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World Trade Organization

Economic Research and Statistics Division

PREFERENCE UTILIZATION IN THE GLOBAL ECONOMY: AN EMPIRICAL ANALYSIS

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Preference utilization in the global economy: an empirical analysis*

Gianmarco Cariola[†] and Rainer Lanz[‡]

Abstract

This paper analyses the determinants of preference utilization using a novel WTO dataset that allows us to measure the underutilization of preferences across several importers, exporters and products over time.

Building on the previous literature, we confirm that preference utilization is increasing with the size of exports, preference margin and geographical and linguistic proximity. We find that utilization rates tend to be higher for reciprocal preferences compared to non-reciprocal preferences, and that the incentive to use preferences increases with the share of competitors' exports that is eligible for preferential treatment.

Our most innovative contribution is the analysis of the relationship between preference utilization and the production structure of the countries that benefit from preferential market access. Using an instrumental variable approach, we show that an increase in value added reduces both underutilization and its sensitivity with respect to the preference margin, making the use of preferences more robust with respect to trade policy changes.

Analogously, a change in the preference margin will have a differential impact on sectors depending on their value added content. We explain this finding by introducing the concept of "effective preference margin" to measure the importance of the benefits from preference utilization relative to the value added content of exports.

Keywords: Trade policy, preference utilization, value added trade

JEL codes: F13, F14, F15

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Contents

1	Introduction	3
2	Literature Review	5
3	Preference utilization and value added trade	8
4	Data	11
5	How preferential is preferential trade?	13
6	Descriptives	16
7	Analysis of variance	19
8	Regression analysis	23
9	Results	27
10	Concluding remarks	32
11	References	34

1 Introduction

Trade preferences are a key tool for facilitating market access. Under the condition of complying with certain administrative requirements, in particular rules of origin (ROOs), they entitle beneficiaries with the right to export towards a specific destination at a preferential tariff rate, which is usually lower than the Most Favoured Nation (MFN) rate applied to World Trade Organization (WTO) members. Trade preferences thus help to reduce trade costs.

The benefits of preferential market access can be particularly high for developing countries: Cherkashin et al. (2015) argue that trade preferences not only boost exports towards preference-granting economies, but also towards third ones, since they raise the profitability of industries, induce the entry of new firms and hence increase total exports. At the same time, several studies show that preference utilization is actually less than full (see, for instance, Carpenter and Lendle, 2010), which undermines the ultimate objective of trade preferences, i.e. to increase and diversify the exports of developing countries.

The existing academic literature shows that exporters are likely not to use preferences whenever the costs of utilization exceed the related benefits. The costs of preference utilization are mainly determined by the stringency of ROOs and bureaucratic requirements on the importer side, and, in relative terms, by the size of exports on the exporter side. The benefits from preference utilization largely depend on the tariff margin (also called preference margin) which is defined as the difference between the preferential and the MFN rate. Indeed, several empirical studies focused on the role of ROOs, tariff margin and export size in explaining the utilization or underutilization of preferences. Using a comprehensive WTO database which includes annual import data by preferential duty scheme for 8 preference-granting members, we confirm the main explanations provided by the existing literature on this topic. On the other hand, while previous studies mainly focused on the bilateral determinants of preference utilization, we also build a multilateral

resistance index that captures the idea that the preferences granted to an exporter's competitors influence the utilization rate of the exporter itself: if most competitors benefit from a preferential tariff, the cost of not benefiting from it is higher. Moreover, we find that the type of preference scheme (reciprocal or non-reciprocal) matters for the extent to which exporters are able to take advantage of preferential market access provisions.

Our most innovative contribution concerns the importance of the production structure of the exporting economies as a determinant of underutilization.

First, we show that a higher value added content of production is associated with a higher utilization of preferences. This stylized fact reflects the idea that high value added firms are more productive and have the capability to better sustain the costs associated with preference utilization.

Second, we show that high value added products are characterized by a lower sensitivity of preference utilization with respect to the preference margin. We introduce the concept of "effective preference margin" in order to account for the fact that the relative benefits from preference utilization depend on the value added content of production rather than gross output.

Our results on this topic offer important insights for policy: an increase in the value added produced by domestic firms has a positive effect on market access, as it makes the utilization of preferential duty schemes more likely. At the same time, the increase in value added reduces the dependence of preference utilization on the preference margin, making it more robust with respect to trade policy changes.

As a consequence, in the design of preference schemes, preference-granting countries might consider that higher preference margins will be particularly beneficial for firms in developing countries operating in low value added sectors such as textiles and clothing. Similarly, in the case of least developed countries (LDCs) that are on the path towards graduation from the LDC category, targeted policy responses might take into account that a decrease in the preference margin due to graduation will particularly hurt low value added producers.

The structure of the paper is as follows. The next section provides a review of the literature on preference utilization and section 3 introduces the concept of "effective tariff margin" as a bridge between preference utilization and value added trade. Sections 4, 5 and 6 illustrate the data we employ and provide a descriptive overview of the extent to which trade preferences are concretely used, while in section 7 we perform a variance decomposition analysis in order to show that exporter-specific heterogeneity is an important component of the total variation in utilization rates. Finally, sections 8 and 9 present the methodology and the results of the regression analysis and draw some practical implications about the potential impact of preferential trade policy.

2 Literature Review

There are two strands of literature related to preference utilization: on one hand there is a set of papers that aims at estimating the costs associated with the use of preferences, on the other hand there is a part of the literature that econometrically identifies the determinants of preference utilization. While our paper belongs to the latter, the first strand of the literature is still very interesting from our perspective, as it helps to shed light on some of the determinants of preference utilization.

The computation of the costs associated with preference utilization starts from the trade off between the benefits and the costs of using preferences. The obvious advantage of using preferences is given by the potential tariff reduction with respect to the MFN rate, while the cost is linked to the administrative burden of complying with ROOs and other bureaucratic procedures. As shown in Cadot et al. (2006), such costs can be substantial and the restrictiveness of ROOs is an important factor for explaining the under-utilization of preferences.

Baldwin (2008), in his famous critics to the East Asian Regionalism, states that the relatively low utilization rates of the ASEAN Free Trade Area

(AFTA) agreement during the 90s were essentially due to the low tariff margins granted by the agreement itself, especially with regard to intensively traded products like electrical equipment and machinery.

The idea that an insufficient tariff margin is the main cause of underutilization of preferences has been widely explored by the early literature on this topic. For instance, Bureau et al. (2006) focus on the EU and US preferential imports within the agricultural and food sectors and show that, despite the quite high overall utilization rate, products with low tariff margins tend to present less pronounced utilization rates. Francois et al. (2006) and Manchin (2006) use threshold regression models in order to estimate the tariff equivalent costs of using preferences, and find that such costs represent around 4% of the export value.

The main issue with these analyses is that they implicitly assume that the costs associated with preference utilization are variable. However, a large part of the literature (see Keck and Lendle, 2012) shows that they are actually fixed, meaning that they are about the same for each export shipment and independent of the size of the shipment itself. There is empirical evidence that preference utilization is not only an increasing function of the tariff margin, but also of the gross amount of exports: Keck and Lendle (2012) argue that the decision of using preferences is actually determined by a comparison between the fixed cost of using preferences and the gain from utilization, defined as the product between gross exports and the tariff margin. Using pseudo-transaction data for four major importers, they estimate such fixed costs through a kink regression model, finding that they are essentially heterogeneous, ranging from 14 to 1500 US dollars.

