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The Use of Preferences under the EU - Korea FTA

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Michał Gulczyński
Department of Social and Political Sciences, Bocconi University, Italy
Lars Nilsson†
Chief Economist and Trade Analysis Unit, DG Trade, European Commission, Belgium

Abstract

Purpose – This paper describes the use of trade preferences under the EU-Korea free trade agreement (FTA) and empirically examines potential reasons for the less than full use, using data on daily EU imports from Korea at the product level.
Design/methodology – We employ a probit model to analyse the relationship between the use of trade preferences on the one hand and variables such as potential duty savings, rules of origin and the characteristics of the good traded (intermediate input or final product) on the other.
Findings – The paper finds that EU imports from Korea make good use of trade preferences with an overall preference utilisation rate of close to 90% in 2016, which is up from about 80% in 2012. It further shows that potential duty savings influence preference utilisation positively and that more than one quarter of the observations in our sample made use of preferences under EU-Korea FTA in 2012, despite duty savings standing at €10 or less.
Originality/value – The finding that a non-negligible share of observations use preferences even when the duty savings are low has not yet figured in the literature. We further show how preference utilisation rates differ by importing EU Member State and by section of the Harmonised System and estimate the marginal impact of an increase in potential duty savings on the preference utilisation rate by broad product group, which is novel.

Keywords: EU, FTA, Korea, Preference Utilisation Rate
JEL Classifications: F13, F14

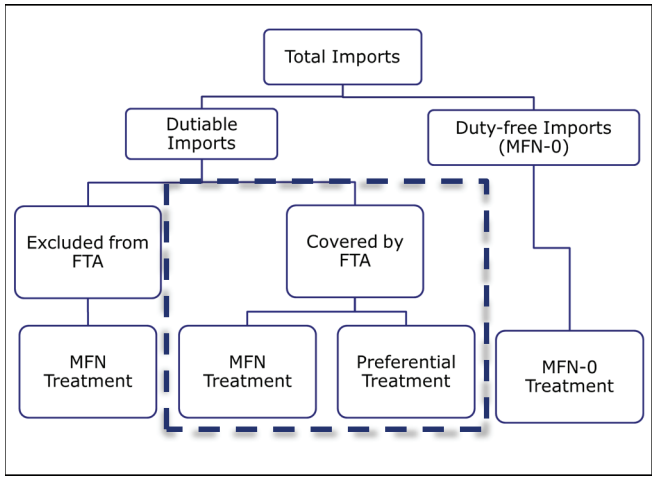
1. Introduction and Overview of the Issue

There exists an extensive literature analysing the impact of free trade agreements (FTAs) and preferential trading arrangements in general, often in terms of how much trade has been created or diverted as a result of the initiatives. However, one method of assessing the effectiveness of trade liberalisation that was largely ignored until some ten years ago, primarily due to lack of data, is examining the extent to which trade liberalised in theory actually enters foreign markets under the preferences to which it is entitled.

In fact, despite the existence of an FTA, goods may nevertheless be traded under most-favoured-nations (MFN) tariffs. Fig. 1 illustrates the issue at hand. It divides total imports into dutiable- and duty-free imports (MFN-0). The former contains goods covered or not in an FTA. If a good is covered by an FTA, it may be subject to MFN- or preferential treatment. The preference utilisation rate (PUR) is defined as the value of goods covered by "Preferential treatment" divided by the value of goods "Covered by FTA".

†**Corresponding author:** lars.nilsson@ec.europa.eu

Fig. 1. Total, Dutiable, Duty-free and Preferential Imports: An Overview



Source: Authors' own illustration.

A significant literature has evolved examining why trade preferences are not always used. The reasons behind point to that complying with the necessary administrative requirements to obtain the tariff preferences may be more costly than the gains from the preferences, e.g. compliance with rules of origin (RoO). For example, in some countries exporters may have to pay to obtain origin certificates and get them stamped and/or may have to travel to another location to get them. Similarly, the RoO requirements themselves may be stringent by restricting the use of imported intermediates. Finally, in some cases unawareness of the existence of preferences may also play a role.

The first studies in this area often looked at the use of EU trade preferences by developing countries; see e.g. Bureau et al. (2006), Candau and Jean (2005), Keck and Lendl (2012) and work by e.g. Nilsson (2011a) and Nilsson and Dotter (2012).[1] In general, these studies conclude that EU trade preferences are fairly well used, despite the fact that, frequently, tariffs are low thereby casting doubts on a commonly held view in the literature that the preferential margin needs to be in the range of 3%-5% for preferences to be used.[2]

Nilsson (2016) examines the extent to which EU *exports* enter partner countries under the preferential access negotiated under its bilateral FTAs. His empirical analysis confirms that the value of the export flows matters, as do the margin and the combination of the two, i.e., the potential value of preferences or potential duty savings (PDS), thereby indicating that the use of preferences is associated with fixed costs rather than with variable costs.[3] The works by Keck and Lendl (2012) and by Nilsson and Dotter (2012) draw the same conclusion.

Pointing the same direction, Hayakawa et al. (2014) find that the preferential margin, rules of origin restrictiveness and the average export volume all contribute to influencing the use of preferences under the Korea-ASEAN FTA, but that the latter is the most important

[1] Kawai and Wignaraja (2014) provide an overview of similar analyses in the Asian context.

[2] See e.g. Francois et al. (2005) who, for a group of developing countries, find that the margin should be higher than 4%.

[3] The potential duty savings are defined as the preferential margin (MFN tariff minus the preferential tariff) multiplied by the trade flow concerned.

determinant. Hayakawa et al. (2016) further estimate the median yearly costs to export from Australia, China and Japan to Thailand under preferences to be US$300, US$2000 and US$1000, respectively. However, a firm may import from many exporting firms and vice-versa and it is not clear whether the median estimates refer to importing firms, exporting firms or both.

In a similar vein, using transaction level import data for Thailand, Kazunobu et al. (2018) find that when competing FTA schemes are available (as is frequently case for FTAs involving ASEAN and its member countries) schemes with the lowest and most preferential tariffs are more likely to be chosen. However, the larger the value of the transaction, it appears as if the preferential scheme chosen is of less importance. The authors also find that FTAs with more restrictive RoO are less likely to be used.

