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The impact of trade preferences removal: Evidence from the Belarus Generalized System of Preferences withdrawal

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Abstract

Under the Generalized System of Preferences (GSP), high-income countries grant unilateral trade preferences to developing countries. These preferences are subject to political conditionality, but little is known about the trade impact of loss of preferential access. We study the EU's complete withdrawal of GSP preferences from Belarus in 2007 in response to labour rights violations to fill this void. The withdrawal caused a significant drop in trade for affected products (25%–27% trade decline) and some trade reduction at the extensive margin. For products where trade was affected at the intensive margin, there is some evidence of adjustment through falls in quantities but also through prices for larger export sectors. The impact was uneven across sectors, with textiles and plastics particularly strongly affected by the withdrawal.

KEYWORDS

Belarus, generalized system of preferences, GSP, preference withdrawal

1 | INTRODUCTION

Under the *Generalized System of Preferences* (GSP), rich countries may unilaterally grant trade preferences to developing countries. The GSP is an exception to the Most Favoured Nation (MFN) principle of the World Trade Organization, thus providing considerable flexibility to the preference grantor. As a result, the GSP has become the most widespread and extensive program of special treatment for developing countries [see the surveys by Ornelas (2016), Hoekman and Özden (2005)].

At the same time, it is not clear how strongly the system actually promotes exports of developing countries. Exporters, for example, can face considerable bureaucratic barriers when seeking to use the preferences, leading to underutilisation of these preferences. programs. In some cases the 'discount' granted compared to MFN is small, and countries may see their preference revoked when they actually start exporting a product in large quantities (a process known as 'graduation'). Existing studies, based on preference withdrawal due to sectoral graduation Thelle et al. (2015) or temporary program expiration (Hakobyan, 2020) have found significant, but small trade effects of preference withdrawal. So far, the trade impact of a targeted withdrawal of GSP preferences on an individual country is not known; however, the question is of considerable trade and policy interest.[1]

Preference programs like GSP have been found to be important for the exports of the specific sectors that receive large tariff preferences. Frazer and Van Biesebroeck (2010) find that the African Growth and Opportunity Act (AGOA), that extends the standard US GSP, in particular for apparel and textile exports, had a significant impact on the exports to the United States, most notably for the apparel goods where preference margins are large. Hakobyan (2017) finds that the revokation of US GSP preferences for individual sectors for the most competitive exporters causes a large and significant reduction in imports. Overall, Lederman and Özden (2007) find a larger export impact of trade preference programs that go beyond standard GSP. Consistent with this, Ornelas and Ritel (2020) show that least developed countries (LDCs) – that are typically provided extended preference programs – benefit significantly from trade preferences.

In this paper, we study the experience of Belarus to investigate how the withdrawal of EU's GSP preference affects market access. Belarus received market access benefits for a wide range of products under the EU's GSP program until 2007, when the preferences were withdrawn *completely*. The withdrawal of preferences followed a report by the International Labor Organization (ILO) determining labour rights violations in Belarus.[2]

This far-ranging withdrawal of GSP preference provides a rare opportunity to study the market access effects of the program, because the withdrawal is both permanent and

[1]GSP-granting countries at times intend to gain political leverage through GSP, using the threat of withdrawal of market access to encourage compliance with international treaties, labour standards etc. Carnegie (2015) studies the GSP as one tool of 'coercive diplomacy', and policy conditionality is a common feature of GSP programs. Furthermore, Gassebner and Gnutzmann-Mkrtchyan (2018) show that political alignment is rewarded in US decisions regarding suspension of GSP membership. Clearly, the potential effectiveness of such a policy hinges on trade impacts of GSP withdrawal.

[2]The European Union's GSP program aims to promote human rights (Oram and Gorska, 2012). It foresees withdrawing the preferences when the beneficiary does not meet labour rights standards (UNCTAD, 2015); this clause was used in the case of Belarus. In practice, political considerations may also play a role: EU officials may have influenced the outcome of the ILO report on Belarus to justify the GSP withdrawal from the country. According to Rettman (2007), '[a]n EU official said that close personal ties between senior ILO and EU officials have helped Brussels get the kind of ILO reports it wants, with other issues such as political prisoners also impacting the reading of ILO texts'.

universal across goods.[3] Moreover, export of Belarus prior to the withdrawal was about EUR 4.4 billion and EUR 520 million of theses benefited from the GSP, thus the affected trade is non-negligible.

We are interested both in the effect of GSP withdrawal on the value of trade as well as the nature of adjustment at the extensive and intensive margin. We employ a triple difference-in-differences regression to understand how the Belarusian economy was affected by the loss of these preferences. In particular, we assess the export performance of Belarusian sectors eligible for GSP benefits after the loss of preferences relative to the period before, relative to those sectors that were never eligible, and relative to the export performance of GSP beneficiaries that retained the preferences.

We find that GSP withdrawal sharply reduced exports of eligible products to EU. The average trade value impact is estimated at 27% in the baseline PPML model. At the intensive margin, we find some evidence of adjustment through falling export quantities and adjustment through prices for sectors with large pre-withdrawal trade. Moreover, there is adjustment at the extensive margin, through reductions in the share of traded products, which we estimate between 2 and 6 percentage points.

There is heterogeneity across sectors in the GSP withdrawal effect. First, sectors vary in the extent of their GSP eligibility and utilisation in the pre-withdrawal period. Products with higher eligibility and utilisation of preferences saw larger trade reductions. Second, trade is highly elastic with respect to the preference margin (compared to the EU MFN tariff).

The impact of GSP withdrawal is particularly strongly felt in the textiles and plastic sectors. We interact our coefficient by HS product sector, and then calculate the estimated absolute trade change due to GSP withdrawal. We find that 33% of the total trade reduction is concentrated in the textiles sectors, while 29% of the trade reduction is borne by plastics. In contrast, other affected sectors, such as machinery and vehicles, suffer lower absolute losses due to smaller pre-withdrawal EU export level. These results echo earlier findings that GSP impacts are concentrated in few sectors, such as textiles and—in the case of US GSP—some agricultural products.

This paper continues by providing some background on Belarus and its GSP withdrawal in Section 2. The following Section 3 presents the data set construction and empirical strategy. Section 4 contains the empirical results. Finally, Section 5 concludes.

2 | BACKGROUND

Belarus lost its EU GSP beneficiary status in 2007.[4] Hajduk and Silitski (2007) discuss the events that led to the removal of the GSP from Belarus. In particular, Belarus was accused in the ILO by the independent trade unions of limiting the ability of trade unions to register via legal and bureaucratic barriers as well as lack of the protections for members. Trade unions were reporting persecution and failure to extend the fixed-term contracts of members. This, in turn, would serve as a barrier for joining the independent trade unions. As respect for labour rights is a condition for receiving EU GSP, the EU Council removed Belarus' preferences in December 2006, effective from 21 June 2007.

