.5	1.1	0.4	0.6
Western Visayas	1.0	0.3	0.7	1.1
Central Visayas	16.8	16.0	16.9	8.4
Eastern Visayas	0.5	0.7	0.3	0.6
Zamboanga Peninsula	0.4	1.9	0.2	0.5
Northern Mindanao	0.9	2.6	0.6	1.7
Davao Region	2.0	0.9	1.1	3.2
SOCCSKSARGEN	1.6	0.8	0.6	1.6
NCR	22.3	19.5	18.0	49.7
Cordillera	0.6	0.2	0.6	0.1
ARMM	0.1	0.0	0.0	0.2
Caraga	0.3	0.2	0.1	0.6
MIMAROPA	0.1	0.1	0.1	0.0
Total	**5,780**	**881**	**5,010**	**3,987**

Source: Authors' calculations based on ASPBI/CPBI and trade transactions data.

Table 14 shows the distribution of firms of by type of ownership. Among exporters, FTA users and non-users exhibited similar distributions—more than half of exporters are FDI firms, regardless of user status. In contrast, users and non-users on the import side had strikingly different distributions. FDI firms only comprised 26.5% of FTA users, while still covering the bulk of non-users (64.2%).

Table 14. Distribution of Firms by Ownership and FTA Use

Ownership	Exports		Imports	
	Non-users	Users	Non-users	Users
Local	40.8	38.1	33.7	70.8
Non-FDI (less than 10% foreign ownership)	2.5	2.0	2.1	2.7
FDI	56.8	59.8	64.2	26.5
Total	**5,780**	**881**	**5,010**	**3,987**

Source: Authors' calculations based on ASPBI/CPBI and trade transactions data.

The distribution of users and non-users by size are reported in Table 15. Around 46.4% of FTA export users were large firms; this was higher than the 39.3% share of large firms among non-users. In terms of imports, large firms accounted for a smaller percentage among FTA users, as compared to non-users; meanwhile, medium firms exhibited the opposite trend. This suggests that firm size could be a bigger factor among exporters than importers.

Table 15. Distribution of Firms by Size and FTA Use

Firm Size	Exports		Imports	
	Non-users	Users	Non-users	Users
Micro	1.4	0.8	1.5	0.8
Small	36.3	30.4	38.7	38.5
Medium	23.0	22.4	22.7	26.8
Large	39.3	46.4	37.0	33.9
Total	**5,780**	**881**	**5,010**	**3,987**

Source: Authors' calculations based on ASPBI/CPBI and trade transactions data.

Instead of merely looking at the averages in age, this study categorized firms according to age groups, each having a range of 10 years. Table 16 shows that the firms were concentrated around 0-30 years. Differences in the distribution between FTA export users and non-users were not apparent. In contrast, age seemed to be more of a factor in FTA use among importers. Compared to the distribution of non-users, firms that were aged 30-70 years accounted for a higher share among FTA users.

Table 16. Distribution of Firms by Age Group and FTA Use

Age Group	Exports		Imports	
	Non-users	Users	Non-users	Users
less than 10	10.2	9.3	11.7	6.5
10 to 20	38.9	37.6	42.9	25.2
20 to 30	32.1	32.2	33.1	30.4
30 to 40	8.9	10.1	7.3	13.9
40 to 50	5.1	4.5	2.9	11.5
50 to 60	3.0	3.1	1.1	8.2
60 to 70	0.9	1.4	0.4	2.2
70 to 80	0.2	0.0	0.0	0.5
80 to 90	0.1	0.9	0.1	0.4
90 to 100	0.3	0.2	0.2	0.5
at least 100	0.5	0.7	0.3	0.6
Total	**5,780**	**881**	**5,010**	**3,987**

Source: Authors' calculations based on ASPBI/CPBI and trade transactions data.

Table 17 shows differences between FTA users and non-users, in terms of selected performance indicators. The differences in means in the value of output, value added, labor productivity, and total revenue indicate the superior capabilities of FTA users, both in exports and imports. These support the presence of self-selection not only in international trade participation, but also in FTA utilization. In terms of employment, exporters that use FTAs have more employees than non-users; however, the opposite could be observed on the import side.

Differences in indicators related to innovation and technological capabilities, such as e-commerce and research and development (R&D) activities, were also assessed, as they are deemed crucial in firm learning and capability building. Overall, Philippine traders have not intensively participated in e-commerce activities. Moreover, the means on e-commerce intensity (denoted by percentage share of e-commerce sales in total revenue) show that FTA users have relatively lower intensity. Research and development have also not been an important factor in firm operations, as evidenced by the means on the percentage shares of

R&D expenditure and employment. Nonetheless, FTA users had higher average percentages of R&D employees—an observation that is more apparent on the export side.

In terms of the number of partner countries, FTA users exhibited higher averages of number of partner countries, both among exporters and importers. This suggests that users were more diversified in their trade activities. This also holds true when only considering trade engagements with FTA partners.

Table 17. Comparison of Means, Selected Performance Indicators

Performance Indicator	Exports		Imports	
	Non-users	Users	Non-users	Users
Value of output (million PhP)	1,760	3,030	1,370	1,940
Value added (million PhP)	485	646	337	521
Labor productivity (thousand PhP)	933	1,375	734	1,406
Total revenue (million PhP)	1,820	3,170	1,390	2,060
Total employment	418	531	405	309
E-commerce sales (% of total revenue)	0.5	0.3	0.5	0.2
R&D expenditures (% of total expenditures)	0.080	0.116	0.077	0.057
R&D employment (% of total employment)	0.83	1.48	0.77	0.96
Number of partner countries	7.3	11.8	6.1	8.8
Number of partner countries (FTA members)	2.8	4.7	3.1	4.5

Source: Authors' calculations based on ASPBI/CPBI and trade transactions data.

6. Determinants of Firm FTA Use

The results of the marginal effects analysis on FTA export use are reported in Table 18. Labor productivity was consistently significant across all specification, although its significance was lesser in Models 4 and 5. Moreover, its marginal effects were positive, which supports the self-selection hypothesis in FTA use among exporters. Age and MSME status were significant only for Models 1 to 4, but exhibited the expected signs. The marginal effects of age were positive, which suggests the importance of firm experience in using FTAs. Meanwhile, the effects of MSME status were negative, which could be attributed to the lesser capabilities of MSMEs.

Indicators related to innovation and R&D were mostly non-significant, with R&D expenditures and e-commerce sales yielding negative marginal effects. The percentage of R&D employment was positive and weakly significant only for Models 1-3. The HHI and CR4 indicators were also non-significant, suggesting that industry competition is not a significant factor in FTA export use. On the other hand, the number of export destinations were positively associated with FTA use, significant at the 99% level. This signifies that, aside from firm performance and ownership, knowledge and experience in exporting are crucial in facilitating FTA utilization among Philippine exporters.

Table 19 shows the results of marginal effects on the import side. Labor productivity still exhibited positive and significant marginal effects; thus, the self-selection hypothesis still holds for FTA use in imports. Both age and age-squared had significant marginal effects on FTA import use. It is also interesting to note that their effects had opposite signs, suggesting that the effect of age could be positive up to a certain extent—firms older than that certain age are less likely to use FTAs.