Looking at Colombia's imports from Argentina, Peru and Uruguay, Cadot et al. (2014) showed that preference utilisation tends to be higher for larger firms, which indirectly again points to the importance of the value of the transaction and thus of a potential fixed cost, since larger firms can be expected to export to higher values than smaller firms. They also find lower utilisation rates for firms with a wider sourcing of intermediates suggesting that the real cost of complying with trade preferences is the variable cost of sourcing locally rather than the fixed cost of proving compliance.

The above as well as common sense indicate that unless the PDS of using preferences are sufficiently large, preferences will not be used. We revisit this issue using data on daily product level EU imports from Korea.

The paper is structured as follows. Section 2 provides a brief overview of the EU-Korea FTA, describes the data and presents concepts and definitions. It also provides a rich picture of the characteristics of EU imports from Korea in terms of import procedures, preference utilisation rates (PURs) and duty savings by broad product category and EU Member State (MS). Section 3 empirically analyses the determinants behind the uptake of preferences and discusses the results, while Section 4 summarises the findings and draws some conclusions.

2. A Short Overview of the EU-Korea FTA,[4] Data Descriptions and Definitions

2.1. The Basic Trade Liberalizing Elements of the EU-Korea FTA

The EU-Korea FTA is the first agreement concluded in the new wave of deep and comprehensive FTAs that the EU launched following the lifting of its self-imposed moratorium on such agreements in favour of a comprehensive multilateral round in the late 1990s. It was provisionally applied as of 1 July 2011 (e.g. provisions on trade in goods were applied) until the full agreement entered into force on 13 December 2015.

In 2010, before the entry into force of the FTA, average trade weighted tariffs applied to EU exports to Korea were 6.2%, compared to 2.5%, which Korean exports to the EU faced. The majority of customs duties on goods were removed at provisional application and by 1 July 2016, practically all EU customs duties on industrial goods were removed. This corresponds to almost 99% of all duties paid by Korea exporters before the entry into force of the agreement.

The staging of the elimination of customs duties was more front-loaded on the EU side than in the case of Korea. In the first year of provisional application, 94% of all EU tariff lines

[4] This part draws from Lakatos and Nilsson (2017).

were liberalized corresponding to about 90% of the value of Korean exports to the EU.[5]

2.2. Data, Concepts and Definitions

In 2010, before the entry into force of the FTA, average trade weighted tariffs applied to EU exports to Korea were 6.2%, compared to 2.5%, which Korean exports to the EU faced. The majority of customs duties on goods were removed at provisional application and by 1 July 2016, practically all EU customs duties on industrial goods were removed. This corresponds to almost 99% of all duties paid by Korea exporters before the entry into force of the agreement.

For the purpose of this study, we have made use of daily product level EU import data for two years – 2012 and 2016 – that has been obtained from the European Commission's Directorate General for Taxation and Customs (DG Taxud). Similar data on Korean imports from the EU has not been obtained. However, conclusions reached as far as the use of the EU-Korea FTA and EU imports is concerned should be relevant also for EU exports to Korea under the agreement.

The first year, 2012, is the first full year of implementation after the agreement was provisionally applied in July 2011. The second year, 2016, provides for a sufficient amount of time since application to allow us to draw some conclusions regarding changes in the implementation and use of the agreement.

The data (hereinafter "Taxud-CDC data") is based on the information from the so called Single Administrative Document (SAD), which covers the placement of any goods under any customs procedure such as export, free circulation, warehouses, temporary admission, inward and outward processing, etc.

It provides information on EU imports by *requested* preferential treatment or preference code, *eligible* import regimes or measure type and *custom procedure*. The measure types also provides information on whether the import flow is subject to a normal tariff or a quota. Taken together, we obtain the date of importation, the product and the codes needed to determine the duties applied on imports from Korea and associated measure type, including potential exclusions.

However, the Taxud-CDC data does not contain information about whether some products that were eligible for preferences entered the EU under non-preferential terms. Therefore, we have merged it with Tarif Intégré Communautaire (TARIC) information on preference eligibility of products exported from Korea.[6]

In 2016, the value of EU imports from Korea amounted to €39 billion – up from €35 billion in 2012 – see Annex Table 3. Furthermore, in 2016, 40% of EU imports from Korea fell under preference code 100 (*erga omnes* third-country duty rates), while 54%, or €21 billion, of imports were eligible for preferences under the EU-Korea FTA under preference code 300 (preferential duty rate without conditions or limits). The share of imports falling under preferential treatment rose from 42% in 2012 to 54% in 2016, suggesting a significant impact of the FTA on the composition of trade.

The remaining transactions were registered mostly under preference codes 140 (special end-use resulting from the Common Customs Tariff) and 110 (*erga omnes* autonomous tariff suspension).

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[5] The figures for Korean liberalisation were 80 % corresponding to 65 % of the value of EU exports.

[6] The EU's (on-line) tariff database Tarif Intégré Communautaire (TARIC) lists all EU measures relating to tariff, commercial, and agricultural legislation. The TARIC nomenclature is based on a further breakdown of the Combined Nomenclature (CN), which is comprised of the Harmonized System (HS) nomenclature with further Community subdivisions, for more information see Nilsson (2011b).

2.3. Preference Eligibility, Preference Utilisation and Potentially Duty Savings of EU Imports from Korea by Member State

We make use of a number of different indicators when analysing EU imports from Korea and the use of preferences under the EU-Korea FTA. In 2016, Annex Table 4 shows that the main importer of products eligible for preferences from Korea are Germany with some €3.5 billion or 16% of the total value of EU preference eligible imports, followed by the UK at €2.7 billion or 12% and two smaller countries Slovakia and Czechia at about €2 billion or 9%, see column 2.

Among them, the PURs are just below 90% in 2016. Germany displays a substantial increase in its PUR from 75% in 2012 to 89% in 2016. Overall, PURs range from somewhat below 70% in the case of Romania and Latvia in both 2012 and 2016 to around 95% or more in Belgium, Portugal, Slovenia and Lithuania in 2016. The overall PUR equals 88% in 2016, up from 81% in 2012, see columns 3 and 4. The PUR is higher for all EU MS in 2016 compared to 2012, except Romania for which it is where it is marginally lower.

