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Duration of export relationships of Philippine MSMEs

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DISCUSSION PAPER SERIES NO. 2018-12

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Mark Edison Bautista and George Manzano



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Duration of Export Relationships of Philippine MSMEs

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Abstract

Within the framework of the Asia-Pacific Economic Cooperation (APEC) Boracay Action Agenda and the ASEAN Strategic Action Plan developed by its members to assist MSMEs to reach internationalization, the study examines the survivability of Philippines MSMEs' exports to select countries. The analysis is based on the survival analysis model of Besedeš and Prusa (2006a; 2006b) and Besedeš and Prusa (2008). Using the Kaplan Meier estimator model in both the exports coming from MSME and the total trade data, the study documented the survival rate of goods and duration of Philippine exported goods. The research shows that most export relationships of the Philippines are brief, contrary to conventional trade theories which suggest that most trade relationships will be long-lived. Also, the study finds that MSMEs, on average, account for a more significant number of export relations than large establishments. Furthermore, among the MSMEs, it is the medium-sized firms that constitute the majority of export relations over different durations.

Keywords: survival analysis, duration, export survival, MSMEs

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Duration of Export Relationships of Philippine MSMEs

*Mark Edison Bautista and George Manzano^{*1}*

1. Introduction

In recent times, the Philippines championed the cause of the Micro, Small and Medium Establishments (MSMEs) in several international fora. Under the Philippine chairmanship of the APEC 2015, the Leader's Declaration contained text on enabling the trading environment that is conducive to the development and participation of MSMEs, APEC (2015). The declaration set into motion the Boracay Action Agenda designed to globalize the MSMEs. The Philippine position of putting the MSMEs among the priority agenda of regional fora found echo in the ASEAN Leader's Declaration on the 50th Anniversary of ASEAN, ASEAN (2017). Again, under the chairmanship of the Philippines, a call to integrate the MSMEs into the global value chains was articulated. The heightened priority of the MSMEs has been cascaded not only at the policy level but has also reached the research agenda. To this end, the Philippine APEC Study Center Network has incorporated the MSMEs as a priority research area.

It is not difficult to appreciate why MSMEs has become a priority in the policy agenda. Literature of MSMEs is replete with studies on the critical contribution of MSMEs to the economy. MSMEs comprise 99.5% of existing firms and employs 62% of workers. Thus, they have an important developmental role. In fact, the call for 'inclusive' growth has been tied up with integrating the MSMEs in the mainstream of the national and international commerce. A common concern that arises is, despite the extensive presence of MSMEs, they only account for 36% of gross value added. Thus, the low productivity of MSMEs is a real concern and object of policy attention.

Due to its importance, MSME development has been the subject of growing research literature. How to nurture, transform and strengthen MSMEs is a common theme in research. Besides, the fields of identifying the impediments for growth and improvements in productivity are also actively investigated. Another strand for analysis involves internationalization of MSMEs. Specifically, there is renewed interest in identifying the factors that affect the ability of MSMEs to penetrate export markets and how they scale up the volume of their business in international markets.

This paper attempts to offer another window of understanding the behavior of MSMEs in the process of internationalization. While the internationalization issues of MSMEs usually involve studies on the record of export intensity and propensity and their impediments, this study takes another tack. This paper attempts to document how long the trade relationships of MSMEs last. Trade relationship meant that the Philippines is exporting a good to a destination or market for a continuous period. The point of inquiry of this paper is to study the length of time until the export activity or relationship ceases to be active. Thus, a trade relation does not necessarily correlate with the volume of exports. Rather, it is a count item. To illustrate, if the Philippine exports three items to a partner, there are three trade relationships and the count is independent of the actual value of exports of these items.

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To what extent are the MSMEs in the Philippines engaged in sustaining export activities, i.e., what is the duration of these trade relationships? Are the MSMEs in the Philippine able to participate exports for long or short periods of time? Does the length of export activities of MSMEs vary with different partners? To what extent do large firms dominate the trade relationship in comparison to MSMEs? This paper documents the behavior of Philippine MSMEs concerning the duration of export activities, which is akin to gauging the 'survivability' of their export activities.

Before determining the survivability characteristics of the MSMEs, it is important to find the link between the exported goods with the size attributes (Large or MSMEs) of the firms that produced the export items. By using correspondence tables, each shipped product is paired with the size of the producing sector. By doing so, the duration of each exported good treated as the duration of the export activities of firms that are large or MSMEs. Having established the link between goods and size of the producing sector, the research strategy in determining the length of the export relationship and the pattern of the survivability of Philippine MSMEs can then carried out in two parts. The first part documents the duration of the trading relationships of exports coming from MSMEs to a set of trading partners of the Philippines. For instance, it records the probability that export relationships of MSMEs to Malaysia will last for four years. This pattern of 'survivability' is then contrasted with the corresponding model with the aggregate export products, i.e., with all exported products coming from all sectors - MSMEs and large establishments.

In the second part, the authors generated distributions of different durations of export trade relations classified according to the size of establishment per sector (large or MSMEs, i.e., the aggregate exports) on a count basis. Naturally, some export relations cease to continue in the third year, so the count of all trade relations (with its corresponding breakdown according to large/MSMEs) would be lower for those that last for three years. This analysis reveals the distribution of the duration of export relationship including the breakdown of such ties associated to export items and the size of establishment (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) states, trade theories mostly posit a long-lasting trade relationship. For instance, the Heckscher-Ohlin model showed the basis trade relationships are expected to persist. From the policy perspective, an understanding the survivability characteristics can aid in crafting government support interventions such as duration of incentives.

2. Review of Related Literature

2.1. Internationalization of SMEs

Examining the internalization of SMEs is no easy task given the following factors: the general lack of data in developing countries and differences in the definition of SMEs. However, exploring its characteristics can facilitate in getting a sense of the present conditions, particularly of the constraints as well as potential capacities.

In recent decades, various studies on Philippine industries have looked into the factors that affect the decision of firms to venture into international trade. For example, one of the early studies done at the firm level by Lall (2000) identified that the Philippine global capability is low due to the narrow competitive bases, primarily dominated by one product group—semiconductor. During the period of study, semiconductor industry clustered around the low-end final assembly and testing phase—activities that are vulnerable to competitive entry and technological change. The study mentioned above attributes the low international capability of exporting firms.

Abrenica and Tecson (2003) analyzed the technological underdevelopment of the Philippine manufacturing sector and explained what led to the technological divide between the Philippines and the more progressive Asian neighbors. The paper debunked some of the "known facts" about the country like (1) dominance of high-technology industries, (2) reliable pool of human resource, and (3) attractive site for foreign investors anchored on the educated and English-speaking labor force and generous government incentives. The authors attributed the underdevelopment of Philippine manufacturing to the lack of absorptive capacity of technology, traced to policy neglect. The study recommended setting up a national agenda that will help define the technological path of the country as well as upgrading the technical and physical infrastructure. Furthermore, the study emphasized that need to strengthen and reorient the educational system to one that is more responsive to the needs of industries.

When it came to the determinants of export intensity and the propensity of SMEs, the study of Manzano, Tuaño, and Villamil (2014) focused on finding the determinants, both of export propensity and intensity of SMEs. The study identified that apart from labor productivity, the decision to export by firms depends on other qualities such as the ownership structure. They say that relatively larger firms are more likely to participate in foreign markets and have higher export value because they have production and cost advantages over smaller firms. Thus, SMEs are less likely to export than large ones as they have fewer resources to surmount the sunk costs involved in breaking into the export markets. On the other hand, large firms have the resources to develop marketing channels, new product testing, and standard compliance procedures, which are essential when penetrating export markets.

However, studies published over the years did not look into trade duration or the ability of exporters to persist in their trade relationship once established. In an international economic theory perspective, trade relationships are expected to last.

Although trade duration can be related to the propensity of export products according to the study of Besedes and Prusa (2006a), it still has no direct linkage depending on the size of the firms. In the same vein, the research of Manzano, Tuaño, and Villamil (2014) has shown the significance of firm size both on export propensity on the log of export value, but it does not

establish the direct linkage regarding export products that link to the exporters according to their size category. The study on trade duration included size factor, following the paper of Besedes and Prusa (2008). But it categorized order sizes instead of the dimensions of firms. It appears that no study deals with trade duration and its relationship with the size of the firms. Furthermore, these firm sizes categorized on whether the firm is considered an SME or not.

The extent of participation of SMEs in GVC trade is a function of their technological capacities as captured by the ownership of a foreign technology license. The firms' trade size suggests improvement of its technology, production, and processes positively influence its participation in GVCs (Arudchelvan, M. and G. Wignaraja, 2015). Besedes and Prusa (2008) found foreign ownership was not a significant predictor of value chain participation.

Besides, the study of Arudchelvan, M. and G. Wignaraja (2015) found that firms are more likely to use FTAs if they invest time in acquiring relevant in-house FTA expertise and that actively build linkages with FTA assistance institution. Also, they find that there is a positive and significant relationship between exposure to trade, being measured by export share of sales and the share of raw materials imported, and the use of FTA. Its significance comes from the greater ability for outward orientation which results in more likelihood the firm is aware of international markets and trade regulations.

Lastly, the study as mentioned above pointed out that preferences made available through FTAs provide the higher chance for firms to gain with higher exposure to international. Finally, when it comes to factors that hinder FTA use, the lack of information has been found to be the predominant reason for not utilizing preferences. Other top reasons for non-utilization of FTAs include failure to acknowledge the importance of using FTAs and only not having much interest to trade with the current FTA partners.

2.2. Internationalization of SMEs from South East Asia

As mentioned earlier, examining the internalization of SMEs is no easy task given the following factors: general lack of data provided by statistical services in developing countries, and differences in the definition of SMEs and the different levels of development across countries. However, exploring its characteristics can facilitate in getting a sense of the present conditions, particularly of the constraints as well as potential capacities.

Previous studies have shown that the SME sector is widely known as the backbone of Southeast Asia's Economy. On the aggregate, it accounts for a majority of the number of all firms and employs a sizeable chunk of the domestic workforce in each country.

The results of Wignaraja (2013)'s study found that large firms were the leading players in production networks in ASEAN economies while SMEs were relatively minor, but since the late 2000s, there has been an increase in the participation of SMEs. Furthermore, the study showed that the more developed ASEAN economies such as Malaysia and Thailand, which have engaged in production networks relatively earlier, have higher export shares from SMEs than other ASEAN economies. The same study found that size, foreign ownership, educated workers, experienced chief executive officers (CEOs), a building of technological capabilities, and access to commercial bank credit all positively affect the probability of SME participation in production networks.

Thus, it is not unexpected that Southeast Asia's SMEs play a significant role in their economies, although there are variations. SMEs make a substantial contribution to exports (more than 25%) and perform various functions that lead to economic growth and development of industries, (Lim and Kimura, 2010). As a case example, they find that SMEs firms in Singapore provided a solid skilled production base that attracted multi-national companies. When it comes to the country of Vietnam, SMEs and rural enterprises were crucial in the transformation process from a planned to market economy. However, these two cases have many variations in their sectoral composition. Other countries have SMEs that also have an overwhelming presence in the service sector such as Malaysia, (Lim and Kimura, 2010). Further, the study finds the strong representation of SMEs in agriculture in Indonesia; wholesale and retail trade in the Philippines; and the food, beverage, and tobacco in Cambodia. In line with the trends of deepening economic integration in the Asian region, there is a high potential for the SME sector to develop further its contribution to the region's development through greater participation in global value chains (GVCs).

A study by Aldaba, Medalla, del Prado and Yasay 2010) that incorporates a survey of firms in Metro Manila and other regions discusses the constraints and concerns faced by SMEs. In the study, firms that have links with producer abroad have issues with trade barriers while those firms which do not have such extensive dealings with foreign firms were more concerned with taxes and general business environment.

2.3. On SMEs and Survivability

The central theme of the World Trade Report 2016 of the World Trade Organization (WTO) is the trading performance of SMEs (WTO, 2016). The publication as mentioned above states that most SMEs stop exporting after a year, shipping survival rates tend to increase over time (Freund and Pierola, 2010; Wagner 2011). Furthermore, the publication mentioned that internationally oriented SMEs, both on the import and export side, tend to experience higher survivability than firms geared exclusively to the domestic sector (Muuls and Pisu, 2009). Thus, internationalization is associated with giving SMEs new growth opportunities. This paper will hopefully add to the literature of the export survivability/failure of Philippine SMEs.

2.4. Survival Analysis

Standard models of international trade often ignore the duration of the business. Many trade models appear to imply that trade patterns are not dynamic and therefore, tend to persist. In these models, a trade relationship, once established, will continue through time. For instance, according to the factor proportions theory the Heckscher-Ohlin theory, trade is based on differences in (relative) factor endowments. Since factor endowments do not change rapidly, the nature and direction of business tend to stay that way.

In contrast, however, Besedeš and Prusa (2006a, 2006b) have recently argued in a series of papers that trade relationships are often very short-lived. Examining the duration of U.S. imports, they find that the U.S. pattern of imports is surprisingly dynamic. They determined the median duration of importing a product from a foreign supplier in their study is just one year. As a result, there may be a considerable turnover at the product level which is not evident at the aggregate trade level, with a significant portion of suppliers entering and exiting the market each year.

Another important observation that Besedes and Prusa (2008) found in their work is that a good number of trade relationships re-occur, exhibiting what referred to as multiple spells of service. A country will serve the market through export activities, exit, then re-enter the market, and then almost always exit again. Based on the study of Besedes and Prusa (2008), approximately 30% of relationships experienced multiple spells of service in the disaggregated product level data. The study cited that about two-thirds of trade relationships with various intervals suffer just two spells while less than ten percent have more than three spells.

Since the publication of Besedeš and Prusa (2006a, 2006b), a growing literature has emerged analyzing the duration of export and import trade. Most of it follows the approach pioneered in Besedeš and Prusa (2006a). Nitsch (2009) found that the trade relationships of German imports to be of a similarly short length as US imports. Using 8-digit product level data he documented that most trade relationships lasted only one to three years. Hess and Person (2009) similarly showed that the duration of imports of European Union members between 1962 and 2006 to be very short, with the median duration of one year. Also, Hess and Person (2010) replicated the results of Besedeš and Prusa (2006b) and made a methodological contribution by showing that discrete-time hazard models are better suited to trade duration data.

Furthermore, Besedeš and Prusa (2007) and Besedeš, et al. (2009) showed that the duration of exports from many Central and South American—the Asian Dragons countries as well as the US and EU countries—is very short. Precisely, many relationships fail in their first year resulting in most countries having the median duration of an export relationship at only one or two years.

Examining the duration of exports for many countries, Brenton, Saborowski, and von Uexkull (2009) found evidence that learning-by-doing decreases the hazard of exporting of developing nations, i.e., as the experience of trading expands, the probability of discontinuing the trade relation diminishes. For another, Jaud, Kukenova, and Strieborny (2009) demonstrated that financial development improves export survival of developing countries. Economic growth associated with lower external finance costs to firms. Fugazza and Molina (2009) examined the duration of exports of almost one hundred nations between 1995 and 2006 finding that developed countries, differentiated products, export experience, and the volume of exports all decrease the hazard of exporting. Minondo and Requena (2008) examined the duration of exports of regions of Spain finding the median duration for all areas to be just one year and the probability of survival rapidly decreasing. Volpe and Carballo (2008) investigated the export survival of newly exporting Peruvian firms and found that their median export duration to be just one year.

In the Philippines, trade liberalization has led to the unprecedented flourishing of the exporting of goods from local industries. However, current policy research lacks an analysis on the duration of trade relationships among trade partners of the country. Although, the government claims the significant traded growth reached over the years, most of the drivers of the trade growth are coming from only a few players from large industries. The rest of the local enterprises, particularly the SMEs, remain insignificant in the share of total trade performance of the Philippines.

2.4.1. Duration and Size of Establishment

To explore the relationship between trade duration and size of an export order, Rauch and Watson (2003) provided a model to explain trade duration data. Their model begins with the assumption that trade between parties does not just happen by chance but instead starts with a search— a national buyer searches for a foreign supplier. After incurring a search cost and being matched with an international supplier, the buyer immediately observes the supplier's efficiency. However, the buyer cannot quickly ascertain whether the global supplier will be successful in fulfilling a large order. In the case that the supplier cannot scale up to meet offers, the trade relationship fails and the search cost, which is a sunk cost, is lost. Because of the risk of losing the lump-sum investment which is the search cost, the buyer might hesitate to make the investment and instead make several small-volume purchases to learn about the supplier's reliability.

If the supplier proves to be reliable, the buyer makes the investment necessary for a large order. According to Rauch and Watson (2003), there are three possible actions for the buyer matched with a foreign supplier: start big (which made the relationship-specific investment), start small (which means sampling to determine the quality of the match), or reject the supplier. However, SMEs which cannot meet the required order of the buyer on its own would opt out in trade relation despite having the reliability in meeting other factors. Although there are consolidated orders established in some industries, most of the sectors have minimum order levels, thus making it prohibitive for SME to meet the demands of large firms that import from them.

Besedeš (2008) identified five implications of the Rauch and Watson (2003) model as applied to the duration of US import trade. In this paper, the findings suggest that firms reaching the small initial orders fail to meet larger initial orders due to various factors identified by the firms in other studies.²

Further, Besedeš (2008) finds that trade relationships that start with larger initial orders exhibit consistently higher survival probabilities. Nevertheless, regardless of initial size, hazard rates for all links are the highest in early years and continuously decline.

² (1) some relationships will start with small initial order while others will start with larger ones, with larger ones enjoying an advantage in the form of a longer duration; (2) higher supplier reliability will result in a more significant initial order and more extended lasting relationships; (3) lower search costs increase initial order and duration; (4) a link is most likely to fail in its early stage; and (5) a small fraction of connections will end with a buyer switching to a new supplier.

3. Theoretical Framework and Methodology

3.1. Theoretical Framework

3.1.1. Classical trade approaches

Classical trade theories posit that comparative cost advantages primarily explain the patterns of trade. For example, David Ricardo, point to relative labor productivity as the basis for comparative advantage. Each country can always find a product for which it has a comparative advantage and could, therefore, export it. In the Heckscher-Ohlin model, nations have factors of production and have the same production functions but different factor endowments. The difference in relative factor endowment determine the products for which countries have the comparative advantage. Both models treat technology either as neutral in the production and trading process.

Other models have stressed the importance of technology as a determinant of international trade. Hence, differences in production techniques and their associated costs now form the basis of pattern of trade. From the works of Posner (1961) and Vernon (1966), exporting activity is now determined by technological differences across countries which are dynamic. A significant prediction of the model is that technologically-advanced nations will ship new products, embodying innovation, and import products that are already standardized. By and large, these trade theories have generally implied that once the comparative advantage has been discovered, duration of trade relationship is expected to last. Although it recognizes that there is a shift in comparative advantage, the change would need years to transition to a new product. Thus, the slow transition implies long duration of the trade relationships of export products.

3.1.2. Fragmentation and trade duration

With the advent of globalization, trade relationships became increasingly affected by the operations of large firms, such as multinational corporations. Large firms that have evolved to multi-national companies are wont to fragment production processes into several production blocks and locate them in appropriate places that possess different location advantages, to realized production cost savings, (Bartels et al., 2009). Fragmentation of production processes or employing global value chains are advisable when the savings of production costs in doing so are, and the added expenses for connecting remotely located production blocks are small. The aforementioned added costs to compare the different production blocks include transport costs and various coordination costs. Under the theory of fragmentation, the duration of trade relationships is dependent the ability of firms to maintain its ties in the values chain of global companies.

The highly influential work of Pavitt (1984) is one of the cornerstones in stressing the role of sectoral variation and technical change. Using firm and innovation data in Britain from 1945-1979, the study attempts to describe and explain the differences in the performance among sectors from the characteristics of innovation of the firm.

Pavitt (1984) came up with three basic categories of innovation, namely (1) science-based, (2) scale-intensive, (2) supplier-dominated, and (3) specialized suppliers. These categories of change gave rise to different technological trajectories. Further, the study mentioned above

argues that the state of the firm in the continuum of technical paths could affect the ability of trade relationships to persist.

3.1.3. Other trade approaches

Other main frameworks emerged in understanding how firms internationalize and the consequent implications on government policy for SMEs as well as the impact of trade durations. Some studies look at how firms internationalize. While these studies look into the determinants of firms, particularly SMEs, to reach the international markets, they fall short in accounting for the duration of trade relations. A number of these studies focus on SMEs and their participation in global value chains (GVCs). By nature, GVCs constitute a network where a lead firm that manufactures the final product supported by a small number of preferred first-tier suppliers, which are also supported, in turn, by other suppliers, and so on, forming a tiered structure.

It is generally easier to enter a network as a lower-tier supplier. But this position tends to be unstable as other suppliers can easily replace the original supplier by offering better comparative advantages such as lower costs (Abonyi 2005). Therefore, the challenge for SMEs is not only to try to enter GVCs but to move up the tiers by increasing by upgrading their contribution.

According to the stage model, internationalization seen as an incremental process where different stages follow each other in a logical order (Luostarinen 1994). The assumption is that a firm's knowledge about foreign markets and commitment to expanding overseas will consequently affect its business decisions and activities. Thus, a virtuous circle is unleashed when a firm starts doing business internationally, its knowledge of foreign markets naturally deepens and so on. The process described as "a gradual acquisition, integration, and use of knowledge about foreign markets and operations and a successively increasing commitment to foreign markets" (Johanson and Vahine 1977: 36).

The use of network approach view internationalization as a natural development resulting from the process of establishing, improving, maintaining, and dissolving relationships with individuals and firms (Johansson and Mattson 1988). A firm's network of both local and overseas relationships forms essential asset or capital. This capital is valuable as to the extent that it can create trust, raise access to information, and increase the firm's ability to mobilize resources. In their model, as firms internationalize, the number and strength of relationships in their network increases, bringing more benefits and helping them integrate further into GVCs. In line with this theory, studies have found that SMEs rely heavily on their networks for many activities when internationalizing, particularly in obtaining market knowledge and looking for opportunities (Mohibul and Fernandez 2008). Thus, a firm that wants to generalize must first understand the market in which it operates—the environmental conditions and business relationships (Madsen and Servais 1997)—before finding ways to strengthen and utilize its network.

International entrepreneurship theory (IET) states that the basis for a firm's internationalization is global entrepreneurship, defined as the discovery, enactment, evaluation, and exploitation of opportunities across national borders to create future goods and services (Oviatt and McDougall 2005). While detection refers to finding opportunities, enactment entails acquiring competitive advantage to exploit opportunities. Lastly, evaluation is used to assess the actions taken. This framework is especially relevant in the current age of

technology, where SMEs can make use of cheap and readily available ways of getting information and communicating with other countries to help them expand their activities abroad. The approach is also useful in understanding international new ventures, which from inception strive to build competitive advantage from the use of their resources and the sale of outputs in various countries (Oviatt and McDougall 1994) and therefore defy the traditional stage theories of internationalization.

