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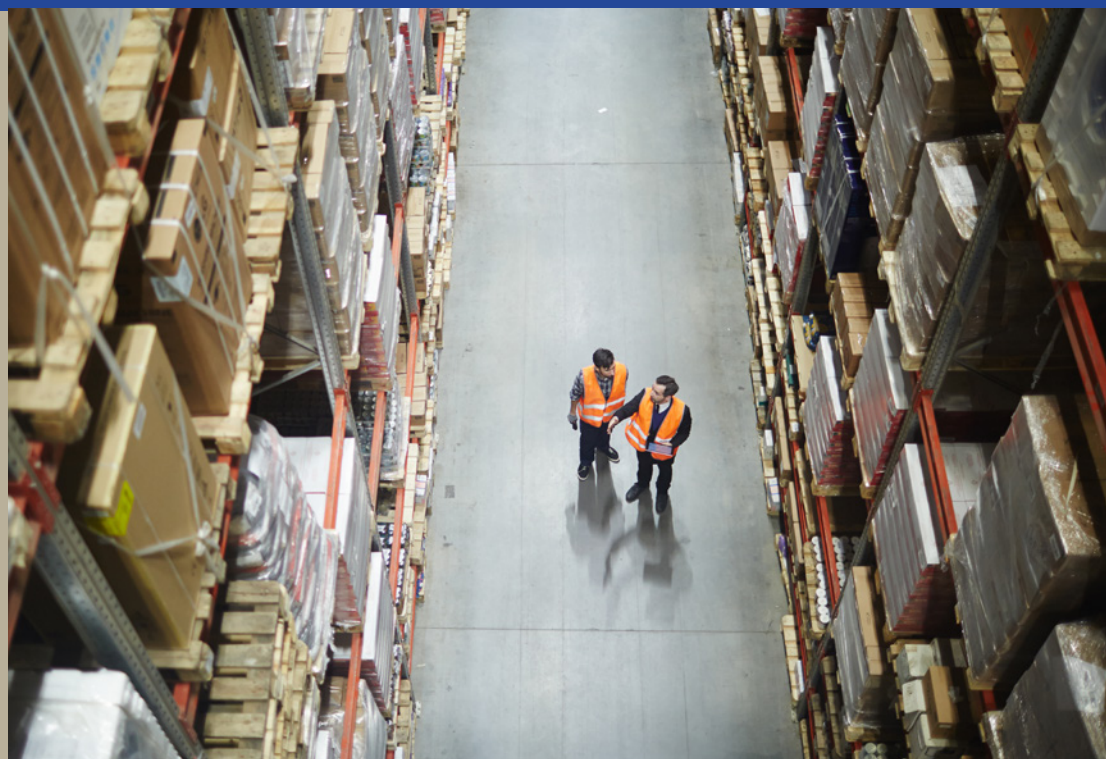
NATIONAL BOARD OF TRADE SWEDEN

Learning by Using Free Trade Agreements

A firm and transaction-level analysis of the EU–South Korea FTA



2022

Preface

Last year marked the 10-year anniversary of one of the EU's most comprehensive free trade agreements — the EU—South Korea FTA. The EU's first free trade agreement with an Asian country entered provisionally into force in July 2011, and it went further than any previous free trade agreement negotiated by the EU. This report focuses on the trade aspects of the free trade agreement and more specifically on imports and the utilization of availabale tariff preferences by Swedish importers between the years 2008 and 2018.

The level of utilization of the tariff preferences provides an indication of the degree to which firms benefit from the free trade agreement. For firms, however, the utilization of tariff preferences is associated with costs related to the acquirement of knowledge about the free trade agreement and the handling of administrative procedures. A relevant question to ask is, therefore, how long does it take for a firm to acquire the knowledge required to utilize the tariff preferences, and how is this learning achieved?

With unique access to import transaction and firm level data for a period of ten years — both before and after the entrance into force of the EU's free trade agreement with South Korea — this report analyses firm behaviour, sources of learning and drivers of preference utilization.

In short, it is shown that almost full preference utilization is achieved three to five years after the entry into force of the free trade agreement and that the learning is closely related to the administration of import transactions. However, the number of repeated import transactions by a firm is more important for learning than the number of years the firm has been an active importer.

Authors of the report are Jonas Kasteng, Nils Norell, and Patrik Tingvall at the National Board of Trade Sweden. Valuable comments and suggestions were also provided by Kristina Olofsson at the National Board of Trade Sweden and Ari Kokko at the Copenhagen Business School.

Stockholm, March 2022

Anders Ahnlid
Director-General
National Board of Trade Sweden

Executive Summary

The EU's first free trade agreement with an Asian country, South Korea, entered provisionally into force in July 2011, and it went further than any previous free trade agreement negotiated by the EU. This report focuses on the trade aspects of the free trade agreement and more specifically on imports and the utilization of available tariff preferences by Swedish importers between the years 2008 and 2018.

A unique feature of this report is that it is based on combined import transaction and firm level data. Considering both the individual import transactions and features of the importing firms makes it possible to in some detail analyse drivers and learning processes associated with preference utilization.

For the importing firms, making use of tariff preferences is associated with a series of costs. For example, to be eligible for tariff preferences, the products must meet the criteria for origin and the originating products must be accompanied by origin declarations issued by the exporter. Hence, there is an administrative aspect of preference utilization. For an unexperienced firm, the administration of border procedures can be costly and time-consuming, leading to the tariff preferences not being utilized.

This report analyses questions about firm behaviour and how firms learn to utilize the tariff preferences of the free trade agreement.

Starting with the question of how quickly firms learn to utilize the tariff preferences, it is found that the overall preference savings rate reaches about 80 per cent three years into the free trade agreement and levels out at about 90 per cent after five years. This pattern suggests a learning curve where it takes about three to five years for preference utilization to reach a level from which it remains relatively stable.

The utilization of tariff preferences is not equal across firms. It is found that only 56 per cent of new importers with no history of import experience continue to import goods from South-Korea for more than one year. This 'at least one year' survival rate falls to 43 per cent seven years into the free trade agreement. Hence, about 50 per cent of firms entering trade do so for one year only. Among these firms the preference utilization is in general low. At the same time, there is a group of what we define as 'consecutive importers'

who remain active in trade throughout the sample period. The preference savings rate of the consecutive importers is both higher and accelerates faster than for other firms. Specifically, it is found that the preference utilization rate among these firms reaches levels above 90 per cent after three years, and after five years the preference savings rate stabilizes at around 97 per cent. This suggests that consecutive importers are not only quick learners, after five years they also manage to almost make full use of the tariff preferences. This pattern suggests a learning process on how to utilize the tariff preferences that is connected to repeated import transaction activities.

Two channels of learning to use free trade agreements related to the import transaction activity are explored. The first channel is the duration of time active in trade. The second, and complementary channel, is learning-by-doing related to the number of import transactions performed. Hence, the learning-over-time hypothesis explores the idea that it is the duration of time in trade (cumulative time) that matters, whereas learning-by-doing focuses on the number of repeated import transactions.

The results give consistent support for the idea that making many import transactions is positively related to the preference savings rate. On the other hand, the econometric analysis establishes (contrary to the descriptive part) that, holding all other factors constant, there is no support for a positive correlation between the accumulated time a firm has been importing and preference utilization. For direct imports, there is even a negative relationship. That is, the longer time a firm has been active in direct imports, the less likely it is that the tariff preference will be utilized. The lack of results supporting the learning-over-time hypothesis can possibly be due to changes in rules of origin or that the people administrating the paperwork over time are replaced by new and less experienced staff. In short, rules, routines, and staff can be subject to changes and the memory is not perfect. Hence, learning takes place, but it is the intensity and the number of import transactions that matter rather than the length of time over which the import transactions are spread out.

Two other channels for learning analysed are the size of the business network, defined as the number of suppliers used by an importer, and the variety of products imported. The results suggest that there is no significant impact of the number of different products imported on preference utilization. One reason for this might be that knowledge achieved from importing several products at the same time are mitigated by the additional costs of administrating imports of additional products.

It is, however, found that the number of business relations an importer has contact with is positively related to preference utilization (for direct imports). That is, for direct imports, importing from a large set of exporters is associated with a high level of preference utilization. One potential explanation for this observation may be that each business relation adds a piece of knowledge on how to make sure the tariff preference is utilized. Hence, firms that are handling many business contacts gain more information on this issue.

It is also found that when analysing intra-firm trade, imports obtained by customs warehousing have a significantly higher utilization of the tariff preferences than direct imports. Hence, for intra-firm import transactions, the degree of preference utilization is highly dependent on the mode of import.

From these findings, three conclusions and policy recommendations are drawn:

- The utilization rate is lowest during the first years of the free trade agreement. Efforts for information dissemination should, accordingly, be most intensive before and during the first years of the free trade agreement and focus on new firms starting to use the free trade agreement at all moments in time.
- Experienced importers may be a resource in informing and supporting firms new in trade on how to use the free trade agreement. Facilitating contact and knowledge transition between these can therefore be beneficial for preference utilization. The use of experienced intermediaries in this field, such as customs brokers and wholesale firms could therefore be explored.
- There is no evidence suggesting that special attention on information dissemination is called upon for small and medium-sized firms. Instead, information dissemination about the free trade agreement should be targeting both small and large firms alike.

Key findings

- Learning is closely connected to the administration of import transactions, i.e. learning-by-doing
- The time active in trade is of less relevance
- Having many suppliers is beneficial for preference utilization
- Importing many types of products is unrelated to preference utilization
- Less than 50 per cent of new importers continue importing for more than one year
- The super-users of the free trade agreement are found among experienced consecutive importers
- The preference savings rate is especially high among high-value import transactions
- The preference margin is less connected to preference utilization
- Firm size does not matter for preference utilization

Content

1. Introduction

The number of free trade agreements has increased dramatically during the last decades. According to UNCTAD (2018), about 50 per cent of world trade takes place between countries that have signed a free trade agreement. Without considering intra-EU trade, one-third of world trade takes place within the scope of a free trade agreement. Hence, free trade agreements affect a large share of world trade.

A central feature of free trade agreements is the reduction of tariffs between the partner countries. For free trade agreements to be aligned with WTO rules, tariffs for substantially all trade must essentially be set to zero. For an importing firm to benefit from the tariff reduction, a proof of origin from the exporter is required. For many firms, the administration of this type of requirement can be demanding, resulting in tariffs being paid despite the presence of a free trade agreement. Consequently, free trade agreements are not always fully utilized. Kasteng and Inama (2018) showed that about one-third of the EU's export and ten per cent of its imports did not benefit from the tariff reductions offered by existing free trade agreements. Thus, understanding the drivers and obstacles for preference utilization is an issue of importance for policymakers to ensure that firms and consumers can capture the potential economic benefits of free trade agreements

When an import transaction takes place within the boundaries of a free trade agreement, there is a decision to be made about whether to utilize the tariff preferences or not. This decision is ultimately made at the firm-import transaction level, hence firm-import transaction level data are ideal for analysing the determinants of preference utilization. However, the broad mass of studies on preference utilization is based on trade data at an aggregated level.

In this report, we focus on import transactions undertaken by importing firms for which we analyse firm behaviour and learning on how to use free trade agreements. To accomplish this task, combined import transaction and firm level data on Swedish imports from South Korea covering the period 2008 to 2018 are utilized.

This analysis can be viewed as a continuation of previous work on preference utilization using firm and import transaction level data by Kasteng and Tingvall (2019), or Kasteng et al. (2021), which primarily addressed the role of import transaction characteristics and firm size for preference utilization at a specific moment in time.

The main questions addressed in this study are:

- How quickly do firms learn to make use of tariff preferences?
- What is the survival rate of importing firms over time and how does this affect the utilization of tariff preferences?
- What could be learned from analysing consecutive importers in understanding preference utilization?
- What is the relationship between time and repeated import transactions for the utilization of tariff preferences?

This report is organized as follows: Chapter 2 highlights some of the main findings in the literature on preference utilization. Chapter 3 describes the data set and definitions. Chapter 4 provides a descriptive analysis on the utilization of tariff preferences over time, focusing on import values, importing firms and import transaction frequency. Chapter 5 presents an econometric analysis of the determinants of preference utilization. Finally, chapter 6 concludes and presents policy recommendations.