In 2016, the total value of duties saved on EU imports from Korea stands at about €1.1 billion (column 6 of Annex Table 4 corresponding to an overall duty savings rate of close to 90%, up from 63% in 2012.[7] In terms of absolute duty savings, in 2016, the UK accounts for €180 million or 16% of all duty savings on EU imports from Korea followed by Germany with €160 million or 15% and Italy €105 million or 10%. For the change in proportions since 2012, see columns 7 and 8 of Annex Table 4.

The highest duty savings rate is in Lithuania at 98%. Greece and Ireland come second at 95% and Portugal and Slovenia third at 94%. The lowest duty savings rate is found in Latvia at 71% and in Romania and Bulgaria at about 75%, see column 10. The duty savings rate is higher for all EU MS in 2016 compared to 2012.

2.4. Preference Eligibility, Preference Utilisation and Potentially Duty Savings of EU Imports from Korea by Product Group

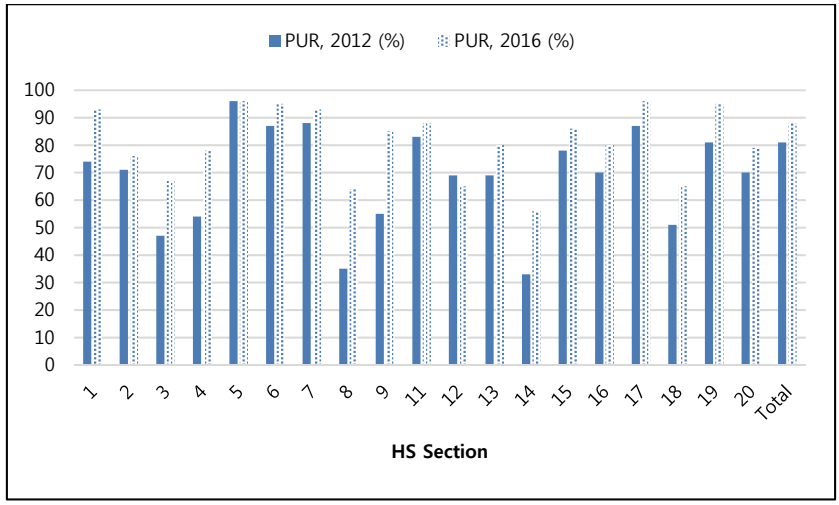
In terms of EU preference eligible imports from Korea by product group, or section of the Harmonised System (HS), the largest imports took place in sections 16 (Machinery and mechanical appliances) and section 17 (Transportation equipment) in 2016 at close to – and above – €7 billion, see Annex Table 5. This corresponds to more than 30% each of total EU preference eligible imports from Korea.

In the same year, section 7 (Plastics and rubber) follows at €3 billion or close to 15%, while section 6 (Chemical products), section 11 (Textiles and textile articles) and section 15 (Base metals and articles thereof) all account for about €1 billion or about 5%. Together these six product groups represent almost 95% of EU preference eligible imports from Korea.

In 2016, PURs for these sections vary from 80% in section 16 (Machinery and mechanical appliances) to 96% for section 17 (Transportation equipment), see Fig. 2 below. Since 2012, PURs are up for all sections except section 12 (Footwear and Headgear) and section 5 (Mineral products) for which the PUR remains at the same (high) level. The largest increases, close to 30 percentage points are found in section 8 (Hides and skins) and in section 9 (Wood and wood products), followed by section 3 (Animal and vegetable fats), section 4 (Prepared foodstuffs) and 14 section (Pearls and semi-precious stones).

[7] The duty savings rate is defined as the ratio of duties actually saved to duties potentially to be saved.

Fig. 2. PURs of EU Imports from Korea in 2012 and 2016 (%)



Note: There are no observations on EU preference eligible imports from Korea in HS Sections 10 and 21.
Source: Authors' own calculations based on Taxud-CDC.

Annex Table 5 shows that in 2016 more than half of total duty savings takes place in section 17 (Transportation equipment), followed by section 7 (Plastics and rubber) and section 16 (Machinery and mechanical appliances at about 15% each. The duty savings rate stands at about 95% for the two former, while it is markedly lower for section 16 (Machinery and mechanical appliances) at 78%. Since 2012, the share of section 4 (Prepared foodstuffs) in total duty savings has decreased from 18% to 2% to the benefit of the section 17 (Transportation equipment), whose share has increased from 29% in 2012 to 50% in 2016.

2.5. Potential Duty Savings by Product Group

Table 1 displays significant differences between average PDS across sections of the HS. Section 9 (Wood and wood products) show an average PDS of about €150, while it is higher than €22,000 in section 5 (Mineral products). Section 1 (Animal and animal products) and section 4 (Prepared foodstuffs) have PDS in the range of €10,000, while section 17 (Transportation equipment) stands somewhat lower at around €5,500.

As far as the median PDS is concerned, section 9 (Wood and wood products) shows a low figure of €13, while three of the sections mentioned above are at the top also when it comes to the median PDS. Section 1 (Animal and animal products) shows a median PDS of above €3,300 while second ranked section 4 (Prepared foodstuffs) displays a value of about €600 and section 17 (Transportation equipment) circa €300. The only exception is the median PDS of section 5 (Mineral products) which stands at €115.

Overall, the average PDS stands at about €1500 (this reflects an increase from €1254 in 2012 to € 1735 in 2016 (not displayed)), while the median PDS reaches just above €60 (with no major change from 2012 to 2016). The significant difference between the average PDS and the median PDS indicates a large number of small value observations and significantly fewer high value observations.

Table 1. Average and Median Potential Duty Savings (PDS) for 2012 and 2016 (€)

HS Section	Average PDS	Median PDS
1	11,855	3,364
2	631	113
3	841	151
4	8,839	589
5	22,074	115
6	2,687	223
7	1,706	135
8	464	24
9	156	13
10	-	-
11	996	162
12	332	21
13	323	48
14	251	56
15	418	24
16	725	40
17	5,546	304
18	409	28
19	1,555	72
20	420	30
21	-	-
Total	1,503	62

Source: Own calculations based on Taxud-CDC.

2.6. Preference Utilisation and Potential Duty Savings by Percentile

For both the years 2012 and 2016, we have divided observations eligible for preferences by percentiles of the PDS (in absolute terms) and calculated the share of observations that used preferences in each percentile. We also added the log of the average PDS by percentile. In this way, we obtained Fig. 3, which displays these metrics for all preference eligible products imported into the EU from Korea in these wo years.

