

Time to Preference: Early Preference Uptake under the EU-Canada Comprehensive Economic and Trade Agreement and the EU-Korea Free Trade Agreement

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Abstract This study examines the uptake of trade preferences under the EU-Canada Comprehensive Economic and Trade Agreement and the EU-Korea Free Trade Agreement during their respective first 21 months of application. The research analyzes the impact of time on the preference utilization rate of EU imports from Canada and Korea and EU exports to the two countries. The findings shed light on how EU member states perform vis-à-vis each trade partner and whether certain product groups appear more successful than others in terms of using trade preferences. The study further analyzes the potential effects of learning how to use preferences over time. Finally, the study argues that firm-pair transaction level data is necessary for discerning more conclusive answers regarding why trade preferences are (not) used.

The results point to that lack of knowledge and awareness is the most plausible reason to a low use of trade preferences in the early days of an agreement. To increase preference utilization rates in the beginning as well as later during agreement implementation, continuous information campaigns appear to be essential, not least since importing and exporting firms change over time.

Keywords: EU, CETA, Korea, trade preferences, FTA

JEL Classifications: F13, F14, F15

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I. Introduction

In the past years, EU trade policy has evolved significantly. In addition to its earlier vast network of free trade agreements (FTAs), the EU has a number of new FTAs in place.¹⁾ As the number of EU FTAs has increased, so too has the interest in their implementation, including the extent to which the FTAs actually are used.

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The European Commission (hereinafter "the Commission") reviews the implementation of EU FTAs in its annual report,²⁾ detailing how trade has evolved, the extent to which the agreements are used, and reports on specific topical issues, such as trade and sustainable development, trade in agri-food products, and other relevant matters. In addition, the Commission reports on the uptake of trade preferences under the EU's FTAs, describing the extent to which operators make use of the trade preferences available under respective agreements in terms of imports and exports.³⁾

A few conclusions concerning the latter can be drawn from these reports. First, EU FTAs are generally well used, but at less than 100%. Second, the preference utilization rates (PURs) of EU imports tend to be relatively stable over time and higher than those of EU exports. Third, the use of trade preferences tends to be low in the early implementation of new agreements and gradually increases.

For example, the PUR in the first month of full application of the EU-Canada Comprehensive Economic and Trade Agreement (CETA), applied as of late September 2017, stood at around 25% for EU imports and exports. Corresponding figures for EU trade with Korea, applied as of July 2011 were somewhat higher, at 35%-40%. By 2020, PURs for EU trade with Canada had increased to about 55%, while the figures reached 80%-90% for Korea.

The impact of time and hence, information and awareness, on PURs is a consideration that has been overlooked in the literature to date. Consequently, this study analyzes the phenomenon of the low use of trade preferences under the EU's agreements with Canada and Korea in the early period of application. More specifically, the research examines the evolution of the PURs of EU imports from and exports to Canada and Korea in the first 21 months of application of respective FTAs,⁴⁾ thereby indirectly examining inherently unmeasurable issues such as the information and awareness surrounding the application of agreements. In doing so, the paper controls for a range of additional explanatory variables, such as the type of products traded, potential duty savings (PDS) associated with the transactions, and country specific differences, including among EU member states (MSs).

The remainder of this paper is organized as follows. Section 2 defines some basic concepts and reviews the literature on the research topic. Section 3 broadly describes EU trade relations with Canada and Korea and the trade (in goods) liberalization provided for under the two agreements.

1) Ecuador (January 2017), Canada (September 2017), Japan (February 2018), the Southern African Development Community (October 2016 for all but Mozambique [February 2018]), Ghana (December 2016), Côte d'Ivoire (September 2016), Ukraine (September 2017), Singapore (November 2019), Vietnam (August 2020), and the United Kingdom (January 2021). Ratification of the FTA with Mercosur is pending.

2) For the latest report, see European Commission (2022). To further increase the focus on compliance and enforcement of the EU's trade agreements, the Commission has also created the position of Chief Trade Enforcement Officer, see https://policy.trade.ec.europa.eu/enforcement-and-protection/chief-trade-enforcement-officer_en.

3) https://policy.trade.ec.europa.eu/enforcement-and-protection/implementing-and-enforcing-eu-trade-agreements_en These figures must be interpreted and compared cautiously; see the FAQs on preference utilization.

4) The 21 months are derived from the number of full months' application of CETA for which data were available when this analysis was initiated.

It further details EU preferential trade with the two partners. Section 4 presents the empirical analyses, detailing the results of the impact of time on PURs and how EU MSs and different product groups perform vis-à-vis one another. It also examines the presence of potential learning effects over time. Section 5 summarizes the findings, proposing some policy suggestions and a way forward for a more comprehensive understanding of the factors behind PURs.

II. Basic Concepts and Literature Review

A. Basic concepts

To set the stage and define some of the basic concepts of this study, Figure 1 divides countries' total imports into duty-free and dutiable imports. If imports are duty-free, irrespective of origin, the goods will be imported under a 0% most favored nation duty (MFN-0). Dutiable goods can either be included or excluded from an FTA. If products are excluded from the FTA (excluded from liberalization), EU imports of such goods will be subject to (positive) MFN duties.

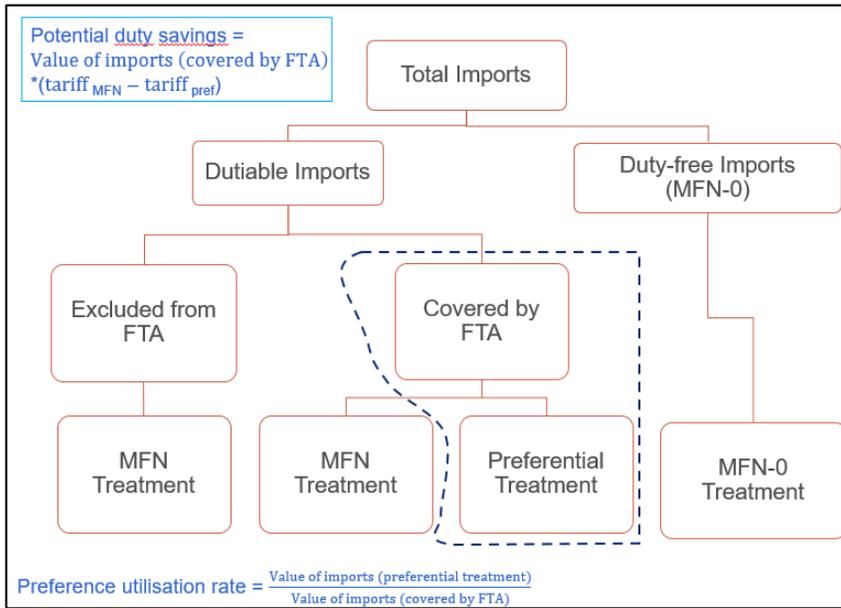
Products covered by the FTA either enter the EU under positive MFN duties or the preferential terms negotiated.⁵⁾ The PUR is the ratio of the value of goods entering under preferential terms over the value of goods eligible for preferences. In practice, the importer requests preferences for goods imported under a preferential trading arrangement, such as an FTA,⁶⁾ but can only do so (or obtain preferences) if all relevant and necessary documentation has been supplied by the exporter.

Another important concept is that of duty savings. While the PUR measures the extent to which preferential tariffs are used, it does not say anything about the size of the preferential margin (the difference between the MFN tariff and the preferential tariff) or the value of the trade flow. PDS measures the estimated amount of duties that the exporter/importer can theoretically save by using the preferential tariff instead of the MFN tariff.

5) Most, if not all, EU industrial goods are liberalized under EU FTAs (though at varying pace), while sensitive agricultural products are subject to liberalization under tariff rate quotas or excluded from liberalization. However, for the Trade and Cooperation Agreement with the UK, all dutiable imports are covered by preferences.

6) Unilateral preferences, such as the EU Generalized Scheme of Preferences, are another example.

Figure 1. Import regimes in the presence of a free trade agreement



(Source) Author construction.

B. Literature review

The literature concerning PURs—a recent research area—has grown richer over the past decade, thanks to improved data availability and a growing interest in the topic following the conclusion and subsequent WTO notification of hundreds of FTAs.⁷⁾

The literature on PURs departs from the assumption that there are unspecified costs involved in using trade preferences. Such costs can take different forms, and can be in terms of information costs (i.e., operators are unaware that preferences can be claimed). There can also be compliance costs to meet rules of origin (RoO) requirements (an integral and indispensable aspect of any preferential trading arrangement), either in the form of administrative costs to accomplish the necessary formalities, or increased costs of purchasing imported intermediates, should the RoO lead to a distortion of imported input sourcing.

Early work in this area regularly examines the use of EU trade preferences by developing countries; for example, see Bureau et al. (2007) and Candau and Jean (2005). Overall, these studies conclude that EU trade preferences are well used, despite EU tariffs being low in general, thereby casting doubts on an often-cited perspective in the literature that the preferential margin must be in the range of 3%-5% for preferences to be used.⁸⁾

7) There were 355 FTAs and regional trade agreements in force as of June 2022, see <http://rtais.wto.org/UI/PublicAllRTAList.aspx>

Later research suggests that the size of transactions matters for preferences to be used; for example, see Keck and Lendl (2012), Nilsson (2012), Hakobyan (2015), and Nilsson (2016). This is because PDS, the value of the transaction, and the preferential margin are important explanatory variables. However, Gulczyński and Nilsson (2019) find that preferences are used even when the PDS are negligible, emphasizing the importance of fixed costs to use preferences at the firm level.

Krishna et al. (2021) investigate whether the fixed costs related to RoO documentation are reduced with firms' growing experience over time and whether the use of trade preferences subsequently increases. The authors determine that the use of trade preferences rises with trading history related to the same products between the same importing and exporting firms, but small learning effects are evident over time for other products and partners.

Based on empirical work at the firm level, the National Board of Trade (2022) notes that PURs are lowest during the first years of FTA implementation and suggests that efforts to disseminate information should be made early on. The National Board of Trade (2021) also presents a survey demonstrating that about one-third of Swedish firms that are active traders are unaware of the EU FTA with Korea, while some 70% of those firms that do trade with Korea seem to be aware of the availability of trade preferences. Out of these, 80% make use of the agreement.

Based on a survey, Decoster (2021) provides an overview of the role of intermediaries in Belgian exporting firms' PURs under EU FTAs. The author demonstrates that about half of the logistics service providers in the research sample inform their exporting clients about the possibilities of FTAs and the reasons for not informing clients include lack of knowledge and being involved too late in the process.

Nevertheless, the explanatory factors behind the use of trade preferences in the early days of FTA implementation, which this paper investigates, are a consideration that the literature has overlooked. While a few studies focus on the time dimension, determining that firms learn how to better use FTAs with more experience (see e.g., Krishna et al. (2021) and the National Board of Trade (2022)), the impact of time itself on overall PURs under FTAs remains unexamined. The paper also investigates whether previously traded products are more likely to use preferences and if many transactions involving the same reporter-partner-product (rpp) combinations early on have a positive impact on the PUR toward the end of the period. Another contribution of the paper is delineating the impact of time on PURs at the EU MS level, which is novel and sheds some light on MS' relative performance, implicitly including countries' customs administrations and business associations.

Therefore, the results of this analysis indirectly add knowledge regarding how well information

8) Examining a group of developing countries, Francois et al. (2005) find that the preferential margin should be at least 4% to be used.

was spread when the two EU FTAs with Canada and Korea were newly implemented and the extent to which importers and exporters among the three trading partners managed to capitalize on this information. Finally, the analysis covers PURs involving developed country partners, while previous work has largely focused on developing countries.

III. Trade and Trade Liberalization under CETA and the EU-Korea FTA Free Trade Agreement

CETA provisionally entered into force in September 2017. By 2021, bilateral goods trade between the EU and Canada totaled some €60 billion, of which, €37 billion were EU exports to Canada and €23 billion were EU imports. According to Eurostat data for 2020, the EU is Canada's third largest trade partner worldwide, while Canada is the EU's fourteenth largest trading partner.

Overall, CETA envisions removing duties for 98.6% of all Canadian tariff lines and for 98.7% of EU tariff lines. In specific cases, such as the automotive industry, tariffs will be liberalized over a period of seven years. Both sides have agreed to eliminate almost all agricultural tariffs, except for some sensitive products such as beef and pork, for which an increase in quotas was agreed to between the parties. Additionally, Canada accepted a general prohibition on duty drawbacks, which was applied three years following CETA's entry into force.

The EU and Canada also adopted a Joint Interpretative Instrument on CETA, which confirms the longstanding commitment of the EU and its MSs and Canada toward sustainable development building on the comprehensive and binding commitments included in CETA for the protection of workers' rights and the environment.

The EU-Korea FTA, which was ratified by all MSs in December 2015, was the EU's first trade agreement with an Asian country. Total bilateral trade equaled a little over €107 billion in 2021, with imports and exports of similar magnitude. In 2020, the EU was Korea's third largest trading partner and Korea was the EU's ninth largest trading partner.

The EU-Korea FTA removes 99% of import duties in both the EU and Korea. The FTA includes comprehensive liberalization of trade in services, as well as provisions on investment, protection of intellectual property rights, geographical indications, and government procurement. For specific sectors that are of interest to the EU, such as automotive, pharmaceutical, and consumer electronics industries, the FTA also includes measures to tackle non-tariff barriers.

A. An overview of EU preference eligible imports from Canada and Korea⁹⁾

Table 1 presents EU imports from Canada and Korea for the first seven months and the last seven months of the 21-month period following implementation of the respective agreement, demonstrating that EU imports from Korea were higher than EU imports from Canada in these seven-month periods, although imports from the latter began about five years earlier. Perhaps more importantly, the table reveals that while about 75% of EU imports were received from Canada with MFN-0 duties (MFN-0 imports/Total imports), in the case of Korea, this figure is between 45% and 50%. Taken together, the value of EU preference eligible imports from Korea is several times higher than under CETA.

Table 1 further shows that EU PDS on imports from Canada hover just below €100 million for the two time periods examined. The mean PDS per observation is about €1,500, but the median value is as low as €40. The second to last row shows that the number of observations using preferences increased from 8,000 to more than 13,000 between the two seven-month periods, implying a rather strong learning effect for using preferences. Meanwhile, the PUR on EU imports from Canada increased from 40% to above 50% (last row).

Table 1. *EU Imports from Canada and Korea, Months 1-7 and Months 15-21 Following Implementation of the Agreement (€, € million, %, and count)*

	Canada		Korea	
	M 1-7	M 15-21	M 1-7	M 15-21
Total imports (€ million)	10,745	11,409	18,895	18,404
MFN-0 imports (€ million)	8,115	8,473	8,758	8,913
Preference eligible imports (€ million)	2,193	2,394	8,837	8,082
Potential duty savings (€ million)	89	96	307	311
Potential duty savings (€ mean)	1,361	1,531	4,054	3,886
Potential duty savings (€ median)	40	45	169	155
Preferential imports (no. obs.)	8,183	13,673	25,770	38,315
Preference utilization rate (%)	40.8	53.9	63.5	79.0

(Source) Eurostat and author calculations based on data provided by the Canadian and Korean custom authorities.

Note. Figures on total EU imports and MFN-0 imports are based on all statistical regimes, while figures on imports eligible for preferences are based on figures under statistical regime 1.

For EU imports from Korea, the PDS lies at some €300 million. The mean PDS is around €4,000 and the median PDS is slightly above €150. The value of preference eligible imports decreases by about 10% between the two periods examined, while the number of observations

9) The descriptive statistics in this section of the study focus on changes between the first seven months of application and the last seven months of application of the 21-month period investigated in this study. The rationale is that the available monthly data is too volatile for comparisons and conclusions to be drawn, while it remains relevant to determine how preferential trade evolved during the initial stage of the trade agreements being examined.

making use of preferences increases from about 26,000 to 38,000. The latter is reflected in an increase in the PUR from less than 40% to close to 80%, once again implying a strong learning effect in the case of Korea.

There are significant differences between absolute, mean, and median PDS on EU imports from Canada and Korea. Generally, all three indicators are three times higher in the case of EU imports from Korea; hence, EU import transactions from Korea have higher values in comparison to imports from Canada and many import transactions are relatively small, particularly in the case of Canada.

Annex Table A1 shows that for EU imports from Canada, the Netherlands and Germany account for about 20%-25% of the PDS over the two seven-month periods, followed by France and Belgium at about 10%. In the case of Korea, Germany represents about 20% of the PDS, after which follow the Netherlands, France, Italy, and Czechia, each of them accounting for some 10% of EU-27 PDS.

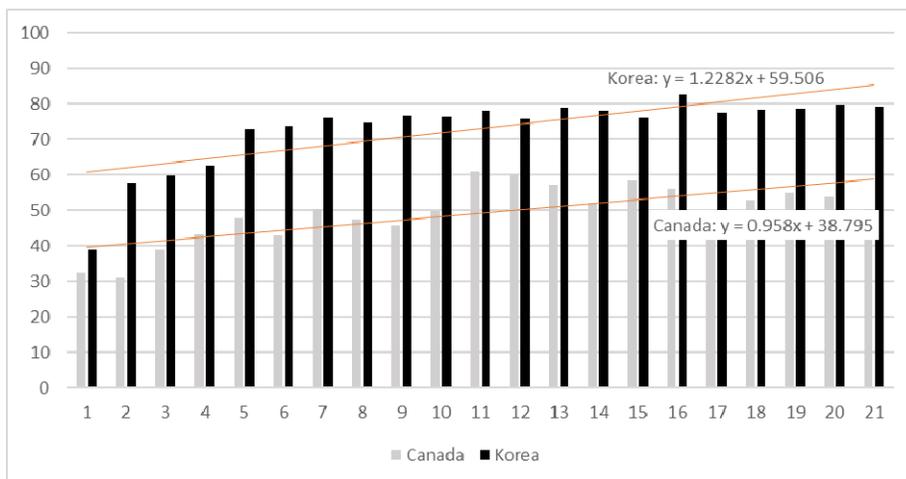
Annex Table A2 shows that imported goods falling in Section I (Animals & animal products), IV (Prepared foodstuffs), and XVI (Machinery) represent about 15% each of the PDS on EU imports from Canada. For Korea, Sections XVI (Machinery) and XVII (Transportation equipment) dominate, together representing more than 40% of EU PDS over the two seven-month periods. Notably, the share of PDS in Section V (Mineral products) on EU imports from Korea dropped from 16% in the first seven months of agreement implementation to 9% during the last seven months of the study period.

