Discussion Papers in Economics

No. 07/2023

Issue Linkage and Trade Policy Uncertainty: Evidence from Trade Preferences for Developing Countries

Stefan Suttner
FAU Erlangen-Nürnberg

ISSN 1867-6707

Friedrich-Alexander-Universität Erlangen-Nürnberg
Institute for Economics
https://www.iwf.rw.fau.de/discussion-papers/

Issue Linkage and Trade Policy Uncertainty: Evidence from Trade Preferences for Developing Countries

Stefan Suttner*
University of Erlangen-Nuremberg

November 17, 2023

Abstract
This paper quantifies potential costs of issue linkage examining trade preferences granted under the US Generalized System of Preferences (GSP). Preferential market access via US GSP is conditional on political practices by beneficiaries. Using monthly import data, I study trade policy uncertainty related to country-level GSP eligibility reviews conducted by the US administration. For cases initiated between 2003 and 2019, I find negative effects for trade flows from countries under review despite the fact that applied tariffs remained unchanged during the review process. The estimated trade effects of eligibility reviews are sizable and larger for less differentiated product categories. Placebo events before reviews yield no trade effects. The results suggest that trade policy uncertainty induced by issue linkage may undermine trade-promoting incentives of trade preferences at stake.

JEL: F13, F14, O19
Keywords: Trade Policy Uncertainty, Trade Preferences, Generalized System of Preferences, Developing Countries, Issue Linkage

---

*Address for correspondence: Stefan Suttner, University of Erlangen-Nuremberg, Findelgasse 7-9, 90402 Nuremberg, stefan.suttner@fau.de. For comments and suggestions, I thank Chad Bown, Vera Eichenauer, Martin Gassebner, Christoph Moser, Gabriele Spilker and participants of the 2023 Beyond Basic Questions workshop.

1 Introduction

Traditionally, Preferential Trade Agreements (PTAs) involve concessions to reduce trade barriers. More recently, however, issue linkages are integral parts of many PTAs (Dür et al. 2014, Mattoo et al. 2020, Borchert et al. 2021). Consequently, trade benefits are increasingly linked to commitments in different policy areas. These areas include human rights, worker rights, and intellectual property rights, among others. Given its prevalence, understanding the costs and benefits of issue linkage in PTAs is a central policy question.

Arguably, previous studies analyzing non-trade policy outcomes find mixed evidence for potential benefits of issue linkage (Baghdadi et al. 2013, Spilker and Böhmelt 2013, Abman et al. 2023, Lundberg et al. 2023, Francois et al. 2023). Still, evidence on the cost of issue linkage is scarce.[1] One important channel that has been neglected by the literature is trade policy uncertainty. It matters as binding policy clauses in PTAs can imply conditionality. Provided that enforcement of these provisions is a viable option, the threat of withdrawing trade benefits increases uncertainty with respect to future trade cooperation. This raises concerns about the impact of issue linkage on the effectiveness of associated trade preferences. Can trade policy uncertainty related to issue linkage undermine trade-promoting incentives of trade preferences at stake?

This study addresses this question examining conditional trade preferences granted under the US Generalized System of Preferences (GSP), one of the largest unilateral trade preference programs for developing countries. More specifically, it examines the trade impact of country practices reviews that are conducted by the US administration to assess compliance with country-level eligibility criteria. If deemed appropriate these reviews can result in the complete withdrawal of GSP preferences on short notice, i.e. within 60 days. Hence, the initiation of country practice reviews signals an increased probability of (cross-issue) punishment and can trigger trade policy uncertainty for countries under review.

GSP preferences are particularly suitable for studying trade policy uncertainty associated with issue linkage. First, the problem is relevant for developing beneficiaries. This is due the fact that market access can be vital for their exporting sectors.[2] The formal objective of GSP schemes is to promote these sectors and foster export-led growth for beneficiaries. Trade policy uncertainty can jeopardize these growth strategies. In addition, compliance issues may be severe for GSP beneficiaries. Financial and institutional capacities of developing countries are limited. This renders implementation and

[1] See Limão (2007) for a notable exception. He finds that PTAs including issue linkages can be a stumbling block for multilateral trade liberalization.

[2] For 2021, the share of US imports claiming GSP preferences amounted up to 69 percent for individual beneficiaries (USITC Dataweb, accessed December 9, 2022).

monitoring of certain policy standards difficult. Second, enforcement of conditionality is credible for GSP preferences. This is because the discretion to withdraw unilateral market access is substantially larger than in bilateral agreements. Furthermore, trade flows from single beneficiaries are usually negligible from the perspective of donor countries. Hence, for donors, GSP withdrawals are associated with low costs. Third, the timing of GSP eligibility reviews can be clearly observed. This is an advantage for the identification of trade effects. The date of review announcement marks the beginning of a time period during which withdrawal of preferences may be announced anytime. That means the period of increased trade policy uncertainty can be identified precisely. Fourth, only specific subgroups of products are eligible for GSP preferences. This allows for employing a triple difference-in-differences estimation approach. Thus, trade effects of eligibility reviews are estimated exploiting differences across time, countries and products. This approach has advantages over standard difference-in-differences approaches as it is less sensitive to different types of confounding factors.

The analysis is based on dis-aggregated, monthly US import data from GSP beneficiaries. It is combined with newly collected information on US country practice reviews that have been initiated between 2003 and 2019. The results indicate that affected US imports decreased significantly by 8.5% despite the fact that applied tariffs remain unchanged during the review process. The findings are insensitive to several robustness checks. These include different estimators as well as treatment definitions at the product level and country level. The magnitude of the trade effect is sizable. It amounts to about one quarter of the trade effect following the actual withdrawal of GSP preferences. Besides, results suggest that trade in differentiated products is less prone to the negative impact of increased trade policy uncertainty than trade in homogeneous products.

The main contribution of the paper is to provide first empirical evidence on the effects of trade policy uncertainty stemming from issue linkage. This is of particular relevance, as it highlights important costs for countries for which the linked policy constraints are binding. The empirical strategy does not allow to directly infer conclusions on actual compliance with linked provisions, but sheds light on a feature of issue linkage that undermines the effectiveness of trade preferences. Accounting for these effects is important to more comprehensively assess the costs and benefits associated with issue linkage. Moreover, it is the first study to analyze the trade impact of uncertainty related to the potential loss of unilateral preferences for individual beneficiaries. Hence, it helps to further assess unilateral preferences against the background of their formal objectives. Results indicate that exports from developing countries are (temporarily) dampened by increased uncertainty due to looming enforcement of linked policy provisions. This is in conflict with the aim to foster export-led

growth in GSP beneficiary countries.

This study is related to the literature examining issue linkage in trade agreements.[3] The theoretical literature investigates conditions for potential benefits and costs from issue linkage (see e.g. Conconi and Perroni 2002, Ederington 2002, Limão 2005, Limão 2007, Maggi 2016). Examining potential cost of issue linkage, Limão (2007) shows that trade agreements linking trade concessions to other policy objectives may cause a stumbling block to multilateral trade liberalization. Intuitively, PTA members may maintain high external tariffs to be able to offer high preference margins in linked negotiations and increase the threat in case of non-compliance. The author finds first evidence from US PTAs that supports these predictions. Empirical contributions on non-trade outcomes provide mixed evidence concerning the effectiveness of provisions related to human rights (Hafner-Burton 2005, Spilker and Böhmelt 2013), environmental protection (Baghdadi et al. 2013, Brandi et al. 2020, Lundberg et al. 2023), labor standards (Abman et al. 2023), or a combination thereof (Francois et al. 2023). Studies focusing on the impact of policy provisions on trade generally find positive effects of including (certain) policy clauses in PTAs (Breinlich et al. 2022, Mattoo et al. 2022). Furthermore, empirical evidence suggests that worker-rights violations (Hafner-Burton et al. 2019) and political alignment (Gassebner and Gnutzmann-Mkrtchyan 2018) help to explain enforcement of worker-rights provisions in country practice reviews. In contrast, my paper is the first to empirically quantify trade costs of issue linkage in PTAs. In particular, it sheds light on one specific channel that might render affected trade preferences ineffective.