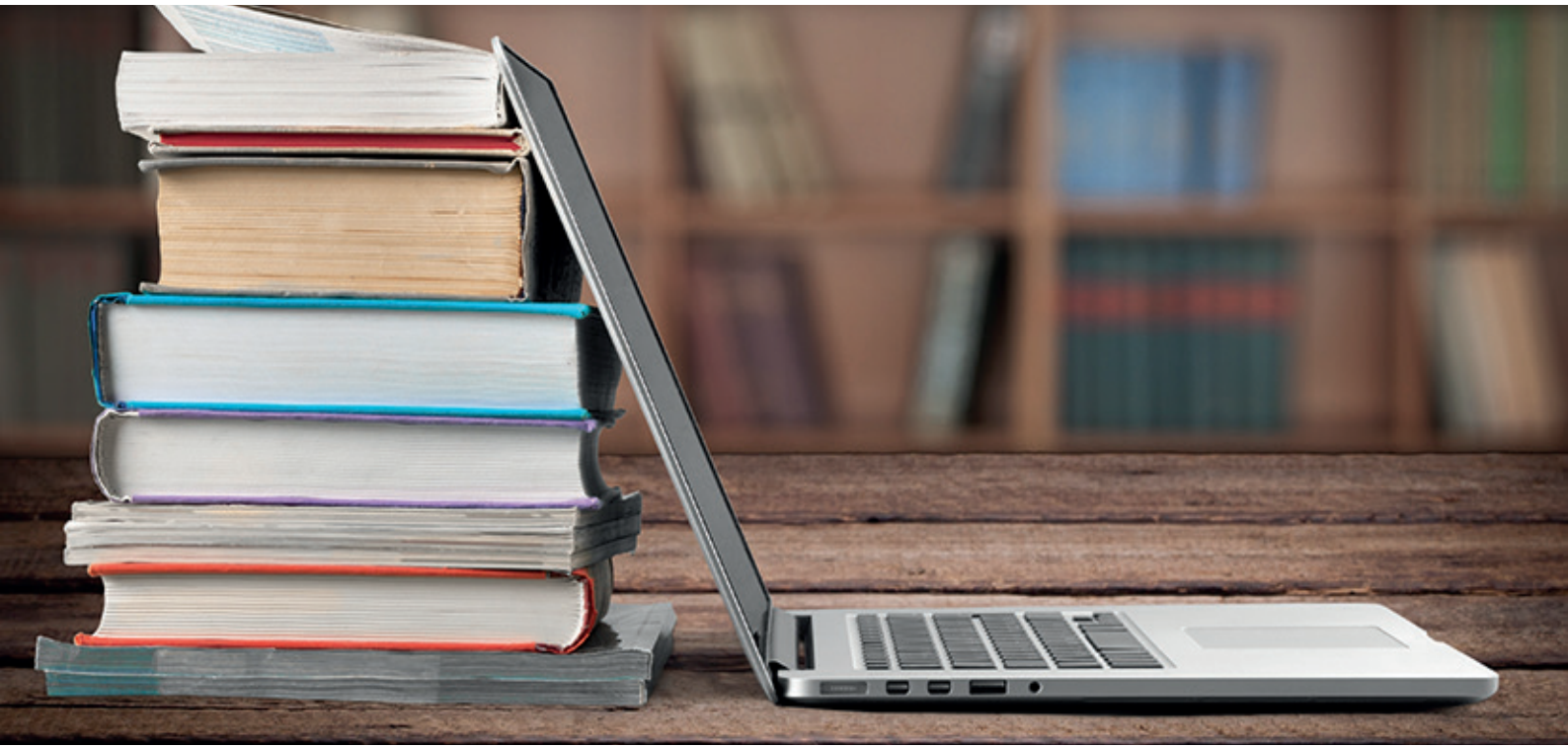
2. Literature review

Literature on the determinants of preference utilization can mainly be identified from 2005 onwards and the literature is now fast-growing. The purpose of this chapter is not to provide a comprehensive review but rather to present a representative overview of the literature.

Looking at the level of preference utilization, Nilsson (2015) found the overall preference utilization for EU exports to be around 75 per cent but with significant variations across country-pairs and products. Kasteng and Inama (2018) analysed both EU exports and imports and found that during the period 2009–2013 the preference utilization was about 70 per cent for EU exports and as high as 90 per cent for EU imports. Hence, the overall conclusion was that tariff preferences are fairly well utilized among the EU's importing firms but that preference utilization in EU exports – or rather partner country imports – could be improved.

When it comes to the determinants of preference utilization there is a strand of research dealing with the administrative costs of rules of origin and their impact on preference utilization. Hayakawa et al. (2014) and Kim and Cho (2010) showed that more restrictive rules of origin reduced the utilization of tariff preferences, and Takahashi and Urata (2010) noted that utilization rates are lower when origin is difficult to prove. Anson et al. (2005) estimated the administrative costs of rules of origin to correspond to six per cent of the import value while Albert and Nilsson (2016) estimated the fixed cost of utilizing tariff preferences to fall within the range of EUR 20 to EUR 260. Furthermore, it has been observed that strict rule of origin requirements can reduce the trade-creating effect of trade liberalization (Chase, 2008; Conconi et al., 2018; Felbermayr et al., 2019). However, Decoster (2021) and Kasteng and Almufti (2021) found in different firm surveys that about 70 per cent of Belgian exporters and about 80–90 per cent of Swedish exporters do not consider rules of origin as cumbersome.

Another alleged driver of preference utilization is the size of the tariff reduction that can be achieved by using the tariff preference (often labelled as the 'preference margin').



Several studies, including Bureau et al. (2007), Hayakawa et al. (2013), Hayakawa et al. (2014), Keck and Lendle (2012) and Nilsson (2015) identified a positive correlation between the size of the preference margin and preference utilization. However, Lukaszuk and Legge (2019) detected a negative correlation. Using transaction level data, Kasteng et al. (2021) showed that the size of the preference margin had little impact on preference utilization, and that instead of the preference margin, the import transaction value was the most important determinant behind preference utilization.

Other studies on preference utilization have identified a set of additional drivers of preference utilization. Lukaszuk and Legge (2019) showed a positive impact of potential duty savings and trade values on preference utilization. Wignaraja (2014) and Hayakawa (2013a) analysed the role of firm size and experience for preference utilization. Another study focusing on firm characteristics is Demidova and Krishna (2008), who showed a positive relation between productivity and preference utilization. Further, Takahashi and Urata (2010) showed evidence of a large firm advantage in preference utilization. However, neither Wignaraja (2014) nor Kasteng et al. (2021) found any significant large firm advantage in preference utilization.

Among the studies cited above, and to the best of our knowledge, Albert and Nilsson (2016), Kasteng et al. (2021), and Krishna et al. (2021), are the few available studies today that are based on transaction level data. Krishna et al. (2021) analyses learning over time from an exporter-cost perspective while this study focuses on the importer-benefit perspective. In sum, studies based on transaction level data are much requested as they can offer insights into firm behaviour and micro-level drivers of preference utilization.

3. Data and definitions

3.1 Data

The data used in this report are based on Swedish firms' import transactions originating from South Korea during the period 2008–2018. The data cover about 1 million import transactions carried out by 8500 firms. The information available for each import transaction includes firm name and identification number of the importer, firm name of the exporting firm, import value, tariff codes at Taric (10-digit) level, mode of import (direct imports vs customs warehousing), and customs duties. The transaction-level data were obtained from the Swedish Customs.

The transaction level data also include the date of the import transaction. Since each import transaction might be part of a consignment (customs ID) that contains several products, a single firm can record more than one transaction per day from the same exporter.[1] The time between import transactions can therefore be zero days and the data therefore lack a (panel) structure where each import transaction can be identified using a time-ID marker, something that complicates econometric use of panel-data methods.

The firm-level data are only available for Swedish limited liability firms (*aktiebolag*) importing goods from South Korea (6445 unique firms) during the period of observation.[2] Imports attributed to Swedish limited liability firms, however, cover 89 per cent of the total value of imports in the transaction level data set. Firm level variables obtained are firm name and identification number, net turnover, number of employees, net profit, group affiliation, and industry classification code ('SNI').[3] The firm level data were obtained from Upplysningscentralen (UC), a Swedish credit reference agency.

Import values and firm turnover have been deflated using importer and producer price indices obtained from Statistics Sweden (SCB). Thus, the nominal values for imports, duty savings and duty costs, turnover, profit and capital have been deflated. The price indices used for deflating show the average price trend by different product groups in accordance with the SPIN nomenclature.[4]

The tariff reduction schedule in the EU–Korea FTA provides that the tariff reductions take place on July 1 every year after the provisional entry into force of the free trade agreement on July 1, 2011. To align the import transaction and firm level data with the tariff reduction schedule, a semi-annual time index is applied. In line with this, the period July 1, 2011 to July 1, 2012 corresponds to 'Year 1'. The years 2008–2018 are in the data description denominated as 'Year -3' to 'Year 7', i.e. the three full years before the free trade agreement entered into force and the seven years with the free trade agreement in force. Additional data on most favoured nation (MFN) and preferential tariffs have been obtained from the European Commission's Directorate General for Trade.

1 A customs ID is a number covering all products shipped from one exporter to one importer in a single consignment.

2 Information on foreign registered firms, other Swedish firm entities and private imports are, accordingly, not included in the analysis.

3 The Swedish SNI (svensk näringsgrensindelning) codes are a statistical standard for industry classification based on the EU's recommended standards, NACE Rev. 2 (Nomenclature statistique des activités économiques dans la Communauté européenne).

4 SPIN (standard för svensk produktindelning efter näringsgren) is a statistical standard for classification of products (and services) by origin in production and is approved by the EU according to the Classification of Products by Activity (CPA) Regulation (EC) No 451/200, which is the corresponding EU classification.

3.2 Definitions

Import modes

Firms may use different import modes. *Direct imports* is probably the most well-known mode and means that imports pass customs clearance and enter into free circulation directly upon their arrival in an EU member state. For direct imports, the value of the import transaction is known.

Customs warehousing is another commonly used mode of imports where goods are stored in premises authorized by the customs authorities (so-called 'customs warehouses') upon their arrival in the destination country (EU member state). The products are under customs supervision and will not be subject to import duties or other charges related to the imports during the time they remain in the customs warehouse. It is not until the item is removed from the customs warehouse that the actual import is registered, and the tariff preference might be utilized or not.

This means that the customs data related to customs warehousing refer to the warehouse extraction value rather than the underlying import transaction value.

Import transactions versus consignments

In this report, an import transaction is defined as the import of a specific product (at 10-digit Taric level) from a specific exporter at a given day in time. Firms may, however, import several different products fromW the same exporters at the same moment in time (here referred to as a 'consignment', which is identified by a unique customs ID). A consignment may, accordingly, include various separate import transactions (products).

Firm size

In this study we apply the EU's definition of firm size – micro, small, medium-sized and large – which is based on the number of employees and the turnover or balance sheet total. As firms develop over time, due to changes in number of employees and turnover, they may switch category once or several times over the period of observation. For a detailed review of firm size definitions, see European Commission (2003).

Preference savings rate versus preference utilization rate

Both the preference savings rate (PSR) and the preference utilization rate (PUR) aim to define to what degree firms utilize tariff preferences. The preference utilization rate is defined as the value of preferential imports (i.e. import values where tariff preferences are utilized) as a share of preference eligible import value. The preference savings rate on the other hand is defined as the value of duty savings from utilizing tariff preferences on preferential imports as a share of the potential duty savings (i.e. the possible duty savings on all preference eligible imports).[5] In this report, we use the preference savings rate as the main measure of firms' utilization of tariff preferences. The preference savings rate is constructed by using the value of imports and the preference margin, while the preference utilization rate only considers the value of imports.[6]

5 The concept 'preference savings rate' was introduced as a new concept in Kasteng and Inama (2018) and used in Kasteng et al. (2021). It is sometimes also referred to as 'duty savings rate'.

6 The traditionally used measure, the preference utilization rate (PUR), omits the size of the tariff and/or preference margin, which differs among products and only considers the value of preferential imports as a share of all preference eligible imports. In other words, the preference utilization rate implicitly considers tariffs on all products to be the same. Normally, the preference savings rate and the preference utilization rate differ by some percentage points.

4. Descriptive analysis

4.1 Learning-over-time

The main purpose of a free trade agreement is to reduce tariffs and other barriers to trade with the aim of increasing trade and welfare. Trade can increase in two ways. Trade can either increase due to increased trade by existing importers and exporters (the so-called 'intensive margin') or due to the entry of new traders (the so-called 'extensive margin'). The utilization of a tariff preference is associated with learning costs, hence there are reasons to compare preference utilization across existing and new importers and what happens over time.

