Philippine Journal of Development
Volume 45 (2018) Number 1

Survival Analysis of Export Relationships of Philippine MSMEs

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ABSTRACT

This study examines the survivability of Philippine micro, small, and medium enterprises' (MSMEs) exports to select countries within the frameworks of the Asia-Pacific Economic Cooperation Boracay Action Agenda to Globalize MSMEs and the Association of Southeast Asian Nations Strategic Action Plan for SME (small and medium enterprises) Development. The analysis is based on the model of Besedeš and Prusa (2006a; 2006b; 2011). Using the Kaplan Meier estimator model in the exports of MSMEs and the total trade data, this study documents the survival rate and duration of Philippine exported goods. It shows that most export relationships of the Philippines are brief, contrary to conventional trade theories which suggest that most of the country's trade relationships are long-lived. This paper concludes that MSMEs, on average, account for a more significant number of the Philippines' export relations than large establishments.

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INTRODUCTION

The Philippines has championed the cause of micro, small, and medium enterprises (MSMEs) in several international fora held over the past few years. For instance, under the Philippines' chairmanship, the 2015 Leader's Declaration of the Asia-Pacific Economic Cooperation (APEC) recognized the promotion of a trading environment conducive to the development and participation of MSMEs. This set into motion the Philippine-led Boracay Action Agenda to Globalize MSMEs. The country's position to include MSMEs among the priority agenda of the Association of Southeast Asian Nations (ASEAN) was echoed in the ASEAN Leader's Declaration on its 50th anniversary (ASEAN 2017). As a result, the call to integrate MSMEs into the global value chains was reiterated. The heightened priority given to MSMEs in the research agenda was also supported at the national level. To this end, the Philippine APEC Study Center Network incorporated MSMEs into its priority research areas.

It is not difficult to understand why MSMEs have become a priority in the policy agenda of economic groups. The literature on MSMEs is replete with studies on its critical contribution to the economy. In the Philippines, MSMEs comprised 99.5 percent of firms in 2018 and employed 62 percent of workers, making them an important generator of jobs (DTI 2019). As such, MSMEs have a major role in sustaining the country's economic growth. The call for inclusive growth is often understood in the context of integrating MSMEs into the mainstream of national and international commerce but despite the extensive presence of MSMEs, they account for only 36 percent of the country's gross value added (DTI 2019). This indicates low productivity among Philippine MSMEs, which continues to be a real concern that demands policy attention.

How to nurture, transform, and strengthen MSMEs are common themes in the research agenda of many institutions. There is research interest in identifying the factors that allow MSMEs to penetrate export markets and scale up their businesses. This paper offers another window to understand the behavior of MSMEs in the process of internationalization. While the internationalization issues of MSMEs usually involve studies on export intensity and propensity and their corresponding impediments, this study takes another track by documenting the duration of Philippine MSMEs' trade relationships. A trade relationship means that the Philippines is exporting goods to a destination or market over a continuous period (Trung et al. 2008; Tuaño et al. 2014). This paper analyzes the length of time until the export activity or relationship of MSMEs ceases. Note that a trade relation does not necessarily correlate with the volume of exports but rather with count item. To illustrate this, if the Philippines exports three items to its partner, there will be three trade relationships, and the count is independent of the exported items' value or volume.

This paper documents the behavior of Philippine MSMEs, particularly the duration of their export activities, which is akin to gauging their survivability. The study seeks to provide answers to the questions: To what extent are the Philippine MSMEs engaged in sustaining the country's export activities (i.e., the duration of their trade relationships)? Does the duration of MSMEs' export activities vary based on their partners? To what extent do large firms dominate trade relationships in comparison to MSMEs?

SIGNIFICANCE AND REVIEW OF LITERATURE

Focusing on the trading performance of MSMEs, the World Trade Organization's *World Trade Report 2016* stated that most MSMEs stopped exporting after a year (WTO 2016). Other studies observed that large exporters were relatively more successful in introducing new export goods in international markets (Freund and Pierola 2010). Furthermore, a publication discussed that

internationally-oriented MSMEs, both on the import and export sides, tend to have higher survivability than those that are exclusive to the domestic sectors (Muuls and Pisu 2009). Thus, internationalization is associated with providing MSMEs with new growth opportunities.

The standard models of international trade do not specifically deal with trade duration. There is an implicit assumption in some models, however, that trade relationships persist. For instance, according to the factor proportions theory, trade is based on differences in (relative) factor endowments (Salvatore 2013).

On the other hand, Besedeš and Prusa (2006a; 2006b) found that trade relationships were often not long-lived. More particularly, they estimated that the median duration of United States (US) imports was just one year. One implication was there might be a high frequency of entry and exit of suppliers at the product level even if the aggregate trade volume appeared to be stable.

Extending the analysis to other cases, Besedeš and Prusa (2007; 2011) showed that the duration of exports relationships from a number of Central and South American countries—the Asian Dragons countries, as well as the US and the European Union (EU) countries—was very short. Specifically, many relationships failed in their first year resulting in most countries having a median duration of an export relationship at only one or two years.