The paper also builds on the literature on unilateral trade preferences.[4] Contributions relying on aggregated trade data, provide mixed evidence on whether unilateral preferences promote exports from developing countries (Eicher and Henn 2011, Herz and Wagner 2011, Gil-Pareja et al. 2014, Ornelas and Ritel 2020). Studies using dis-aggregated trade data generally suggest trade-enhancing effects of non-reciprocal trade liberalization (Frazer and van Biesebroeck 2010, Thelle et al. 2015). Moreover, Gnutzmann and Gnutzmann-Mkrtchyan (2022) show that the removal of EU preferences for Belarus based on worker rights violations caused a significant decline in EU imports of affected products by 25-27%. Still, little is known about the economic effects of uncertainty associated with unilateral preferences. Hakobyan (2020) estimates that US imports of affected products declined by 3% during the temporary expiration of US GSP in 2011. This points towards uncertainty with respect to the re-authorization by Congress. Borchert and Di Ubaldo (2020) show that without

[3] See Maggi (2016) for an overview of the literature and a theoretical, unifying framework for issue linkage in PTAs. The author suggests to distinguish three different types of linkage in PTAs, i.e. enforcement linkage, negotiation linkage and participation linkage. This study is particularly related to the first type.

[4] See Ornelas (2016) for a comprehensive review of the literature on Special and Differential Treatment for developing countries.

the risk of competitiveness-related graduations for least-developed countries under the EU's GSP, affected exports increased by 7%. Both papers analyze actual policy changes (implicitly) affecting all beneficiaries of the GSP (sub)program. The type of uncertainty examined in this study is different. In particular, the initiation of country practice reviews is associated with an explicit threat of preference withdrawal that is targeted at individual beneficiaries. Besides, the focus of this study is on the enforcement of the applicable GSP law, not its reform or expiration. As a result, the presented setting to assess trade policy uncertainty related to issue linkage is unique.

Furthermore, the study adds to the literature on trade policy uncertainty more generally.[5] Extant studies examine trade policy uncertainty related trade integration (Handley and Limão 2015, Handley and Limão 2017), Brexit (Graziano et al. 2021, Crowley et al. 2020, Hassan et al. forthcoming), trade protection measures (Crowley et al. 2018) or trade wars (Benguria et al. 2022), among others. More recently, studies compute indices based on the texts of news articles, company reports or investor calls to measure uncertainty (Baker et al. 2016, Greenland et al. 2019, Caldara et al. 2020). This study is closely related to work that explores altering probabilities for trade barriers (Handley and Limão 2015, Pierce and Schott 2016, Handley and Limão 2017). Handley and Limão (2015) examine the accession of Portugal to the European Union. The authors find that the reduced risk of preference removal had positive effects on the intensive and extensive margin of trade. Pierce and Schott (2016) show that the reduced probability of US tariff hikes vis-a-vis China led to an increase in Chinese imports and larger employment losses for more affected industries. In addition, the literature on anti-dumping duties (AD) finds negative effects of AD investigations on trade flows (Prusa 2001, Egger and Nelson 2011, Lu et al. 2013). Prusa (2001) estimates that US imports fall by 20 percent for AD cases that are ultimately rejected. This suggests that increased probability of future tariff hikes stemming from administrative reviews may have an effect on trade flows, irrespective of their actual implementation.

The remainder of the study is structured as follows: Section 2 outlines the institutional background of country practice reviews under the US GSP scheme. Section 3 presents data set and empirical strategy. Section 4 discusses the estimation results. Section 5 concludes.

2 Background

Non-reciprocal trade preferences represent an important dimension of the special and differential treatment (SDT) for developing countries within the WTO's legal framework. The underlying rationale for providing non-reciprocal market access is the promotion of export-led economic growth.

[5] See Handley and Limão (2022) for a comprehensive review of the literature on trade policy uncertainty.

In 1965, the legal foundation for SDT has been adopted (GATT Part IV). In 1971, a ten year waiver of the principle of non-discrimination (GATT Article I) enabled GSP preferences.[6] This provision has been made permanent by the "Enabling Clause" in 1979.[7] GSP schemes are required to be generalized and non-discriminatory. However, there is leeway in the implementation of these programs. As a result, many countries enacted GSP schemes that differ with respect to eligible products, beneficiaries, preference margins, safeguard measures to protect sensitive industries, and eligibility criteria, among others.

The US GSP has been introduced by the Trade Act of 1974. It is one of the largest unilateral preference schemes in terms of product coverage and trade volumes. The scheme offers preferential market access for about 120 developing countries. It covers about 3,600 tariff lines and additionally about 1,500 for least-developed beneficiaries. In 2021, imports claimed under US GSP valued USD 18.7bln.[8] GSP eligible imports represent only a small fraction of total US imports.[9] However, GSP preferences can be vital from the perspective of developing countries. Armenia claimed GSP preferences for 62 percent of its exports to the US in 2021. For Georgia the share has been 69 percent. Still, average utilization rates of GSP preferences remain low. Hakobyan (2015) finds that about 40 percent of eligible imports enter the US market without claiming benefits. Apart from rules of origin requirements (Hakobyan 2015), this may be explained by (unsteady) re-authorizations (Hakobyan 2020) or competitive need limits (Hakobyan 2017, Borchert and Di Ubaldo 2020). Further, graduations, suspensions, terminations, and exclusion at the country, product or country-product level erode the general application of preferential treatment across all beneficiaries and reliability of the program.

Most changes in US GSP eligibility status are put into effect as part of GSP reviews that are conducted by the inter-agency GSP Subcommittee.[10] These reviews typically involve petitions and comments from interested parties, such as foreign governments, private companies, or other interest groups. The GSP Subcommittee decides which petitions are accepted for further review. Accepted reviews are announced by the USTR. While reviews also target eligibility at the product and country-product level, the most general reviews concern country-level eligibility. In general, country eligibility is assessed based on statutory and discretionary criteria. Country practice reviews initiated during

[6]GATT (1971), 'Generalized System of Preferences: Decision of 25 June 1971', (L3545).

[7]GATT (1979), 'Decision on Differential and More Favourable Treatment, Reciprocity and Fuller Participation of Developing Countries', (L/4903).

[8]See USITC Dataweb, accessed December 9, 2022. It is noteworthy that US GSP lapsed December 31, 2020, and has not been renewed ever since. Hence, preference can be claimed only at the prospect for future refunds of excess duty payments upon re-authorization of the scheme.

[9]Total US imports in 2021 amounted to USD 2.8tln (See USITC Dataweb, accessed December 9, 2022).

[10]The committee consists of members of different agencies of the executive branch, such as the Department of Commerce, Agriculture, State, Labor and Treasury. It is chaired and administered by the USTR. See 15 C.F.R. §2007 for "regulations of the USTR pertaining to eligibility of articles and countries for the GSP program".

the sample period between 2003 and 2019, assessed compliance with respect to the implementation of internationally recognized worker rights, the protection of intellectual property rights (IPR), the adherence to arbitral awards from international disputes, provision of "equitable and reasonable" market access for US exporters, the provision of preferential market access to another developed country that (potentially) has adverse effects for US commerce and the elimination of the worst forms of child labor. Other criteria include reducing barriers to trade in services, reducing trade-distorting practices, not nullifying existing contracts with US counterparts, not participating in international cartels, not being a communist country, not to support international terrorism, and not to be included in the list of developed countries as specified by the law.[11] Based on the these criteria, the GSP Subcommittee prepares recommendations regarding eligibility which are forwarded via the USTR to the President. Decisions about changes in US GSP eligibility by the President can be announced any time and take effect at only 60 days' notice. In 2020, re-authorization of US GSP by Congress stalled over the amendment of eligibility criteria.[12] Since then, bills have been introduced to both chambers of US Congress that would broaden criteria to include, among others, provisions concerning human rights, environmental protection, digital trade and gender equality.[13]

With the Trade and Tariff Act of 1984, US Congress required a general review of compliance with country eligibility criteria and periodical reviews thereafter.[14] Since 1986, review cycles take place annually, with few exceptions only.[15] Table A1 shows all country practice reviews conducted between 1985 and 2020.[16] In total, 110 country-level reviews have been initiated during this time period. Most cases concerned worker right violations (67) and inadequate protection of IPR (26). Moreover, the threat of preference withdrawal is credible. About 20 percent of the cases result in a (partial) withdrawal of benefits due to non-compliance with eligibility criteria. In additional six cases, countries lost benefits during an ongoing review of country practices due to graduation or EU membership, respectively. Indonesia has been reviewed in six country practice reviews concerning issues related to worker rights, IPR and market access for US exporters. The Dominican Republic and Thailand have each been reviewed in five instances.