Smaller firms still tend to be non-users, as shown by the negative marginal effects of MSME status. Meanwhile, foreign ownership status had negative and significant marginal effects; this was supported by the findings in Section 5, where local firms accounted for the majority of FTA users in imports. The effects of R&D indicators were inconclusive—R&D employment had significant and positive marginal effects in Models 6 and 7, e-commerce sales generated significantly negative effects in Models 9 and 10. Industry competition indicators still generated inconclusive effects, although all effects were negative and the HHI had significant effects in Models 9 and 10. The number of import sources was positively and significantly associated with higher probability of FTA import use.

Table 18. Marginal Effects on FTA Export Use

Outcome Variable: $FTAuseX_{isj,t}$	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
$ln(Labprod)_{isj,t}$	0.0143***	0.0145***	0.0144***	0.0091**	0.0081*
	(0.0042)	(0.0042)	(0.0042)	(0.0041)	(0.0042)
$Age_{isj,t}$	0.0014*	0.0014*	0.0014*	0.0012*	0.0011
	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0007)
$Age^2_{isj,t}$	-0.000008	-0.000008	-0.000008	-0.000008	-0.000007
	(0.000006)	(0.000007)	(0.000007)	(0.000007)	(0.000006)
$MSME_{isj,t}$	-0.0391***	-0.0389***	-0.0387***	-0.0180*	-0.0163
	(0.0103)	(0.0103)	(0.0103)	(0.0105)	(0.0106)
$FDI_{isj,t}$	0.0301**	0.0302**	0.0303**	0.0223*	0.0234*
	(0.0122)	(0.0122)	(0.0122)	(0.0121)	(0.0121)
$Researchexppct_{isj,t}$	-0.0031	-0.0032			
	(0.0052)	(0.0053)			
$Researchemppct_{isj,t}$	0.0015*	0.0015*	0.0015*	0.0013	0.0013
	(0.0009)	(0.0009)	(0.0009)	(0.0009)	(0.0009)
$Ecommercepct_{isj,t}$	-0.0007	-0.0007	-0.0007	-0.0007	-0.0007
	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
$HHIpsic3_{s,t}$		-0.0341		-0.0555	-0.0527
		(0.0511)		(0.0537)	(0.0537)
$CR4psic3_{s,t}$			-0.0295		
			(0.0311)		
$Numpartners_{isj,t}$				0.0050***	0.0050***
				(0.0006)	(0.0006)
$FTAuseM_{isj,t}$					0.0141
					(0.0109)
Industry FE	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	6,447	6,447	6,447	6,447	6,447

Note: This table reports the marginal effects of the covariates on FTA export use, based on random-effects logit regressions. Robust standard errors are in parentheses. *p < 0.10, **p < 0.05, ***p < 0.01.

The regression results establish similarities and differences in the FTA use determinants between the export and import perspectives. Overall, the self-selection hypothesis holds in FTA utilization—firm performance is crucial in overcoming the additional costs associated with using FTAs. The results also highlight the lesser capabilities of MSMEs, as they tend to be FTA non-users. The significant and positive effects of more diversified trade activities suggest the importance of firm knowledge in learning—and deciding—to trade under FTAs. Aside from being an indicator of enhanced capabilities, engaging with multiple countries could provide access to information on international trade and FTA use.

Meanwhile, the effects of foreign ownership were noticeably different between exports and imports. While foreign ownership status was positively associated with FTA export use, it corresponds to a lower probability of FTA use in imports. This warrants a deeper analysis as to why FDI firms are more likely to be non-users, while purely local firms dominate FTA import users.

Table 19. Marginal Effects on FTA Import Use

Outcome Variable: $FTAuseM_{isj,t}$	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
$ln(Labprod)_{isj,t}$	0.0413***	0.0415***	0.0413***	0.0263***	0.0265***
	(0.0052)	(0.0052)	(0.0052)	(0.0050)	(0.0050)
$Age_{isj,t}$	0.0048***	0.0049***	0.0049***	0.0042***	0.0042***
	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0010)
$Age^2_{isj,t}$	-0.00003***	-0.00003***	-0.00003***	-0.00003**	-0.00003**
	(0.00001)	(0.00001)	(0.00001)	(0.00001)	(0.00001)
$MSME_{isj,t}$	-0.0631***	-0.0627***	-0.0617***	-0.0099	-0.0104
	(0.0134)	(0.0133)	(0.0134)	(0.0134)	(0.0135)
$FDI_{isj,t}$	-0.0762***	-0.0764***	-0.0762***	-0.0905***	-0.0897***
	(0.0147)	(0.0147)	(0.0147)	(0.0146)	(0.0146)
$Researchexppct_{isj,t}$	-0.0086	-0.0086			
	(0.0077)	(0.0077)			
$Researchemppct_{isj,t}$	0.0016*	0.0016*	0.0015	0.0014	0.0015
	(0.0009)	(0.0009)	(0.0009)	(0.0009)	(0.0009)
$Ecommercepct_{isj,t}$	-0.0009	-0.0009	-0.0009	-0.0013*	-0.0013*
	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0007)
$HHIpsic3_{s,t}$		-0.0698		-0.1267**	-0.1272**
		(0.0569)		(0.0610)	(0.0611)
$CR4psic3_{s,t}$			-0.0684*		
			(0.0390)		
$Numpartners_{isj,t}$				0.0167***	0.0168***
				(0.0014)	(0.0014)
$FTAuseX_{isj,t}$					-0.0180
					(0.0159)
Industry FE	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	8803	8803	8803	8803	8803

Note: This table reports the marginal effects of the covariates on FTA import use, based on random-effects logit regressions. Robust standard errors are in parentheses. *p < 0.10, **p < 0.05, ***p < 0.01.

6.1 Preferential Tariff Margins and Firm FTA Use

Preferential tariff margin—the difference between the FTA and most favored nation (MFN) tariff rates—has been hypothesized to increase trade activities among firms. Thus, it could also be another determinant of firm FTA use. Quimba et al. (2020) tested this assumption at the product-partner-agreement level, and found a generally positive and significant relationship between preferential margins and FTA utilization rate. This study also attempted to investigate this relationship at the firm level, using the matched data. However, a number of limitations prevented the inclusion of the tariff margin in the panel logit regressions.

First, the authors based the preferential margins from the tariff rates reported in the Trade Analysis Information System (TRAINS) database. The TRAINS provides the ad valorem

equivalent for each good and scheme across different years. In order to generate a firm-level indicator for preferential margin, the authors calculated the average of the preferential margins of all transactions for each firm. However, inconsistencies in the nomenclature used across countries and years only allowed for the linking of the Philippine tariff margins with the matched import data for 2017. Thus, the authors could only perform a cross-sectional regression analysis. Second, a logit regression cannot be performed after controlling for the tariff margin. Since it is a given that non-users exclusively use MFN tariffs, their respective average margins are automatically zero. This makes the preferential margin variable to be a perfect predictor of FTA non-use. Thus, the authors resorted to using ordinary least squares (OLS) regression, with the dependent variable being the firm FTA use rate (proxied by the percentage share of imports under FTA schemes in total firm imports).