[3]In contrast to the endogenous selection of sectors under graduation.

[4]The preferential access was granted in 1994 (Baier et al., 2014).

The loss of GSP is not immediately visible in its aggregate exports to the EU. Figure 1a shows EU imports from Belarus. Initially, total exports of Belarus to the EU remained at a similar level: EUR 4.4 billion in 2006 (year before withdrawal) and 2007 (withdrawal year) and EUR 4.6 billion in 2008 (year after the withdrawal). This is followed by a sharp contraction in 2009 in the wake of global financial crisis. The fall is, however, sharper for Belarus (45%) than for other GSP beneficiary countries (29%) (Figure 1b).

Figure 1c shows the share of exports that were exported using GSP by Belarus and other GSP beneficiaries. We see that only about 12%–13% of Belarusian exports to the EU used the GSP. The GSP exports of Belarus were at about EUR 520 million in 2006, the year before the complete removal of the preferences. For other beneficiary countries, there is a trend towards a slight increase in the share of GSP exports during the sample period.

However, this visual inspection of totals is not entirely informative as it cannot take into account changes in the sectoral composition of trade. Total trade values can hide significant variation for distinct sectors. First, few very large traded products (such as oil and fertilisers) can overshadow changes in trade of other products. Second, as not all products qualify for GSP, exports of those should not be affected by the loss of preferences and, again, can mask the impact on affected products. Finally, eligible sectors utilise preferences unevenly, depending on the expected tariff gains and administrative costs of claiming the benefits. Thus, the eligible products that did not use GSP should not be affected by the loss of preferences.

Figure 2a,b present the share of exports eligible for GSP and the utilisation rate to address the issues discussed above and understand better how affected products were impacted by the GSP loss. Figure 2a shows that the share of Belarusian exports eligible for GSP was in the rage of 20%–25% in the years before the removal of the GSP and slightly declining. The share of GSP eligible trade for other GSP beneficiaries remained rather stable somewhat below the eligible share of pre-withdrawal exports of Belarus.

Figure 2b shows that Belarusian firms were learning to utilise the preferences as the utilisation rate of eligible goods increased from 51% in 2004 to around 61% in 2006. Exports from other GSP beneficiaries remained rather stable in their utilisation of preferences in the years before the GSP removal.

Hence, from the one side, GSP was becoming somewhat less important for Belarus as its exports were concentrated in sectors not receiving a preference margin by the GSP. However, from the other side, GSP was becoming more important for the eligible sectors as they were increasing the utilisation of preferences.

Since then, the GSP access of Belarus has not been restored. According to the EU, '[o]nce Belarus has proved irreversible conformity with core trade union rights, the EU is ready to start immediately the procedure to reverse its decision on the GSP withdrawal'.[5] Thus, that the political goals of preference were not achieved in a timely manner. This is in line with the findings of Zhou and Cuyvers (2011). They study the two cases when the EU withdrew GSP preferences—besides Belarus, Myanmar was affected—and conclude that the sanction impact of GSP withdrawal has been very limited in each case: they argue that labour standards have not improved since. Most recently, the threat of suspension of Everything but Arms (EBA) preferences appears to have had an impact in Cambodia due to the program's importance in the garment and footwear sectors (Vicheika, 2019). EBA provides duty-free access to almost all goods for the least developed countries.