[11] See 19 U.S. Code §2462

[12] Isco, Isabelle (2020), 'Grassley: Democrats holding GSP renewal 'hostage' to win trade changes', Inside U.S. Trade, December 2nd, 2020.

[13] See bills H.R.4521 and S.1260, 117th Congress (2021-2022).

[14] See P.L. 98-573.

[15] The administration integrated country eligibility reviews in the existing annual product eligibility review process, and changed the name from "Annual Product Review" to "Annual Review" in 1986 (See "Revision of Regulations Relating to the Generalized System of Preferences", Federal Register 51:28, February 11, 1986).

[16] Data availability constraints allow for a careful evaluation of reviews initiated after 2002.

3 Data and Empirical Strategy

Country practice reviews vary with respect to initiation dates and duration. Therefore, the data set is constructed by stacking review episodes. An 'episode' is defined as the time frame of 12 months before and after the initiation of reviews. Reviews that have been accepted in the same month are assigned to the same episode. Monthly US imports are considered for reviewed and non-reviewed GSP beneficiaries. This data structure allows for a homogeneous treatment definition and accounts for the timing of mid-year GSP review events.

Trade data are obtained from USA Trade Online provided by the US Census Bureau. It provides monthly data on trade flows at the HS 8-digit level from 2002 onward.[17] Product codes are converted to the HS 2002 nomenclature to ensure consistency over time.[18] Import values are deflated using the monthly import price index from the US Bureau of Labor Statistics. Tariff data and information on GSP eligibility at the product-level are provided by the Tariff Database of the US International Trade Commission at the HS 8-digit level.[19] Simple averages across all HS 8-digit product codes within each HS 6-digit product category are used to calculate average tariff rates and preferential margins.

Information on country-level GSP eligibility comes from presidential proclamations and notices published in the Federal Register. The sample comprises only countries that are eligible at the country-level throughout the twelve months before and after the respective reviews have been initiated.[20] Table A2 lists all countries that fulfill the requirements for at least one review episode. In total, 22 country practice reviews are considered that (i) have been initiated between 2003 and 2019, and (ii) lasted for at least one year.[21] Figure 1 shows an overview of the involved countries, the timing and

[17] GSP eligibility and tariffs are determined at the HS 8-digit level. Aggregation of trade flows to the HS 6-digit level reduces zero trade flow observations and allows for easily converting product codes to HS 2002.

[18] To convert product codes to HS 2002, I follow an approach similar to Thelle et al. (2015). During the sample period the HS nomenclature changed in 2002, 2007, 2012 and 2017. The raw customs data from the USITC reports starting dates for each product code. These dates are used to match HS nomenclatures and product codes. Product codes implemented before 2006 are assigned to HS 2002. For staring dates between 2007 (2012) and 2011 (2016) product codes are assigned to HS 2007 (HS 2012). For starting dates after 2016, product codes are assigned to HS 2017. Concordance tables provided by UN Statistics Division and WITS website are used to convert all product codes to the HS 2002 nomenclature.

[19] If there are more valid tariff lines for a given product category in a given month, I apply the tariff that has been valid for the majority of days of the respective month (see Thelle et al. 2015).

[20] Non-independent beneficiaries are not considered. During the sample period this criteria applies to Anguilla, British Indian Ocean Territories, Christmas Island, Cocos (Keeling) Islands, Cook Islands, Falkland Islands (Islas Malvinas), Gaza Strip Administered by Israel, Heard and McDonald Islands, Montserrat, Niue, Norfolk Island, Pitcairn Islands, St Helena, Tokelau, British Virgin Islands, Wallis and Futuna, West Bank Administered by Israel, Western Sahara. In addition, GSP beneficiaries are not considered for the control group of a distinct review when exporting less than 20 HS 6-digit products to the US during the 24 months of the respective review period. As a result, 13 additional countries are not considered for the control groups of certain reviews. Baseline results remain robust also when including these countries.

[21] Reviews targeting the Dominican Republic, Guatemala (both review cycle 2001), India and Turkey (both review cycle 2018) have been concluded in less than one year. Furthermore, the Dominican Republic has been respondent in

subject matters of these reviews.

I follow Frazer and van Biesebroeck (2010) by employing a triple difference-in-differences estimation. The approach allows for exploiting (i) differences in US GSP eligible imports relative to ineligible imports, (ii) differences in imports from countries under review relative to other beneficiaries and (iii) differences in imports during time periods with ongoing review relative to time periods without review. More specifically, I estimate the following empirical specification:

$$Imports_{jptr} = exp[\beta(CtryReviewed_{jr} \times Review_{tr} \times GSPeligible_{pr}) + \gamma_{jpr} + \delta_{jtr} + \theta_{ptr}] \times \epsilon_{jtpr} \quad (1)$$

where the dependent variable $Imports_{jptr}$ refers to observations of HS 6-digit US imports of product p from country j in month t of review episode r. The month of review initiation is defined as $t = 0$. Trade flows from all beneficiaries are considered in the 24 months around the acceptance of the review(s) by the GSP Subcommittee, such that $t \in [-12; 11]$. $CtryReviewed_{jr}$ is a dummy that takes the value of one for observations of GSP beneficiaries j that are in review episode r subject to a review from $t = 0$ onward and zero otherwise. $Review_{tr}$ is dummy that is equal to one for all observations of review episode r after the review(s) have been initiated, i.e. from time $t = 0$ onward, and zero otherwise. For the baseline specification, $GSPeligible_{pr}$ is a dummy equal to one for HS 6-digit product categories p for which at least 95 percent of imports from reviewed countries in episode r during the twelve months before the respective reviews have been eligible for GSP and zero otherwise.[22] Figure A1 shows a histogram of trade-weighted eligibility product subcategories for positive trade flows from countries under review and a discontinuity at the 95 percent level. Episode-country-product fixed effects, episode-country-month fixed effects and episode-product-month fixed effects are denoted by γ_{jpr}, δ_{jtr}, and θ_{tpr}, respectively.

Baseline regressions are conducted using high-dimensional PPML estimators. Besides, OLS estimates are reported to show the robustness of the results.[23] For the later, I use the logarithm of trade values as dependent variable and discard observations with zero trade flows. Standard errors are clustered at the episode-country-product-level.

The presented data structure and estimation strategy account for the specific review treatment

another IPR case between 2000 and 2004. Uzbekistan has been subject to another IPR review between 2000 and 2019. Hence, these reviews are not considered for the baseline estimations to ensure consistency.

[22]See Gnutzmann and Gnutzmann-Mkrtchyan (2022) for a similar approach. In addition, I run several robustness checks. All main results remain robust across various specifications.

[23]Regressions have been conducted using Stata packages *reghdfe* (see Correia 2016) and *ppmlhdfe* (see Correia et al. 2020, Correia et al. 2021). Both allow for estimations using high-dimensional fixed effects. Build-in algorithms in *ppmlhdfe* control for singleton and separated observations that may bias estimation results and prevent convergence of the estimator. Applied separation checks include separation stemming from fixed effects and algorithms building on Clarkson and Jennrich (1991).

varying across countries, products and time periods. The setting allows for employing a full set of interactive fixed effects. This has advantages for the identification of the coefficient of interest. In particular, the applied triple difference-in-differences approach is robust to a large number of potential confounders. The standard difference-in-differences approach measures the trade effect comparing import trends of GSP eligible and ineligible products (or import trends from reviewed countries and other beneficiaries). Hence, economic shocks at the product level (country level) that coincide with the treatment may bias the results. The triple difference-in-differences approach is insensitive to these confounders. Intuitively, the estimates compare the difference in import trends for GSP eligible to ineligible products for reviewed countries with the respective difference for non-reviewed beneficiaries. This controls for potential confounders at the country and product level.