A number of recent studies use transaction-level data in order to provide more accurate estimates of such costs. For instance, Hayakawa et al. (2015) use shipment-level customs data for Thai imports from China and the Republic of Korea, and estimate a median utilization cost ranging from 1000 to 2000 US dollars. Albert and Nilsson (2016), on the other hand, quantify the fixed costs of using preferences for EU exports towards Iceland, and find

that they are substantially heterogeneous with a minimum of 20 and a maximum of 265 euros. Ulloa and Wagner (2013) structurally estimate the cost of exporting from Chile to the US, while Hayakawa et al. (2019) recently proposed a novel methodology to estimate the ratio of fixed costs resulting from preference utilization to those associated with non-preferential export activities.

The recent discussion on this topic goes beyond the estimation of the costs associated with preference utilization and analyses more in general its determinants. For instance, Hayakawa, Kim and Lee (2014) nest their analysis on the earlier literature on rules of origin, and show that the utilization rates of the EU-Korea Free Trade Agreement are negatively affected by Rules of Origin Restrictiveness. Hayakawa, Urata and Yoshimi (2018), on the other hand, use a multinomial logit model in order to find the determinants of the choice between multiple trade agreements for Japan's trading partners.

A few papers also employ firm-level data in order to determine which characteristics make firms and sectors more likely participate in preference schemes. For example, Arudchelvan and Wignaraja (2015) analyse a survey of Malaysian Small and Medium Enterprises (SMEs) and find that firm size matters for FTA utilization, and that geographic centrality and knowledge of FTA provisions tend to increase such utilization rates, suggesting that distance and information frictions in general can play a substantial role in determining utilization rates. Hayakawa (2015) employs the JETRO survey on Japanese affiliated firms in ASEAN, India and Oceania and confirms that small firms face higher difficulties in using preferences. Moreover, using a propensity matching score technique, he suggests that FTA utilization has a positive impact on firm performance and in particular on exports, extending a result that is often found in the learning by exporting literature (De Loecker, 2013). While all these studies focus on gross trade, in our paper we go beyond the existing literature by taking into account the production structure of the exporting economies. To the best of our knowledge, there are two existing works that take into account value added content of trade flows as a deter-

minants of preference utilization.

Hayakawa, Kim and Kayo (2017) use tariff-line-level data on Korean preferential imports from ASEAN nations in order to assess the impact of exchange rates on preference utilization through the local content of production (i.e. 1 minus the ratio of non-originating inputs and the total value exported). They find that a depreciation of the exporter's currency against the importer's one increases utilization, and they explain it with the idea that a decrease in the share of non-originating inputs makes easier to comply with some specific rules of origin. Similarly, Hakobyan (2015) analyses the preferential imports under the US Generalized System of Preferences (GSP) scheme, and uses the OECD Trade in Value Added (TiVA) database in order to show that an increase in local content has a positive impact on the utilization rate at the industry level.

3 Preference utilization and value added trade

Both Hakobyan (2015) and Hayakawa, Kim and Kayo (2017) suggest that value addition facilitates the compliance with rules of origin, increasing in turn preference utilization¹.

A natural question is whether a change in the value added produced within a sector has a further impact on the utilization rate other than the one induced by ROOs. This kind of investigation is particularly relevant because it has been shown that the ratio between value added and gross trade has significantly changed in the last few decades, falling on average by 10% between 1970 and 2009 and displaying a high degree of heterogeneity across countries and sectors (Johnson and Noguera, 2017). The intermediate section of the

¹Rules of origin define the requirements for the good to be considered originating in the beneficiary country. In practice, their legal framework is made of three building blocks (WTO, 2020): specific rules prescribing the realization of minimum manufacturing processes, local value addition or change of tariff classification; (ii) specific requirements to prove that such rules have been met; and (iii) the non-alteration of the goods during their transit to its preferential destination.

production network looks particularly affected by this phenomenon (Baldwin, Ito and Sato, 2014), as manufacturing represents around 70% of the gross exports but only 40% of the value added trade (Johnson, 2014).

The international fragmentation of the production that followed the so called "second unbundling" (Baldwin, 2016) poses a conceptual challenge to the analysis of the determinants of preference utilization. The gains from utilization at the transaction-product-year level can be expressed by the product between the tariff margin and the size of the export flow, namely:

$$gain_{ijptk} = margin_{ijpt} \times export_{ijptk}$$

Where $export_{ijptk}$ is the amount exported by exporter i towards importer j of product p at time t for a transaction k , while the preference margin is defined as follows:

$$margin_{ijpt} = t_MFN_{ijpt} - t_best_{ijpt}$$

i.e. as the difference between the MFN rate and the best preferential rate available.

Assuming for simplicity that the costs associated with the utilization of preferences are fixed and exogenous, the exporter chooses to use the preference scheme if the gross gain from utilization exceeds the cost. This is the reason why all the studies mentioned in the previous section find that the size of both the preference margin and the export flow tends to have a positive impact on preference utilization.

On the other hand, assuming constant production coefficients, the value added embedded in the export flow can be expressed by:

$$va_{ijptk} = export_{ijptk} \left(1 - \sum_{q \neq p} a_{qipt} \right)$$

Where a_{qipt} is the fraction of input from sector q employed by the exporter i for the production of good p at time t . The value added represents the share of the export flow which actually goes towards labor cost and profits,

hence it can be used to build a measure of the importance of the savings coming from preference utilization relative to the remuneration of the factors of production. More formally, we define the effective preference margin of a transaction as the ratio between the gross gains from utilization and the value added within the sector:

$$eff_margin_{ijpt} = \frac{gain_{ijptk}}{va_{ijptk}} = \frac{t_MFN_{ijpt} - t_best_{ijpt}}{value_ratio_{ipt}}$$

Where $value_ratio_{ipt} = 1 - \sum_{q \neq p} a_{iqpt}$ represents the value added ratio, i.e. the ratio between the value addition and the total production of the sector.

Intuitively, given an exporter A with a value added ratio of 0.5 and an exporter B with a value added ratio of 0.2, a gross preference margin of 0.1 implies an effective preference margin of 0.2 for exporter A and an effective preference margin of 0.5 for exporter B . More generally, the difference between the gross and effective preference margin is a decreasing function of the value added ratio, i.e. the effective preference margin tends to become disproportionately big if the value added ratio becomes very small. If the firms take into account the importance of the gains from utilization relatively to the value they produce, then, all the other things being equal, the utilization rate of an exporter characterized by a small value added ratio (high effective preference margin) will be more sensitive to changes in the gross tariff margin with respect to the one of a high value added exporter. This line of reasoning is somewhat symmetric to the argument proposed by Diakantoni et al. (2017), which shows that trade costs are particularly detrimental for low value added exporters because they are applied to gross trade and end up to erode a higher fraction of the value they produce. Similarly, Jakubik and Stolzenburg (2019) show that the elasticity of exports with respect to tariffs is higher in low value added sectors, where GVCs tend to reroute more easily. In both cases, the idea is that low value added, assembling sectors are already burdened by higher trade costs and hence tend to respond more readily to an easing (or a worsening) of the policy environment.