With this as a background, we will below describe the Swedish firms engaged in imports from South Korea, and how their preference utilization has changed over time. The description is to some extent focused on direct imports since information about the value of the underlying import transactions are not available for customs warehousing. Imports at zero MFN tariffs are not included since they are not relevant for the analysis of preference utilization.

4.1.1 Import values and the preference saving rate over time

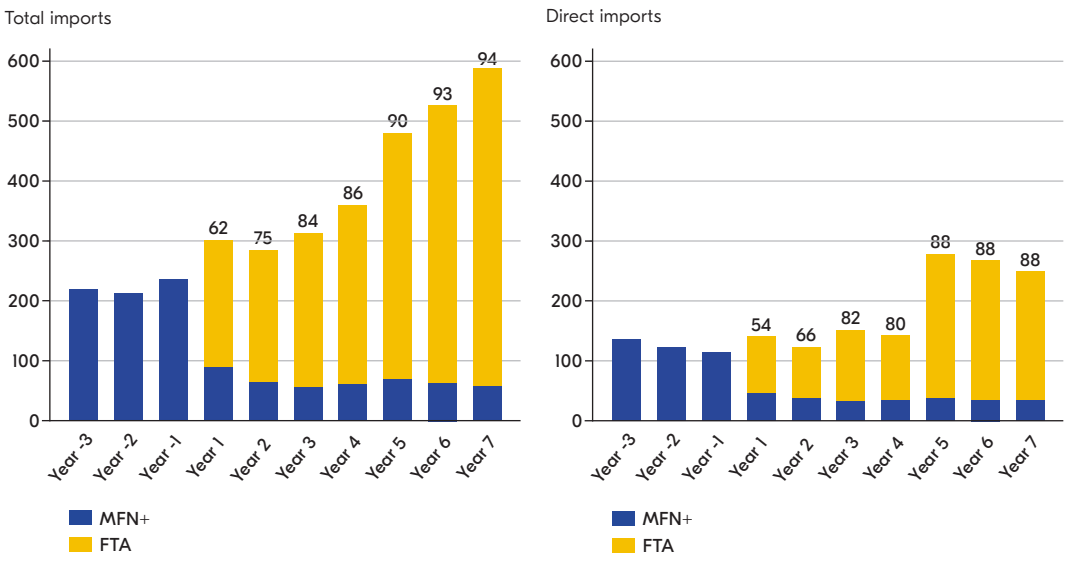
Figure 1 shows how the value of Swedish imports from South Korea and the preference savings for three years prior to the entry into force of the free trade agreement (Year -3) until seven years into the agreement (Year 7). As seen in Figure 1, total values seem to take off about four years after the provisional implementation of the free trade agreement in 2011 (Year 1), suggesting that it may take three years or more for importers to start responding strongly to the free trade agreement. For direct imports, there is a relatively sharp increase in imports five years into the free trade agreement, which is likely to be explained by legal changes leading to a shift from customs warehousing to direct imports.[7]

From Figure 1 it is also shown that preference utilization does not necessarily start off from a very low level, since most imports are preferential imports already from the first year (Year 1). This pattern holds for both total and direct imports. In addition, the share of imports utilizing the tariff preferences increases over time. The preference savings rate for total imports exceeded 80 per cent the third year and levelled out with a preference savings rate at slightly above 90 per cent in the sixth and seventh years of the free trade agreement (2017–18). The development for direct imports is similar. This pattern suggests a learning curve where it takes about three to five years for preference utilization to reach a level where it stabilizes. [8]

7 Legislative changes made customs warehousing less favourable, which led many firms to shift from customs warehousing to direct imports.

8 This observation includes all firms taking part in imports at a given moment in time.

Figure 1. Import values and preference savings rates from South Korea to Sweden over time



Note: Bars are marked with the preference savings rates (in per cent).

Source: Swedish Customs, European Commission and own calculations.

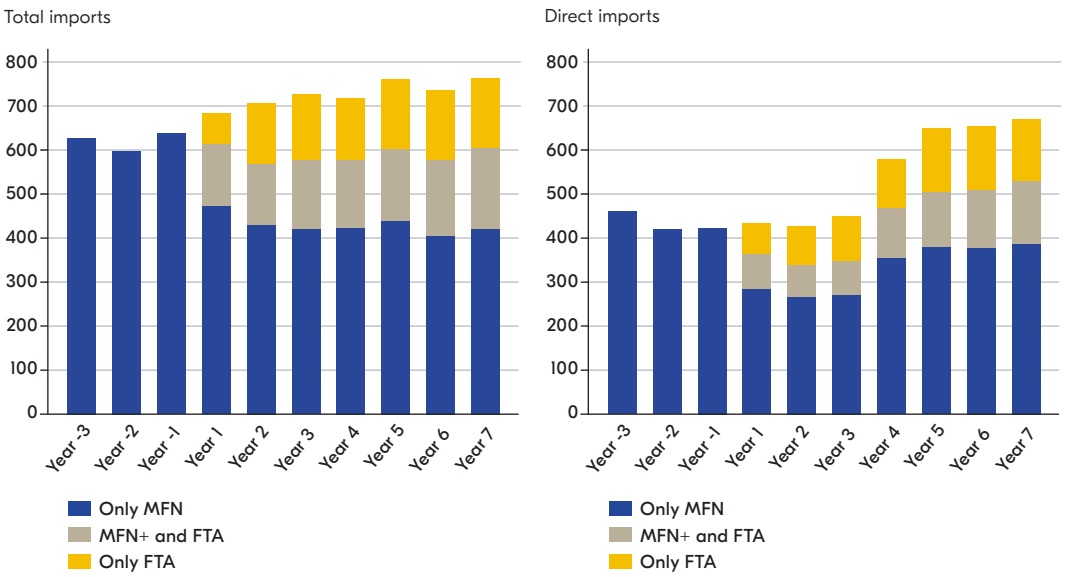
4.1.2 Number of importing firms over time

The first thing to study is to see what happens with the number of importing firms when the free trade agreement becomes provisionally applied. As seen in Figure 2, the number of firms engaged in total imports from South Korea were about 620 firms per year during the three years before the free trade agreement entered into force, a number that increased to about 750 firms per year after seven years. This corresponds to an increase in the number of importing firms of about 20 per cent. At the same time the value of imports more than doubled during this period, suggesting that both the number of importers and the value of imports per firm increased after the establishment of the free trade agreement. A similar pattern can be seen if we look only at firms engaged in direct imports. Comparing the number of direct importers one year before the agreement entered into force (Year -1) with the corresponding number eight years later (Year 7), the number of firms engaged in direct imports increased by 50 per cent.[9] The value of direct imports more than doubled over the same period.

A second notable observation is that the number of firms utilizing tariff preferences for all their imports from South Korea increases over time (grey area of bars in Figure 2). At the same time, the number of non-users decreases (blue area). There is also an increasing number of firms that sometimes utilize, and sometimes do not utilize the tariff preferences (orange area). Combining this observation with the information from Figure 1 on import values suggests that the relatively high number of importers that do not utilize tariff preferences represent only a small share of total imports. It is therefore reasonable to assume that it is mainly marginal importers that do not utilize tariff preferences.

9 The sharp increase in direct imports (Year 5) is also partly due to a legislative change that made it less beneficial for firms to use customs warehousing, accordingly producing a shift in import modes from customs warehousing to direct imports.

Figure 2. Number of importing firms by mode of import from South Korea to Sweden over time

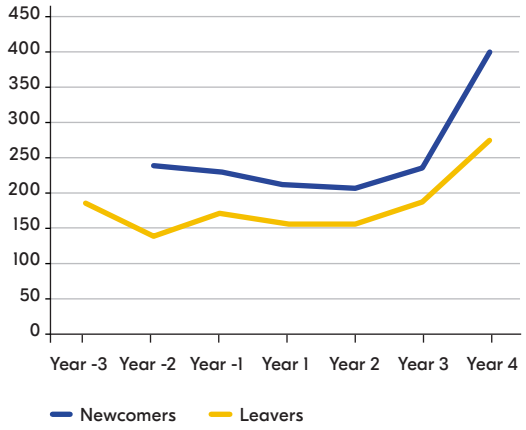


Source: Swedish Customs, European Commission and own calculations.

4.1.3 Firms and trade flow survival over time

There is a high turnover of firms involved in direct imports from South Korea. Examining the period before the free trade agreement entered into force (Year -3 to Year -1), about 240 firms started importing each year while about 170 firms stopped importing (Figure 3). Three to four years into the free trade agreement, the number of both entries and exits increased notably. The number of entrants increased from about 200 to 400, and the number of exits grew from about 150 to 270 between Year 2 and Year 4.

Figure 3. Number of newcomers and leavers ("firm survival") in direct imports from South Korea to Sweden over time

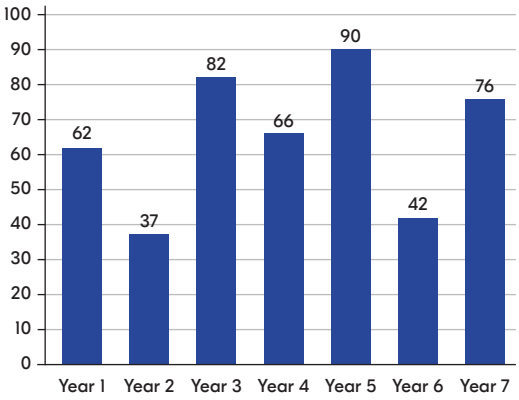


Source: Swedish Customs, European Commission and own calculations.

A concept related to the entry and exit of firms is trade flow survival. Before the free trade agreement entered into force, the one-year survival rate of new trade flows was about 60 per cent. During the first years of the free trade agreement, the one-year survival rate of trade flows fell to 56 per cent and reached 43 per cent seven years into the free trade agreement.

These numbers are broadly in line with the findings of Söderlund and Tingvall (2013), who showed that about 50 per cent of all new firm-country export flows survive one year only, and that after six years, only 15 per cent of the original new trade flows are still active. This micro-level turbulence is often explained by search/matching models where buyers are scanning the market for matching suppliers. That is, firms engage in trade with various suppliers trying to find a trading partner with whom a long-term relationship can be established. One potential explanation for the decrease in trade survival rate over time may therefore be that small and less experienced firms enter into trade searching for appropriate suppliers.

Figure 4. Preference savings rates by firms importing to Sweden from South Korea during their first year as importer over time



Source: Swedish Customs, European Commission and own calculations.

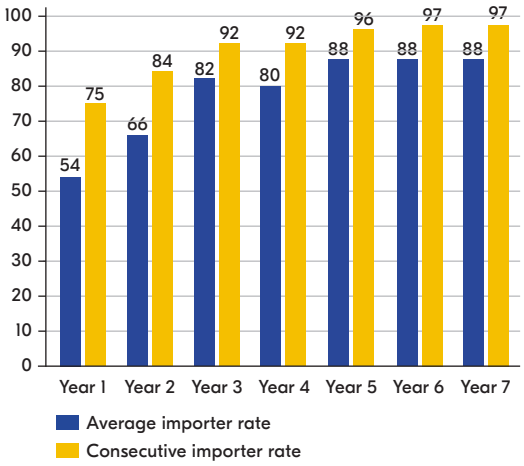
As the free trade agreement gradually becomes mature, it is relevant to ask whether the preference savings rate of newcomers increases. It could be hypothesized that firms learn to utilize tariff preferences as the free trade agreement becomes more well known among market participants, so that the preference saving rate among newcomers should increase over time. However, from Figure 4 it is not apparent that firms starting to utilize tariff preferences at a later date necessarily record higher preference savings rates than early entrants. This could indicate that own experiential learning may matter more than the experiences of other firms and publicly available information about the free trade agreement. It is also possible that many of the newcomers only intended to make one or a few ad hoc import transactions and did not intend to invest in learning to utilize the tariff preferences.

4.1.4 Consecutive importers over time

In order to analyse the preference utilization for firms that appear continuously in the data set, we have identified so called 'consecutive importers'. Consecutive importers are defined as firms that have made at least one import transaction per year during the period of observation (including the years before the free trade agreement entered into force). These continuous importers are interesting to study for at least two reasons. First, despite their small number, they represent a relatively large share of direct imports. Secondly, following a homogenous sample over time allows us to avoid compositional changes caused by sporadic importers. Learning and behavioural changes in preference utilization therefore become easier to detect when following these firms separately.