[5]See http://www.eeas.europa.eu/archives/docs/belarus/pdf/belarus_trade_en.pdf

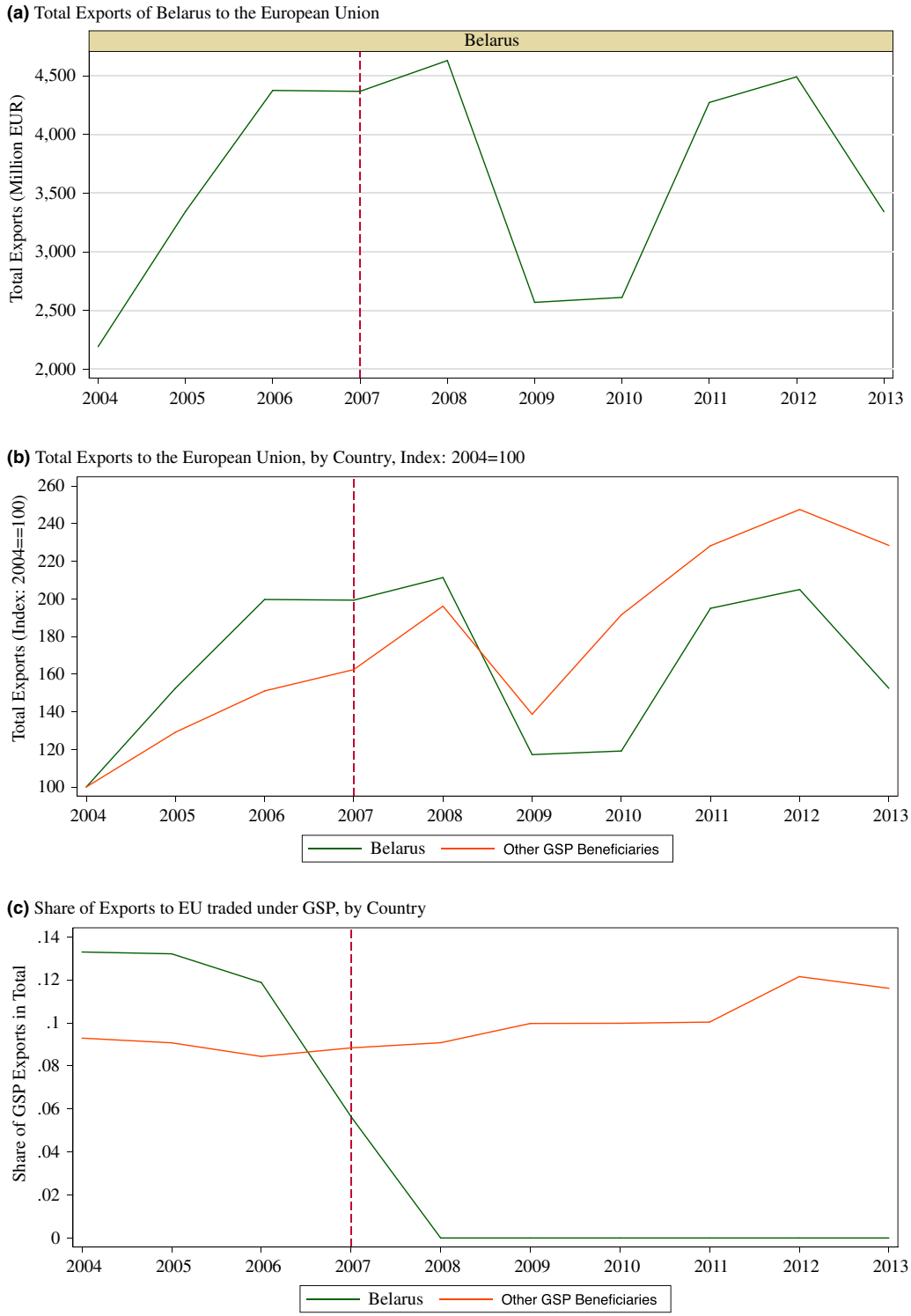

FIGURE 1 Exports of GSP Beneficiaries to EU. (a) Total Exports of Belarus to the European Union. (b) Total Exports to the European Union, by Country, Index: 2004 = 100. (c) Share of Exports to EU traded under GSP, by Country

Source: Authors, based on COMEXT database. [Colour figure can be viewed at wileyonlinelibrary.com]

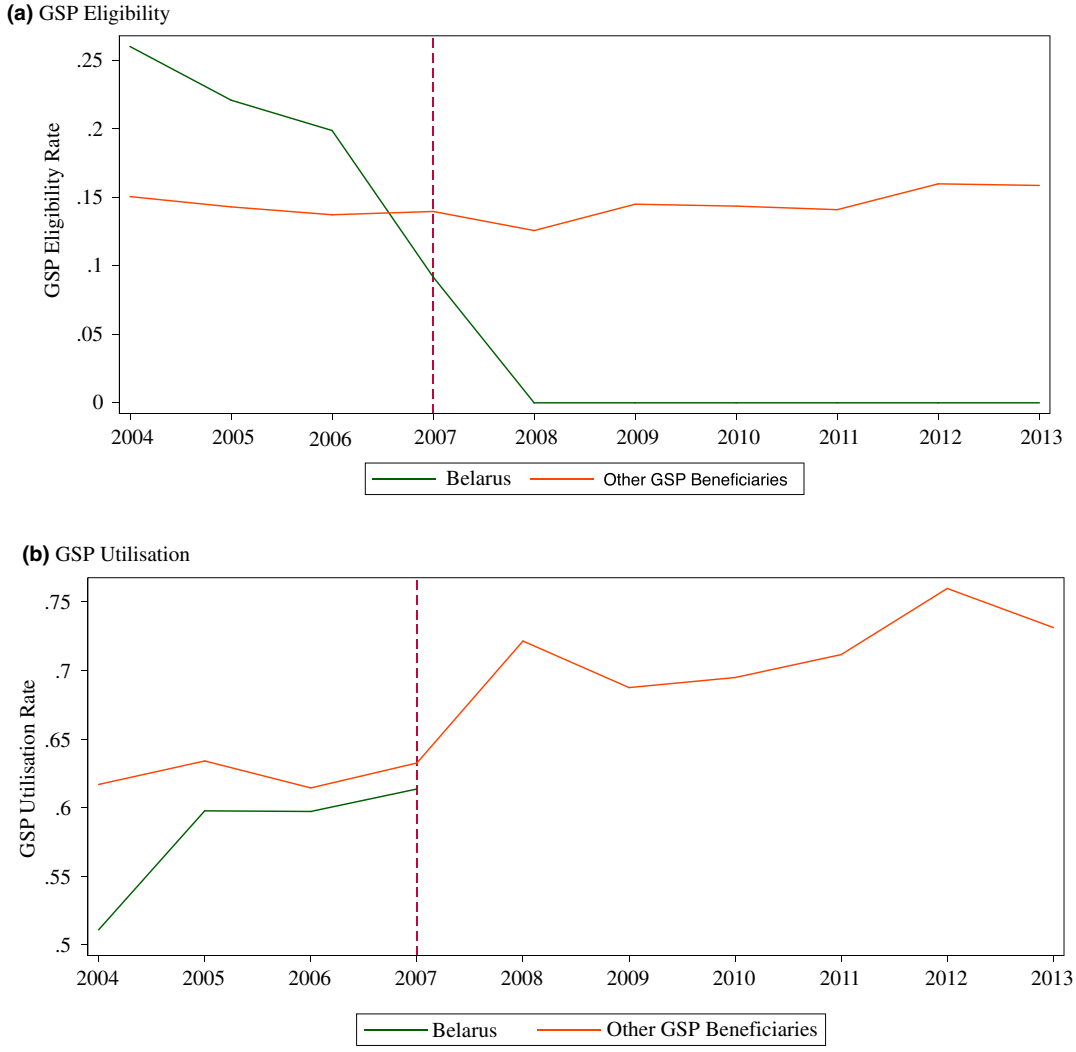

FIGURE 2 EU GSP Preference: Eligibility and Utilisation Rates. (a) GSP Eligibility. (b) GSP Utilisation. *Source:* Authors, based on COMEXT database. [Colour figure can be viewed at wileyonlinelibrary.com]

3 | DATA AND EMPIRICAL STRATEGY

3.1 | Data

We collected imports by trade regime of the European Union, as well as eligibility and utilisation of the EU GSP from the COMEXT database provided by the European Commission. The data covers the period from 2004 to 2013 and includes imports of the European Union from GSP beneficiary countries in Combined Nomenclature (CN) classification, which are then aggregated at the 6-digit Harmonised System (HS) product classification. We omit the years before the EU enlargement to avoid differences due to the changing set of included countries.[6] The sample ends

[6]During the sample period, Bulgaria, Romania and Croatia joined the European Union. For consistency, we keep EU membership constant at the 2004 level, so these countries are not added to the dataset after their accession.

before 2014 when large scale GSP reform took effect that led to many countries losing their GSP beneficiary status.

We include in the sample countries that were only GSP beneficiaries continuously throughout the sample period plus Belarus. The sample therefore includes 40 countries (see the list in the Table A3). Data on the GSP beneficiary recipients come from the World Bank WITS platform. Data on EU MFN and preferential tariffs come from the International Trade Centre's MacMap platform.