Our hypothesis is that increases in the value added ratio have both a direct effect (which tends to reduce the underutilization of preferences, see Hakobyan (2015) and Hayakawa, Kim and Kayo (2017)) and an indirect effect (which tends to reduce the its sensitivity with respect to the gross preference margin).

This intuition will be tested in section 9, and is strictly connected to the general idea that the impact of trade policy is not independent on the production structure of the economy, as widely displayed in the literature on the effective rate of protection (see for example Corden, 1996).

4 Data

The core of our analysis is conducted using the WTO Integrated Database (from now on WTO IDB), from which we get annual import and tariff data by preferential duty scheme for 8 preference-granting members. The database contains information on preferential imports for both non-reciprocal and reciprocal preferences. Data on non-reciprocal preferences (also known as Preferential Trade Agreements or PTAs) are submitted by the WTO members in light of the Transparency Mechanism for Preferential Trade Arrangements (WT/L/806 of 14 December 2010) as well as the Nairobi Ministerial Decision on preferential rules of origin for least developed countries. In addition, a number of preference-granting members provide also information on the utilization of reciprocal trade agreements (or Regional Trade Agreements, also known as RTAs).

Our data cover the 2010-2018 period and include ad valorem equivalents of the MFN tariff rates. Australia, Canada, the European Union, Republic of Korea, Norway, Chinese Taipei and the United States provide import data for the overall 2010-2018 period, while Japan provides data for 2013-2018.

This dataset gives us the opportunity to compute three main variables, i.e. underutilization, tariff margin and export flows. In particular, for each

exporter-importer-product-year $ijpt$ quadruple², underutilization is defined as the share of trade that does not utilize preferences despite being eligible:

$$underutil_{ijpt} = \frac{export_{ijpt}^{MFN}}{export_{ijpt}}$$

where $export_{ijpt}^{MFN}$ is the amount of trade that enters under MFN and $export_{ijpt}$ is the amount of trade that is eligible for preferences. As a consequence, underutilization is bounded between 0 and 1.

Trade flows that are not eligible for preferential treatment or that can be exported duty free under the MFN framework are excluded from the analysis. Our underutilization rate conveys information about the extent to which a preference scheme is not used when the exporters are eligible to it and it actually provides a reduction in trade costs.

An additional data source is the CEPII gravity dataset, which provides the weighted distance between importer and exporter and the "common spoken language" dummy variable which is equal to 1 if at least 4% of the population of the two countries speak the same language.

Finally, data on the production structure of the exporting economies for the years 2010-2015 come from the OECD Trade in Value Added (TiVA) dataset. TiVA data are available at country-industry level (ISIC Rev. 4) for a set of 64 economies, including all OECD, EU28 and G20 countries, most East and South-east Asian economies and a selection of South American countries. In the period under analysis, these countries represented for preference-granting members around 90% of the imports that were eligible to preferential treatment and could not enter duty free under the MFN framework. We map country-industry level value added ratios³ into a more disaggregate country-product measure (HS 6-digit) using the concordance table between ISIC and HS classifications obtained from the World Customs Organization.

²Products are defined at 6-digit level according to the Harmonized System, 2012 Revision.

³As value added data are not available at the 6-digit level, we employ industry-level data from OECD assuming that the value added ratio is constant across products belonging to the same industry.

5 How preferential is preferential trade?

Before turning to the analysis of the determinants of preference utilization, it is worth to describe the extent to which preferences are granted and eventually used.

As argued in the previous section, our definition of preference utilization does not take into account trade flows that are not eligible for any preference scheme (because utilization is null by definition) and the trade flows that can enter into preference-granting members through the MFN framework without paying tariff duties.

Indeed, these two categories account for a large fraction of world trade. As shown in Figure 1, according to our dataset around 26% of world exports towards the preference-granting members is not eligible for any preferential treatment, 49% can enter MFN duty free and only 25% are eligible for preferential treatment.

Moreover, Figure 1 shows that there is a pronounced heterogeneity between

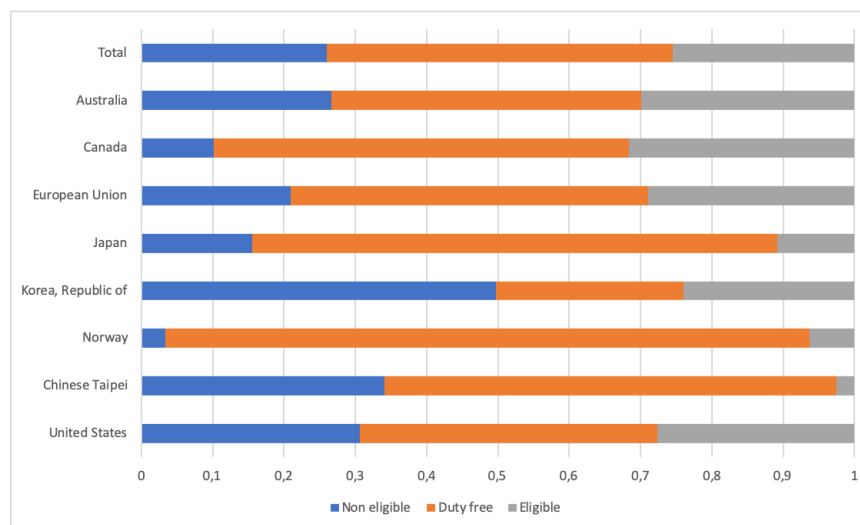


Figure 1: Breakdown of imports by eligibility to any preferential duty scheme and MFN duty free (2010-2018 period). Source: Our elaboration from the WTO IDB database.

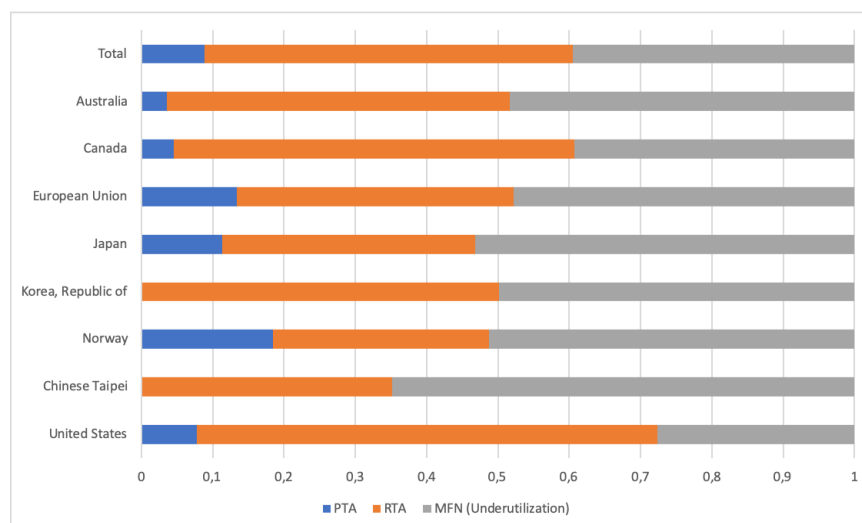


Figure 2: Breakdown of eligible imports by preference scheme utilized (2010-2018 period). Source: Our elaboration from the WTO IDB database.

preference-granting members in the extent to which they provide preferences to their trading partners. For instance, Norway, Canada and Japan display the lowest fraction of imports that are not eligible to preferences and cannot enter MFN duty free area, where non eligible imports respectively account for 3%, 10% and 15%.