The share of consecutive importers in the total value of imports from South Korea decreased from about 40 per cent in Year -3 to about 30 per cent in Year 7. Their share as the number of importers fell from about 20 to 10 per cent over the same period. Hence, the consecutive importers are relatively few but account for a relatively large share of total import value. Their annual import value has remained fairly constant over time, which means that the overall increase in import values can mainly be attributed to newcomers and irregular importers.

Figure 5. Average preference savings rates at total level and for consecutive importers in Swedish imports from South Korea over time



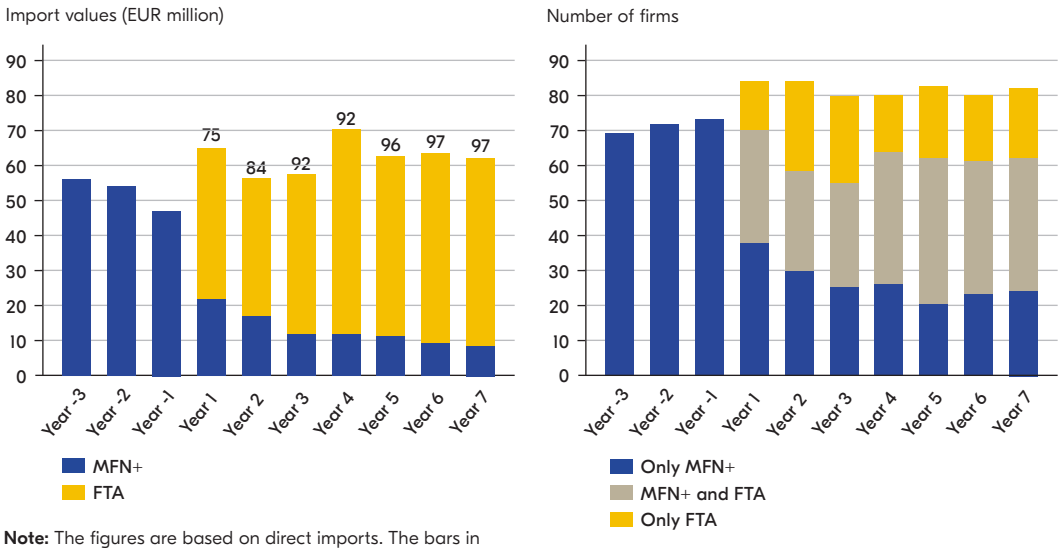
Source: Swedish Customs, European Commission and own calculations.

Figure 5 displays the preference saving rates for consecutive importers and all importers over the period under study. Two observations seem to distinguish the consecutive importers from other firms. First, their preference savings rate reached 75 per cent already during the first year of the free trade agreement, and it stabilized at a level well above 90 per cent after only three years. This pattern applies for consecutive importers of all size categories.

This suggests that the consecutive importers quickly learn to become efficient users of tariff preferences and will make almost full use of the tariff preferences after only three to five years into the agreement. Consequently, the fact that the preference utilization rates at aggregate level are lower than the corresponding numbers recorded by consecutive importers is likely to be explained by the continuous entry and exit of less experienced firms.[10] This observation also suggests that there is a learning-over-time and/or a learning-by-doing process involved in preference utilization.

10 This analysis suggests that the preference savings rates would be more representative if only firms in their third year as active importers are included instead of including newcomers for each year.

Figure 6. Import values, preference savings rates and number of consecutive importers in Swedish imports from South Korea over time



Note: The figures are based on direct imports. The bars in the left panel are marked with the preference savings rates (in per cent).

Source: Swedish Customs, European Commission and own calculations.

As shown by Kasteng et al. (2021), and Figure 6 above, a large share of firms never utilizes tariff preferences in their import transactions. From Figure 2, it can be seen that about 60 per cent of the importers belongs to this 'non-user' category. Figure 6 shows that about 25 per cent of the consecutive importers, which on average have a very high preference saving rate, choose not to utilize the tariff preferences. This indicates that the non-users, in terms of value, are marginal importers.

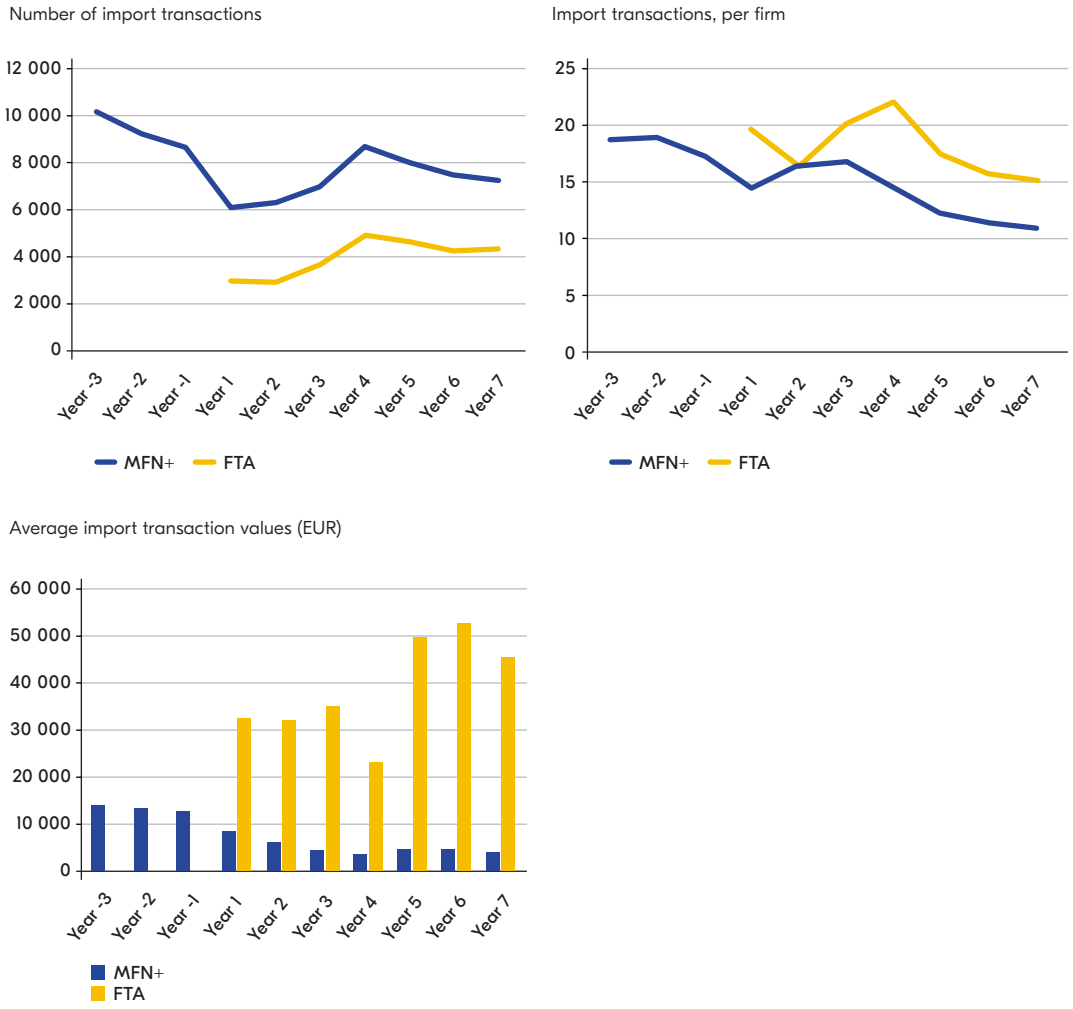
4.2 Learning-by-doing

When dealing with learning-by-doing processes, it is natural to turn to the individual import transaction as the unit of analysis. If we consider the execution of an import transaction as an opportunity for learning, both the number of import transactions and the length of time during which the firm has been an active importer can be thought of as proxies for experiential learning. This section explores how the number of import transactions undertaken by the firm, and its time active as an importer are related to preference utilization.

4.2.1 Number of import transactions and transaction values over time

Figure 7 shows that the number of annual import transactions (MFN+ and preferential import transactions taken together) increased from about 9,200 before the entry into force of the free trade agreement to about 9,600 in the first two years of the free trade agreement, and further to about 12,200 import transactions towards the end of the period under study. During the first years of the free trade agreement, the number of import transactions not utilizing the tariff preferences was more than twice as large as the number of import transactions where tariff preferences were utilized. The number of import transactions utilizing the tariff preferences increased during the first years of the free trade agreement to level out after about four years. One way to think about this is that it took about four years for the EU–South Korea FTA to mature in terms of preference utilization.

Figure 7. Number of import transactions and transaction values by tariff mode in Swedish imports from South Korea over time



Note: Figures are based on direct imports.

Source: Swedish Customs, European Commission and own calculations.

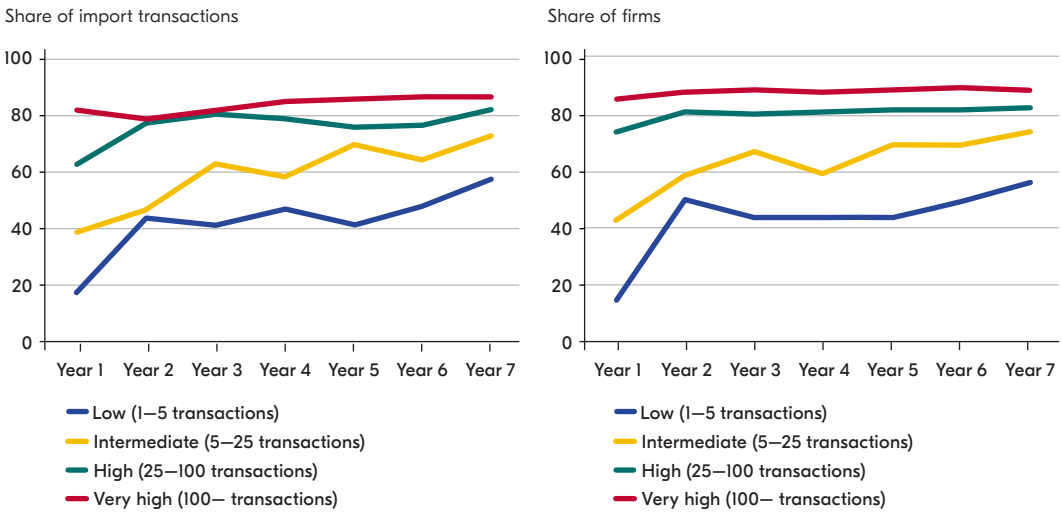
A second observation from Figure 7 is that the number of import transactions per firm undertaken by firms utilizing the tariff preferences is slightly higher than the number of import transactions carried out by firms not utilizing the tariff preferences. It can also be noted that the average number of import transactions per firm seems to decline four years into the free trade agreement. One possible explanation behind the decline in the number of import transactions per firm may be that new firms enter into trade and that these new traders carry out fewer import transactions than experienced firms. In such cases this might indicate a firm composition effect rather than an import transaction effect.

The third panel of Figure 7 shows that the average import transaction values are about eight times higher for import transactions utilizing the tariff preferences than for import transactions not utilizing these preferences. Over time, there is a fall in the average value of the import transactions not utilizing tariff preferences. This indicates that the threshold value where firms prefer to utilize tariff preferences is falling, which is in line with the hypothesis that learning effects will make preference utilization trickle down to lower value import transactions. There is also an increasing gap in the size of import transactions utilizing and not utilizing tariff preferences, supporting the assertion that import transactions not utilizing tariff preferences are, on average, low value transactions.

4.2.2 Import transaction frequency and preference savings rates over time

The analysis of import transaction frequency aims to differentiate between firms making a few import transactions and firms carrying out a large number of import transactions during the 10-year period. This distinction is useful in order to examine the learning effects of repeated import transactions. For this purpose, firms are categorized into four groups according to the total number of import transactions during the time period: Low (1–5 transactions); Intermediate (5–25 transactions); High (25–100 transactions); and Very High (+100 transactions). This grouping gives us about 220 firms in each category.

Figure 8. Import transactions where tariff preferences are utilized as a share of all import transactions per transaction group (in per cent)



Note: The notation low to high denotes the average number of import transactions undertaken by firms in each category.