Generalized System of Preferences eligibility is determined at the tariff line level; however, products can be ineligible for certain exporters if the export sector is considered too competitive and it 'graduates'. In particular, developing countries which have particular success in the export of a given product may see themselves 'graduate' from the preference and accordingly have their preference withdrawn.[7] In addition, some 6-digit HS products contain both GSP eligible and ineligible 8-digit EU Combined Nomenclature classification products, and GSP eligibility status of some exports is reported as unknown. As the histogram in Figure A1 shows, around 29% of in total 5639 HS 6-digit product lines are not eligible for GSP. Around 62% of products have at least 80% GSP-eligible trade from GSP beneficiaries on average. For around 55% of products, at least 90% of trade value is eligible. Finally, for approximately 33% of products at least 99% of trade is GSP-eligible.

3.2 | Empirical Strategy

This subsection conducts an empirical assessment of the impact of GSP removal on the exports of Belarus using product variation in GSP eligibility. For our regression analysis, we apply the triple differences in differences approach as in Frazer and Van Biesebroeck (2010), Hakobyan (2020) as well as Thelle et al. (2015). The method explores the difference in trade flows overtime between affected and non-affected countries, and between affected and non-affected products. In our case, we exploit the differences in the imports of EU GSP eligible products from Belarus relative to GSP non-eligible products before and after GSP removal and relative to the imports from countries that did not lose EU GSP.

We estimate the following empirical specification:

$$Trade\,Value_{jpt} = \exp\left[\beta\left(GSPremoval_{jt} \times GSPeligible_{p}\right) + \gamma_{jp} + \delta_{jt} + \theta_{pt}\right]\epsilon_{jpt} \tag{1}$$

where $\gamma_{jp}, \delta_{jt}, \theta_{pt}$ denote the exporter-product, exporter-time and product-time fixed effects, respectively. GSPremoval_{jt} is a dummy variable equal to 1 if the exporter is Belarus and years are after 2007. Our coefficient of interest is β, the impact of the removal of GSP preference on a GSP-eligible product.

In our baseline estimation, we consider a product eligible for GSP if at least 80% of export value from GSP beneficiary countries is eligible on average. This is motivated by the histogram in Figure A1, which shows a discontinuity at 80% and there are few eligible products with a GSP-eligible share less than 80%. For robustness, we consider multiple alternative definitions—80% of exporter-product-year lines should have GSP-eligible trade, more than 90% or indeed 99% of export value should be GSP-eligible; these have little impact on the results we obtain. Furthermore, we estimate a model considering only the GSP-eligibility status of Belarus (before preference withdrawal).

[7]See https://trade.ec.europa.eu/doclib/docs/2012/december/tradoc_150164.pdf for a discussion of the operation of the GSP program and examples of graduation.

TABLE 1 Average trade impact

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	**Trade**	**Log Trade**	**Trade**	**Trade**	**Trade**	**Trade**
Estimator	**PPML**	**OLS**	**PPML**	**PPML**	**PPML**	**PPML**
GSP Eligibile	Baseline	Baseline	≥80% of rows	≥90% of value	≥99% of value	BY always eligible
GSPremoval × GSPeligible	−0.31*	−0.29**	−0.41**	−0.54***	−0.40*	−0.44**
	(0.16)	(0.091)	(0.14)	(0.14)	(0.18)	(0.14)
Marginal effect	−0.27	−0.25	−0.4	−0.42	−0.33	−0.36
Number of observations	644,609	309,453	564,067	597,093	386,114	466,873

Notes: All regressions estimated with exporter-product, exporter-time and product-time fixed effects. The robust standard errors are clustered at the exporter-product level; they are shown in parentheses below the coefficient.

***, **, * and + indicate significance at the 0.1%, 1%, 5% and 10% significance levels respectively.

Source: Authors.

For our estimation, we use the high-dimensional fixed effects PPML estimator throughout. As a robustness test, we also re-estimate some models with OLS, using the same set of fixed effects but excluding lines with zero trade. The estimation procedure is implemented using the packages 'ppmlhdfe' (Correia et al., 2019a, 2019b) and 'reghdfe' (Correia, 2016), respectively. For inference, we rely on robust standard errors clustered at the exporter-product level.

To understand the drivers of GSP impact more deeply, we consider some alternative specifications in our analysis. We follow Hakobyan (2020) and apply a linear probability model to assess the effect of the loss of GSP benefits by Belarus at the extensive margin. For lines where adjustment takes place at the intensive margin only, we seek to disentangle price and quantity adjustment. Moreover, we study a rich range of interaction effects—for example relating to preference margins and GSP utilisation—to study cross-product heterogeneity in GSP withdrawal impact.

4 | RESULTS

Table 1 summarises the results for the average trade effect of GSP withdrawal. Column (1) presents the results from the baseline model, estimated with PPML. For an average, HS 6-digit GSP eligible product line, withdrawal of GSP preference is associated with a 27% reduction in exports from Belarus to EU[8] Thus, preference withdrawal is associated with an economically important reduction in trade for affected product lines. The estimated coefficient is statistically significant at the 5% when using robust standard errors, clustered at the exporter-product level. This estimation includes zero trade, which account for more than 50% of observations. In column (2), we re-estimate the same specification in logs using OLS and exclude lines with zero trade. This leads to a smaller point estimate of −0.29 (and the marginal effect −25% reduction), which is statistically highly significant at 1% level. Moreover, the coefficient size is not statistically different from the result in model (1),[9]; thus, the results do not hinge on the choice of the estimator.

In the following models, we vary the definition of 'GSP-eligible' products as a robustness test. As discussed in the Section 3, GSP eligible products might not be eligible for different countries in different years due to sector-specific graduation when the export sector is considered too competitive. In model (3), we demand that 80% of exporter-product observations (rather than the export share) were GSP eligible throughout the sample; in model (4), we tighten the baseline product eligibility requirement to require that at least 90% of EU imports from GSP countries in a given HS 6-digit product were actually receiving the GSP preferences. In model (5), only products with at least 99% GSP eligible exports throughout the sample are included.[10] Finally, model (6) considers as GSP-eligible only products where 100% pre-withdrawal Belarusian exports were eligible (in contrast to all sample) for the preference prior to GSP removal. In all specifications, the estimated coefficients are statistically significant and contained well within the 95% confidence interval of the baseline specification. Thus, we

[8]The marginal effect here and henceforth is calculated as $e^{-0.31} - 1 = -0.27$.

[9]The 95% confidence interval for the coefficient in model (1) is [−0.618,-0.006]

[10]Due to reporting issues, GSP eligibility status is occasionally reported as unknown in the data, thus we use the 99\% threshold rather than 100\%.