Table 20. OLS Regression Results (with Average Preferential Margin)

Outcome Variable: $FTApctM_{isj,t}$	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**
$ln(Labprod)_{isj}$	2.797***	2.871***	2.852***	2.766***	2.738***
	(0.633)	(0.633)	(0.631)	(0.664)	(0.664)
Age_{isj}	0.242*	0.239*	0.245*	0.234*	0.235*
	(0.136)	(0.136)	(0.136)	(0.137)	(0.137)
Age^2_{isj}	-0.002	-0.002	-0.002	-0.002	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
$MSME_{isj}$	-2.071*	-1.994	-1.973	-1.674	-1.687
	(1.233)	(1.230)	(1.233)	(1.362)	(1.363)
FDI_{isj}	-5.101***	-5.131***	-5.140***	-5.166***	-5.210***
	(1.433)	(1.429)	(1.430)	(1.431)	(1.433)
$Researchexppct_{isj}$	-0.687	-0.719			
	(0.690)	(0.702)			
$Researchemppct_{isj}$	0.170	0.157	0.161	0.158	0.151
	(0.177)	(0.177)	(0.176)	(0.178)	(0.180)
$Ecommercepct_{isj}$	-0.069*	-0.072*	-0.070*	-0.076*	-0.074*
	(0.037)	(0.039)	(0.038)	(0.040)	(0.040)
HHI_PSIC3_s		-9.809***		-9.824***	-9.803***
		(3.642)		(3.662)	(3.657)
$CR4\_PSIC3_s$			-4.719		
			(3.652)		
$Numpartners_{isj}$				0.052	0.046
				(0.074)	(0.074)
$FTAUseX_{isj}$					3.273
					(3.014)
$Avgmarginpct_{isj}$	12.549***	12.488***	12.512***	12.508***	12.514***
	(0.619)	(0.620)	(0.621)	(0.621)	(0.621)
Industry FE	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
R^2	0.630	0.631	0.630	0.631	0.632
Observations	1,183	1,183	1,183	1,183	1,183

Note: This table reports the results of the OLS regression, which includes the average tariff margin as a regressor. Robust standard errors are in parentheses. *p < 0.10, **p < 0.05, ***p < 0.01.

The results of the OLS regressions are reported in Table 20. Labor productivity continued to be a significant determinant of firm FTA use, as it was associated with a higher rate of FTA use. Age has a positive and weakly significant association with FTA use rate. Meanwhile, foreign ownership and industry HHI exhibited negative estimates, significant at the 99% level.

E-commerce sales also had a negative association with FTA use rate, albeit being significant at only the 90% level. The variable of interest in this regression, which is the average tariff margin, was consistently associated with a higher rate of FTA use. The estimates were also significant at 99% level across all specifications.

7. Conclusion and Recommendations

A closer look at the FTA utilization in the Philippines is crucial in light of the country's continuous pursuit for trade liberalization. Exploiting preferential tariffs could significantly boost the competitiveness of Philippine firms and facilitate their integration in value chains. This study presented stylized facts on the trends of FTA utilization during the previous decade, using the universe of Philippine trade transactions. While the substantial reduction of trade barriers was expected to encourage firms to take advantage of the preferential tariffs, the country's FTA utilization failed to expand over the last decade. This was particularly true in exports, as the findings showed that FTA utilization in exports remained low, in terms of value and number of users and transactions. Thus, increased attention must be given to encouraging exporters to increase their utilization of FTAs.

Utilization in imports, on the other hand, exhibited a more promising trend. Figures on overall utilization increased in most years; by 2020, imports under FTA schemes accounted for 43% of the country's import value, while more than half of Philippine importers (56%) were FTA users. Imports from most FTA partner countries also had considerable FTA utilization rates. However, the relatively low utilization rates of imports from Japan, South Korea, and Singapore could be a cause of concern, as they are among the Philippines' top import sources. Japan and South Korea are also important FTA partners for the Philippines—Japan was the country's first bilateral FTA partner, while the Philippines-Korea bilateral FTA is set to be signed this year. It would then be valuable to further evaluate the potential partner-specific factors influencing the low utilization rates.

The study also exploited a rich micro dataset to establish a profile of FTA users, vis-à-vis non-users, in terms of selected firm characteristics, and conducted a regression analysis to determine which characteristics influence a firm's decision to use FTAs. Overall, FTA users tend to exhibit higher levels of performance, percentages of R&D employment, and trade activities with more countries. However, as in the overall utilization trends, there were differences in the profiling of users between exports and imports. For instance, FDI firms dominated the users in exports, while most of the users in imports comprised of local firms. Distributions in terms of industry and region also reveal differences between users in exports and imports.

The results of the regression analysis highlight the importance of firm capability, and knowledge and experience in trade. In line with the self-selection hypothesis, firm productivity influences firm decision to use FTAs, as firms need sufficient capability to account for the additional costs associated with FTA use. Firm size also reflected the importance of capability building in FTA utilization—the limited capabilities of MSMEs could hinder them from utilizing FTAs. It would also be critical for firms to gain knowledge and experience from their international trade engagements. Trading with more countries, especially FTA partners, would allow firms to be more familiar with trade procedures and regulations. Thus, becoming accustomed with FTA use procedures could be less costly for diversified traders. External factors, such as the state of competition within the industry, could also affect firm decision to use FTAs. In industries where market power is concentrated among a small number of major

players, the rest of the firms could face difficulties in competing with these major firms. This could impede their growth and hinder them from being productive enough trade using FTA schemes. Supplementary regressions also showed that larger tariff margins incentivize firms to avail preferential tariffs.

The findings of the study signify that, aside from constantly pursuing trade liberalization with existing and prospective FTA partners, the country's FTA policy must also focus on stimulating the use of preferential tariffs among firms. In this regard, the following recommendations are presented:

Intensify existing programs and formulate new ones to better prepare firms for FTA utilization. With firm productivity and knowledge being significant determinants of FTA utilization, increased focus must be given to facilitating the firm growth and providing access to information on FTAs. The Department of Trade and Industry-Export Marketing Bureau (DTI-EMB) has initiated the Doing Business in Free Trade Areas (DBFTA), an outreach program that conducts information drives to increase firm knowledge and awareness on FTAs, as well as the ASEAN Economic Community (AEC) and other preferential schemes (BusinessMirror 2017).

While the program has made significant progress in promoting FTAs, the findings of this study imply that the government needs to intensify its efforts on FTA use facilitation. For instance, the DTI-EMB could be more proactive in conducting the DBFTA, such as conducting surveys or regular monitoring to ensure that the participants were able to actually use FTAs in their trade activities. These measures could also be beneficial to constantly evaluate the impediments to FTA use. Through its current programs on MSME development and firm growth, the government could formulate new targeted interventions, focusing on assisting MSMEs and sectors that could be leveraged to boost the country's competitiveness and strengthen its position in GVCs.

