The impact of FTA import utilization on firm performance: An assessment of Philippine manufacturing MSMEs[1]

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Abstract. This study attempted to assess how utilizing FTAs in imports affects the performance of Philippine manufacturing MSMEs. It utilized a rich Philippine microdata set that integrates the annual surveys/censuses with trade transactions data. To address the endogeneity bias arising from self-selection, the study employed the propensity score weighting and difference-in-difference methods. The empirical analysis confirms the presence of selection effects on the firms' decision to use FTAs, particularly from foreign ownership and total imports. The results also show that FTA use affected MSME importers mainly through increasing their total imports. While FTA import use did not foster export market participation, domestic value chains and import competition in the country still present opportunities for firm upgrading. Among others, policymakers must prioritize easing FTA procedures, intensify MSME support mechanisms, and improve data access and monitoring. Future research on specific interventions from the MSME provisions, and FTA use rates at the product level could also prove beneficial for policy formulation.

Keywords: free trade agreements, imports; micro-, small, and medium enterprises; propensity score, difference-in-difference

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1. Introduction

In recent decades, countries have mainly pursued trade liberalization through forging free trade agreements (FTAs). The total number of FTAs has exponentially increased since the 1990s, from 22 in 1990 to 354 in 2021, with around 190 agreements involving Asian countries. Much of the rise of FTAs can be attributed to the increasing complexity of 21st century trade, as behind-the-border barriers have become notably significant in production networks. Since the 2000s, established FTAs tend to be more complex and 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).

Facilitating the development of micro-, small, and medium enterprises (MSMEs) through FTAs has also emerged as an important policy area. The number of FTAs with MSME-related provisions has also gradually increased over time. Assessing the FTAs of India, Chile, Peru, and Vietnam, Tandon (2021) found that around half of the covered FTAs explicitly contain provisions on MSMEs. These provisions mainly entail cooperation among member countries, while transparency and exemption measures were also included. Cooperation measures include technical and entrepreneurial trainings, skills and knowledge enhancement for export engagement, innovation and investment facilitation, and organization of conferences and other avenues for discussion and network building. Meanwhile, transparency and exemption measures mostly focus on exchange of information and consideration of mutual interests.

The potential of FTAs to spearhead MSME development could be crucial for stimulating inclusive and sustainable growth of the Philippine economy. Like in many other countries, MSMEs are key drivers of economic activity in the Philippines. During the period 2017-2021, MSMEs constituted around 99.5% of Philippine establishments, and had an average annual share of 63.2% in total employment. However, MSMEs have been facing numerous structural constraints, such as lack of access to finance, modern technology, and skilled workers (Aldaba 2014). The Philippine government has long recognized the importance of equipping MSMEs with the necessary capabilities to become productive and efficient, as well as establishing their linkages in domestic and global value chains (GVCs).

Building on its initial FTA engagements as a member of the Association of Southeast Asian Nations (ASEAN), the Philippines gradually showed its capacity to advance its interests as an individual party. Following its landmark bilateral FTA with Japan, the country forged an FTA with the European Free Trade Association (EFTA) in 2018, while its bilateral agreement with South Korea is slated to be signed by 2023 (Talavera 2023). Moreover, the country has ratified the Regional Comprehensive Economic Partnership (RCEP), considered as one of the most important megaregional trade agreements, in February 2023 (Tan 2023).

Based on the data of the World Trade Organization (WTO) on MSME provisions in FTAs, all Philippine FTAs (except the Philippines-EFTA FTA) have at least one provision mentioning MSMEs. The Japan-Philippines Economic Partnership Agreement (JPEPA) contains the greatest number of MSME-related provisions, mostly in the areas of cooperation and investment. Both Japan and the Philippines agreed to initiate various efforts such as information exchange on MSME policies and best practices and capacity building of MSMEs. Meanwhile, MSME-related provisions in investments mostly focus on foreign equity limitations. Other areas, such as e-commerce, rules of origin, trade in services, and trade facilitation, contain MSME-related provisions in other Philippine FTAs.

Developing a sound FTA strategy continues to be a key policy area for the Philippines. In the Philippine Development Plan 2023-2028, advancing purposive, assertive, and forward-looking FTA strategies was deemed crucial in facilitating trade and improving the global position of Philippine export sectors. Thus, this paper aims to assess the impact of FTAs on the performance of Philippine MSMEs, to serve as a guide for policymakers in ensuring that the country's FTA strategy would translate in MSME development.

It also intends to contribute to the budding empirical literature on firm-level effects of using FTAs, by taking advantage of a rich microdata set that merges the Philippines' annual establishment survey/census data with the universe of trade transactions. The analysis was limited to the causal effects of FTA use in imports, since data on imports were noted to be more accurate than on exports (Yotov et al. 2016, Quimba et al. 2022).

The rest of the paper is organized as follows: Section 2 reviews related literature on the firm-level impacts of FTA utilization, and the Philippine FTA engagement; Section 3 presents the data sources and the empirical methodology in examining the causal effect of FTA use on firm performance; Section 4 reports and discusses the estimation results; Section 5 provides the conclusion and recommendations.