Fuggaza and Molina (2011) carried out a study on the trade duration of 96 countries over the period 1994–2004. They found that a large fraction of trade relations had failed after a short period. They tried to find a link between the trade failures of countries and the type of products they traded and discovered that heterogenous or differentiated export products tend to have longer trade relations than the homogenous ones. Furthermore, Besedes and Blyde (2010) applied the trade duration analysis to export flows between Latin America and its partners. Similar to other studies, they provided evidence that export relationships generally lasted for a brief period. However, they noted significant differences in the trade duration across regions, with Latin America manifesting lower export survival rates than the US, EU, and East Asia.

On the other hand, Nicita et al. (2013) focused on whether comparative advantage affected the duration of exports of the least developing countries upon applying the survival analysis. They found evidence that products exhibiting high comparative advantage tend to have longer trade relationships.

The wave of trade liberalization at the global level has expanded market access, leading to improvements in the export activities of local industries. There is a distinct prod by governments to internationalize MSMEs. However, there appears to be a dearth in the current policy research on the analysis of the duration of trade relationships, particularly for Philippine MSMEs. This study hopes to contribute to this strand in the literature on Philippine trade.

METHODOLOGY

The first step in determining the survivability characteristics of MSMEs is to find the link between each exported good and the size attribute (large or MSMEs) of representative firms from the industries that produced the exported items. By using the correspondence tables of trade and industry nomenclatures, each exported product is matched with the producing sector from where the average firm size can be determined. The average size of firms, in turn, can be used to designate whether the exported item is produced either by MSMEs or by large firms. By doing so, the duration of each exported good's trading relation can be used to proxy the duration of trade relations of MSMEs or large firms.

Having established the link between the goods and the size of the producing sector, the research strategy in determining the length of export relationship and survivability pattern of Philippine MSMEs can be carried out in two parts. The first part documents the duration of the relationships of

MSMEs' exports to a set of the country's trading partners. To carry this out, the total subset of exported products from MSMEs will be filtered from their total number. Once the subsets are determined, the duration of trading relations can be computed for each exported product. Afterwards, the distribution of the entire sample's duration can be estimated from the individual duration of trade relationships. Since the aforementioned sample comprises the products exported from dominating industries whose average firm size attribute is labeled as MSMEs, the duration of the distribution of products can be used as a proxy for the duration of MSMEs' exports to a specific trading partner.

In the second part, the duration of trade relations of Philippine exports at the Harmonized System (HS) six-digit level is computed and matched with the average firm size of the sector that produced the exported product. Hence, each exported product can be tagged from a large firm or MSME. Afterwards, the distribution of different durations of export trade relations classified according to the size of establishment per sector (large or MSMEs, i.e., the aggregate exports) is generated on a count basis. This analysis reveals the distribution of the duration of export relationships, including the breakdown of ties associated with export items and the size of establishments (large or MSMEs).

Documenting the duration of Philippine exports over a specified period is interesting from both theoretical and policy perspectives. As Besedes and Prusa (2006a) stated, trade theories mostly posit a long-lasting trade relationship. For instance, the Heckscher-Ohlin model showed that the basis trade relationships are expected to persist. From a policy perspective, understanding the survivability characteristics of MSMEs can aid in crafting government support interventions, such as the duration of incentives.

Dataset and mapping of export product data with size of firm

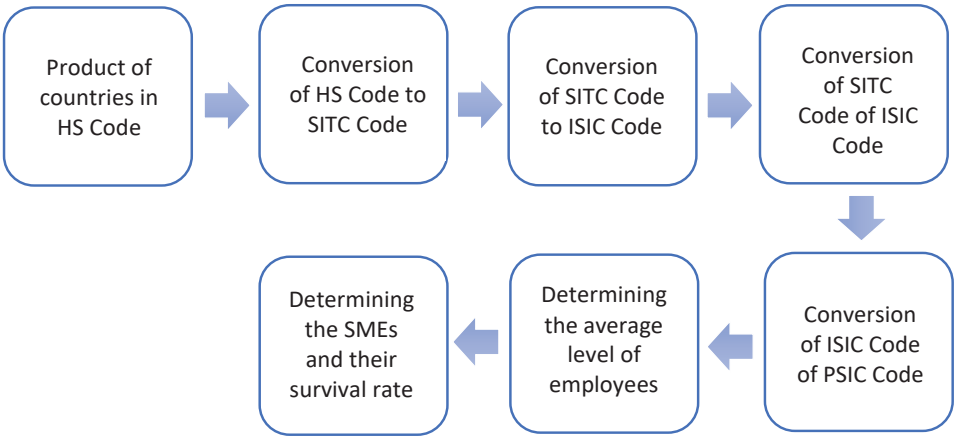
Prior to determining the survivability characteristics of MSMEs, it is important to find the connection between the exported goods and the size characteristics (large or MSMEs) of firms that produced the goods. By using the correspondence tables, each exported good is identified with the size of the producing sector. In a sense, the traded good defines whether the producing firm is large or an MSME. By doing so, the duration of each exported good is treated as the duration of the export activities of large firms or MSMEs. Having established the link between the goods and the size of the producing sector, the research strategy in determining the duration of export relationship and pattern of the survivability of Philippine MSMEs can also be carried out in two parts.