As can be seen, the FTA is used even for the lowest percentiles of PDS. In fact, in the lowest percentiles of duty savings, some 25% of the number of observations used preferences in 2012.[8] Preference utilisation seems to display a linear relationship with the log of the PDS until the upper ten percentiles or so. After that, preference utilisation appears to grow exponentially.

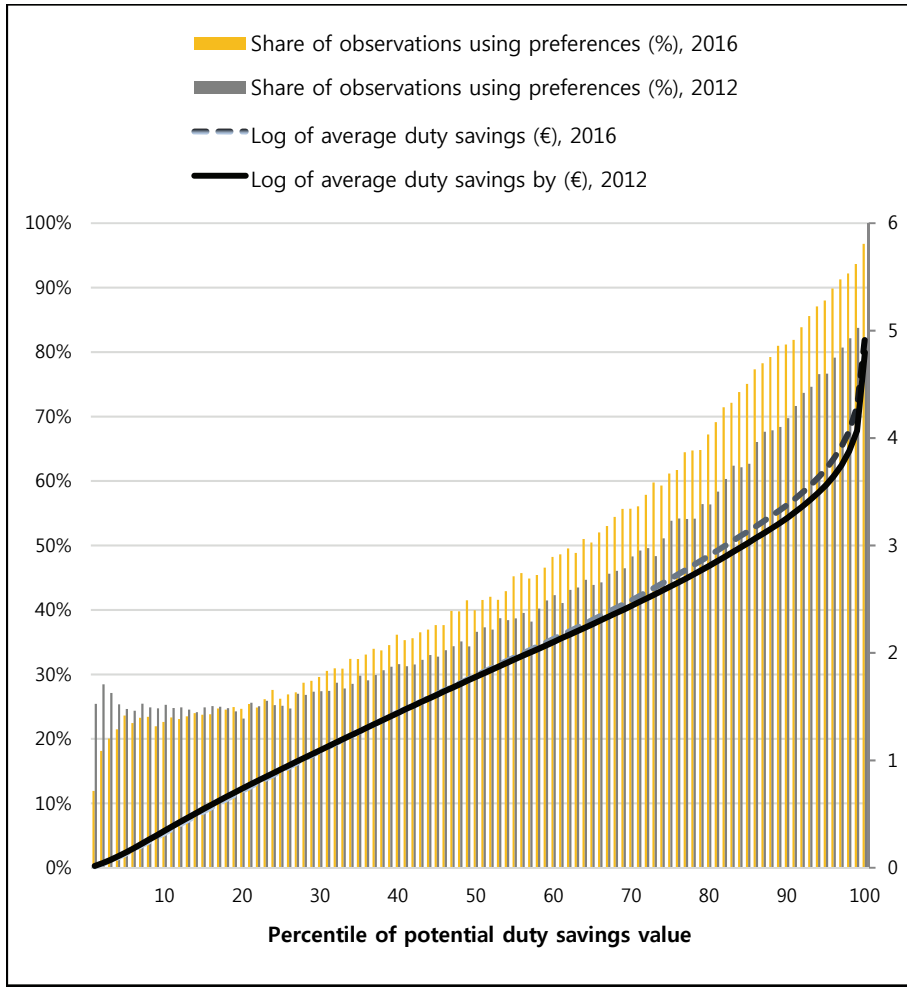
The fact that preferences are used at such low levels of potential duty savings is surprising and points to negligible fixed cost. Kasteng and Tingvall (2019) offer a plausible explanation based on their work using firm-level data on Swedish imports from Korea. According to them, importers frequently do not release goods for free circulation in the EU upon arrival in

[8] The figure drops to 12% in 2016.

Sweden, but put them into a customs warehouse instead.

Hence, if a shipment of shirts (or any other good) from Korea is put into a customs warehouse no duties are paid at this point in time. The importer may then clear a part of the shipment (e.g. a certain number of shirts) at customs and claim the preferences before re-selling the shirts to retailers. The potential duty savings of the part of the shipment is naturally (much) smaller than for the full shipment. Consequently, preference may be claimed even if the potential duty savings are small.

Fig. 3. Share of Observations Using Preferences by Potential Duty Saving and the Log of Potential Duty Savings by Percentile (all products), 2012 and 2016



Note: Share of observations using preferences on left-hand axis. Log values are logs of 1+the potential duty savings measured on the right-hand axis.

Source: Authors' own calculations based on CDC data.

3. Empirical Analysis of the Determinants behind EU Preferential Imports from Korea

3.1. Regression Model Set-up

Fig. 3 shows us that preferences are in fact used even at low levels of PDS. Nevertheless, preferences will only be used if the benefits of complying with the requirements to qualify for preferences outweighs the costs (C) of doing so. Hence, the PDS must be greater than the unobservable cost C. We can thus model operators' decision to use preferences as a discrete choice model.[9]

$$\text{The preference utilisation (rate) PUR} = 1 \text{ if PDS} - C > 0 \quad (1)$$

$$\text{The preference utilisation (rate) PUR} = 0 \text{ if PDS} - C <= 0 \quad (2)$$

Substituting the difference between the PDS and the cost function C with the latent variable y^* we can estimate a probit model:

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

As dependent variable, we use the preference utilisation (either 0 or 1). The probability to use preferences depends on the PDS measured in EUR.[10] Fig. 2 also shows us that that the PDS seem to affect the preference utilisation exponentially to the far right in Fig. 2. In order to capture this effect, in addition to the log of PDS, we also regress on the log of PDS squared. Since the impact of the PDS may vary across the sections of the HS, we also interact the log of the PDS with dummy variables for the HS sections. Hayakawa et al. (2014) split the PDS into its two constituent variables – the preferential margin and the value of the trade flow. Nilsson (2016) includes also these two variables in addition to the potential duty savings.

We further assume that we face country- and product specific costs. For example, customs practises may differ across EU MS even though the underlying legislation is the same. Similarly, there may be inherent factors affecting the use of preferences for different type of products, including complexity, strictness and procedural aspects of RoO. We therefore introduce binary variables for importing EU MS, HS sections and for RoO[11] to account for these differences and for any other fixed unobservable country and product specific effects.