In summary, trade duration has been implied to last according to existing frameworks, whether classical or contemporary. The classical theory on international economics proposes the importance of having a comparative advantage; however, it falls short in providing a direct linkage duration of trade relationships. The flourishing of the fragmentation approach has introduced the importance of large firms creating global ties of smaller firms in the international market. The duration of trade implied from the ability of the smaller firms to maintain its role in the global value chain. When it came to other approaches, the framework of stage model suggests that trade relationship slowly evolves through the knowledge gained overseas. The network approach saw the importance of establishing, improving, maintaining, and dissolving relationships with individuals and firms. Lastly, IET views international entrepreneurship of the firm as the critical factor of reaching global trade relations. These theories have not suggested a clear linkage on trade relationships established and their duration.

3.2. Methodology

3.2.1. Correlating Export Goods (HS) to MSMEs (PSIC)

The conversion of the export products to being linked to exporting firms begins with the Harmonized Code of Trademap which generate the list of exported goods in HS code of the Philippines per partner country. The Kaplan Meier estimator method will form their corresponding survival probabilities using the count of 'spells.' The HS codes will be 'converted' to SITC, which, in turn, will be further converted to ISIC. Finally, the list generated using ISIC will be transformed to one based on PSIC.

Using the Annual Survey of Business Establishment of the Philippines, the average number of employees per sector correlate with the PSIC code to link the SME incidence of industries or segments with the survival rates computed in the earlier stages of the research. Figure 2 illustrates the conversion to SME.

Figure 1. Conversion from Product Code (H.S.) to Firm Size

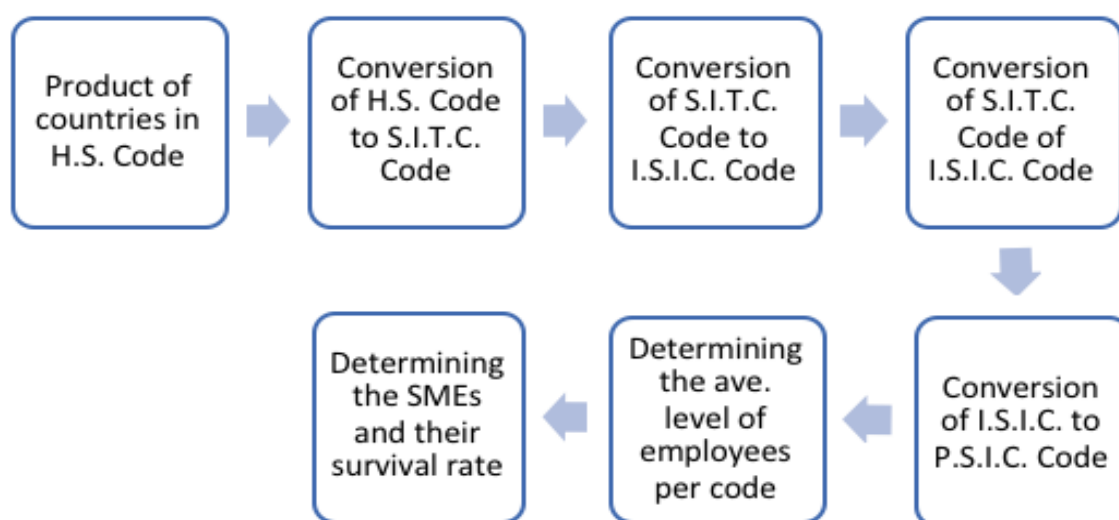


Table 1 illustrates the actual conversion from product code to firm size. Examples show the use of H.S. Code with its description to SITC, then to ISIC, then finally to PSIC to identify the average employment of the industry.

Table 1. Conversion from Product Code (H.S.) 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 make-up preparations	553.2	2424	D24234	95	Small
330410	- Lip make-up preparations	553.2	2424	D24234	95	Small
330300	Perfumes and toilet waters.	553.1	2424	D24234	95	Small

Source: Trademap.org, Author's Computation

3.2.2. Survivability: Filtered MSME Trade Relations and the Aggregate Approaches

Any estimate of the duration of trade is highly sensitive to the level of product classification used. Periods of continued business tend to become longer for more aggregate industries because the fuller the range of products that are covered by industry classification, the higher is the probability of trade to at least one outcome of this category in a given year.

At a very detailed level of product description, in contrast, even a minor change of product specifications may lead to a reclassification of an otherwise identical product, thereby resulting in a recorded failure of a trade relationship. Also, (regular) modifications of product codes may affect the results for individual products more strongly than for broad product groups or industries. In this paper, the researcher will make use of a new and previously unexplored dataset of product-level trade for the Philippines. The 6-digit Harmonized System

(HS) level report trade values and quantities, which is the most detailed product classification in International Trade Centre (ITC) - Trademap statistics.

Trademap³ gets its data from the United Nations Committee on Trade are available for the sixteen-year period from 2001 to 2016. For each year, the researcher will observe, at the product level, the value of Philippine exports to its top bilateral partners. That is, the total number of trade observations for all possible combinations of products, countries and years is about 1.2 million ($\approx 5,000$ products \times 15 nations \times 16 years). However, most of these potential trade relationships are non-existent; the number of observations with a favorable trade is about eight hundred thousand million (≈ 60 percent of the sample). Moreover, the majority of these non-zero trade observations are small in value. About 30 percent of Philippines' export to the product-country pair have an amount of fewer than 10,000 dollars; about 60 percent have an amount of fewer than 100,000 dollars.

Also, it is possible to derive from this data, similar to Besedeš and Prusa (2006a), the length of time that the Philippines has continuously shipped a product to its partner. It virtually ignores the actual size of exports, however; it goes further than the simple zero-one question of when a partner is on or off the Philippine export market.

Calculating duration then appears to be straightforward: it is merely the time (measured in years) that a trade relationship has been in existence (without interruption). Alternatively, applying statistical techniques from survival analysis, the duration can be modeled as a sequence of conditional probabilities that a trade relationship continues after t periods given that it has already survived for t periods.

3.2.2.1. *Failure*

Another objective of the study is to identify the length of time until the Philippines ceases to export a product to its FTA partners. This event referred to as a "failure." For each product and partner country, the researcher used the annual data to create spell data. If the Philippine exports product I to state c from 2001 to 2005, the trade relationship between countries has a spell length of five. The benchmark analyzed are preferably the most disaggregated data available. Thus, the study used to trade in tangible products rather than aggregate summaries.

A critical observation that Besedes and Prusa(2008) found in his work is that a loss of trade relationships re-occurs, exhibiting what referred to as multiple spells of service. A country will serve the market, exit, then re-enter the market, and then almost always exit again. Based on the study of Besedes and Prusa (2008), approximately 30% of relationships experience multiple spells of service in the disaggregated product level data. About two-thirds of contacts with various intervals suffer just two spells; less than ten percent have more than three spells. The paper treats multiple periods as independent, similar to the framework of Besedes and Prusa (2008).

3.2.2.2. *Censoring*

In considering data regarding spells, it becomes apparent that there is a need to account for censoring in the analysis. The need for censoring arises because it is often unknown whether a trade relationship ends because of a failure or for some other reason.

³ www.trademap.org, Trademap gets its data from the United Nations Committee on Trade

Besides, there is uncertainty regarding either the beginning or the ending date (or both) for some trade relationships. The work of Besedes and Prusa (2008) shows censoring as standard in US import data. They find that in both periods about half of all spells are censored, and about 20 percent of intervals are censored at one year. The censoring problem comes in two kinds. First, there is no information on trade relationships for the years before the beginning and after the end of the sample. For example, US imported corn from the Philippines in 1972. It may have begun in 1972, or it may have started in some prior year. The most appropriate interpretation is 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 do not continue beyond 1988 and it is impossible to ascertain how long the spell ultimately lasted. Once again, the most appropriate interpretation is at least five years.

In practice, the survivor is estimated (in a non-parametric way) by computing the number of spells that survive (end) as a fraction of the total number of spells that are at risk after t periods. The survival analysis will generate the list of exported goods in HS code of the Philippines with their corresponding survival probabilities using the count of 'spells.' Box 1 presents the technicality of the survival analysis.

Box 1. Survival Analysis (Kaplan Meier Estimator)*

Survival Analysis

Let T denote time to a failure event. Since time in the analysis is discrete, we assume T is a discrete random variables taking on values $t_i, i = 1, 2, \dots, n$ with a probability density function $p(t_i) = \Pr(T = t_i), i = 1, 2, \dots, n$ where $t_1 < t_2 < \dots < t_n$.

The survival function for a random variable T is given by

$$S(t) = \Pr(T > t) = \sum_{t_i > t} p(t_i).$$

where $S(t_0) = 1$. The survival and hazard functions are related through the following expression

$$S(t) = \prod_{t_i < t} [1 - h(t_i)].$$

Nonparametric Estimation

To estimate the survival function, the paper will assume we have n independent observations denoted $(t_i, c_i), i = 1, 2, \dots, n$, where t_i is the survival time and c_i is the censoring indicator variable C of observation i . C_i takes on a value of 1 if failure occurred and 0 otherwise. Assume there are $m \leq n$ recorded

times of failure. Denote the rank-ordered survival times as $t_{(1)} < t_{(2)} < \dots < t_{(m)}$. Let n_i denote the number of subjects at risk of failing at $t_{(i)}$ and let $d_{(i)}$ denote the number of observed failures. The Kaplan-Meier product limit estimator of the survival function is then

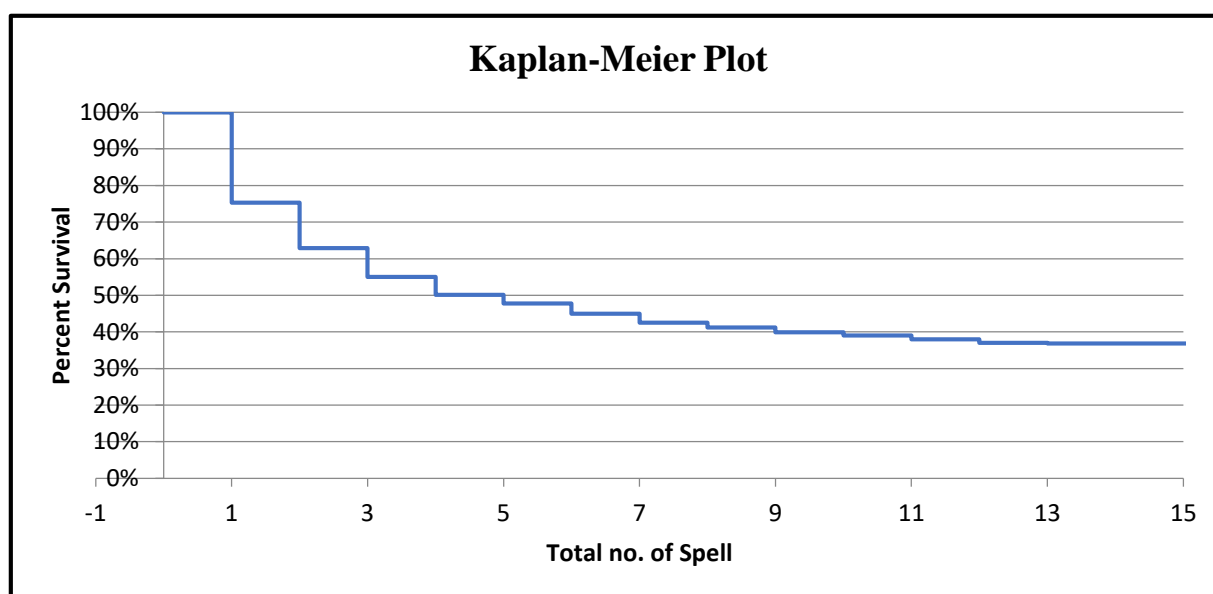
$$\hat{S}(t) = \prod_{t_{(i)} \leq t} \frac{n_i - d_i}{n_i},$$

With the convention that $\hat{S}(t) = 1$ if $t < t_{(1)}$. The Kaplan-Meier estimator is robust to censoring and uses information from both censored and non-censored observations.

*Note: the description of the survival analysis was taken from the study of Besedes and Prusa, 2006, entitled: The Duration of Trade Relationships. *Review of International Economics*, 16(5):835–849

Figure 2 illustrates the result of the survival analysis. The Kaplan-Meier Plot presents the conditional probability of Philippine Export products to Japan. The x-axis represents the given time period of the research which is 15 years. The y-axis explains the probable survival rate of products entering Japan-based from the aggregate trend of products gathered from the data. The conditional possibility for a trade relationship to survive from 2 years to 3 years is 65%.

Figure 2. Kaplan-Meier Plot of Philippine Export products to Japan



Source: Author's calculations.

Y axis is the aggregate conditional probability; X axis is the duration of trade relations.

Spells may begin before or end after the period under observation so that the observed spell length is shorter than the true measure of the spell. To illustrate, consider a trade relationship dissolved in 1996, and that 1996 is the first year in the sample. Such a trade relationship is effectively observed as a (short) one-year spell, although it might have been in existence for decades. Besedes and Prusa (2008) emphasized the frequent revision of product descriptions introduced another censoring due to new products or modifications of existing ones.

In each year, international trade modifies product definitions, often accompanied by the introduction of new product codes or classification and the deletion of other product codes. A reclassified product move from one system to another. Note that trade exports and imports recorded concerning the commodity classifications. Thus, for a reclassified product, the observed duration of a trade relationship is shorter than the actual length of the partnership, as discussed by Besedes and Prusa (2008).

The survival analysis will be carried out at two levels. First is the utilization of trade relations data, identifying export items coming from MSMEs. The study shows the conditional probabilities of export relations arising from MSMEs to last over several years. The second part will employ the entire trade relation database, i.e., to include export relations from large establishments in addition to those of the MSMEs. The objective is to determine the pattern of trade duration of exports from the Philippines on the aggregate as well as individually from MSMEs.

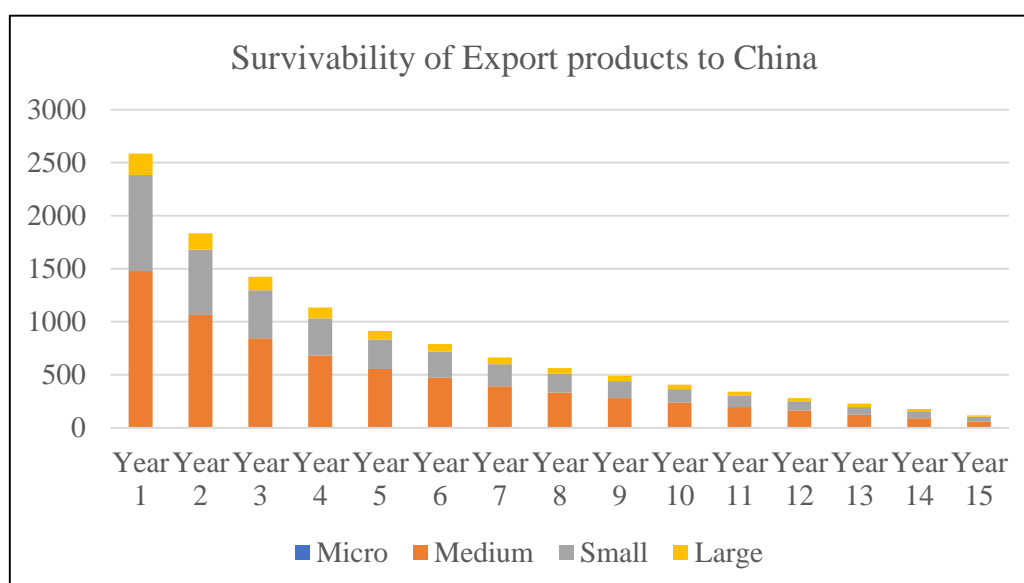
The paper conducted survival analysis, both at the aggregate and filtered MSME trade relations with the all the ASEAN members, together with FTA partners comprising Japan, Australia, New Zealand, South Korea, China, and India. Note that the partners include the ASEAN members as well as the dialogue partners. Also, the study performed survival analysis to non-FTA partners such as Canada, EU, France, Taiwan, Germany, The Netherlands, Hong Kong and the United States to provide the further comparative study.

3.2.3. Export trade relations classified according to the size of business according on a count basis.

The last part of the methodology is classifying the distribution of export trade relations according to the size of business on a count basis. First, the authors tag trade relations according to spell with their size characteristics (large or MSMEs). Spells are (i.e., the number of years where trade occurred) then ordered starting with those that last from year one to year 15. Lastly, decompose the stacks of spells according to the size of the firm (large or MSMEs) that corresponds to the 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 documentation of the duration of firms depending on their firm size.

Figure 3 illustrates the example of this methodology. The illustration used country of China as a model. The X-axis indicates the year of trade relations, e.g. It is not the duration, but the first year of trade relations. The Y-axis shows the number of goods exported (trade relation) according to the tariff line. For instance, the record of trade relations of exports to China indicates that there are more than 2500 exported products corresponding trade ties that last for the first year. Close to 1,500 of the total export relations is accounted for by medium-sized firms. Some export relations 'failed' in the second year. Hence, export relations that run for two continues year number less than 2000. Interestingly, medium-sized sectors account for the bulk of the export relations. The illustration indicates the increased survivability of products from the first year up to the fifteenth 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 business of the exporting sector (large or MSMEs).

Figure 3. Survivability of Export products to China according to Firm Size



Source: Authors calculations.

Y axis is number of tariff lines include; X axis is the duration of trade relations.

3.2.4. Limitations

One of the limitations of the study pertains to the definition of the MSMEs. The Philippines employs two criteria in operationally defining SMEs, namely, employment and asset size. The employment-based definition has come to be the most widely accepted. Initially, enterprises with 1-99 employees were categorized as small, while enterprises with 100-199 employees classify enterprises as a medium. This was subsequently modified such that small enterprises included those with 1-49 employees, medium covered those with 50-99 employees and large enterprises are those with 100 or more employees. Production units with 1-9 workers refer to household industry or micro-enterprises and fall outside the SME designation. Thus, the recognized size categories for the Philippines are Micro, 1-9 employees; Small, 10-99 employees; Medium, 100-199 employees; and Large, 200 and over employees. The Philippines also utilizes the value of assets as a criterion of size, although they are not as commonly employed.

The operational definition that policymakers adopt in identifying MSMEs is the asset size. The Magna Carta for Micro, Small and Medium Enterprises (RA No. 9501), for instance, defines the range of asset sizes for micro (not more than 3,000,000 pesos), small (3,000,000 to 15,000,000) and medium (15,000,000 to 1000,000,000 pesos). However, using asset size as a criterion for size classification may have a severe drawback in that continual adjustment of the definition may be necessary because of changes in the price level. For this reason, the Magna Carta specify a review mechanism of the description. Besides, comparison across economies may not be appropriate or would be questionable at best if asset values would be converted into a common currency, say in US dollars (Tecson 1990).

This study, however, uses the employment figures as the operational definition of MSMEs for reasons of availability of data. In constructing a correspondence between the export products with the size of the establishment that produced them, the paper used Annual Survey of Establishments (ASE) of the PSA. The ASE based on the PSIC contains data on total employment and total establishments, which, in turn, 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 the export relations based on HS (product code) to the large/MSME categories based on the average employment per sector. Because the ASE does not have data on average asset size per PSIC code updated on a regular basis, it is not possible to make a correspondence between PSIC code with the average asset size per establishment.

The second limitation of the analysis is the use of the 'representative' firm defined by the employment per establishment. As discussed earlier, categorizing whether MSMEs produce an export product is carried out from the average employment per establishment. However, averages do not clearly show the distribution of the sizes of the firms in the PSIC sector.

4. Presentation of results

4.1 Survival Analysis Export Relations of MSME and the Aggregate Export Approach

4.1.1. MSMEs Approach

One limitation found in the studies of Besedes and Prusa (2006) in the survival analysis of countries is the aggregation of all products into general trends to form conditional probability. The literature on survival analysis does not seem to have a report on the relative survival of the trade relations of export activities by MSMEs. To this end, the trade performance of Micro-Small-Medium Enterprises was analyzed using survival analysis framework by Besedes and Prusa (2006a). The structure aims to determine the survivability of firms on the Philippine definition of SMEs operational employment status.

Table 2 illustrates the full result of the survival analysis of MSMEs, where probabilities of the Philippine MSMEs goods to specific countries. Similar to the work of Besedes and Prusa(2008), the researcher used three periods (first year, fourth year, twelfth year) to analyze the results. The analysis conveys several essential lessons about the duration of the trade. To see the results of other countries not mentioned below, refer to Annex II.

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
Vietnam	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
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

Source: Author's calculations

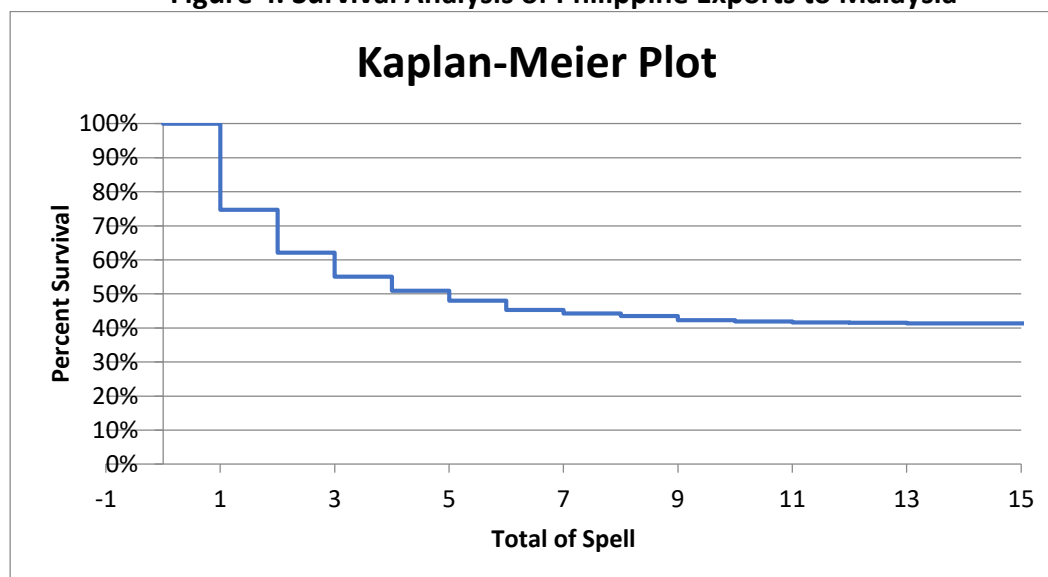
In general, the partner countries of the Philippines have shown mix results in their survival rates. Export products traded to Australia exhibited the highest survival rate with almost 86 percent after year one followed by Japan with 78 percent. Myanmar reached the lowest survival rate after year one with only 42 percent of Philippine export products surviving. In the case of long-term survival rate, export products traded to Singapore achieved the highest

survival rate after 15 years of trade relations with 46 percent, followed by Japan with 45 percent. The lowest survival rates, in the long run, belong to the countries of Cambodia and Laos, with 16 percent and 13 percent, respectively. For nations considered as established trading partners, e.g., Japan, Thailand, and Malaysia, the survival rate was observed to be higher with rates achieving 60 percent or higher.