1. Preference utilization rates on EU imports from Canada and Korea over time

Figure 2 presents the PURs of EU imports from Canada (gray) and Korea (black) over the agreements' first 21 months (horizontal axis). The PURs on EU imports from Canada rose (un)steadily from some 30% to about 50% during the study period. The highest figure (61.1%) was reached in month 11 (August 2018). In the case of EU imports from Korea, the PUR started at about 40% in the first month (July 2011), but quickly increased by about 20 percentage points in the following months. The highest PUR reached 82.6% in month 16 (December 2012).

In terms of comparing the development of PURs of EU imports from Canada and Korea over time, two conclusions can be made. First, operators made poor use of the trade preferences in the first month of application of the respective agreements. Second, the increase in PURs is immediate in the case of EU imports from Korea, with a rise of about 20 percentage points while the increase thereafter levels off, stabilizing between 70% and 80%. In contrast, the PUR increase for EU imports from Canada is more gradual, leveling off at some 50% toward the end of the period.

Figure 2. Preference utilization rates of EU imports from Canada and Korea in the first 21 months of FTA implementation (%)



(Source) Eurostat data.

Note. The horizontal axis represents the first 21 months for both the CETA (from October 2017 to June 2019) and the EU-Korea FTA (from July 2011 to March 2013).

The PUR under the two FTAs considerably differs between EU MSs (see Annex Table A1). Considering EU imports from Canada in months 1-7, the PURs vary from low use, in the case of Bulgaria, Croatia, Cyprus, Lithuania, and Malta, to close to 70% for Ireland and the Netherlands, with the latter two remaining among the top users in months 15-21. Germany and Romania enter the group of countries with the poorest performance in months 15-21 (replacing Bulgaria and Cyprus).¹⁰⁾

There is also a large PUR spread among EU MSs under the EU-Korea FTA. As opposed to EU imports from Canada, Ireland is among the countries with the lowest use of preferences in both seven-month periods, together with Austria, Lithuania, and Luxembourg, although preferential import values are higher than those of Canada. The top PURs on imports from Korea during the two seven-month periods include Czechia, Greece, and Slovenia but several other countries perform well without being among the top five in both periods, such as Finland, France, and Portugal.¹¹⁾

Considering product dimensions and EU imports from Canada, Sections I (Animals & animal products) and IV (Prepared foodstuff) are among the top five sections in terms of both PDS and PURs. In months 15-21, the PUR falls in the range of 85%-90% for the two sections. In contrast, the PURs of Sections XVI (Machinery) and XVII (Transportation equipment) are among the lowest (20%-35%), despite the PDS of the two sections ranking at the top.¹²⁾

10) Annex Figure A1 shows the development of PURs per EU MS on imports from Canada for each of the first 21 months of CETA implementation.

11) Annex Figure A2 shows the development of PURs per EU MS on imports from Korea for each of the first 21 months of FTA implementation.

For imports from Korea, HS Sections with significant PDS are also among the highest PURs. This is the case for HS Sections V (Mineral products), VII (Plastics & rubber), and XI (Textiles & textile articles) in months 1-7, with PURs of some 70%-80%, and for HS Section XVII (Transportation equipment) in months 15-21, with PURs close to 90%.¹³⁾

B. An overview of EU preference eligible exports to Canada and Korea

Table 2 presents an overview of EU exports to Canada and Korea for first and the last seven-month periods of the initial 21 months following implementation of the respective agreement, revealing that EU exports to Canada are higher than those to Korea by a range of €7-8 billion, both in the beginning and in the end of the study period. The table also indicates that while 70%-75% of EU exports to Canada enter at MFN-0 duties (MFN-0/Total exports), for Korea, this figure is around 25%-30%. As a result, the value of EU preference eligible exports to Korea is about twice as high as EU preference eligible exports to Canada.

Table 2 further indicates that the PDS on EU exports to Canada reach some €300-350 million, with a mean of about €3,500-4,000 and a median value in the range of €150 over the two seven-month periods examined. This increase in PDS indicators is associated with a rise in the number of observations using preferences by some 15% and is further reflected in PURs, which increases by 20 percentage points between the two periods. A similar story is evident for Korea, albeit with the levels of PDS indicators being roughly twice as high compared to Canada. The number of observations using preferences also increases for EU exports to Korea by about 15% from months 1-7 to months 15-21, while the PUR of EU exports is about 30 percentage points higher in months 15-21 compared to the first seven-month period.

Annex Table A3 shows that Italy dominates in terms of PDS on EU exports to Canada, with close to a 30% share. Germany follows, at above 20%. Considering the PDS on EU exports to Korea, Germany accounts for close to 45%, followed by Italy and France at 15% and 12%, respectively.

In terms of product composition, Annex Table A4 shows that Section XVII (Transportation equipment) accounts for about 25% of the PDS on EU exports to Canada, while the share of Section XI (Textile and textile articles) is about 15%, which holds for both seven-month periods examined in the table. PDS on EU exports to Korea is dominated by Section XVI (Machinery), at 33%, followed by Section XVII (Transportation equipment) and Section XVIII (Instruments - measuring, musical), with shares of 10%-12% in the two time periods, respectively.

12) Annex Figure A3 shows the development of PURs by HS Section on imports from Canada for each of the first 21 months of CETA implementation.

13) Annex Figure A4 shows the development of PURs by HS Section on imports from Korea for each of the first 21 months of FTA implementation.

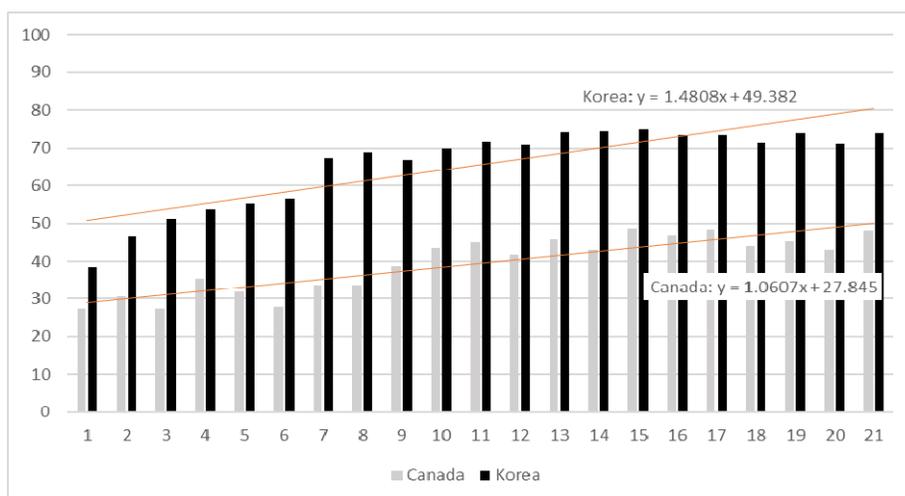
Table 2. EU Exports to Canada and Korea, Months 1-7 and Months 15-21 of Agreement Implementation (€, € million, % and count)

	Canada		Korea	
	M 1-7	M 15-21	M 1-7	M 15-21
Total exports (€ million)	23,187	24,964	16,675	17,547
MFN-0 exports (€ million)	16,988	18,714	4,778	4,355
Preference eligible exports (€ million)	6,115	6,250	11,728	12,948
Potential duty savings (€ million)	310	354	614	709
Potential duty savings (€ mean)	3,608	4,242	6,422	6,932
Potential duty savings (€ median)	151	166	428	415
Preferential exports (no. obs.)	39,993	45,862	53,407	70,381
Preference utilization rate (%)	29.7	45.4	52.5	73.2

(Source) Canadian and Korean customs authorities and author calculations.

1. Preference utilization rates on EU exports to Canada and Korea over time

Figure 3 shows the PURs of EU exports to Canada (gray) and Korea (black) over the agreements' first 21 months (horizontal axis). With several ups and downs, PURs rose from 25% to about 40% in the first year of CETA implementation. It continued to increase over the next 10 months, but at a slower pace, reaching 47% in June 2019. In the case of EU exports to Korea, the PUR started at just below 40% in July 2011, increasing steadily to reach above 70% during the first 12 months. In the remaining period, the PUR stabilized in the range of 75%, standing at 74% in the final month of the study period.

Figure 3. Preference utilization rates of EU exports to Canada and Korea FTA, first 21 months (%)

(Source) Canadian and Korean customs agencies.

Note. The horizontal axis represents the first 21 months for both the CETA (from October 2017 to June 2019) and the EU-Korea FTA (from July 2011 to March 2013).

Annex Table A3 demonstrates that the PURs on EU exports to Canada are highest for Cyprus, Denmark, and Portugal and increase between the two seven-month periods. Although at low levels of trade, the PUR of Cyprus, at some 90%, is noteworthy. Similarly, the low PURs of Germany and Hungary, in the range of 20%, or lower in months 1-7, also stand out.¹⁴⁾

For exports to Korea, Finland, Romania, and Sweden are among the top five MSs in both seven-month periods, with PURs above 80% in months 15-21. In contrast, Bulgaria, Spain, and Malta have the lowest PURs in the two periods, although the Spanish PUR in months 15-21 reaches above 60%.¹⁵⁾

At the HS Section level, Annex Table A4 shows that the PURs on EU exports to Canada are highest for Sections I (Animals & animal products), II (Vegetable products), XII (Footwear), and XIII (Articles of stone, plaster, etc.) in both seven-month periods. At the same time, Sections XVII (Transportation equipment), XVIII (Instruments - measuring, musical), and XIX (Arms & ammunition) are the lowest performing sections at both the beginning and end of the study period.¹⁶⁾

Corresponding data for EU exports to Korea indicates that HS Sections XVII (Transportation equipment) and IX (Wood & wood products) are the top performers in months 1-7 and in months 15-21, while the opposite holds for Sections III (Animal and vegetable fats), V (Mineral products), and XIV (Pearls, (semi-)precious stones).¹⁷⁾

IV. Comparative Empirical Analysis

A. The data

Eurostat publishes the datasets required for calculation of PUR on EU imports based on information from the national customs administrations of the MSs. The datasets are harmonized and consistent and allow for comparisons across partner countries and years.¹⁸⁾ The EU Directorate-General for Trade requires corresponding data for EU exports from each individual trading partner with which the EU has an FTA. All partners do not (regularly) submit the

14) Annex Figure A5 shows the development of PURs per EU MS on exports to Canada for each of the first 21 months of CETA implementation.

15) Annex Figure A6 shows presents the development of PURs by EU MS on exports to Korea for each of the first 21 months of FTA implementation.

16) Annex Figure A7 shows the development of PURs by HS Section on EU exports to Canada for each of the first 21 months of CETA implementation.

17) Annex Figure A8 shows the development of PURs by HS Section on EU exports to Korea for each of the first 21 months of FTA implementation.

18) However, some margin of error remains possible since the data do not capture certain changes in the preferential status of imports, such as claims for preferences made by importers after the goods have been declared to customs and denial of preferences decided by customs after verification and post-release of the goods.

data, the datasets submitted are based on different underlying methodological approaches, presenting some underlying data issues that are difficult to resolve.

One example is imports under preferential tariff rate quotas, which are considered eligible for preferences even if the quota is exhausted (on which no information is available). Another example is the existence of special import regimes, such as free zones, in partner countries or temporary suspension of MFN tariffs for certain products, which may be applicable in some cases. Such regimes imply that the goods enter the importing country free of duties, but it would not be reported as having made use of the FTA, thus leading to distorted measurement of PURs. Therefore, comparisons across partners, or of figures on PURs on EU imports vs. EU exports are only indicative.

The more disaggregated level that is analyzed, the likelier it is that some of the issues noted above will emerge; however, at a more aggregate level, the figures should be more reliable, particularly when they come from countries with well-developed administrative capacities as the two countries included in this study.

B. Empirical model

Operators will only use preferences if the benefits of complying with the requirements to qualify for such preferences outweigh the costs (C) of doing so. Hence, the PDS, which is the product of the value of preference eligible exports times the preferential margin, representing the difference between the MFN tariff and the preferential tariff, must be greater than the unobservable cost (C). We can thus model operators' decisions to use preferences as a discrete choice model.¹⁹⁾

$$\text{Preference utilization (rate) PUR} = 1 \text{ if } \text{PDS} - C > 0 \quad (1)$$

$$\text{Preference utilization (rate) PUR} = 0 \text{ if } \text{PDS} - C \leq 0 \quad (2)$$

Substituting the difference between PDS and the cost function (C) with the latent variable y^* , we can estimate the following model:

$$P(\text{PUR} = 1) = \Pr(y^* > 0|X) = F(Xb) \quad (3)$$

where $F(Xb)$ is a set of variables and parameters that are considered to be key for explaining variations in PUR on the left-hand side of the equation. Based on the literature, see e.g., Gulczyński and Nilsson (2019 and the National Board of Trade (2022), the variables included are presented in equation (4) and explained below.

¹⁹⁾ See Train (2009) for an overview of discrete choice methods.

$$PUR_{ijkt} = \alpha + \beta_i \log(PDS_{ijkt}) + \theta_i Month_t + \gamma_i EUMS_i + \tau_k Prod_k + \varepsilon_{ijkt} \quad (4)$$

where dependent variable (PUR) is the monthly (t) PUR of importing country i for product k from country j .²⁰ The trade data are given at the eight-digit level for EU imports and at the 10-digit level for EU exports.²¹ The first explanatory variable is the log of PDS (LPDS), which is defined as the log of the (mathematical) product of the preferential margin and the value of the trade flow. This measure captures both the size of the trade flow and the preferential margin, revealing the amount of money that can be saved if preferences are used.

The main variable of interest—time (Month)—follows, which is in the form of a discrete variable depicting the 21 months (coded 1, 2, ...21). It is further assumed that there are country specific costs. For example, customs practices differ between Canada and Korea and across EU MSs, although the underlying legislation is the same in the latter case. Therefore, the regression model includes EU MS specific fixed effects. Finally, a set of binary variables at the HS Section level is introduced to capture any other broad product-category specific effects.²²

The PUR is a proportion, and thus bound by 0 and 1, and the regression model is implemented using a fractional logit model. This model can handle any value of the dependent variable between 0 and 1, in addition to exactly 0 and 1, which is necessary in cases in which both full and no utilization of preferences is present. The regression is run separately on EU trade (imports and exports) with Canada and Korea to estimate the parameters α , β_i , θ_i , γ_i , and τ_k .

C. Results for duty savings and time

Table 3 presents the regression results for the main variables of interest regarding EU trade with Canada and Korea. In the case of Canada, the LPDS is positive and statistically significant for both imports and exports at the 1% level. The coefficient is largest for EU imports, at 0.97, which is more than twice the size of the same coefficient for EU exports. However, the coefficients translate into similar marginal effects of 0.21 (for imports) and 0.20 (for exports) over the period, indicating that a 1% increase in the LPDS is associated with a 21% increase in the PUR of EU imports from Canada and 20% for EU exports to Canada.

Turning to Korea, as with Canada, the LPDS is positive and statistically significant at the 1% level for both imports and exports and the coefficient for EU imports is about twice the size of EU exports. The coefficients translate into marginal effects of 0.39 (for imports) and 0.25 (for exports) over the period, indicating that a 1% increase in the LPDS is associated with an increase in the PUR of EU imports from Korea of 39% and of EU exports to Korea of 25%.

20) Meaning EU imports from Canada and Korea and Canadian and Korean imports from the EU (EU exports to Canada and Korea). There are no data regarding trade between Canada and Korea in the sample.

21) Using the national nomenclatures of Canada and Korea, respectively.

22) A table presenting the concordance between HS Sections and chapters is provided in Annex Table A7.

The impact of the LPDS tends to be higher for EU imports than for EU exports, particularly in the case of EU imports from Korea. One potential reason for this could be that the trade data for EU imports is at the eight-digit level, while it is at the 10-digit level for EU exports; however, transforming the 10-digit data for EU exports to the eight-digit level and re-running the regressions does not fundamentally change the size of the coefficients for the LPDS for EU exports. They remain qualitatively the same (i.e., lower than the corresponding estimates for imports), but somewhat higher, at 0.51 and 0.48 for EU exports to Canada and Korea, respectively.²³⁾

Table 3 further shows the results for the time variable (Month) revealing that the impact of time on the PUR of EU imports from Canada is about twice as high as EU exports to Canada. The marginal impact of time on the PUR shows that a 1% increase in time leads to about a 6% increase in the PUR for both EU imports from Canada and EU exports to Canada. Similarly, for Korea, the table shows that the impact of time on the PUR of EU imports from Korea is somewhat higher compared to the impact of time on the PUR of EU exports to Korea. However, once again, the marginal impact of time on the PUR is similar for EU imports and exports, at about 12%.