Source: Swedish Customs, European Commission and own calculations.

Figure 8 (left) shows the share of the import transactions where tariff preferences are utilized for the four transaction frequency categories. Figure 8 (right) shows the share of firms in each transaction frequency category that are utilizing tariff preferences. Three observations can be derived:

- There is an increase in the utilization of tariff preferences over time. The share of import transactions where tariff preferences are utilized increases for all four categories of firms. Hence, we have descriptive support for the hypothesis that learning by making repeated import transactions occurs for sporadic importers as well as for those undertaking many import transactions.
- At the same time, it is apparent in the ranking of firms that those undertaking many import transactions consistently are more likely to utilize tariff preferences compared to those with few import transactions. It is also seen that the likelihood that firms utilize tariff preferences increases both by import transaction frequency and over time. This is an indication of learning and adaptation leading to higher utilization of the free trade agreement related to cumulative experience.

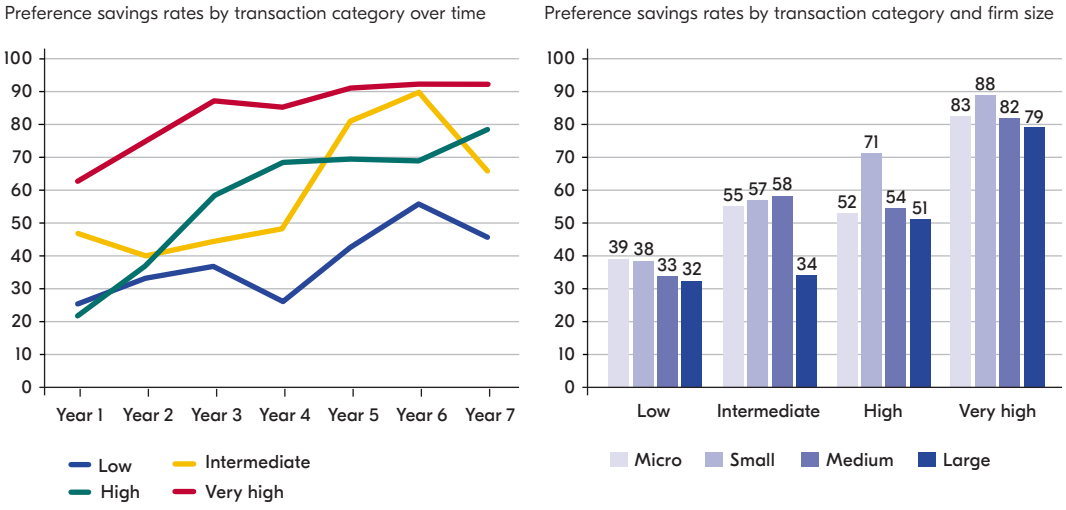
- The third feature is that over time there is a tendency of a convergence across the import transaction groups, both when it comes to firms with many and only a few import transactions. This holds both for the categories of import transactions and for firms.

Figure 9 takes us to the relation between the preference savings rates and the number of years a firm has been active as an importer for the four groups of firms defined by import transaction frequency.

The left panel in Figure 9 confirms the results from Figure 6, that the preference savings rate tends to increase over time. This holds true for all four groups of firms. In addition, there is a pattern where firms making many import transactions consistently have a higher preference savings rate than firms making fewer import transactions. Hence, Figure 9 supports the hypothesis that there is learning over time, as well as learning linked to the number of repeated import transactions. These two features will be further scrutinized in the forthcoming econometric analysis.

As a final exploration, the right-hand panel of Figure 9 shows how learning varies across firms of different sizes. It is apparent that the level of the preference savings rate is more related to the number of repeated import transactions in the firm groups than the size of the firms. Hence, firm size does not seem to be closely related to preference utilization. This result is in line with Kasteng et al. (2021), who showed that there are only minor differences in preference utilization across micro, small, medium-sized and large firms.

Figure 9. Preference savings rates by transaction frequency over time and by firm size (in per cent)



Note: The notation low to high denotes the number of transactions undertaken in each category. Micro to large denotes firm size.

Source: Swedish Customs, European Commission, UC, and own calculations.

5. Econometric analysis

When importing within the scope of a free trade agreement, for each import transaction, firms face a choice between utilizing the tariff preferences or paying the MFN duty. The descriptive analysis showed, for example, that non-utilization of tariff preferences seems to be concentrated on low-value import transactions and that there are indications of learning effects, either linked to the number of years of experience or to the number of import transactions undertaken by the firm. The econometric analysis allows us to analyse whether these observations reflect a robust relationship or whether there are confounding factors driving these observations. To analyse the dichotomous choice of either utilizing or not utilizing the tariff preference, a logit regression model is applied. The estimation model takes the following form:

$$ln\left(\frac{p_{ijkt}}{1-p_{ijkt}}\right) = \boldsymbol{X}_{ijkt}\beta + \mu_k + \gamma_t + \varepsilon_{ijkt} \qquad \text{(i)}$$

where P_{ijkt} is the probability that the tariff preference is being utilized in import transaction I, performed by firm j, in industry k, at time t. $\boldsymbol{X}_{ijkt}$ is a set of variables that affect firms' decisions to utilize the tariff preference (see the description below). μ_k and and γ_t are industry and time fixed effects and ε_{ijkt} is the error term.

The structure of the data set, where several firm-level transactions may take place in one day, does not allow for a traditional ID-time identification. Hence, the data are not naturally aligned toward a panel data set-up. However, in the Appendix, we create a set of artificial panel structures to explore potential panel data approaches and the robustness of the results. It is also worth noting that the analysis covers the two most frequently used modes of import – direct imports and customs warehousing. Lastly, only import transactions with MFN duties presented as *ad valorem* tariffs are considered.

In the analysis of preference utilization, there is a strand of research exploring threshold values for preference utilization by applying a knot/threshold analysis (Keck and Lendle, 2012 and Albert and Nilsson, 2016).[11] However, we do not aim to estimate threshold values. One reason for not focusing on a knot-analysis is the finding from Kasteng et al. (2021), who used transaction level data to show that the empirical distribution of preference utilization reflects a continuous increase with the import transaction value, rather than a well-defined cut-off point.

The analysis covers firms engaged in trade while the selection into trade is not modelled. The estimations are presented as odds ratios. The usage of odds rations means that an estimated coefficient greater than one indicates increased probability of utilizing the tariff preferences (a positive relation) and a value less than one indicates a reduced probability of utilizing the tariff preferences. Standard errors are clustered at the firm level.

11 A threshold analysis is motivated when the utilization of the tariff preferences is in the form of a fixed cost, which in turn due to scale effects suggests a large firm advantage in preference utilization.

5.1 Firm and import transaction characteristics

Table 1 presents a set of baseline results where we stepwise add variables to the model. Column 1 is a model with firm characteristics and dummy variables (*turnover, capital intensity, profits, productivity, period-, and industry fixed effects*) estimated over all import transactions. In column 2, we add import transaction characteristics (*potential duty savings and a warehousing dummy*), a dummy variable for *multinational firms*, a measure of import diversification measured as the number of unique exporters the importing firm is sourcing from (*#sources*), and lastly *the import product diversification*, defined as the number of different products (defined at HS4-digit level) imported.[12] In columns 3–4, and 5–6, we separate between direct imports (DIs) and customs warehousing (CW). In columns 5–6, we finally split the potential duty savings into its components, the import transaction value and the preference margin. As seen in Table 1, there are more customs warehousing 'withdrawal transactions' than direct import transactions.

5.1.1 Firm characteristics

Firm size

It is commonly assumed that large firms are better equipped than small firms at handling the costs associated with the utilization of tariff preferences (Albert and Nilsson, 2016). One reason is that the fixed costs associated with preference utilization are less of a burden for large firms, which are able to distribute them over larger sale values. However, the results in Table 1 suggest that firm size (measured as turnover) seems to be unrelated to preference utilization.

In Figure 10, we take a closer look at the relevance of firm size by comparing preference utilization across different firm size classes using micro firms as our reference group. The results in Figure 10 suggest that the estimated 95 per cent confidence band does not cross the zero line for any size class, indicating that there is no significant difference in preference utilization across firm-size classes.[13] This holds true both for direct imports and customs warehousing. This result is in line with findings of Kasteng et al. (2021) who, using a small subsample of the current data set, analysed preference utilization among firms belonging to different size classes.

One reason for the insignificance of firm size for preference utilization may be that the selection into trade is the decisive threshold. That is, once firms have overcome the costs of engaging in international trade, the cost of utilizing tariff preferences may be relatively small. In that case, no significant differences in preference utilization across size classes should be expected. This relationship may be particularly true for distant markets where the barriers to trade, such as language, transportation time, time zone differences, and institutions are relatively large. With this as a background, firm size is not further considered in the subsequent analysis.

12 The HS4-digit level is chosen because many rules of origin are defined at that level of aggregation.
13 The results in Figure 10 are based on estimations 3–4 in Table 1, with the firm size variable replaced with firm-size group dummies.

Table 1: Preference utilization. Logit models, odds ratio.

	All [(A)] (1)	All (2)	DI (3)	CW (4)	DI (5)	CW (6)
ln(turnover)$_{jt}$	0.973	0.975	0.864***	1.017	0.863***	0.990
	(0.0771)	(0.0994)	(0.0432)	(0.167)	(0.0431)	(0.148)
ln(K/L)$_{jt}$	2.060***	1.929**	0.826	2.259**	0.828	2.104*
	(0.547)	(0.507)	(0.147)	(0.926)	(0.148)	(0.833)
(profit)$_{jt}$	1.000	1.000	1.000**	1.000	1.000**	1.000
	(3.93e-08)	(4.74e-08)	(1.89e-08)	(1.95e-07)	(1.96e-08)	(1.87e-07)
ln(productivity)$_{jt}$	0.864	0.919	1.754***	0.641	1.757***	0.736
	(0.270)	(0.279)	(0.316)	(0.343)	(0.321)	(0.333)
ln(#sources)$_{jt}$		1.162	1.262*	1.003	1.283*	1.006
		(0.138)	(0.164)	(0.165)	(0.169)	(0.167)
ln(#product groups)$_{ijt}$		0.985	1.180	0.944	1.161	0.942
		(0.113)	(0.126)	(0.165)	(0.123)	(0.159)
(MNE)$_{jt}$		1.180	1.204	1.847	1.122	2.092
		(0.356)	(0.286)	(0.918)	(0.255)	(1.026)
(intra-MNE)$_{jt}$		0.929	0.518**	4.980*	0.571*	4.179*
		(0.398)	(0.153)	(4.243)	(0.168)	(3.328)
(warehousing)$_{jt}$		2.806***				
		(0.744)				
ln(savings)$_{hijt}$		0.640***	0.672***	0.843		
		(0.109)	(0.0771)	(0.223)		
ln(savings)$^2_{hijt}$		1.038***	1.040***	1.019		
		(0.00879)	(0.00616)	(0.0140)		
(margin)$_{hijt}$					1.020	0.728
					(0.113)	(0.178)
ln(value)$_{hijt}$					0.683***	0.863
					(0.0780)	(0.196)
[*ln*(value)·(margin)]$_{hijt}$					1.027***	1.002
					(0.00913)	(0.0125)
(margin)$^2_{hijt}$					0.978***	1.030
					(0.00688)	(0.0193)
ln(value)$^2_{hijt}$					1.039***	1.021*
					(0.00677)	(0.0117)
Observations	332,263	312,991	82,308	226,979	82,308	226,979

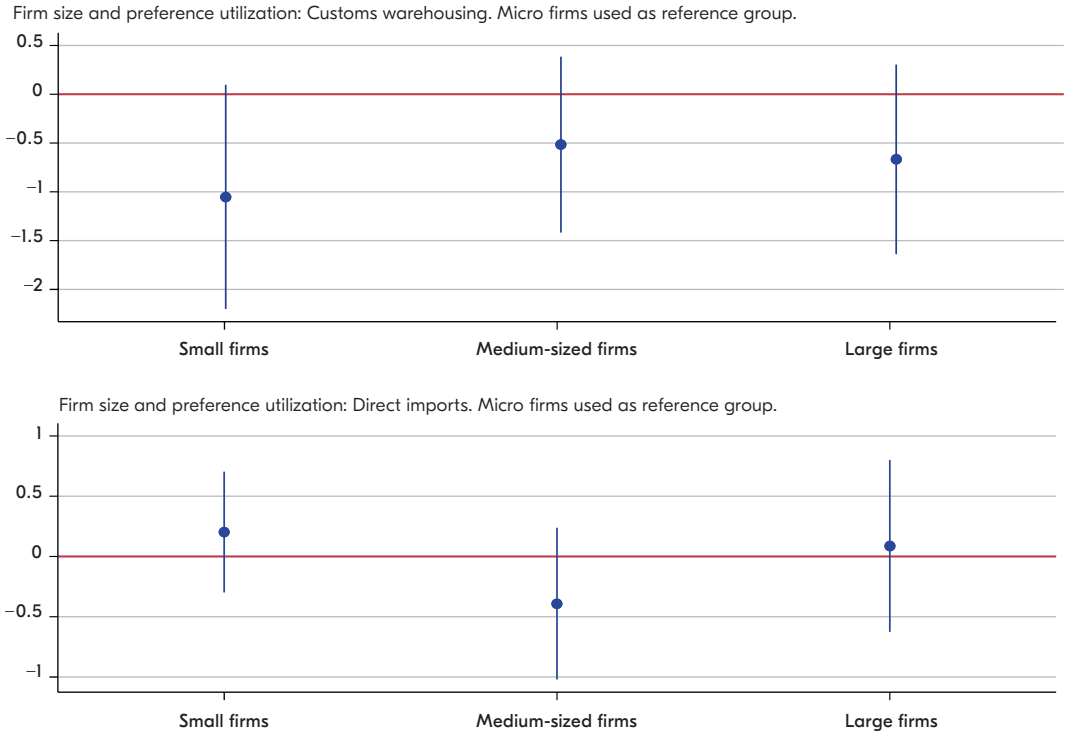
Notes: ***, *,* indicate significance at the 10, 5 and 1 percent level respectively.