The result suggests that there are other determinants to be considered when it comes to achieving the high survival rate of export products. Although the Philippines' earliest trade agreement was with the ASEAN countries, it was still outweighed regarding survival rate by the non-ASEAN partners which had more extensive trade relationships with the Philippines. This pattern is consistent with trade theories finding market knowledge and reliable networks with foreign partners as the crucial determinant for long-term trade relationships. Established partners have also shown higher survival rate in the long run with rates still reaching at least 40 percent, as compared with the average of 34 percent.

When it comes to new markets for Philippine exports such as Cambodia, Laos, and Myanmar, the survival rates of exported products are still low, i.e. prone to failure or abrupt exit from the foreign markets. With a survival rate average of 41 percent after year one, the implication is that local firms are still struggling to find the appropriate partners and market adoption to these new partner countries. The long-term survival rates for these countries (12 years) have also shown to be lower, with only around 18 percent of exported products, on average, from the Philippines surviving.

Figure 4. Survival Analysis of Philippine Exports to Malaysia



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

The result reveals the survival analysis of Philippine exports from MSMEs to partner countries with FTAs. Regarding the Philippine scenario, the results are closely similar to Besedes and Prusa (2006b) only in the beginning. In the first year, only 64 percent of relationships survive, which is 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 of 35 percent, which is a reduction of around 29 percentage points. Finally, the average chances of surviving for twelve straight years decreased to 34 percent. The survival

function is downward sloping with a decreasing slope. It suggests a declining failure rate function.

According to the works of Besedes and Prusa (2006a), a substantial fraction of relationships fails after only a year or two. For benchmark 7-digit Tariff Schedule of the United States data, only 67 percent of relationships survival one year; 49 percent survive four years; 42 years survive 12 years. An almost identical survival experience is found in HS data, implying that the finding is quite robust. The message of Besedes and Prusa (2008) is summed up in simple words: the typical U.S. trade relationship is very short-lived.

The second important finding is the sharp decline of the risk of failure. It is quite high in the early years, but then rapidly falls once a trade relationship survives a threshold duration. As shown, a large number of trade relationships fail over the first four years, especially in the first year when the survival rate falls by 30% percentage points. However, after about four years the occurrences of failure become a lot less. For example, the failure rate between the first and the fourth year is an additional 25 percentage points. In contrast, the failure rate between the fourth and twelfth year is just 11 percentage points. The decreasing rate of failure implies that once a trading relation hurdles a 'critical' year, then the chances of surviving becomes better, Besedes and Prusa(2006a).

Table 3: Survival Analysis of Philippine MSMEs exports to countries without FTAs
Conditional Probabilities of Survival

Countries with no FTAs	Year 1	Year 4	Year 12	Year 16
Canada	0.731	0.553	0.491	0.491
EU	0.811	0.531	0.529	0.529
France	0.719	0.513	0.429	0.426
Germany	0.712	0.514	0.447	0.447
Netherland	0.692	0.542	0.472	0.47
Hong Kong	0.732	0.533	0.466	0.465
Taiwan	0.723	0.491	0.461	0.459
United States of America	0.764	0.641	0.585	0.584
Average	0.756	0.564	0.485	0.484
Mean (above 50%)	8.5	1 year	0.756	12 year
Median	16	4 year	0.564	0.4848

Source: Authors calculations

Table 3 reports the survival analysis of Philippine MSMEs exports to non-FTA partners. Like the previous finding, there is the probability of survival falls the longer the duration of the trading relation. However, on the average, the chances of survival of export relations are generally better than those with the FTA partners given the limited sample. Of course, the selection of the non-FTA partners in the database matters in determining the probabilities of survival. The conditional probabilities of survival of trade relations with the United States are quite high relative to other countries, FTA and non-FTA partners alike. Given this particular selection of non-FTA partners, the average conditional probability for the export relation to last for at least a year is around 76%. After a year, the probability falls to an average 56%

across the sample of partners. As mentioned earlier, as the duration of export relation increases its likelihood of surviving improves relative to the earlier periods.

In other words, the Philippine firms (both MSMEs and combined MSMEs and large) that are exporting goods have the sizeable conditional probability of failure in the early stages of their trade relationship and a much smaller one after surviving a few years.

As seen in Annex II, the number of products from SMEs is significantly more significant compared to large enterprises. This low number of large enterprises poses high standard error or high bias when conducting the Kaplan Meier. A small number of events results in a low confidence interval (higher probability for type-II-error). The study of Besedes and Prusa (2006b) explained the limitation of having the small number of data set in analyzing survival rate of traded goods. Their study found that periods of sustained trade tend to last longer the more aggregated the data is due to the broader range of products that are covered by industry classification. It provides the higher probability that at least one product is traded in that category for a given year (see Besedes and Prusa 2006a). On the other hand, at a very detailed level of product disaggregation, even a minor change of product specifications may lead to a reclassification of an otherwise identical product, which would result in a recorded failure of a trade relationship. Potential modifications of product codes over the years may affect the results more strongly when using highly disaggregated data.

4.1.2. Aggregate Approach

After presenting the survival analysis of the MSMEs exporters, the next part will be comparing the conditional probability of failure of trade relations regarding the aggregate exports, i.e., exports from the combined large and MSMEs exporters. The comparison will reveal the impact of large firms on the conditional probability using Kaplan-Meier estimator. Table 4 shows the survival analysis of aggregated Philippine exports to countries with FTAs. The result exhibits higher conditional probability compared to the MSME exports results. Although it does not directly present direct correlation to the findings of Besedes and Prusa (2008) by order size, the result is consistent with the importance of firm size to export capability. Manzano, Tuaño, and Villamil (2014) also supports the conclusion where firm size has been proven to be crucial in reaching export propensity and intensity.

Table 4. Survival Analysis of Philippine aggregate (large and MSMEs combined) exports to countries with FTAs, Conditional Probabilities of Survival

Countries with FTAS	Year 1	Year 4	Year 12	Year 16
Brunei	0.663	0.39	0.298	0.298
Cambodia	0.517	0.258	0.156	0.156
Indonesia	0.712	0.446	0.327	0.324
Malaysia	0.748	0.509	0.415	0.413
Myanmar	0.579	0.355	0.25	0.25
Laos	0.433	0.133	0.133	0.133
Thailand	0.738	0.516	0.394	0.392
Singapore	0.761	0.562	0.467	0.466
Vietnam	0.696	0.44	0.29	0.29
Australia	0.979	0.568	0.432	0.426

Countries with FTAS	Year 1	Year 4	Year 12	Year 16
China	0.753	0.502	0.37	0.369
India	0.66	0.418	0.306	0.306
Japan	0.831	0.668	0.602	0.601
Korea	0.759	0.545	0.427	0.427
New Zealand	0.691	0.473	0.328	0.328
Average	0.701	0.452	0.346	0.345

Source: Authors calculations

Regarding the countries without FTAs, the result of the aggregate date is also higher compared to the MSME results. Since the presence of FTAs has been observed to provide the incremental impact on the trade performance of FTAs (Bautista, 2017), the countries selected in the non-FTA group have more established trade relations with the Philippines due to its long relationship for the country. To see the results of other countries not mentioned below, refer to Annex III.

Table 5: Survival Analysis of Philippine exports to countries without FTAs

Countries with no FTAs	Year 1	Year 4	Year 12	Year 16
Canada	0.757	0.573	0.491	0.491
EU	0.793	0.612	0.529	0.529
France	0.726	0.513	0.429	0.426
Germany	0.723	0.526	0.447	0.447
Netherland	0.732	0.542	0.47	0.47
Hong Kong	0.762	0.557	0.466	0.465
Taiwan	0.751	0.539	0.461	0.459
United States of America	0.804	0.65	0.585	0.584
Average	0.762	0.544	0.445	0.444

Source: Authors calculations

Box 2: Highlighting of products with the survivability of fewer than three years

Table 4 presented below highlight the top 25 Philippine firms that export products to ASEAN countries with trade relations less than three years with at least \$ 50,000 in export value. The industry categories among the top products are the following; 1. Products of the chemical or allied industries; 2. Machinery and mechanical appliances; 3. Base metals and articles of base metal; 4. Mineral products; 5. Vehicles, aircraft, vessels and associated; 6. The pulp of wood or other fibrous cellulosic material; 7. Prepared foodstuffs; 8. Animal or vegetable fats and oils and their cleavage; 9. Textiles and textile articles; 10. Plastics and articles thereof. Regarding categories based on firm sizes; Medium-sized businesses account for the largest share in the top 25 with 14 number of products, followed by Small-sized companies with 8 items. Large Enterprise had the least amount of firm sizes with 3. The list highlights the products that have reasonably sized export values (greater than \$50,000) but have short durations i.e. fewer than three years. Concerned government agencies can then investigate the causes for the short duration observed for this group of products.

Table 6: Export Products to ASEAN with less than 3 years survival with greatest value, according to Business Type

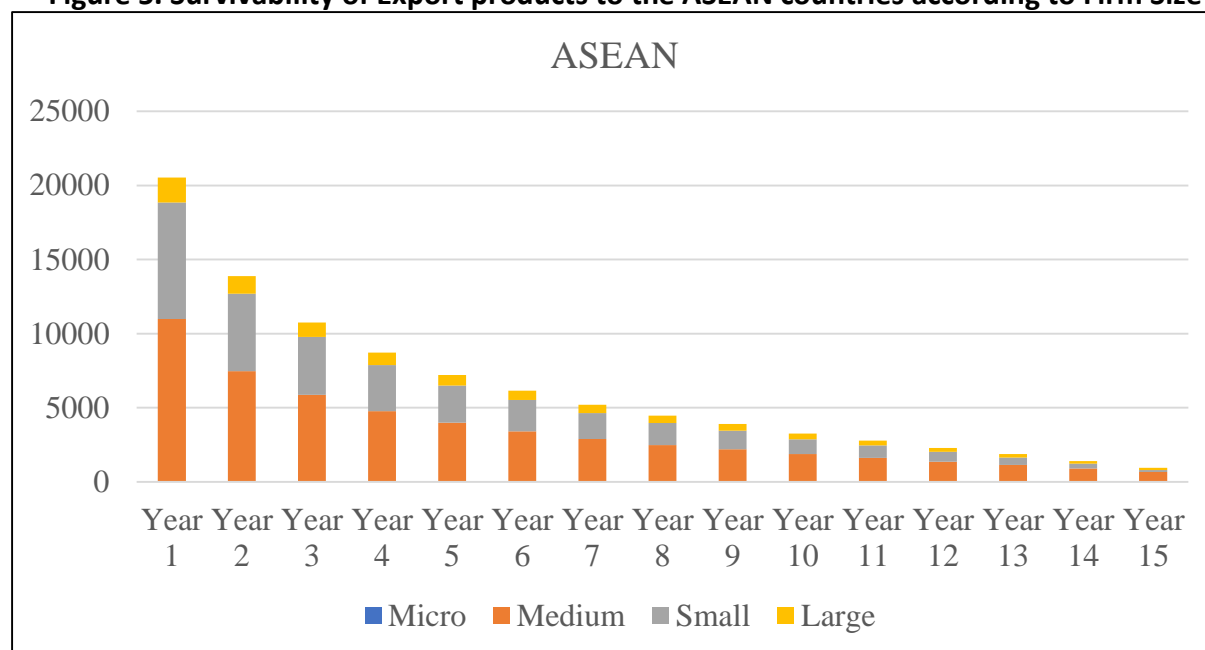
Product code	Product label	Value (USD at Thousand)	Employment Base	Firm Size
290121	Ethylene	35017	81	Small
330530	Hair lacquers	33368	95	Small
271114	Ethylene, propylene, butylene and butadiene, liquefied (excluding ethylene of a purity of >= ...	17632	69	Small
880212	Helicopters of an unladen weight > 2000 kg	16100	277	LE
310210	Urea, whether or not in aqueous solution (excluding that in pellet or similar forms, or in ...	14689	150	Medium
480510	Semi-chemical fluting paper "corrugated medium", uncoated, in rolls of a width > 15 cm	8656	103	Medium
847210	Duplicating machines "hectograph or stencil" (excluding printing machines and photocopying ...	8600	180	Medium
260400	Nickel ores and concentrates	7549	1515	LE
40299	Milk and cream, concentrated and sweetened (excluding in solid forms)	7316	106	Medium
720720	Semi-finished products of iron or non-alloy steel containing, by weight, >= 0,25% of carbon	7267	78	Small
150710	Crude soya-bean oil, whether or not degummed	6372	33	Small
290220	Benzene	4317	81	Small
310559	Mineral or chemical fertilisers containing the two fertilising elements nitrogen (excluding ...	4020	150	Medium
230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...	3852	33	Small
480529	Multi-ply paper or paperboard, uncoated, in rolls of a width > 15 cm or in square or rectangular ...	3499	103	Medium
850120	Universal AC-DC motors of an output > 37,5 W	2816	120	Medium
870919	Works trucks, self-propelled, not fitted with lifting or handling equipment, of the type used ...	1477	191	Medium
720211	Ferro-manganese, containing by weight > 2% of carbon	1472	78	Small
732290	Air heaters and hot-air distributors, incl. distributors which can also distribute fresh or ...	1470	187	Medium
200830	Citrus fruit, prepared or preserved, whether or not containing added sugar or other sweetening ...	1281	333	LE
481129	Gummed or adhesive paper and paperboard, in rolls of a width > 15 cm or in square or rectangular ...	1034	103	Medium
845939	Boring-milling machines for metals, not numerically controlled (excluding way-type unit head ...	1015	120	Medium
847021	Electronic calculating machines incorporating a printing device, with mains connection (excluding ...	957	180	Medium
845819	Horizontal lathes, incl. turning centres, for removing metal, not numerically controlled	892	100	Medium
511119	Woven fabrics containing >= 85% carded wool or carded fine animal hair by weight and weighing ...	832	130	Medium

Figure 5 reports the track record of export duration of MSME exporters. The study analyzed the survivability of products per year for 15 years. Base from the tables, the length of the survivability of products varied depending on the specific partners involved. Another insight from the table is the comparison of the performances of MSMEs and Large Enterprises. Generally, MSMEs exported account 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) tend to be more numerous and has the longer duration than those coming from large enterprises. To see the results of other countries not mentioned below, refer to Annex I.

As mentioned earlier, large enterprises generally did not outperform the MSMEs concerning durations of export survivability. Thus, the broader resources of the large firms concerning the number of employees and the more significant capital base, do not guarantee a longer duration of export relations. For instance, there are many large firms whose export trade relations last for only a year. For example, Overall, large firms did not fare better than medium-sized establishments when it comes to the survivability of their exports.

Figure 5. Survivability of Export products to the ASEAN countries according to Firm Size



Source: Author's calculations.

Y axis is number of tariff lines include; X axis is the duration of trade relations.

Interestingly, the study found mixed results across partners. In other words, there are no general trends that reveal that small firms consistently outperform large firms in the duration of export performance of the Philippines across all partner countries. MSME firms dominated the export relations for some partner countries. For example, Philippine export relations to Malaysia was dominated by the small and medium firms compared to the large firms. However, SMEs have lower survival rate in the latter years while the large firms have higher survival rate. In the case of Laos, large firms dominated the trade relations of Philippine exports with only a few of MSME firms reaching trade relations after one year of trading. However, in the latter years, the export relations with large firms also did not survive.

The condition of countries is 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. The long-established trade relations with the Philippines reflect the strong ties of the MSMEs in Malaysia.

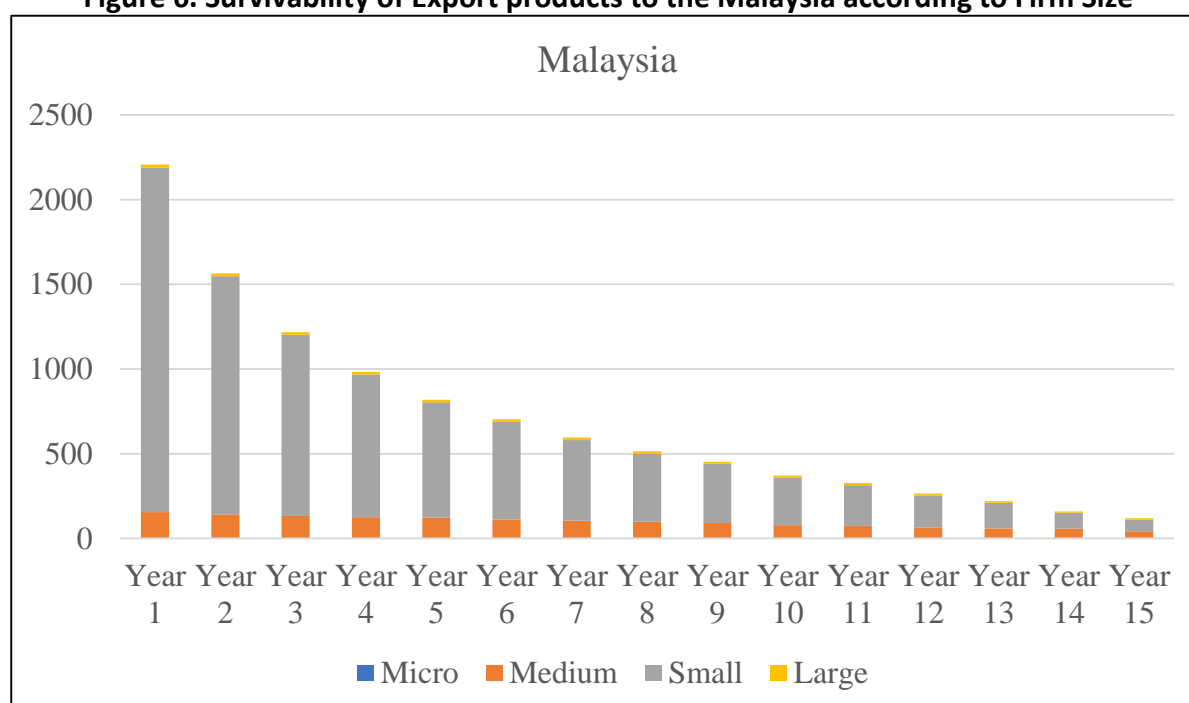
Unlike the case of Laos, whose trade activities with the Philippines has generally been more recent. Furthermore, the relevant trade relations with Malaysia is likely to have led to more established networks in the country. In the case of Laos, firms may still be adjusting to the

customs and knowledge to the Philippine firms since it only opened its trade barriers in the late 1990s.

The findings reveal that export relations from medium establishments tend to last longer than the 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 top exports of the Philippines. The Electronic components, Microprocessor and Semiconductor type of products have become the top export products of the Philippines since the last 1990s. Due to the advent of the "ASIA Factory" framework of Japan, the Philippines became one of the manufacturing hubs of the automotive and electronics industries of the East Asian Countries.

However, based on the current finding, these factories are still not considered as the large enterprise in the firm category of the country. According to the Philippine Statistical Authority (2015), the average workers of the electronics industry is 155, which puts it under the Medium-Sized Firms. Production lines of these industries are relying less on human resource and more on the automation of the processes. Moreover, the finding of business classification helps us in understanding the actual level of impact of the goods traded concerning the employees needed to produce it. Despite the high volume of products generated by the semiconductor industries, its labor is from medium-sized firms.

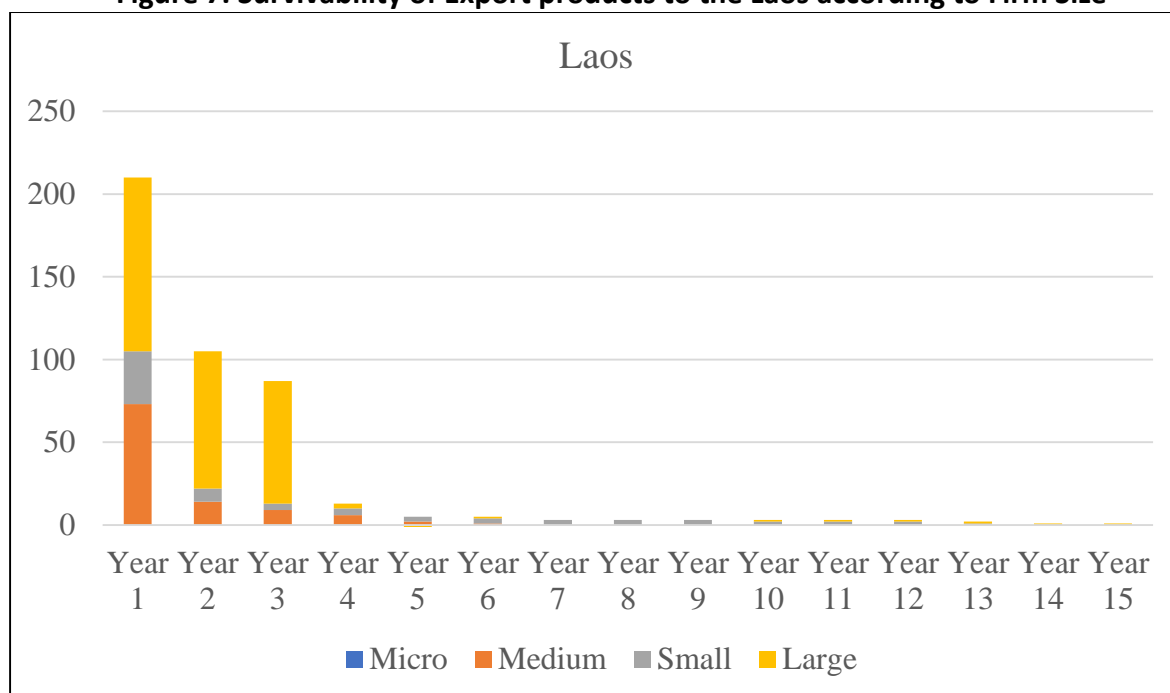
Figure 6. Survivability of Export products to the Malaysia according to Firm Size



Source: Author's calculations.

Y axis is number of tariff lines include; X axis is the duration of trade relations.

Figure 7. Survivability of Export products to the Laos according to Firm Size



Source: Author's calculations.

Y axis is number of tariff lines include; X axis is the duration of trade relations.