The survival analysis of MSMEs' export relations is carried out based on the bilateral trade of the Philippines with a set of partners. The outcome of the analysis documents the probabilities that the export relationships of Philippine MSMEs with the country's ASEAN partners will last over time. This pattern of survivability is then contrasted with the corresponding pattern of the aggregate export products, i.e., with all exported products coming from all sectors—MSMEs and large establishments. The basic data is the bilateral export data at the HS six-digit as sourced from Trademap.org. Following Besedeš and Prusa (2006a), the length of time that the Philippines continuously shipped a product to its partner is calculated for each bilateral trade for given partners. The analysis focused on the frequency of changes in the Philippine exports' trade relations and not on the actual size of exports.

The conversion of export products to being linked to exporting firms begins with the Harmonized Code of Trademap, which generates the list of exported goods in the HS code of the Philippines per partner country. The Kaplan Meier estimator method forms their corresponding survival probabilities using the count of spells. The HS codes are converted to the Standard International Trade Classification (SITC), which, in turn, will be further converted to the United Nations International Standard Industrial Classification (ISIC). Finally, the list generated using ISIC will be transformed into one based on the Philippine Standard Industrial Classification (PSIC).

Using Philippine Statistics Authority (PSA)'s Annual Survey of Philippine Business and Industry (ASPBI), formerly known as the Annual Survey of Establishments, the average number of employees per sector correlates with the PSIC code to link the MSME incidence of industries or segments with the survival rates computed in the earlier stages of research. Figure 1 illustrates the conversion to MSME.

Figure 1. Conversion from product code (HS) to firm size



HS = Harmonized System; SITC = Standard International Trade Classification; ISIC = International Standard Industrial Classification; PSIC = Philippine Standard Industrial Classification; SMEs = small and medium enterprises
Source: Authors' compilation

Table 1 illustrates the actual conversion from product code to firm size. Examples show the use of HS Code with its description to SITC, then to ISIC, and finally to PSIC to identify the average employment of the industry.

Table 1. Conversion from product code (HS) to firm size

HS2012	HS2002 description	SITC_r3	ISIC_r31	PSIC	Employment	Firm type
180610	Cocoa powder, containing added sugar or other sweetening matter	73.1	1543	C107	106	Medium
903210	Thermostats	874.61	3312	D29111	180	Medium
570110	Of wool or fine animal hair	659.21	1722	D17221	173	Medium
330430	Manicure or pedicure preparations	553.2	2424	D24234	95	Small
330420	Eye makeup preparations	553.2	2424	D24234	95	Small
330410	Lip makeup preparations	553.2	2424	D24234	95	Small
330300	Perfumes and toilet waters	553.1	2424	D24234	95	Small

Note: "r" denotes revision
HS = Harmonized System; SITC = Standard International Trade Classification; ISIC = International Standard Industrial Classification; PSIC = Philippine Standard Industrial Classification
Source: Trademap.org; authors' computation

Determining trade duration and survival rates

This study's primary objective is to identify the length of time of trade relationships. In the event that the Philippines ceases to export products to its FTA partners, a "failure" is said to occur, which, in turn, is needed to compute for the spell. For each product and partner country, the spell data is created using annual data. To illustrate this, if the Philippines exported a particular product to its specific partner from 2001 to 2005, the trade relationship between the two partners would have a spell length of five.

The level of disaggregation of the product classification significantly affects the measurement of trade duration. As Nitsch (2007) discussed, at higher levels of aggregation where a wider range of products is involved, the periods of continued trade tend to be longer because there is a greater possibility that at least one product is traded in a given year.

In contrast, at a more detailed level of product classification, there is a greater variance in the measurement of the trade's duration. Further, as Nitsch (2007) argued, instances of reclassification of product codes at the level of individual product classification would impact trade duration more sharply than it would impact broader product categories. In this paper, the researchers used previously unexplored dataset of product-level trade for the Philippines. The six-digit HS level report trade values and quantities, which is the most detailed product classification in the International Trade Centre-Trademap statistics, for which data on the 16-year period (from 2001 to 2016) are available.

Trademap (www.trademap.org) sources its data from the United Nations Committee on Trade. For each year, the value of Philippine exports to its top bilateral partners at the six-digit HS product level is recorded. Note that the total number of trade observations for all possible combinations of products, countries, and years is about 1.2 million (approximately 5,000 products × 15 nations × 16 years). However, most of these potential trade relationships are non-existent. Moreover, the majority of these nonzero trade observations are small in value. About 30 percent of the Philippines' export to the product-country pair have an amount of less than USD 10,000 while about 60 percent have an amount of less than USD 100,000.

The duration can be calculated as the time (measured in years) that a trade relationship occurs without interruption. As Nitsch (2007) stated, using survival analysis, the duration could be modeled as a sequence of conditional probabilities that a trade relationship continued after a specified number of periods, given that it already survived for the said period. A critical observation that Besedes and Prusa (2008) found in their work was that a loss of trade relationships re-occurred, exhibiting what referred to as the multiple spells of service. A country serves the market, exits, and re-enters it, then almost always exits the market again. Based on the study of Besedes and Prusa (2008), approximately 30 percent of trade relationships experienced multiple spells of service in the disaggregated product-level data. About two-thirds of contacts with various intervals suffered just two spells; less than 10 percent had more than three spells. The paper treats multiple periods as independent, similar to the framework of Besedes and Prusa (2008).