In addition, we introduce a binary variable for EU import flows of more than €6000 to test whether the threshold at this value, under which exporters can submit only the invoice and do not need to obtain a certificate of origin when exporting to the EU under preferences, makes a difference. In doing so, we go further than both Hayakawa (2014) and Keck and Lendl (2012). The formed used a RoO restrictiveness index, while the latter captured potential RoO impacts with product group dummy variables.

We also add a binary variable for imports of intermediate products (Interm)[12] and a year dummy to separate the impact of the year 2016 from the year 2012 on preference utilisation. Finally, by introducing a variable of the count of EU imports by MS and year at the 10-digit

[9] See Train (2009) for an overview of discrete choice methods.

[10] The logs of the PDS is taken as 1 plus the potential duty savings value in EUR.

[11] The RoO dummies are specified as follows: Beyond insufficient operations (HS Chapter 9), Max of non-originating material (HS Chapters 13, 86-87, 89 and 91-93), Footwear (HS Chapter 64), Textiles and clothing (HS Chapter 50-63), Wholly obtained (HS Chapter 01-08, 10-12, 14 and 16) and Change of tariff classification, plus and/or requirement (All other chapters).

[12] Keck and Lendl (2012) controlled for primary products and agricultural products instead of controlling for intermediate products.

level of the nomenclature, we test whether frequent Korean exports in specific products make a difference as far as the use of preferences are concerned. The count of products is a variable that, as far as we are aware, has not been included in other similar studies.

The variable PDS is described and discussed in Section 2.6. As for the other variables, one may note that somewhat less than half of the observations use preferences (44%), two-thirds of the observations are made out of EU imports from Korea of intermediate products, while one-third of the number of goods that the EU imports from Korea has a value of more than €6000, see Annex Table 6. The average number of times that a product is exported from Korea to an EU MS is about 160.

As far as rules of origin are concerned, the change of tariff classification rule dominate being applied in a little less than 80% of the cases. It is followed by the rule relating to a maximum of non-originating material and the rule(s) applying to textiles and clothing with some 10% each. Goods falling in the category of the wholly obtained origin rule account for about 4,000 observations, while only few products (~500) need to meet requirements going beyond insufficient operations.

Our model specification looks as follows:

$$P(PUR = 1) = \alpha + \beta_1 log(PDS_{hjk}) + \beta_2(\log(PDS_{hjk}))^2 + \beta_3 Interm + \beta_4 \text{Year} + \beta_5 €6000_h + \beta_6 \Sigma \text{Count\_of\_products}_h + \Sigma\, \gamma_{hj}(log(PDS_h) * HS\_Section_j) + \Sigma\delta_j(HS\_Section_j) + \Sigma\lambda_k(EU\_MS_k) + \Sigma\theta_m(\text{RoO}_m) + \varepsilon_t \quad (4)$$

The sub-index h refers to (daily) observations at the 10-digit level of EU imports from Korea by import procedure, HS_Section_j refer to the sections of the Harmonised System, MS_k denotes the EU Member States and RoO_m indicates the various type of origin rules applied. Finally, α, β_i, γ_{hj}, δ_j, λ_k, and θ_m are parameters to be estimated. To complement the probit regression and to compare outcomes, we also run a linear probability model.

3.2. Results

Table 2 presents the main regression results, which are qualitatively similar for the probit and OLS regressions with the same estimated significance levels and signs of the coefficients for the main variables in the table.[13] The coefficients of our central explanatory variables – the log of the PDS and the log of the PDS squared – are positive and statistically significant at the 1%.

The marginal effect (probit) of the log of the PDS is 0.0389 (not displayed in Table 2. This means that a difference of 1 in the log of the PDS is associated with an increase of 0.0389 in the probability of preferences being used (PUR=1). Corresponding effect for the log of the PDS from the OLS regression is higher at 6.8% (see coefficient estimate in Table 2).[14]

The coefficient of the binary variable for imports of €6000 or more indicate that trade flows with higher value than this make better use of trade preferences compared trade flows of lower values than €6000. This is in line with the result found by Nilsson and Dotter (2012) who examined the impact of this threshold on EU imports from the least developed countries (LDCs).

The coefficient of variable representing the count of 10-digit products imported by EU MS

[13] The comments to the results refer to both the probit and the OLS regressions, unless explicitly specified otherwise.

[14] An increase of 1 in the log of the PDS is equivalent to an increase the value of the PDS from the mean of about €1503 (see Table 1) by a factor 10 to €15030, since we are using the logarithm with 10 as base. The "baseline" probability, or the average probability of the sample, is 0.4429.

and year is also positive and statistically significant at the 1% level, albeit with a small coefficient. The same holds for the year binary variable, which indicates that preferences are used more in 2016 than in 2012. The coefficient of the variable for intermediate products is also positive and statistically significant at the 1% level indicating that such imports seem to be associated with a higher use of preferences than imports of capital- and consumption goods.

The coefficients of the rules of origin binary variables show that compared to the goods subject to the origin rule wholly obtained (e.g. basic agricultural products) and except for Footwear, the other products seem to have more difficulties in making use of preferences under the EU-Korea FTA.[15]

Table 2. Probit and OLS Regression Results of Preference Utilisation of EU Imports

Variable	Coefficient estimate	
Independent variable	**Probit**	**OLS**
Log of potential duty savings	0.1178***(M)	0.0679***
Log of potential duty savings, squared	0.0697***	0.0145***
Binary variable for flows of less than €6000	0.1262***	0.0802***
Count of 10-digit products imported by EU MS and year	0.0003***	0.0001***
Binary variable for Year (2016 vs 2012)	0.1166***	0.0377***
Binary variable for Intermediates	0.1366***	0.0439***
Binary variables for Rules of Origin		
Beyond insufficient operations	-0.3489***	-0.0847***
Change of tariff classification (and/or)	-0.1429***	-0.0498***
Footwear	0.4303***	0.1124***
Max of non-originating material	-0.2192***	-0.0732***
Textiles and clothing	Dropped	Dropped
Wholly obtained	Omitted	Omitted
Log of potential duty savings interaction with HS sections	Annex Table 7	Annex Table 7
Binary variable for HS sections	Annex Table 8	Annex Table 8
Binary variable for importing EU MS	Annex Table 9	Annex Table 9
Constant	-0.9010***	0.1662***
(Pseudo) R2	0.15	0.19
Log-Likelihood	-786793	-
Obs.	1352250	1352250

Note: ***p<0.01, based on robust standard errors. (M) denotes the marginal effect, which for the log of potential duty savings is 0.0389.
Source: Own calculations using Stata 15.