Closely monitor the state of competition within industries. As implied by the findings, firms in industries with high market concentration could face difficulties in raising their productivity levels, preventing them from participating in foreign markets and, subsequently, using preferential tariffs. The government must assess the state of competition within industries, and closely monitor sectors where potential anti-competitive activities might occur.

Evaluate the trade structure with Japan, South Korea, and Singapore, and revisit the FTAs with these countries. The low FTA utilization rates call for an assessment of the Philippine trade structure with these countries. In particular, it would be beneficial to determine the leading products traded with these countries under general tariffs, as well as their respective tariff margins in the Philippine FTAs. This could serve as a guide in revisiting existing agreements and identifying the areas for further negotiation.

Streamline procedures on FTA utilization. Wignaraja et al. (2011) asserted that firms are likely to disregard the benefits from using FTAs due to the complicated procedures in availing the preferential rates. In an attempt to simplify procedures for utilizing the ATIGA, the Bureau of Customs (BOC) has implemented the ASEAN-Wide Self Certification Scheme (AWSC) in 2020. The AWSC authorizes qualified exporters to self-certify, instead of applying for a CoO, in order to avail the ATIGA tariff rates. However, exporters have complained that the self-certification process itself is complicated (Desiderio 2021). The capacity of BOC must be strengthened in order for the bureau to properly implement the AWSC, and be prepared for

potential streamlining of procedures in other FTAs. The AWSC also highlights the importance of assisting firms in acquiring the necessary capabilities to qualify for the self-certification scheme.

The megaregional agreements, particularly RCEP, also provide opportunities to streamline trade procedures. Quimba et al. (2021) noted that RCEP focuses on the harmonization of regional trade barriers and procedures. Among others, RCEP aims to streamline ROOs and customs procedures, reduce administrative costs, and enhance market access (Malindog-Uy 2022). Thus, ratifying the RCEP—and unlocking the aforementioned benefits—could be crucial in facilitating FTA utilization among Philippine firms.

Ensure the accuracy of export transactions data. It has been perceived that import data are more reliable than export data, since imports are monitored more closely by customs administrations to determine the correct import duties (Yotov et al. 2016). Issues in the documentation of COs also affect the accuracy of export data in reporting FTA transactions (Hayakawa et al. 2016). Thus, it is an imperative for the government to ensure the accuracy of the export transactions data. Working with the country's FTA partners could be valuable in obtaining data from their respective customs agencies.

Assess the impact of non-tariff measures (NTMs) on FTA utilization. While FTAs have resulted in substantial tariff reduction, NTMs emerged as a potential barrier to trade. These behind-the-border measures can disrupt global and regional production chains by unnecessarily increasing the cost of doing business (Medalla and Mantaring 2017). Moreover, the variability and unpredictability in NTM implementation could create trade uncertainty. Various studies (see, for example, Fontagné et al. 2015, Fernandes et al. 2019) have shown the adverse effects of NTMs on trade activities, especially among the smaller and less productive firms.

According to the study of the International Trade Centre (2016), the regulations per se are not the main impediment among Philippine firms, but the procedural obstacles resulting from NTM implementation. An initial assessment conducted by Quimba and Calizo (2020) showed that NTMs could have heterogeneous effects on trade. In particular, customs NTMs were negatively correlated with trade outcomes, while product and process NTMs had positive correlations with trade, particularly export growth. Moreover, the study noted that the coverage and degree of regulation of NTMs differ by product or sector. As such, it was not ideal to incorporate the NTMs in the regression analysis, since it was conducted at the aggregated firm-level. This study recommends the assessment of NTM effects on firm trade and FTA use at the firm-product level.

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Appendix

Appendix 1. Indicators of Industry-level Competition

Competition in a particular industry exists when there are rival firms that do not act in collusion in supplying the market. Assessing the state of competition within industries entails looking at the basic element of the market structure—the degree of market concentration. This is examined by estimating two commonly used indicators: Herfindahl-Hirschman Index (HHI) and the firm concentration ratio (CR). The HHI is computed as the sum of the squared market shares, s_i^2, of all suppliers in the market:

$$HHI = \sum_{i=1}^{n}(s_i^2) \quad (4)$$

The inverse of the HHI corresponds to the 'effective' number of competitors. This signifies that the higher the HHI the higher the concentration ratio and the lower the 'effective' number of rival firms. While HHI figures are usually multiplied by 10,000, this study used the raw HHI figures in the regression analysis.

The CR is computed as the market share (whether as share in value added or share in sales) of top firms. This study estimated the market share of the top four firms—the four-firm concentration ratio (CR4)

$$CR4 = \sum_{i=1}^{4}(s_i) \quad (5)$$

Thresholds in determining the degree of market concentration could be arbitrary. For instance, Medalla et al. (2018) proposed the following thresholds, which are more 'lenient' than the ones commonly used by the US and EU:

HHI of below 1500 is considered 'unconcentrated'
HHI of between 1500 and 2500, as 'moderately concentrated'
HHI of above 2500, as 'highly concentrated'

In the case of CR4, Aldaba (2008) employed the following thresholds: 70% as highly concentrated, between 40 to 70 % as moderate, and below 40% as low concentration as done by Aldaba (2008).

Appendix 2. Summary Statistics, Export-matched Data

Variable	Number of Obs.	Mean	SD	Min	Max
$FTAuseX_{isj,t}$	6,661	0.132	0.338	0	1
$Labprod_{isj,t}$	6,661	991,505	2,895,327	-15,235,495	110,917,104
$Age_{isj,t}$	6,644	22.434	13.664	0	163
$MSME_{isj,t}$	6,661	0.597	0.490	0	1
$FDI_{isj,t}$	6,661	0.571	0.494	0	1
$Researchexppct_{isj,t}$	6,661	0.085	0.614	0	15.814
$Researchemppct_{isj,t}$	6,661	0.916	3.841	0	79.716
$Ecommercepct_{isj,t}$	6,661	0.487	5.832	0	100
$HHIpsic3_{s,t}$	6,661	0.121	0.139	0.008	1
$CR4psic3_{s,t}$	6,661	0.459	0.238	0.098	1
$Numpartners_{isj,t}$	6,661	7.883	9.876	1	94
$FTAuseM_{isj,t}$	6,661	0.302	0.459	0	1

Appendix 3. Summary Statistics, Import-matched Data

Variable	Number of Obs.	Mean	SD	Min	Max
$FTAuseM_{isj,t}$	8,997	0.443	0.497	0	1
$Labprod_{isj,t}$	8,997	1,031,851	3,839,007	-27,320,004	243,996,160
$Age_{isj,t}$	8,975	23.925	14.389	0	163
$MSME_{isj,t}$	8,997	0.643	0.479	0	1
$FDI_{isj,t}$	8,997	0.475	0.499	0	1
$Researchexppct_{isj,t}$	8,997	0.069	0.545	0	15.815
$Researchemppct_{isj,t}$	8,996	0.839	3.681	0	79.717
$Ecommercepct_{isj,t}$	8,997	0.372	5.080	0	100
$HHIpsic3_{s,t}$	8,997	0.112	0.133	0.008	1
$CR4psic3_{s,t}$	8,997	0.440	0.232	0.098	1
$Numpartners_{isj,t}$	8,997	7.295	6.575	1	60
$FTAuseX_{isj,t}$	8,997	0.089	0.285	0	1