Lastly, the performance of the MSMEs reflects the general literature of MSME performance in the Philippines. Majority of firms in the Philippines are SMEs, and it also indicated on the number of firms with exported goods. SMEs remain the significant players of exporters in the country despite its limited capital structure and employment size.

5. Summary, Conclusion, and Recommendation

This paper on trade duration, an approach pioneered by Besedes and Prusa (2006a), is an attempt to document this aspect of the trade performance of Philippine exports. Using the Kaplan-Meier estimator, the authors analyzed survivability of exported goods of the Philippines for a sample of partners. The survivability analysis was carried out for a total of 18 country partners: the members of the ASEAN, East Asian countries, including Australia-New Zealand and India, all of which have free trade agreements with the Philippines. The survivability of Philippine export relations with countries for which the Philippines has no free trade agreements but have high trade relations was also carried out.

In conclusion, the paper finds similarly short trade durations for Philippine exports consistent with the result of Besedes and Prusa's (2006a) paper. A large number of export relations fail after a few years, for both exports from MSMEs and the aggregate exports. Also, the result presented the sharp decline in failure after a threshold period. The results indicate that the 4th year is critical in the trade duration, where the average reduction in survivability is at its minimum before reaching asymptotic relationship. Therefore, contrary to what classical trade theories would 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 percentage share computed is 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 the specific partners. For some countries, such as Malaysia, the 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 the trade relationships. Besides, free trade agreements do not seem to increase the probability of surviving relative to non-FTA partners. Countries such as the European Union exhibited higher survival rate for the exported products of the Philippines compared to Thailand, despite the presence of free trade agreement of the former. Lastly, among the MSMEs, the Medium type account for the most number of exported products while Micro establishments have very negligible exports.

Given the 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 processes of establishing trade relations, the support of the Department of Trade and Industry (DTI) may be critical in supporting MSMEs in the first four years of trading internationally. Efforts in assisting the capability of the firms to reach larger orders, either through financing or through consolidation with other similar firms that have hurdled the product standards required of buyers. In such fashion, the authors hope the assistance of the MSMEs could be better targeted.

Second, the survivability analysis can be employed as an additional monitoring mechanism of SME programs by the government agency tasked with promoting MSME development. The existing competitiveness benchmark used 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 internalization of MSMEs.

Lastly, there is scope for further research on the determinants of 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 trade relationship will be critical in uncovering the factors that will 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 four years or 10 years, compared to others that exit after just one year of trading.

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

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Annex I

Note*:

- *Each country or country-groups have two tables; a.) Performance of Philippines SMEs in terms Survivability, b.) Performance of Philippines SMEs in terms Survivability.*
- *The first column indicates survival in the Number of Years;*

1. Survivability performance of Philippines firms

a.) Total Product in the Survivability shows the count of products according to the number of years. Product share presents the share of total product per time period.

b.) Number of SMEs in the Survivability is a sub-category of the Total Product in the Survivability focusing on products that came from firm with 199 employees or less. Product share presents the share of total product per time period.

c.) Number of Large Enterprise in the Survivability is a sub-category of the Total Product in the Survivability focusing on products that came from firm with 199 employees or more. Product share presents the share of total product per time period.

2. Performance of Philippines SMEs in terms Survivability

a.) Left Columns per division shows the count of products according to firm size, specifically; 1.) Medium, 2.) Small, 3.) Micro. .

b.) Right Columns per division shows the percentage of products surviving on the number of years it survived. The first column indicates survival in the Number of Years

** The note of Annex I applies to all partner countries included in the study.*

Survivability performance of Philippines firms with the World, (Export)

Survival	Total Product in the Survivability		Number of SMEs in the Survivability		Number of Large Enterprise in the Survivability	
	No. of Products in Survivability	Product Share (%)	SMEs	Product Share	Total Number	Product Share
15	1086	23.81%	996	23.42%	90	29.1%
14	228	5.00%	208	4.89%	20	6.5%
13	201	4.41%	189	4.44%	12	3.9%
12	153	3.35%	142	3.34%	11	3.6%
11	156	3.42%	144	3.39%	12	3.9%
10	184	4.03%	168	3.95%	16	5.2%
9	209	4.58%	191	4.49%	18	5.8%
8	192	4.21%	184	4.33%	8	2.6%
7	207	4.54%	195	4.59%	12	3.9%
6	272	5.96%	257	6.04%	15	4.9%
5	250	5.48%	230	5.41%	20	6.5%
4	279	6.12%	265	6.23%	14	4.5%
3	316	6.93%	300	7.06%	16	5.2%
2	363	7.96%	338	7.95%	25	8.1%
1	465	10.20%	445	10.47%	20	6.5%
Total	4561		4252		309	

Survivability performance of SMEs, according to firm-type, with partner World, (Export)

Survival	Medium	Product Share	Small	Product Share	Micro	Product Share
15	661	26.30%	335	19.26%	0	0.0%
14	131	5.21%	77	4.43%	0	0.0%
13	133	5.29%	56	3.22%	0	0.0%
12	84	3.34%	58	3.34%	0	0.0%
11	97	3.86%	47	2.70%	0	0.0%
10	99	3.94%	69	3.97%	0	0.0%
9	114	4.54%	77	4.43%	0	0.0%
8	113	4.50%	71	4.08%	0	0.0%
7	112	4.46%	83	4.77%	0	0.0%
6	155	6.17%	102	5.87%	0	0.0%
5	137	5.45%	93	5.35%	0	0.0%
4	138	5.49%	127	7.30%	0	0.0%
3	156	6.21%	144	8.28%	0	0.0%
2	184	7.32%	154	8.86%	0	0.0%
1	199	7.92%	246	14.15%	0	0.0%
Total	2513		1739		0	

Survivability performance of Philippines firms with partner Singapore, (Export)

Survival	Total Product in the Survivability		Number of SMEs in the Survivability		Number of Large Enterprise in the Survivability	
	No. of Products in Survivability	Product Share (%)	SMEs	Product Share	Total Number	Product Share
15	161	7.42%	161	7.85%	20	12.0%
14	46	2.12%	42	2.05%	4	2.4%
13	53	2.44%	46	2.24%	7	4.2%
12	49	2.26%	49	2.39%	4	2.4%
11	65	3.00%	60	2.93%	5	3.0%
10	66	3.04%	58	2.83%	8	4.8%
9	74	3.41%	63	3.07%	11	6.6%
8	75	3.46%	75	3.66%	8	4.8%
7	84	3.87%	77	3.75%	7	4.2%
6	96	4.42%	89	4.34%	7	4.2%
5	128	5.90%	117	5.70%	11	6.6%
4	146	6.73%	146	7.12%	7	4.2%
3	215	9.91%	195	9.51%	20	12.0%
2	305	14.06%	305	14.87%	9	5.4%
1	607	27.97%	568	27.69%	39	23.4%
Total	2170		2051		167	

Survivability performance of SMEs, according to firm-type, with partner Singapore, (Export)

Survival	Medium	Product Share	Small	Product Share	Micro	Product Share
15	90	7.23%	51	6.72%	0	0.0%
14	27	2.17%	15	1.98%	0	0.0%
13	33	2.65%	13	1.71%	0	0.0%
12	29	2.33%	16	2.11%	0	0.0%
11	43	3.46%	17	2.24%	0	0.0%
10	41	3.30%	17	2.24%	0	0.0%
9	30	2.41%	33	4.35%	0	0.0%
8	47	3.78%	20	2.64%	0	0.0%
7	54	4.34%	23	3.03%	0	0.0%
6	60	4.82%	29	3.82%	0	0.0%
5	75	6.03%	42	5.53%	0	0.0%
4	90	7.23%	49	6.46%	0	0.0%
3	130	10.45%	65	8.56%	0	0.0%
2	175	14.07%	121	15.94%	0	0.0%
1	320	25.72%	248	32.67%	0	0.0%
Total	1244		759		0	

Survivability performance of Philippines firms with partner Vietnam, (Export)

Survival	Total Product in the Survivability		Number of SMEs in the Survivability		Number of Large Enterprise in the Survivability	
	No. of Products in Survivability	Product Share (%)	Total Number	Product Share	Total Number	Product Share
15	0	0.00%	0	0.00%	0	0.0%
14	0	0.00%	0	0.00%	0	0.0%
13	1	0.34%	1	0.35%	0	0.0%
12	0	0.00%	0	0.00%	0	0.0%
11	0	0.00%	0	0.00%	0	0.0%
10	0	0.00%	0	0.00%	0	0.0%
9	1	0.34%	1	0.35%	0	0.0%
8	1	0.34%	1	0.35%	0	0.0%
7	1	0.34%	1	0.35%	0	0.0%
6	1	0.34%	1	0.35%	0	0.0%
5	4	1.35%	4	1.40%	0	0.0%
4	15	5.05%	15	5.24%	0	0.0%
3	25	8.42%	22	7.69%	3	27.3%
2	54	18.18%	53	18.53%	1	9.1%
1	194	65.32%	187	65.38%	7	63.6%
Total	297		286		11	

Survivability performance of SMEs, according to firm-type, with partner Vietnam, (Export)

Survival	Medium	Product Share	Small	Product Share	Micro	Product Share
15	0	0.00%	0	0.00%	0	0.00%
14	0	0.00%	0	0.00%	0	0.00%
13	1	0.58%	0	0.00%	0	0.00%
12	0	0.00%	0	0.00%	0	0.00%
11	0	0.00%	0	0.00%	0	0.00%
10	0	0.00%	0	0.00%	0	0.00%
9	0	0.00%	1	0.91%	0	0.00%
8	1	0.58%	0	0.00%	0	0.00%
7	1	0.58%	0	0.00%	0	0.00%
6	1	0.58%	0	0.00%	0	0.00%
5	2	1.16%	2	1.82%	0	0.00%
4	8	4.62%	7	6.36%	0	0.00%
3	15	8.67%	7	6.36%	0	0.00%
2	30	17.34%	23	20.91%	0	0.00%
1	114	65.90%	70	63.64%	3	100.00%
Total	173		110		3	

Survivability performance of Philippines firms with partner Brunei, (Export)

Survival	Total Product in the Survivability		Number of SMEs in the Survivability		Number of Large Enterprise in the Survivability	
	No. of Products in Survivability	Product Share (%)	Total Number	Product Share	Total Number	Product Share
15	18	2.86%	15	2.71%	3	4.0%
14	9	1.43%	8	1.44%	1	1.3%
13	12	1.91%	12	2.17%	0	0.0%
12	15	2.38%	13	2.35%	2	2.7%
11	17	2.70%	13	2.35%	4	5.3%
10	18	2.86%	17	3.07%	1	1.3%
9	7	1.11%	4	0.72%	3	4.0%
8	10	1.59%	10	1.81%	0	0.0%
7	23	3.66%	21	3.79%	2	2.7%
6	21	3.34%	18	3.25%	3	4.0%
5	22	3.50%	18	3.25%	4	5.3%
4	32	5.09%	29	5.23%	3	4.0%
3	52	8.27%	46	8.30%	6	8.0%
2	114	18.12%	102	18.41%	12	16.0%
1	259	41.18%	228	41.16%	31	41.3%
Total	629		554		75	

Survivability performance of SMEs, according to firm-type, with partner Brunei, (Export)

Survival	Medium	Product Share	Small	Product Share	Micro	Product Share
15	12	3.31%	3	1.57%	0	0.0%
14	1	0.28%	7	3.66%	0	0.0%
13	6	1.65%	6	3.14%	0	0.0%
12	8	2.20%	5	2.62%	0	0.0%
11	6	1.65%	7	3.66%	0	0.0%
10	12	3.31%	5	2.62%	0	0.0%
9	3	0.83%	1	0.52%	0	0.0%
8	6	1.65%	4	2.09%	0	0.0%
7	12	3.31%	9	4.71%	0	0.0%
6	12	3.31%	6	3.14%	0	0.0%
5	12	3.31%	6	3.14%	0	0.0%
4	17	4.68%	12	6.28%	0	0.0%
3	27	7.44%	19	9.95%	0	0.0%
2	70	19.28%	32	16.75%	0	0.0%
1	159	43.80%	69	36.13%	0	0.0%
Total	363		191		0	

Survivability performance of Philippines firms with partner Cambodia, (Export)

Survival	Total Product in the Survivability		Number of SMEs in the Survivability		Number of Large Enterprise in the Survivability	
	No. of Products in Survivability	Product Share (%)	SMEs	Product Share	Total Number	Product Share
15	3	0.66%	0	0.00%	0	0.0%
14	0	0.00%	0	0.00%	0	0.0%
13	2	0.44%	2	0.46%	0	0.0%
12	0	0.00%	0	0.00%	0	0.0%
11	4	0.88%	4	0.92%	0	0.0%
10	1	0.22%	1	0.23%	0	0.0%
9	6	1.31%	6	1.38%	0	0.0%
8	7	1.53%	7	1.61%	0	0.0%
7	13	2.84%	11	2.53%	2	10.5%
6	15	3.28%	14	3.22%	1	5.3%
5	12	2.63%	12	2.76%	0	0.0%
4	31	6.78%	30	6.90%	1	5.3%
3	26	5.69%	26	5.98%	0	0.0%
2	80	17.51%	78	17.93%	2	10.5%
1	257	56.24%	244	56.09%	13	68.4%
Total	457		435		19	

Survivability performance of SMEs, according to firm-type, with partner Cambodia, (Export)

Survival				Product		
1	Medium	Product Share	Small	Share	Micro	Product Share
15	1	0.35%	2	1.32%	0	0.0%
14	0	0.00%	0	0.00%	0	0.0%
13	1	0.35%	1	0.66%	0	0.0%
12	0	0.00%	0	0.00%	0	0.0%
11	4	1.40%	0	0.00%	0	0.0%
10	0	0.00%	1	0.66%	0	0.0%
9	4	1.40%	2	1.32%	0	0.0%
8	3	1.05%	4	2.63%	0	0.0%
7	4	1.40%	7	4.61%	0	0.0%
6	9	3.16%	5	3.29%	0	0.0%
5	8	2.81%	4	2.63%	0	0.0%
4	25	8.77%	5	3.29%	0	0.0%
3	11	3.86%	14	9.21%	1	100.0%
2	49	17.19%	29	19.08%	0	0.0%
1	166	58.25%	78	51.32%	0	0.0%
Total	285		152		1	

Survivability performance of Philippines firms with partner Indonesia, (Export)

Survival	Total Product in the Survivability		Number of SMEs in the Survivability		Number of Large Enterprise in the Survivability	
	No. of Products in Survivability	Product Share (%)	SMEs	Product Share	Total Number	Product Share
15	64	3.37%	60	3.43%	4	2.7%
14	30	1.58%	29	1.66%	1	0.7%
13	38	2.00%	35	2.00%	3	2.0%
12	40	2.11%	37	2.11%	3	2.0%
11	38	2.00%	35	2.00%	3	2.0%
10	41	2.16%	34	1.94%	7	4.7%
9	49	2.58%	40	2.29%	9	6.0%
8	37	1.95%	34	1.94%	3	2.0%
7	61	3.21%	57	3.26%	4	2.7%
6	84	4.42%	81	4.63%	3	2.0%
5	115	6.05%	110	6.29%	5	3.3%
4	146	7.68%	132	7.54%	14	9.3%
3	191	10.05%	177	10.11%	14	9.3%
2	323	17.00%	297	16.97%	26	17.3%
1	643	33.84%	592	33.83%	51	34.0%
Total	1900		1750		150	

Survivability performance of SMEs, according to firm-type, with partner Indonesia, (Export)

Survival	Medium	Product Share	Small	Product Share	Micro	Product Share
15	32	2.91%	28	4.30%	0	0.0%
14	14	1.27%	15	2.30%	0	0.0%
13	23	2.09%	12	1.84%	0	0.0%
12	23	2.09%	14	2.15%	0	0.0%
11	19	1.73%	16	2.46%	0	0.0%
10	21	1.91%	13	2.00%	0	0.0%
9	22	2.00%	18	2.76%	0	0.0%
8	17	1.55%	17	2.61%	0	0.0%
7	37	3.37%	20	3.07%	0	0.0%
6	50	4.55%	31	4.76%	0	0.0%
5	68	6.19%	42	6.45%	0	0.0%
4	87	7.92%	45	6.91%	0	0.0%
3	121	11.01%	56	8.60%	0	0.0%
2	188	17.11%	109	16.74%	0	0.0%
1	377	34.30%	215	33.03%	0	0.0%
Total	1099		651		0	

Survivability performance of Philippines firms with partner Laos, (Export)

Survival	Total Product in the Survivability		Number of SMEs in the Survivability		Number of Large Enterprise in the Survivability	
	No. of Products in Survivability	Product Share (%)	SMEs	Product Share	Total Number	Product Share
15	0	0.00%	0	0.00%	0	0.0%
14	0	0.00%	0	0.00%	0	0.0%
13	1	0.83%	1	0.85%	1	1.0%
12	1	0.83%	1	0.85%	1	1.0%
11	0	0.00%	0	0.00%	0	0.0%
10	0	0.00%	0	0.00%	0	0.0%
9	1	0.83%	1	0.85%	1	1.0%
8	0	0.00%	0	0.00%	0	0.0%
7	0	0.00%	0	0.00%	0	0.0%
6	1	0.83%	1	0.85%	1	1.0%
5	1	0.83%	1	0.85%	1	1.0%
4	5	4.17%	5	4.27%	5	4.8%
3	4	3.33%	3	2.56%	3	2.9%
2	11	9.17%	9	7.69%	9	8.6%
1	95	79.17%	95	81.20%	83	79.0%
Total	120		117		105	

Survivability performance of SMEs, according to firm-type, with partner Laos, (Export)

Survival	Medium	Product Share	Small	Product Share	Micro	Product Share
15	0	0.00%	0	0.00%	0	0.00%
14	0	0.00%	0	0.00%	0	0.00%
13	0	0.00%	1	3.13%	0	0.00%
12	0	0.00%	1	3.13%	0	0.00%
11	0	0.00%	0	0.00%	0	0.00%
10	0	0.00%	0	0.00%	0	0.00%
9	0	0.00%	1	3.13%	0	0.00%
8	0	0.00%	0	0.00%	0	0.00%
7	0	0.00%	0	0.00%	0	0.00%
6	1	1.37%	0	0.00%	0	0.00%
5	1	1.37%	0	0.00%	0	0.00%
4	4	5.48%	1	3.13%	0	0.00%
3	3	4.11%	0	0.00%	0	0.00%
2	5	6.85%	4	12.50%	0	0.00%
1	59	80.82%	24	75.00%	0	0.00%
Total	73		32		0	

Survivability performance of Philippines firms with partner Myanmar, (Export)

Survival	Total Product in the Survivability		Number of SMEs in the Survivability		Number of Large Enterprise in the Survivability	
	No. of Products in Survivability	Product Share (%)	SMEs	Product Share	Total Number	Product Share
15	2	0.61%	2	0.67%	0	0.00%
14	1	0.30%	1	0.34%	0	0.00%
13	2	0.61%	2	0.67%	0	0.00%
12	3	0.91%	3	1.01%	0	0.00%
11	0	0.00%	0	0.00%	0	0.00%
10	3	0.91%	3	1.01%	0	0.00%
9	1	0.30%	1	0.34%	0	0.00%
8	4	1.22%	4	1.35%	0	0.00%
7	11	3.34%	10	3.37%	1	3.10%
6	6	1.82%	5	1.68%	1	3.10%
5	6	1.82%	4	1.35%	2	6.30%
4	19	5.78%	14	4.71%	5	15.60%
3	20	6.08%	18	6.06%	2	6.30%
2	55	16.72%	49	16.50%	6	18.80%
1	196	59.57%	181	60.94%	15	46.90%
Total	329		297		32	

Survivability performance of SMEs, according to firm-type with partner Myanmar, (Export)

Survival	Medium	Product Share	Small	Product Share	Micro	Product Share
15	0	0.00%	2	1.54%	0	0.0%
14	0	0.00%	1	0.77%	0	0.0%
13	0	0.00%	2	1.54%	0	0.0%
12	3	1.80%	0	0.00%	0	0.0%
11	0	0.00%	0	0.00%	0	0.0%
10	1	0.60%	2	1.54%	0	0.0%
9	0	0.00%	1	0.77%	0	0.0%
8	2	1.20%	2	1.54%	0	0.0%
7	2	1.20%	8	6.15%	0	0.0%
6	0	0.00%	5	3.85%	0	0.0%
5	1	0.60%	3	2.31%	0	0.0%
4	8	4.79%	6	4.62%	0	0.0%
3	10	5.99%	8	6.15%	0	0.0%
2	21	12.57%	28	21.54%	0	0.0%
1	119	71.26%	62	47.69%	0	0.0%
Total	167		130		0	

Survivability performance of Philippines firms with partner Thailand, (Export)

Survival	Total Product in the Survivability		Number of SMEs in the Survivability		Number of Large Enterprise in the Survivability	
	No. of Products in Survivability	Product Share (%)	SMEs	Product Share	Total Number	Product Share
15	2	0.51%	2	0.51%	0	0.0%
14	1	0.25%	1	0.26%	0	0.0%
13	0	0.00%	0	0.00%	0	0.0%
12	0	0.00%	0	0.00%	0	0.0%
11	0	0.00%	0	0.00%	0	0.0%
10	4	1.02%	4	1.02%	0	0.0%
9	3	0.76%	3	0.77%	0	0.0%
8	3	0.76%	3	0.77%	0	0.0%
7	3	0.76%	3	0.77%	0	0.0%
6	3	0.76%	3	0.77%	0	0.0%
5	9	2.29%	9	2.30%	0	0.0%
4	13	3.31%	11	2.81%	2	7.4%
3	27	6.87%	27	6.91%	1	3.7%
2	76	19.34%	76	19.44%	9	33.3%
1	249	63.36%	249	63.68%	15	55.6%
Total	393		391		27	

Survivability performance of SMEs, according to firm-type, with partner Thailand, (Export)

Survival	Medium	Product Share	Small	Product Share	Micro	Product Share
15	2	0.93%	0	0.00%	0	0.0%
14	0	0.00%	1	0.66%	0	0.0%
13	0	0.00%	0	0.00%	0	0.0%
12	0	0.00%	0	0.00%	0	0.0%
11	0	0.00%	0	0.00%	0	0.0%
10	3	1.40%	1	0.66%	0	0.0%
9	2	0.93%	1	0.66%	0	0.0%
8	2	0.93%	1	0.66%	0	0.0%
7	1	0.47%	2	1.32%	0	0.0%
6	0	0.00%	3	1.97%	0	0.0%
5	6	2.80%	3	1.97%	0	0.0%
4	5	2.34%	6	3.95%	0	0.0%
3	12	5.61%	14	9.21%	0	0.0%
2	38	17.76%	29	19.08%	0	0.0%
1	143	66.82%	91	59.87%	0	0.0%
Total	214		152		0	