4 Estimation Results

4.1 Main Results

Table 1 reports baseline results for the average impact for affected US imports from countries under country practice review. It presents three main findings. First, results show that on average affected trade flows decreased after country practice reviews have been initiated. Column (1) reports the benchmark PPML estimation including zero trade flow observations. The estimation suggests that average monthly trade flows in GSP eligible product categories decreased by 8.5%.[24] The result is economically sizable and statistically significant at the 1%-level. It is in line with trade-reducing effects of uncertainty related to issue linkage despite the fact that applied tariffs remain unchanged.[25] For comparison, I re-estimate equation (1) using OLS, taking the logarithm of trade values as dependent variable and discarding zero trade flow observations. Results are shown in column (2). The estimated treatment effect for GSP eligible products under compliance review is 4.8% and statically significant at the 1%-level.

Second, trade policy uncertainty due to issue linkage may affect the range of traded products, i.e. the extensive margin of trade.[26] To isolate the effect, I estimate a linear probability model using OLS.[27] The dependent variable is a dummy equal to 1 for positive trade flow observations and zero

[24] In the following, marginal effects are calculated as $e^{\beta} - 1$.

[25] Two of the sample cases involve trade-related issues, i.e. 'reverse preferential treatment'. As regards these two reviews, the term 'issue linkage' may be debatable. Still, dropping the cases provides similar estimates.

[26] The preferred specification in column (1) captures adjustments via the intensive margin (volume) and extensive margin of trade (product range).

[27] The *ppmlhdfe* command drops singletons or separated observations before the estimation. Given the high numbers of zero trade flow observations and fixed effects, this applies to a considerable share of the data set. For the LPM estimation, all zero trade flow observations are kept in the data set. Hence, the number of observations for the LPM estimation is higher than for the PPML estimation.

otherwise. Column (3) reports the result. The estimate suggests that the probability to export a GSP eligible product decreases by 1.4% for countries subject to country practice reviews. The result is significant at the 1%-level.

Third, a potential concern is the existence of pre-trends, e.g. if review initiations have been anticipated. Therefore, column (4) presents the estimate from a placebo PPML regression. It includes an additional interaction term that is equal to 1 for ultimately affected trade flow observations up to three months before the respective reviews have been initiated and zero otherwise. The estimate is statistically insignificant suggesting that there is no trade effect just before the reviews. The negative coefficient for the main variable of interest slightly decreases to 7.6%, but remains highly significant. This is consistent with the identifying assumptions of the triple difference-in-differences approach. The estimate of the placebo regression using OLS in column (5) provides a similar result.

Table 2 reports further estimates exploiting heterogeneity based on review characteristics. Estimation results may be partially driven by different expectations of market agents on whether GSP preferences will be eventually withdrawn due the reviews at hand. Reviews that are expected to be more likely to result in the withdrawal of GSP preferences, may induce larger reductions in trade flows following the initiation of the formal review procedure. Column 1 shows estimates for closed reviews from the baseline sample that ultimately resulted in the complete loss of GSP benefits and for reviews that did not.[28] For the reviews that result in the complete withdrawal of benefits, average monthly trade flows in GSP eligible products decrease by 12.6%. This estimate is substantially larger than for reviews with other outcomes for which affected trade has been reduced by 5.4%. Results suggest that market agents may (to a certain extent) have anticipated the outcome of the country practice reviews. However, it is important to stress that the main findings are clearly not only driven by anticipated outcomes.

Besides, adjustments of trade flows may require time (Baier and Bergstrand 2007). Due to existing contracts, orders and shipments an increase in trade policy uncertainty is likely to materialize with a time lag. Therefore, column (2) shows separate estimates for the first three months and the following nine months under review. Only the coefficient for the latter is statistically significant and equal to -0.117. As expected, results suggest trade policy uncertainty to have a lagged effect on trade from GSP beneficiaries under review.

In Table 3 I investigate the periods after the reviews ended, i.e. trade policy uncertainty has been removed. The twelve months before the respective reviews have been initiated serve as reference to estimate differences across time. Using the same reference period allows for a direct comparison

[28] Ongoing reviews and reviews that have been terminated due to graduation of the beneficiary or EU membership have not been considered as inference concerning ex-ante expectations is less clear.

of ultimate review outcomes to the previous uncertainty estimates. Column (1) shows the estimate for sample reviews that have been closed without further actions. The coefficient is not statistically different from zero. This result suggests that the negative impact of trade policy uncertainty is removed for these cases when reviews ended (at the latest). Column (2) reports the estimate for the cases of the baseline sample that resulted in a complete loss of benefits. The estimate suggests that compared to the pre-review period average monthly trade in affected products decreased by 32.4% after the withdrawal of GSP benefits. That means that the size of the estimated effect for review initiation in Table 2 is about one quarter of the estimated impact of the actual removal of trade preferences. The size of the estimate is comparable to findings in the literature (see Gnutzmann and Gnutzmann-Mkrtchyan 2022).[29]

Table 4 reports results exploiting heterogeneity across products. Column (1) shows estimates for different product categories. Results suggest considerable differences in uncertainty effects across industries. The estimation suggests that trade in agricultural products has been reduced by 26.9%. The negative coefficients for trade in minerals, food and beverages, as well as textiles and travel goods are not statistically different from zero. Affected trade in other manufacturing products is estimated to be reduced by 8.2%. These results may be partially explained by differences in trade barriers arising from matching international sellers and buyers (Rauch 1999). Searching for new business partners may be relatively less complex for homogeneous products traded on organized exchanges (or with given reference prices). However, it may be relatively costly for differentiated commodities with unique characteristics and prices. Hence, column (2) shows estimates for homogeneous and differentiated products as defined by Rauch (1999). Results indeed suggest the trade-reducing uncertainty effect to be about 3.5 times larger for homogeneous goods (18.6%) as compared to differentiated goods (5.0%). This is line with other studies suggesting less resilient trade ties for product categories with low degrees of (relationship) specificity (Besedeš and Prusa 2006, Martin et al. 2023).

4.2 Robustness Checks

The baseline findings are robust to a number of sensitivity tests. Robustness checks are conducted using PPML and OLS estimators. All specifications are in support of the main results, i.e. negative trade effects due to trade policy uncertainty induced by issue linkage.

While it is clear that the focus of the analysis should be on product groups that are strongly affected

[29]Gnutzmann and Gnutzmann-Mkrtchyan (2022) find that the removal of EU GSP benefits reduced affected trade flows from Belarus by 25-27%. Although some differences to presented approach should be noted.

by the reviews, the exact threshold is debatable. Hence, I alter the discrete treatment threshold for GSP eligibility at the product level to show robustness of the estimates. Results are shown in Table A3. For columns (1) and (2), HS 6-digit product categories are deemed eligible if at least 80% of imported trade values in these products from countries under review during the respective period has been GSP eligible in the twelve months before the reviews have been accepted. For columns (3) and (4), the above threshold for product-level GSP eligibility is 99%. Hence, for the latter only those products are deemed eligible for which almost all imports from countries under review qualified for GSP preferences before acceptance of the review by the GSP Subcommittee. PPML and OLS estimates are close the benchmark results. For the regressions in columns (5) to (8), product-level GSP eligibility is defined using the shares of GSP eligible 8-digit tariff lines per HS 6-digit product categories. For the PPML estimates in column (5) and (7), HS 6-digit products are deemed GSP eligible if at 80% and 95% of the associated HS 8-digit tariff lines qualify for preferential market access via US GSP, respectively. OLS estimates using these thresholds are reported in columns (6) and (8). Again the size of these estimates is comparable to the baseline specification. To conclude, the findings for average review effects on trade flows do not hinge on the exact choice of the discrete threshold levels.