2. Review of Related Literature

FTA Utilization of the Philippines

The existing Philippine FTAs have already exhibited substantial tariff reduction during the 2010s, as noted by Quimba et al. (2022). Except for the ASEAN-India FTA (AIFTA), all FTAs have reduced the tariff rates of more than 95% of their respective tariff lines. In most Philippine FTAs, the bulk of the eligible tariff lines already have their respective tariff rates eliminated. Looking at Table 1, ATIGA and AKFTA registered the highest percentages of zero tariff lines in 2010. Throughout the decade, AJCEP, JPEPA, and AANZFTA exhibited the most frequent increases in eliminated tariff lines. By 2020, four FTAs had eliminated at least 90% of the tariff lines.

**Table 1. 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

Note: ATIGA = ASEAN Trade in Goods Agreement; AKFTA = ASEAN-Korea FTA; AJCEP = ASEAN-Japan Comprehensive Economic Partnership; AIFTA = ASEAN-India FTA; JPEPA = Japan-Philippines Economic Partnership Agreement; ACFTA = ASEAN-China FTA; AANZFTA = ASEAN-Australia-New Zealand FTA
Source: Quimba et al. (2022).

Despite the substantial liberalization under FTAs, firm utilization, particularly in exports still needs to improve. Throughout the 2010s, FTA partners accounted for around half of Philippine exports. However, the country's export sector failed to take advantage of the preferential tariffs, as overall utilization of FTAs in exports showed a generally decreasing trend throughout the 2010s (Quimba et al. 2022).

FTA utilization in imports, on the other hand, had a more promising trend in the previous decade. While the shares of FTAs in all import indicators decreased in some years, they were still able to exhibit an upward trend throughout the 2010s. By 2020, imports under FTAs already covered 30% of total import value and 20% of the total number of import transactions, and FTA users accounted for 56% of Philippine importers.[2] However, import utilization rates from leading import sources such as Japan, South Korea, and Singapore have been low (Quimba et al. 2022).

Figure 1. FTA Use Patterns in the Philippines, 2011-2020
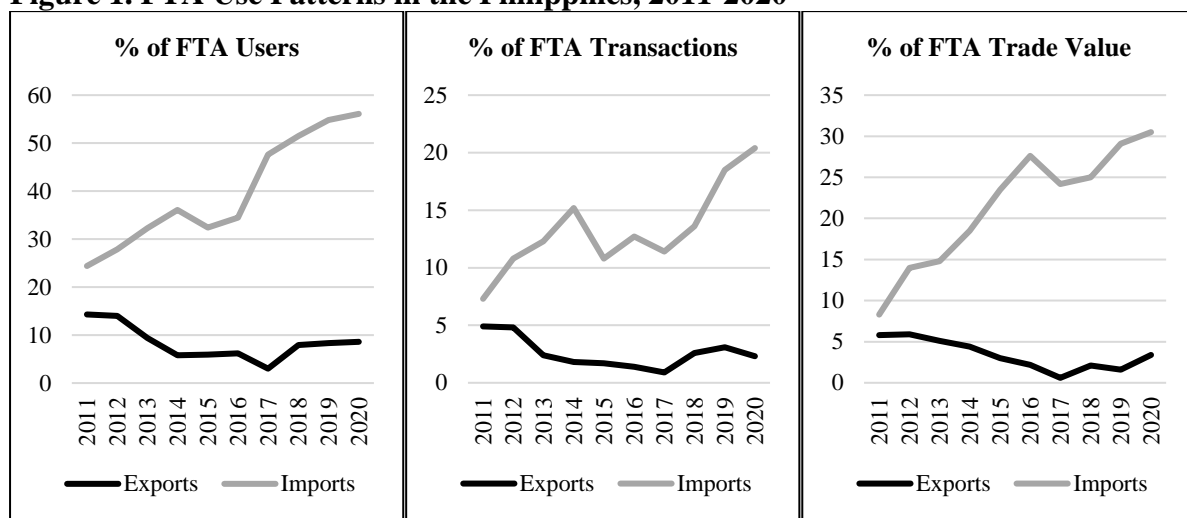
Source: Authors' calculations based on the trade transactions data.

Table 2 shows the distribution of firms by the rate of FTA use (i.e., percentage share of FTA imports in total import value). It is interesting to note that there was a shift in the distribution of FTA import users, between importers that barely used FTAs (0-20%) and those with at least 80% FTA use rate. During the first four years of the decade, more than 30% of the users were seldom users, while the total share of exclusive users ranged around 11-25%. By the second half of the decade, the exclusive users already surpassed the seldom users in percentage share; almost half of the import users in 2020 were exclusive users. Completely exclusive users—those whose import activities were entirely under FTA schemes—significantly contributed to this trend; in 2020, 20.0% of the FTA import users were already importing completely under FTAs. This reinforces the notion that FTA use has become an integral part of many firms' import activities.

Philippine traders have also exhibited notable trends in terms of changing import activity status. Table 3 shows that the bulk of traders have been inactive importers—non-importers that did not also import in the previous year—and their percentage share has gradually increased throughout the 2010s. However, it is also interesting to note that the share of consistent users of FTA schemes—FTA users that continued to use in the succeeding year—has had an increasing trend as well. This suggests that importers that successfully utilize FTAs are likely

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[2] Quimba et al. (2022) defined an FTA export (import) user as a firm with at least one export (import) transaction under any FTA scheme.

to possess the necessary capabilities to consistently take advantage of the preferential tariffs. However, the trends could also imply that majority of the importers struggle to consistently engage in import activities.