Survivability performance of Philippines firms with partner Australia, (Export)

Survival	Total Product in the Survivability		Number of SMEs in the Survivability		Number of Large Enterprise in the Survivability	
	No. of Products in Survivability	Product Share (%)	SMEs	Product Share	Total Number	Product Share
15	154	7.89%	154	8.14%	27	15.2%
14	53	2.72%	48	2.54%	5	2.8%
13	57	2.92%	57	3.01%	9	5.1%
12	47	2.41%	47	2.48%	6	3.4%
11	45	2.31%	45	2.38%	7	3.9%
10	39	2.00%	39	2.06%	4	2.2%
9	60	3.08%	53	2.80%	7	3.9%
8	60	3.08%	60	3.17%	3	1.7%
7	58	2.97%	58	3.07%	3	1.7%
6	95	4.87%	95	5.02%	6	3.4%
5	92	4.72%	92	4.86%	10	5.6%
4	132	6.77%	114	6.03%	18	10.1%
3	199	10.20%	199	10.52%	15	8.4%
2	304	15.58%	275	14.53%	29	16.3%
1	556	28.50%	556	29.39%	29	16.3%
Total	1951		1892		178	

Survivability performance of SMEs, according to firm-type, with partner Australia, (Export)

Survival	Medium	Product Share	Small	Product Share	Micro	Product Share
15	79	6.96%	48	7.52%	0	0.0%
14	28	2.47%	20	3.13%	0	0.0%
13	30	2.64%	18	2.82%	0	0.0%
12	25	2.20%	16	2.51%	0	0.0%
11	29	2.56%	9	1.41%	0	0.0%
10	20	1.76%	15	2.35%	0	0.0%
9	29	2.56%	24	3.76%	0	0.0%
8	41	3.61%	16	2.51%	0	0.0%
7	45	3.96%	10	1.57%	0	0.0%
6	57	5.02%	32	5.02%	0	0.0%
5	53	4.67%	29	4.55%	0	0.0%
4	69	6.08%	45	7.05%	0	0.0%
3	128	11.28%	56	8.78%	0	0.0%
2	180	15.86%	95	14.89%	0	0.0%
1	322	28.37%	205	32.13%	0	0.0%
Total	1135		638		0	

Survivability performance of Philippines firms with partner China, (Export)

Survival	Total Product in the Survivability		Number of SMEs in the Survivability		Number of Large Enterprise in the Survivability	
	No. of Products in Survivability	Product Share (%)	SMEs	Product Share	Total Number	Product Share
15	118	4.56%	118	4.58%	14	6.9%
14	58	2.24%	51	1.98%	7	3.5%
13	52	2.01%	52	2.02%	10	5.0%
12	53	2.05%	53	2.06%	1	0.5%
11	59	2.28%	59	2.29%	6	3.0%
10	68	2.63%	68	2.64%	6	3.0%
9	84	3.25%	84	3.26%	7	3.5%
8	73	2.82%	73	2.83%	5	2.5%
7	98	3.79%	98	3.80%	8	4.0%
6	127	4.91%	127	4.93%	9	4.5%
5	125	4.84%	125	4.85%	9	4.5%
4	220	8.51%	220	8.53%	23	11.4%
3	290	11.22%	290	11.25%	22	10.9%
2	409	15.82%	409	15.87%	27	13.4%
1	751	29.05%	751	29.13%	48	23.8%
Total	2585		2578		202	

Survivability performance of SMEs, according to firm-type, with partner China, (Export)

Survival	Medium	Product Share	Small	Product Share	Micro	Product Share
15	57	3.86%	47	5.19%	0	0.0%
14	34	2.30%	17	1.88%	0	0.0%
13	31	2.10%	11	1.22%	0	0.0%
12	41	2.77%	11	1.22%	0	0.0%
11	34	2.30%	19	2.10%	0	0.0%
10	40	2.71%	22	2.43%	0	0.0%
9	44	2.98%	33	3.65%	0	0.0%
8	50	3.38%	18	1.99%	0	0.0%
7	60	4.06%	30	3.31%	0	0.0%
6	83	5.62%	35	3.87%	0	0.0%
5	82	5.55%	34	3.76%	0	0.0%
4	126	8.53%	71	7.85%	0	0.0%
3	161	10.89%	107	11.82%	0	0.0%
2	223	15.09%	159	17.57%	0	0.0%
1	412	27.88%	291	32.15%	0	0.0%
Total	1478		905		0	

Survivability performance of Philippines firms with partner New Zealand, (Export)

Survival	Total Product in the Survivability		Number of SMEs in the Survivability		Number of Large Enterprise in the Survivability	
	No. of Products in Survivability	Product Share (%)	SMEs	Product Share	Total Number	Product Share
15	35	3.59%	28	3.27%	7	6.0%
14	16	1.64%	15	1.75%	1	0.9%
13	20	2.05%	15	1.75%	5	4.3%
12	15	1.54%	13	1.52%	2	1.7%
11	32	3.29%	23	2.68%	9	7.7%
10	22	2.26%	18	2.10%	4	3.4%
9	34	3.49%	26	3.03%	8	6.8%
8	30	3.08%	26	3.03%	4	3.4%
7	34	3.49%	33	3.85%	1	0.9%
6	37	3.80%	31	3.62%	6	5.1%
5	56	5.75%	45	5.25%	11	9.4%
4	59	6.06%	54	6.30%	5	4.3%
3	83	8.52%	76	8.87%	7	6.0%
2	140	14.37%	135	15.75%	5	4.3%
1	361	37.06%	319	37.22%	42	35.9%
Total	974		857		117	

Survivability performance of SMEs, according to firm-type, with partner New Zealand, (Export)

Survival	Medium	Product Share	Small	Product Share	Micro	Product Share
15	14	2.50%	14	4.70%	0	0.0%
14	8	1.43%	7	2.35%	0	0.0%
13	7	1.25%	8	2.68%	0	0.0%
12	6	1.07%	7	2.35%	0	0.0%
11	17	3.04%	6	2.01%	0	0.0%
10	9	1.61%	9	3.02%	0	0.0%
9	17	3.04%	9	3.02%	0	0.0%
8	19	3.40%	7	2.35%	0	0.0%
7	24	4.29%	9	3.02%	0	0.0%
6	19	3.40%	12	4.03%	0	0.0%
5	31	5.55%	14	4.70%	0	0.0%
4	33	5.90%	21	7.05%	0	0.0%
3	53	9.48%	23	7.72%	0	0.0%
2	94	16.82%	41	13.76%	0	0.0%
1	208	37.21%	111	37.25%	0	0.0%
Total	559		298		0	

Survivability performance of Philippines firms with partner Japan, (Export)

Survival	Total Product in the Survivability		Number of SMEs in the Survivability		Number of Large Enterprise in the Survivability	
	No. of Products in Survivability	Product Share (%)	SMEs	Product Share	Total Number	Product Share
15	413	13.47%	370	13.02%	43	19.1%
14	95	3.10%	86	3.03%	9	4.0%
13	99	3.23%	87	3.06%	12	5.3%
12	71	2.31%	68	2.39%	3	1.3%
11	80	2.61%	72	2.53%	8	3.6%
10	103	3.36%	93	3.27%	10	4.4%
9	133	4.34%	121	4.26%	12	5.3%
8	78	2.54%	73	2.57%	5	2.2%
7	136	4.43%	123	4.33%	13	5.8%
6	172	5.61%	163	5.74%	9	4.0%
5	176	5.74%	165	5.81%	11	4.9%
4	230	7.50%	220	7.74%	10	4.4%
3	272	8.87%	262	9.22%	10	4.4%
2	368	12.00%	332	11.68%	36	16.0%
1	641	20.90%	607	21.36%	34	15.1%
Total	3067		2842		225	

Survivability performance of SMEs, according to firm-type, with partner Japan, (Export)

Survival	Medium	Product Share	Small	Product Share	Micro	Product Share
15	253	14.05%	117	11.24%	0	0.0%
14	58	3.22%	28	2.69%	0	0.0%
13	64	3.55%	23	2.21%	0	0.0%
12	49	2.72%	19	1.83%	0	0.0%
11	46	2.55%	26	2.50%	0	0.0%
10	60	3.33%	33	3.17%	0	0.0%
9	76	4.22%	45	4.32%	0	0.0%
8	46	2.55%	27	2.59%	0	0.0%
7	84	4.66%	39	3.75%	0	0.0%
6	103	5.72%	60	5.76%	0	0.0%
5	108	6.00%	57	5.48%	0	0.0%
4	134	7.44%	86	8.26%	0	0.0%
3	172	9.55%	90	8.65%	0	0.0%
2	188	10.44%	144	13.83%	0	0.0%
1	360	19.99%	247	23.73%	0	0.0%
Total	1801		1041		0	

Survivability performance of Philippines firms with partner South Korea, (Export)

Survival	Total Product in the Survivability		Number of SMEs in the Survivability		Number of Large Enterprise in the Survivability	
	No. of Products in Survivability	Product Share (%)	SMEs	Product Share	Total Number	Product Share
15	131	5.50%	131	5.70%	13	7.0%
14	64	2.69%	57	2.48%	7	3.7%
13	47	1.97%	41	1.78%	6	3.2%
12	56	2.35%	56	2.44%	3	1.6%
11	51	2.14%	45	1.96%	6	3.2%
10	50	2.10%	41	1.78%	9	4.8%
9	96	4.03%	96	4.18%	9	4.8%
8	62	2.60%	54	2.35%	8	4.3%
7	81	3.40%	81	3.53%	7	3.7%
6	124	5.21%	116	5.05%	8	4.3%
5	135	5.67%	135	5.88%	7	3.7%
4	182	7.64%	162	7.05%	20	10.7%
3	243	10.20%	243	10.58%	20	10.7%
2	373	15.66%	352	15.32%	21	11.2%
1	687	28.84%	687	29.91%	43	23.0%
Total	2382		2297		187	

Survivability performance of SMEs, according to firm-type, with partner South Korea, (Export)

Survival	Medium	Product Share	Small	Product Share	Micro	Product Share
15	69	4.87%	49	6.31%	0	0.0%
14	42	2.96%	15	1.93%	0	0.0%
13	29	2.05%	12	1.54%	0	0.0%
12	34	2.40%	19	2.45%	0	0.0%
11	33	2.33%	12	1.54%	0	0.0%
10	31	2.19%	10	1.29%	0	0.0%
9	61	4.30%	26	3.35%	0	0.0%
8	37	2.61%	17	2.19%	0	0.0%
7	47	3.31%	27	3.47%	0	0.0%
6	79	5.57%	37	4.76%	0	0.0%
5	91	6.42%	37	4.76%	0	0.0%
4	109	7.69%	53	6.82%	0	0.0%
3	141	9.94%	82	10.55%	0	0.0%
2	210	14.81%	142	18.28%	0	0.0%
1	405	28.56%	239	30.76%	0	0.0%
Total	1418		777		0	

Survivability performance of Philippines firms with partner Malaysia, (Export)

Survival	Total Product in the Survivability		Number of SMEs in the Survivability		Number of Large Enterprise in the Survivability	
	No. of Products in Survivability	Product Share (%)	SMEs	Product Share	Total Number	Product Share
15	119	5.50%	111	5.07%	8	44.4%
14	40	1.85%	40	1.83%	0	0.0%
13	61	2.82%	60	2.74%	1	5.6%
12	45	2.08%	42	1.92%	3	16.7%
11	62	2.87%	62	2.83%	0	0.0%
10	1	0.05%	44	2.01%	0	0.0%
9	81	3.74%	81	3.70%	0	0.0%
8	62	2.87%	60	2.74%	2	11.1%
7	82	3.79%	81	3.70%	1	5.6%
6	108	4.99%	107	4.89%	1	5.6%
5	115	5.31%	115	5.25%	0	0.0%
4	164	7.58%	164	7.49%	0	0.0%
3	235	10.86%	235	10.74%	0	0.0%
2	347	16.04%	346	15.81%	1	5.6%
1	642	29.67%	641	29.28%	1	5.6%
Total	2164		2189		18	

Survivability performance of SMEs, according to firm-type, with partner Malaysia, (Export)

Survival	Medium	Product Share	Small	Product Share	Micro	Product Share
15	43	27.56%	68	3.34%	0	0.0%
14	14	8.97%	26	1.28%	0	0.0%
13	3	1.92%	57	2.80%	0	0.0%
12	5	3.21%	37	1.82%	0	0.0%
11	10	6.41%	52	2.56%	0	0.0%
10	4	2.56%	40	1.97%	0	0.0%
9	13	8.33%	68	3.34%	0	0.0%
8	6	3.85%	54	2.66%	0	0.0%
7	6	3.85%	75	3.69%	0	0.0%
6	8	5.13%	99	4.87%	0	0.0%
5	11	7.05%	104	5.12%	0	0.0%
4	3	1.92%	161	7.92%	0	0.0%
3	6	3.85%	229	11.26%	0	0.0%
2	11	7.05%	335	16.48%	0	0.0%
1	13	8.33%	628	30.89%	0	0.0%
Total	156		2033		0	

Survivability performance of Philippines firms with partner India, (Export)

Survival	Total Product in the Survivability		Number of SMEs in the Survivability		Number of Large Enterprise in the Survivability	
	No. of Products in Survivability	Product Share (%)	SMEs	Product Share	Total Number	Product Share
15	34	2.35%	29	2.20%	5	3.8%
14	20	1.38%	20	1.52%	0	0.0%
13	18	1.24%	17	1.29%	1	0.8%
12	25	1.73%	20	1.52%	5	3.8%
11	28	1.93%	23	1.74%	5	3.8%
10	21	1.45%	19	1.44%	2	1.5%
9	34	2.35%	31	2.35%	3	2.3%
8	39	2.69%	31	2.35%	8	6.2%
7	47	3.24%	40	3.03%	7	5.4%
6	60	4.14%	51	3.87%	9	6.9%
5	79	5.45%	74	5.61%	5	3.8%
4	115	7.94%	102	7.73%	13	10.0%
3	146	10.08%	135	10.24%	11	8.5%
2	218	15.04%	205	15.54%	13	10.0%
1	565	38.99%	522	39.58%	43	33.1%
Total	1449		1319		130	

Survivability performance of SMEs, according to firm-type, with partner India, (Export)

Survival	Medium	Product Share	Small	Product Share	Micro	Product Share
15	16	1.98%	13	2.55%	0	0.0%
14	8	0.99%	12	2.36%	0	0.0%
13	8	0.99%	9	1.77%	0	0.0%
12	10	1.23%	10	1.96%	0	0.0%
11	13	1.60%	10	1.96%	0	0.0%
10	6	0.74%	13	2.55%	0	0.0%
9	21	2.59%	10	1.96%	0	0.0%
8	20	2.47%	11	2.16%	0	0.0%
7	26	3.21%	14	2.75%	0	0.0%
6	34	4.20%	17	3.34%	0	0.0%
5	45	5.56%	29	5.70%	0	0.0%
4	60	7.41%	42	8.25%	0	0.0%
3	89	10.99%	46	9.04%	0	0.0%
2	129	15.93%	76	14.93%	0	0.0%
1	325	40.12%	197	38.70%	0	0.0%
Total	810		509		0	

ANNEX II

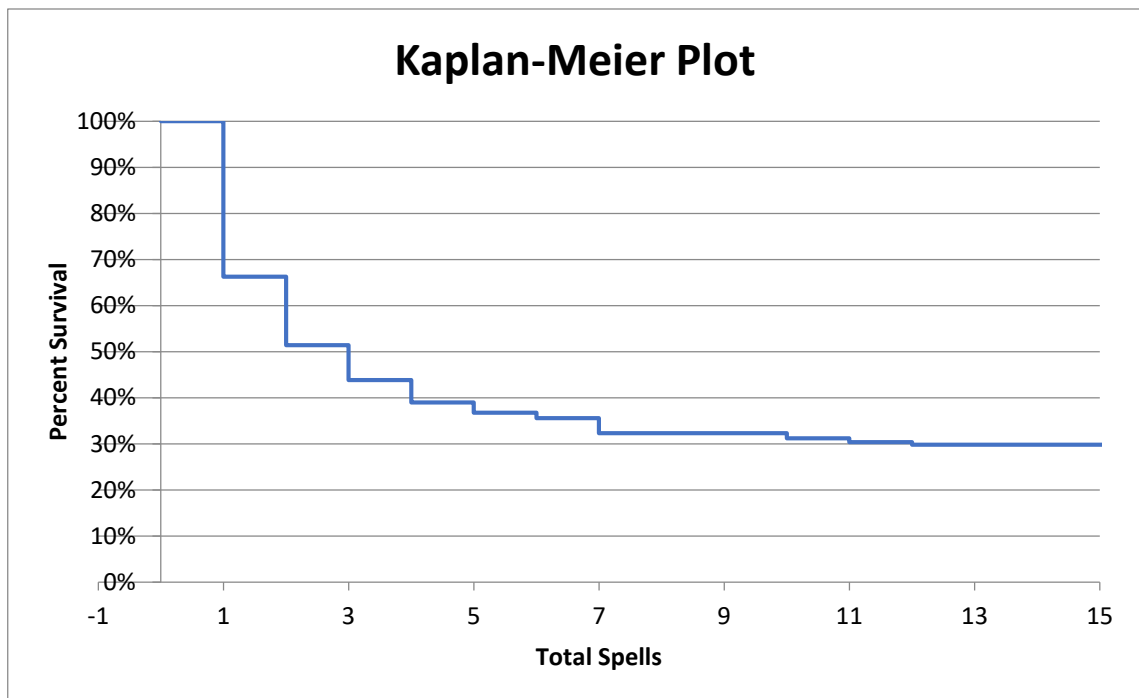
KAPLAN-MEIER PLOT OF PHILIPPINE FIRMS

Note:

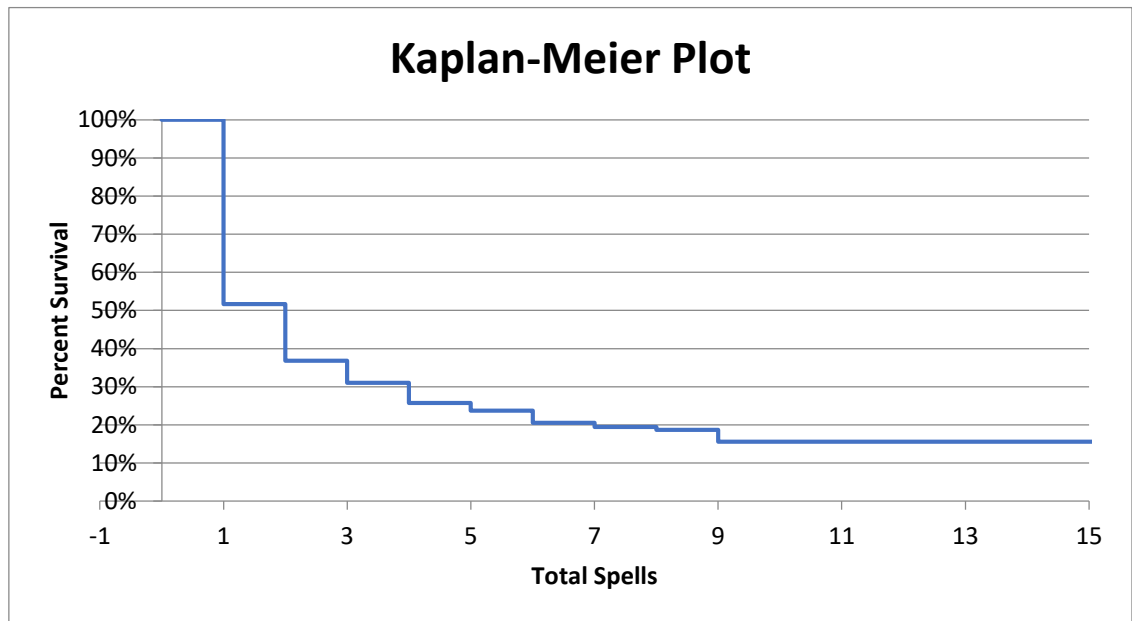
To illustrate the result of the survival analysis,. The Kaplan-Meier Plot presents the conditional probability of Philippine Export products to its partner country.