Another potential concern is that the choice of discrete threshold levels is too restrictive. Therefore, Table A4 shows the result for regressions with continuous definitions for GSP eligibility at the product level. For columns (1) and (2), GSP product eligibility is determined by the share of eligible trade prior to the review. For columns (3) and (4), the interaction term comprises the share of eligible tariff lines per HS 6-digit product category. Furthermore, one would expect the negative trade effect of uncertainty to increase with tariff rates. Intuitively, higher tariffs imply larger trade benefits to be at stake due to enforcement linkage. For columns (5) and (6), treatment is defined by mean of preference margins at the HS 6-digit level. In addition, preference utilization varies across countries and sectors. Trade policy uncertainty can be expected to affect trade flows only if GSP preferences have been claimed. For columns (7) and (8), treatment is determined by actual utilization of trade preferences, i.e. the share of HS 6-digit imports from a country claiming GSP preferences in the 12 months prior to review initiations. All specifications show robust negative effects on the trade flows under concern, both using PPML and OLS. The negative impact of trade policy uncertainty, hence, appears to increase with (i) the value of eligible trade flows, (ii) the share of eligible tariff lines, (iii) the size of applied preference margins and (iv) preference utilization rates.

In a further step, I provide evidence that the baseline results are not driven by trade flows from individual countries under review. Figure A2 shows the results of re-sampling following the Jackknife

method. Reported point estimates and 95% confidence intervals are obtained by PPML estimations and consecutively excluding the countries displayed on the vertical axis from treatment. Results remain reasonably stable and significantly negative for all estimations. The point estimate reported for the regression excluding Ecuador is slightly less negative. This suggests that GSP eligible trade flows from Ecuador may have particularly suffered from uncertain preferences. Similarly, the point estimate reported for the regressions excluding the Philippines and Thailand are slightly more negative, respectively. This may point towards less severe uncertainty effects for these reviews.[30] Still, provided results suggest that the negative trade effects due to impending enforcement of issue linkage does not depend on single reviews.

Further robustness checks are reported in Table A5. Recall that the baseline estimations include reviews that lasted for at least 12 months. This allows for a homogeneous treatment definition. For regressions in column (1) and (2), the review dummies are equal to one also for the three reviews during the sample period that lasted less than one year.[31] This alleviates concerns about the sample restriction for the baseline estimates. Extending the treatment definition provides again estimates similar to the benchmark results. In addition, the US offers additional trade preferences to a subgroup of GSP beneficiaries under The African Growth and Opportunity Act (AGOA).[32] For countries from sub-Saharan Africa, it covers all GSP eligible products and about 1,800 additional tariff lines. To qualify for AGOA, beneficiaries have to meet GSP eligibility criteria and additional requirements.[33] Put differently, compliance with GSP eligibility criteria is a necessary, but not sufficient prerequisite for preferential treatment via AGOA. Hence, country practice reviews may have more far-reaching implications for AGOA beneficiaries. If deemed non-compliant with GSP eligibility criteria, AGOA countries may lose their preferential status also for AGOA eligible products that do not qualify for GSP. For the estimates in Columns (5) and (6), I drop all countries from the sample that have been eligible for trade preferences under AGOA at any time during the sample period. This addresses concerns related to the extended set of trade preferences for AGOA beneficiaries. PPML and OLS estimates indicate similar results as the benchmark specification. As a result, neither of

[30] It has to be noted though that the impact of individual countries or reviews on average results depends on the size the trade effects and the number of products that are considered GSP eligible based on pre-review trade flows.

[31] The three reviews include the 2001 review of Guatemala (301 days), the 2018 review of Turkey (213 days) and the 2018 review of India (326 days). The reviews of the Dominican Republic initiated in 2001 and the review of Uzbekistan initiated in 2007 remain excluded, as both countries have already been under review since 2000.

[32] During the sample period, only Niger and Uganda have been subject to GSP country practice reviews and simultaneously qualified for trade preferences under AGOA. Excluding the two countries from treatment does not alter the baseline findings. Other unilateral US trade preference schemes include the Caribbean Basin Economic Recovery Act (CBERA) and Andean Trade Preference Act (ATPA). However, no CBERA or ATPA beneficiary has been subject to GSP reviews during the sample period.

[33] Among others, additional eligibility criteria for trade preferences via AGOA include (progress) to establish economic policies that reduce poverty, increase the availability of health care and educational opportunities (see 19 U.S. Code §2466a and §3703).

the alternative specifications are altering the baseline findings.

5 Conclusion

Issue linkage can be associated with economic costs. All results point towards trade-dampening effects of country-level eligibility reviews due to the increased risk of near-term GSP preference withdrawal. More specifically, the baseline estimates suggest average trade flows of affected products decrease by 8.5%. This result is obtained despite the fact that there have been no actual changes in applied tariffs towards the countries under review. The estimated negative impact on trade remains robust employing different treatment specifications and estimators. Moreover, results suggest trade in homogeneous products to be particularly affected by the questioning of GSP eligibility status. The estimates of average uncertainty effects are sizable, also in comparison to the actual withdrawal of trade benefits. After the reviews have been concluded, there is no negative effect on trade for reviews that ended without further actions.

This study adds to the existing literature by assessing trade policy uncertainty stemming from issue linkage. It highlights additional costs for developing countries when using trade preferences that are subject to political conditionality. Linking trade preferences to political objectives contributes to the uncertain environment of (unilateral) market access. This is likely to result in reduced investments by exporting companies and is undermining the underlying development objectives of GSP preferences. Still, there are arguments in favor of these policy provisions. The inter-dependency of trade preferences and other policies may (in some instances) serve as political leverage to prevent races to the bottom. Lowering policy standards increases competitive advantages, but may also impede economic development. The provided evidence is consistent with reduced trade flows due to enforcement linkage of policies. However, it is important to keep in mind that it does not allow to infer conclusions about the overall effect of issue linkage and potential benefits through increased compliance with non-trade related provisions.

Declaration of Competing Interest

None.

References

Abman, R., Lundberg, C., McLaren, J. and Ruta, M. (2023), 'Child Labor Standards in Regional Trade Agreements: Theory and Evidence', *NBER Working Paper Series* **30908**.

Baghdadi, L., Martinez-Zarzoso, I. and Zitouna, H. (2013), 'Are RTA Agreements with Environmental Provisions Reducing Emissions?', *Journal of International Economics* **90**(2), 378–390.

Baier, S. L. and Bergstrand, J. H. (2007), 'Do Free Trade Agreements Actually Increase Members' International Trade?', *Journal of International Economics* **71**(1), 72–95.

Baker, S. R., Bloom, N. and Davis, S. J. (2016), 'Measuring Economic Policy Uncertainty', *The Quarterly Journal of Economics* **131**(4), 1593–1636.

Benguria, F., Choi, J., Swenson, D. L. and Xu, M. (2022), 'Anxiety or Pain? The Impact of Tariffs and Uncertainty on Chinese Firms in the Trade War', *Journal of International Economics* **137**, 103608.

Besedeš, T. and Prusa, T. J. (2006), 'Product Differentiation and Duration of US Import Trade', *Journal of International Economics* **70**(2), 339–358.

Borchert, I., Conconi, P., Di Ubaldo, M. and Herghelegiu, C. (2021), 'The Pursuit of Non-Trade Policy Objectives in EU Trade Policy', *World Trade Review* **20**(5), 623–647.

Borchert, I. and Di Ubaldo, M. (2020), 'Go Ahead and Trade: The Effect of Uncertainty Removal in the EU's GSP Scheme', *EUI Working Paper RSCAS* **2020/15**.

Brandi, C., Schwab, J., Berger, A. and Morin, J.-F. (2020), 'Do Environmental Provisions in Trade Agreements Make Exports from Developing Countries Greener?', *World Development* **129**, 104899.