Table 2. Distribution of FTA Import Users, by FTA Use Rate

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
0% < FTA ≤ 20%	42.5	34.9	37.8	34.4	26.1	22.1	22.9	20.7	19.0	17.8
20% < FTA ≤ 40%	19.8	15.1	14.0	14.5	13.7	13.5	15.5	13.5	11.9	11.4
40% < FTA ≤ 60%	17.0	14.2	12.1	13.1	13.3	12.6	15.9	13.5	11.1	11.0
60% < FTA ≤ 80%	9.3	12.7	12.3	12.6	13.6	14.5	18.5	17.6	13.5	12.9
80% < FTA ≤ 100%	4.3	12.9	13.7	14.7	20.6	23.6	16.8	21.6	25.6	26.8
FTA = 100%	7.1	10.2	10.1	10.7	12.8	13.7	10.4	13.1	18.9	20.0
Total	**4,652**	**5,814**	**6,713**	**7,010**	**6,458**	**6,462**	**7,094**	**8,222**	**9,150**	**9,005**

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

In terms of the impact of FTAs in the Philippine economy, research studies have mainly focused on their trade creation effects (see, for example, Quimba and Barral 2021). Quimba et al. (2020) attempted to analyze the impact of FTAs on the performance of Philippine industries, in terms of gross value added (GVA), employment, wage, and productivity growth. Specifically, it estimated the direct effects of FTA imports in a particular industry, as well as the effects of FTA imports in related industries (network effects). The findings show that the direct effects of FTA imports significantly accelerate the growth of industries, in terms of GVA and labor productivity. However, the study also found that FTAs had negative direct effects on employment, albeit dampened by the employment growth caused by shocks on downstream industries.

Table 3. Change in firms' import and FTA user status

t-1		t		2012	2013	2014	2015	2016	2017	2018	2019	2020
Import	**FTA**	**Import**	**FTA**									
No	No	No	No	49.7	47.9	49.4	49.4	51.3	58.1	64.2	63.3	63.3
No	No	Yes	No	11.4	9.7	8.5	11.0	8.2	3.4	3.7	3.0	2.1
No	No	Yes	Yes	1.8	1.9	1.8	1.9	1.8	2.1	3.1	2.7	2.1
Yes	No	No	No	8.8	10.3	10.9	9.9	10.6	11.7	3.2	2.7	3.2
Yes	No	Yes	No	16.3	15.7	13.4	12.3	14.0	10.6	10.2	10.5	9.9
Yes	No	Yes	Yes	2.9	3.3	3.0	1.8	1.6	1.6	1.8	1.9	1.6
Yes	Yes	No	No	0.9	1.5	2.0	2.0	1.7	1.2	1.6	1.6	2.4
Yes	Yes	Yes	No	1.6	1.9	2.2	2.8	1.7	1.2	1.1	1.2	1.6
Yes	Yes	Yes	Yes	6.5	7.9	8.8	8.9	9.1	10.1	11.1	13.2	13.8

Source: Authors' calculations based on the trade transactions data. The percentage shares are based on the number of firms with at least one import transaction during the 2011-2020 period.

Free Trade Agreements and Firm Performance

Existing theoretical and empirical literature have established a two-way relationship between trade and performance, explained by the hypotheses of self-selection and learning-by-doing. The self-selection hypothesis signifies that more productive firms have a higher tendency to engage in international trade, due to additional costs such as transportation and marketing expenses (Clerides et al. 1998; Bernard and Jensen 1999). On the other hand, the learning-by-doing hypothesis suggests that participating in international trade could generate additional performance gains, through various channels such as knowledge spillovers and technology

transfers, increased competition, and access to quality inputs (Holmes and Schmitz 2001, Wagner 2007, Criscuolo and Timmis 2017). Importers gain access to foreign intermediate inputs that are usually of higher quality (Sharma 2016). Wagner (2012) posited that importing intermediate inputs can facilitate knowledge and technology transfers, and allow firms to specialize on activities where they strongly perform.

The self-selection and learning-by-doing hypotheses could be extended to FTA use among traders. Hayakawa (2015) suggested that FTA utilization could affect firm performance by reducing the market price of exporters' products in the importing FTA partner. This creates additional demand for the traded products. Importers could also benefit from preferential duty savings from using FTAs. Trading firms are then compelled to hire more workers as a response to the increase in trade activities. Moreover, trade facilitation under FTAs further stimulates technology transfer (Maskus 2016, Kreinin and Plummer 2012). However, traders must consider the potential costs in familiarizing themselves with using FTAs. The tedious and complex processes in using FTAs result in greater administrative and compliance costs (Hayakawa et al. 2009; Wignaraja et al. 2011; Aldaba et al. 2015). Demidova and Krishna (2008) theoretically demonstrated the self-selection of traders in FTA utilization; in particular, less productive firms only use general tariffs since they cannot afford to cover the additional costs in using FTAs.