Within the share of trade that is eligible for preferences and displays a positive tariff margin, underutilization remains a pervasive phenomenon. As displayed in Figure 2, 39% of the imports to the 8 preference-granting members pay the MFN tariff. Again, preference-granting members are quite heterogeneous, with underutilization rates that range from 27% for the US to around 65% for Chinese Taipei. Such heterogeneity depends on the specific rules applied by each preference-granting member (in particular the extent of the tariff margin and the restrictiveness of the Rules of Origin) as well as other factors, such as the portfolio of trading partners that each importer has.

On the other hand, the share of imports that enters under preferential regimes is unevenly split between Regional Trade Agreements (52% of the total trade)

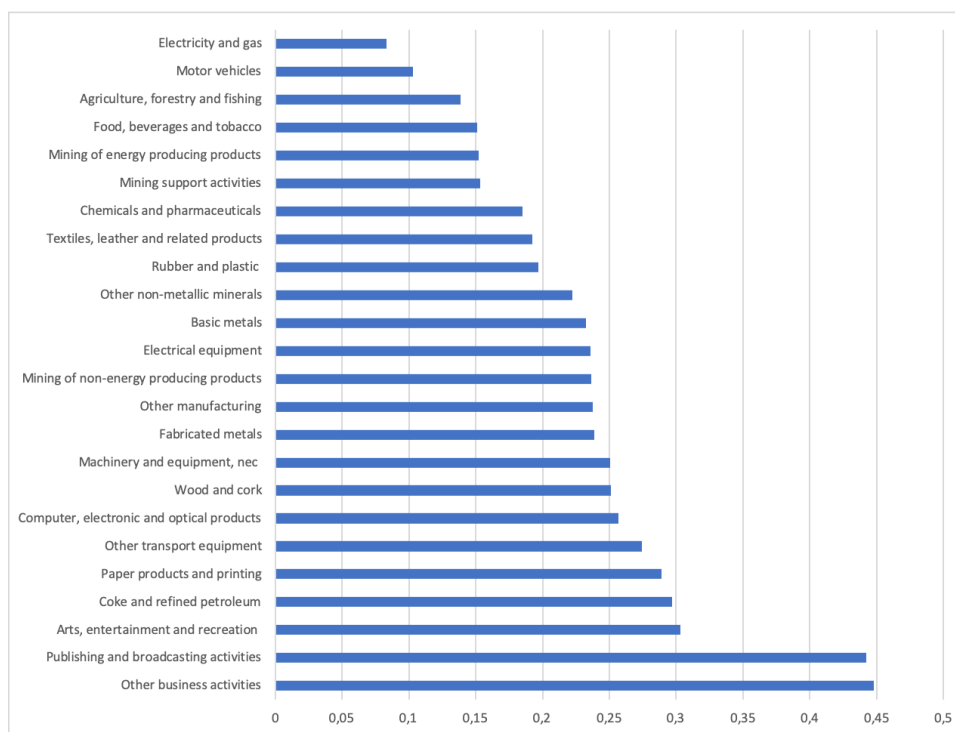


Figure 3: Underutilization rates by OECD TiVA sector (2010-2018 period).
Source: Our elaboration from the WTO IDB and the TiVA databases.

and Preferential Trade Agreements (9%), among which we find also the Generalized System of Preferences (GSP).

Preference utilization also varies considerably at the sector level. Figure 3 disaggregates the underutilization rates by sector using the OECD TiVA classification, which is in turn based on ISIC Rev. 4. The sectors characterized by the lowest underutilization rates are electricity, gas and water (8%), motor vehicles (10%), agriculture, forestry and fishing (14%) and food, beverages and tobacco (15%). In contrast, other business sector activities, publishing and broadcasting activities, arts, entertainment and recreation and coke and refined petroleum present the highest underutilization rates, respectively 45%, 44%, 30% and 29%.

Table 1: Summary statistics

	Mean	Mean (weighed)	Std. Dev.	Min.	Max.	N
2010-2018						
Import value	6,959	.	189,552	0.01	79,157,067	1,982,791
Preference Margin	5.817	4.448	9.705	0	1000	1,982,791
Underutilization	0.628	0.387	0.435	0	1	1,982,791
2010-2015						
Import value	7,556	.	210,836	0.01	79,157,067	1,244,702
Preference Margin	5.569	4.004	9.805	0	1000	1,244,702
Underutilization	0.621	0.427	0.437	0	1	1,244,702

Note: Export flows are expressed in US\$ thousands.

6 Descriptives

Table 1 provides importer-exporter-year-product level summary statistics of import value, preference margin and underutilization rates for the broader time span (2010-2018) as well as the restricted one (2010-2015) that will be employed for the value added regressions. Despite the difference in coverage, the two periods present a very similar profile.

Underutilization is on average high⁴, above 60%. Trade flows are characterized by a high standard deviation as well as a skewed distribution: in the 2010-2018 period, 10% of the trade flows were smaller than US\$ 123, the median was US\$ 23,393 and 74 observations reported a value larger than US\$ 10 billions, especially in the oil and gas sector. In order to address this issue, the regression analysis will employ log values for exports.

A similar picture emerges from the analysis of the underutilization rate, whose median is equal to 0.99 and whose first quartile is equal to 0.08 in

⁴The table reports both the simple and the trade weighted average of the utilization of the various duty schemes and the preference margin. The simple average tends to overestimate the aggregate underutilization because it gives too much weight to small trade flows that are characterized by low preference utilization. On the other hand, the trade weighted average tariff margin is smaller than the simple average because highly traded products present on average a lower MFN duty rate.

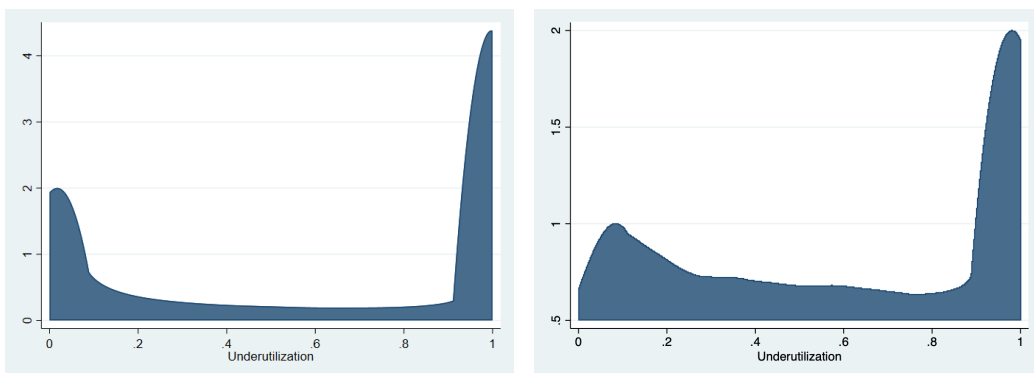


Figure 4: Kernel density of the underutilization rate for the whole 2010-2018 dataset (left figure) and for the 64 exporters for which TiVA data are available in 2010-2015 (right figure)

2010-2018. Indeed, around half of the imports have an underutilization rate equal to 1, meaning that they do not use any preference scheme even if they are eligible to it.