[(A)]The term 'All' refers to regressions using all transactions (direct imports and customs warehousing); DI and CW refer to the analyses on direct imports and customs warehousing separately.

Robust standard errors clustered at the firm level within parentheses (.).

Fixed effects at the HS2-digit (or Chapter) level and each half year included in all regressions.

Figure 10. Firm size and preference utilization.



Note: Based on full model (Table 1 models 3–4).
If the estimated 95 percent confidence band for a given size class crosses the (red) zero-line, preference utilization of that size category is not significantly different (higher or lower) from the reference group (micro firms).

Source: Swedish Customs, European Commission, UC, and own calculations.

Profitability, productivity and capital intensity

Non-utilization of tariff preferences is associated with a lost opportunity to make duty savings. Hence, all things being equal, we expect a low profitability to be associated with low preference utilization. It is also reasonable to assume that productive firms are efficient utilizers of tariff preferences. How the capital intensity is related to preference utilization is to some extent an empirical question.

Looking at Table 1 and *profits*, the estimated coefficient is mostly insignificant and very close to unity in all models, suggesting that preference utilization has little to do with profits.

For direct imports, the results suggest a positive and significant relation between preference utilization and *productivity*. Specifically, the results in models 3 and 5 suggest that a one-per cent increase in productivity raises the odds that preferences will be used by approximately 0.6 per cent.[14] Hence, more productive firms could be expected to be relatively frequent utilizers of tariff preferences in their direct import operations. For *capital-intensive* firms, we find a significantly higher likelihood that tariff preferences will be utilized. However, this latter result is entirely driven by customs warehousing – for direct imports, there is no significant relationship between capital intensity and preference utilization.

14 The calculated effect of a one per cent increase in productivity is calculated according to the following formula $e^{\ln(1.75)*\ln(1.01)}$, where 1.01 is the relative change in productivity and 1.75 is the estimated odds ratio.

Import diversification

Both the policy debate and the literature on preference utilizations suggest that rules of origin are associated with a fixed cost (Albert and Nilsson 2016; Keck and Lendl, 2012; Nilsson and Dotter, 2012). Moreover, managing many products, with different rules of origin, sourced from several different exporters requires a greater effort than just handling one product from one exporter. A question that therefore becomes valid is whether having imports limited to a small set of suppliers and/or products is beneficial or detrimental for preference utilization among importers?

When considering the number of suppliers, it can be assumed that having many business relations can be beneficial for preference utilization in that it opens up the possibility of learning different things from different exporters. That is, given that each exporter contributes with its own piece of knowledge, sourcing goods from many exporters can increase the capacity of the importing firm to utilize tariff preferences.

With this as a background, we add the number of business relations with South Korean exporters (*#exporters*) and the number of product groups imported (*#product groups*) to the model. The number of product groups is defined as the number of different HS 4-digit codes, since most product-specific rules of origin are defined at that level. The result for the number of product groups appears clear. Table 1 shows that there is no significant impact of the number of different product groups (*#product groups*) on preference utilization. This may indicate that different rules of origin are not a major obstacle to preference utilization. This finding has also been confirmed by firm surveys on preference utilization (Decoster, 2021, and Kasteng and Almufti, 2021), which indicate that about 70 per cent and 80–90 per cent of exporters, respectively, do not consider rules of origin as cumbersome.[15]

When it comes to the number of business relations (*#sources*), the results in Table 1 suggests that for the direct import operations, importing goods from a large set of exporters is positively related with preference utilization. The estimated odds ratio of 1.28 suggests that doubling the number of suppliers in the foreign market raises the chance that the tariff preferences will be utilized by 89 per cent.[16]

Intra-firm trade

Nearly two-thirds of the import transactions in our data are undertaken by firms that are part of a company group. This means that some import transactions stem from firms located in South Korea that are part of the same company group (i.e. intra-firm import transactions). Our data do not give any precise identification of imports that are bought from firms within the company group. However, since we have access to the names of the importing and exporting firms, we are therefore able to match firm names in order to construct a proxy for intra-firm imports. Since the matching is based on the similarity in firm name, it is likely that we underestimate the extent of intra-firm trade. Hence, intra-firm trade is well defined whereas the remaining (non-intra firm) transaction may still contain some intra-firm transactions.

15 The exporters supply the declaration of rules of origin to the importer, this documentation is then used by the importer for preference utilization.

16 $e^{\ln(1.28)*\ln(2)}$.

The results in Table 1 suggest that the preference utilization in intra-firm trade differs between warehousing and direct import transactions. For customs warehousing, there is a strong positive impact on intra-firm trade on the likelihood that tariff preferences will be utilized. The estimated coefficient for the *intra-firm* variable shows values well above unity. The estimated odds ratio suggests that there is a 4.2–5 times higher probability that tariff preferences will be utilized when the import mode is customs warehousing and the import transactions take place between related parties. For direct imports, we find the opposite. It is significantly less likely that tariff preferences will be utilized when firms carry out direct imports from related firms (intra-firm trade) than from unrelated firms. Hence, for intra-firm transactions, the degree of preference utilization is highly dependent on the mode of import (direct imports or customs warehousing). A closer analysis on why intra-firm decisions differ between direct imports and customs warehousing operations is left for future research.

5.1.2 Import transaction characteristics

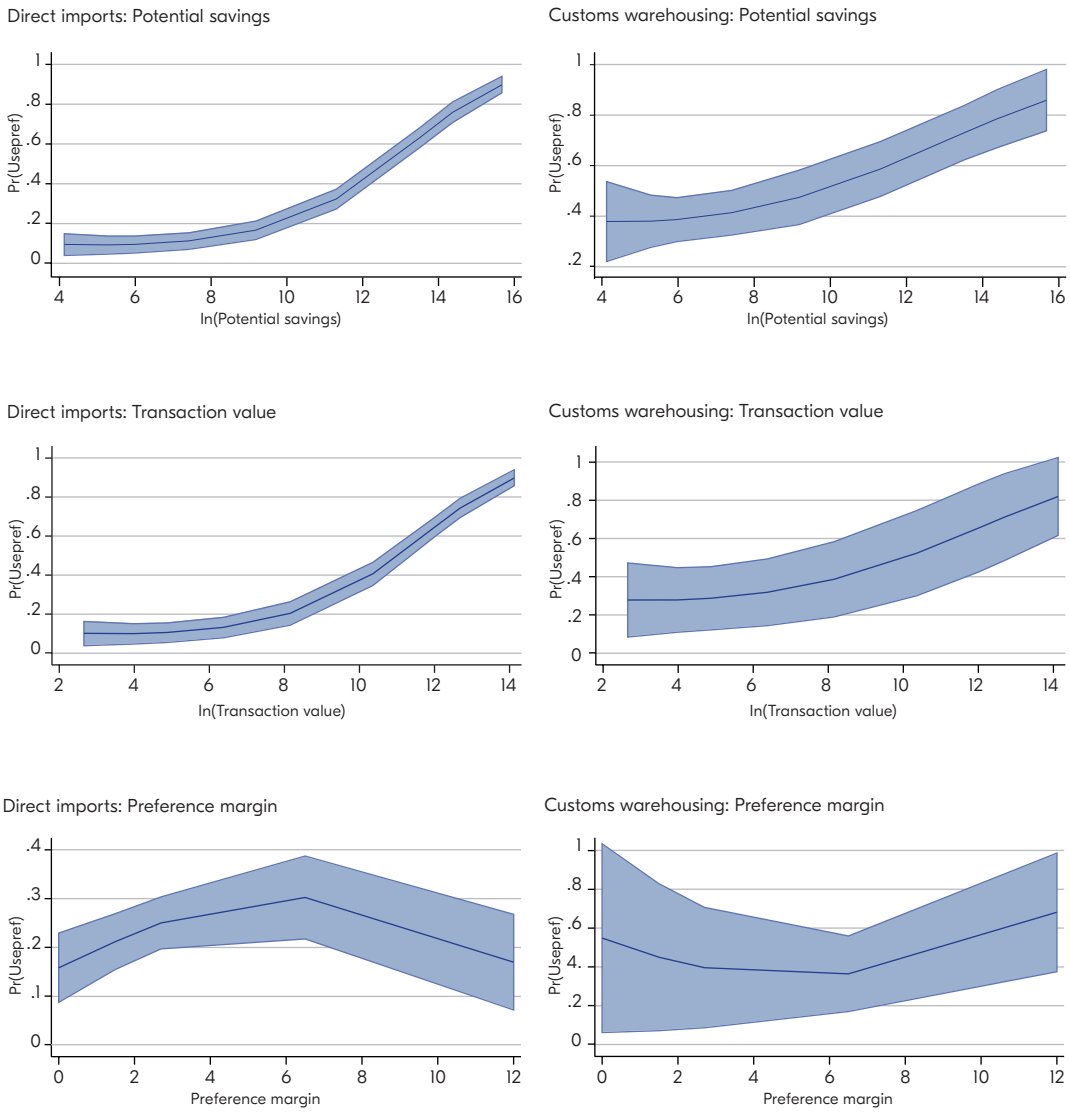
Using a sample consisting of all Swedish import transactions from South Korea for November 2016, Kasteng et al. (2021) analysed the impact of the import transaction value, the preference margin, and the potential duty savings on preference utilization. The data was a subsample of the data used in this report. The results obtained here are very similar to those of Kasteng et al. (2021), therefore the presentation of these results is brief. The results regarding the *impact of the import transaction value*, the *preference margin* and the *potential duty savings* are depicted in Figure 11.

Major takeaways from Figure 11 are that preference utilization increases as we move from small to large potential duty savings, from small to large import transactions, and that the preference margin is of minor importance for preference utilization. This pattern holds for both direct imports and customs warehousing.

Specifically, in Figure 11, we see that the predicted probability of utilizing tariff preferences in direct imports increases from approximately 8 per cent to almost 90 per cent when the potential duty savings go from the lowest to the highest observed value (holding other variables constant). For customs warehousing, the corresponding increase in the probability that tariff preferences are utilized is from approximately 35 per cent to almost 90 per cent. Hence, larger monetary values are positively related to the likelihood that tariff preferences will be utilized.

Figure 11. Potential duty savings, preference margins and import transaction values.

Predicted probability of utilising tariff preferences, 95% CIs



Note: Based on estimation 3 (for direct import) and estimation 4 (for customs warehousing), in Table 1.

Source: Swedish Customs, European Commission and own calculations.