The coefficient estimates and the marginal effects of the log of the PDS interacted with HS sections are presented in Annex Table 7. Compared to the omitted category HS section 16 (Machinery), section 1 (Animals and animal products), section 3 (Animal or vegetable fats)

[15] The dummy variable for Textiles and clothing drops out because of multicollinearity. One should note that these results does not allow any conclusions to be drawn regarding whether the origin rules are restrictive or not.

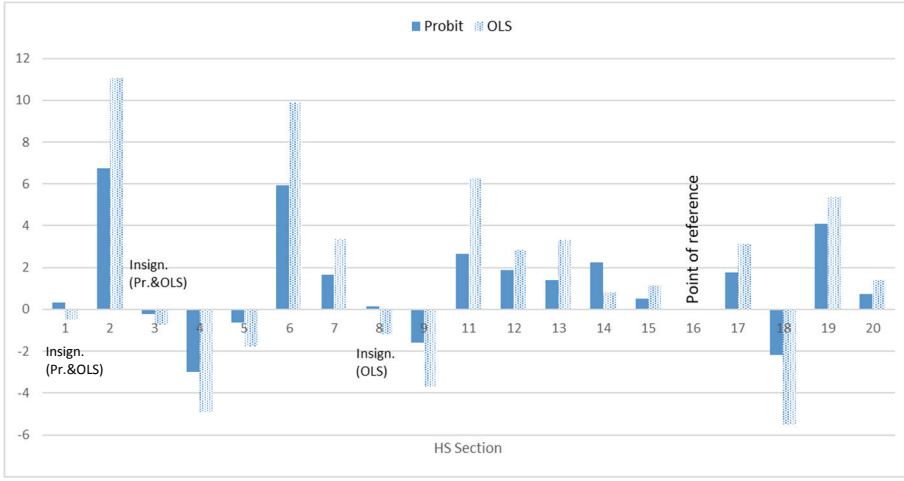
and section 8 (Plastics and rubber) show insignificant coefficient estimates. Section 4 (Prepared foodstuffs), section 5 (Mineral products), section 9 (Wood and wood products) and section 18 (Instruments) display negative and statistically significant coefficient estimates (at the 1%, 5% and 10% level, respectively). Remaining HS sections display positive and statistically significant coefficient estimates at the 1% level.

Fig. 4 display the marginal effects of the (log of) PDS on preference utilisation by HS section. For the *probit* regression, the HS sections referred to above with statistically significant and negative coefficient estimates show a lower impact on the PUR of an increase in the value of the PDS compared to HS section 16 (Machinery), which is the omitted reference group. It also shows that the marginal impact on preference utilisation is particularly large, in the range of 4-6 percentage points higher than the impact on section 16 (Machinery), for section 2 (Vegetable products), section 6 (Chemical products) and section 19 (Arms and ammunition).

The figure also shows the marginal impact from the OLS regression. Except for the coefficient estimate for section 8 (Plastics and rubber), which is insignificant in the OLS regression, the estimated impact of the two regressions is qualitatively the same. That is, if the marginal effect on the PUR of an increase in the PDS for a specific section is higher than the impact on the reference section 16 (Machinery) in the OLS regression, the same holds for the probit regression.

It is worth noting that the marginal impacts of potential duty savings on preference utilisation from the OLS regression is higher compared to the probit regression for all sections except section 18 (Instruments). This holds in particular for section 4 (Prepared foodstuffs) and for section 11 (Textiles) for which the OLS estimates are more than twice as high as the marginal effects of the probit estimates.

Fig. 4. Marginal Probit and OLS Impacts on the PUR of Potential Duty Savings Compared to Section 16 (%)



Note: The marginal impact refers to an increase in the log value of potential duty savings of 1, which equals an increase in the potential duty savings of a factor 10. Coefficient estimates for sections 1, 3 and 8 are insignificant. There are no observations on EU preference eligible imports from Korea in HS Sections 10 and 21.

Source: Authors' own calculations based on Taxud-CDC.

3.3. Discussion

This is presumably the first paper that has estimated how the PUR varies by potential duty savings across broad product groups. According to Fig. 4, section 2 (Vegetable products) and section 6 (Chemicals) are most sensitive to an increase in potential duty savings. An increase with 1 in the log of PDS yields PURs some 10-11 percentage points higher for these two sections, compared to section 16 (Machinery) according to the OLS estimates. At the same time, the PUR of section 4 (Prepared foodstuffs) and section 18 (Instruments) seem to be least sensitive to an increase in potential duty savings.

If we relate this outcome to median PDS, one may note that the two former product groups both display higher than average median PDS values at €113 and €223, respectively (see Table 1). At the same time, the opposite holds for section 18 (Instruments), which displays a relatively low median PDS (€18) and is much less responsive to an increase in PDS. However, this does not hold for section 4 (Prepared foodstuffs), which exhibits a high median PDS at close to €600. Hence, the median PDS does not seem to be playing a key role in explaining the how sensitive the PUR is to an increase in the PDS.

It therefore seems reasonable that the explanation lies at the level of firm-transaction. That is, if a firm has undertaken the necessary measures to comply with the requirements for preferential access, the firm will use preferences irrespective of how small the potential duty savings are. However, the opposite does not necessarily hold true. If a transaction is large enough to generate a substantial potential duty saving, a firm that has thus far not undertaken the necessary requirements to qualify for preferences may do so at that time.

Hayakawa et al. (2016) estimated the median *cost* to export from Australia to Thailand under preferences to be $300 (the figures were higher for exports from China and Japan, see Section 1). This also means that the median yearly PDS must be higher than $300; otherwise, preferences would not be used. The median yearly PDS in our sample is some €60, which we take to be about $75 in light of the appreciation of the dollar against the euro between 2012 and 2016. Given that it is not clear to whom the estimated median yearly cost actually applies (importers, exporters or both), a direct comparison is perhaps not fully appropriate to make. Nevertheless, it appears as if it is would be associated with a significantly lower median cost to export from Korea to the EU under preferences compared to from Australia to Thailand.