- a. The x-axis illustrates the given time period of the research which is 15 years.*
- b. The y-axis explains the probable survival rate of products entering a partner country based from the aggregate trend of products gathered from the data.*

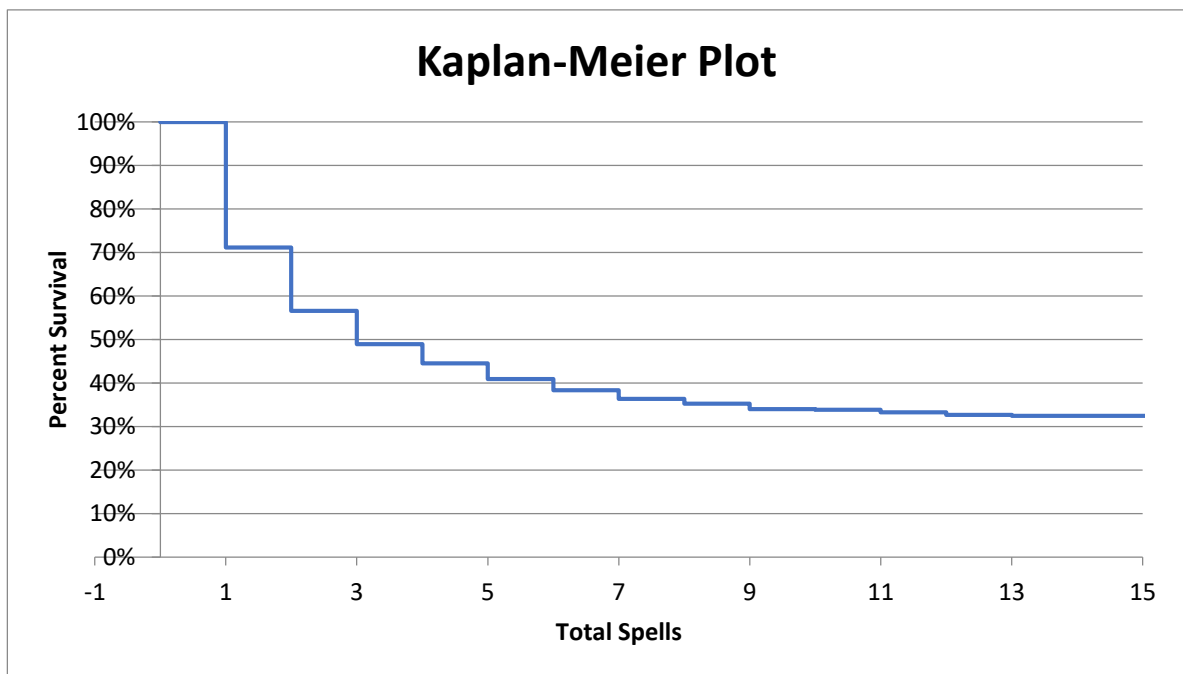
BRUNEI
Survival Function



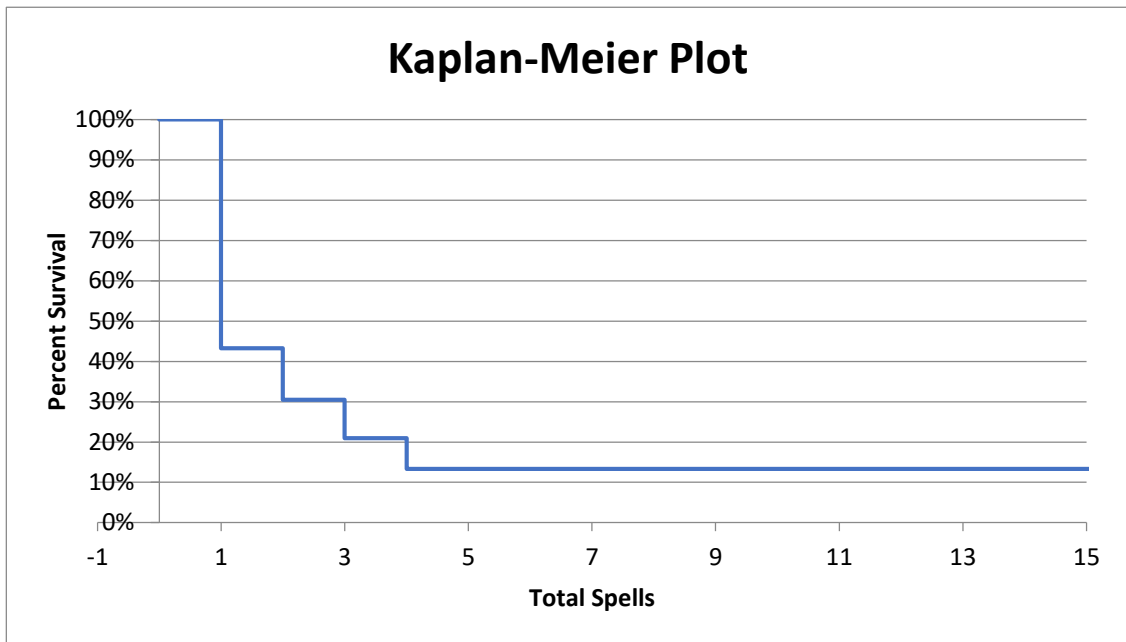
CAMBODIA
Survival Function



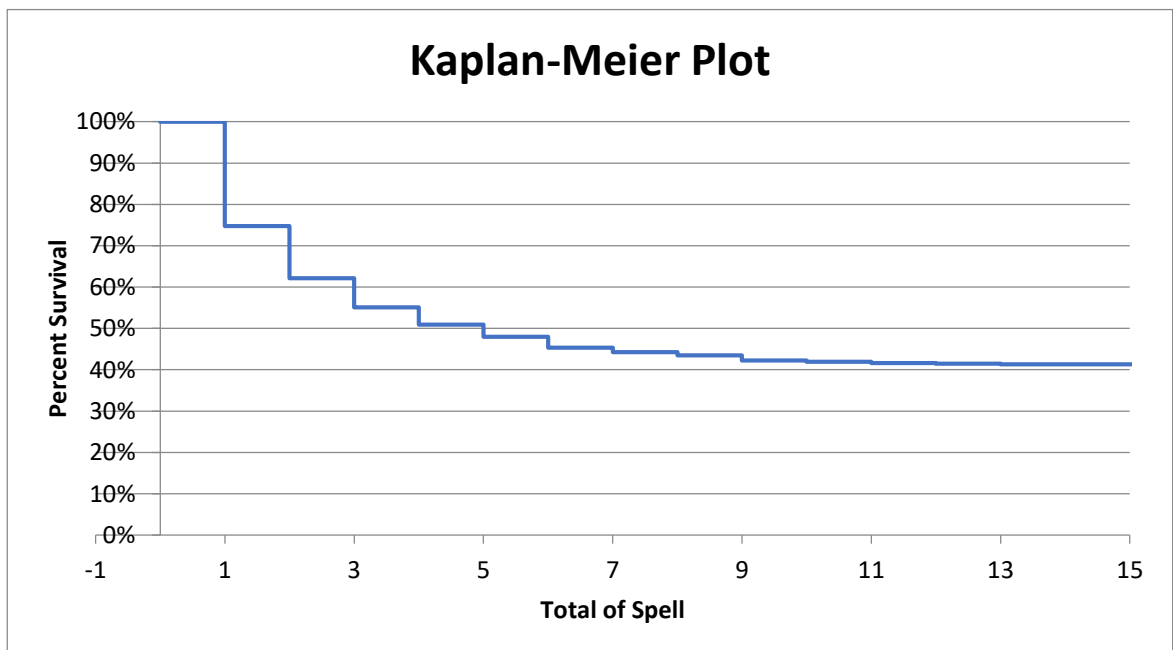
INDONESIA
Survival Function



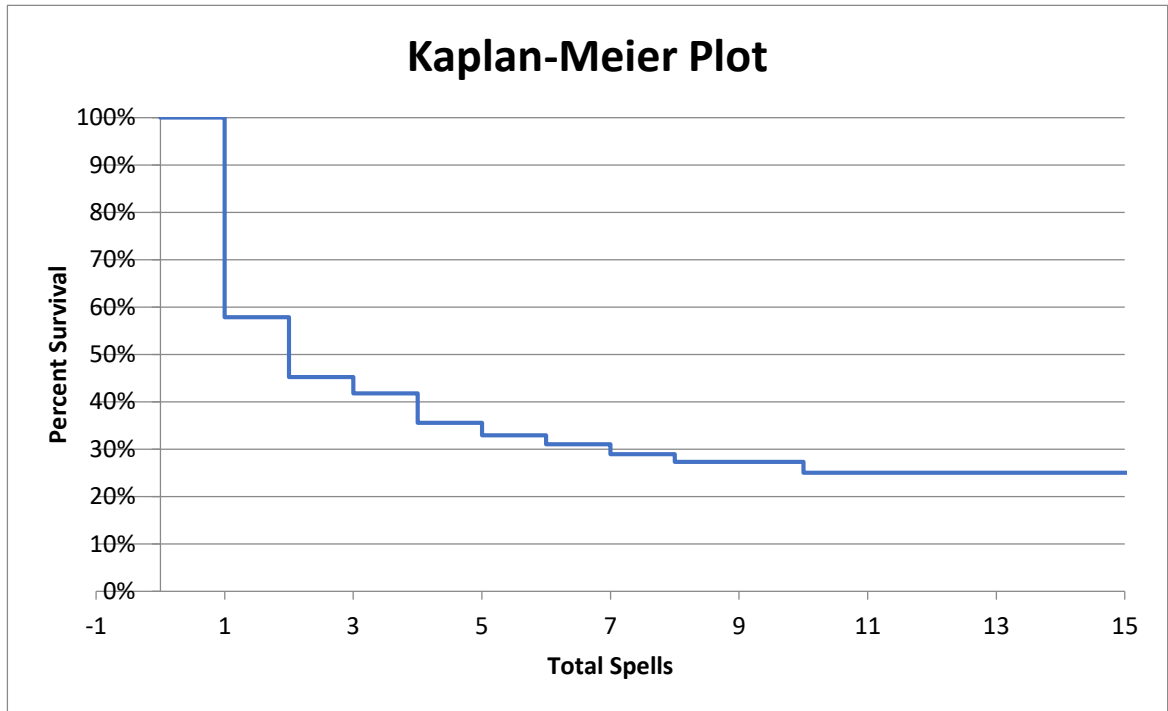
LAOS
Survival Function



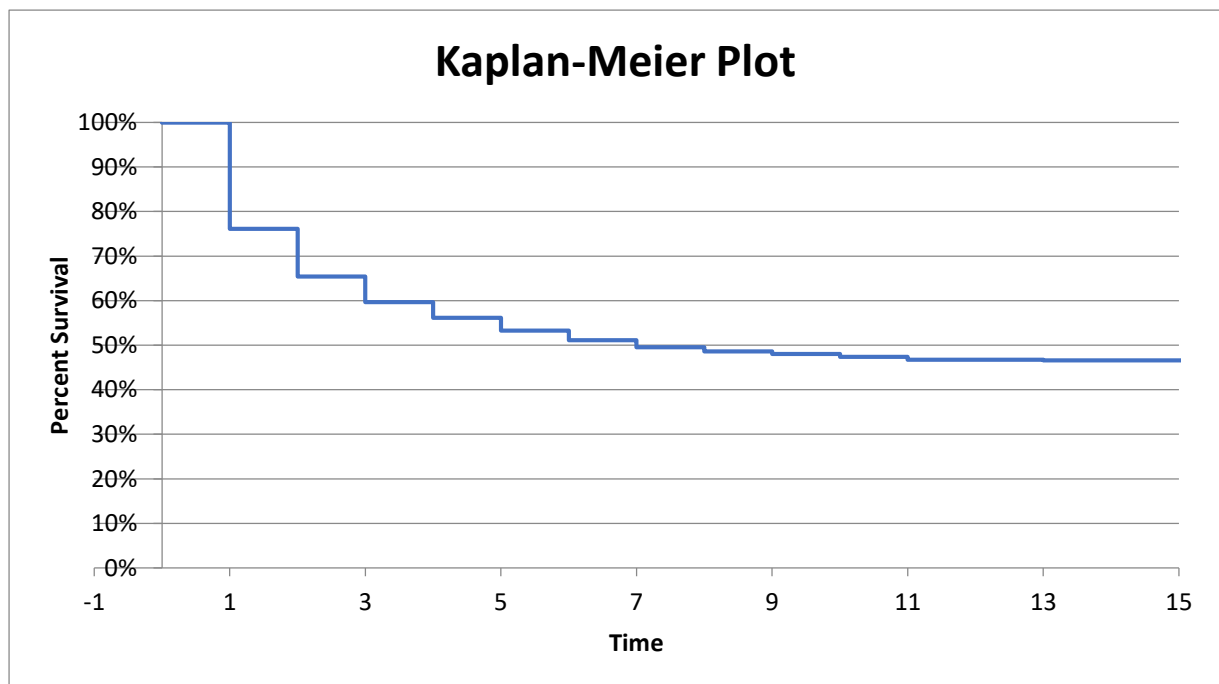
MALAYSIA
Survival Function



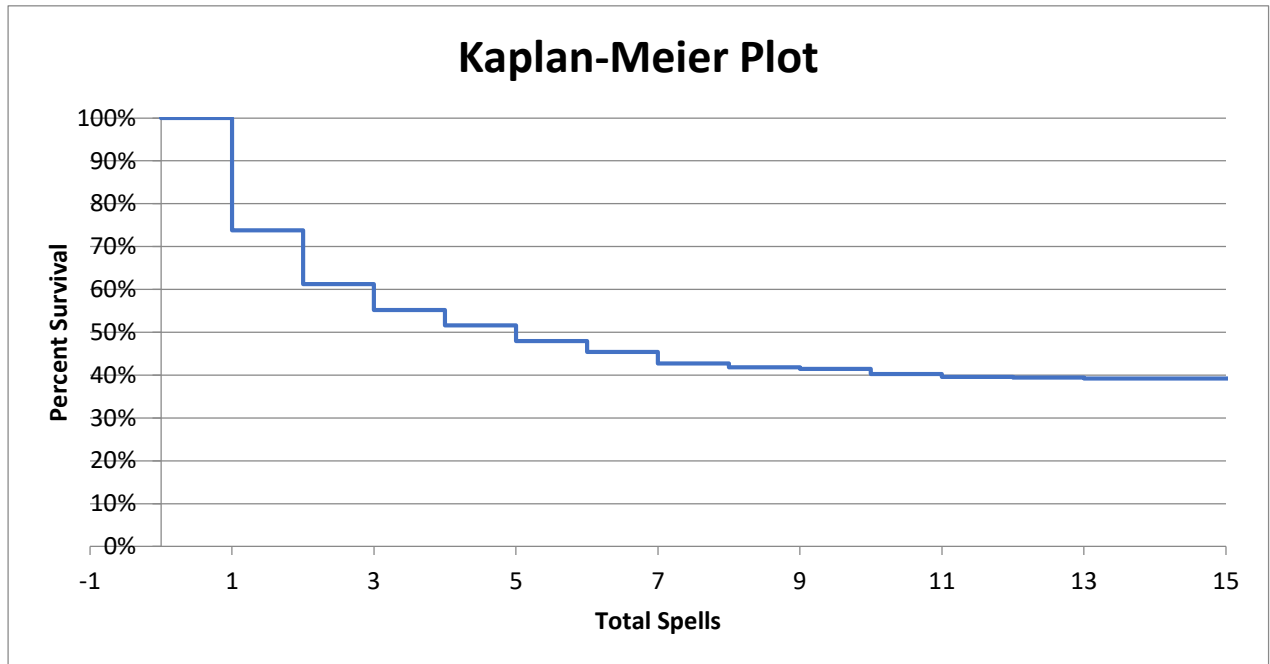
MYANMAR
Survival Function



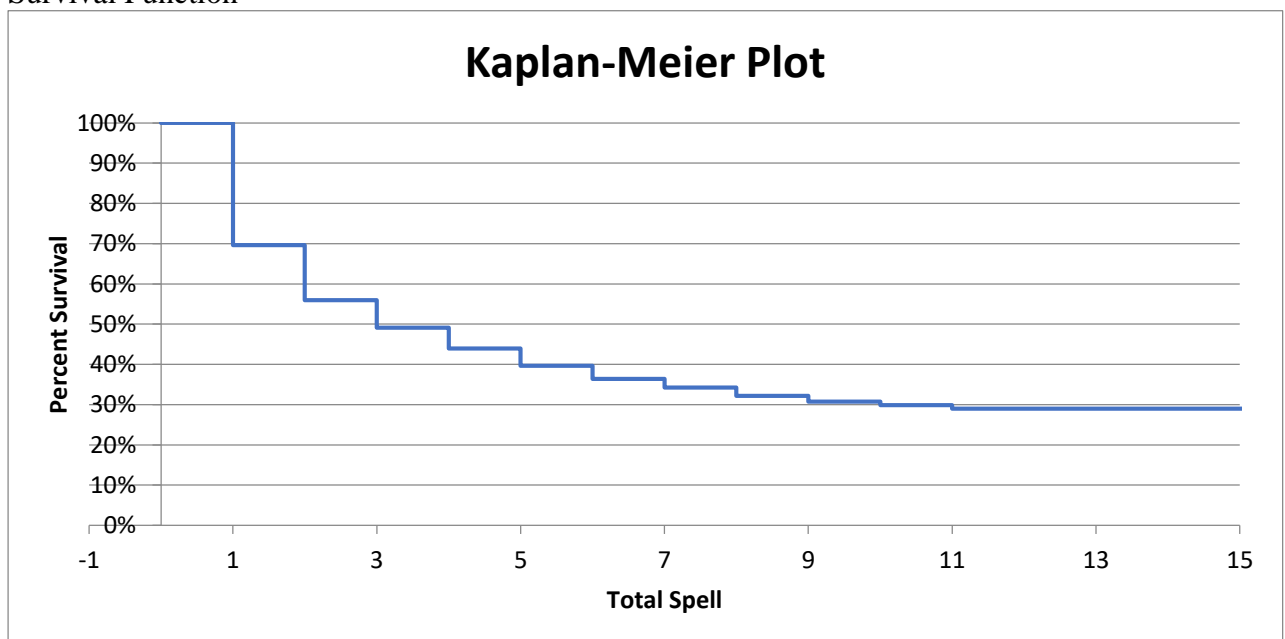
SINGAPORE
Survival Function



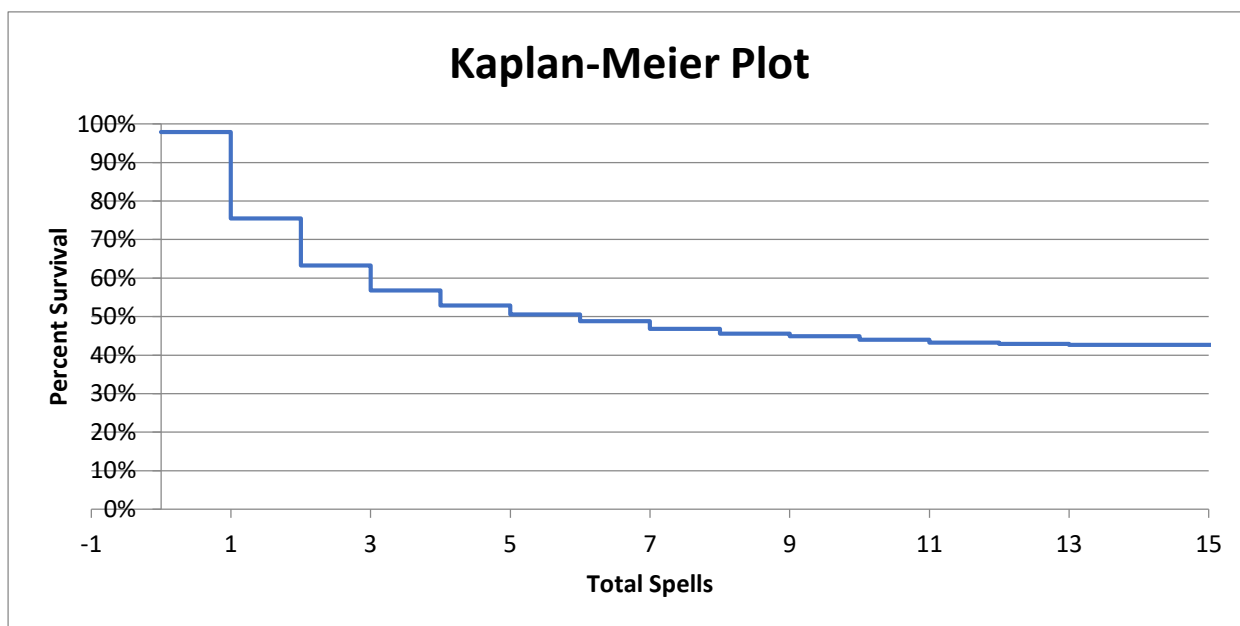
THAILAND
Survival Function



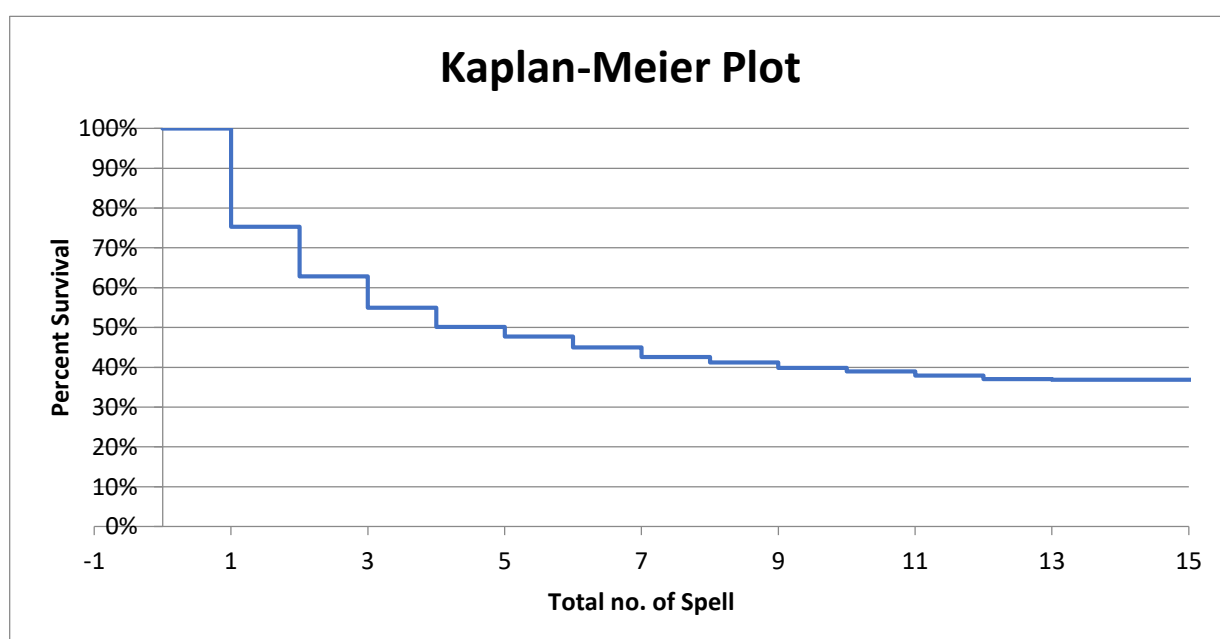
VIETNAM
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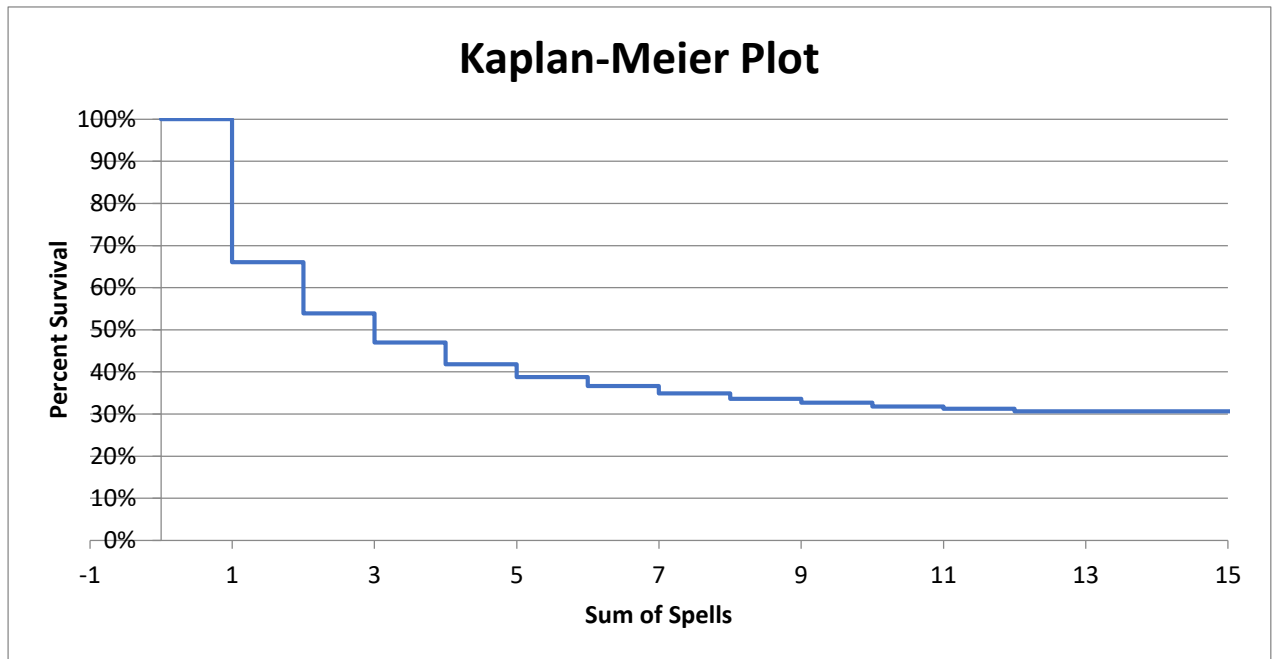
AUSTRALIA
Survival Function