Table 3. *EU Trade with Canada and Korea: Fractional Logit Regression Results and Marginal Effects of the Use of Preferences on Main Variables*

Independent Variables	Canada		Korea	
	EU Imports	EU Exports	EU Imports	EU Exports
Log of potential duty savings (Coefficient estimate)	0.970*** (0.008)	0.440*** (0.004)	0.931*** (0.005)	0.419*** (0.003)
<i>Log of potential duty savings</i> (marginal effect)	0.209*** (0.002)	0.197*** (0.002)	0.395*** (0.002)	0.247*** (0.002)
Month (Coefficient estimate)	0.057*** (0.001)	0.028*** (0.001)	0.059*** (0.001)	0.049*** (0.001)
<i>Month</i> (marginal effect)	0.062*** (0.001)	0.061*** (0.001)	0.116*** (0.001)	0.126*** (0.001)
EU MS fixed effects	Yes	Yes	Yes	Yes
HS Section fixed effects	Yes	Yes	Yes	Yes
Constant	-3.518*** (0.073)	-0.564*** (0.099)	-3.415*** (0.115)	-1.692*** (0.036)
No. of obs.	189,596	256,279	235,774	296,913
Pseudo R2	0.213	0.131	0.196	0.061

(Source) Author estimations.

Note. Standard errors are in parentheses. ***p<0.01. EU MS fixed effects and HS Section fixed effects are presented in Annex Table A5.

The marginal effects indicate that the impact of time is the same on EU trade with Canada, irrespective of the direction of trade and this also holds for EU trade with Korea; however,

²³⁾ The same holds for the marginal effects. The results are available upon request.

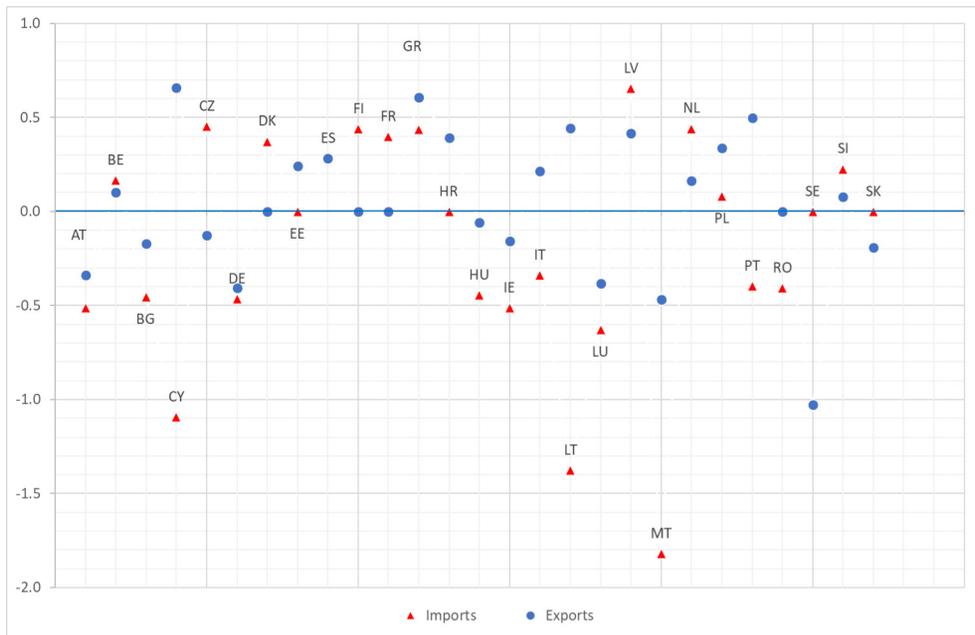
the impact of time on EU trade with Korea is higher than the impact of time on EU trade with Canada. Potential explanations regarding why this is the case are provided in section E.

D. Results for country and product dimensions

The coefficients for the dummy variables per EU MS and HS Sections are presented in Annex Table A5. Figures 4 and 5 contrast the impact on the use of preferences by EU MS against the EU average in the case of the two countries, respectively. Recall that these estimates control for the impact of PDS, time, and HS Section specific effects.

The number of MSs performing better or worse than the EU average in terms of use of preferences for both imports from Canada and exports to Canada is similar with four MSs displaying insignificant estimates (at zero on the horizontal axis) for both imports and exports. A striking feature of Figure 4 is the poor performance of Cyprus, Lithuania, and Malta in terms of PUR on imports from Canada compared to the EU average. The same holds for the PUR of Swedish exports to Canada compared to the EU average. The latter is the result of the poor PUR for Swedish exports early on after application of the agreement, as demonstrated by the low PUR for months 1-7 in Annex Table A2.

Figure 4. Impact on preference utilization rate by member states' trade with Canada (point estimate from the EU average at zero)

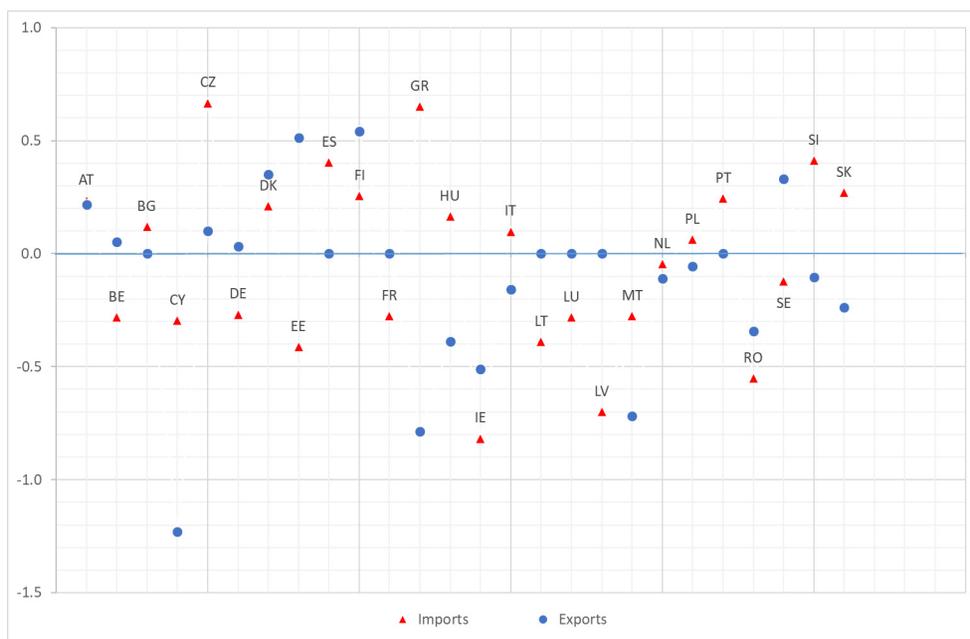


(Source) Author estimations.

Note. All insignificant estimates are placed at zero on the horizontal axis. The Spanish estimate for imports is hidden under the Spanish estimate for exports.

In the case of Korea, Figure 5 shows that 13 MSs have positive impacts and 13 MSs have negative impacts on the PUR for imports compared to the EU average. There are 11 MSs showing positive impact on the PUR compared to the EU average for exports to Korea compared to seven MSs displaying negative impacts compared to the EU average. A few notable considerations stand out in the figure. First, the poor performance of Cypriot, Greek, and Maltese exports to Korea over the period compared to the EU average, and second, the same holds for Irish, Latvian, and Romanian imports. On the positive side, Czech and Greek imports perform substantially better than the EU average.

Figure 5. Impact on preference utilization rate by member states' trade with Korea (point estimate from the EU average at zero)



(Source) Author estimations.

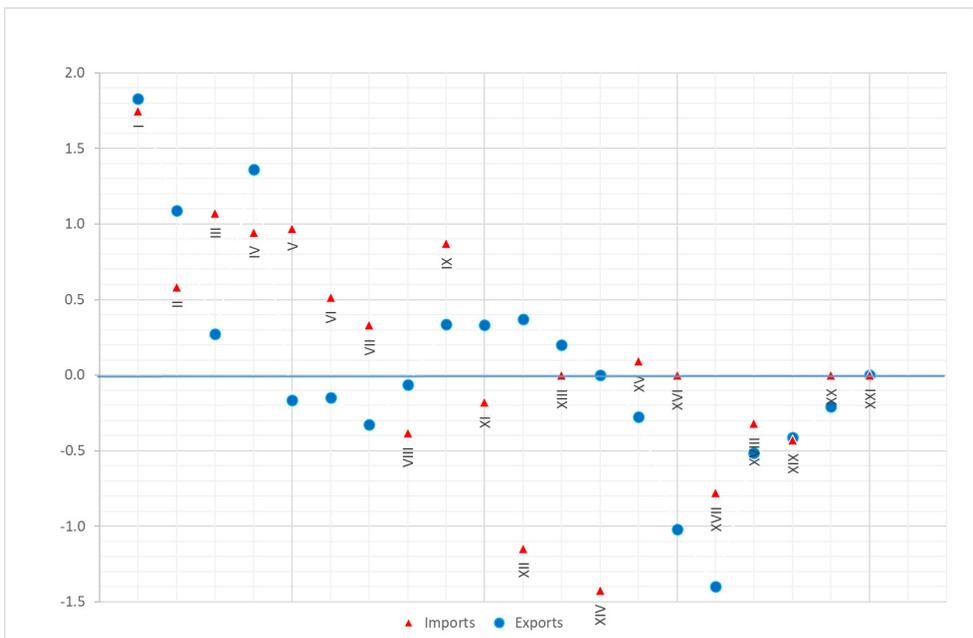
Note. All insignificant estimates are put at zero on the horizontal axis.

Considering the results for EU MS for trade with both Canada and Korea for the first 21 months of application of the agreements and controlling for time, PDS, and HS Section specific effects, three MSs perform more poorly than the EU average for both imports and exports from and to Canada and Korea (Ireland, Malta, and Romania). Similarly, only Denmark performs better than the EU average for trade in both directions with both countries early on after the agreements are implemented.

Figure 6 contrasts the impact of time on the use of preferences by HS Section against the EU average in the case of Canada. In terms of imports from Canada, most product groups

up to HS Section X perform better than the EU average, and Footwear (XII), Pearls and semi-precious stones (XIV), and Transportation equipment (XVII) are furthest away from the EU average, but on the negative side. For EU exports to Canada, Figure 6 also shows that the best performing HS Sections belong to the low-numbered sections I-IV (i.e., agricultural products), while Base metals & articles thereof (XV) and Machinery (XVI) are among those that are distinctly below the average. HS Sections Plastics & rubber (VII), Transportation equipment (XVII), Instruments (XVIII), and Arms & ammunition (XIX) perform below the EU average in terms of both imports and exports to Canada.

Figure 6. Impact on preference utilization rate by harmonized system section of member states' trade with Canada (point estimate from the EU average at zero)



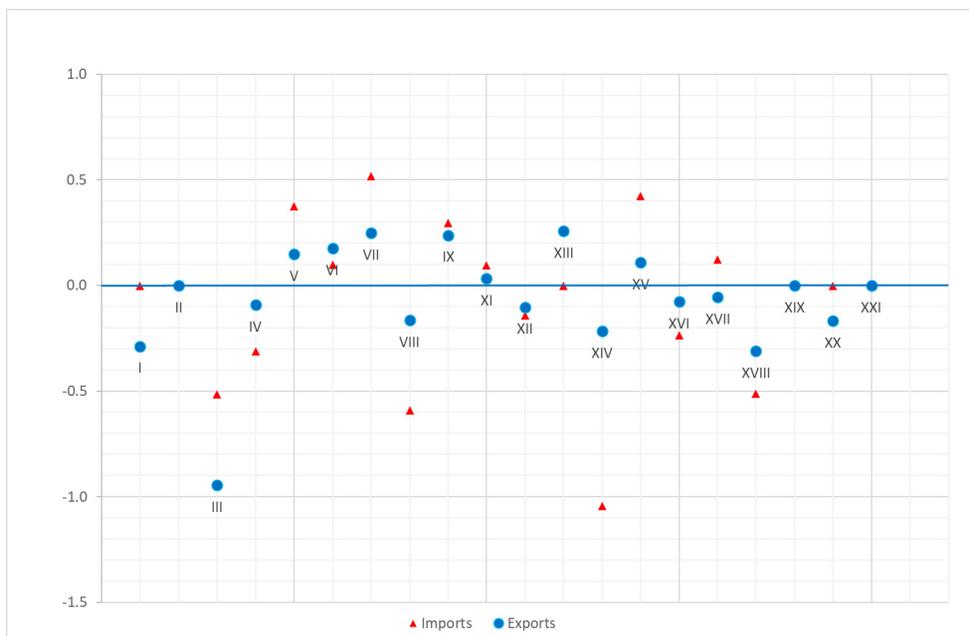
(Source) Author estimations.

Note. I. Animals & animal products; II. Vegetable products; III. Animal or vegetable fats; IV. Prepared foodstuffs; V. Mineral products; VI. Chemical products; VII. Plastics & rubber; VIII. Hides & skins, leather; IX. Wood & wood products; X. Wood pulp products; XI. Textiles & textile articles; XII. Footwear, headgear; XIII. Articles of stone, plaster, cement, asbestos; XIV. Pearls, (semi)-precious stones & metals; XV. Base metals & articles thereof; XVI. Machinery & mechanical appliances; XVII. Transportation equipment; XVIII. Instruments - measuring, musical; XIX. Arms & ammunition; XX. Miscellaneous manufactures; XXI. Works of art.

Figure 7 presents the results of the same exercise regarding EU trade with Korea. In terms of EU imports, the best performing HS Sections compared to the mean are Plastics & rubber (VII), Mineral products (V), Wood & wood products (IX) and Base metals & articles thereof (XV), while those finding themselves on the negative side of the mean include Animal and vegetable fats (III), Hides & skins, leather (VIII), Pearls and semi-precious stones (XIV), and

Instruments (XVIII). Regarding exports, notably, Animal or vegetable fats (III) stands out from the average Section performance, with a larger negative impact on the PUR than any other Section.

Figure 7. Impact on preference utilization rate by harmonized system section of member states' trade with Korea (point estimate from the EU average at zero)



(Source) Author estimations.

Note. I. Animals & animal products; II. Vegetable products; III. Animal or vegetable fats; IV. Prepared foodstuffs; V. Mineral products; VI. Chemical products; VII. Plastics & rubber; VIII. Hides & skins, leather; IX. Wood & wood products; X. Wood pulp products; XI. Textiles & textile articles; XII. Footwear, headgear; XIII. Articles of stone; plaster, cement, asbestos; XIV. Pearls, (semi-)precious stones & metals; XV. Base metals & articles thereof; XVI. Machinery & mechanical appliances; XVII. Transportation equipment; XVIII. Instruments - measuring, musical; XIX. Arms & ammunition; XX. Miscellaneous manufactures; XXI. Works of art.

Comparing the performance between Canada and Korea at HS Section level, the deviation from the mean is larger in the case of EU trade with Canada compared to EU trade with Korea. In addition, the same relatively better performance from the agricultural sectors for EU trade with Canada is not present in EU trade with Korea.

E. Exploiting the time dimension²⁴⁾

This subsection examines the impact of time along the dimensions of the other explanatory variables, partly with a view toward analyzing why the impact of time on the PUR is higher for EU trade with Korea compared to EU trade with Canada. This is accomplished by interacting

24) The complete regression results for this section are available upon request.

the time variable (Month) with the LPDS, the binary variables for the EU MSs, and the binary variables for the harmonized system (HS) Sections. To obtain results that are easily interpreted, the discrete variable (Month) is encoded to depict seven three-month periods to cover the 21 months. The impact of time along the three dimensions is then determined by comparing the impact on each of the variables in months 19-21 with months 1-3.

1. Duty savings

Interacting the variable for the LPDS with the time variable (Month) provides estimates of how a given PDS level affects the PUR depending on whether the beginning or the end of the study period is considered. This is done by augmenting equation (4) with the term $Month_t * \log(PDS_{ijkt})$ as follows:

$$PUR_{ijkt} = \alpha + \beta_1 \log(PDS_{ijkt}) + \theta_t Month_t + \delta_t (Month_t * \log(PDS_{ijkt})) + \gamma_i EUMS_i + \tau_k Prod_k + \varepsilon_{ijkt} \quad (5)$$

Any impact of time on PDS would be expected to increase over the period as additional operators become aware of the potential gains to be made from using the agreements. The results of the regressions are therefore examined for the final three months of implementation in comparison to the first three months of implementation, exploring EU imports from and exports to Canada and Korea. Table 4 shows that the interaction term (LPDS*Month₁₉₋₂₁) is positive and statistically significant in all regressions on EU trade with Canada and Korea, except for EU imports from Canada, for which the coefficient estimate is negative.

Table 4. EU Trade with Canada and Korea: Fractional Logit Regression Results of Interacting the Log of Potential Duty Savings with Time

Independent Variables	Canada		Korea	
	EU Imports	EU Exports	EU Imports	EU Exports
Log of potential duty savings (LPDS)	1.040*** (0.022)	0.400*** (0.001)	0.831*** (0.014)	0.271*** (0.009)
(LPDS*Month ₁₉₋₂₁)	-0.112*** (0.028)	0.052*** (0.014)	0.122*** (0.019)	0.227*** (0.012)

(Source) Author estimations.

The latter result requires further analysis. Annex Table A2 reveals that the PUR of EU imports of Transportation equipment (HS XVII) from Canada is lower in months 15-21 compared to months 1-7.²⁵⁾ At the same time, the sector's share of PDS rises. This could partially explain the result, as this is an important sector in terms of preference eligible imports and PDS.

25) The same is demonstrated by individual months in Figure 6.