In considering data on spells, a need to account for censoring in the analysis is apparent. The need for censoring arises because it is often unknown whether a trade relationship ended because of a failure or for some other reasons. Besides, there is uncertainty either in the beginning or ending date (or both) of some trade relationships. The work of Besedes and Prusa (2008) showed censoring as a standard in the US import data. They found that in both periods, about half of all spells were censored and about 20 percent of intervals were censored at one year. The censoring problem comes in two kinds. First, there was no information on trade relationships for the years before the beginning and after the end of the sample. For example, the US imported corn from the Philippines in 1972. It may have begun in 1972 or prior years. The most appropriate interpretation is that it had a duration of at least one year. Similarly, one can consider the case of the US importing corn from Peru from 1984 to 1988.

Note that the data did not continue beyond 1988 and it was impossible to ascertain how long the spell ultimately lasted. Once again, the most appropriate interpretation is at least five years.

As Bojnec and Ferto (2016) stated, the survivor function in practice was estimated in a nonparametric way by computing the number of spells that survived as a fraction of the total number of spells after t periods with t denoting length in years. The survival analysis generates the list of exported goods in the HS code of the Philippines with their corresponding survival probabilities using the count of spells. The standard Kaplan Meier methodology for generating the survival analysis was utilized in the paper.[2]

Limitations

One of the limitations of the study is the definition of MSMEs. In the Philippines, there are two criteria in operationally defining MSMEs—employment and asset size—as articulated by Aldaba et al. (2010). Production units that have 1 to 9 workers are referred to as the household industry or microenterprises and fall outside the MSME designation. Thus, the recognized size categories for the Philippines are: micro, 1 to 9 employees; small, 10 to 99 employees; medium, 100 to 199 employees; and large, 200 and over employees.

Note that the operational definition adopted by policymakers in identifying MSMEs refers to asset size and not employment. The Magna Carta for MSMEs (Republic Act 9501), for instance, defines the range of asset sizes for micro (not more than PHP 3 million), small (PHP 3–15 million), and medium (PHP 15–100 million). There are limitations when using asset size as the basis for firm size classification. As Tamangan et al. (2004) stated, changes in price levels would affect the nominal values, which, in turn, could have implications on the classification.

This study, however, used employment figures as the operational definition of MSMEs because of the availability of data. It used the ASPBI of the PSA in constructing a correspondence between the export products and the size of the establishment that produced them. The ASPBI contains data on the country's total employment and establishments, which allows the computation of the average employment per establishment in the PSIC code. Mapping the export items with the average employment per establishment completes the correspondence of export relations based on HS (product code) to the large or MSME categories of the average employment per sector. Because the ASPBI does not have regularly updated data on the average asset size per PSIC code, it is not possible to make a correspondence between the PSIC code and the average asset size per establishment.

The second limitation of the analysis is the use of the 'representative' firm defined by employment per establishment. As discussed earlier, categorizing whether MSMEs produce an export product is carried out from the average employment per establishment in the industry classification, corresponding to each traded product. There may be large firms operating in industries whose average firm employment size are labeled as MSMEs. However, because the distributions of the firms' sizes in each sector in the PSIC are not readily available, only the average size of firms is used in this study.

FINDINGS

Survival analysis of Philippine MSMEs' exports

Table 2 reports the full result of the survival analysis of MSMEs where the probabilities of Philippine MSMEs' goods to a sample of trading partners are specified. The conditional probabilities of survival are reported at the end of the 1st, 4th, 12th, and 16th years.

[2] A description of the survival analysis can be gleaned from the study of Besedes and Prusa (2008).

Table 2. Survival analysis of Philippine MSMEs' exports to countries with FTAs: Conditional probabilities of survival

Countries with FTAs	Year 1	Year 4	Year 12	Year 16
Brunei	0.649	0.354	0.298	0.298
Cambodia	0.468	0.183	0.156	0.156
Indonesia	0.654	0.387	0.327	0.324
Malaysia	0.694	0.444	0.44	0.44
Myanmar	0.422	0.281	0.25	0.25
Laos	0.382	0.133	0.133	0.133
Thailand	0.738	0.516	0.394	0.392
Singapore	0.741	0.533	0.467	0.466
Viet Nam	0.583	0.381	0.29	0.29
Australia	0.858	0.491	0.432	0.426
China	0.694	0.443	0.37	0.369
India	0.632	0.4178	0.306	0.306
Japan	0.782	0.493	0.454	0.45
South Korea	0.675	0.532	0.427	0.427
New Zealand	0.633	0.441	0.328	0.328
Average	0.640	0.40	0.3464	0.337