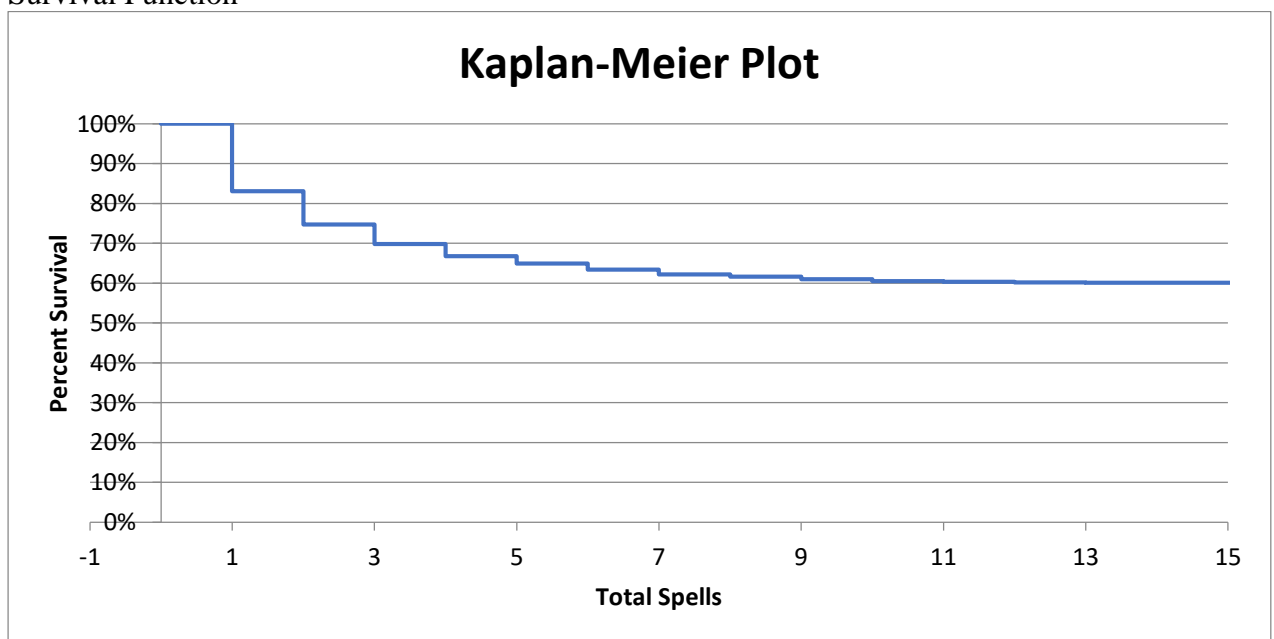
CHINA
Survival Function



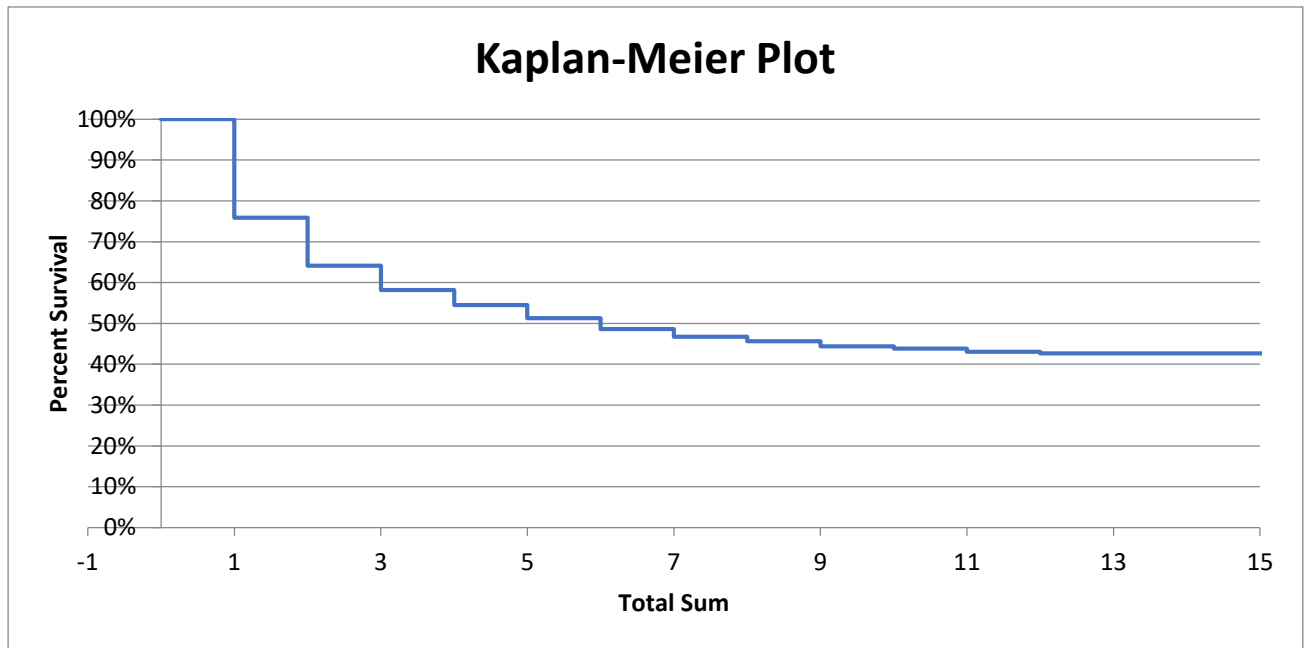
INDIA
Survival Function



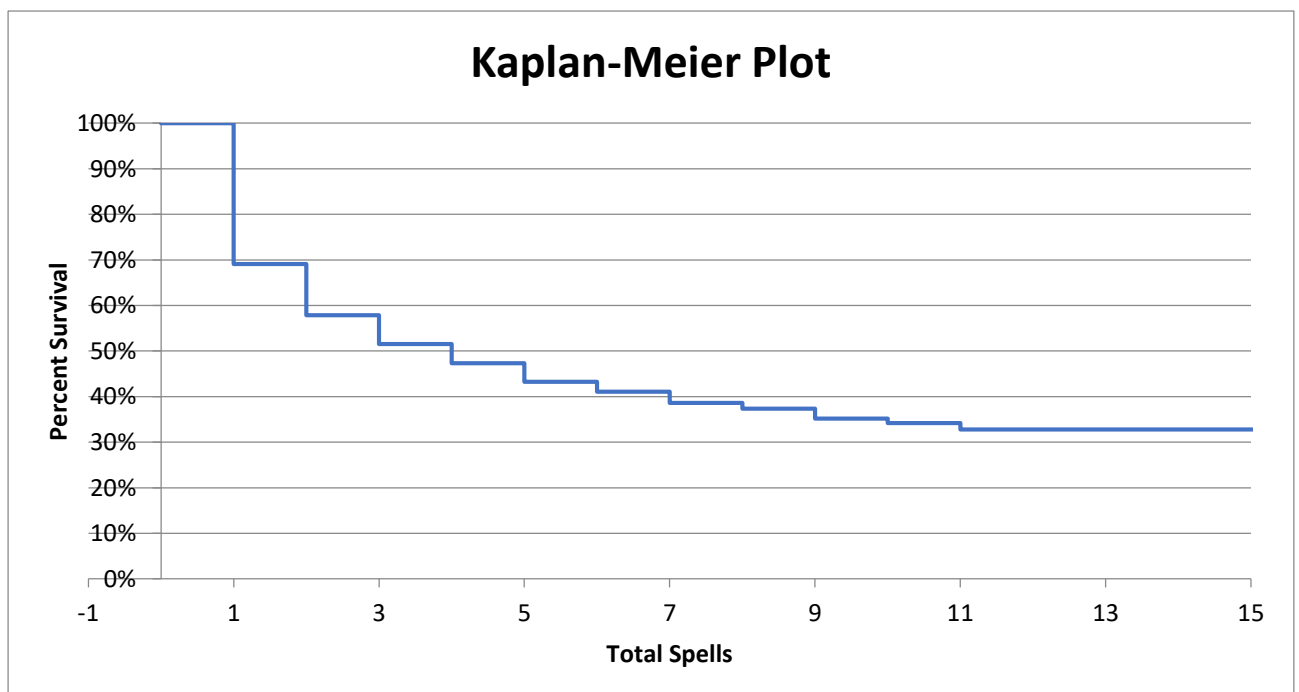
JAPAN
Survival Function



KOREA
Survival Function



New Zealand
Survival Function



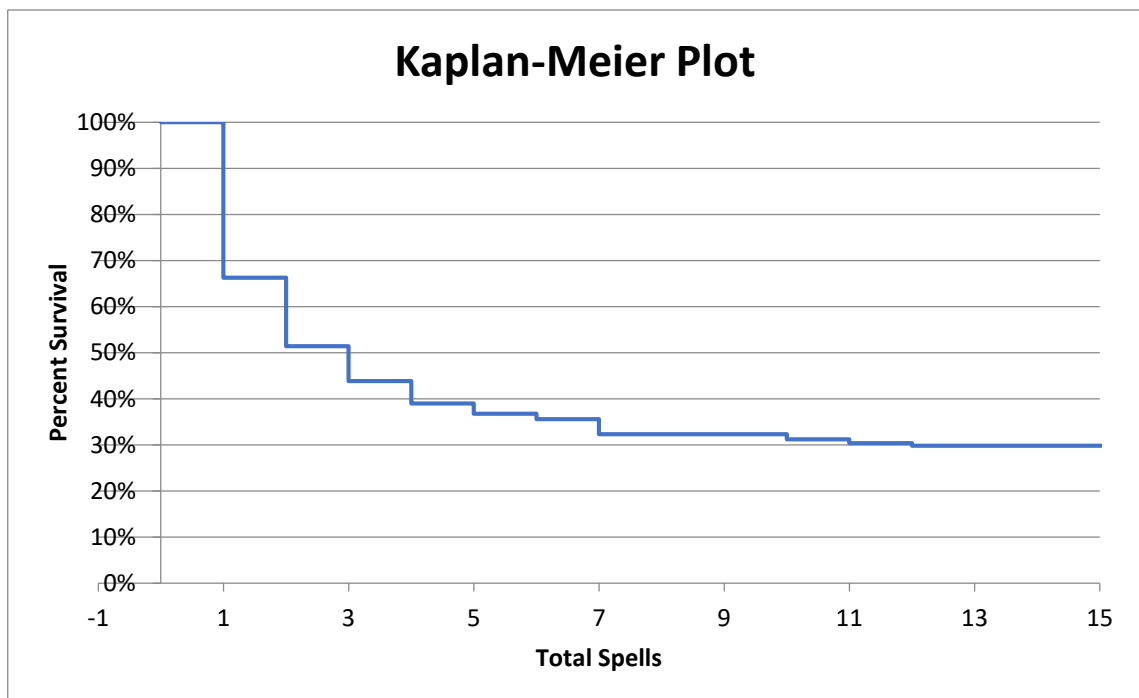
ANNEX III

KAPLAN-MEIER PLOT OF PHILIPPINE OF SME FIRMS

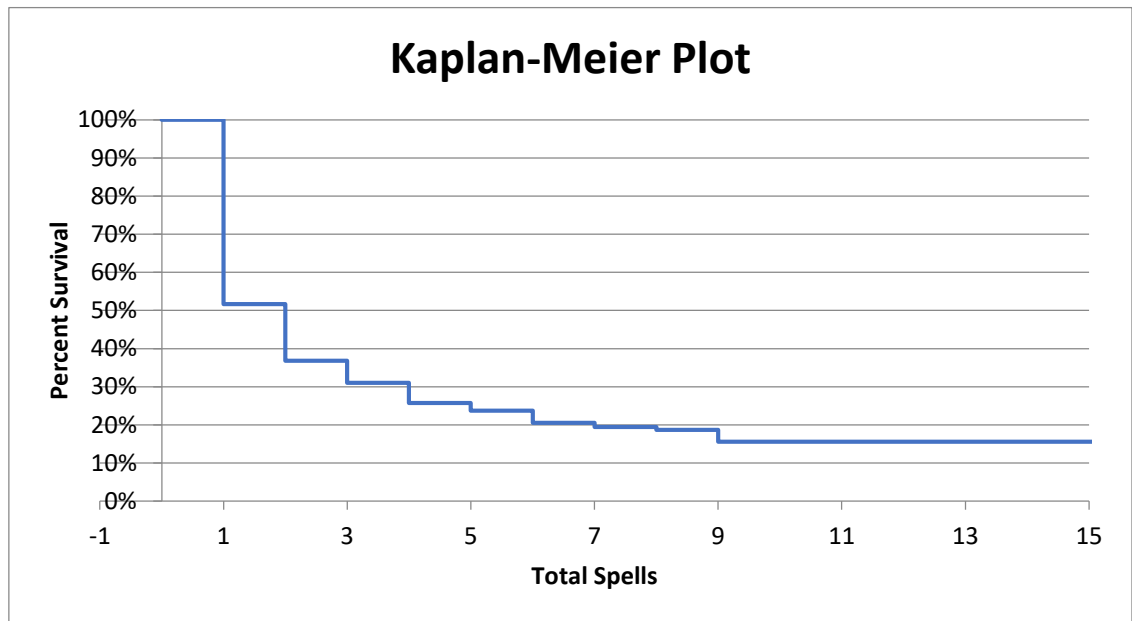
Note:

1. *To illustrate the result of the survival analysis,. The Kaplan-Meier Plot presents the conditional probability of Philippine Export products to its partner country.*
 - a. *The x-axis illustrates the given time period of the research which is 15 years.*
 - b. *The y-axis explains the probable survival rate of products entering a partner country based from the aggregate trend of products gathered from the data.*