Appendix 4. Summary Statistics, Cross-sectional Import Data with Tariff Margin

Variable	Number of Obs.	Mean	SD	Min	Max
$FTApctM_{isj,t}$	1,206	22.578	31.496	0	100
$Labprod_{isj,t}$	1,206	1,100,536	2,529,597	-27,320,004	37,362,880
$Age_{isj,t}$	1,202	25.954	14.234	0	109
$MSME_{isj,t}$	1,206	0.629	0.483	0	1
$FDI_{isj,t}$	1,206	0.482	0.500	0	1
$Researchexppct_{isj,t}$	1,206	0.035	0.310	0	8.195
$Researchemppct_{isj,t}$	1,206	1.102	4.659	0	79.717
$Ecommercepct_{isj,t}$	1,206	0.793	6.658	0	91
$HHIpsic3_{s,t}$	1,206	0.118	0.146	0.012	0.909
$CR4psic3_{s,t}$	1,206	0.438	0.233	0.118	0.997
$Numpartners_{isj,t}$	1,206	8.585	7.427	1	60
$FTAuseX_{isj,t}$	1,206	0.029	0.168	0	1
$Avgmarginpct_{isj,t}$	1,206	0.850	1.612	0	11

Appendix 5. Marginal Effects on FTA Export Use, Full Results

Outcome Variable: $FTAuseX_{isj,t}$	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
$ln(Labprod)_{isj,t}$	0.0143***	0.0145***	0.0144***	0.0091**	0.0081*
	(0.0042)	(0.0042)	(0.0042)	(0.0041)	(0.0042)
$Age_{isj,t}$	0.0014*	0.0014*	0.0014*	0.0012*	0.0011
	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0007)
$Age^2_{isj,t}$	-0.000008	-0.000008	-0.000008	-0.000008	-0.000007
	(0.000006)	(0.000007)	(0.000007)	(0.000007)	(0.000006)
$MSME_{isj,t}$	-0.0391***	-0.0389***	-0.0387***	-0.0180*	-0.0163
	(0.0103)	(0.0103)	(0.0103)	(0.0105)	(0.0106)
$FDI_{isj,t}$	0.0301**	0.0302**	0.0303**	0.0223*	0.0234*
	(0.0122)	(0.0122)	(0.0122)	(0.0121)	(0.0121)
$Researchexppct_{isj,t}$	-0.0031	-0.0032			
	(0.0052)	(0.0053)			
$Researchemppct_{isj,t}$	0.0015*	0.0015*	0.0015*	0.0013	0.0013
	(0.0009)	(0.0009)	(0.0009)	(0.0009)	(0.0009)
$Ecommercepct_{isj,t}$	-0.0007	-0.0007	-0.0007	-0.0007	-0.0007
	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
$HHIpsic3_{s,t}$		-0.0341		-0.0555	-0.0527
		(0.0511)		(0.0537)	(0.0537)
$CR4psic3_{s,t}$			-0.0295		
			(0.0311)		
$Numpartners_{isj,t}$				0.0050***	0.0050***
				(0.0006)	(0.0006)
$FTAuseM_{isj,t}$					0.0141
					(0.0109)
Industry-level Dummies					
PSIC_11	-0.0631	-0.0628	-0.0625	-0.0579	-0.0604
	(0.0610)	(0.0608)	(0.0614)	(0.0521)	(0.0523)
PSIC_12	0.0654	0.0948	0.0937	0.1167	0.1110
	(0.0982)	(0.1132)	(0.1066)	(0.1021)	(0.0997)
PSIC_13	-0.0194	-0.0197	-0.0201	-0.0181	-0.0160
	(0.0454)	(0.0450)	(0.0449)	(0.0418)	(0.0415)
PSIC_14	-0.1025***	-0.1022***	-0.1038***	-0.0971***	-0.0921***
	(0.0275)	(0.0272)	(0.0271)	(0.0256)	(0.0255)
PSIC_15	-0.0515	-0.0439	-0.0420	-0.0271	-0.0247
	(0.0472)	(0.0496)	(0.0494)	(0.0499)	(0.0491)
PSIC_16	-0.0001	0.0090	0.0178	0.0278	0.0330
	(0.0504)	(0.0530)	(0.0560)	(0.0524)	(0.0523)
PSIC_17	-0.1446***	-0.1440***	-0.1459***	-0.1310***	-0.1276***
	(0.0323)	(0.0317)	(0.0312)	(0.0310)	(0.0308)
PSIC_18	-0.1452**	-0.1437**	-0.1444**	-0.1207**	-0.1164**
	(0.0438)	(0.0433)	(0.0427)	(0.0477)	(0.0477)
PSIC_19					
PSIC_20	0.0037	0.0057	0.0089	0.0146	0.0148
	(0.0407)	(0.0407)	(0.0413)	(0.0379)	(0.0376)
PSIC_21	-0.1191**	-0.1120**	-0.1102**	-0.08335	-0.0829