MSMEs = micro, small, and medium enterprises; FTAs = free trade agreements

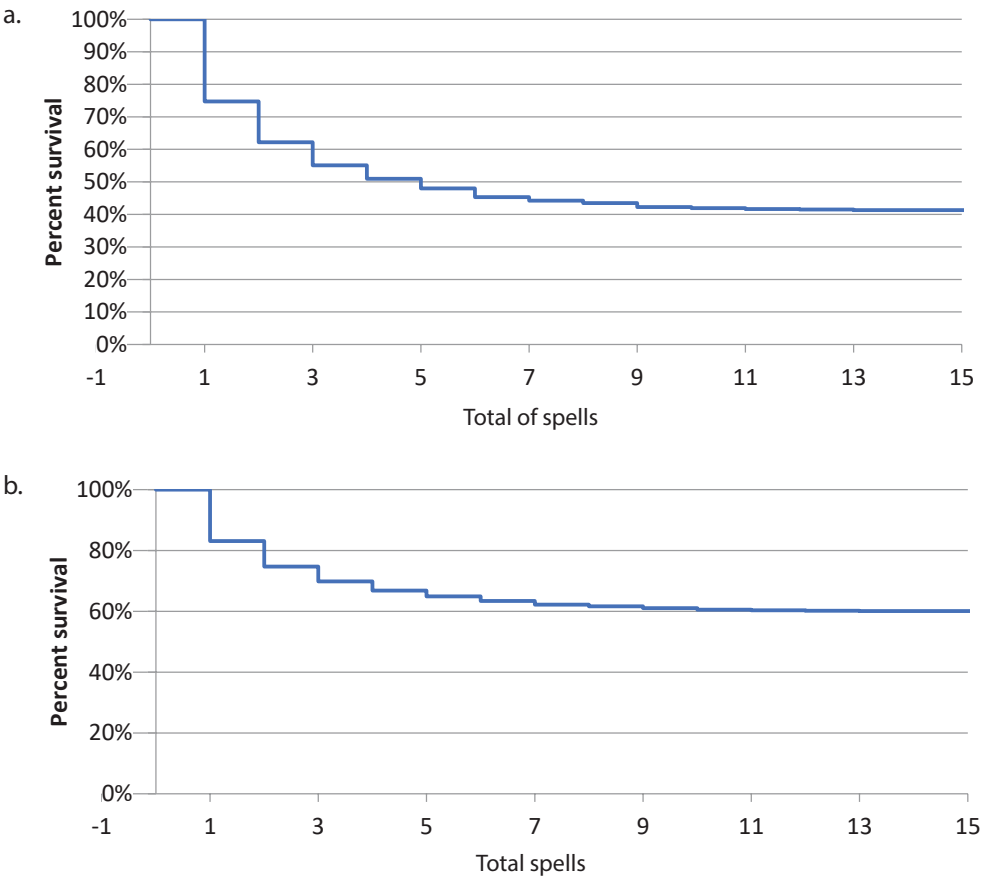
Source: Authors' compilation

In general, the pattern of MSMEs' export survival rates across different partner countries of the Philippines is rather mixed. Products exported to Australia exhibited the highest survival rate with almost 86 percent after year one. The second highest survival rate of exports by Philippine MSMEs after one year of activity was recorded with Japan at 78 percent. Meanwhile, with its ASEAN peer, Myanmar, only 42 percent of Philippine export products survived after one year. In contrast, products exported to Singapore exhibited the highest survival rate after 15 years of trade relations at 46 percent, followed by Japan at 45 percent. The lowest survival rates, in the long run, belong to Cambodia and Laos at 16 percent and 13 percent, respectively. For nations considered as established trading partners, e.g., Japan, Thailand, and Malaysia, the survival rates were higher with rates achieving 60 percent or more.

Considering the new markets of Philippine exports such as Cambodia, Laos, and Myanmar, the survival rates of exported products are rather low, i.e., prone to failure or abrupt exit from foreign markets. With an average survival rate of 41 percent after year one, it implies that local firms are still struggling to find appropriate partners or adapt to new partner countries. The long-term survival rates of Philippine exports to these countries (12 years) also showed to be lower at about 18 percent. The result suggests that there are other determinants of higher survival rates of exported products from MSMEs apart from regional proximity. This pattern is consistent with trade theories that found market knowledge and reliable networks with foreign partners as a crucial determinant of long-term trade relationships.

The Kaplan Meier plots from which Table 1 is generated for a sample of partners (Malaysia and Japan) are shown in Figure 2.

Figure 2. Survival analysis (Kaplan-Meier plot) of Philippine MSME exports to Malaysia (a) and Japan (b)



Note: The Y axis is the aggregate conditional probability; X axis is the duration of trade relations.
Source: Authors' calculations

The patterns of survival rates across different partners as reported in Table 2 are quite similar to Besedes and Prusa (2006b) but only in the early portion of time duration. In the first year, only 64 percent of relationships survived, which was higher than the average duration of the US trade relations from the study of Besedes (2006a). However, after four years, it had a conditional probability of surviving at 35 percent, which was a reduction of about 29-percentage points. Finally, the average chances of surviving for 12 straight years decreased to 34 percent. The survival function is downward sloping, suggesting a declining failure rate function.

According to Besedes and Prusa (2006a), a substantial fraction of relationships failed after only a year or two. For benchmark seven-digit Tariff Schedule of the US data, only 67 percent of relationships survived 1 year; 49 percent survived 4 years; and 42 percent survived 12 years. An almost identical survival experience was found in HS data, implying that the finding was quite robust. The message of Besedes and Prusa (2008) is summed up in a few words: the typical US trade relationship is very short-lived.