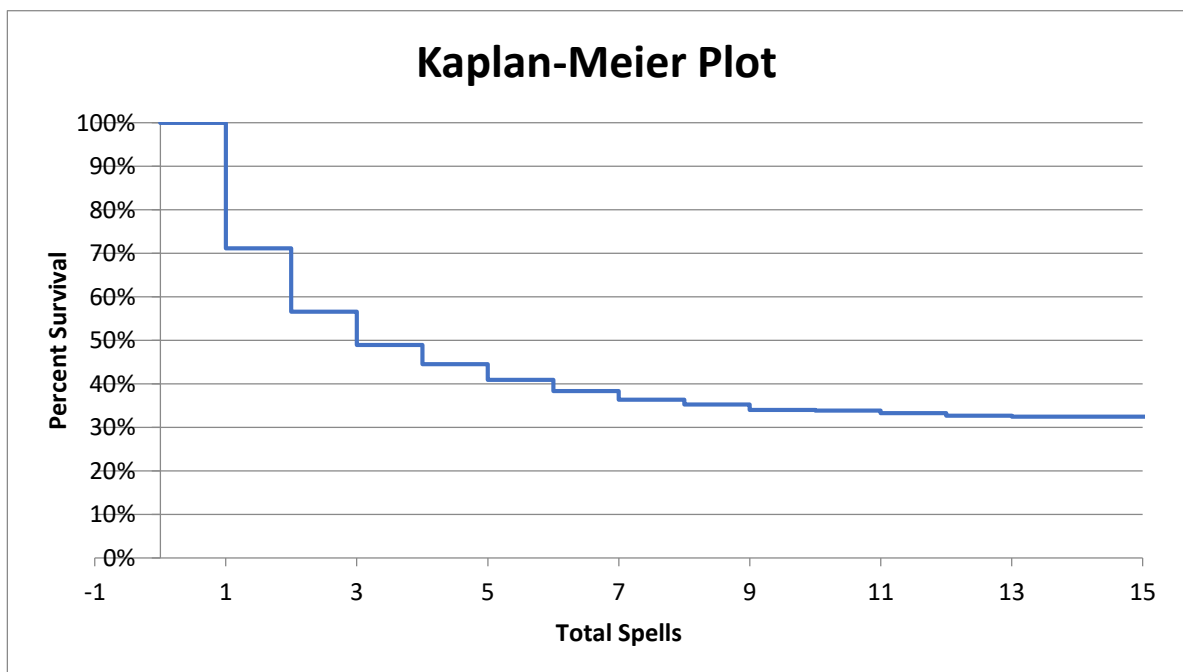
BRUNEI
Survival Function



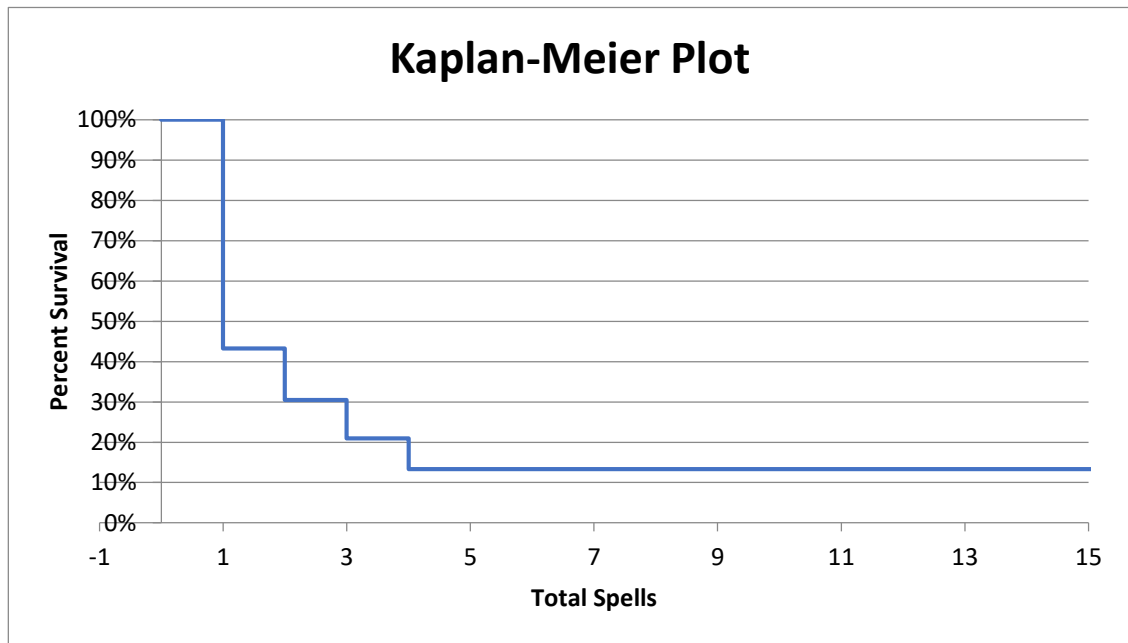
CAMBODIA
Survival Function



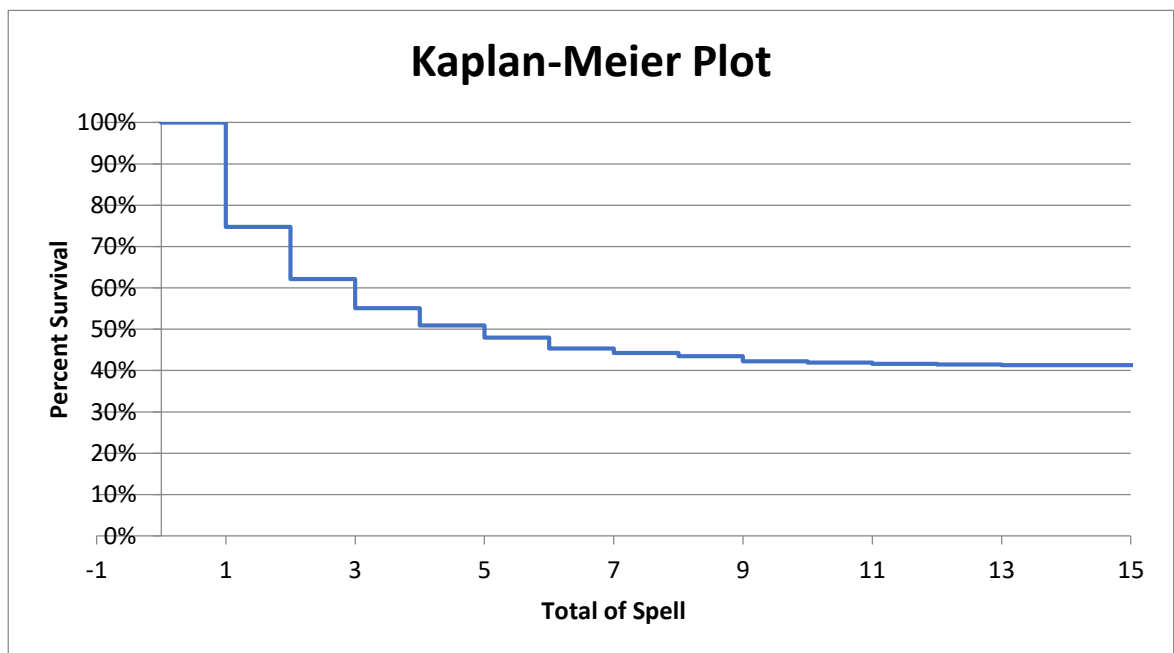
INDONESIA
Survival Function



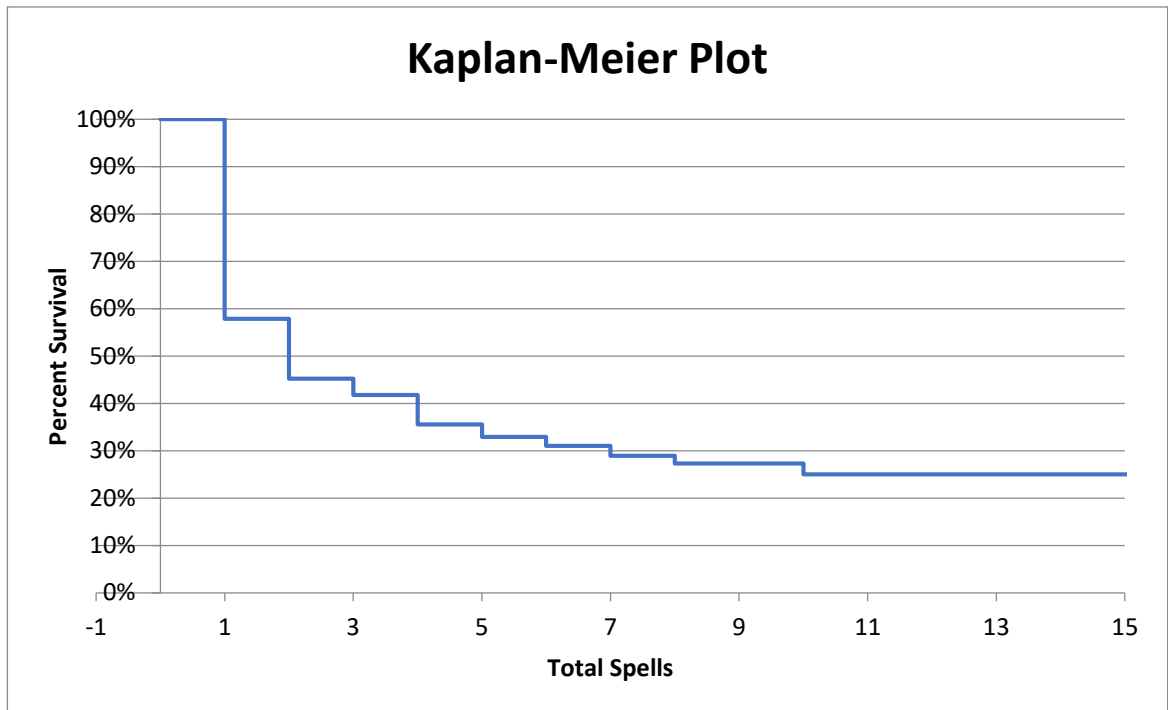
LAOS
Survival Function



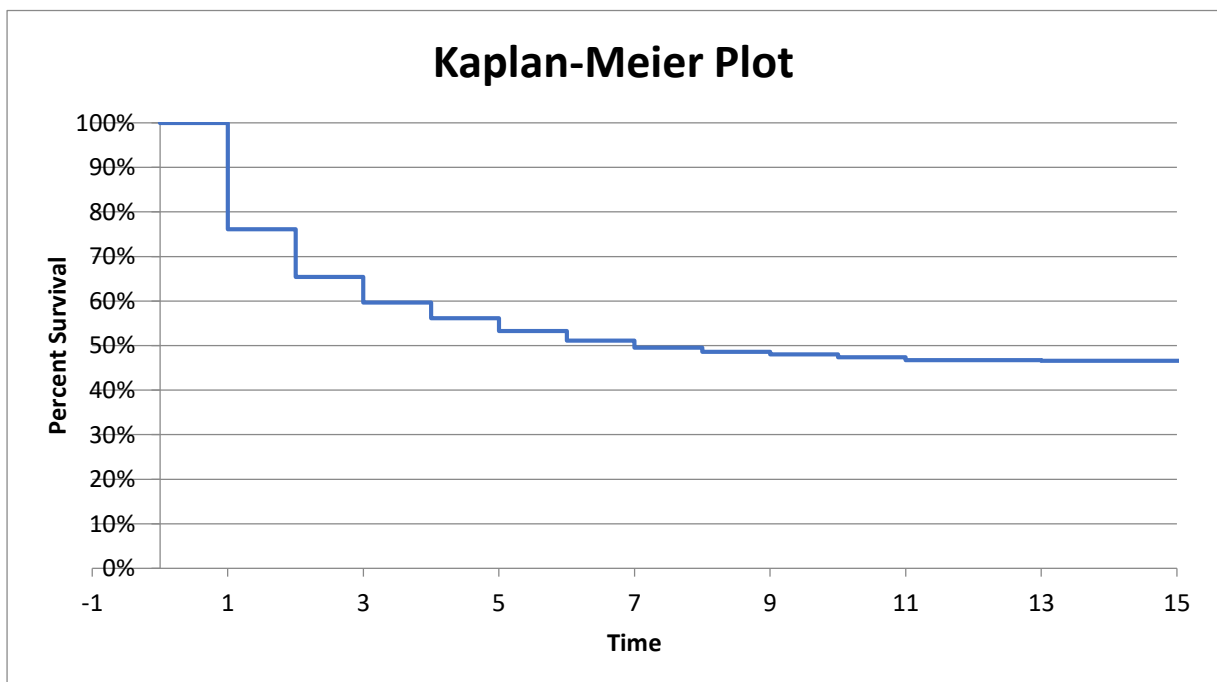
MALAYSIA
Survival Function



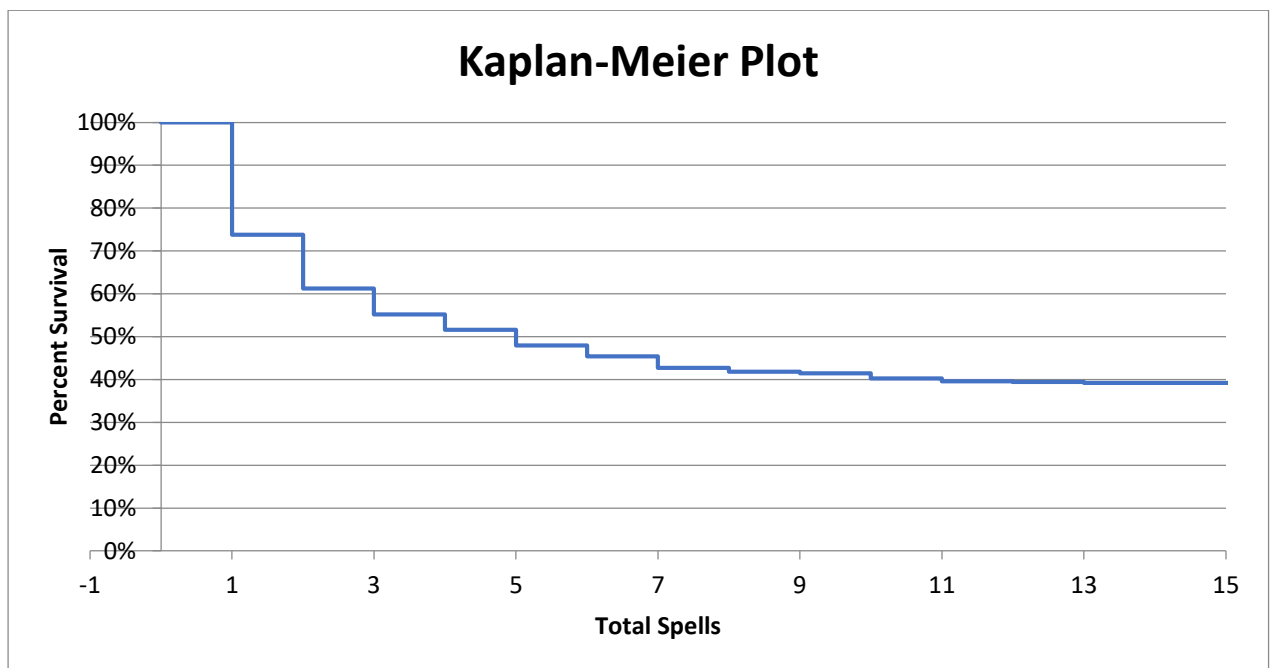
MYANMAR
Survival Function



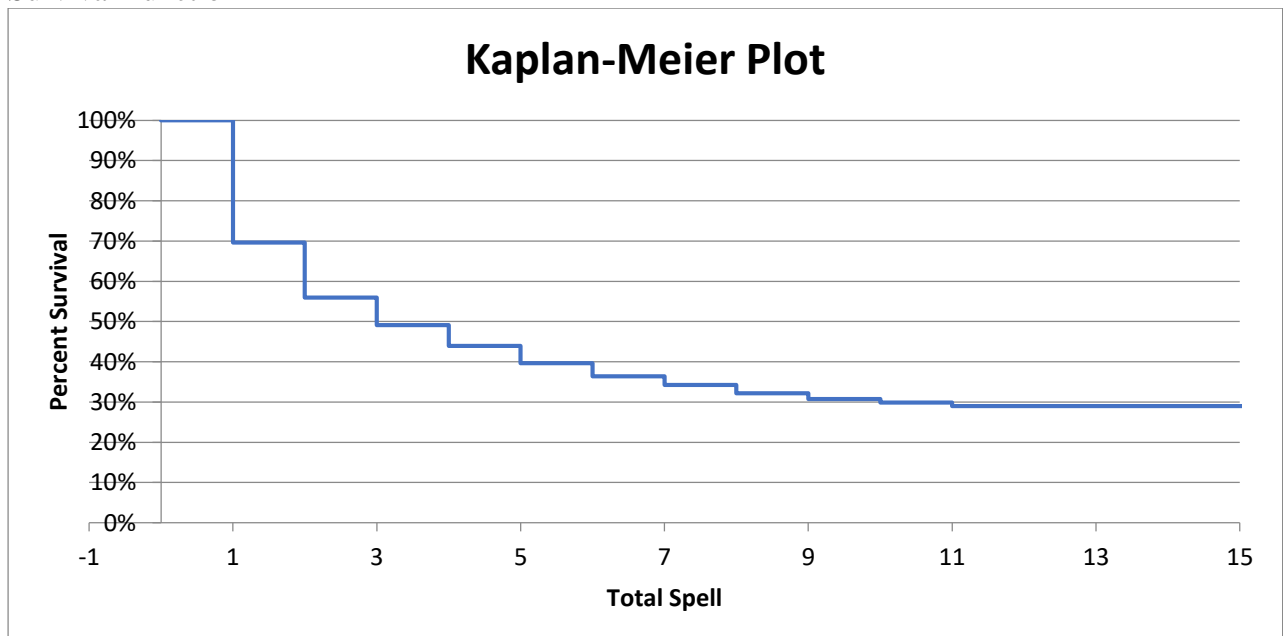
SINGAPORE
Survival Function



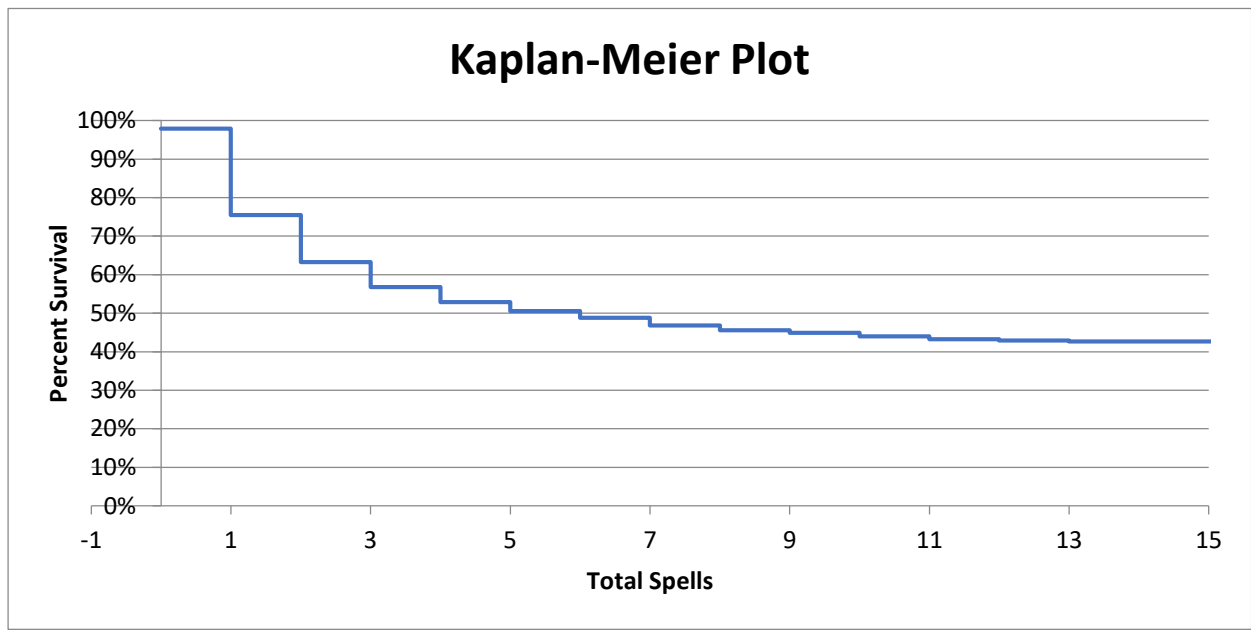
THAILAND
Survival Function



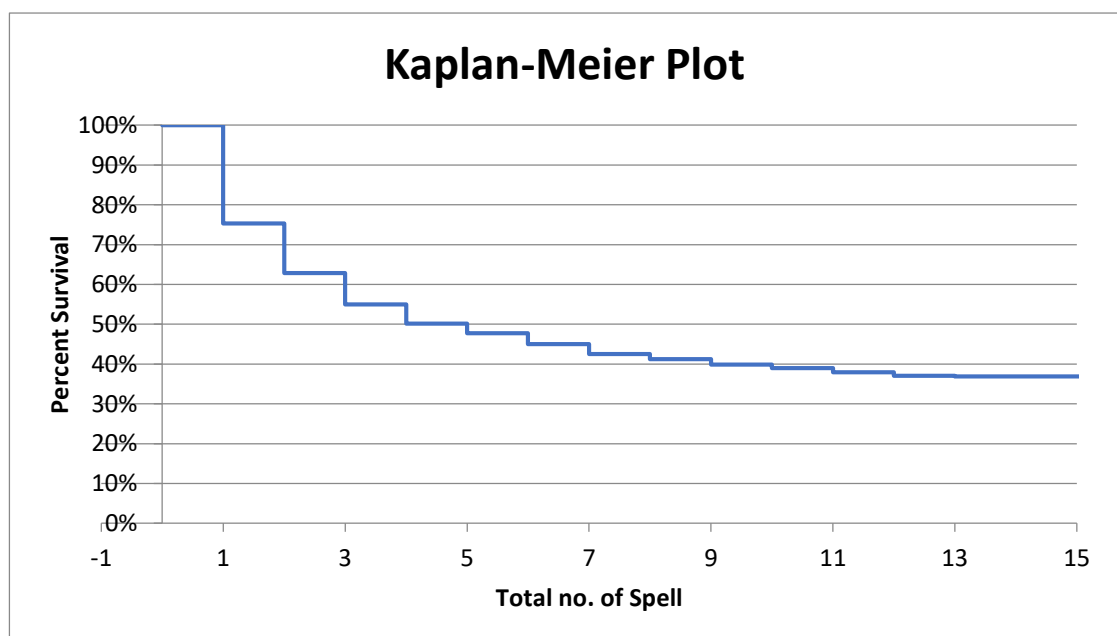
VIETNAM
Survival Function



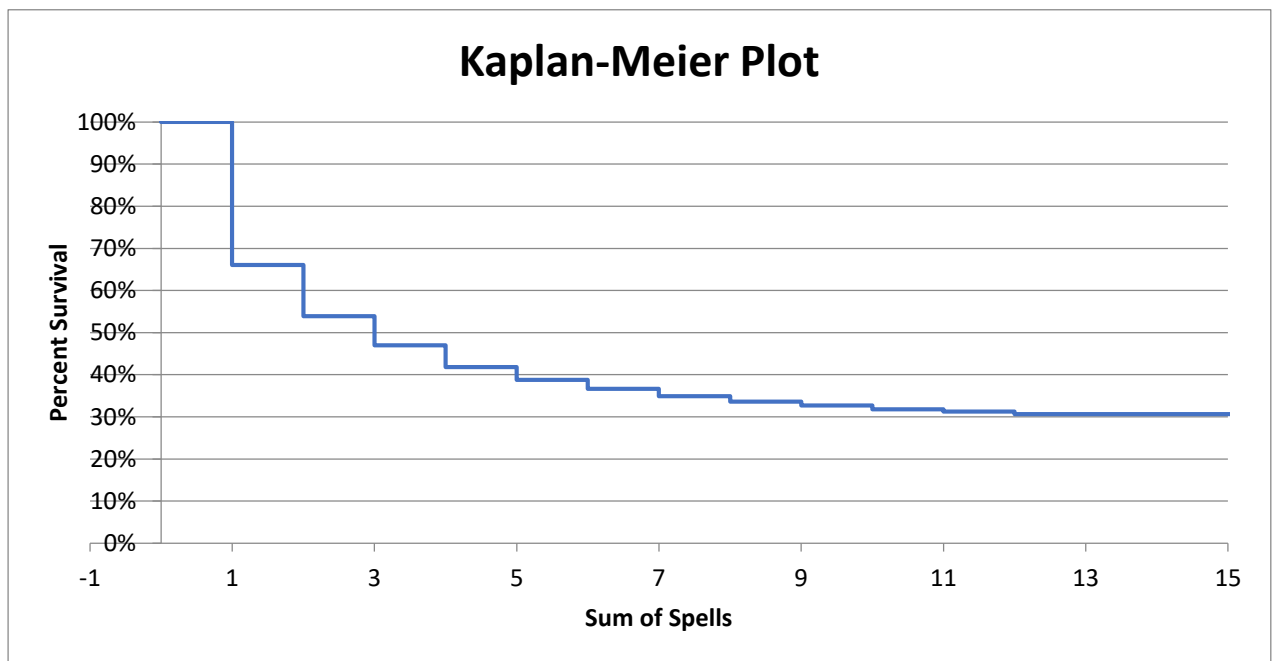
AUSTRALIA Survival Function



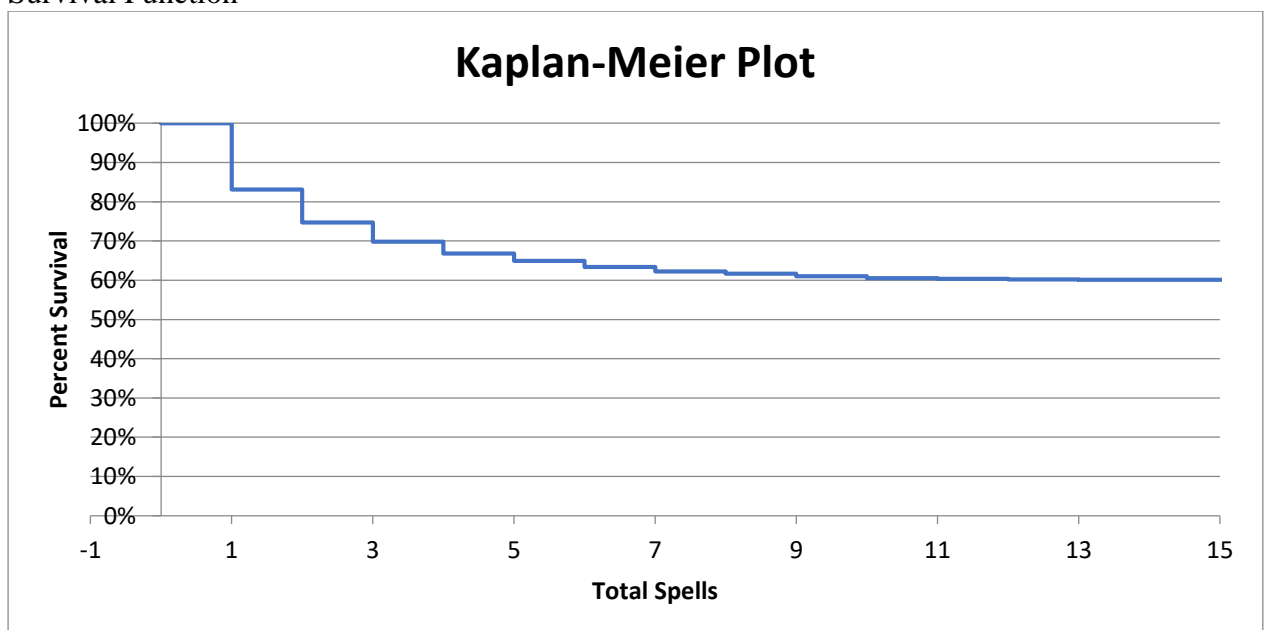
CHINA Survival Function



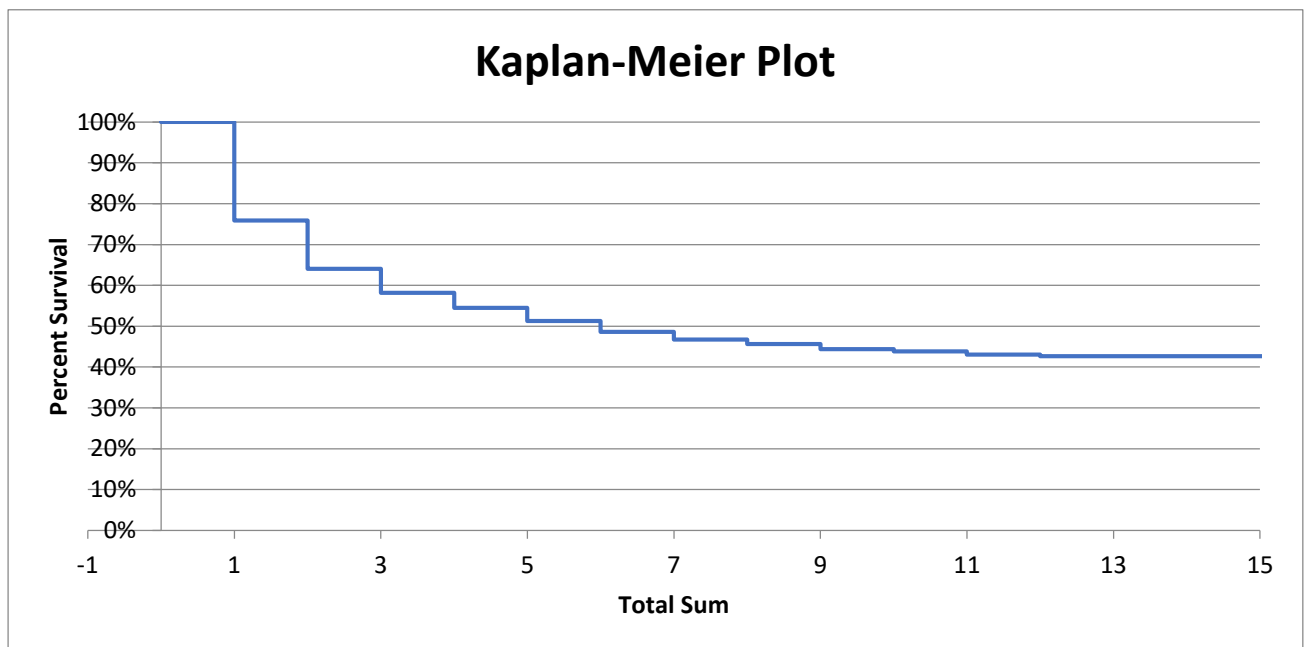
INDIA
Survival Function



JAPAN
Survival Function



KOREA
Survival Function



New Zealand
Survival Function