It is also notable that the interacted binary coefficient estimates (LPDS*Month₁₉₋₂₁) for EU trade with Korea are larger than for EU trade with Canada, indicating that an increasing importance of PDS over time may help to explain why the impact of time on the PUR is higher for EU trade with Korea compared to EU trade with Canada.

2. Member state level

To examine the role of time on how individual EU MSs affect the PUR more closely, EU MS binary variables are interacted with the time variable (Month), similar to above. Hence, an interaction term is added to equation (4) in the following way:

$$PUR_{ijkl} = \alpha + \beta_1 \log(PDS_{ijkl}) + \theta_i Month_t + \gamma_i EUMS_i + \delta_{ij} (Month_t * EUMS_j) + \tau_k Prod_k + \varepsilon_{ijkl} \quad (6)$$

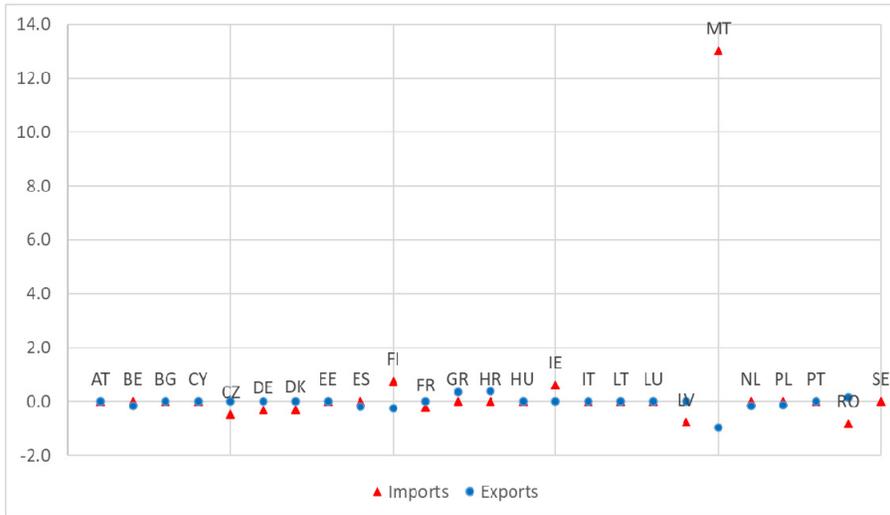
The actual impact of time should be most prevalent (as seen above) toward the end of the study period. The results of the regressions are normalized so that the impact by MS over time can be compared to the EU average. For each MS, the impact of the last three months of implementation is compared to that of the first three months of implementation, exploring EU imports from and exports to Canada and Korea, by considering the sum of the (significant) normalized coefficients $\gamma_i + \delta_{19-21j}$ in comparison to γ_i only.

Figure 8 demonstrates that there are few changes over time regarding EU MSs' performance in terms of PUR with Canada against the EU average.²⁶⁾ It is notable that there is a substantial improvement in imports from Canada for Malta, and somewhat less so for Finland and Ireland, while a handful of other MSs' positions worsen relative to the EU average somewhat by the end of the study period in comparison to the beginning. For about 17 to 18 MSs, there is no difference in terms of performance vis-à-vis the EU average concerning both directions of trade.

For EU trade with Korea, more changes are apparent over time, though of lesser magnitude (see Figure 9). The relative performance of Austria, Greece, and Sweden worsens against the EU average for import and exports, while Belgium and France improve their positions for both directions of trade. Another six MSs display either negative or positive changes for imports or exports. Overall, 16 MSs show no evident changes in performance.

26) If all MSs improve their PUR over time, even negative estimates in the table below may signal an overall improvement in comparison to the EU average, albeit less strong.

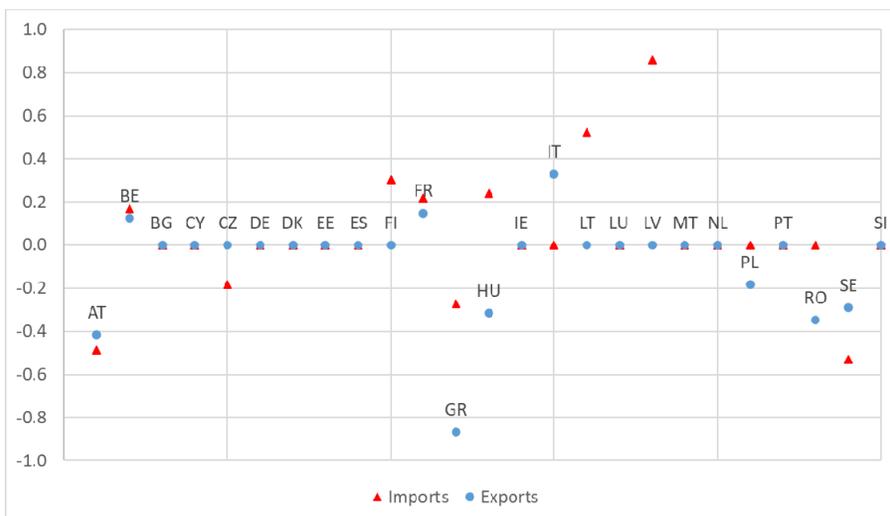
Figure 8. Changes in the impact on the preference utilization rate by member states' trade with Canada in months 19-21 (point estimate from the EU average at zero)*



(Source) Author estimations.

Note. Estimates at zero indicate no statistically significant difference between month 21 and month 1. Country names are displayed only for statistically significant estimates. *The estimates on trade with Canada are based on a comparison of months 19-21 with months 1-3 due to nonsymmetric or highly singular variance matrices for the monthly estimates.

Figure 9. Changes in the impact on the preference utilization rate by member states' trade with Korea in months 19-21 (point estimate from the EU average at zero)*



(Source) Author estimations.

Note. Estimates at zero indicate no statistically significant difference between month 21 and month 1. Country names are displayed only for statistically significant estimates. *The estimates on trade with Korea are based on a comparison of months 19-21 with months 1-3 due to nonsymmetric or highly singular variance matrices for the monthly estimates.

3. Harmonized system section level

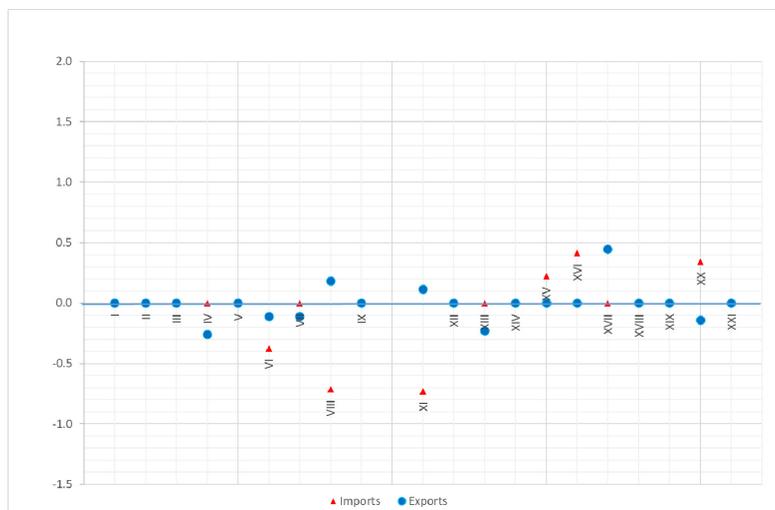
Similar to interacting the monthly binary variable with the binary variables for the EU MSs, equation (7) interacts the monthly binary variable with the HS Section binary variables as follows:

$$PUR_{ijkt} = \alpha + \beta_1 \log(PDS_{ijkt}) + \theta_t Month_t + \gamma_i EUMS_i + \zeta_{it}(Month_t * Prod_k) + \tau_k Prod_k + \varepsilon_{ijkt} \quad (7)$$

As above, the results of the regressions are examined for each HS Section for the last three months of implementation in comparison to the first three months of implementation, exploring EU imports from and exports to Canada and Korea, by considering the sum of the (significant) coefficients $\tau_k + \zeta_{19-21k}$ in comparison to τ_k only.²⁷⁾

Figure 10 shows that small changes occur among HS Sections on both import and export sides when the last three months of implementation are compared with the first three months of implementation. For example, considering imports, the relative positions of HS Sections Chemical products (VI), Hides & skins, leather (VIII), and Textiles & textile articles (XI) worsen

Figure 10. Changes in the impact on preference utilization rate by harmonized system section of member states' trade with Canada by months 19-21 (point estimate from the EU average at zero)*



(Source) Author estimation.

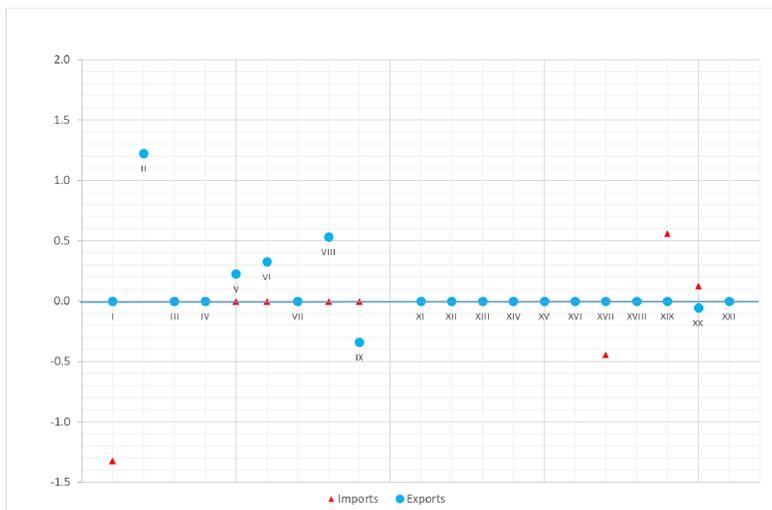
Note. Estimates at zero indicate no statistically significant difference between month 21 and month 1. I. Animals & animal products; II. Vegetable products; III. Animal or vegetable fats; IV. Prepared foodstuffs; V. Mineral products; VI. Chemical products; VII. Plastics & rubber; VIII. Hides & skins, leather; IX. Wood & wood products; X. Wood pulp products; XI. Textiles & textile articles; XII. Footwear, headgear; XIII. Articles of stone, plaster, cement, asbestos; XIV. Pearls, (semi-)precious stones & metals; XV. Base metals & articles thereof; XVI. Machinery & mechanical appliances; XVII. Transportation equipment; XVIII. Instruments - measuring, musical; XIX. Arms & ammunition; XX. Miscellaneous manufactures; XXI. Works of art.

27) The full regression results are available upon request.

against the average over time. The opposite holds for exports of HS Sections Base metals & articles thereof (XV), Machinery (XVI), and Miscellaneous manufactures (XX). The largest changes on the export side hold for Hides & skins, leather (VIII), and Transportation equipment (XVII).

In terms of changes in the relative performance of HS Sections over time for EU trade with Korea, Figure 11 shows that the largest changes occur positively for HS Sections Vegetable products (II) and negatively for Animals & animal products (I). The PUR on exports to Korea of Wood & wood products (IX) worsens over time, as does the PUR of imports of Transportation equipment (XVII) from Korea. The only other changes over the period relate to an improvement in performance against the average for EU exports to Korea of Mineral products (V), Chemical products (VI), and Hides & skins, leather (VIII), and Arms & ammunition (XIX) for EU imports.

Figure 11. Changes in the impact on the preference utilization rate of member states' trade with Korea in months 19-21 by harmonized system section (point estimate from the EU average at zero)*



(Source) Author estimations.

Note. Estimates at zero indicate no statistically significant difference between month 21 and month 1. I. Animals & animal products; II. Vegetable products; III. Animal or vegetable fats; IV. Prepared foodstuffs; V. Mineral products; VI. Chemical products; VII. Plastics & rubber; VIII. Hides & skins, leather; IX. Wood & wood products; X. Wood pulp products; XI. Textiles & textile articles; XII. Footwear, headgear; XIII. Articles of stone, plaster, cement, asbestos; XIV. Pearls, (semi-)precious stones & metals; XV. Base metals & articles thereof; XVI. Machinery & mechanical appliances; XVII. Transportation equipment; XVIII. Instruments - measuring, musical; XIX. Arms & ammunition; XX. Miscellaneous manufactures; XXI. Works of art.

4. Government support and the impact of time on the preference utilization rate

Considering the first 21 months of respective FTA implementation, the impact of time on the PUR is higher for EU trade with Korea in comparison to EU trade with Canada. Table 1 and Table 2 demonstrate that the increase in the number of flows, as well as in percentage

terms, using trade preferences in months 1-7 compared to months 15-21 is higher in the case of EU trade with Korea in comparison to EU trade with Canada. This is congruent with a reduction in the median value of PDS for EU trade with Korea as opposed to EU trade with Canada, indicating that more and smaller operators have begun making use of the EU-Korea agreement, potentially as a result of increased and/or better information.

The Commission promotes EU trade (both exports and imports) overall, including the use of EU FTAs through its website "Access2Markets,"²⁸⁾ which provides a wide range of information on tariffs, taxes, procedures, formalities and requirements, RoO, export measures, statistics, trade barriers, and pertinent details regarding how to trade with third countries. This should be considered in addition to efforts by individual EU MSs to promote trade and the use of EU FTAs. Similarly, Canada's Trade Commissioner Service²⁹⁾ aids exporters in the form of information regarding trade agreements, tariffs, and export controls, providing export guides and statistics and inviting exporters to join trade missions.

Korea's efforts in the area of trade appear to be more extensive and have been documented in academic studies. Cheong (2014) discusses Korean trade-related governmental agencies' efforts to provide programs to support FTA utilization by small and medium-sized enterprises (SMEs). The author notes that as an outcome of various surveys from 2008 to 2010, which found that the most significant barriers for Korean operators' (exporters and importers) utilization of FTAs were a lack of information (including among importers), difficulties in satisfying RoO, and low tariff preferential margins, the Korean government introduced an FTA Promotion and Policy Adjustment Authority.

The Authority arranged a national package of FTA information on policy, preferential tariffs, and RoO, provided FTA experts and consulting service, and set up local FTA assistance centers and FTA call centers. Cheong (2014) concludes that Korea's FTA support policy "can be evaluated as having achieved policy goals and has been successful in improving FTA utilization ratios," and may have contributed to the greater impact of time on the PUR of EU trade with Korea compared to EU trade with Canada.

F. Extensions

Some additional avenues seem worthy of exploration regarding potential factors behind the PURs. For example, does it matter if there are many similar transactions throughout the study period?³⁰⁾ Furthermore, does it make a difference if trade took place with a particular product *before* FTA implementation? These two points are examined below.³¹⁾

28) <https://trade.ec.europa.eu/access-to-markets/en/home>

29) <https://www.tradecommissioner.gc.ca/index.aspx?lang=eng>

30) In this case, that would mean the same rpp combination.

31) Data are not available to examine whether it is more difficult for SMEs to make use of FTAs in comparison

1. Transactions at the reporter-partner-product level and their lagged use of preferences

Many transactions with the same rpp combinations should facilitate the increased use of trade preferences, as information regarding the existence of an FTA is expected to spread with the number of such combinations. However, if an increase in rpp combinations involve the same firms only, no further information will be spread among additional firms regarding the FTA's opportunities. Still, the PDS increase for firms already involved in FTA-related trade, and the use of preferences should increase. Moreover, in view of potential learning effects to use trade preferences, the rpp combinations' use of preferences in the preceding seven-month period should have a positive impact on the PUR in the subsequent period, which is also examined.

Trade data at the monthly level is inherently volatile; hence, to examine whether the number of reporter(i)-partner(j)-product(k) (rpp) observations influence the use of trade preferences, the number of transactions is summarized in three seven-month periods ($7m_1$, $7m_2$, and $7m_3$). That is, the number of rpp combinations varies by seven-month period. Annex Table A6 indicates that large EU MSs account for most of the rpp combinations; in particular, Germany and France, but also Italy (for exports) and the Netherlands (for imports).³²⁾ Notably, Belgium and Sweden belong to the top five countries in terms of rpp combinations regarding imports from Canada and Spain is among this group of countries for EU exports to Canada and Korea. Poland also ranks high for exports to Canada and for imports from Korea.

To capture the impact of the number of rpp combinations, regression equation (4) is augmented with an additional term, $\beta_2 Count_{ijk7m}$, as shown in equation (8). The impact of the lagged use of preferences of the rpp combination in the previous seven-month period is captured by replacing $\beta_2 Count_{ijk7m}$ in equation (8) with $\beta_3 Count_use_{ijk7m-1}$.

$$PUR_{ijkt} = \alpha + \beta_1 \log(PDS_{ijkt}) + \beta_2 Count_{ijk7m} + \theta_t Month_t + \gamma_i EUMS_i + \tau_k Prod_k + \varepsilon_{ijkt} \quad (8)$$

Table 5 presents the coefficient estimates of the count of rpp combinations for the current seven-month periods and its lagged use in the preceding seven-month periods for EU trade with Canada and Korea.³³⁾ The number of rpp combinations has a positive impact on the PUR for all flows except EU exports to Canada. The result for EU exports to Canada does not change when any of the main MS exporters are removed from the sample. It also holds when the

to larger firms. Eurostats' database, Trade by Enterprise Characteristics, provide statistics on EU SMEs' imports and exports, but do not include importer-exporter-product dimensions.

32) The Netherlands' presence among EU MSs displaying the most rpp combinations in Annex Table A6 could be due to the so-called "Rotterdam effect." That is, goods bound for other EU countries arrive in Rotterdam and, according to EU rules, are recorded as extra-EU imports by the Netherlands (the country where goods are released for free circulation).