Empirical studies have presented inconclusive findings on the performance effects of FTA use. Hayakawa (2015) observed that, among Japanese-affiliated firms in the ASEAN, India, and Oceania regions; FTA use did not increase the export and import volumes, and employment of users. However, the share of local inputs in total inputs increased under FTAs. Analyzing the impact of industrial policy on the productivity of Thai manufacturing firms, Jongwanich and Kohpaiboon (2020) found that FTA-led trade liberalization in Thailand, proxied by tariff margins, had statistically non-significant effects on firm productivity.

Meanwhile, Koo (2021) examined the effects of FTA use on the export activities of Korean MSMEs. Aside from effects on direct exports, the paper examined the effects of FTA policies on indirect exports—domestic inputs on exports through industrial input-output linkages. Results indicate that, while generally positive, the direct export effects of FTAs on MSMEs were smaller than those on large firms. Effects were also found to be heterogeneous across industries, and MSMEs benefited from the positive effects of FTA use on indirect exports, more than large firms. Thus, considering both the direct and indirect export effects, the study contended that the premium of large firms in the export effects of FTA could actually be smaller.

3. Methodology and Data

Data Sources

The study utilized a firm-level panel data set that integrates the universe of Philippine trade transactions and the annual survey/census of Philippine establishments, both provided by the Philippine Statistics Authority (PSA). The trade transactions data set provides the trader code (IMP), the 10-digit Philippine Standard Commodity Classification (PSCC) code of the product traded, the country of destination/origin, the free on board (FOB) value in US dollars (US$), and insurance and freight costs. More importantly, the data contains information on the specific tariff scheme used for each transaction. Meanwhile, the Annual Establishment Survey of

Philippine Business and Industry (ASPBI) and Census of Philippine Business and Industry (CPBI) of the PSA contain valuable information on firm characteristics (e.g., ownership, employment), as well as various aspects of firm operations (e.g., revenues, value added). These indicators allow for the calculation of various performance indicators, such as productivity and capital intensity.

The linking of the data sets was originally a joint initiative of the PSA and a consortium between the University of the Philippines and Erasmus University of Rotterdam in 2013. In this project, the 1991-2012 trade transactions panel was matched with the 1996-2012 survey/census data (Balaoing-Pelkmans 2017). This paper built on this important development by conducting the merging of the trade and survey/census data sets for the period 2012-2019.[3]

Indicators in Philippine Peso (PhP) were deflated using the implicit price index, obtained from the National Income Accounts of the PSA. The index is disaggregated by 2-digit PSIC code and based on 2018 prices. Meanwhile, trade indicators in US$ were first converted to PhP using the annual average exchange rates from the Bangko Sentral ng Pilipinas (BSP) database, before being deflated using the implicit price index.

Empirical Methodology

The study investigated the causal effects of FTA import utilization on MSME performance. It classified MSMEs as firms with less than 200 employees.[4] The FTA utilization of firms was determined by the matched import transactions, wherein a firm was considered an FTA user in year *t* if it had at least one transaction under any FTA scheme for that year. The empirical analysis focused on the performance effects when a firm starts to use FTAs. Thus, the sample consists of non-users in year *t-1* that either changed (FTA starters) or maintained their FTA user status in the following year (*t*). Effects on various performance indicators were explored, including labor productivity, capital intensity, and employment. The trade-enhancing effects of FTAs were also examined, in terms of export intensity and total import value (see Annex Table for the definitions of the variables).

To assess the causal effects of firm FTA use, it was crucial to address the endogeneity of FTA use. Thus, the study utilized the propensity score weighting (PSW) and difference-in-difference (DID) methods. Based on the seminal work of Rosenbaum and Rubin (1983), the propensity score is defined as the probability of a firm to be assigned to the treatment, given a set of observed characteristics. The propensity scores are then used to generate weights that would balance a set of observed characteristics between the treatment and control groups.

The propensity scores were derived from estimating the conditional probability of starting FTA use ($FTAstart_{is,t=1}$) from the following model:

$$\Pr\big(FTAstart_{is,t} = 1\big) = \Phi(I_s + I_t + \beta \boldsymbol{X}_{is,t-1}) \tag{1}$$

where $\boldsymbol{X}_{is,t-1}$ is a vector of ex-ante characteristics, which include labor productivity, capital intensity, age, foreign ownership status, and total import value; I_s and I_t are industry and time fixed effects, respectively. The propensity scores were estimated using a logit regression of the treatment variable on the specified controls. Subsequently, the weights were computed using

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[3] The PSA did not conduct the ASPBI in 2011, while firm-level data for 2020 were not yet available when this study was conducted.
[4] This definition is based on the Philippine Republic Act No. 9501 or the Magna Carta for MSMEs.

the following formula:

$$w_{is,t} = FTAstart_{is,t} + \frac{(1-FTAstart_{is,t})\widehat{p_{is,t}}}{1-\widehat{p_{is,t}}} \tag{2}$$

where $\widehat{p_{is,t}}$ is the estimated propensity score. After obtaining the weights, a balancing test of covariates was performed to ensure that, on average, FTA starters and non-users would be observationally identical in terms of pre-treatment covariates. Using the weights resulted in the control group being transformed into a representative sample of the treatment group, allowing for the estimation of the average treatment effect on the treated (ATT) (Morgan and Todd 2008).