TABLE 2 Adjustment channels.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample	**Baseline**		**Non-missing price**					
	Extensive Margin		**Intensive Margin: Trade (value)**		**Intensive Margin: Trade Quantity**		**Intensive Margin: Price**	
Dependent Variable	**Binary variable**		**Trade**	**Log Trade**	**Quantity**	**Log Quantity**	**Price**	**Log Price**
Estimator	**PPML**	**OLS**	**PPML**	**OLS**	**PPML**	**OLS**	**PPML**	**OLS**
GSPremoval × GSPeligible	−0.059**	−0.021^{+}	−0.34*	−0.23*	−0.52	−0.24*	0.64	0.010
	(0.023)	(0.012)	(0.16)	(0.089)	(0.34)	(0.096)	(0.50)	(0.042)
Number of observations	644,609	644,609	264,837	264,837	264,837	264,837	264,837	264,837

Note: All regressions estimated with exporter-product, exporter-time and product-time fixed effects. The robust standard errors are clustered at the exporter-product level; they are shown in parentheses below the coefficient.

***, **, * and +indicate significance at the 0.1%, 1%, 5% and 10% significance levels respectively.

Source: Authors.

conclude that the GSP withdrawal effect is robust to changes in the definition of GSP-eligible products.

Appendix Table A1 interacts the triple interaction term of GSP withdrawal with each post-withdrawal year to explore the dynamic effects of withdrawal.[11] Overall, the negative trade impact appears to be larger in the second last three years of the sample, suggesting that the full effects of the loss of preferences realised only after several years. This is in line with the literature suggesting that terms-of-trade adjustments have lagged effects on trade due to, for example existing contracts or search of new sourcing partners, thus full effects of terms-of-trade change realise with a delay (Anderson & Yotov, 2016; Baier & Bergstrand, 2007). Noteworthy, Belarus has been in a customs union wiht Russia and Kazakhstan from 2010; however, our specification explores the variation across products. Limiting sample to only customs unions partners to isolate any potential bias from the customs union (Russia and Kazakhstan as control countries) does not change the result. Removing the customs union partners from the baseline sample does not affect the main findings: reduction in exports from Belarus by remains significant and is estimated at 31% for PPML and 27% for OLS, the coefficients remain significant as before.[12]

Our results suggest a larger impact of preference withdrawal than found in the prior literature. Hakobyan (2020) studies the trade impact of a temporary suspension in the US GSP program, which affected *all* beneficiary countries. She finds that the interruption in GSP was associated with a 3% fall in exports, even though the exporters could have reasonably expected to receive reimbursement for preferences later. The effect increases to 19% in the sample limited to the products for which positive exports from a given country are observed in at least one year, which is closer to our approach and finding. One reason why our estimate is larger, differences between US and EU GSP programs aside, is that the withdrawal of preferences *for an individual country* may simultaneously reduce exports from the affected country and increase exports to EU from other GSP beneficiaries; since we use a difference-in-differences estimation, both effects are captured in our estimate.

Thelle et al. (2015) find that the removal of EU GSP preferences leads to a 5% fall in exports on average; their main source of variation is the graduation of countries due to high export growth and becoming 'too competitive'. Presumably, sectors that graduate have developed a comparative advantage and thus one should not be surprised that the trade impact of preference withdrawal is smaller; in contrast, the largest beneficiaries of GSP in Belarus (by GSP export share) were industries where Belarus had no comparative advantage, such as footwear. Such industries may no longer be viable once the trade preference has been withdrawn.

In Table 2, we investigate the adjustment mechanisms to GSP withdrawal. First, we consider the extensive margin of trade, that is whether a product line is traded in a given year by a given country. In models (1) and (2), the dependent variable is dummy is taking the value 1 only if a given product is exported to EU by a given exporter in a given year. Using both PPML and OLS estimation, we find a statistically significant reduction of probability of positive exports by 6 and 2 percentage points, respectively, in the probability that a product has positive trade.[13]

[11]Including additional interaction for the withdrawal year 2007 does not affect the results.

[12]Available upon request.

[13]Both the OLS and PPML estimators are consistent for binary dependent variable models if the regression model is correctly specified; however, it is not clear which one is more efficient.

TABLE 3 Heterogeneity of trade value impact

Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)
	Trade Value					
	Impact heterogeneity by				Diff-in-Diff Impact:	
	Pref. margin	Trade value	Utilisation rate	Eligibility rate	Belarus	Eligible goods
Estimator	PPML	PPML	PPML	PPML	PPML	PPML
GSPremoval × GSPeligible	−0.0013	−0.38*			−0.28^{+}	−0.095
	(0.25)	(0.16)			(0.16)	(0.11)
GSPremoval × GSPeligible × (GSP Pref Margin)	−11.8^{+}					
	(6.95)					
GSPremoval × GSPeligible × (Mean Pre-Withdrawal Trade)		0.0098				
		(0.012)				
GSPremoval × GSPeligible × (GSP Utilisation Rate)			−0.38^{+}			
			(0.20)			
GSPremoval × (GSP Eligible Share)				−0.76***		
				(0.23)		
Number of observations	644,609	644,609	644,609	696,179	35,600	471,347

Note: Regressions (1–4) are estimated with exporter-product, exporter-time and product-time fixed effects; regression (5) is a diff-in-diff model only, estimated with product and time fixed effects; regression (6) is a diff-in-diff model only, estimated with exporter-product and product-time fixed effects. The robust standard errors are clustered at the exporter-product level; they are shown in parentheses below the coefficient.

***, **, * and + indicate significance at the 0.1%, 1%, 5% and 10% significance levels respectively.

Source: Authors.

For the product lines where adjustment took place only on intensive margin, that is those exported by Belarus to EU before and after GSP withdrawal, we decompose the adjustment into a price and quantity effect.[14] To this end, we include observations, for which a positive price is available in order to harmonise the sample size across the regressions. Columns (3)–(4) are analogous to baseline regressions in 1 (columns (1)–(2), respectively) and have trade value as the dependent variable, subject to the sample restriction. The results are similar to those in the baseline table - marginal effect of 29% for the PPML regression. Next, the dependent variable is traded quantity instead of value. This analysis finds some evidence of adjustment through quantities using OLS estimation and large negative, but insignificant, coefficient for the PPML estimation (columns (5–6) in Table 2). Finally, we look at the impact on import price, which is defined as trade value divided by trade quantity, as the dependent variable (columns 5–6). The impact on the price is insignificant in both estimations.

The results in 2 are inconclusive as there is a strong robust impact for trade value but not for the underlying components of trade value: quantity and price. This suggests that there is underlying heterogeneity in the sample so that for some observations the adjustment channel is through quantity, and for others—through price. We interact the withdrawal dummy with the pre-withdrawal trade value to investigate whether the adjustment channel varies by the average pre-withdrawal exports of Belarus (Table A2). For example, it could be that due to fixed costs of exporting, large and small export sectors might respond in a different way to a trade policy change. It appears that higher average export values are associated with stronger price decline.