When a free trade agreement enters into force, preferential tariffs are reduced, creating a wedge between the MFN tariff and the preferential tariff, here labelled the 'preference margin'. This margin is considered instrumental for firms' incentives to claim the tariff preference. Figure 11 also depicts how preference utilization varies with the preference margin. In line with Kasteng et al. (2021), a relatively low response on preference utilization is observed. Even though the preference margin does not appear to have a strong impact on preference utilization, it is important to note that the result does not suggest that the preference margin is irrelevant for preference utilization. Without a positive preference margin there are no duty savings to be made from utilizing the tariff preferences.

5.2 Learning and preference utilization

In our data set, we have import transactions from three years before the free trade agreement entered into force until seven years afterwards. This allows us to analyse the evolution of preference utilization from the early days of the free trade agreement and onwards. In the analysis of learning patterns, we below focus on two aspects that can be supposed to influence the likelihood of preference utilization. These are:

I. the total amount of time a firm has been active as an importer and

II. the accumulated number of import transactions undertaken by a firm during a given period of time.

In the descriptive analysis, it was found that preferences utilization increases both over time and by the number of import transactions ('learning-by-doing'). The prevalence of learning effects was further strengthened by the behaviour of consecutive importers, which noted remarkably high levels of preference utilization and a preference savings rate of around 97 per cent after five years' experience with the free trade agreement.

The time-and-learning hypothesis suggests that the longer time a firm is engaged in importing goods from a specific partner country, the more it will learn about the free trade agreement and how to take advantage of the tariff preferences. Hence, according to this hypothesis, there is arguably a positive link between the cumulated time a firm has been an importer and preference utilization.

A competing, or complementary, hypothesis is that it is not time by itself that matters, but rather the number of import transactions that have been carried out ('learning-by-doing'). From a practical point of view, the learning of how to utilize the tariff preferences comes with the actual management of import transactions. It is therefore reasonable to assume a higher learning effect from managing many import transactions over a short period of time than a few import transactions dispersed over many years.

As a refinement, we consider a possible interaction between time and the number of import transactions undertaken by a firm. The idea is that the effect of one additional import transaction may be dependent on how long a firm has been importing goods. To empirically capture the interdependence between time and the number of import transactions, we append an interaction term between the *cumulated time* and the *cumulated number of import transactions* to the model. This interaction term allows us to analyse whether the impact of one additional import transaction will successively increase or decrease with time.

Table 2: Learning-by-doing. Logit models, odds ratios.

	Customs warehousing			
	(1)	(2)	(3)	(4)
(#periods)$_{jt}$	1.027	1.092	1.057	0.993
	(0.0444)	(0.0814)	(0.0413)	(0.0633)
ln(#transactions)$_{jt}$	1.372***	1.545***		
	(0.127)	(0.209)		
[(#periods)·*ln*(#transactions)]$_{jt}$		0.990		
		(0.0126)		
			(0.0109)	(0.0109)
ln(#ID)$_{jt}$			1.192	1.051
			(0.178)	(0.174)
[(#periods)·*ln*(#ID)]$_{jt}$				1.011
				(0.0108)
Full set of controls	yes	yes	yes	yes
Observations	226,979	226,979	226,979	226,979
	Direct imports			
(#periods)$_{jt}$	0.925***	1.025	0.936**	1.054
	(0.0225)	(0.0332)	(0.0263)	(0.0376)
ln(#transactions)$_{jt}$	1.472***	1.653***		
	(0.108)	(0.138)		
[(#periods)·*ln*(#transactions)]$_{jt}$		0.984***		
		(0.00586)		
ln(#ID)$_{jt}$			1.282***	1.616***
			(0.121)	(0.191)
[(#periods)·*ln*(#ID)]$_{jt}$				0.977***
				(0.00758)
Full set of controls	yes	yes	yes	yes
Observations	226,979	226,979	226,979	226,979

Notes: ***, **, indicate significance at the 10, 5 and 1 per cent level, respectively. Robust standard errors clustered at the firm level within parentheses (.). For control variables included, see Table 1 columns 5—6.

Fixed effects at the HS-2 level and each half year included in all regressions.

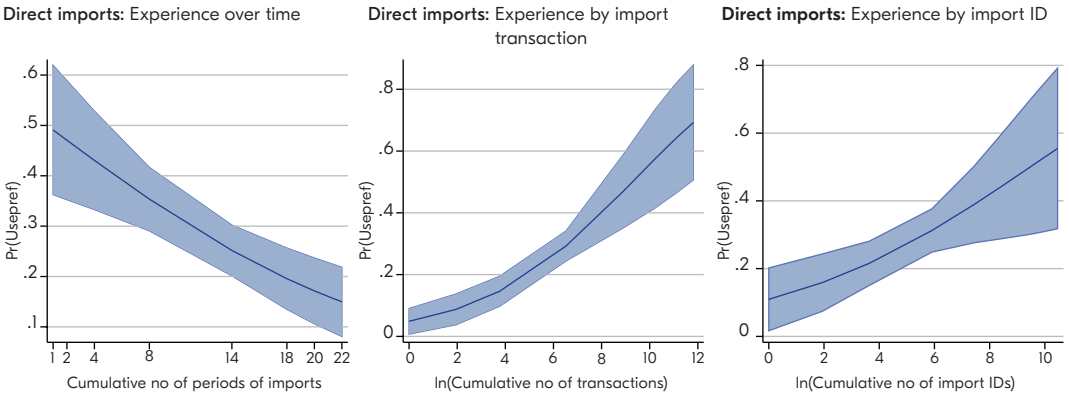
5.2.1 Learning-over-time

The variable *#periods*, captures the cumulated time a firm has been importing. The variable is measured as the cumulated number of six-month periods a firm has been importing goods from South Korea between 2008 and 2018.

Table 2 shows that there is no significant relation between the amount of time a firm engaged in customs warehousing has been active as an importer and its preference utilization. For direct imports, there is even a negative relationship between *#periods* and preference utilization in two out of four estimations. That is, holding everything else constant, the longer a firm has been active in direct imports, the less likely it is that tariff preferences will be utilized. The estimated relationship between time and preference utilization is depicted in the leftmost panel in Figures 12a and 12b. As described above, the lower figure shows how preference utilization in customs warehousing is unaffected by the number of periods a firm has been active as an importer, whereas the upper-left figure (Figure 12a) shows how the preference utilization in direct imports is lower the longer the firms have been active as an importer.

Figure 12a. Learning and preference utilization. Direct imports.

Predicted probability of utilising tariff preferences, 95% CIs

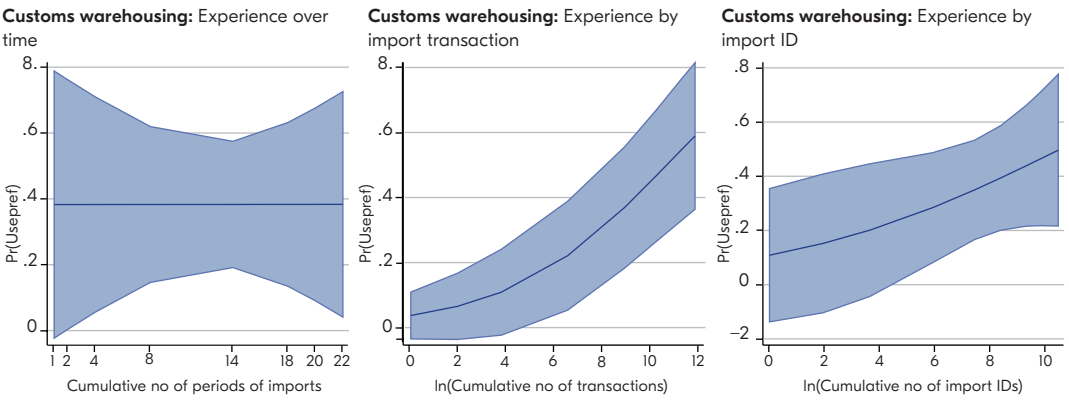


Note: Based on Table 2, Direct imports

Source: Swedish Customs, European Commission and own calculations.

Figure 12b. Learning and preference utilization. Customs warehousing.

Predicted probability of utilising tariff preferences, 95% CIs



Note: Based on Table 2. Customs warehousing.

Source: Swedish Customs, European Commission and own calculations.

Does this mean that there is no learning process taking place when firms are importing? Not necessarily. One hypothesis is that we are studying the wrong thing. Maybe it is not time per se that matters. Perhaps it is the level of activity, or the number of repeated import transactions performed that matters. This line of reasoning suggests a shift of focus from the duration of time to the intensity of which import transactions are carried out.

5.2.2 Learning-by-doing

The variables, *#transactions* and *#ID* are complementary variables measuring the cumulated number of import transactions and import consignments (customs IDs) handled by a firm. A customs ID can be thought of as a purchase order, which may consist of one or many items and import transactions.

The results relating preference utilization to the number of import transactions are rather different from those focusing on the duration of time. In short, the results (columns 1 and 3 in Table 2) suggest that preference utilization increases with the number of import

transactions. This finding holds for both direct imports and customs warehousing. In other words, adding one import transaction to the model, holding time and all other variables constant, raises the probability that tariff preferences will be utilized.

The centre and right-hand panel of Figures 12a and 12b illustrate the findings on learning from repeated import transactions (or experiential learning).

Two observations are particularly notable. First, looking at the estimated levels of significance, it is seen that there is a closer relationship between learning-by-doing and preference utilization in direct import operations than in customs warehousing.

The central part of Figure 12a shows that the predicted probability that the tariff preference will be utilized in direct imports increases from approximately 5 per cent to almost 70 per cent as we move from firms undertaking a few to many import transactions (percentile 1 to 99). The corresponding change in preference utilization in customs warehousing (Figure 12b) is roughly from 5 to 60 per cent.[17]

Secondly, the significance level of coefficient estimates is higher when we use the number of import transactions than the number of consignments (customs IDs). This suggests that firms mainly learn through repeated import transactions.

A further detail to note is the interdependence between time and the number of import transactions, which is captured by the variable [(*#periods*)·*ln*(*#transactions*)] in Table 2. For customs warehousing 'withdrawal transactions' this relationship is insignificant, while there is a weak negative relation for direct imports. This negative relation may be interpreted to mean that the learning from the n^{th} import transaction is higher if the total amount of import transactions is compressed over a short period of time. A partial explanation for this result could be that we tend to forget how to administrate procedures, routines may change, and employees are replaced.

17 In this experiment, all other independent variables are set to zero, which explains that the highest value of preference utilization is relatively low. Focus is on the change in probability as we move along the x-axis.

6. Conclusions

A major objective of this report has been to examine how firms learn to utilize tariff preferences. The analysis is carried out using combined firm-transaction level data on Swedish imports from South Korea during the period 2008–2018.

Beginning with how preference utilization develops over time, in the descriptive analysis, it is found that the preference savings rate reaches about 80 per cent after three years and levels out at about 90 per cent after five years. Hence, the learning process extends over several years.

However, the population of importers varies over time, partly because a free trade agreement reduces barriers to trade and attracts new firms into trade. In this context it becomes relevant to study the behaviour of 'consecutive importers', that is, firms carrying out import transactions throughout the sample period. Among the consecutive importers, the preference saving rate is found to be both higher and to increase faster than among other firms. Specifically, we note that consecutive importers reach preference savings rates of 97 per cent after five years. Hence, we have indications pointing to a connection between experience in importing and preference utilization.

A closer analysis of the learning process reveals that it is the number of import transactions rather than the amount of time spent on importing that matters for preference utilization. That is, preference utilization increases with the number of import transactions, an observation that supports the learning-by-doing hypothesis, while there is limited support for the learning-over-time hypothesis.

The lack of support for the learning-over-time hypothesis could possibly be due to changes related to rules of origin, or that the workers administrating imports are replaced with new and less experienced employees. In short, rules, routines and employees can be subject to change.

The key finding is that learning has a closer relationship with the number of import transactions undertaken than with the total amount of time over which the import transactions take place.

Learning is not necessarily bound to the import transaction. The two alternative sources of learning explored are the number of different types of import goods and the character of the supplier network. The results suggest that the number of business relations, defined as the number of suppliers that an importer works with, is positively related with preference utilization (for direct imports). This suggests that each supplier may contribute with their own piece of knowledge on how preference utilization can be achieved. However, we do not find any evidence suggesting that the number of different import products would have any impact on preference utilization.

Another finding – which supports Kasteng et al. (2021) – is that the preference savings rate increases rapidly as we move from small to large import transactions. For the smallest import transactions, the estimated preference savings rate is around ten per cent, while it is over 90 per cent for the large value transactions. That is, value matters for firms' incentives to claim tariff preferences. However, the preference margin seems to be of minor importance for preference utilization.