Breinlich, H., Corradi, V., Rocha, N., Ruta, M., Santos Silva, J. and Zylkin, T. (2022), 'Machine Learning in International Trade Research - Evaluating the Impact of Trade Agreements', *CEPR Discussion Paper* **DP17325**.

Caldara, D., Iacoviello, M., Molligo, P., Prestipino, A. and Raffo, A. (2020), 'The Economic Effects of Trade Policy Uncertainty', *Journal of Monetary Economics* **109**, 38–59.

Clarkson, D. B. and Jennrich, R. I. (1991), 'Computing Extended Maximum Likelihood Estimates for Linear Parameter Models', *Journal of the Royal Statistical Society: Series B (Methodological)* **53**(2), 417–426.

Conconi, P. and Perroni, C. (2002), 'Issue Linkage and Issue Tie-in in Multilateral Negotiations', *Journal of International Economics* **57**(2), 423–447.

Correia, S. (2016), 'A Feasible Estimator for Linear Models with Multi-Way Fixed Effects', *Mimeo, March 2016, Duke University* .

Correia, S., Guimarães, P. and Zylkin, T. (2020), 'Fast Poisson Estimation with High-dimensional Fixed Effects', *The Stata Journal* **20**(1), 95–115.

Correia, S., Guimarães, P. and Zylkin, T. (2021), 'Verifying the Existence of Maximum Likelihood Estimates for Generalized Linear Models', *ArXiv Working Papers* .

Crowley, M. A., Exton, O. and Han, L. (2020), 'The Looming Threat of Tariff Hikes: Entry into Exporting under Trade Agreement Renegotiation', *AEA Papers and Proceedings* **110**, 547–551.

Crowley, M., Meng, N. and Song, H. (2018), 'Tariff Scares: Trade Policy Uncertainty and Foreign Market Entry by Chinese Firms', *Journal of International Economics* **114**, 96–115.

Dür, A., Baccini, L. and Elsig, M. (2014), 'The Design of International Trade Agreements: Introducing a New Dataset', *The Review of International Organizations* **9**(3), 353–375.

Ederington, J. (2002), 'Trade and Domestic Policy Linkage in International Agreements*', *International Economic Review* **43**(4), 1347–1368.

Egger, P. and Nelson, D. (2011), 'How Bad Is Antidumping? Evidence from Panel Data', *The Review of Economics and Statistics* **93**(4), 1374–1390.

Eicher, T. S. and Henn, C. (2011), 'In Search of WTO Trade Effects: Preferential Trade Agreements Promote Trade Strongly, but Unevenly', *Journal of International Economics* **83**(2), 137–153.

Francois, J., Hoekman, B. and Manchin, M. (2023), 'Pursuing Environmental and Social Objectives through Trade Agreements', *World Bank Policy Research Working Paper* **10323**.

Frazer, G. and van Biesebroeck, J. (2010), 'Trade Growth under the African Growth and Opportunity Act', *Review of Economics and Statistics* **92**(1), 128–144.

Gassebner, M. and Gnutzmann-Mkrtchyan, A. (2018), 'Politicized Trade: What Drives Withdrawal of Trade Preferences?', *Economics Letters* **167**, 10–13.

Gil-Pareja, S., Llorca-Vivero, R. and Martínez-Serrano, J. A. (2014), 'Do Nonreciprocal Preferential Trade Agreements Increase Beneficiaries' Exports?', *Journal of Development Economics* **107**, 291–304.

Gnutzmann, H. and Gnutzmann-Mkrtchyan, A. (2022), 'The Impact of Trade Preferences Removal: Evidence from the Belarus Generalized System of Preferences Withdrawal', *The World Economy* **45**, 2977–3000.

Graziano, A., Handley, K. and Limão, N. (2021), 'Brexit Uncertainty and Trade Disintegration', *The Economic Journal* **131**(635), 1150–1185.

Greenland, A., Ion, M. and Lopresti, J. (2019), 'Exports, Investment and Policy Uncertainty', *Canadian Journal of Economics/Revue canadienne d'économique* **52**(3), 1248–1288.

Hafner-Burton, E. M. (2005), 'Trading Human Rights: How Preferential Trade Agreements Influence Government Repression', *International Organization* **59**(3), 593–629.

Hafner-Burton, E. M., Mosley, L. and Galantucci, R. (2019), 'Protecting Workers Abroad and Industries at Home: Rights-based Conditionality in Trade Preference Programs', *Journal of Conflict Resolution* **63**(5), 1253–1282.

Hakobyan, S. (2015), 'Accounting for Underutilization of Trade Preference Programs: The US Generalized System of Preferences', *Canadian Journal of Economics/Revue canadienne d'économique* **48**(2), 408–436.

Hakobyan, S. (2017), 'Export Competitiveness of Developing Countries and US Trade Policy', *The World Economy* **40**(7), 1405–1429.

Hakobyan, S. (2020), 'GSP Expiration and Declining Exports from Developing Countries', *Canadian Journal of Economics* **53**(3), 1132–1161.

Handley, K. and Limão, N. (2015), 'Trade and Investment under Policy Uncertainty: Theory and Firm Evidence', *American Economic Journal: Economic Policy* **7**(4), 189–222.

Handley, K. and Limão, N. (2017), 'Policy Uncertainty, Trade, and Welfare: Theory and Evidence for China and the United States', *American Economic Review* **107**(9), 2731–2783.

Handley, K. and Limão, N. (2022), 'Trade Policy Uncertainty', *Annual Review of Economics* **14**(1), 363–395.

Hassan, T. A., Hollander, S., van Lent, L. and Tahoun, A. (forthcoming), 'The Global Impact of Brexit Uncertainty', *The Journal of Finance* .

Herz, B. and Wagner, M. (2011), 'The Dark Side of the Generalized System of Preferences', *Review of International Economics* **19**(4), 763–775.

Limão, N. (2005), 'Trade policy, Cross-border Externalities and Lobbies: Do Linked Agreements Enforce More Cooperative Outcomes?', *Journal of International Economics* **67**(1), 175–199.

Limão, N. (2007), 'Are Preferential Trade Agreements with Non-trade Objectives a Stumbling Block for Multilateral Liberalization?', *The Review of Economic Studies* **74**(3), 821–855.

Lu, Y., Tao, Z. and Zhang, Y. (2013), 'How Do Exporters Respond to Antidumping Investigations?', *Journal of International Economics* **91**(2), 290–300.

Lundberg, C., Szmurlo, D. and Abman, R. (2023), 'Trade, Emissions, and Environmental Spillovers: Issue Linkages in Regional Trade Agreements∗', *Policy Research Working Paper* **10319**.

Maggi, G. (2016), Issue Linkage, *in* K. Bagwell and R. W. Staiger, eds, 'Handbook of Commercial Policy', Vol. 1, North-Holland, pp. 513–564.

Martin, J., Mejean, I. and Parenti, M. (2023), 'Relationship Stickiness, International Trade, and Economic Uncertainty', *Mimeo, June 2023, Sciences Po* .

Mattoo, A., Mulabdic, A. and Ruta, M. (2022), 'Trade Creation and Trade Diversion in Deep Agreements', *Canadian Journal of Economics* **55**(3), 1598–1637.

Mattoo, A., Rocha, N. and Ruta, M., eds (2020), *Handbook of deep trade agreements*, World Bank Group, Washington, DC, USA.

Ornelas, E. (2016), Special and Differential Treatment for Developing Countries, *in* K. Bagwell and R. W. Staiger, eds, 'Handbook of Commercial Policy', Vol. 1, North-Holland, pp. 369–432.

Ornelas, E. and Ritel, M. (2020), 'The Not–so–generalised Effects of the Generalized System of Preferences', *The World Economy* **43**(7), 1809–1840.

Pierce, J. R. and Schott, P. K. (2016), 'The Surprisingly Swift Decline of US Manufacturing Employment', *American Economic Review* **106**(7), 1632–1662.