The PSW method addresses selection bias by controlling observable characteristics. However, bias may still arise from time-invariant unobserved firm-specific effects, hence the weights were used in a DID regression. The DID model is shown in the following equation:

$$Y_{is,u} = \beta_0 + \beta_1 FTAstart_{is,u=1} + \beta_2 \boldsymbol{X}_{is,u=0} + I_s + I_t + I_i + \varepsilon_{is,t} \tag{3}$$

where u is the rescaled time such that firm starts using FTAs at $u=1$, the performance indicator is denoted by $Y_{is,u}$, $FTAstart_{is,u=1}$ is a dummy variable for FTA starter status at $u=1$ (i.e., 1 if firm i switched from FTA non-user to user; 0 otherwise), $\boldsymbol{X}_{is,u=0}$ is the set of ex-ante characteristics in Equation 1, and I_i captures the time-invariant firm-specific effects. The year and firm fixed effects show that the DID estimation involved multiple firms started using FTAs at different timings.

Various extensions in the empirical approach were conducted. First, the study looked at the longer-term effects of switching FTA user status; particularly, it evaluated the effects on firms that continued to use FTAs for the second consecutive year.[5] It also examined if stopping FTA ($FTAstop_{is,t}$) use also affect a firm's performance. If starting FTA use is hypothesized to generate performance improvements, then stopping use could potentially lead to lower levels of performance. The sample includes FTA users in year $u=0$ that either stopped (treatment) or continued (control) using FTAs in year $u=1$.[6]

4. Empirical Results and Discussion

Preliminary Analysis

FTA users and non-users among MSMEs possessed notable differences in terms of various performance indicators. Table 4 shows that, for the period 2012-2019, MSME users have higher productivity levels than MSME non-users. They also tend to be older and hire more workers. However, the degree of internationalization of MSME firms vis-à-vis non-users was not conclusively greater than non-users. While, on average, they have greater import values, they export less than non-users. Compared to non-users, the bulk of revenues of MSME users come from domestic sales, and foreign ownership was uncommon among users.

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[5] In this case, the treatment group consists of non-users that became users at $u=1$ and continued using FTAs at $u=2$. Meanwhile, the control group are those that never used FTAs throughout the period.
[6] The extensions conducted in the empirical analysis were inspired by the study of Baldwin and Yan (2017).

The importance of firm size in FTA use was also assessed, by comparing the characteristics and performance of MSME and large users. On the average, the differences in labor productivity and capital intensity were non-significant between MSMEs and large firms, while large users were significantly older. However, aside from the apparent differences in employment, large firms exhibited greater connection with foreign markets, as their averages in both exports and imports were significantly larger than those of MSME users. Large users had a higher percentage of foreign-owned firms.

Table 4. Differences in Means, Selected Indicators, 2012-2019

| | MSME Users | Difference | |
		MSME Non-users	Large Users
Labor productivity (thousand PhP, 2018 prices)	1,339.7	534.6***	-106.6
Capital intensity (thousand PhP, 2018 prices)	1,625.2	-144.7	101.6
Total employment (number of workers)	85.5	5.8***	-626.4***
Domestic sales (% of total revenue)	81.2	37.8***	7.6***
Foreign ownership (% of capital participation)	22.4	-34.5***	-11.0***
Age (years)	25.1	7.4***	-3.0***
Exports (thousand PhP, 2018 prices)	106,481.0	-44,881.8*	-1,817,168.2***
Imports (thousand PhP, 2018 prices)	319,233.7	241,439.2***	-1,995,269.0***

Note: A positive value in the difference indicates a higher mean for MSME users; conversely, a negative value connotes lower mean. * and *** denote significance at the 90% and 99% levels, respectively.

Analysis of Empirical Findings

The results of the logit regressions, which served as the basis for the computation of propensity scores, show potential self-selection effects on importers' decision to use FTAs. It can be inferred from the results in Table 5 that foreign ownership and total firm imports were significant determinants of starting and stopping FTA use. Lesser foreign capital participation translated to a significantly higher probability of starting FTA use, while establishing foreign linkages could significantly influence an importer's decision to stop using FTAs. Meanwhile, firm imports were observed to be positive determinants of FTA use. As firms intensified their import activities, they became more likely to start using FTAs. In contrast, firms that lessened their imports were inclined to stop FTA use. For the less active importers, the duty savings from using preferential rates might not be large enough to offset the costs of complying with administrative requirements.

The estimates generated by the age variable denote that age was a significant factor only among FTA starters—older importers are more likely to start using FTA schemes than younger importers. It could also be observed that labor productivity did not strongly influence a firms' decision to start or quit FTA use. While this suggests that the self-selection hypothesis might not hold in the context of FTA import use, the significant indicators (i.e., age, foreign ownership, total imports) could also be closely related with firm capabilities and performance. Hence, the logit results signify that differences in capabilities exist between FTA users and non-users and productivity could still play a role in a firm's decision to use FTAs.