Also in line with Kasteng et al. (2021), we do not find any significant differences in preference utilization across firm-size classes. However, a novel finding is that the preference savings rate in intra-firm import transactions is relatively high for customs warehousing and relatively low for direct imports. This is a feature that deserves future research.

Based on these findings we propose the following policy recommendations:

- The utilization rate is lowest during the first years of the free trade agreement. Efforts for information dissemination should, accordingly, be most intensive before and during the first years of the free trade agreement and focus on new firms starting to use the free trade agreement at all moments in time.
- Experienced importers may be a resource in informing and supporting firms new in trade on how to use the free trade agreement. Facilitating contact and knowledge transition between these can therefore be beneficial for preference utilization. The use of experienced intermediaries in this field, such as customs brokers and wholesale firms, could therefore be explored.
- There is no evidence suggesting that special attention on information dissemination is called upon for small and medium-sized firms. Instead, information dissemination about the free trade agreement should be targeting both small and large firms alike.

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Appendix: Robustness test

As pointed out above, the import transaction data lack a natural panel structure. As a robustness test we create two artificial panel structures. This allows us to apply logit random effect and logit fixed effect estimators, which in turn can tell us something about the robustness of the results. If the results are robust with respect to arbitrary panel structures and estimation method this adds confidence to the above obtained results.

In Table 3, column 1, we have the default cross-sectional logit estimator to which the other results in columns 2–5 are to be compared. In columns 2–3 we apply a panel structure where we for each firm and half year count the number of import transactions performed. If a firm makes more than one import transaction in one day, these import transactions will be arbitrarily numbered. Hence, the panel structure in columns 2–3 is an import transaction-count per firm and time-period. In columns 4–5, instead of recounting the import transactions for each period (six month), for each firm we count the number of import transactions performed throughout the sample period. Hence, we hereby maintain all information over time. The observation identificatory therefore becomes firm-transaction number. For both panel structures in columns 2––5, both the logit random effect and the logit fixed effect estimator are applied.

Table 3: Robustness. Artificial panel structure. Logit models, odds ratios.

VARIABLES	Base [A]	FE [B]	RE [C]	FE [B, E, F]	RE [A, E]
ln(turnover)$_{jt}$	0.975	0.180***	0.967	0.939***	0.941***
	(0.0994)	(0.0143)	(0.130)	(0.00784)	(0.0141)
ln(K/L)$_{jt}$	1.929**	0.823***	2.107**	1.594***	1.942***
	(0.507)	(0.0438)	(0.743)	(0.0460)	(0.432)
(profit)$_{jt}$	1.000	1.000***	1.000	1.000***	1.000***
	(4.7e-08)	(2.9e-08)	(8.0e-08)	(7.3e-09)	(6.5e-09)
ln(productivity)$_{jt}$	0.919	7.867***	1.153	0.758***	0.929
	(0.279)	(0.696)	(0.389)	(0.0271)	(0.145)
ln(#sources)$_{jt}$	1.162	0.782***	0.994	1.262***	1.184**
	(0.138)	(0.0112)	(0.156)	(0.0194)	(0.0875)
ln(#product groups)$_{ijt}$	0.985	0.962	1.041	0.561***	0.833
	(0.113)	(0.0275)	(0.139)	(0.0108)	(0.111)
(MNE)$_{jt}$	1.180		1.575	1.575***	1.105
	(0.356)		(0.715)	(0.0452)	(0.940)
(intra-firm)$_{jt}$	0.929	0.520***	0.871	0.991	0.836**
	(0.398)	(0.0309)	(0.430)	(0.0566)	(0.0704)
(warehousing)$_{jt}$	2.806***	3.228***	3.844***	1.471***	2.179*
	(0.744)	(0.116)	(1.327)	(0.0955)	(0.907)
ln(savings)$_{hijt}$	0.640***	0.530***	0.583***	0.672***	0.665
	(0.109)	(0.00922)	(0.119)	(0.0152)	(0.318)
ln(savings)$^2_{hijt}$	1.038***	1.043***	1.046***	1.037***	1.038
	(0.00879)	(0.000982)	(0.0105)	(0.00128)	(0.0344)
Observations	312,991	194,134	312,991	264,607	312,991

Notes: ***, **,* indicate significance at the 10, 5 and 1 percent level respectively. Fixed effects at the HS-2 level and half year included in all regressions.

[A] Cross-sectional estimator. Robust standard errors clustered by firm.

[B] Xtlogit, artificial panel by transaction count per firm and 6 m period. Bootstrapped standard errors.

[C] Xtlogit, artificial panel by transaction count per firm and 6 m period. Robust standard errors clustered by firm.

[D] Xtlogit, artificial panel by firm-transaction. Bootstrapped standard errors.

[E] Xtlogit, artificial panel by firm-transaction. Robust standard errors clustered by transaction count.

The results in Table 3 point to a great deal of stability. Of particular interest is to see whether significant estimates are upset when changing estimator. That is, whether an effect turns from suggesting a significant positive to a significant negative effect when the estimation method and panel structure are altered. The magnitude of the change of the coefficient is also of interest.

To summarize the results in Table 3, the results are to a large extent in line with the baseline model in column 1. If anything, the fixed effect model in column three can occasionally give results that differ from the baseline model. This, however, can probably be due to the panel structure applied in models 2–3 where the within-firm time is divided into blocks of six months. This has a direct impact on the FE-estimator. In models 4–5 the within-firm dimension is unbroken from the first to the last import transaction. Hence, behavioural changes that occur over time can more easily be captured when the full sample period is utilized. We may also note that the fixed- and random effect results in columns 4–5 are in line with the baseline model (column 1). Hence, the results of the study are robust in these dimensions and not dependent on the use of a specific estimator or estimation technique.

Executive Summary in Swedish

EU:s första frihandelsavtal med ett asiatiskt land, Sydkorea, trädde provisoriskt i kraft i juli 2011, och det gick längre än något tidigare frihandelsavtal som EU förhandlat fram. Denna rapport fokuserar på handelsaspekterna av frihandelsavtalet och mer specifikt på importdimensionen och utnyttjandet av tillgängliga tullförmåner hos svenska importörer mellan åren 2008 och 2018.

Denna rapport är unik i avseendet att den är baserad på kombinerad importtransaktions- och företagsdata. Att ta hänsyn till både de enskilda importtransaktionerna och egenskaperna hos de importerande företagen gör det möjligt att i detalj analysera drivkrafter och inlärningsprocesser som associeras med preferensutnyttjande.

För de importerande företagen är användningen av tullförmåner förknippad med en rad kostnader. För att till exempel vara berättigade till tullförmåner måste produkterna uppfylla vissa ursprungsregler och dessa måste åtföljas av ursprungsdeklarationer utfärdade av exportören. Därför finns det en administrativ aspekt av användningen av tullförmåner. För ett oerfaret företag kan administrationen av dessa tullförfaranden vara kostsam och tidskrävande, vilket kan leda till att tullförmånerna inte utnyttjas.

Denna rapport analyserar frågor om företags beteende och hur företag lär sig att utnyttja tullförmåner i frihandelsavtalet.

Med utgångspunkt i frågan om hur snabbt företag lär sig att utnyttja tullförmånerna, visar det sig att den totala tullbesparingsgraden uppgår till ca 80 procent tre år in i frihandelsavtalet och planar ut till ca 90 procent efter fem år. Detta mönster antyder en inlärningskurva där det tar ca tre till fem år för användningen av tullförmåner att nå en nivå från vilken den förblir relativt stabil.

Användningen av tullförmåner ser inte likadan ut mellan företag. Det visar sig att endast 56 procent av nya importörer utan tidigare erfarenhet av import fortsätter att importera varor från Sydkorea i mer än ett år. Denna ”överlevnadsgrad” sjunker till 43 procent sju år in i frihandelsavtalet. Därför gör ca 50 procent av de företag som går in i handeln det bara under ett år. Bland dessa företag är preferensutnyttjandet i allmänhet lågt. Samtidigt finns det en grupp av vad vi definierar som ”regelbundna importörer” som förblir aktiva i handeln under hela urvalsperioden. Tullbesparingsgraden för dessa importörer är både högre och ökar snabbare än för andra företag. Det har särskilt visat sig att tullbesparingsgraden bland dessa företag når nivåer på över 90 procent efter tre år, och efter fem år stabiliseras tullbesparingsgraden på ca 97 procent. Detta tyder på att dessa importörer inte bara är snabblärda, efter fem år lyckas de också nästan fullt ut utnyttja tullförmånerna. Detta antyder en inlärningsprocess om hur man använder tullförmåner som är kopplade till upprepade importtransaktioner.

Två alternativa tillvägagångssätt för att lära sig använda frihandelsavtal relaterade till importtransaktioner analyseras i rapporten. Det första tillvägagångssättet är den tidsperiod företaget är aktivt i handeln. Det andra och kompletterande tillvägagångssättet är praktiskt lärande kopplat till antalet utförda importtransaktioner. Frågan som analyseras är således om det är varaktigheten över tid i handeln (kumulativ tid) som har störst betydelse för lärande eller om lärande snarare sker genom antalet upprepade importtransaktioner.

Rapporten stödjer hypotesen att många upprepade importtransaktioner är positivt relaterade till en hög tullbesparingsgrad. Dock fastslås i den ekonometriska analysen (i motsats till vad som antyds i den deskriptiva analysen) att det inte finns något samband mellan den tidsperiod som ett företag har varit verksamt i handeln och en hög

tullbesparingsgrad (om alla andra faktorer hålls konstanta). För direktimport finns det till och med ett negativt samband. Det vill säga att ju längre tid ett företag har varit verksamt inom direktimport, desto mindre sannolikt är det att tullförmånen kommer att utnyttjas. Bristen på resultat som stöder hypotesen om lärande över tid kan möjligen bero på ändrade ursprungsregler eller att de som administrerar pappersarbetet över tid ersätts av ny och mindre erfaren personal. Kort sagt, regler, rutiner och personal kan bli föremål för förändringar och minnet är inte perfekt. Därför sker lärande, men det är snarare intensiteten och antalet upprepade importtransaktioner som spelar roll än hur lång tid som importtransaktionerna är utspridda.

Två andra aspekter på lärande som analyseras är storleken på affärsnätverket, definierat som antalet leverantörer/exportörer som används av en importör, och andelen olika produkter som importeras. Resultaten tyder på att det inte finns någon signifikant påverkan av antalet olika produkter som importeras på användningen av tullförmånerna. En anledning till detta kan vara att kunskap som uppnås genom att importera flera produkter samtidigt neutraliseras av merkostnaderna för att administrera importen av fler produkter.

Det visar sig dock att antalet affärsrelationer som en importör har är positivt relaterade till användningen av tullförmånerna (vid direktimport). Det vill säga, vid direktimport är handel med många olika exportörer förknippad med en hög nivå av tullbesparingar. En möjlig förklaring till denna observation kan vara att varje affärsrelation tillför en del kunskap om hur man bäst kan utnyttja tullförmånerna. Därför får företag som hanterar många affärskontakter ofta större kunskap i frågan.

Rapporten visar också att inomföretagshandel som sker via tullager har en högre tullbesparingsgrad än vad fallet som är vid direktimport. Vid inomföretagshandel är tullbesparingsgraden därför mycket beroende av importsättet.

Från ovanstående observationer kan nedanstående slutsatser och rekommendationer presenteras:

- Tullbesparingsgraden är lägst under frihandelsavtalets första år. Insatser för informationsspridning bör därför vara intensiva före och under de första åren av frihandelsavtalet samt när det är nytt för företagen.
- Erfarna importörer kan vara en resurs för att informera och stödja företag som är nya inom handeln om hur man använder frihandelsavtalet. Att underlätta kontakt och kunskapsöverföring mellan olika aktörer kan därför vara fördelaktigt för en ökad användning av frihandelsavtal. Användningen av erfarna mellanhänder inom detta område, som t.ex. tullombud och grossistföretag, skulle därför kunna undersökas vidare.
- Det finns inget som tyder på att särskilda informationsinsatser behövs för att öka användningen av frihandelsavtal för små och medelstora företag som redan har erfarenhet av internationell handel. Resurser bör snarare satsas på att hjälpa nytillkomna importörer företag oavsett storlek.

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