Another finding is the sharp decline in the risk of exports failure. It was quite high in the early years, but then rapidly fell once a trade relationship survived a threshold duration.

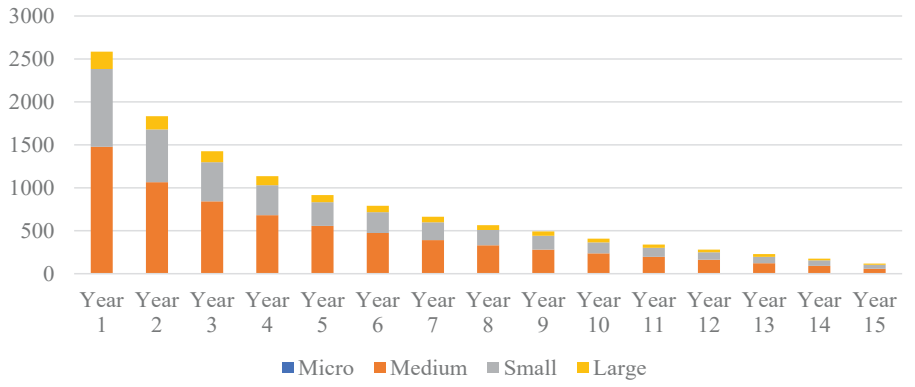
As shown, a large number of trade relationships failed over the first four years especially in the first year when the survival rate fell by 30-percentage points. However, after about four years, the occurrences of failure dwindled. For example, the failure rate between the first and the fourth year was an additional 25-percentage points. In contrast, the failure rate between the 4th and 12th year was just 11-percentage points. The decreasing rate of failure implies that once a trading relation hurdled a 'critical' year, the chances of surviving is better (Besedes and Prusa 2006a).

Comparative analysis of trade duration of large enterprises and MSMEs in the Philippines: Count basis

The methodology carried out to achieve the second objective of the paper started with projecting the distribution of export trade relations according to the size of firms on a count basis. To carry this out, the trade relations were first tagged according to spell. Recall that spells are the number of years where trade continually occurred. Such spells were then ordered according to duration, starting with those that lasted for one year, up to those that persisted up to year 15. Thereafter, the stacks of spells were filtered and categorized according to the size of the firm (large or MSMEs) that corresponded to export relation. Naturally the longer the spell or duration, the higher the survivability of an export relation. It is essential to see the distribution of trade relations by count as it provides a relationship of the duration of trade relations depending on firm size.

Figure 3 illustrates an example of this methodology using China as a model. The X-axis indicates the number of years of trade relations. Note, however, that "year 1" does not represent the duration but the first year of trade relations. The Y-axis shows the number of goods exported (trade relation) according to tariff line. For instance, the record of trade relations of exports to China indicates that there are more than 2,500 exported products corresponding to trade relationships that lasted for at least one year. Of the sum, close to 1,500 of the total export relations were accounted for by medium-sized firms. Some export relations failed in the second year. Hence, export relations that ran for two continuous years number less than those that survived one year. Interestingly, medium-sized sectors again accounted for the bulk of export relations.

Figure 3. Export duration of Philippine products destined for China according to firm size

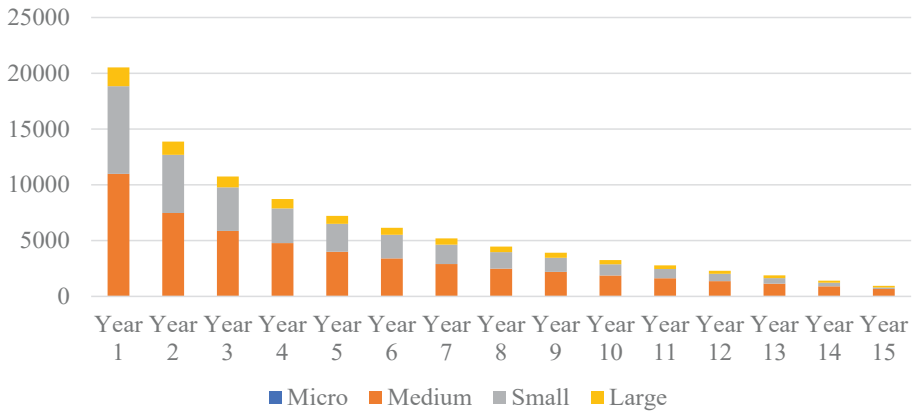


Note: Y axis is number of tariff lines; X axis is the duration of trade relations.
Source: Authors' calculations

The illustration indicates the increased survivability of products from the first year up to the 15th year. However, unlike the survival analysis of the previous section, the information in this section does not imply conditional probabilities, but merely the count or number of trade relations over different spells, and decomposed according to the size of the exporting sector's business (large or MSMEs).