Bernard et al. (2019) point indirectly to another explanation. They find that the large majority of manufacturing firms export products that they do not produce. In the case of Belgium, they find that three quarters of the exported products and 30% of the export value from take place in goods that are not produced by the Belgian firm exporting the goods. However, the extent to which this may be a factor also explaining Korean exports to the EU of preference eligible goods is not known.

4. Summary and Conclusions

This paper examines EU preferential imports from Korea as a proxy for all trade, including exports as corresponding such data on Korean imports from the EU is not available at the same level of detail. We use data on daily such EU imports at the product level for 2012 and 2016 and find that preferences are well used with an overall preference utilisation rate of close to 90% in 2016, which is up from about 80% in 2012. We further show how preference utilisation rates differ by importing EU Member State and by section of the Harmonised System.

An interesting finding is that a non-negligible share of observations use preferences under the EU-Korea FTA even when duty savings are low. Compared to previous estimates of fixed

costs of some countries exporting to Thailand, making use of the EU-Korea seems to be less costly. The paper further estimates the marginal impact of an increase in potential duty savings on the preference utilisation rate by broad product group, which is novel. Vegetable products and Chemicals stand out displaying the highest marginal effects.

To shed some further light on this issue analytically, one should resort to – hard to come by - firm-level transaction data ideally from customs if available. With identifiers for both importing and exporting firms, one could look into whether the same importer systematically makes use of preferences or not and/or whether which the exporting firm is matter. One could then also examine whether the size of the firms themselves matter, in addition to the size of the trade flows and the associated duty savings, as far as the use of preferences are concerned.

With some 70 FTAs in place, the EU accounts for the largest number of preferential trade agreements in place in the world covering close to 40% of external EU trade. FTAs are major catalysts in opening markets for EU products and generating the framework conditions conducive to trade and investment.

However, as has been shown above, sometimes operators do not benefit from duty reductions FTAs provide for as they may have insufficient knowledge of the benefits that trade agreements brings about, or experience difficulties with the administrative procedures needed to qualify for zero or reduced tariff treatment. The European Commission is working to raise awareness of opportunities for EU exports linked to trade agreements amongst EU companies, in particular small and medium sized companies, in close liaison with EU Member States and business networks.

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Appendices

Table A. EU Imports from Korea, by Preference Code (Requested Treatment) and Value in 2012 and 2016

(Unit: € million and %)

Preference code*	2012		2016		Preference code explanation
	Value (€ million)	Share (%)	Value (€ million)	Share (%)	
100	16,738	48	15,770	40	Erga Omnes third-country duty rates
110	2,011	6	753	2	Erga Omnes autonomous tariff suspension
115	130	0	108	0	Erga Omnes autonomous tariff suspensions subject to an end-use
119	3	0	9	0	Erga Omnes autonomous tariff suspensions subject to an 'airworthiness certificate'
120	0	0	0	0	Non-preferential tariff quotas
123	1	0	25	0	Non-preferential tariff quotas subject to an end-use authorisation
140	1,224	4	1,103	3	Special end-use resulting from the Common Customs Tariff
150	0	0	1	0	Admission to CN codes subject to special certificates
300	14,606	42	21,185	54	Preferential duty rate without conditions or limits
320	9	0	9	0	Preferential tariff quotas
325	2	0	0	0	Preferential tariff quotas subject to a special certificate
340	0	0	0	0	Preferential duty rates subject to an end-use
400	87	0	26	0	Customs duties under customs union agreements concluded by the Union
SUM	34,812	100	38,989	99**	n.a.

Note: * Preference code under which products are requested to enter the EU.
** Due to rounding-off the figures does not equal 100.

Source: Own calculations based on Taxud-CDC.

Table B. EU Preference Eligible Imports from Korea by EU MS in 2012 and 2016

(Unit: € million and %)

Year/ Column	Preference eligible imports (€ million)		PURs (%)		Duty savings (€ million)		Share in total duties saved (%)		Duty savings rate (%)	
	2012 (1)	2016 (2)	2012 (3)	2016 (4)	2012 (5)	2016 (6)	2012 (7)	2016 (8)	2012 (9)	2016 (10)
AT	349	334	78	86	16.4	14.1	2	2	70	87
BE	643	1,218	84	94	25.9	82.1	4	6	60	92
BG	60	90	75	82	1.9	3.8	0	1	52	76
CY	17	19	71	84	0.4	1	0	0	43	88
CZ	1,550	2,080	88	90	67.6	77.4	10	6	86	92
DE	2,887	3,476	75	89	125.8	161.6	18	13	63	91
DK	263	210	85	90	8.5	11.2	1	1	51	89
EE	22	29	82	88	0.8	1.7	0	0	62	91
ES	1,033	1,663	82	91	34.7	93.4	5	7	46	92
FI	142	99	76	83	4	3.6	1	0	48	87
FR	1,417	1,249	82	85	60.9	65.3	9	7	62	88
GB	1,884	2,672	82	89	88.2	179.7	13	16	59	90
GR	215	191	90	92	5.9	11.2	1	1	72	95
HR	-	28	-	87	-	1.5	-	0	-	90
HU	219	376	71	84	5.6	14.7	1	2	52	86
IE	63	88	80	91	2.7	6.9	0	0	48	95
IT	1,309	1,800	82	93	46.3	106.3	7	6	52	93
LT	23	233	61	97	0.9	14.4	0	0	66	98
LU	4	8	42	70	0.1	0.3	0	0	49	78
LV	16	14	66	69	0.4	0.4	0	0	49	71
MT	13	14	82	93	0.6	0.8	0	0	66	93
NL	1,394	1,346	79	80	77.4	58.7	11	10	79	82
PL	735	1,137	71	87	21.4	47.1	3	5	54	89
PT	85	213	74	94	3.6	12.3	1	1	62	94
RO	208	269	68	67	7.6	9.4	1	3	71	75
SE	391	576	70	83	12.6	28.8	2	3	48	87
SI	544	574	85	94	18.7	33.5	3	2	46	94
SK	1,871	2,246	86	87	53.9	65.6	8	8	83	87
Tot.	17,359	22,252	81	88	692.8	1,106.8	100	100	63	90

Note: GB denotes the UK.
Source: Own calculations based on Taxud-CDC.