The Kernel analysis in Figure 4 shows that the distribution of the underutilization rate is approximately bimodal both for the overall 2010-2018 sample and for the restricted 2010-2015 sample including only the countries available in the TiVA dataset. This means that exporters are polarized into two main groups, one actually benefiting from preferences and the other with very low utilization rates. Such pattern is easily explained by the fact that preference utilization is a binary choice for the individual exporter (i.e. each transaction either uses the preference or not), and utilization rates between 0 and 1 implicitly signal transaction-level heterogeneity within the same importer-exporter-year-product quadruple. The right figure displays a larger mass to the left of the distribution, meaning that a larger share of exporters use preferences in the restricted sample. This is not surprising, since countries in TiVA are relatively richer and more productive than the rest of the world, implying that they have probably a higher capability of using preferences as well as more leverage to obtain better market access conditions.

Table 2: Value added by sector (TiVA)

	Mean	Std. Dev.	Min.	Max.
Agriculture, forestry and fishing	0.48	0.118	0.22	0.867
Arts, entertainment and recreation	0.548	0.085	0.25	0.837
Basic metals	0.233	0.102	0.042	0.707
Chemicals and pharmaceutical products	0.315	0.084	0.118	0.586
Coke and refined petroleum	0.167	0.131	0.001	0.697
Computer, electronic and optical products	0.355	0.138	0.042	0.758
Electrical equipment	0.317	0.075	0.061	0.61
Electricity, gas and water	0.416	0.116	0.19	0.741
Fabricated metal products	0.36	0.071	0.169	0.549
Food, beverages and tobacco	0.272	0.067	0.127	0.527
Machinery and equipment, nec	0.361	0.09	0.032	0.65
Mining of energy producing products	0.557	0.168	0.028	0.989
Mining of non-energy producing products	0.49	0.123	0.048	0.897
Mining support activities	0.514	0.191	0.032	0.9
Motor vehicles	0.284	0.096	0.115	0.735
Other business activities	0.560	0.093	0.183	0.777
Other manufacturing	0.402	0.075	0.186	0.612
Other non-metallic minerals	0.348	0.068	0.157	0.537
Other transport equipment	0.354	0.115	0.067	0.866
Paper products and printing	0.329	0.061	0.173	0.541
Publishing and audiovisual activities	0.433	0.076	0.196	0.662
Rubber and plastic	0.309	0.065	0.145	0.521
Textiles, apparel and leather	0.355	0.077	0.189	0.611
Wood and cork	0.324	0.089	0.003	0.58

Note: Data for the 2010-2015 period from the OECD-TiVA Input-Output tables.

Table 2, on the other hand, displays the summary statistics of the value added ratio in the period 2010-2015 for 24 TiVA manufacturing sectors. Such measure indicates the fraction of the value of the production that is actually added within a certain industry, and hence the type of specialization of the industry itself.

As expected, sectors present a high degree of heterogeneity. The value added ratio ranges from 0 to 1, with coke and refined petroleum (0.16), basic metals (0.23), food products (0.27) and motor vehicles (0.28) presenting the lowest average value, and hence a high degree of international fragmentation and specialization, while other business sector activities (0.56), mining of energy-producing products (0.55) and arts, entertainment and recreation (0.54) present the highest figures.

7 Analysis of variance

The underutilization rate varies across four dimensions: importer, exporter, product and time⁵.

Most determinants of preference utilization usually vary across at least three of them. The size of the import flows and the preference margin, which define the magnitude of the gross gains from utilization, are importer, exporter, product and time specific.

Other potential determinants are bilateral and time invariant (for instance geographical proximity and common language), while more in general trade costs (including transportation) are bilateral and can also vary over time. The level of development, the access to relevant technologies (including ICT) and the characteristics of the domestic supply chain, which are likely to influence the acquisition of knowledge about the different options and the capability to profit from preferential trade schemes, are mainly exporter-specific and vary both over time and across products. On the other hand, the costs of certifying the origin and filling out the forms, the legal characteristics and procedures of the customs, as well as the likelihood of corruption, are mainly importer-product-time specific.

In order to quantify the relative importance of these dimensions, we follow the

⁵In principle, utilization rates could be identified at the transaction level. Our dataset provides the data aggregated at the importer-exporter-product-year level, so this additional dimension is not included.

procedure explained in Gibbons, Overman and Pelkonen (2014) and estimate the following equation through OLS⁶:

$$underutil_{ijpt} = X'_{ijpt}\beta + \alpha_{jpt} + \alpha_{ipt} + \alpha_{ijt} + \epsilon_{ijpt}$$

Where $underutil_{ijpt}$ is the underutilization rate defined in Section 3, X_{ijpt} is a vector of regressors that vary across the four dimensions (in our case, the preference margin and the log of trade), while α_{jpt} , α_{ipt} and α_{ijt} are respectively importer-product-time, exporter-product-time and importer-exporter-time fixed effects and ϵ_{ijpt} is the error term, which is assumed to be independent and identically distributed (i.i.d.) and uncorrelated with the regressors. Let us define $\hat{\alpha}_{jpt}$, $\hat{\alpha}_{ipt}$, $\hat{\alpha}_{ijt}$ and \hat{X}_{ijpt} respectively as the predicted impact of the fixed effects and the regressors on the underutilization rate. Notice that, if the exogeneity restriction holds, its estimated variance can be expressed as:

$$\begin{aligned} Var(underutil_{ijpt}) = & Var(\hat{\alpha}_{jpt}) + Var(\hat{\alpha}_{ipt}) + Var(\hat{\alpha}_{ijt}) + Var(\hat{X}_{ijpt}) + \\ & Cov(\hat{\alpha}_{jpt}, \hat{\alpha}_{ipt}) + Cov(\hat{\alpha}_{jpt}, \hat{\alpha}_{ijt}) + Cov(\hat{\alpha}_{ipt}, \hat{\alpha}_{ijt}) + \\ & Cov(\hat{X}_{ijpt}, \hat{\alpha}_{jpt}) + Cov(\hat{X}_{ijpt}, \hat{\alpha}_{ipt}) + Cov(\hat{X}_{ijpt}, \hat{\alpha}_{ijt}) \\ & + Var(\hat{\epsilon}_{ijpt}) \end{aligned}$$

And indeed the sum of the first ten components divided by the variance of the dependent variable gives us the R^2 of the regression.