33) The regression results for the other variables are quantitatively and qualitatively similar to the results based on regression equation (4), which are presented in Annex Table A5.

most important preference eligible sector (HS XVII) is excluded from the regression.³⁴⁾

Turning to the results for the PURs of the rpp combinations lagged by one seven-month period, the table shows that the estimates are positive and significant for both EU partners and both directions of trade. Furthermore, the magnitudes of the coefficients are higher than for the coefficients of the count of the rpp combinations, indicating an effect in terms of learning how to use preferences over time.

Table 5. EU trade with Canada and Korea: The Impact of Reporter-partner-product Combinations and Lagged Use of Preferences

Coefficient estimate	Canada		Korea	
	EU imports	EU exports	EU imports	EU exports
Count of reporter-partner-product combinations by seven-month period ($Count_{ijk7\ m}$)	0.021*** (0.004)	-0.149*** (0.003)	0.060*** (0.003)	0.035*** (0.002)
Count of reporter-partner-product combinations using preferences, lagged by one seven-month period ($Count_use_{ijk7\ m-i}$)	0.433*** (0.005)	0.234*** (0.002)	0.303*** (0.002)	0.219*** (0.002)

(Source) Author estimations.

Note. The regression is based on equation (8), but only the results of the two main variables of interest in this section are presented.

2. Product trade prior to free trade agreement implementation

To test whether products traded before the implementation of the respective FTAs are more likely to make use of preferences, a comparison of products imported by the EU one calendar year prior to FTA implementation is made with products imported in the first full calendar year of implementation. For Korea, products imported in 2010 are compared to products imported in 2012. For Canada, the corresponding years are 2016 and 2018.

Product nomenclature is subject to changes and revisions. This information is readily available for EU imports,³⁵⁾ but not for EU exports. In the case of EU imports from Korea, 271 preference eligible products at the eight-digit level were subject to nomenclature changes between 2010 and 2012. In the case of Canada, 243 preference eligible products were subject to nomenclature changes in terms of EU imports between 2016 and 2018.

To capture the impact of previously traded products, a binary variable for products imported in 2010 and 2012 for EU imports from Korea and in 2016 and 2018 for EU imports from Canada is added to regression equation (4). The results are presented in Table 6, demonstrating that previously imported products from both Canada and Korea are more inclined to use preferences when FTAs were introduced. This finding also holds when products that are subject

34) A deeper analysis of the underlying reasons for this outcome is needed.

35) The analysis is therefore limited to the EU imports. See Reference and Management of Nomenclatures (RAMON), https://ec.europa.eu/eurostat/ramon/reactions/index.cfm?TargetUrl=LST_REL.

to nomenclature changes are removed from the regression, which renders the coefficient slightly higher, while it is slightly lower for EU imports from Korea once products with nomenclature changes are excluded.

Table 6. *EU Imports from Canada and Korea: The Impact of Previously Traded Products*

Coefficient estimate of the binary variable	Canada	Korea
Products traded in 2010 and 2012	-	0.102*** (0.016)
...excluding products with a nomenclature changes	-	0.078*** (0.020)
Products traded in 2016 and 2018	0.117*** (0.026)	-
...excluding products with a nomenclature changes	0.138*** (0.033)	-

(Source) Author estimations.

Note. The regression is based on adding a binary variable for previously traded products to equation (4). Only the results of this variable are presented in Table 6.

V. Summary, Conclusions, and the Way Forward

A. Summary and conclusions

Controlling for PDS, product, and country fixed effects, this study shows that time (in this case the first 21 months of implementation of the EU's FTAs with Canada and Korea) has a strong impact on the PUR and the impact of time on the PUR is roughly twice as high for EU trade with Korea in comparison to EU trade with Canada.

A breakdown of the impact of time on the PUR by MS elicits varying results depending on partner and direction of trade flow. Three MSs perform more poorly than the EU average for both imports from and exports to Canada and Korea (Ireland, Malta, and Romania). Similarly, only Denmark performs better than the EU average for trade in both directions with both countries. At the HS Section level, agricultural sectors outperform other sectors in terms of the PUR in EU trade with Canada, which is not evident in EU trade with Korea.

Further examining the impact of time on the PUR reveals that PDS become increasingly important over time, except for EU imports from Canada, while there are few changes regarding EU MS's performance in terms of PURs in trade with Canada and Korea against the EU average. At HS Section level, the performance of only a handful of product groups changes relative to the EU average over the study period.

Some empirical extensions further demonstrate that the number of transactions in terms of the number of rpp combinations has a positive impact on the PUR, as does the same combinations'

previous use of trade preferences. It is also determined that products imported prior to the respective FTAs' implementation have greater opportunities to use preferences once the agreements are applied.

The EU, Canada, and Korea all have dedicated sources of information available to help operators trade in general and to assist them in making full use of the FTAs available. It appears as if Korea has been putting such efforts in place relatively early, conducting surveys back in 2008 to 2010, finding that most Korean operators were unaware of FTAs' implementation. As a result, trade-related Korean governmental agencies launched programs to support SMEs' utilization of FTAs. This may have contributed to the larger impact of time on the PUR of EU trade with Korea compared to the PUR of EU trade with Canada demonstrated in this study.

Lack of knowledge and awareness seems to be the most plausible rationale for explaining why trade preferences are less used in the early days of an agreement. The fact that products using preferences in the first months of FTA implementation leads to an increased use of preferences in later months for the same products implies learning effects and knowledge-spread regarding the benefits of FTAs. Therefore, ongoing and continuous informational campaigns regarding the merits of specific FTAs appear to be essential for their use.

B. The way forward

While this paper sheds some light on a hitherto overlooked issue of the impact of time on the use of trade preferences, to get a full understanding of why preferences are not used in some cases, more detailed data connecting importers, potential intermediaries, and exporters are required. It seems logical to assume that preferences would not be used if the PDS is not large enough to cover the costs associated with making use of the preferences. However, as Gulczyński and Nilsson (2019) show, in many cases preferences are used, even at very low PDS, indicating the existence of fixed costs in using preferences. If operators make investments to meet fixed costs, preferences should be used in subsequent transactions no matter how low the PDS.

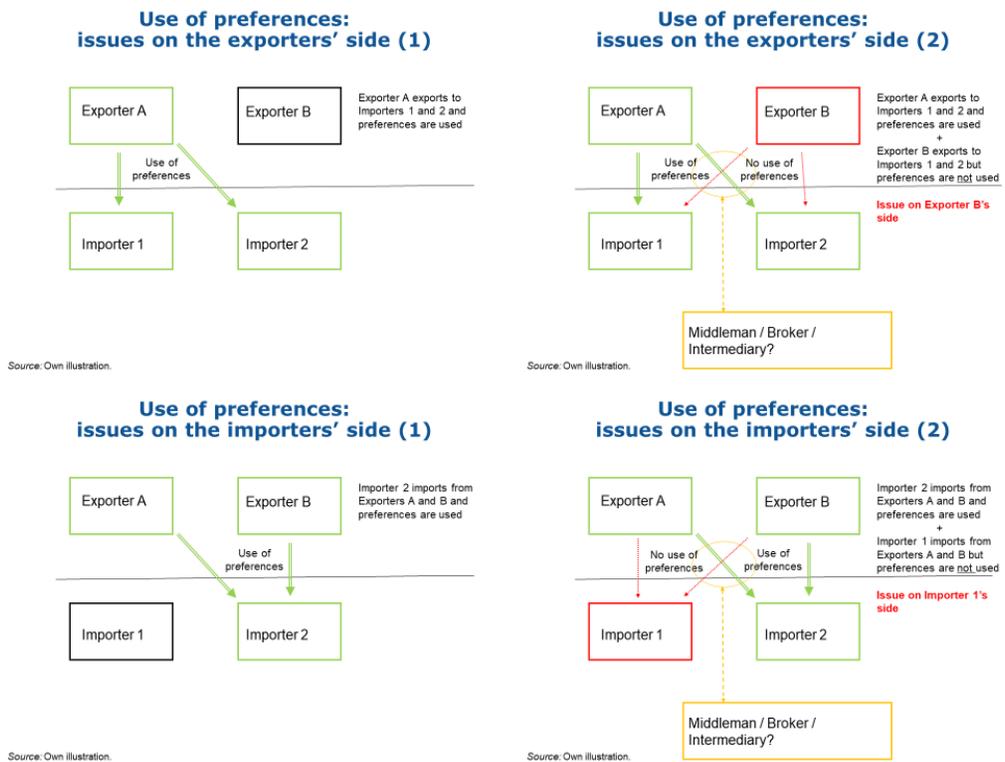
Reasons for not using preferences may be on the importers' side, the exporters' side, or both (excluding intermediaries for the time being). Consider the top left quadrant of Figure 12, in which Exporter A exports to Importer 1 and Importer 2 using preferences. In the top right quadrant, it can be concluded that when Exporter B also starts exporting to Importer 1 and Importer 2 and preferences are not used, there is an issue on the Exporter B's side; however, we cannot discern whether an intermediary has been involved and affected the transaction's use of preferences.

Similarly, in the lower left quadrant of Figure 12, Exporter A and Exporter B export to Importer 2 and preferences are used. If we then add exports from Exporter A and Exporter B to Importer 1 and we see that preferences are not used, this indicates an issue on Importer

l's side. Again, we do not have any information regarding the role of intermediaries in the transaction.

Hence, anonymized firm-pair transaction level data is needed to obtain a full understanding of when trade preferences are used and not used. Krishna et al. (2021) seem to take a first step in such direction.

Figure 12. Use of preferences: Issues on the importer's or the exporter's side



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Annex

Table A1. Potential Duty Savings and PURs on EU Imports from Canada and Korea, Months 1-7 and Months 15-21 of Implementation by MS

MS	Canada						Korea									
	PDS (m1-7)		PUR (m1-7)		PDS (m15-21)		PUR (m15-21)		PDS (m1-7)		PUR (m1-7)		PDS (m15-21)		PUR (m15-21)	
	€ mil.	%	€ mil.	%	€ mil.	%	€ mil.	%	€ mil.	%	€ mil.	%	€ mil.	%	€ mil.	%
AT	1.2	1.4	46.6	1.0	1.1	35.3	8.3	2.7	35.2	5.5	1.8	65.4				
BE	7.8	8.8	44.0	7.8	8.1	58.3	20.2	6.6	64.1	19.4	6.2	75.3				
BG	0.7	0.8	16.3	0.8	0.8	53.6	1.1	0.4	45.8	1.2	0.4	83.1				
CY	0.0	0.0	11.7	0.1	0.1	41.6	0.3	0.1	46.5	0.3	0.1	70.7				
CZ	1.1	1.3	30.7	1.4	1.4	47.7	33.0	10.8	91.7	29.3	9.4	96.0				
DE	20.1	22.6	19.1	21.8	22.7	29.3	56.1	18.3	58.0	61.8	19.8	74.9				
DK	5.7	6.5	57.2	4.0	4.2	75.4	2.4	0.8	72.3	3.9	1.3	84.7				
EE	0.3	0.3	54.1	0.3	0.3	69.6	0.5	0.2	70.8	0.5	0.2	80.8				
ES	5.5	6.2	54.2	6.8	7.0	61.6	17.6	5.7	73.0	19.2	6.2	83.3				
FI	2.9	3.3	54.9	2.5	2.6	62.2	2.7	0.9	57.0	5.0	1.6	85.8				
FR	9.7	10.9	45.8	10.1	10.5	60.0	38.9	12.7	77.6	31.5	10.1	84.3				
GR	0.3	0.3	50.6	0.7	0.8	46.9	4.0	1.3	77.9	4.2	1.3	92.4				
HR	0.1	0.1	16.5	0.3	0.4	28.4	-	-	-	-	-	-				
HU	0.3	0.4	26.2	0.3	0.3	31.9	4.8	1.5	56.2	4.7	1.5	69.8				
IE	0.9	1.1	68.3	2.4	2.5	91.5	3.4	1.1	9.9	3.2	1.0	49.6				
IT	4.5	5.1	31.8	5.4	5.6	42.5	26.8	8.7	63.4	28.9	9.3	82.1				
LT	0.3	0.3	15.0	0.2	0.2	6.4	0.5	0.2	30.3	0.7	0.2	66.1				
LU	0.5	0.6	44.1	0.5	0.5	56.1	0.1	0.0	16.2	0.1	0.0	56.3				
LV	0.1	0.1	25.6	0.1	0.1	53.3	0.5	0.2	52.7	0.2	0.1	64.3				
MT	0.0	0.1	0.6	0.0	0.0	5.1	0.3	0.1	57.3	0.4	0.1	84.8				
NL	21.2	23.8	67.1	24.5	25.4	81.0	39.3	12.8	47.5	36.1	11.6	74.4				
PL	0.9	1.1	25.6	0.8	0.8	51.6	15.4	5.0	54.9	17.5	5.6	68.5				
PT	1.0	1.1	58.0	0.8	0.8	51.8	4.1	1.4	76.0	2.8	0.9	82.2				
RO	0.6	0.7	28.0	0.7	0.7	29.3	2.3	0.8	49.1	4.7	1.5	72.1				
SE	2.5	2.8	34.1	2.6	2.7	43.1	6.6	2.2	61.8	8.1	2.6	75.9				
SI	0.1	0.2	31.1	0.2	0.2	52.8	7.5	2.5	76.8	7.8	2.5	86.2				
SK	0.1	0.1	25.0	0.2	0.2	57.7	9.8	3.2	57.5	14.6	4.7	75.7				
Tot.	88.8	100.0	40.8	96.4	100.0	53.9	306.5	100.0	63.5	311.5	100.0	79.0				

(Source) Eurostat.

Note. Blue indicates the top five, while red denotes the bottom five.

Table A2. Potential Duty Savings and PURs on EU Imports from Canada and Korea, Months 1-7 and Months 15-21 of Implementation by HS Section

HS	Canada						Korea					
	PDS (m1-7)		PUR (m1-7)	PDS (m15-21)		PUR (m15-21)	PDS (m1-7)		PUR (m1-7)	PDS (m15-21)		PUR (m15-21)
	€ mil.	%	%	€ mil.	%	%	€ mil.	%	%	€ mil.	%	%
I	12.9	14.5	81.8	13.7	14.2	85.9	0.5	0.2	48.2	1.0	0.3	74.7
II	0.9	1.1	78.4	0.7	0.8	52.6	0.3	0.1	78.9	0.4	0.1	79.4
III	0.2	0.2	47.6	0.2	0.2	78.1	0.1	0.0	63.2	0.1	0.0	64.9
IV	12.7	14.3	66.6	12.8	13.2	87.9	2.6	0.9	40.3	3.4	1.1	57.9
V	2.6	2.9	80.4	3.3	3.4	94.6	49.4	16.1	78.8	29.0	9.3	91.1
VI	8.7	9.8	55.6	8.4	8.7	70.0	16.7	5.4	63.3	22.0	7.1	77.1
VII	7.8	8.8	43.1	9.2	9.6	57.7	40.3	13.1	75.6	52.7	16.9	89.3
VIII	0.3	0.4	30.2	0.2	0.2	19.1	0.7	0.2	19.6	2.4	0.8	19.7
IX	0.3	0.3	57.5	0.3	0.3	70.4	0.0	0.0	22.9	0.0	0.0	57.0
X	-	-	-	-	-	-	-	-	-	-	-	-
XI	9.3	10.5	42.7	9.0	9.3	59.5	33.5	10.9	70.3	33.1	10.6	82.9
XII	0.3	0.4	8.5	0.3	0.3	16.5	1.3	0.4	65.5	1.2	0.4	75.0
XIII	0.5	0.5	17.8	0.5	0.5	26.1	2.2	0.7	0.0	2.1	0.7	73.3
XIV	0.1	0.1	3.7	0.1	0.1	22.6	0.5	0.2	18.8	0.5	0.2	29.6
XV	7.8	8.8	65.8	10.8	11.2	76.8	16.7	5.4	57.8	16.4	5.3	78.0
XVI	13.2	14.8	18.3	14.2	14.8	35.7	55.0	18.0	50.5	57.0	18.3	65.7
XVII	8.5	9.6	27.3	9.9	10.3	23.6	74.6	24.3	68.8	81.3	26.1	87.3
XVIII	1.4	1.5	7.7	1.3	1.3	24.6	6.0	1.9	44.0	5.0	1.6	61.9
XIX	0.1	0.1	20.5	0.2	0.2	59.3	0.2	0.1	87.9	0.2	0.1	85.9
XX	1.1	1.2	19.6	1.2	1.3	53.3	6.0	2.0	17.4	3.8	1.2	64.2
XXI	-	-	-	-	-	-	-	-	-	-	-	-
Tot.	88.8	100.0	40.8	96.4	100.0	53.9	306.5	100.0	63.5	311.5	100.0	79.0

(Source) Eurostat.

Note. Figures differ slightly from Table A1 above since confidential goods imports are included in the former table but are not classified by HS Section. Blue indicates the top five, while red denotes the bottom five.