Outcome Variable: $FTAuseX_{isj,t}$	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	(0.0416)	(0.0444)	(0.0443)	(0.0490)	(0.0477)
PSIC_22	-0.0666**	-0.0648**	-0.0687**	-0.0434	-0.0406
	(0.0295)	(0.0294)	(0.0290)	(0.0286)	(0.0282)
PSIC_23	-0.0701	-0.0679	-0.0647	-0.0418	-0.0403
	(0.0440)	(0.0439)	(0.0447)	(0.0434)	(0.0430)
PSIC_24	-0.1267***	-0.1215***	-0.1201***	-0.0952***	-0.0911***
	(0.0301)	(0.0310)	(0.0310)	(0.0310)	(0.0308)
PSIC_25	-0.1316***	-0.1303***	-0.1321***	-0.1120***	-0.1080***
	(0.0282)	(0.0279)	(0.0277)	(0.0272)	(0.0269)
PSIC_26	-0.1795***	-0.1762***	-0.1745***	-0.1736***	-0.1693***
	(0.0243)	(0.0245)	(0.0247)	(0.0222)	(0.0220)
PSIC_27	-0.1304***	-0.1251***	-0.1221***	-0.1202***	-0.1165***
	(0.0299)	(0.0301)	(0.0313)	(0.0275)	(0.0271)
PSIC_28	-0.0984**	-0.0964**	-0.0940**	-0.0815**	-0.0774**
	(0.0355)	(0.0355)	(0.0358)	(0.0343)	(0.0342)
PSIC_29	-0.0534	-0.0518	-0.0523	-0.0277	-0.0236
	(0.0342)	(0.0340)	(0.0340)	(0.0332)	(0.0331)
PSIC_30	-0.1219**	-0.1129**	-0.1073*	-0.0772	-0.0734
	(0.0444)	(0.0479)	(0.0493)	(0.0513)	(0.0514)
PSIC_31	-0.0249	-0.0260	-0.0298	-0.0121	-0.0094
	(0.0416)	(0.0411)	(0.0405)	(0.0387)	(0.0385)
PSIC_32	-0.0269	-0.0210	-0.0157	-0.0205	-0.0145
	(0.0403)	(0.0418)	(0.0434)	(0.0379)	(0.0378)
PSIC_33					
Region-level Dummies					
Region 2					
Region 3	-0.1315	-0.1424	-0.1421	-0.1939	-0.1983
	(0.2660)	(0.2702)	(0.2693)	(0.2630)	(0.2640)
Region 4A	-0.0823	-0.0936	-0.0927	-0.1279	-0.1313
	(0.2658)	(0.2701)	(0.2692)	(0.2630)	(0.2640)
Region 5	0.0001	-0.0094	-0.0091	-0.0334	-0.0345
	(0.2755)	(0.2794)	(0.2790)	(0.2729)	(0.2741)
Region 6	-0.2097	-0.2211	-0.2206	-0.2488	-0.2520
	(0.2668)	(0.2710)	(0.2702)	(0.2649)	(0.2660)
Region 7	-0.1203	-0.1317	-0.1310	-0.1822	-0.1855
	(0.2662)	(0.2704)	(0.2695)	(0.2633)	(0.2643)
Region 8	-0.0073	-0.0147	-0.0155	-0.0372	-0.0426
	(0.2739)	(0.2776)	(0.2771)	(0.2699)	(0.2711)
Region 9	0.1266	0.1180	0.1213	0.0890	0.0824
	(0.2848)	(0.2889)	(0.2884)	(0.2804)	(0.2817)
Region 10	-0.0310	-0.0417	-0.0410	-0.1071	-0.1130
	(0.2712)	(0.2752)	(0.2744)	(0.2670)	(0.2680)
Region 11	-0.1722	-0.1835	-0.1835	-0.2330	-0.2379
	(0.2664)	(0.2706)	(0.2697)	(0.2633)	(0.2643)
Region 12	-0.1722	-0.1836	-0.1828	-0.2380	-0.2433

Outcome Variable: $FTAuseX_{isj,t}$	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	(0.2684)	(0.2726)	(0.2717)	(0.2650)	(0.2659)
NCR	-0.1274	-0.1387	-0.1379	-0.1678	-0.1740
	(0.2661)	(0.2703)	(0.2694)	(0.2632)	(0.2642)
Cordillera	-0.1820	-0.1927	-0.1921	-0.2436	-0.2466
	(0.2673)	(0.2716)	(0.2707)	(0.2638)	(0.2649)
ARMM					
Caraga	-0.1642	-0.1754	-0.1747	-0.2282	-0.2358
	(0.2682)	(0.2724)	(0.2715)	(0.2647)	(0.2655)
Region 4A					
Year Dummies					
2013	-0.1148***	-0.1150***	-0.1155***	-0.1165***	-0.1162***
	(0.0151)	(0.0151)	(0.0151)	(0.0149)	(0.0149)
2014	-0.1992***	-0.1997***	-0.2003***	-0.1993***	-0.1994***
	(0.0160)	(0.0160)	(0.0160)	(0.0159)	(0.0158)
2015	-0.2138***	-0.2143***	-0.2147***	-0.2127***	-0.2125***
	(0.0164)	(0.0163)	(0.0163)	(0.0162)	(0.0162)
2016	-0.1882***	-0.1885***	-0.1892***	-0.1856***	-0.1849***
	(0.0163)	(0.0163)	(0.0163)	(0.0162)	(0.0162)
2017	-0.2472***	-0.2474***	-0.2479***	-0.2447***	-0.2441***
	(0.0155)	(0.0155)	(0.0155)	(0.0154)	(0.0154)
2018	-0.1581***	-0.1586***	-0.1589***	-0.1535***	-0.1525***
	(0.0166)	(0.0166)	(0.0166)	(0.0165)	(0.0164)
Observations	6,447	6,447	6,447	6,447	6,447

Appendix 6. Marginal Effects on FTA Import Use, Full Results

Outcome Variable: $FTAuseM_{isj,t}$	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
$ln(Labprod)_{isj,t}$	0.0413***	0.0415***	0.0413***	0.0263***	0.0265***
	(0.0052)	(0.0052)	(0.0052)	(0.0050)	(0.0050)
$Age_{isj,t}$	0.0048***	0.0049***	0.0049***	0.0042***	0.0042***
	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0010)
$Age^2_{isj,t}$	-0.00003***	-0.00003***	-0.00003***	-0.00003**	-0.00003**
	(0.00001)	(0.00001)	(0.00001)	(0.00001)	(0.00001)
$MSME_{isj,t}$	-0.0631***	-0.0627***	-0.0617***	-0.0099	-0.0104
	(0.0134)	(0.0133)	(0.0134)	(0.0134)	(0.0135)
$FDI_{isj,t}$	-0.0762***	-0.0764***	-0.0762***	-0.0905***	-0.0897***
	(0.0147)	(0.0147)	(0.0147)	(0.0146)	(0.0146)
$Researchexppct_{isj,t}$	-0.0086	-0.0086			
	(0.0077)	(0.0077)			
$Researchemppct_{isj,t}$	0.0016*	0.0016*	0.0015	0.0014	0.0015
	(0.0009)	(0.0009)	(0.0009)	(0.0009)	(0.0009)
$Ecommercepct_{isj,t}$	-0.0009	-0.0009	-0.0009	-0.0013*	-0.0013*
	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0007)
$HHIpsic3_{s,t}$		-0.0698		-0.1267**	-0.1272**
		(0.0569)		(0.0610)	(0.0611)
$CR4psic3_{s,t}$			-0.0684*		
			(0.0390)		
$Numpartners_{isj,t}$				0.0167***	0.0168***
				(0.0014)	(0.0014)
$FTAuseX_{isj,t}$					-0.0180
					(0.0159)
Industry-level Dummies					
PSIC_11	0.153261	0.151826	0.151145	0.104414	0.10274
	0.093882	0.093739	0.092383	0.09878	0.097905
PSIC_12	0.026354	0.064464	0.067395	-0.0276	-0.02526
	0.121631	0.125698	0.120092	0.163418	0.16391
PSIC_13	-0.14373***	-0.14314***	-0.14223***	-0.10745**	-0.1083**
	0.047555	0.047451	0.047341	0.044691	0.044727
PSIC_14	-0.29056***	-0.29108***	-0.29451***	-0.26519***	-0.26587***
	0.036355	0.036282	0.036124	0.035396	0.035432
PSIC_15	-0.19302***	-0.18163***	-0.17487***	-0.13976**	-0.13982**
	0.05918	0.059438	0.059595	0.058381	0.058381
PSIC_16	-0.1261**	-0.11167*	-0.09453	-0.07306	-0.07244
	0.060095	0.06138	0.063269	0.058262	0.058165
PSIC_17	-0.07385	-0.07691*	-0.0866*	-0.07886*	-0.08007*
	0.045253	0.045315	0.045762	0.041323	0.041358
PSIC_18	-0.28646***	-0.28631***	-0.28809***	-0.25303***	-0.25454***
	0.058329	0.05822	0.057862	0.058359	0.058376
PSIC_19	-0.36488***	-0.3374***	-0.32879***	-0.27304**	-0.27489**
	0.098116	0.105255	0.105126	0.103557	0.103577
PSIC_20	-0.00948	-0.00612	-0.00012	-0.00162	-0.0024
	0.038785	0.038977	0.039197	0.037071	0.037061
PSIC_21	-0.13533*	-0.11748	-0.11002	-0.12178*	-0.12351*