The variance terms account for the direct contribution of each dimension to the total variability of the underutilization rate, while the covariances convey information on the extent to which the match between different kinds of heterogeneity influences the independent variables (roughly corresponding to what is called "sorting" in the labor literature, see for example Combes, Dutanton and Gobillon, 2008). The covariance between the importer-product-time and the importer-exporter-time effects is expected to

⁶We employ the full 2010-2018 database in this section

Table 3: Correlation structure of the Fixed Effects

		Pearson Correlation Matrix			
	Std Deviation	Under-utilization	Importer-product-time	Exporter-product-time	Importer-exporter-time
Under-utilization	0.4357	1			
Importer-product-time	0.1676	0.3584	1		
Exporter-product-time	0.2161	0.4492	-0.0416	1	
Importer-exporter-time	0.1902	0.4526	0.0108	-0.0265	1

Note: The correlation coefficients are all significant at the 0.01 level.

be positive, because it is reasonable to assume that importer-side constraints to preference utilization are eased if a stronger bilateral relationship is in place (see Blanchard, 2007 for a discussion on the endogeneity of preferential trade policies). The sign of the covariance terms including the exporter-product-time effects is more ambiguous *a priori*, because, in a Melitz-like context, exporter-specific characteristics that improve preference utilization (like productivity, firm size and value added) may allow firms to export towards destinations where utilization is more costly (see Hayakawa, 2015), and hence could be negatively correlated with the importer-specific and bilateral factors that improve the utilization rates.

This intuition appears to be confirmed in Table 3. The independent variables appear to be positively and significantly correlated with the underutilization rate, and, while importer-product-time and importer-exporter-time heterogeneity tend to move in the same direction, they are both negatively correlated with the exporter-product-time dimension.

Equipped with these estimates, it is possible to retrieve the contribution of each dimension to the total variance in different ways.

An intuitive measure is what Gibbons, Overman and Pelkonen (2014) call the Correlated Variance Share (CVS), which is simply given by the ratio of the variance of each estimated effect and the variance of the underutilization

Table 4: Variance decomposition of the underutilization rate

	RVS	CSV	UVS	BVS
Importer-product-time	0.2249	0.1480	0.0206	0.1379
Exporter-product-time	0.4671	0.2460	0.0856	0.2228
Importer-exporter-time	0.2529	0.1905	0.0219	0.1975

rate. For example, the CSV of the importer-product-time FEs is given by $\frac{Var(\hat{\alpha}_{jpt})}{Var(underutil_{ijpt})}$. On the other hand, in order to evaluate the direct contribution of each dimension, Gibbons, Overman and Pelkonen (2014) propose what they call the Uncorrelated Variance Share, that measures the amount of variation in the dependent variable which is explained by the part of each regressor that is not correlated with the other covariates. In practice, the UVS of $\hat{\alpha}_{jpt}$ can be obtained regressing $\hat{\alpha}_{jpt}$ on X_{ijpt} controlling for α_{ipt} and α_{ijt} and then regressing the underutilization rate on the residuals of the first stage: the UVS is the R^2 of this last regression (in practice, we identify the fraction of $\hat{\alpha}_{jpt}$ which is not correlated with $\hat{\alpha}_{ipt}$ and $\hat{\alpha}_{ijt}$).

The UVS is more rigorous than the CSV, because it assesses the direct contribution of each dimension taken in isolation from the others, but it does not convey any information on the covariances between them, which is included instead in the Balanced Variance Share (BVS). The BVS of $\hat{\alpha}_{jpt}$ is given by $(\frac{s(\hat{\alpha}_{jpt})}{s(underutil_{ijpt})})r(\hat{\alpha}_{jpt}, underutil_{ijpt})$, where $s(\cdot)$ indicates the standard deviation and $r(\cdot)$ the Pearson correlation coefficient, and it can be shown to be equivalent to $\frac{Var(\hat{\alpha}_{jpt})+Cov(\hat{\alpha}_{jpt},\hat{\alpha}_{ipt})+Cov(\hat{\alpha}_{jpt},\hat{\alpha}_{ijt})+Cov(\hat{\alpha}_{jpt},\hat{X}_{ijpt})}{Var(underutil_{ijpt})}$. In practice, the BVS equally splits the covariance terms between the independent variables. Finally, Gibbons, Overman and Pelkonen (2014) suggest to employ the R^2 obtained through regressing the underutilization rate on each of the three sets of FEs as an upper estimate (Raw Variance Share).

The results of the variance decomposition analysis can be found in Table 4. There are two interesting findings. First, the difference between the UVS

and the CVS is striking, and signals that the different dimensions are strictly related to one another. In particular, notice that the importer-side determinants of preference utilization (especially ROOs) always involve a bilateral dimension, since the eligibility to any preference scheme is exporter-specific. This is the reason why the next section will introduce both importer-product-time and bilateral FEs in the regression analysis in order to focus on the exporter-side determinants of preference utilization controlling the variation coming from ROOs and importer-specific constraints.

Secondly, the fraction of the total variance which is attributed to exporter-specific heterogeneity is not negligible and systematically higher than the ones attributed to the other dimensions. In particular, the Uncorrelated Variance Share of the exporter-product-time effects is four times higher than the the importer-product-time and importer-exporter-time UVS. Even if this result should be interpreted with caution, it is already a signal that a more rigorous analysis of the exporter-side determinants of preference utilization is needed.

8 Regression analysis

In order to account for the bilateral and supply-side determinants of preference utilization, we separately estimate two sets of equations:

$$U_{ijpt} = \beta_0 + X'_{ijpt}\beta_1 + \alpha_{jp't} + \alpha_{it} + \epsilon_{ijpt} \quad (1)$$

$$U_{ijpt} = \beta_0 + \tilde{X}'_{ijpt}\beta_1 + \alpha_{jp't} + \alpha_{ijt} + \epsilon_{ijpt} \quad (2)$$

Where the subscript i indicates the exporter, j the importer, p the product at the 6-digit level (HS 2012 revision), p' the product at the 4-digit level, t the year (2010 to 2015) and the dependent variable is the underutilization

rate U_{ijpt} defined in section 4.

The first specification includes importer-product-time and exporter-time fixed effects, leaving us some variation to explore the impact of the bilateral determinants of underutilization. As argued in Keck and Lendle (2012), importer-product-time FEs should be able control for most of the variation coming from the restrictiveness of rules of origin. Additionally, they control for product-specific patterns that affect underutilization (some sectors could have systematically higher utilization rates because of their inherent characteristics). The results presented in the next section are obtained setting these FEs at the 4-digit level similarly to what prior studies do: for instance, Keck and Lendle (2012) set the importer-product FEs at the 2 and 4-digit level, while Hakobyan (2015) sets them at the 2-digit level. On the other hand, the exporter-time FEs capture the heterogeneity at the exporter-time level, due for instance to differentials in macroeconomic characteristics, development patterns, access to the internet or other time and country-specific unobservable shocks.

The matrix X_{ijpt} of explanatory variables includes the log of imports at the importer-exporter-product-year level, the preference margin, a primary goods dummy⁷, the logarithm of the weighted distance between importer and exporter, the common language dummy from CEPIL, a multilateral resistance index and two dummy variables that identify trade flows that are eligible to either reciprocal preferences under RTAs or to both reciprocal and non-reciprocal preferences (RTAs and PTAs)⁸.

For each exporter i , our multilateral resistance index is built as the share

⁷The primary goods dummy is equal to 1 if the good belongs to a sector which is classified as primary according to the Multilateral Trade Negotiations (MTN) classification. The following sectors are considered primary: 01 (Animal products), 02 (Dairy products), 03 (Fruits, vegetables and plants), 04 (Coffee and tea), 05 (Cereals and preparations), 06 (Oilseeds, fats and oils), 07 (Sugars and confectionery), 09 (Cotton), 10 (Other agricultural products), 11 (Fish and fish products), 13 (Petroleum), 15 (Wood and paper).