Table A3. Potential Duty Savings and PURs on EU Exports to Canada and Korea, Months 1-7 and Months 15-21 of Implementation by MS

MS	Canada						Korea					
	PDS (m1-7)		PUR (m1-7)	PDS (m15-21)		PUR (m15-21)	PDS (m1-7)		PUR (m1-7)	PDS (m15-21)		PUR (m15-21)
	€ mil.	%	%	€ mil.	%	%	€ mil.	%	%	€ mil.	%	%
AT	3.4	1.1	31.7	4.2	1.2	29.0	19.2	3.1	63.6	24.6	3.5	82.5
BE	7.5	2.4	47.3	9.3	2.6	62.3	18.8	3.1	45.5	22.2	3.1	71.0
BG	3.0	1.0	40.1	3.2	0.9	39.7	2.1	0.3	11.6	2.4	0.3	17.8
CY	0.0	0.0	89.5	0.0	0.0	92.9	0.0	0.0	7.5	0.0	0.0	88.7
CZ	3.2	1.0	38.4	3.8	1.1	48.7	10.8	1.8	56.8	10.1	1.4	69.6
DE	69.7	22.5	10.8	79.3	22.4	23.6	261.1	42.6	57.5	310.6	43.8	78.2
DK	2.3	0.7	57.1	2.9	0.8	73.5	11.1	1.8	59.0	13.5	1.9	62.5
EE	0.6	0.2	37.9	0.4	0.1	59.8	0.3	0.1	55.0	0.5	0.1	74.1
ES	14.9	4.8	46.9	17.2	4.9	71.6	19.8	3.2	34.0	27.2	3.8	61.3
FI	1.5	0.5	61.5	1.9	0.5	70.2	6.0	1.0	73.1	7.1	1.0	83.5
FR	37.5	12.1	46.8	45.8	12.9	49.9	77.5	12.6	46.9	82.0	11.6	65.0
GR	2.6	0.9	46.9	2.3	0.6	68.1	0.7	0.1	44.0	0.9	0.1	77.0
HR	4.8	1.5	13.2	1.1	0.3	78.4	-	-	-	-	-	-
HU	4.5	1.5	17.2	4.5	1.3	22.7	10.4	1.7	49.7	9.0	1.3	56.4
IE	2.1	0.7	28.4	3.6	1.0	62.9	4.7	0.8	54.6	5.4	0.8	62.0
IT	91.9	29.7	47.1	102.3	29.0	62.4	96.9	15.8	39.0	102.9	14.5	64.6
LT	1.7	0.5	25.9	2.2	0.6	38.2	0.8	0.1	55.3	0.7	0.1	79.3
LU	0.4	0.1	37.4	0.3	0.1	20.4	0.6	0.1	39.6	0.7	0.1	74.7
LV	0.2	0.1	21.9	0.2	0.1	19.5	0.3	0.1	64.5	0.5	0.1	78.6
MT	0.1	0.0	31.9	0.1	0.0	38.6	1.0	0.2	4.0	0.2	0.0	25.7
NL	13.8	4.5	33.3	13.7	3.9	37.5	27.2	4.4	52.5	25.9	3.6	76.9
PL	11.7	3.8	34.1	17.1	4.8	33.9	10.0	1.6	59.0	14.3	2.0	78.2
PT	13.1	4.2	56.6	14.0	4.0	72.6	3.4	0.6	36.5	5.7	0.8	65.5
RO	7.2	2.3	41.7	8.1	2.3	56.2	10.9	1.8	76.7	15.0	2.1	83.6
SE	5.1	1.7	13.6	5.6	1.6	80.2	15.5	2.5	62.6	22.5	3.2	80.8
SI	1.0	0.3	54.4	1.2	0.3	69.8	1.6	0.3	25.5	1.4	0.2	56.5
SK	5.5	1.8	3.2	9.1	2.6	42.0	2.9	0.5	55.2	3.9	0.5	77.4
Tot.	309.5	100.0	29.7	353.5	100.0	45.4	613.7	100.0	52.5	709.2	100.0	73.2

(Source) Eurostat.

Note. Blue indicates the top five, while red denotes the bottom five.

Table A4. Potential Duty Savings and PURs on EU Exports to Canada and Korea, Months 1-7 and Months 15-21 of Implementation by HS Section (€ million and %)

HS	Canada						Korea					
	PDS (m1-7)		PUR (m1-7)	PDS (m15-21)		PUR (m15-21)	PDS (m1-7)		PUR (m1-7)	PDS (m15-21)		PUR (m15-21)
	€ mil.	%	%	€ mil.	%	%	€ mil.	%	%	€ mil.	%	%
I	0.9	0.3	68.9	1.1	0.3	86.2	33.6	5.5	20.3	26.2	3.7	88.8
II	0.8	0.3	72.6	1.9	0.5	83.5	3.2	0.5	59.7	3.2	0.4	80.0
III	0.4	0.1	47.5	0.5	0.1	58.1	1.0	0.2	5.1	0.7	0.1	17.6
IV	29.4	9.5	58.5	31.1	8.8	72.9	16.2	2.6	50.5	21.8	3.1	78.3
V	0.2	0.1	24.3	0.3	0.1	37.3	4.3	0.7	31.4	15.6	2.2	44.5
VI	29.5	9.5	45.6	32.5	9.2	53.7	66.5	10.8	51.9	83.8	11.8	74.5
VII	16.6	5.4	52.9	20.3	5.7	62.8	27.6	4.5	54.4	28.9	4.1	84.2
VIII	14.6	4.7	32.3	16.8	4.7	47.5	30.6	5.0	28.0	32.9	4.6	43.0
IX	1.0	0.3	61.9	1.4	0.4	68.4	0.8	0.1	67.5	1.0	0.1	89.1
X	-	-	-	-	-	-	-	-	-	-	-	-
XI	49.8	16.1	46.4	54.8	15.5	55.6	37.4	6.1	40.5	37.1	5.2	62.6
XII	25.9	8.4	59.2	29.4	8.3	70.3	9.3	1.5	32.4	11.4	1.6	58.3
XIII	10.5	3.4	77.7	10.5	3.0	85.7	10.0	1.6	68.8	10.7	1.5	85.7
XIV	7.8	2.5	36.9	7.3	2.1	52.1	5.5	0.9	17.3	6.3	0.9	20.8
XV	12.1	3.9	35.2	14.1	4.0	44.7	32.5	5.3	54.1	32.9	4.6	67.5
XVI	11.6	3.7	36.5	10.2	2.9	51.1	207.3	33.8	56.5	234.3	33.0	73.0
XVII	72.0	23.3	6.1	93.8	26.5	26.7	71.3	11.6	72.1	90.5	12.8	93.0
XVIII	2.8	0.9	13.5	2.6	0.7	18.1	49.8	8.1	40.2	64.5	9.1	60.7
XIX	1.3	0.4	28.9	1.7	0.5	35.8	0.1	0.0	47.2	0.1	0.0	73.2
XX	22.3	7.2	34.6	23.1	6.5	38.5	6.8	1.1	57.3	7.1	1.0	73.3
XXI	0.0	0.0	19.2	0.0	0.0	42.8	-	-	-	-	-	-
Tot.	309.5	100.0	29.7	353.5	100.0	45.4	613.7	100.0	52.5	709.2	100.0	73.2

(Source) Eurostat.

Note. Figures may differ slightly from Table A3 above since confidential goods exports are included in the former table but are not classified by HS Section. Blue indicates the top five, while red denotes the bottom five.

Table A5. *EU Trade with Canada and Korea—fractional Logit Regression Results of the Use of Preferences: MS and HS Section Fixed Effects*

Independent Variables	Canada		Korea	
	EU Imports	EU Exports	EU Imports	EU Exports
Belgium (BE)	0.680*** (0.0532)	0.440*** (0.0306)	-0.515*** (0.0293)	-0.166*** (0.0232)
Bulgaria (BG)	0.0600 (0.114)	0.169*** (0.0341)	-0.115** (0.0451)	-0.227*** (0.0389)
Cyprus (CY)	-0.578*** (0.172)	0.997*** (0.136)	-0.530*** (0.0628)	-1.445*** (0.241)
Czechia (CZ)	0.968*** (0.0575)	0.214*** (0.0330)	0.433*** (0.0283)	-0.117*** (0.0255)
Germany (DE)	0.0498 (0.0509)	-0.0658*** (0.0253)	-0.503*** (0.0242)	-0.185*** (0.0177)
Denmark (DK)	0.886*** (0.0610)	0.353*** (0.0322)	-0.0241 (0.0368)	0.135*** (0.0242)
Estonia (EE)	0.482*** (0.112)	0.582*** (0.0501)	-0.648*** (0.0535)	0.296*** (0.0602)
Spain (ES)	0.796*** (0.0544)	0.623*** (0.0268)	0.169*** (0.0273)	-0.214*** (0.0216)
Finland (FI)	0.952*** (0.0563)	0.334*** (0.0395)	0.0225 (0.0384)	0.324*** (0.0295)
France (FR)	0.912*** (0.0515)	0.340*** (0.0252)	-0.511*** (0.0262)	-0.221*** (0.0187)
Greece (GR)	0.951*** (0.0863)	0.945*** (0.0387)	0.417*** (0.0392)	-1.003*** (0.0536)
Croatia (HR)	0.368*** (0.102)	0.733*** (0.0423)		
Hungary (HU)	0.0680 (0.0802)	0.281*** (0.0322)	-0.0688** (0.0337)	-0.606*** (0.0285)
Ireland (IE)	0.00181 (0.0716)	0.180*** (0.0419)	-1.051*** (0.0551)	-0.728*** (0.0355)
Italy (IT)	0.175*** (0.0568)	0.554*** (0.0248)	-0.136*** (0.0263)	-0.374*** (0.0184)
Lithuania (LT)	-0.863*** (0.145)	0.782*** (0.0364)	-0.624*** (0.0528)	-0.200*** (0.0529)
Luxembourg (LU)	-0.116 (0.115)	-0.0426 (0.0963)	-0.517*** (0.105)	-0.152** (0.0623)
Latvia (LV)	1.169*** (0.0976)	0.755*** (0.0502)	-0.934*** (0.0595)	-0.178*** (0.0647)
Malta (MT)	-1.307*** (0.289)	-0.128 (0.0982)	-0.510*** (0.0722)	-0.936*** (0.111)
Netherlands (NL)	0.954*** (0.0505)	0.504*** (0.0282)	-0.279*** (0.0260)	-0.326*** (0.0213)

Table A5. Continued

Independent Variables	Canada		Korea	
	EU Imports	EU Exports	EU Imports	EU Exports
Poland (PL)	0.594*** (0.0627)	0.676*** (0.0275)	-0.172*** (0.0277)	-0.273*** (0.0265)
Portugal (PT)	0.117 (0.0753)	0.838*** (0.0273)	0.00949 (0.0392)	-0.203*** (0.0296)
Romania (RO)	0.105 (0.0849)	0.326*** (0.0302)	-0.786*** (0.0381)	-0.560*** (0.0311)
Sweden (SE)	0.527*** (0.0551)	-0.689*** (0.0340)	-0.357*** (0.0291)	0.114*** (0.0229)
Slovenia (SI)	0.740*** (0.0935)	0.417*** (0.0402)	0.179*** (0.0368)	-0.320*** (0.0425)
Slovakia (SK)	0.646*** (0.108)	0.149*** (0.0389)	0.0351 (0.0324)	-0.456*** (0.0360)
II. Vegetable products	-1.164*** (0.0802)	-0.740*** (0.104)	-0.184 (0.140)	0.259*** (0.0451)
III. Animal or vegetable fats	-0.675*** (0.120)	-1.557*** (0.117)	-0.557** (0.220)	-0.657*** (0.0693)
IV. Prepared foodstuffs	-0.802*** (0.0597)	-0.469*** (0.0961)	-0.352*** (0.118)	0.196*** (0.0343)
V. Mineral products	-0.777*** (0.0897)	-1.994*** (0.120)	0.333** (0.138)	0.437*** (0.0446)
VI. Chemical products	-1.232*** (0.0543)	-1.978*** (0.0963)	0.0579 (0.113)	0.464*** (0.0318)
VII. Plastics & rubber	-1.417*** (0.0546)	-2.156*** (0.0963)	0.476*** (0.112)	0.536*** (0.0332)
VIII. Hides & skins, leather	-2.130*** (0.0807)	-1.892*** (0.0981)	-0.633*** (0.121)	0.124*** (0.0377)
IX. Wood & wood products	-0.876*** (0.0991)	-1.495*** (0.0998)	0.256 (0.178)	0.526*** (0.0447)
XI. Textiles & textile articles	-1.926*** (0.0537)	-1.497*** (0.0956)	0.0548 (0.112)	0.321*** (0.0320)
XII. Footwear, headgear	-2.894*** (0.0861)	-1.460*** (0.0972)	-0.184 (0.118)	0.186*** (0.0427)
XIII. Articles of stone, plaster, cement, asbestos	-1.823*** (0.0741)	-1.629*** (0.0976)	-0.0245 (0.115)	0.547*** (0.0357)
XIV. Pearls, (semi-)precious stones & metals	-3.174*** (0.146)	-1.823*** (0.104)	-1.084*** (0.134)	0.0721 (0.0505)
XV. Base metals & articles thereof	-1.654*** (0.0542)	-2.105*** (0.0962)	0.382*** (0.112)	0.397*** (0.0328)
XVI. Machinery & mechanical appliances	-1.737*** (0.0518)	-2.852*** (0.0977)	-0.278** (0.112)	0.210*** (0.0311)
XVII. Transportation equipment	-2.524*** (0.0612)	-3.227*** (0.0976)	0.0827 (0.113)	0.232*** (0.0376)

Table A5. Continued

Independent Variables	Canada		Korea	
	EU Imports	EU Exports	EU Imports	EU Exports
XVIII. Instruments - measuring, musical	-2.064*** (0.0606)	-2.344*** (0.0993)	-0.554*** (0.114)	-0.0228 (0.0330)
XIX. Arms & ammunition	-2.175*** (0.134)	-2.243*** (0.105)	-0.0380 (0.178)	0.335*** (0.127)
XX. Miscellaneous manufactures	-1.737*** (0.0605)	-2.040*** (0.0964)	-0.0404 (0.114)	0.121*** (0.0366)
XXI. Works of art	-	-2.005*** (0.191)	-	-

(Source) Author estimations.

Note. Standard errors are in parentheses. ***p<0.01, **p<0.05, *p<0.1. AT and HS I. are reference categories for the binary variables.

Table A6. EU Trade with Canada and Korea: Reporter-partner-product Combinations

MS	Canada				Korea			
	Imports		Exports		Imports		Exports	
	#	%	#	%	#	%	#	%
AT	34,003	4.1	60,787	4.4	59,050	5.2	71,041	4.8
BE	66,989	8.1	51,306	3.7	57,669	5.0	61,852	4.1
BG	3,846	0.5	32,784	2.3	13,378	1.2	13,300	0.9
CY	1,545	0.2	872	0.1	4,875	0.4	205	0.0
CZ	35,705	4.3	42,867	3.1	60,470	5.3	45,886	3.1
DE	155,080	18.8	176,067	12.6	185,983	16.3	345,079	23.1
DK	21,812	2.6	43,600	3.1	22,629	2.0	52,064	3.5
EE	3,785	0.5	9,677	0.7	10,901	1.0	4,866	0.3
ES	44,851	5.4	92,620	6.6	66,612	5.8	81,932	5.5
FI	39,981	4.9	22,808	1.6	19,853	1.7	27,504	1.8
FR	82,041	10.0	159,030	11.4	96,936	8.5	194,437	13.0
GR	4,522	0.5	20,101	1.4	14,819	1.3	6,225	0.4
HR	5,310	0.6	14,639	1.0	-	-	-	-
HU	13,857	1.7	41,295	3.0	40,809	3.6	35,174	2.4
IE	23,583	2.9	19,380	1.4	11,366	1.0	18,851	1.3
IT	33,953	4.1	182,200	13.0	80,027	7.0	240,209	16.1
LT	5,540	0.7	22,695	1.6	10,722	0.9	5,379	0.4
LU	9,232	1.1	2,993	0.2	2,323	0.2	4,115	0.3
LV	2,827	0.3	7,600	0.5	10,532	0.9	2,874	0.2
MT	2,322	0.3	2,753	0.2	3,899	0.3	1,477	0.1
NL	117,015	14.2	75,784	5.4	109,939	9.6	86,394	5.8
PL	23,227	2.8	79,349	5.7	74,321	6.5	39,090	2.6
PT	13,017	1.6	73,327	5.2	19,854	1.7	29,034	1.9
RO	9,815	1.2	49,643	3.6	30,942	2.7	27,593	1.9
SE	60,427	7.3	70,890	5.1	68,317	6.0	68,849	4.6
SI	5,193	0.6	18,685	1.3	24,171	2.1	10,485	0.7
SK	3,634	0.4	23,497	1.7	42,445	3.7	16,914	1.1
Tot.	823,112	100.0	1,397,249	100.0	1,142,842	100.0	1,490,829	100.0

Table A7. *Correspondence between HS Sections and Chapters*

HS Section	HS Chapters
I. Animals & animal products	1-5
II. Vegetable products	6-14
III. Animal or vegetable fats	15
IV. Prepared foodstuffs	16-24
V. Mineral products	25-27
VI. Chemical products	28-38
VII. Plastics & rubber	39-40
VIII. Hides & skins, leather	41-43
IX. Wood & wood products	44-46
X. Wood pulp products	47-49
XI. Textiles & textile articles	50-63
XII. Footwear, headgear	64-67
XIII. Articles of stone, plaster, cement, asbestos	68-70
XIV. Pearls, (semi-)precious stones & metals	71
XV. Base metals & articles thereof	72-83
XVI. Machinery & mechanical appliances	84-85
XVII. Transportation equipment	86-89
XVIII. Instruments - measuring, musical	90-92
XIX. Arms & ammunition	93
XX. Miscellaneous manufactures	94-96
XXI. Works of art	97

Figure A1. Preference utilization rates of EU member states' imports from Canada, first 21 months of CETA (%)