Outcome Variable: $FTAuseM_{isj,t}$	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	0.076024	0.077583	0.077527	0.07135	0.071518
PSIC_22	-0.11082***	-0.11038***	-0.12077***	-0.08535***	-0.08588***
	0.034703	0.03472	0.034829	0.032328	0.032323
PSIC_23	-0.06921	-0.06616	-0.05889	-0.05059	-0.05155
	0.051207	0.051298	0.051478	0.049914	0.049833
PSIC_24	-0.14688***	-0.13789***	-0.13551***	-0.10238**	-0.10381**
	0.044351	0.044791	0.044491	0.043899	0.043896
PSIC_25	-0.19105***	-0.19076***	-0.19706***	-0.15838***	-0.15965***
	0.037581	0.037436	0.037309	0.035549	0.035568
PSIC_26	-0.37256***	-0.36516***	-0.35732***	-0.39182***	-0.39422***
	0.033317	0.033711	0.034149	0.033598	0.033585
PSIC_27	-0.21785***	-0.20726***	-0.19609***	-0.22431***	-0.22604***
	0.041345	0.042392	0.043613	0.04333	0.043243
PSIC_28	-0.25868***	-0.25501***	-0.2478***	-0.23077***	-0.23233***
	0.043066	0.043172	0.043416	0.042109	0.042125
PSIC_29	-0.2169***	-0.21226***	-0.21095***	-0.18958***	-0.18979***
	0.045166	0.045173	0.045214	0.044677	0.044729
PSIC_30	-0.21079***	-0.18908***	-0.1718**	-0.15304**	-0.15287**
	0.065677	0.068651	0.07043	0.071415	0.071146
PSIC_31	-0.02913	-0.03149	-0.03889	-0.02333	-0.02274
	0.045165	0.045342	0.045489	0.042647	0.042598
PSIC_32	-0.34644***	-0.33872***	-0.3291***	-0.32383***	-0.32282***
	0.041451	0.04197	0.043005	0.043767	0.043612
PSIC_33	-0.34382***	-0.33618***	-0.32828***	-0.28829***	-0.28981***
	0.059642	0.059992	0.06073	0.059077	0.059038
Region-level Dummies					
Region 2	-0.09941	-0.09338	-0.09877	-0.00571	-0.00772
	0.2299	0.234757	0.228568	0.272938	0.271803
Region 3	-0.0551	-0.05551	-0.05815	-0.07741	-0.07691
	0.160564	0.159894	0.158364	0.154007	0.153999
Region 4A	-0.14446	-0.14575	-0.14865	-0.16522	-0.16371
	0.159416	0.158735	0.157214	0.152826	0.152823
Region 5	-0.1445	-0.14398	-0.14572	-0.12097	-0.1184
	0.184133	0.183476	0.182061	0.178301	0.178107
Region 6	-0.1229	-0.12598	-0.13187	-0.11617	-0.11702
	0.172439	0.171714	0.170178	0.164284	0.16421
Region 7	-0.15576	-0.15689	-0.15954	-0.1725	-0.17141
	0.160215	0.15952	0.157985	0.153671	0.15367
Region 8	0.068288	0.072187	0.067873	0.035028	0.036775
	0.222213	0.219835	0.219084	0.239358	0.239538
Region 9	-0.00456	-0.00494	-0.00648	-0.01524	-0.0099
	0.205679	0.20474	0.203166	0.185932	0.185834
Region 10	0.066017	0.06481	0.063186	0.032202	0.034148
	0.174144	0.173553	0.172222	0.166906	0.166807
Region 11	0.057381	0.055716	0.052075	0.046705	0.047065
	0.165834	0.165196	0.163711	0.158488	0.15848
Region 12	0.038972	0.036564	0.032191	0.01233	0.012875

Outcome Variable: $FTAuseM_{isj,t}$	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	0.184305	0.183678	0.182373	0.173402	0.17345
NCR	0.124431	0.12305	0.119955	0.100056	0.100569
	0.159099	0.158405	0.156865	0.152552	0.152537
Cordillera	-0.17394	-0.17708	-0.1823	-0.3565**	-0.3561**
	0.186001	0.185202	0.183594	0.17413	0.173924
ARMM	0	0	0	0	0
	(empty)	(empty)	(empty)	(empty)	(empty)
Caraga	0.174041	0.17307	0.170378	0.166757	0.166569
	0.197511	0.197141	0.196104	0.184756	0.184901
Region 4A	-0.22696	-0.20927	-0.21044	-0.32175**	-0.32295**
	0.16993	0.173011	0.17183	0.156692	0.156594
Year Dummies					
2013	0.015354	0.015068	0.014605	0.019131	0.017681
	0.012204	0.012218	0.012223	0.01254	0.012523
2014	0.051476***	0.050896***	0.049429***	0.059433***	0.057423***
	0.013226	0.013231	0.013293	0.013626	0.013698
2015	0.031749**	0.031162**	0.030543**	0.021235	0.018809
	0.013046	0.013025	0.013079	0.013102	0.013246
2016	0.012088	0.011967	0.010919	0.001224	-0.00096
	0.013668	0.013684	0.013697	0.013489	0.013608
2017	0.029034**	0.029065**	0.028181**	0.012422	0.009142
	0.013786	0.01382	0.013881	0.013963	0.014318
2018	0.048721***	0.048424***	0.04789***	0.037316**	0.035811**
	0.014427	0.014451	0.014442	0.014678	0.014755
Observations	8,003	8,003	8,003	8,003	8,003