Table C. EU Preference Eligible Imports from Korea by HS Section in 2012 and 2016

(Unit: € million and %)

HS section	Value of preference eligible imports				Duty savings				Duty savings rate	
	2012		2016		2012		2016		2012	2016
	€ million	%	€ million	%	€ million	%	€ million	%	%	
1	27	0	89	0	1	0	14	1	31	97
2	10	0	15	0	1	0	1	0	78	80
3	2	0	2	0	0	0	0	0	48	69
4	61	0	164	1	125	18	18	2	97	79
5	1,330	8	156	1	59	8	5	0	97	98
6	334	2	1,026	5	19	3	62	6	87	95
7	2,017	12	3,120	14	83	12	172	16	66	93
8	69	0	72	0	1	0	2	0	25	56
9	1	0	1	0	0	0	0	0	28	92
10	0	0	0	0	-	-	-		-	-
11	1,002	6	1,114	5	52	8	62	6	79	85
12	49	0	46	0	2	0	2	0	75	67
13	145	1	157	1	3	0	4	0	63	81
14	28	0	27	0	0	0	1	0	38	57
15	964	6	1,331	6	28	4	38	3	79	87
16	4,763	27	6,731	30	107	15	157	14	64	78
17	5,826	34	7,503	34	198	29	552	50	43	95
18	514	3	345	2	9	1	7	1	52	64
19	15	0	22	0	0	0	0	0	81	93
20	203	1	329	1	5	1	8	1	71	80
21	0	0	0	0	-	-	-		-	-
Total	17,359	100	22,252	100	693	100	1107	100	63	90

Source: Own calculations based on Taxud-CDC.

Table D. Summary Statistics of Regression Variables

Variable	Mean	Standard Deviation	No. obs. (= 1)
Preference utilisation	0.44	0.50	(599,117)
Intermediates	0.66	0.47	(888,953)
>€6000 threshold	0.33	0.47	(448,525)
Count of products	161.12	166.02	n.a.
Rules of origin			
Beyond insufficient operations	0.00	0.00	550
Change of tariff classification	0.78	0.42	1,048,556
Footwear	0.01	0.08	8,338
Max of non-originating material	0.11	0.32	151,798
Textiles and clothing	0.10	0.30	139,509
Wholly obtained	0.00	0.05	4,026

Source: Authors' own calculations.

Table E. Coefficient Estimates of HS Section Dummies Interacted with the Log of Potential Duty Savings, Including Marginal Effects for Probit Estimation

HS Section	Probit		OLS
	Coefficient estimate	Marginal effect	Coefficient estimate
1	0.0100	0.0033	-0.0049
2	0.2037***	0.0673***	0.1105***
3	-0.0066	-0.0022	-0.0075
4	-0.0907***	-0.0300***	-0.0490***
5	-0.0194**	-0.0064**	-0.0177***
6	0.1795***	0.0593***	0.0988***
7	0.0506***	0.0167***	0.0334***
8	0.0041	0.0014	-0.0117***
9	-0.0480*	-0.0159*	-0.0371*
10	Dropped	Dropped	Dropped
11	0.0807***	0.0267***	0.0626***
12	0.0572***	0.0189***	0.0285***
13	0.0426***	0.0141***	0.0330***
14	0.0678***	0.0224***	0.0081*
15	0.0159***	0.0053***	0.0115***
16	Omitted	Omitted	Omitted
17	0.0535***	0.0177***	0.0312***
18	-0.0656***	-0.0217***	-0.0551***
19	0.1236***	0.0409***	0.0539***
20	0.0226***	0.0075***	0.0139***
21	Dropped	Dropped	Dropped

Note: ***p<0.01, **p<0.05 and *p<0.1, based on robust standard errors.
Source: Own calculations using Stata 15.

Table F. Coefficient Estimates of HS Section Dummies

HS Section	Coefficient estimate	
	Probit	**OLS**
1	0.0683	0.0650
2	-1.3146*	-0.3155***
3	-0.4561***	-0.1459*
4	0.2500***	0.0321***
5	0.3149***	0.1127***
6	-0.8647***	-0.1932***
7	0.0352***	0.0258***
8	-0.2150***	-0.0420***
9	0.3350***	0.1119***
10	Dropped	Dropped
11	-0.3164***	-0.1007***
12	-0.6297***	-0.1529***
13	-0.0520***	-0.0161***
14	-0.6199***	-0.1168***
15	0.3023***	0.1108***
16	Omitted	Omitted
17	-0.0392*	0.0073
18	0.1740***	0.0599***
19	-0.6191***	-0.0937***
20	-0.0182	0.0004
21	Dropped	Dropped

Note: ***p<0.01, **p<0.05 and *p<0.1, based on robust standard errors.
Source: Own calculations using Stata 15.

Table G. Coefficient Estimates of EU MS Dummies

EU MS	Coefficient estimates	
	Probit	**OLS**
AT (Austria)	Omitted	Omitted
BE (Belgium)	-0.0178**	-0.0074*
BG (Bulgaria)	-0.1553***	-0.0528***
CY (Cyprus)	-0.0303	-0.0071
CZ (Czechia)	0.3072***	0.1036***
DE (Germany)	-0.0624***	-0.0229***
DK (Denmark)	0.0371***	0.0127***
EE (Estonia)	-0.2406***	-0.0659***
ES (Spain)	0.1393***	0.0444***
FI (Finland)	-0.1126***	-0.0359***
FR (France)	0.0386***	0.0120***
GB (UK)	-0.1792***	-0.0615***
GR (Greece)	0.2493***	0.0821***
HU (Hungary)	0.1330***	0.0465***
IE (Ireland)	-0.5570***	-0.1650***
IT (Italy)	0.1197***	0.0369***
LT (Lithuania)	-0.3428***	-0.1046***
LU (Luxembourg)	-0.5547***	-0.1689***
LV (Latvia)	-0.5027***	-0.1444***
MT (Malta)	0.1865***	0.0657***
NL (Netherlands)	0.0493***	0.0147***
PL (Poland)	-0.0038	-0.0001
PT (Portugal)	0.0239**	0.0068
RO (Romania)	-0.5403***	-0.1630***
SE (Sweden)	-0.1015***	-0.0362***
SI (Slovenia)	0.2486***	0.0849***
SK (Slovakia)	0.0717***	0.0292***
HR (Croatia)	-0.3820***	-0.1132***

Note: ***p<0.01, **p<0.05 and *p<0.1, based on robust standard errors.
Source: Own calculations using Stata 15.

Table H. 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