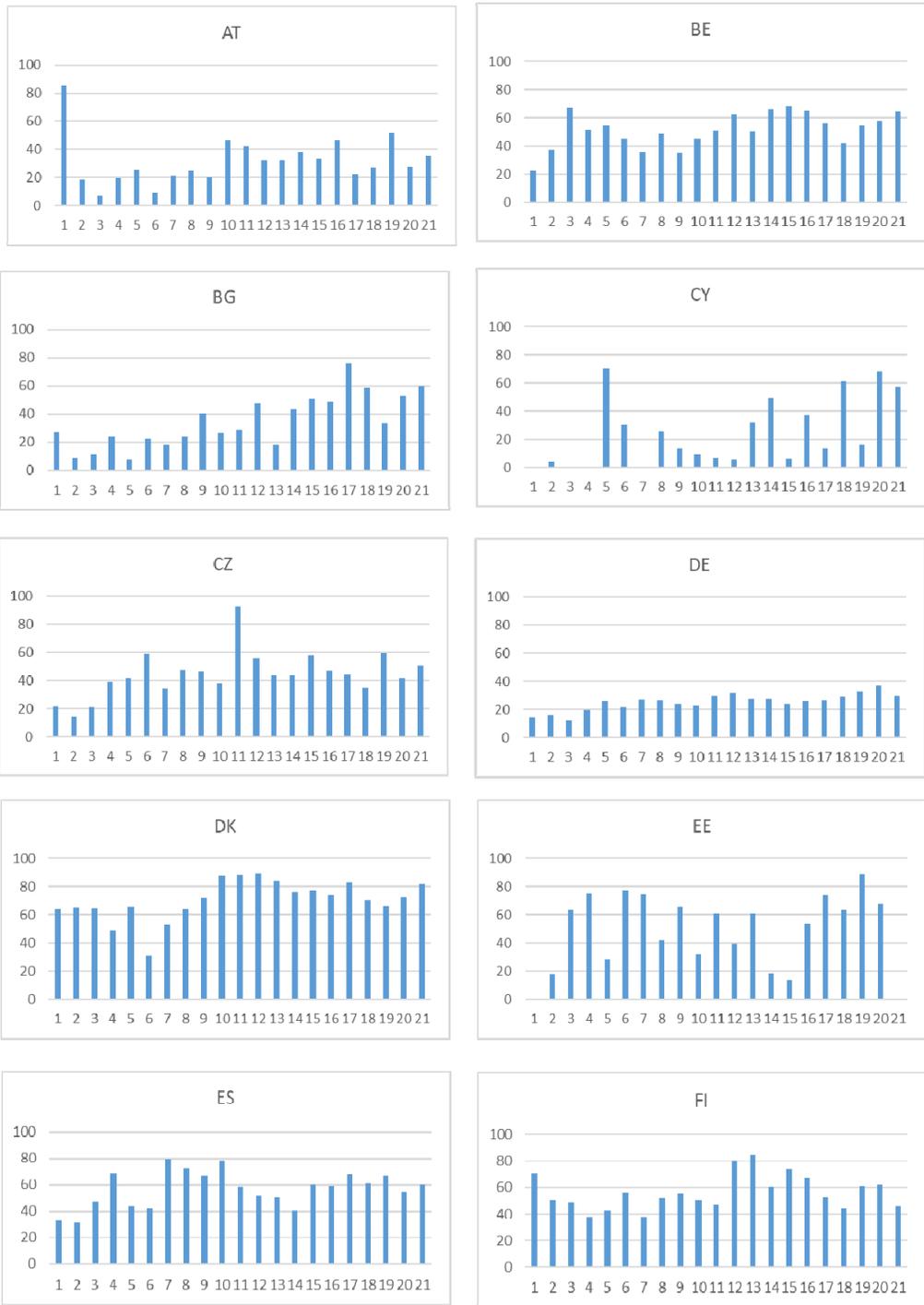


Figure A1. Continued

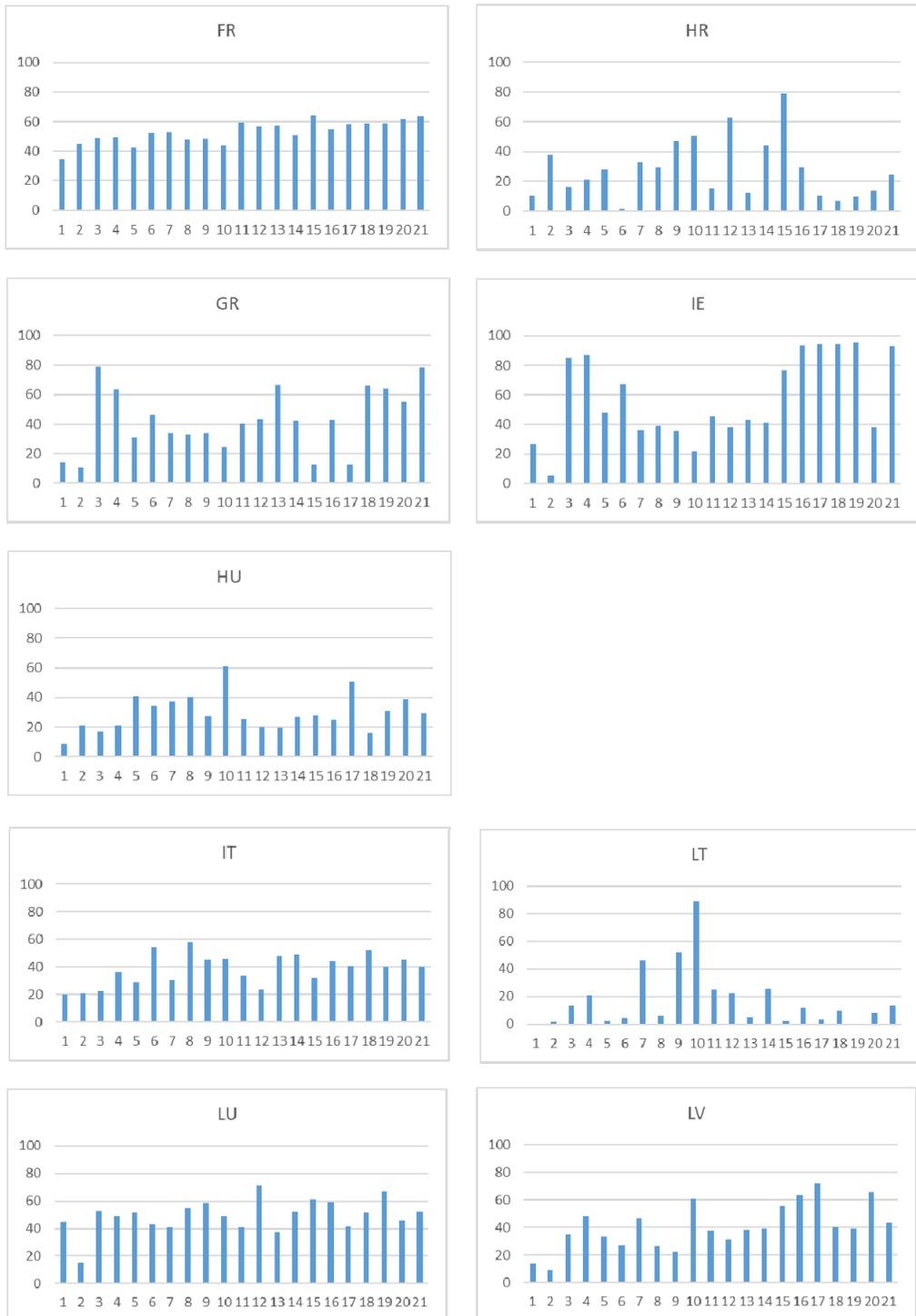


Figure A1. Continued



(Source) Author calculations based on Eurostat data.

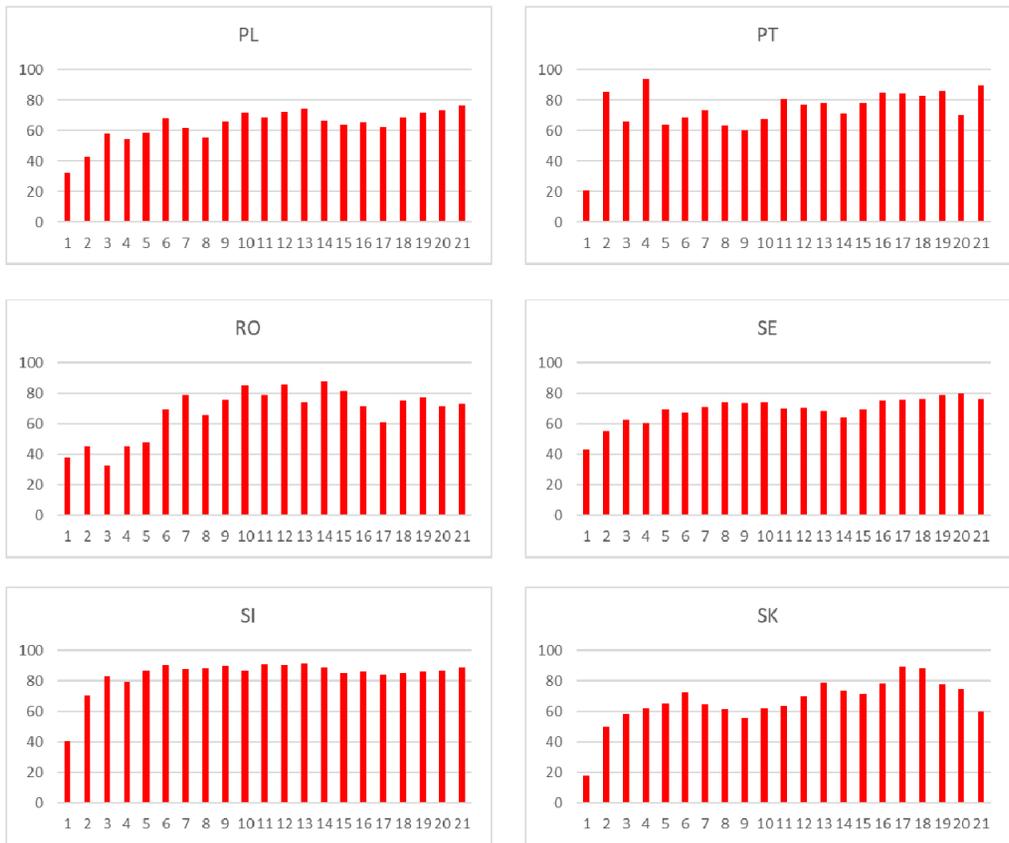
Figure A2. Preference utilization rates of EU imports from Korea, first 21 months of the Korea-EU FTA (%)



Figure A2. Continued



Figure A2. Continued



(Source) Author calculations based on Eurostat data.

Figure A3. Preference utilization rates of EU imports from Canada by harmonized system section, first 21 months of CETA (%)

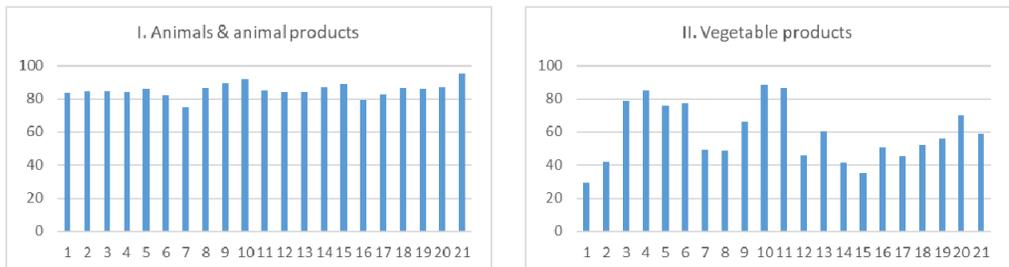


Figure A3. Continued

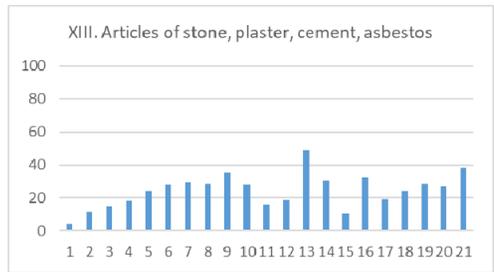
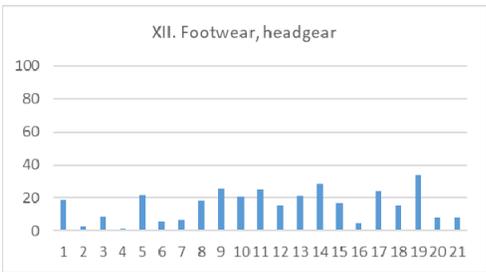
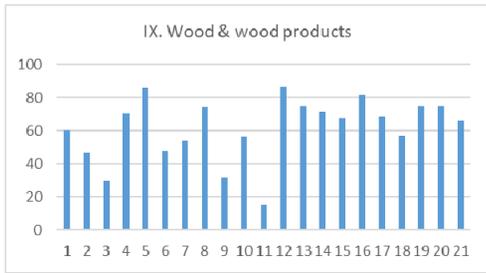
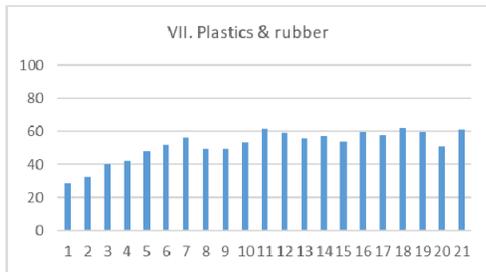
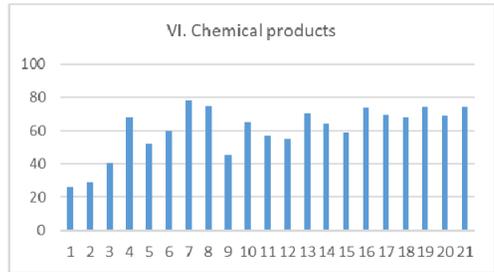
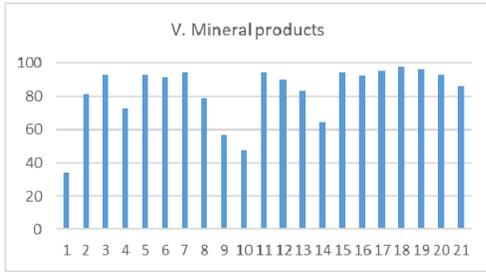
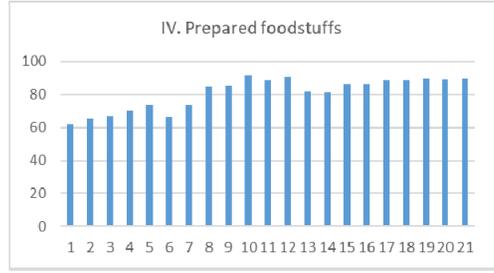
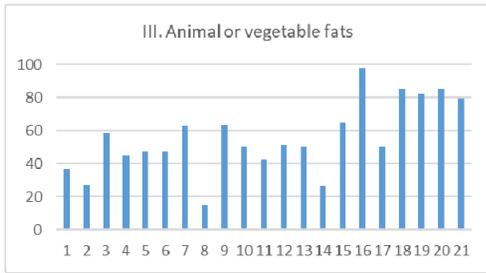


Figure A3. Continued



Figure A4. Continued

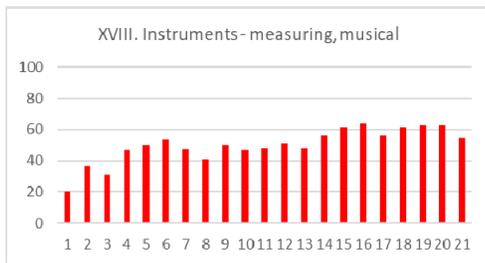
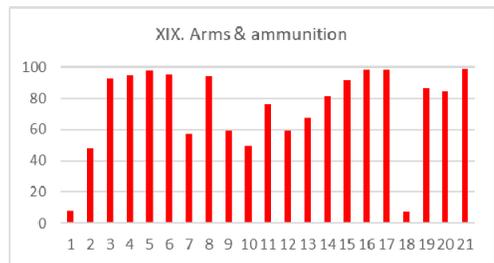
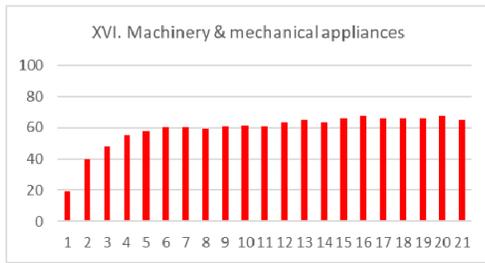
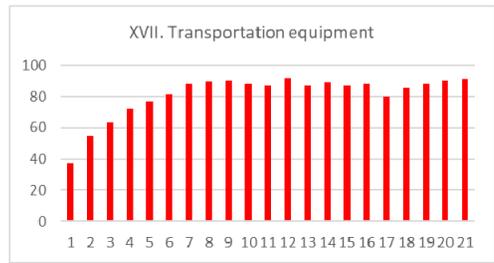
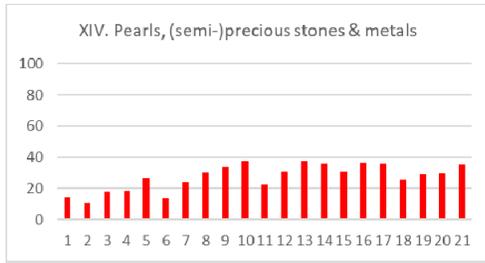
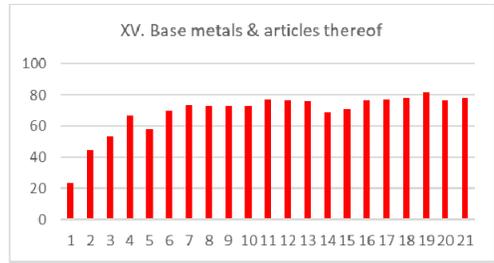
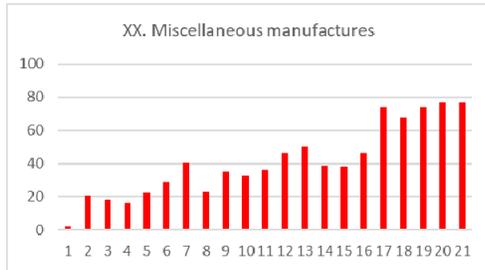
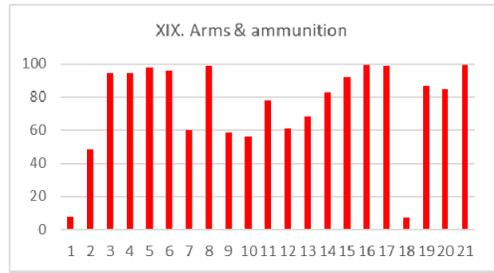
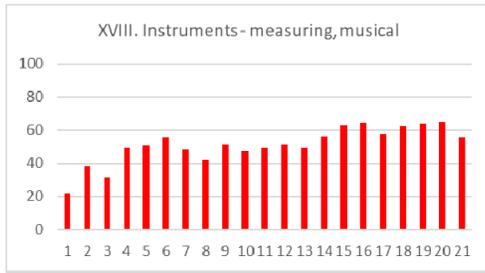