Appendix 7. OLS on FTA Import Percentage (with Tariff Margin), Full Results

Outcome Variable: $FTApctM_{isj,t}$	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
$ln(Labprod)_{isj,t}$	2.797***	2.871***	2.852***	2.766***	2.738***
	(0.633)	(0.633)	(0.631)	(0.664)	(0.664)
$Age_{isj,t}$	0.242*	0.239*	0.245*	0.234*	0.235*
	(0.136)	(0.136)	(0.136)	(0.137)	(0.137)
$Age^2_{isj,t}$	-0.002	-0.002	-0.002	-0.002	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
$MSME_{isj,t}$	-2.071*	-1.994	-1.973	-1.674	-1.687
	(1.233)	(1.230)	(1.233)	(1.362)	(1.363)
$FDI_{isj,t}$	-5.101***	-5.131***	-5.140***	-5.166***	-5.210***
	(1.433)	(1.429)	(1.430)	(1.431)	(1.433)
$Researchexppct_{isj,t}$	-0.687	-0.719			
	(0.690)	(0.702)			
$Researchemppct_{isj,t}$	0.170	0.157	0.161	0.158	0.151
	(0.177)	(0.177)	(0.176)	(0.178)	(0.180)
$Ecommercepct_{isj,t}$	-0.069*	-0.072*	-0.070*	-0.076*	-0.074*
	(0.037)	(0.039)	(0.038)	(0.040)	(0.040)
$HHIpsic3_{s,t}$		-9.809***		-9.824***	-9.803***
		(3.642)		(3.662)	(3.657)
$CR4psic3_{s,t}$			-4.719		
			(3.652)		
$Numpartners_{isj,t}$				0.052	0.046
				(0.074)	(0.074)
$FTAuseX_{isj,t}$					3.273
					(3.014)
Industry-level Dummies					
PSIC_11	4.387	4.367	4.290	3.823	4.111
	(14.993)	(14.986)	(15.008)	(14.978)	(15.019)
PSIC_12	-17.496***	-14.190**	-14.681**	-14.227**	-14.003**
	(6.312)	(6.416)	(6.634)	(6.367)	(6.362)
PSIC_13	-0.783	-0.334	-0.298	-0.247	-0.094
	(4.294)	(4.287)	(4.293)	(4.287)	(4.294)
PSIC_14	-11.292***	-11.497***	-11.854***	-11.357***	-11.171***
	(2.691)	(2.692)	(2.754)	(2.697)	(2.710)
PSIC_15	1.463	3.266	2.630	3.388	3.550
	(5.830)	(5.768)	(5.848)	(5.779)	(5.784)
PSIC_16	-2.387	-0.404	-0.231	-0.353	-0.171
	(4.885)	(4.944)	(5.110)	(4.935)	(4.936)
PSIC_17	-3.843	-4.167	-4.553	-4.168	-3.966
	(3.887)	(3.890)	(3.939)	(3.883)	(3.897)
PSIC_18	1.939	2.301	2.461	2.474	2.630
	(7.302)	(7.306)	(7.302)	(7.293)	(7.292)
PSIC_19	-18.831***	-14.518***	-15.899***	-14.428***	-14.273***
	(2.675)	(3.028)	(3.382)	(3.061)	(3.075)
PSIC_20	3.962	4.592	4.607	4.596	4.647
	(3.526)	(3.529)	(3.536)	(3.523)	(3.511)
PSIC_21	-7.778	-4.584	-5.818	-4.743	-4.524

Outcome Variable: $FTApctM_{isj,t}$	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	(5.549)	(5.666)	(5.725)	(5.646)	(5.656)
PSIC_22	-4.766	-4.385	-5.117	-4.296	-4.144
	(3.145)	(3.150)	(3.136)	(3.151)	(3.160)
PSIC_23	2.555	3.058	3.310	3.096	3.214
	(4.556)	(4.559)	(4.587)	(4.560)	(4.576)
PSIC_24	4.585	5.659	4.858	5.814	6.023*
	(3.598)	(3.602)	(3.563)	(3.606)	(3.619)
PSIC_25	-0.884	-0.902	-1.427	-0.773	-0.601
	(3.374)	(3.355)	(3.415)	(3.356)	(3.363)
PSIC_26	-10.580***	-9.246***	-9.383***	-9.311***	-9.104***
	(2.533)	(2.569)	(2.636)	(2.566)	(2.576)
PSIC_27	-5.261*	-3.809	-4.118	-3.915	-3.798
	(2.973)	(3.007)	(3.030)	(3.006)	(3.010)
PSIC_28	-4.401	-3.692	-3.391	-3.728	-3.589
	(3.428)	(3.431)	(3.490)	(3.419)	(3.425)
PSIC_29	-4.322	-3.926	-4.149	-3.856	-3.890
	(3.493)	(3.542)	(3.529)	(3.545)	(3.541)
PSIC_30	-11.346***	-8.377**	-8.733*	-8.176*	-8.122*
	(4.123)	(4.231)	(4.545)	(4.247)	(4.260)
PSIC_31	-10.291**	-10.463**	-10.778***	-10.451**	-10.5435**
	(4.140)	(4.136)	(4.166)	(4.140)	(4.156)
PSIC_32	-11.557***	-10.657***	-10.271***	-10.593***	-10.647***
	(2.948)	(2.943)	(3.012)	(2.943)	(2.948)
PSIC_33	2.006	4.148	3.735	4.241	4.442
	(8.653)	(8.682)	(8.741)	(8.700)	(8.718)
Region-level Dummies					
Region 2	-35.259*	-35.652*	-35.738*	-35.636*	-35.535*
	(21.389)	(21.367)	(21.370)	(21.384)	(21.383)
Region 3	-12.960	-13.091	-13.378	-13.292	-13.354
	(21.420)	(21.399)	(21.405)	(21.419)	(21.419)
Region 4A	-16.297	-16.545	-16.797	-16.770	-16.900
	(21.416)	(21.396)	(21.403)	(21.415)	(21.415)
Region 5	-9.078	-9.180	-9.485	-9.096	-9.146
	(26.571)	(26.530)	(26.560)	(26.561)	(26.566)
Region 6	-2.162	-2.547	-2.867	-2.550	-2.554
	(23.871)	(23.832)	(23.833)	(23.845)	(23.841)
Region 7	-12.376	-12.646	-12.881	-12.831	-13.079
	(21.424)	(21.403)	(21.410)	(21.420)	(21.422)
Region 8	-25.591	-24.286	-25.582	-24.642	-24.626
	(24.272)	(23.981)	(24.117)	(24.106)	(24.115)
Region 9	12.193	11.808	11.610	11.136	11.143
	(22.359)	(22.387)	(22.395)	(22.472)	(22.485)
Region 10	-22.335	-22.524	-22.687	-22.797	-23.305
	(23.305)	(23.277)	(23.283)	(23.296)	(23.290)
Region 11	-6.361	-6.594	-6.911	-6.823	-6.865
	(22.336)	(22.312)	(22.312)	(22.334)	(22.333)
Region 12	-23.470	-23.903	-24.180	-24.223	-24.727

Outcome Variable: $FTApctM_{isj,t}$	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	(22.636)	(22.610)	(22.611)	(22.653)	(22.664)
NCR	-7.940	-8.142	-8.463	-8.349	-8.480
	(21.376)	(21.355)	(21.360)	(21.376)	(21.376)
Cordillera	-23.658	-24.305	-24.541	-25.178	-25.130
	(21.469)	(21.470)	(21.472)	(21.537)	(21.530)
ARMM	8.437	8.460	8.070	8.497	8.268
	(21.718)	(21.698)	(21.704)	(21.713)	(21.714)
Caraga	2.228	2.122	1.757	2.155	2.087
	(23.056)	(23.053)	(23.062)	(23.045)	(23.040)
R^2	0.630	0.631	0.630	0.631	0.632
Observations	1,183	1,183	1,183	1,183	1,183