Prusa, T. J. (2001), 'On the Spread and Impact of Anti-dumping', *Canadian Journal of Economics* **34**(3), 591–611.

Rauch, J. E. (1999), 'Networks versus Markets in International Trade', *Journal of International Economics* **48**(1), 7–35.

Spilker, G. and Böhmelt, T. (2013), 'The Impact of Preferential Trade Agreements on Governmental Repression Revisited', *The Review of International Organizations* **8**(3), 343–361.

Thelle, M. H., Jeppesen, T., Gjødesen-Lund, C. and van Biesebroeck, J. (2015), *Assessment of economic benefits generated by the EU Trade Regimes towards developing countries*, Directorate-General for International Cooperation and Development, EU Development Policy and International Cooperation, Policy and Coherence, Economic Analysis Team.

Table 1: Benchmark Results

	(1)	(2)	(3)	(4)	(5)
	Baseline		Extensive Margin	Placebo	
Estimator	PPML	OLS	OLS	PPML	OLS
Dependent Variable	Trade	Log Trade	Binary variable	Trade	Log Trade
CtryReviewed x Review x GSPeligible	-0.089***	-0.049***	-0.014***	-0.079***	-0.051***
	(0.029)	(0.012)	(0.004)	(0.030)	(0.015)
CtryReviewed x (-3 $\leq$ t $\leq$ -1) x GSPeligible				0.041	-0.008
				(0.025)	(0.013)
Observations	12,356,266	4,158,286	159,666,558	12,356,266	4,158,286

Notes: Regressions include all three sets of interactive fixed effects, i.e. episode-country-product, episode-country-month and episode-product-month. For columns 1 and 4, the dependent variable contains trade values in levels and zero trade flows are included in the estimations. For columns 2 and 5, the dependent variable is is the logarithm of trade values and observations with zero trade values are dropped from the sample. For column 3, the dependent variable is binary indicating positive trade flows and zero trade flows are included in the sample. Columns 1 and 2 report the baseline estimates. Column 3 reports an extensive margin estimate. Regressions in column 4 and 5, include an additional variable indicating trade flows that are under review three months later. Standard errors are clustered at the episode-country-product level and reported in parentheses. Significance at the 1%, 5% and 10% level is indicated by ***, ** and *, respectively.

Table 2: Heterogeneous Trade Effect by Review Characteristics

	(1) Results (Closed Reviews)	(2) Impact over Time
Estimator	PPML	PPML
Dependent Variable	Trade	Trade
CtryReviewed x Review x GSPeligible x (Complete Loss)	-0.135***	
	(0.036)	
CtryReviewed x Review x GSPeligible x (No Complete Loss)	-0.056***	
	(0.020)	
CtryReviewed x Review x GSPeligible x (Review months 1-3)		-0.011
		(0.041)
CtryReviewed x Review x GSPeligible x (Review months 4-12)		-0.117***
		(0.040)
Observations	12,356,266	12,356,266

Notes: Regressions include all three sets of interactive fixed effects, i.e. episode-country-product, episode-country-month and episode-product-month. The dependent variable contains trade values in levels and zero trade flows are included in the estimations. Column 1 shows estimates for closed reviews that ultimately resulted in the complete loss of benefits and for reviews that did not. Column 2 reports the results for the average trade effect in the first three months and the following nine months after the reviews have been initiated. Standard errors are clustered at the episode-country-product level and reported in parentheses. Significance at the 1%, 5% and 10% level is indicated by ***, ** and *, respectively.

Table 3: No Action, Loss of Benefits

	(1) No Action (Closed Reviews)	(2) Loss (Closed Reviews)
Estimator	PPML	PPML
Dependent Variable	Trade	Trade
CtryReviewed x NoAction x GSPeligible	0.088	
	(0.120)	
CtryReviewed x Loss x GSPeligible		-0.391***
		(0.030)
Observations	9,045,200	1,782,920

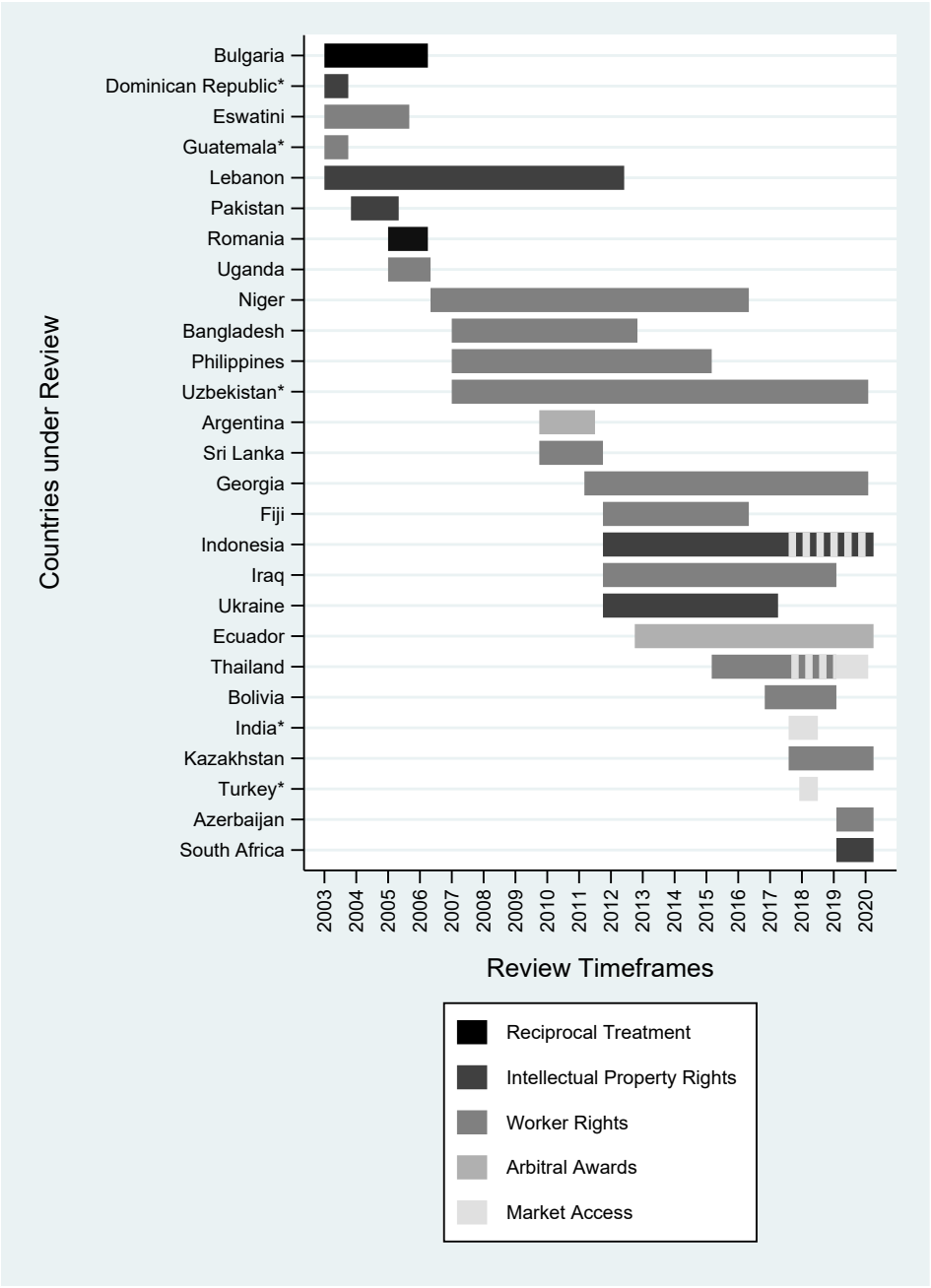
Notes: These regressions include all three sets of interactive fixed effects episode-country-product, episode-country-month and episode-product-month. The twelve months before the respective reviews have been initiated serve as reference to estimate the difference across time. Column 1 shows the estimate for reviews of the baseline sample that have been closed without further actions. Column 2 reports the estimate for the cases of the baseline sample that resulted in a complete loss of benefits. Standard errors are clustered at the episode-country-product level and reported in parentheses. Significance at the 1%, 5% and 10% level is indicated by ***, ** and *, respectively.