Figure A4. Continued

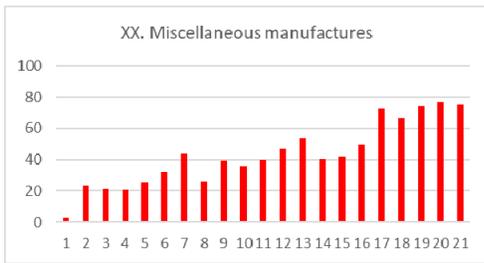


Figure A5. Preference utilization rates of EU member states' exports to Canada, first 21 months of CETA (%)



Figure A5. Continued

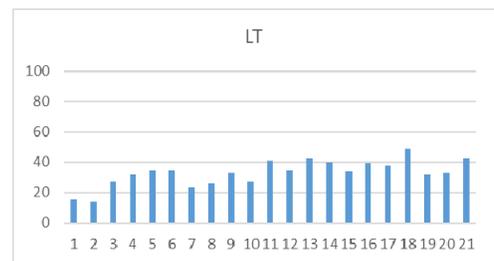
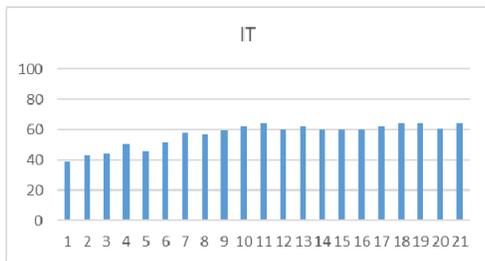
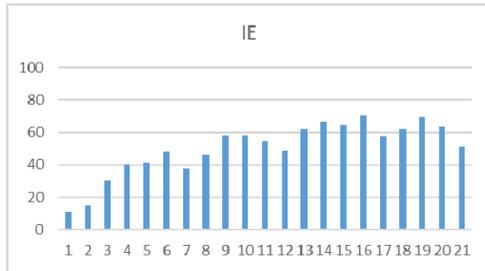
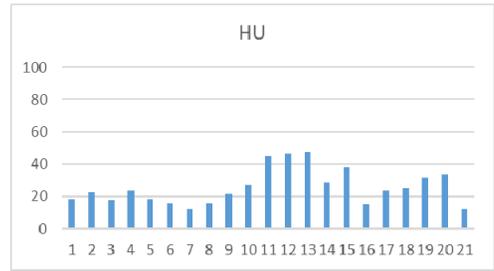
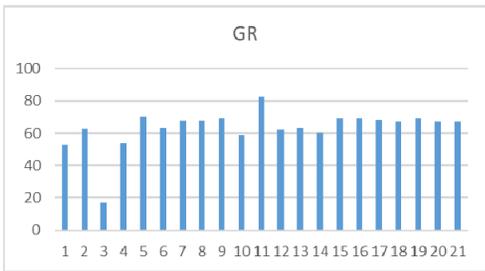
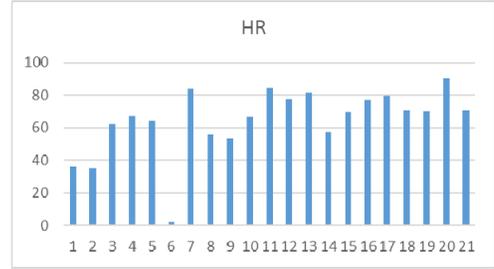
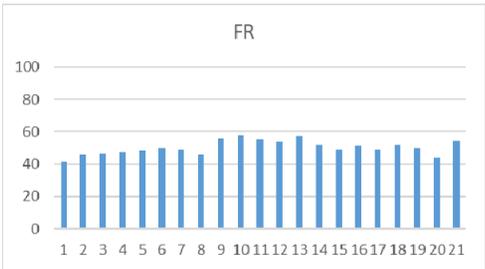
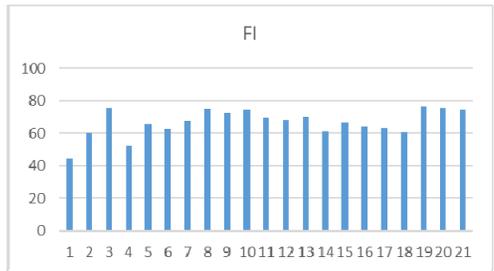
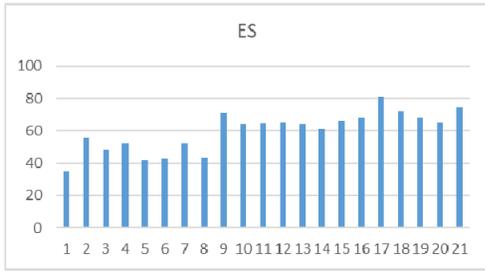
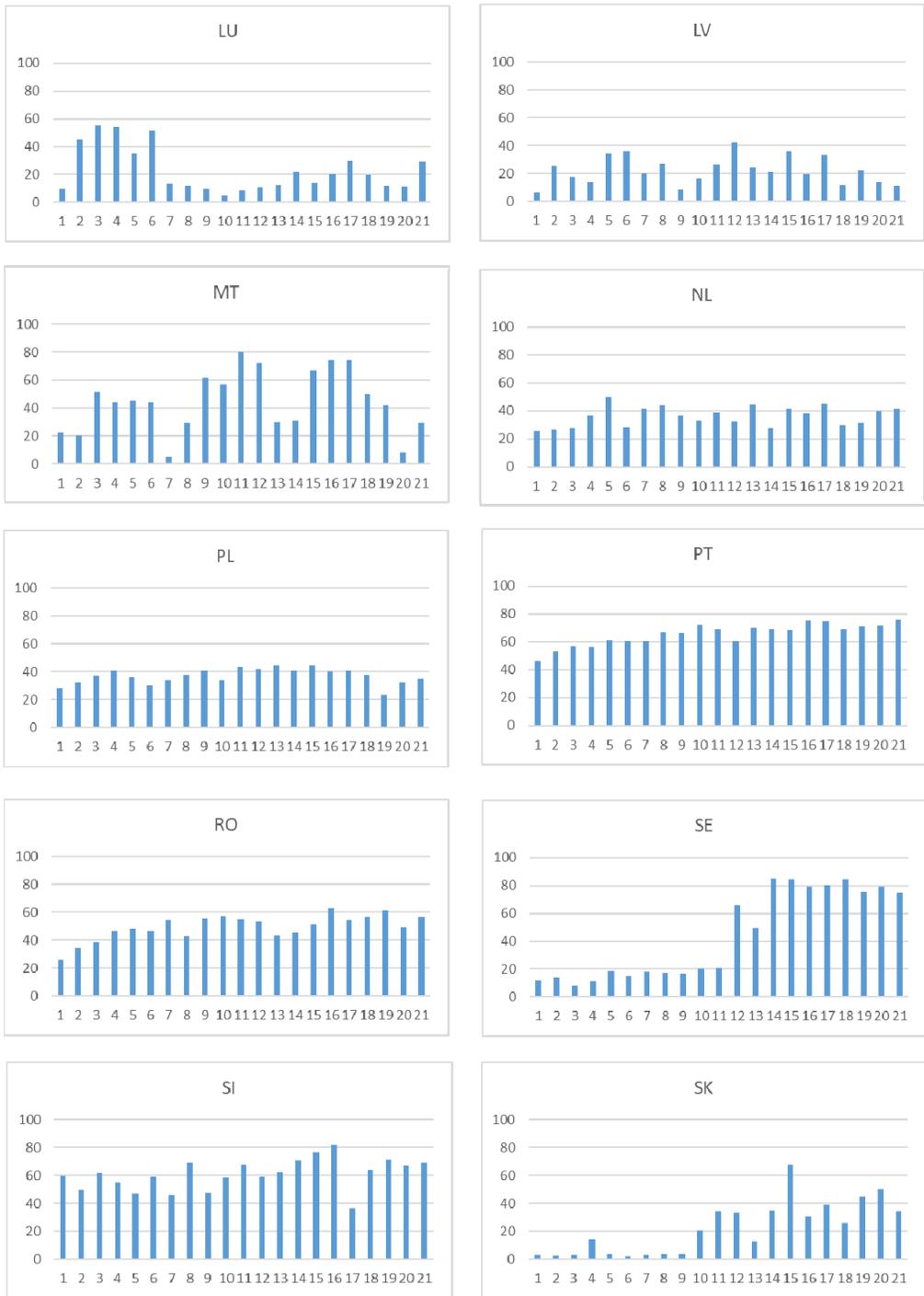


Figure A5. Continued

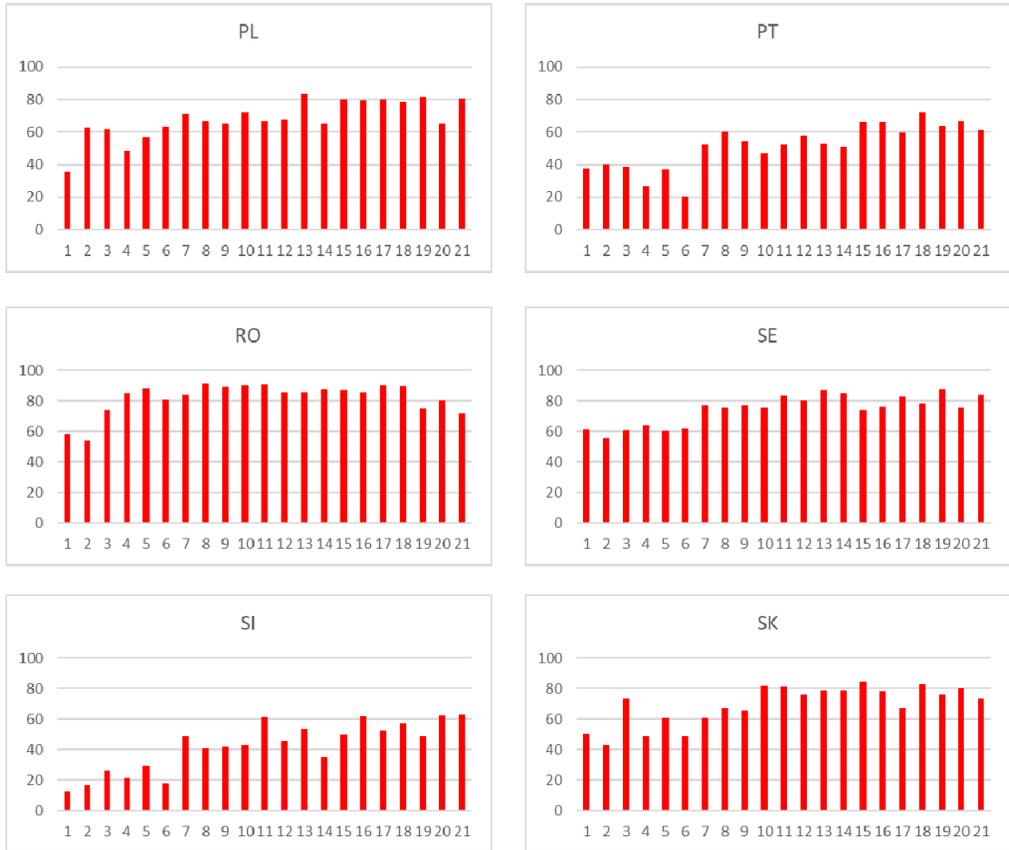


(Source) Author calculations based on data from Canadian Customs.

Figure A6. Preference utilization rates of EU member states' exports to Korea, first 21 months of the Korea-EU free trade agreement (%)



Figure A6. Continued



(Source) Author calculations based on data from Korean Customs Service.

Figure A7. Preference utilization rates of EU exports to Canada by harmonized system section, first 21 months of CETA (%)

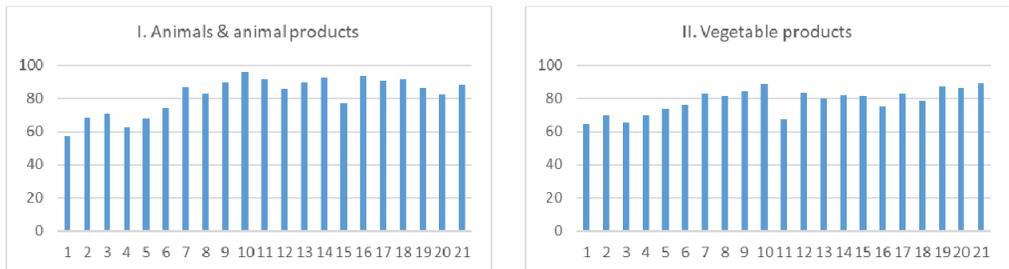


Figure A7. Continued

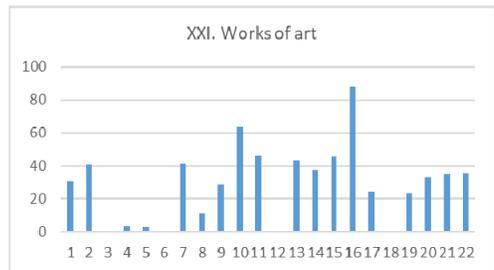
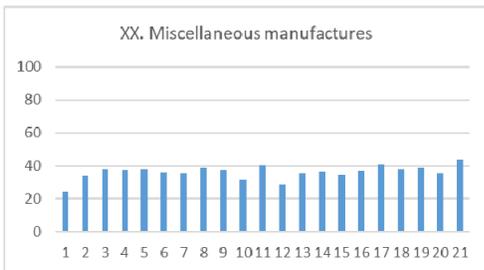
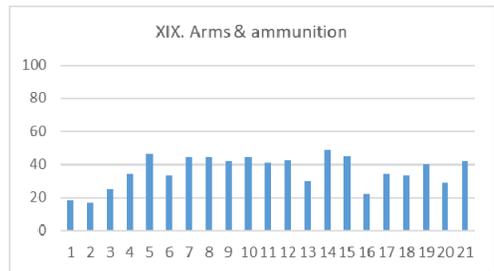
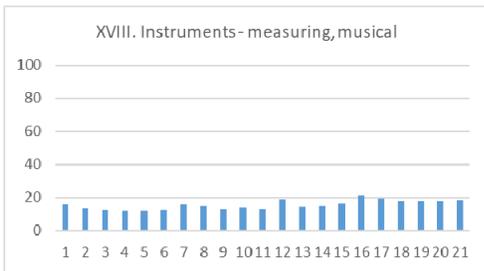
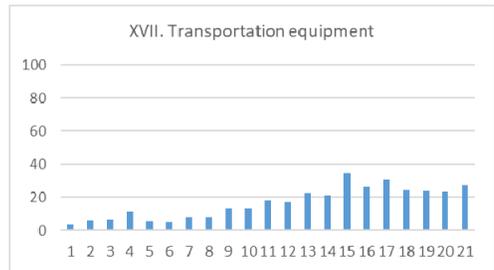
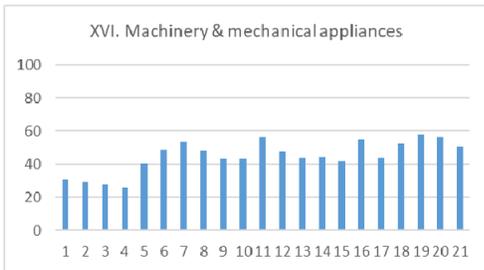
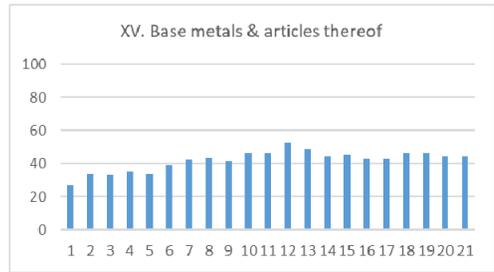
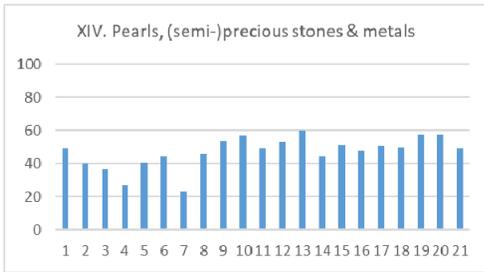


Figure A8. Continued