Table 5. Logit Regression Results, Starting and Stopping FTA Use

	FTA Start		FTA Stop	
	1 Year	**2 Years**	**1 Year**	**2 Years**
	(1)	**(2)**	**(3)**	**(4)**
ln($LaborProductivity_{is,t-1}$)	0.094	0.164	-0.041	0.032
	(0.073)	(0.111)	(0.094)	(0.136)
ln($CapitalIntensity_{is,t-1}$)	-0.015	0.010	0.113**	0.093
	(0.032)	(0.049)	(0.047)	(0.072)
$Age_{is,t-1}$	0.015***	0.019**	-0.008	-0.009
	(0.006)	(0.008)	(0.005)	(0.008)
$ForeignOwnership_{is,t-1}$	-1.278***	-1.659***	0.449***	0.632***
	(0.154)	(0.229)	(0.167)	(0.230)
ln($Imports_{is,t-1}$)	0.106***	0.088**	-0.427***	-0.492***
	(0.029)	(0.045)	(0.046)	(0.073)
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Number of Observations	2,848	1,818	2,426	1,543
Pseudo R-squared	0.140	0.225	0.111	0.147

Note: Standard errors are reported in parentheses. *, **, and *** denote significance at the 90%, 95% and 99% levels, respectively.

Table 6 shows the results of the weighted DID regressions on the performance effects of starting FTA use.[7] Overall, starting FTA use did not yield significant effects on the performance of MSME importers, except for total imports. The estimates on firm imports were positive and statistically significant at the 99% level in the first year, and 95% in the second year. The magnitude of the estimates was also noteworthy—on the average, starting FTA use increased an importer's total import value by 134%. The import-enhancing effect of FTA use was sustained during the second year, as total imports of two-year FTA starters further increased by 133%.

Looking at the results for stopping FTA use, the estimates for total imports remained statistically significant. They also exhibited the expected negative sign. Initially, FTA stoppers experienced a 60.4% reduction of total imports. Continuing to be non-users for another year compounded the loss of import value, albeit at a lower rate (46.5%). This shows that using FTAs are crucial in facilitating imports among Philippine MSMEs. Quitting FTA use also decreased the labor productivity of FTA stoppers by 13%, significant at the 95% level. While the productivity loss increased to 15.3% during the second year, the effect was no longer statistically significant.

Weighted DID regressions were also conducted for large importers to investigate whether the impacts of FTAs differ between MSMEs and large firms. The estimates reported in Annex Table 3 suggest that FTA use affected large firms primarily through import facilitation.[8] The signs of the coefficients were like those found in the MSME results. However, it should be noted that the magnitudes of the coefficients between the first and second years had greater variation. For the first year, the import effects were greater among MSMEs; the following year, the effects substantially compounded for large firms. It is also interesting to note that the productivity effects of quitting FTA use were positive and intensified in the second year, significant at the 90% level. This shows that the impacts of FTA import use had notable

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[7] The results of the balancing tests are available upon request.
[8] The results of the logit regressions and balancing tests are available upon request.

similarities and differences between MSMEs and large firms. The productivity gains exhibited by large FTA quitters could also be an interesting case for further assessment.

Table 6. Weighted DID Results, Starting and Stopping FTA Use

	FTA Start		FTA Stop	
	1 year **(1)**	**2 years** **(2)**	**1 year** **(3)**	**2 years** **(4)**
ln($LaborProductivity_{is,u}$)				
$ATT_{FTAstart}$	0.028	-0.015	-0.139**	-0.142
	(0.064)	(0.141)	(0.057)	(0.164)
Observations	2,794	1,772	2,389	1,516
R-squared	0.868	0.917	0.872	0.929
ln($CapitalIntensity_{is,u}$)				
$ATT_{FTAstart}$	0.055	0.161	-0.120	-0.346
	(0.116)	(0.197)	(0.103)	(0.328)
Observations	2,801	1,777	2,398	1,528
R-squared	0.895	0.943	0.890	0.923
ln($Employment_{is,u}$)				
$ATT_{FTAstart}$	-0.031	-0.066	-0.019	0.122
	(0.041)	(0.102)	(0.045)	(0.093)
Observations	2,848	1,818	2,426	1,543
R-squared	0.928	0.956	0.925	0.951
$ExportIntensity_{is,u}$				
$ATT_{FTAstart}$	-0.015	0.000	0.001	-0.003
	(0.013)	(0.001)	(0.001)	(0.013)
Observations	2,848	1,818	2,426	1,543
R-squared	0.843	0.942	0.349	0.846
ln($Imports_{is,u}$)				
$ATT_{FTAstart}$	0.851***	0.848**	-0.926***	-0.625**
	(0.161)	(0.332)	(0.151)	(0.310)
Observations	2,848	1,818	2,426	1,543
R-squared	0.889	0.947	0.933	0.985

Note: Time, industry, and firm fixed effects were included. Standard errors are reported in parentheses. *, **, and *** denote significance at the 90%, 95% and 99% levels, respectively.

Given the logit and weighted DID results, it can be inferred that FTA effects on labor productivity seem to be more evident among FTA stoppers than starters. While current data limitations did not allow the study to assess FTA use for longer periods, one can speculate that the productivity loss among FTA stoppers could stem from potential productivity gains acquired by long-term FTA use. Consistently utilizing preferential rates might have eventually resulted in significantly lower production costs and, subsequently, improved competitiveness. Hopefully, future developments in the merged trade and survey/census data would allow researchers to explore the longer-term effects of FTA use.