Figure 4 reports the distribution of the duration of exported products from both Philippine MSMEs and large enterprises to ASEAN destinations on a count basis. For example, over 20,000 export trade relations destined to ASEAN markets survived for at least one year. Of the sum, close to half of the items were exported from industries or sectors whose average firm size is considered medium. For year 2, there were fewer than 15,000 exported products out of the 20,000 that survived for more than one year. Again, the majority of the exported products were from sectors whose average firms were considered medium-sized based on the average number of workers per establishment. The absolute difference between the count in years 1 and 2 represents the number of trade relationships that did not survive after a year. Generally, MSMEs exports accounted for most of the products but with varying durations of survivability across different partners. The number of exported goods from MSMEs (at the six-digit HS) tends to be more numerous and has a longer duration than those that came from large enterprises.

Figure 4. Export duration of Philippine products destined for ASEAN countries according to firm size



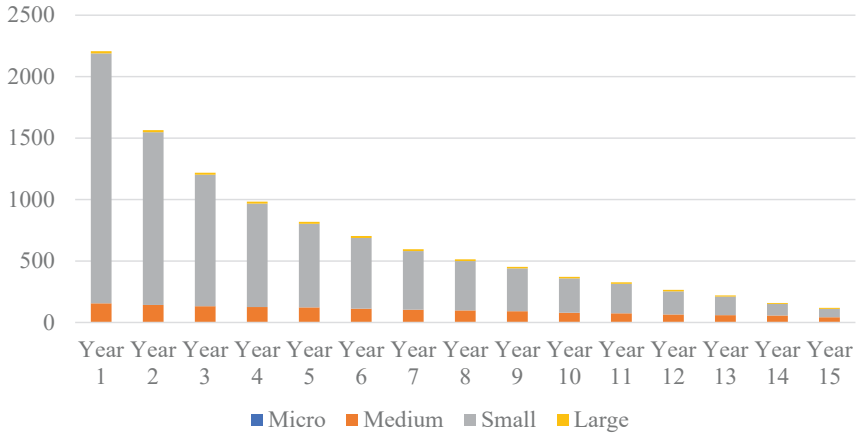
Note: Y axis is number of tariff lines; X axis is the duration of trade relations.
ASEAN = Association of Southeast Asian Nations
Source: Authors' calculations

Interestingly, the export products associated with MSMEs that exhibited survival rates of more than four years across the ASEAN region are resource and agriculture-based. These products include fresh or dried guavas, mangoes and mangosteens; fresh, chilled, frozen or dried roots and tubers of manioc cassava; vinegar; soap and organic surface-active products and preparations; and ice cream and other edible ice, whether or not containing cocoa.

As mentioned, large enterprises generally did not outperform MSMEs in terms of the duration of export survivability. Thus, the broader resources of large firms on the number of employees and the higher capital base do not guarantee a longer duration of export relations. Overall, large firms did not fare better than medium-sized establishments when it comes to the survivability of their exports.

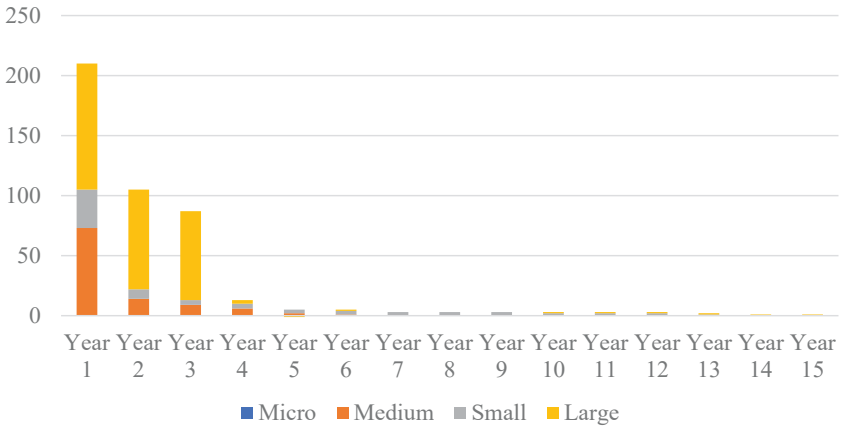
Figures 5 and 6 report the export duration of Philippine products destined for Malaysia and Laos, respectively, according to firm size on a count basis.

Figure 5. Export duration of Philippine products destined for Malaysia according to firm size



Note: Y axis is number of tariff lines; X axis is the duration of trade relations.
Source: Authors' calculations

Figure 6. Export duration of Philippine products destined for Laos according to firm size



Note: Y axis is number of tariff lines; X axis is the duration of trade relations.
Source: Authors' calculations

A comparison of the distribution of Philippine export relations between Malaysia and Laos reveals striking contrasts. There seems to be no general trend which indicates that small firms consistently outperform large firms in the duration of export performance of the Philippines across all its trading partners. For example, the Philippines' export relation with Malaysia was dominated by small and medium firms compared with large firms. However, MSMEs have lower survival rates in the latter years than large firms. In the case of Laos, large firms dominated the trade relations of Philippine exports with only a few of MSME firms establishing trade relations after one year of trading. In the latter years, the duration of MSMEs' export relations with large firms also faltered.