⁸The baseline category is given by trade flows that are eligible only to non-reciprocal preferences.

of its competitors' exports to market j in product p at time t that benefits from preferences *de jure*. The idea behind this index is that, if most of an exporter's competitors are eligible for preferential treatment, the cost of not using preferences is higher. This is parallel to the broader multilateral resistance definition (Anderson and Van Wincoop, 2004), which suggests that trade between countries i and j depends not only on the trade barriers between i and j themselves, but also on the barriers that i and j face in third-country markets.

The RTA and RTA-PTA dummies are employed to capture the idea that underutilization patterns might be different for RTAs and PTAs. Preferences under RTAs are the outcome of a reciprocal negotiation process, thereby also reflecting the offensive market access interests of the exporting country. In contrast, PTAs are granted unilaterally by the importing country, so that the different market access interests of eligible exporters are likely to be given less consideration. Furthermore, as part of the negotiation process, RTA partners might be able to negotiate a more favourable and/or transparent framework, lowering the costs of using preferences for firms.

The second set of regressions focuses on the supply side determinants of underutilization, in particular value added. The inclusion of importer-exporter-time FEs a_{ijt} ensures that the estimates on the impact of value added are not biased by (time-varying) bilateral factors that may simultaneously move both utilization decisions and the pattern of specialization of the exporting economy. For instance, bilateral costs or exogenous productivity shocks could induce both underutilization and a specialization in a low value-added sector.

The matrix \tilde{X}'_{ijpt} contains the logarithm of imports, the preference margin, the primary goods dummy, the multilateral resistance index, the value added ratio at the exporter-product-time level and its interaction with the preference margin. The latter two variables identify both the direct impact of value added on underutilization and its indirect impact through the variations in the effective preference margin.

As value added ratios are available in terms of the economic activity classification ISIC Rev. 4, we use a correspondence to match them with utilization data at the HS-6 digit level. We test the robustness of our results by aggregating underutilization data and running regression also that the level of ISIC Rev. 4 industries.

There are two main methodological issues in estimating these equations.

The first one is the choice of the model. Since underutilization is bounded between 0 and 1, a natural choice would be to employ a fractional logit. Nevertheless, there are two main caveats in this regard: first of all, the maximum likelihood algorithm cannot converge with so many FEs, and, even ignoring the potential bias coming from the incidental parameter problem, renouncing to a rich set of FEs may bias our estimates because it would not be possible to control for ROOs; secondly, and more importantly, the coefficients of interaction terms in non linear models do not have a clear economic interpretation (Greene, 1990), while in a linear model they represent the cross-derivative with respect to the two (or more) regressors involved. For these reasons, we employ a linear model instead of a fractional logit.

A second concern is related to the possible endogeneity of the value added ratio, since each exporter may simultaneously choose the degree of preference utilization and the type of specialization within the value chain. For example, exporters might simultaneously choose to integrate themselves into an internationally fragmented supply chain (decreasing their value addition) and increasing at the same time their preference utilization rate. Indeed, importer-exporter-time FEs account for the bilateral costs that are common to all products, but do not control for the product-specific bilateral heterogeneity. In order to address this issue, we instrument the value added ratio of exporter i with the average value added ratio of the other exporters belonging to the same income group in the same year⁹, excluding those exporters

⁹The World Bank 2015 classification defines 4 income groups: low, lower-middle, higher-middle and high income. The TiVA dataset does not provide value added data for any low income country, so we employ the other three categories.

that are eligible to the same preferential duty schemes as exporter i . Such exclusion is relevant for the validity of our instrument, because it is plausible that the value added of exporter k , that is not eligible to a specific preference scheme, does not directly impact the underutilization of that scheme by exporter i . At the same time, the value added ratios of exporters i and j in a specific sector are correlated, as they both belong to the same income group, so the instrument is not weak.

9 Results

Table 5 presents the results for the regressions focusing on the bilateral determinants of preference utilization. Columns 1, 2 and 3 progressively enrich the set of the determinants of preference utilization, while column 4 runs the regression on the restricted set of exporters that are present in the TIVA dataset and will be analyzed also in Table 6. In line with the previous literature, we find that the size of the trade flow and the preference margin tend to reduce the underutilization rate, since they both enhance the gross gains from utilization. Primary goods tend to display higher utilization rates (see Keck and Lendle, 2012). The positive impact of common language and geographical proximity on preference utilization likely reflects lower information frictions relating to the availability as well as the use of preferences.

As expected, the multilateral resistance index introduced in column 2 has a negative impact on underutilization, since not using preferences becomes more costly when the competitors are eligible to preferential treatment as well.

The negative coefficients of the RTA and PTA dummies indicate that countries that are eligible to at least one RTA display a higher preference utilization compared to countries that are only eligible to a PTA. This result could be explained by the fact that reciprocal preferences under RTAs better reflect the market access interests of the exporting countries and that bilat-

Table 5: Bilateral determinants of underutilization of preferences

	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	OLS
Log imports	-0.0447*** (-564.27)	-0.0447*** (-564.69)	-0.0448*** (-565.45)	-0.0439*** (-423.56)
Preference margin	-0.00206*** (-28.75)	-0.00208*** (-28.87)	-0.00200*** (-28.41)	-0.00183*** (-22.91)
Primary	-0.0210*** (-4.22)	-0.0202*** (-4.07)	-0.0203*** (-4.09)	-0.0264*** (-4.17)
Log distance	0.0824*** (155.44)	0.0830*** (156.43)	0.0768*** (131.23)	0.0868*** (120.86)
Common language	-0.0634*** (-51.47)	-0.0632*** (-51.43)	-0.0613*** (-49.59)	-0.0373*** (-24.42)
Multilateral resistance		-0.0387*** (-25.82)	-0.0381*** (-25.38)	-0.0339*** (-18.80)
RTA			-0.0245*** (-19.92)	-0.0199*** (-12.29)
RTA and PTA			-0.0524*** (-39.54)	-0.0535*** (-29.11)
Constant	0.417*** (82.76)	0.433*** (85.34)	0.503*** (87.73)	0.391*** (53.10)
N	1,968,962	1,966,739	1,966,739	1,220,148
R^2	0.4177	0.4179	0.4184	0.3891

Note: t statistics in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Columns 1, 2 and 3 report the results of the regressions for the overall 2010-2018 sample, while column 4 only includes the exporters that are present in the TIVA dataset. The regressions have been run at the HS 2012 6-digit level; all specifications include importer-product-time (4-digit) and exporter-time fixed effects.

eral negotiations enhance the transparency for exporting firms as they are more likely consulted and informed by their Governments. As expected, the larger coefficient of the RTA and PTA dummy indicates that exporters which are eligible to multiple schemes have higher utilization rates. Moreover, the introduction of these two variables in column 3 reduces the absolute value of the distance coefficient, because countries that are geographically closer are more likely to sign reciprocal agreements (in other words, the distance coefficient in columns 1 and 2 is also capturing the differences in trade policy regimes that are associated with differences in geographical proximity). Finally, the results for the restricted sample in column 4 confirm the sign and significance of all the coefficients, suggesting that the set of countries in TiVA is relatively representative of the overall dataset.