The significant effects of FTA use on firm imports suggest that self-selection and learning-by-doing hypotheses are more evident in the relationship between FTA import use and firm imports. Thus, the effects of FTA import use on MSME performance were mainly through enabling import activities. This is partly consistent with existing macro-level studies, wherein FTAs have generally positive effects on bilateral trade flows (see, for example, Baier et al. 2019). The preferential duty savings acquired by the MSME importers might have incentivized

them to further expand the scale of their importation. However, the non-significant estimates on export intensity also suggest that using FTAs for imports did not encourage firms to venture more into exporting. It can then be supposed that Philippine importers primarily use FTAs on any of the following: final products to be distributed in the country, intermediate inputs for products sold in the domestic market, and inputs to produce other intermediate goods.

While one might outright question the contribution of FTA import utilization to firm growth and GVC integration, the import-enhancing effects of FTAs still present upgrading and capacity-building opportunities for Philippine firms. According to Navas-Alemán (2011), domestic and regional value chains also play a vital role in stimulating firm learning and upgrading. The study noted that some domestic-oriented firms did not only acquire upgrading skills in the domestic market, but also leveraged these skills to eventually penetrate export markets. Beverelli et al. (2018) also noted that, in some industries, domestic production fragmentation has been a significant determinant of GVC integration.

The import-enhancing effects of FTAs could also result in an influx of imported goods, resulting in increased import competition. Empirical studies have found that import competition could induce firms to engage in capacity-building and innovation to improve their production efficiency, as well as the quality of their products (see, for example, Pavcnik 2002, Amiti and Khandelwal 2013). Fernandes and Paunov (2009) observed that import competition had a strongly positive effect on the product quality of non-exporting firms. While competitive pressure from imports could also threaten firm survival, smaller firms might still thrive in the context of rising import competition (Colantone et al. 2014).

5. Conclusion and Recommendations

As the Philippines continues to advance its trade policy revolving around FTAs, it is crucial to thoroughly assess how its existing FTAs have contributed to the growth of its businesses, especially the MSMEs. During the previous decade, Philippine importers have taken advantage of the preferential tariffs, resulting in the increasing utilization of FTA schemes in imports. Building on the budding empirical literature on firm-level effects of FTA use, this study attempted to establish the causal effects of FTA import use on the performance of Philippine manufacturing MSMEs.

Exploiting a rich micro dataset to conduct a combined PSW and DID estimation strategy, the study found generally inconclusive findings on the existence of learning-by-doing in the context of FTA import use. The impact of switching FTA user status has been mostly non-significant in capital intensity, employment, and export intensity. In terms of labor productivity, quitting FTA use had adverse effects on the productivity levels of Philippine importers, at least in the short run. While the long-term productivity gains of consistently using FTAs are yet to be explored, the productivity loss from quitting use necessitates policymakers to ensure that current users would continue to take advantage of the preferential rates.

The findings also show the importance of FTAs in facilitating Philippine trade. The regression estimates indicate that starting FTA use significantly enhanced overall import activities of manufacturing firms, while stopping FTA use resulted in lower import values. Although FTA use incentivized importers to further expand their importation, it did not lead to their self-selection in export markets. Nevertheless, focusing on domestic value chains still presents opportunities for firms to enhance their productivity and acquire upgrading skills. Increased

import competition due to greater FTA import use could also force firms to seek alternative strategies in order to remain competitive. Thus, policymakers must ensure that necessary support mechanisms are in place to provide a safety net for distressed MSMEs.

Several policy implications could be derived from the analysis of the findings. First, it is imperative to prioritize the easing of FTA procedures and lowering of administrative and compliance costs. The complex process of availing the preferential rates, due to the "noodle bowl effect" of overlapping FTAs, could be reason enough for firms to disregard the benefits of using FTAs (Wignaraja et al. 2011). The Philippines' ratification of the RCEP could be a welcome development in this regard, as the megaregional agreement aims to streamline rules of origin and customs procedures, among others (Malindog-Uy 2022). Second, the Philippine government must intensify policy support to encourage FTA utilization among MSMEs, and ensure that using FTAs would lead to favorable outcomes for these firms. While FTA-specific policies have been initiated during the previous decade (e.g., Doing Business in Free Trade Areas[9]), the government could implement complementary interventions, such as regular monitoring of FTA users, and assisting distressed traders. The empirical results also suggest that MSMEs and large firms possess inherent differences; thus, targeted interventions for MSMEs are recommended. Moreover, improving the frequency of data monitoring, as well as access to raw trade data, could be highly beneficial for research and policymaking. Third, future research could focus on evaluating the specific interventions that were conducted in the country, as part of the implementation of the MSME FTA provisions. This kind of assessment could serve as a guide in advancing more proactive MSME provisions in existing and prospective agreements. Fourth, products that were imported from FTA partners, both under preferential and most favored nation tariffs, present a low-hanging fruit for policymakers in terms of intensifying FTA import utilization in the country. Thus, future studies could further investigate these products, as well as the appropriate interventions to boost their FTA utilization rates.

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Annex 1: Merging of Trade Transaction Data with Annual Survey/Census Data

The merging of the trade transactions data with the ASPBI/CPBI data was conducted by matching the IMP codes with the establishment control numbers (ECN) in the ASPBI/CPBI. The PSA provided a concordance table, consisting of more than 11,000 ECN-IMP matches, which served as the basis for the merging. Prior to merging, the trade transactions were aggregated by IMP code and year, generating firm-level imports, as well as total value of imports under FTAs.