The contrasting distributions of Philippine export trade relations observed across countries are not inconsistent with the stage and network frameworks discussed in the literature. The status of firm trade relations may be attributed to the degree of market knowledge on the two countries (Malaysia and Laos). Its long-established trade relations with the Philippines reflect the strong

ties of MSMEs with Malaysia. Conversely, the trade activities of the Philippines with Laos have generally become more recent.

The findings reveal that export relations from medium establishments tend to last longer than small and large establishments. What could account for the relatively more prolonged duration of exports from medium-sized establishments from the Philippines? One possible explanation may arise from the nature of the country's top exports. The electronic components, microprocessor, and semiconductor type of products have become the top export products of the Philippines since the late 1990s. Due to the advent of the Factory Asia framework of Japan, the Philippines became one of the manufacturing hubs of the automotive and electronics industries in East Asian countries.

However, based on the current findings, these factories are still not considered as the large enterprise in the firm category of the Philippines. According to PSA (2015), the average number of workers in the electronics industry is 155, which puts it under medium-sized firms. Production lines of these industries rely less on human resource and more on the automation of processes. Moreover, the findings of business classification help us understand the actual level of impact of traded goods on the number of employees needed to produce it. Despite the high volume of products generated by the semiconductor industries, its labor is from medium-sized firms.

IMPLICATIONS, RECOMMENDATION, AND CONCLUSION

This paper attempts to document the duration aspect of the trade performance of Philippine exports using an approach pioneered by Besedes and Prusa (2006a). The survivability of the country's exported goods for a sample of its partners was analyzed using the Kaplan-Meier estimator. The survivability analysis was carried out for a total of 18 country partners including members of the ASEAN, East Asian countries, Australia and New Zealand, and India—all of which have FTAs with the Philippines.

This study's findings show that Philippine exports exhibit relatively short trade durations, consistent with the result of Besedes and Prusa's (2006a). From the trade relations of MSME exporters, it was observed that a large number of export relations failed after a few years. The results indicate that the fourth year is critical in trade duration where the average reduction in survivability is at its minimum before reaching an asymptotic relationship. Therefore, contrary to what the classical trade theories suggest, the overall export trade duration of Philippine exports is quite short.

Furthermore, MSMEs account for the greater share in the number of exported products (i.e., count of trade relations). Note that the computed percentage share was based on the number of tariff lines and not from export values. However, there is variation in the composition of the exporters (large or MSMEs) depending on specific partners. For some countries like Malaysia, MSMEs dominated the trade patterns of survivability. In contrast, the findings of the trade pattern with Laos showed a higher number of large firms accounting for trade relationships. Among MSMEs, the medium type accounts for the greatest number of exported products while micro establishments have very negligible exports.

Given these results, there could be a case for government support to be tied up with the critical years of export survivability. As the findings of Rauch and Watson (2003), which identified the processes of establishing trade relations, the support of the Department of Trade and Industry is critical in supporting MSMEs in the first four years of trading internationally. Efforts are vital in assisting firms to reach larger orders either through financing or consolidation with other similar firms that have hurdled the product standards required by buyers. In such fashion, the authors hope that the assistance for MSMEs could be better targeted.

Several policy implications can be gleaned from the study. Firstly, the findings show that Philippine exports exhibit relatively short trade durations, consistent with the result of Besedes and Prusa's (2006a). The results indicate that the fourth year is critical in the trade duration of Philippine MSME exporters where the average reduction in survivability is at its minimum before reaching an asymptotic relationship. On the basis of percentage share of the number of tariff lines (and not from export values), MSME exporters account for the greater share of the total count of Philippine trade relations. Furthermore, among MSMEs, the medium-sized establishments account for the greatest number of exported products while the corresponding number for the micro establishments is negligible. Given the results, there could be a case for government support for the duration of the critical years of export survivability. Such time-bound assistance can be oriented towards shepherding MSMEs to sustain and scale up their exporting activities by financing or developing their capacity to hurdle international product standards.

Secondly, the survivability analysis can be employed as an additional monitoring mechanism of MSME programs by the government agency tasked to promote MSME development. The existing competitiveness benchmark can be augmented with the inclusion of the survival analysis results. Improvements in export survivability of MSMEs indicate the effectiveness of targeted government programs and policies aimed at facilitating the internationalization of MSMEs.

Lastly, there is scope for further research on the determinants of export survivability. The current study is limited to documenting the pattern or characteristics of the survivability of export relations of MSMEs. Investigating the determinants of the duration of a trade relationship is critical in uncovering the factors that can lead to a more extended survival rate of goods. Future papers on survivability can focus on the determinants of survivability of exported products that survive beyond 4 to 10 years, compared with others that exit after just one year of trading. Additionally, an analysis of the import demand characteristics of the country's FTA partners can be undertaken. This exercise in market intelligence could be useful in crafting policies and marketing programs to guide MSMEs in targeting the needs of FTA markets more precisely and hopefully increase their survival rates.

Another possible study in the future is covering the profile of companies that had exited export markets before reaching four years of trade. Profiling could answer the following questions: How long have they been in business before engaging in export? Why did they abandon their exporting activities? What happens to firms once they exit the export market? Will they close down locally as well? By investigating these questions, policymakers and researchers can identify the situation and determinants of firms that led to their exit from international markets.

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