We next investigate the heterogeneity of GSP withdrawal impact in Table 3 through various interaction effects. Model (1) includes a tariff elasticity with respect to the import tariff preference margin, which is an important measure of the value of preference lost at the product-line level after Belarus' GSP withdrawal. As shown in Table A4, the observed GSP preference margins were substantial. The average preference margin in the sample period was 2.86 percentage points, amounting to a reduction in the tariff burden of more than 40%, and the median reduction 2.7 percentage points. We estimate a large tariff elasticity, though with a wide confidence interval; the average GSP-withdrawal effect becomes small in magnitude and statistically insignificant. These results provide some evidence that the strength of the GSP impact on trade is importantly related to the tariff preference. However, due to the wide confidence interval on the tariff elasticity, it is difficult to make more definite statements on the magnitude of the elasticity. For example, we cannot reject the hypothesis that the true GSP preference margin tariff elasticity is equal to −5, which is often considered a representative value.[15]

We interact in model (2) GSP withdrawal effect with the mean exports of Belarus prior to the withdrawal to assess whether the loss of preferences affects asymmetrically larger and smaller export sectors. On the one hand, larger export sectors might be internationally more competitive and remain competitive even without the preferences. On the other hand, as preference utilisation is costly due to bureaucratic hurdles, utilisation rate of smaller export sectors is lower in the sample, and thus the loss of preferences might affect them less. We do not find any significant effect of this interaction variable, suggesting that overall there does not appear to be a clear asymmetry.

Trade impact depends not only on the eligibility of the product for a preference but also whether the preference was actually used by the exporters. Model (3) interacts GSP withdrawal

[14]We thank an anonymous referee for suggesting this.

[15]See (Yotov et al., 2016, p. 30). However, note that the tariff elasticity is estimated on the tariff rates while we estimate based on the preference margin.

TABLE 4 Robustness tests

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	**Trade Value**	**Ln Trade Value**	**Trade Value**			
Robustness Test	**Control Group: RU, UA**		**Placebo Test**		**Sample Period**	
Estimator	**PPML**	**OLS**	**PPML**	**PPML**	**PPML**	**PPML**
Subsample					**Exclude '07**	**[06–08]**
GSPWithdrawn × GSPEligible	−0.37*	−0.28**	−0.30^{+}	−0.31*	−0.35^{+}	−0.20^{+}
	(0.15)	(0.10)	(0.16)	(0.15)	(0.18)	(0.10)
GSPeligible × Belarus × (Year = 2006)			0.055			
			(0.091)			
GSPeligible × Belarus × (Year = 2005)				−0.0012		
				(0.11)		
Number of observations	83,706	57,302	644,609	644,609	573,961	128,846

Note: ALL Regressions are estimated with exporter-product, exporter-time and product-time fixed effects. The robust standard errors are clustered at the exporter-product level; they are shown in parentheses below the coefficient.

***, **, * and + indicate significance at the 0.1%, 1%, 5% and 10% significance levels respectively.

Source: Authors.

with the average utilisation rate of Belarusian exporters in the years before the withdrawal. As expected, the higher the utilisation rate prior to the withdrawal, the stronger is the impact. The point estimate of −0.38 is statistically significant at the 10% level.

In model (4) of Table 3, we interact GSP-withdrawal with the mean share of GSP-eligible trade in this line (ranging from 0 to 1). Products with a higher share of GSP eligible trade are more strongly affected by GSP withdrawal. According to our estimate, an HS 6-digit product for which all trade was GSP-eligible is expected to see a trade decline of 54% ($e - 0.76 - 1 = -0.53$). These results are also very much in line with the baseline results of Table 1. Regressions in columns (5) and (6) explore the withdrawal impact in difference-in-differences settings rather than triples differences. First, we limit the sample to include only Belarus and assess the impact through exports of GSP eligible versus ineligible products (column (5)). The estimated coefficient (−0.28) is only slightly smaller than our baseline coefficient (−0.31) and significant at the 10% level. In column (6) we restrict the sample to include all exporters but only eligible GSP eligible products. The estimated coefficient is much smaller than the baseline triple differences estimate and statistically insignificant. Thus, most of the effects in our baseline estimation is coming from the relative exports of eligible versus ineligible products. Thus considering exports of eligible products only as in column (6) severely biases the results.

To further assess the robustness of our key result, we conduct a range of robustness tests in Table 4. First, we limit the control group of countries to Russia and Ukraine. These neighbouring countries of Belarus had a similar economic structure and were both beneficiaries of the EU GSP program throughout the sample period.[16] In models (1) and (2), we estimate the model for this sample with PPML and OLS, respectively; the coefficients are quite in line with the baseline results, both in terms of magnitude and statistical significance, 31% ($1 - e^{-0.37}$) marginal effect for PPML versus 27% in the baseline sample for PPML and 24% ($1 - e^{-0.28}$) for OLS versus 21%, suggesting the choice of control group does not drive our findings.

Furthermore, we carry out placebo tests.[17] We carry out these tests to rule out, for example, anticipation effects or unobserved Belarus-product-time variation from driving our results. Here, we estimate our baseline model adding placebo GSP withdrawals in the year 2006 and 2005, respectively. If our identifying assumptions hold, the coefficients on the placebo treatments should not be statistically significant. As columns (3) and (4) of Table 4 show, this is indeed the case, bolstering our identifying strategy.

Next, we vary the sample composition. Specifically, we vary the time window used for estimation. In model (5), we exclude the year 2007 since the withdrawal happened in the middle of the calendar year. This reduction in sample size leaves the estimated effect largely unchanged (marginal effect of −0.30 versus −0.27 in the baseline). In model (6), we estimate the model with a shorter time window from 2006 to 2008. The estimated coefficient is somewhat smaller than the baseline effect (−0.20) but remains negative and statistically significant.

In Table 5 we assess, whether the tariff disadvantage for EU exports led Belarusian producers to reorient themselves towards other markets. Such effects have been observed in cases of sanctions or antidumping duties, where they are known as 'trade deflection' (Bown & Crowley, 2006, 2007). Hakobyan (2020) finds that temporary expiry of the whole US GSP program (in contrast to targeted measures, such as sanctions or withdrawals) did not lead to increased

[16]In particular, among 2615 products that Belarus exported to the EU in the sample period, Russia and Ukraine exported 2598 products amounting to 99.3%, and each at least 97% of products exported by Belarus. No other ex-USSR exporters outside of the customs union in the sample besides Ukraine exported more than 50% of products exported by Belarus, together accounting for only 65.5% of products.