The merging of the two data sets substantially excluded firms in the sample. Table 2 shows that the 2012-2019 survey/census panel data consists of 45,010 observations. Merging with the imports data retained only 28.7% of the observations. Looking at the sectoral distribution of firms, it can be observed that the most notable differences between the original survey/census data and the matched data were in the food manufacturing and electronics sectors. Food products accounted for 22.6% of the total number of observations. After matching with imports data, the percentage of food manufacturing observations decreased 12.5%. In contrast, the share of electronics sectors noticeably increased from 4.9% in the survey/census data to 11.3% in the matched panel data.

Annex Table 1. Distribution of Firms by Manufacturing Sector, 2012-2019

2-digit PSIC Code	Description	ASPBI/ CPBI	Merged with Imports
C10	Food Products	22.6	12.5
C11	Beverages	2.5	0.5
C12	Tobacco Products	0.3	0.4
C13	Textiles	3.6	3.5
C14	Wearing Apparel	6.5	6.4
C15	Leather and Related Products	2.3	1.7
C16	Wood and Wood Products	3.3	2.2
C17	Paper and Paper Products	2.9	3.7
C18	Printing and Reproduction of Recorded Media	3.1	1.3
C19	Coke and Refine Petroleum Products	0.4	0.4
C20	Chemicals and Chemical Products	5.5	5.9
C21	Pharmaceutical Products	1.1	1.4
C22	Rubber and Plastic Products	6.6	9.5
C23	Other Non-metallic Mineral Products	4.3	3.1
C24	Basic Metals	3.6	4.5
C25	Fabricated Metal Products	6.8	8.0
C26	Computer, Electronic and Optical Products	4.9	11.3
C27	Electrical Equipment	3.1	4.9
C28	Machinery and Equipment nec	3.3	4.1
C29	Motor Vehicles, Trailers and Semi-trailers	2.3	4.4
C30	Other Transport Equipment	1.3	1.8
C31	Furniture	3.3	2.8
C32	Other Manufacturing	4.1	4.6
C33	Repair and Installation of Machinery and Equipment	2.4	1.0
	Total	**45,010**	**12,899**

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

Annex Table 2. Variable Operationalization

Variable	Definition
$LaborProductivity_{is,t}$	Value-added per permanent worker
$CapitalIntensity_{is,t}$	Total book value of tangible and intangible assets, divided by number of permanent workers
$Employment_{is,t}$	Total number of permanent workers
$ExportIntensity_{is,t}$	FOB value of goods exported, as percentage of total revenue
$Imports_{is,t}$	Total FOB value of goods imported
$Age_{is,t}$	Age in year t (number of years)
$ForeignOwn_{is,t}$	Foreign ownership dummy (1 if total foreign capital participation is at least 10%; 0 otherwise)
$FTAuse_{is,t}$	FTA user dummy (1 if firm has at least one import transaction under any FTA scheme in year t; 0 otherwise)
$FTAstart_{is,t}$	FTA starter dummy (1 if firm switched from FTA non-user in year t-1 to user in year t; 0 if firm was a non-user in both years)
$FTAstop_{is,t}$	FTA stopper dummy (1 if firm switched from FTA user in year t-1 to non-user in year t; 0 if firm was a user in both years)
$I_{s,t}$	Industry fixed effects, by 2-digit Philippine Standard Industrial Classification (PSIC) code

Annex Table 3. Weighted DID Results, Starting and Stopping FTA Use, Large Firms

	FTA Start		FTA Stop	
	1 year	**2 years**	**1 year**	**2 years**
	(1)	**(2)**	**(3)**	**(4)**
ln(*LaborProductivity$_{is,u}$*)				
ATT$_{FTAstart}$	0.031	0.040	0.116	0.309*
	(0.056)	(0.133)	(0.118)	(0.159)
Observations	2,133	1,385	1,413	1,009
R-squared	0.883	0.943	0.915	0.956
ln(*CapitalIntensity$_{is,u}$*)				
ATT$_{FTAstart}$	0.141	0.423	-0.006	-0.269
	(0.099)	(0.259)	(0.164)	(0.545)
Observations	2,143	1,390	1,414	1,015
R-squared	0.891	0.937	0.938	0.944
ln(*Employment$_{is,u}$*)				
ATT$_{FTAstart}$	-0.025	-0.118	-0.031	0.057
	(0.038)	(0.088)	(0.076)	(0.211)
Observations	2,155	1,399	1,421	1,017
R-squared	0.941	0.980	0.971	0.984
ExportIntensity$_{is,u}$				
ATT$_{FTAstart}$	-0.023	0.004	-0.006	0.015
	(0.019)	(0.004)	(0.005)	(0.015)
Observations	2,155	1,399	1,421	1,017
R-squared	0.156	0.680	0.790	0.794
ln(*Imports$_{is,u}$*)				
ATT$_{FTAstart}$	0.505***	2.466***	-0.774***	-2.336**
	(0.180)	(0.841)	(0.203)	(1.202)
Observations	2,155	1,399	1,421	1,017
R-squared	0.893	0.926	0.956	0.952

Note: Time, industry, and firm fixed effects were included. Standard errors are reported in parentheses. *, **, and *** denote significance at the 90%, 95% and 99% levels, respectively.

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