The results in Table 6 highlight the direct and indirect impact of value added on preference utilization. The first two columns report the result of the OLS and IV regressions for the sample at the 6-digit level, while columns 3 and 4 show the results of the regressions at the level of the ISIC industries included in the TiVA database. The main results of the first set of regressions are confirmed: export size, preference margin, multilateral resistance and the primary dummy have a positive impact on preference utilization.

An increase in the value added ratio has a significantly negative effect on the underutilization rate in the 6-digit level regressions, with the coefficient equal to -0.025 in the case of OLS and to -0.156 in the case of 2SLS. In particular, the coefficient is higher in absolute value with the IV, confirming our conjecture that value added and underutilization move into the same direction. The direct impact of value added on preference utilization was already analyzed in previous studies, in particular Hayakawa, Kim and Kayo, 2015 and Hakobyan, 2015¹⁰ and can be explained either as a productivity premium (high value added sectors are also highly productive, and this implies that firms are more likely to have the resources and the know-how to

¹⁰These studies focus more on the local content of production than on value added *per se*. Since value added is a component of the local content, the ROOs argument still holds.

Table 6: Value added and preference utilization

	(1)	(2)	(3)	(4)
	OLS	2SLS	OLS	2SLS
Log imports	-0.0356*** (-305.19)	-0.0349*** (-288.97)	-0.0206*** (-21.75)	-0.0212*** (-20.21)
Preference margin	-0.00160*** (-18.77)	-0.00164*** (-16.25)	-0.00262*** (-6.69)	-0.00411*** (-5.81)
Value ratio	-0.0252*** (-4.24)	-0.156*** (-4.86)	-0.0497* (-2.55)	-0.429 (-1.63)
Value ratio \times Pref. margin	0.00211*** (4.87)	0.00652*** (7.46)	0.00740*** (4.12)	0.0233*** (5.36)
Multilateral resistance	-0.0231*** (-11.41)	-0.0205*** (-9.94)	-0.109*** (-5.33)	-0.109*** (-5.25)
Primary	-0.0850*** (-7.40)	-0.0807*** (-6.83)		
Constant	1.067*** (446.61)		1.012*** (49.35)	
N	949,471	896,369	20,982	20,970
R^2	0.5010	0.0985	0.6306	0.0139

Note: t statistics in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Columns 1 and 2 report the results of the regressions run at the 6-digit level (HS 2012 classification), columns 3 and 4 report the results of the regressions run at the ISIC Rev. 4 level. All specifications were run using the 2010-2015 sample. The 2SLS regressions instruments the value added ratio of exporter i with the average value added ratio of the other exporters belonging to the same income group in the same year, excluding those exporters that are eligible to the same preferential duty schemes as exporter i itself. All specifications include importer-product-time and importer-exporter-time fixed effects.

use preferences) or, as stressed by previous contributions, as a consequence of Rules of Origin compliance (many rules of origin impose an upper limit to non originating inputs and high value added sectors are more likely to be compliant).

Finally, as anticipated in section 3, we find that the sensitivity of preference utilization with respect to the preference margin is a decreasing function of the value added ratio: the higher the value added of sectors, the less the preference margin matters for preference utilization. Similarly, an increase in the preference margin results in a larger increase in preference utilization for low-value added sectors. Notice that this result is stable across all our econometric specifications and the F-test on the first stage of the IV regressions rejects the null hypothesis that the coefficients are jointly equal to zero, meaning that reasonably our IV is not weak.

The impact of the effective preference margin is confirmed in the ISIC-level regressions, while the direct impact of value added is significant with OLS (column 3), but it becomes non significant with the two-stage least squares procedure. This might be related to the fact that the construction of the regressors and the instrument is less precise with a higher level of aggregation, and running the regressions at the ISIC level does not allow to fully control the impact of rules of origin because the importer-product-time fixed effects are not granular enough. On the other hand, value added and its interaction with the preference margin are jointly significant (the F-test is equal to 15.27).

These findings provide a number of policy insights. On the one hand, policies aimed at increasing the value added produced by domestic firms might have a positive spillover on market access, since the increase in value added tends to improve the utilization of preferential duty schemes, lowering the trade costs and possibly boosting exports. Furthermore, increasing the value added of production makes preference utilization less sensitive to exogenous changes in trade policy variables.

On the other hand, our results imply that a sudden decrease in the preference margin would have a heterogeneous impact across exporters, penalizing in particular low value added producers. This finding suggests that policy makers need to be aware of the differential impact of trade preferences on sectors when providing unilateral preferences and negotiating regional trade

agreements.

10 Concluding remarks

This paper employs a new comprehensive WTO dataset on preferential trade to contribute to the literature on the determinants of preference utilization. In addition, by combining these data with the OECD TiVA database, we find innovative results concerning the relationship between preference utilization and the production structure of the exporting economies.

Our dataset includes utilization data at the bilateral-product-year level for 8 importers, and we merge it with the OECD TiVA Input-Output tables.

We show that only a fraction of the imports of the preference-granting countries are eligible to preferential treatment, and that underutilization is a pervasive phenomenon among these. There is a high degree of heterogeneity in utilization rates, which vary across importers, exporters and industries: their distribution is bimodal in the aggregate, and signals a strong polarization between exporters who are able to extensively use preferences and exporters who are basically excluded from preferential market access.

We confirm the widely documented stylized facts reported by the existing literature: preference utilization is increasing in the size of the export flows and the preference margin, as they increase the gross gains associated with the use of preferences, and well as linguistic and geographical proximity, which reduce the information frictions and increase awareness about the available preference schemes. We add to the literature by showing that the utilization rate is sensitive to multilateral resistance: if a higher share of competitors is eligible to preferential treatment, preference utilization will tend to be higher too, because not using preferences is more costly if other exporters have access to easier market access conditions. Moreover, preference utilization tends to be higher for reciprocal trade agreements whose rules of origin and legal framework is the outcome of a bilateral negotiation.

Our analysis of variance shows that the variation in the utilization rates is

largely determined by exporter-product-time specific factors, and indeed the results of the regression analysis add some new insights on the relationship between the value added content of production and preferential trade. We find that an increase in the value added ratio would increase preference utilization and at the same time make preference utilization less sensitive to changes in the preference margin.

From a policy perspective, our analysis suggests that interventions aimed at upgrading the participation of firms to GVCs, and hence increasing the value added content of exports (Taglioni and Winkler, 2016), would decrease underutilization, further benefiting exporters in terms of market access and making at the same time utilization more resilient with respect to sudden changes in the tariff margin. On the other hand, trade policy makers should consider that changes in preference margin have a differential impact on sectors depending on their value added content. For instance, several LDCs are expected to lose access to LDC-specific preference schemes as they will graduate from LDC status over the next decade (WTO, 2020). The reduction in preference margin can be expected to have a relatively stronger impact on low value added exports such as clothing, which is of high importance to a number of graduating LDCs in Asia. Similarly, from a preference utilization perspective, negotiators of RTAs should aim to secure relatively higher preference margins for their low value added sectors.

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