[17]We thank an anonymous referee for suggesting this.

TABLE 5 Deflection of exports to other destinations

	(1)	(2)	(3)	(4)
Dependent Variable	**Trade value**			
Estimator	**PPML**			
Dependent Variable	**$Trade_{USA}$**	**$Trade_{CHN}$**	**$Trade_{KAZ}$**	**$Trade_{RUS}$**
GSPremoval × GSPeligible	2.21**	−0.12	−0.16	−0.20
	(0.80)	(0.34)	(0.22)	(0.18)
Number of observations	236,876	221,394	178,300	182,011

Note: All regressions estimated with exporter-product, exporter-time and product-time fixed effects. The robust standard errors are clustered at the exporter-product level; they are shown in parentheses below the coefficient.

***, **, * and + indicate significance at the 0.1%, 1%, 5% and 10% significance levels respectively.

Source: Authors.

exports to the European Union. We apply the baseline specification but the dependent variable is not exports to the European Union but rather to the USA in column (1), China - column (2), Kazakhstan – column (3), Russia – column (4), top non-EU destinations of Belarusian exports.[18] Belarus has a preferential trade regime with the latter two destinations. The results point to a very large positive impact on the exports to the USA but no impact on other export destinations. Increase in exports to the United States could be due to the similarity of income and preferences between the European Union and United States. Further, United States was the smallest among top export destinations of Belarus and thus could have had the most growth potential.

To understand the impact of GSP withdrawal more deeply at the sectoral level, we conduct a further estimation exercise in Table 6. First, we interact the baseline effect with a dummy for the 21 HS sections and re-estimate the model using PPML and OLS, respectively, in columns (1) and (2). Next, we estimate the absolute trade change induced by GSP withdrawal, valued in million EUR, for those sections where the PPML coefficient was statistically significant.[19] This analysis reveals that the sectors of textiles (section XI, EUR −64.88 million) and plastic and rubber (section VII, EUR −58.67 million) account for the bulk of impact, followed by machinery exports (section XVI, EUR −20.29 million); indeed, about 3/4 of trade reductions are borne by these three sectors. Reassuringly, all significant coefficients have the expected sign, further suggesting the robustness of the estimation strategy.

5 | CONCLUSION

The Generalized System of Preferences (GSP) is an important tool of development policy, offering developing countries improved market access at lower tariffs subject to policy conditionality. In this paper, we investigated a rare episode when a GSP grantee, the European Union, decided that

[18]Ukraine is among the top destinations; however, we did not find detailed data of Belarusian exports to Ukraine for the pre-withdrawal sample period.

[19]We use the model to predict counter-factual trade flows using the 2006 export as a baseline.

TABLE 6 Sectoral impact

(GSPWithdrawn × GSP Eligible) ×	(1) Trade value	(2)	(3) Trade Change (Million Eur)
I Live animals	−1.10*	−1.94***	−1.4
	(0.47)	(0.44)	
II Vegetables	−0.0087	−0.23	
	(0.36)	(0.32)	
III Fats and oils	−0.51	0.20	
	(0.35)	(1.29)	
IV Prepared food & beverages	0.35	0.31	
	(0.57)	(0.30)	
V Minerals	0.62	−0.23	
	(0.52)	(0.61)	
VI Chemicals	0.25	−0.18	
	(0.30)	(0.22)	
VII Plastic & rubber	−1.08***	−0.25	−58.67
	(0.31)	(0.17)	
VIII Hides & skins	−0.57	−0.39	
	(0.35)	(0.33)	
IX Wood & articles	−0.54*	−0.57	−13.94
	(0.22)	(0.35)	
XI Textiles	−0.47*	−0.35**	−64.88
	(0.19)	(0.12)	
XII Footwear, headgear	−0.28	0.038	
	(0.29)	(0.40)	
XIII Articles of stones	−0.65**	−0.17	−18.94
	(0.23)	(0.24)	
XIV Precious stones	0.14	−1.71^{+}	
	(0.98)	(0.92)	
XV Base metals	−0.21	−0.24	
	(0.29)	(0.16)	
XVI Machinery	−0.46*	−0.34**	−20.29
	(0.18)	(0.11)	
XVII Vehicles	−0.48^{+}	−0.47**	−11.45
	(0.25)	(0.18)	
XVIII Optical	−0.16	0.014	
	(0.26)	(0.19)	
XX Misc. Manufacturing	−1.15^{+}	−0.71**	−9.6
	(0.61)	(0.24)	
Number of observations	644435	309313	

Note: All regressions estimated with exporter-product, exporter-time and product-time fixed effects. The robust standard errors are clustered at the exporter-product level; they are shown in parentheses below the coefficient.

***, **, * and + indicate significance at the 0.1%, 1%, 5% and 10% significance levels respectively.

Source: Authors.

a beneficiary, Belarus, no longer met the policy conditionality (due to poor labour rights) and accordingly withdrew *all* preferences from the country. This targeted and substantial policy change is a particularly interesting case study to explore how far GSP removal hurts market access.

In this paper, we used a three-way panel data model to address this question. The model was estimated using PPML based on a large sample of GSP beneficiaries, covering products at the HS 6-digit level over a number years.

We found that GSP withdrawal was associated with a sizable reduction in Belarusian exports to EU from previously GSP-eligible sectors. Our baseline point estimates range from 25% to 28% (depending on whether PPML or OLS is used). These estimates are larger than earlier results which focus on temporary suspensions of entire programs or graduations of individual sectors.

At the intensive margin, we find evidence that adjustment was driven by falling export prices rather than falling quantities. At the extensive margin, there is evidence that the number of goods traded fell (by between 2 and 6 percentage points depending on specification). Impacts are highly sector dependent, with textiles and plastics bearing the lion's share of the trade reduction.

Despite these important effects, the GSP preferences have not been reinstated by the EU at the time of writing—more than 13 years after the 'temporary withdrawal'. This suggests that the political goals of the preference withdrawal were not achieved. One reason for this may be the low share of exports claiming GSP: before the program withdrawal, the share of GSP-eligible exports of Belarus was below 14%.

In future research, it would be interesting to address the trade impact of potential withdrawals under the EU EBA and GSP$^+$ programs. These are designed to provide more substantive preferences. The latter also includes more broad tariff elimination in return for more substantial political commitments by the recipient state. To the extent that EBA and GSP$^+$ programs have stronger trade impacts, they may also generate more political leverage.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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APPENDIX 1

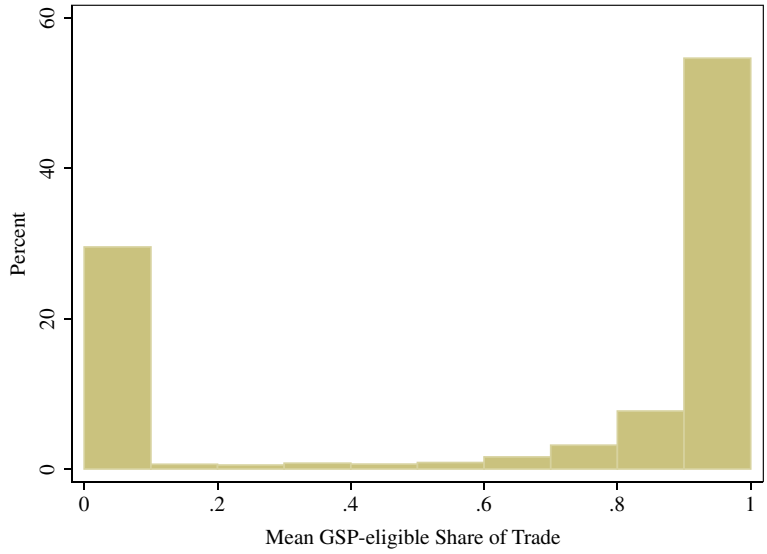

FIGURE A1 Histogram: Mean GSP-eligible share of trade by product
Source: Authors, based on COMEXT database. [Colour figure can be viewed at wileyonlinelibrary.com]

TABLE A1 Dynamic effects of GSP withdrawal

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	**Trade**	**Log Trade**	**Trade**	**Trade**	**Trade**	**Trade**
Estimator	**PPML**	**OLS**	**PPML**	**PPML**	**PPML**	**PPML**
GSP Eligibile	**Baseline**	**Baseline**	**≥80% of rows**	**≥90% of value**	**≥99% of value**	**BY always eligible**
GSPremoval × GSPeligible × (Year = 2008)	−0.17	−0.20^{+}	−0.19	−0.22^{+}	−0.13	−0.19
	(0.14)	(0.11)	(0.15)	(0.13)	(0.15)	(0.15)
GSPremoval × GSPeligible × (Year = 2009)	−0.24	−0.20^{+}	−0.35*	−0.46**	−0.44*	−0.37*
	(0.17)	(0.12)	(0.16)	(0.16)	(0.19)	(0.17)
GSPremoval × GSPeligible × (Year = 2010)	−0.14	−0.32**	−0.17	−0.37^{+}	−0.24	−0.21
	(0.23)	(0.12)	(0.20)	(0.21)	(0.23)	(0.21)
GSPremoval × GSPeligible × (Year = 2011)	−0.58**	−0.18	−0.67**	−0.81***	−0.55*	−0.70**
	(0.22)	(0.12)	(0.22)	(0.22)	(0.24)	(0.23)
GSPremoval × GSPeligible × (Year = 2012)	−0.29	−0.32*	−0.52*	−0.65**	−0.50^{+}	−0.55*
	(0.27)	(0.13)	(0.24)	(0.24)	(0.28)	(0.25)
GSPremoval × GSPeligible × (Year = 2013)	−0.40	−0.51***	−0.52*	−0.69**	−0.54^{+}	−0.59*
	(0.26)	(0.14)	(0.25)	(0.25)	(0.28)	(0.26)
Number of observations	644,609	309,453	564,067	597,093	386,114	466,873

Note: All regressions estimated with exporter-product, exporter-time and product-time fixed effects. The robust standard errors are clustered at the exporter-product level; they are shown in parentheses below the coefficient.

***, **, * and + indicate significance at the 0.1%, 1%, 5% and 10% significance levels respectively.

Source: Authors.

TABLE A2 Adjustment channels

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	**Intensive Margin: Value**		**Intensive Margin: Quantity**		**Intensive Margin: Price**	
Sample	**Baseline**		**Non-missing price**			
Estimator	**PPML**	**OLS**	**PPML**	**OLS**	**PPML**	**OLS**
GSPremoval × GSPeligible	−0.42**	−0.22*	−0.44	−0.23*	0.67	0.015
	(0.16)	(0.090)	(0.32)	(0.097)	(0.50)	(0.043)
GSPremoval × GSPeligible × (Mean Pre-Withdrawal Trade)	0.012	−0.023	−0.0095	−0.012	−0.056^{+}	−0.011*
	(0.011)	(0.020)	(0.029)	(0.020)	(0.034)	(0.0052)
Number of observations	264,837	264,837	264,837	264,837	264,837	264,837

Note: All regressions estimated with exporter-product, exporter-time and product-time fixed effects. The robust standard errors are clustered at the exporter-product level; they are shown in parentheses below the coefficient.

***, **, * and + indicate significance at the 0.1%, 1%, 5% and 10% significance levels respectively.

Source: Authors.

TABLE A3 Sample coverage: Countries

ISO2 Code	Country
AS	American Samoa
AR	Argentina
BH	Bahrain
BY	Belarus
BM	Bermuda
BV	Bouvet Island
BN	Brunei Darussalam
CX	Christmas Island
CC	Cocos (Keeling) Islands
CU	Cuba
GE	Georgia
GI	Gibraltar
GU	Guam
HM	Heard and Mcdonald Islands
ID	Indonesia
IR	Iran, Islamic Republic of
IQ	Iraq
KZ	Kazakhstan
KG	Kyrgyzstan
LY	Libya
MO	Macao, SAR China
MY	Malaysia
NF	Norfolk Island
MP	Northern Mariana Islands
OM	Oman
PW	Palau
PH	Philippines
QA	Qatar
RU	Russian Federation
SA	Saudi Arabia
TJ	Tajikistan
TK	Tokelau
TM	Turkmenistan
UA	Ukraine
AE	United Arab Emirates
UY	Uruguay
UZ	Uzbekistan
VE	Venezuela (Bolivarian Republic)
VN	Viet Nam
VI	Virgin Islands, US

TABLE A4 Summary statistics: GSP preference margins 2007–2013

Variable	Observations	Mean	Median	Standard Deviation	Min	Max
MFN tariff (non-zero)	26,304	6.88	4.87	8.84	0.02	183.65
GSP tariff	26,304	4.05	1.05	8.84	0.00	180.15
Preference margin	26,304	2.86	2.70	2.58	0.00	74.55

Note: The number of observations corresponds to about 3758 products with non-zero MFN tariff per year for the years 2007–2013.

Source: Authors.