Table 4: Heterogeneous Trade Effect by Product Characteristics

	(1) Product Categories	(2) Product Differentiation
Estimator	PPML	PPML
Dependent Variable	Trade	Trade
CtryReviewed x Review x GSPeligible x (Agriculture)	-0.313***	
	(0.0869)	
CtryReviewed x Review x GSPeligible x (Food and Beverages)	-0.063	
	(0.048)	
CtryReviewed x Review x GSPeligible x (Minerals)	-2.377	
	(2.370)	
CtryReviewed x Review x GSPeligible x (Textiles and Travel Goods)	-0.039	
	(0.042)	
CtryReviewed x Review x GSPeligible x (Other Manufacturing)	-0.085***	
	(0.027)	
CtryReviewed x Review x GSPeligible x (Homogeneous Products)		-0.206**
		(0.095)
CtryReviewed x Review x GSPeligible x (Differentiated Products)		-0.051***
		(0.002)
Observations	12,356,266	12,356,266

Notes: Regressions include all three sets of interactive fixed effects, i.e. episode-country-product, episode-country-month and episode-product-month. The dependent variable contains trade values in levels and zero trade flows are included in the estimations. Column 1 shows estimates for different product categories according to their HS sections: Agriculture (HS sections I-III), Food and Beverages (HS section IV), Minerals (HS section V), Textiles and Travel Goods (HS sections VIII, XI-XII), Other Manufacturing (HS sections VI-VII, IX-X, XIII-XX). Column 2 reports the results for homogeneous and differentiated products following Rauch (1999). Standard errors are clustered at the episode-country-product level and reported in parentheses. Significance at the 1%, 5% and 10% level is indicated by ***, ** and *, respectively.

Figure 1: Country Practice Reviews initiated 2003-2019



Notes: The overview above shows the timing of all GSP country practice reviews initiated between 2003 and 2019. The color is indicating the eligibility criteria for which compliance has been assessed. Countries indicated by an asterisk (*), are not considered for baseline sample. These includes reviews that lasted less than one year (Guatemala in 2001, Turkey in 2018, India in 2018) and countries that have been under review already (Dominican Republic in 2001, Uzbekistan in 2007). Analogously, for Indonesia and Thailand only the first reviews during the sample period have been considered.

A Appendix

Table A1: US GSP Country Practice Reviews 1985 to 2020

Review	Country	Type of Review	Month Accepted	Month Terminated	Duration (in days)	Action	(Partial) Loss from	(Partial) Loss to
1985	Chile	WR	06.1985	12.1987	913	Loss	02.1988	02.1991
1985	Guatemala	WR	06.1985	01.1987	557	None	.	.
1985	Haiti	WR	06.1985	01.1987	557	None	.	.
1985	Korea, Republic of	WR	06.1985	01.1987	557	None	.	.
1985	Nicaragua	WR	06.1985	01.1987	557	Loss	03.1987	.
1985	Paraguay	WR	06.1985	01.1987	557	Loss	03.1987	02.1991
1985	Philippines	WR	06.1985	01.1987	557	None	.	.
1985	Romania	WR	06.1985	01.1987	557	Loss	03.1987	.
1985	Suriname	WR	06.1985	01.1987	557	None	.	.
1985	Taiwan	WR	06.1985	01.1987	557	None	.	.
1985	Zaire	WR	06.1985	01.1987	557	None	.	.
1986	Indonesia	IPR	07.1986	09.1987	428	None	.	.
1987	Central African Republic	WR	08.1987	04.1989	618	Loss	07.1989	02.1991
1987	Indonesia	WR	08.1987	04.1988	247	None	.	.
1987	Korea, Republic of	WR	08.1987	01.1988	178	Graduation	07.1989	.
1987	Taiwan	WR	08.1987	01.1988	178	Graduation	01.1989	.
1987	Thailand	WR	08.1987	04.1988	247	None	.	.
1987	Turkey	WR	08.1987	04.1988	247	None	.	.
1988	Burma	WR	08.1988	04.1989	226	Loss	07.1989	11.2016
1988	Haiti	WR	08.1988	04.1991	968	None	.	.
1988	Israel	WR	08.1988	04.1989	226	None	.	.
1988	Liberia	WR	08.1988	04.1990	604	Loss	07.1990	03.2006
1988	Malaysia	WR	08.1988	04.1989	226	None	.	.
1988	Syria	WR	08.1988	06.1993	1750	Loss	08.1992	.
1988	Venezuela	EXP	08.1988	02.1990	531	Withdrawn	.	.
1989	Benin	WR	08.1989	04.1991	623	None	.	.
1989	Costa Rica	EXP	08.1989	04.1990	259	None	.	.
1989	Dominican Republic	WR	08.1989	04.1991	623	None	.	.
1989	Indonesia	WR	08.1989	04.1990	259	None	.	.
1989	Nepal	WR	08.1989	04.1991	623	None	.	.
1989	Peru	EXP	08.1989	12.1989	118	Withdrawn	.	.
1989	Thailand	WR	08.1989	04.1990	259	None	.	.
1989	Uruguay	EXP	08.1989	04.1990	259	None	.	.
1990	Bangladesh	WR	08.1990	06.1992	661	None	.	.
1990	El Salvador	WR	08.1990	07.1994	1407	None	.	.
1990	Sudan	WR	08.1990	04.1991	244	Loss	07.1991	.
1990	Peru	EXP	11.1990	09.1993	1044	None	.	.
1991	Guatemala	IPR	08.1991	07.1994	1040	Withdrawn	.	.
1991	Malta	IPR	08.1991	10.1993	768	Withdrawn	.	.
1991	Mauritania	WR	08.1991	06.1993	669	Loss	08.1993	09.1999
1991	Panama	WR	08.1991	06.1993	669	None	.	.
1991	Sri Lanka	WR	08.1991	06.1992	294	None	.	.
1991	Thailand	WR	08.1991	07.2000	3234	None	.	.
1992	Bahrain	WR	08.1992	07.1994	679	None	.	.
1992	Dominican Republic	IPR	08.1992	09.1994	741	Withdrawn		
1992	Fiji	WR	08.1992	07.1994	679	None	.	.
1992	Guatemala	WR	08.1992	05.1997	1715	None	.	.
1992	Honduras	IPR	08.1992	06.1998	2139	Partial Loss	04.1998	06.1998
1992	Indonesia	WR	08.1992	02.1994	544	None	.	.
1992	Malawi	WR	08.1992	12.1993	493	None	.	.
1992	Oman	WR	08.1992	07.1994	679	None	.	.
1992	Haiti	WR	10.1993	.	.	Rev. suspended	.	.
1993	Cyprus	IPR	09.1993	07.1994	283	None	.	.
1993	Costa Rica	WR	10.1993	12.1993	83	Withdrawn	.	.
1993	Dominican Republic	WR	10.1993	12.1994	441	Withdrawn	.	.
1993	El Salvador	IPR	10.1993	10.1996	1095	None	.	.
1993	Maldives	WR	10.1993	07.1995	657	Loss	08.1995	12.2009
1993	Pakistan	WR	10.1993	11.1995	762	Partial Loss	07.1996	07.2005
1993	Paraguay	WR	10.1993	12.1993	83	Withdrawn	.	.
1993	Peru	WR	10.1993	07.1994	269	None	.	.
1993	Poland	IPR	10.1993	10.1996	1095	None	.	.
1993	Turkey	IPR	10.1993	09.2003	3620	None	.	.
1993	Egypt	IPR	10.1993	07.1994	255	None	.	.

Continued on the next page.

Table A1: US GSP Country Practice Reviews 1985 to 2020 (cont.)

Review	Country	Type of Review	Month Accepted	Month Terminated	Duration (in days)	Action	(Partial) Loss from	(Partial) Loss to
1995	Panama	IPR	10.1996	10.1998	752	None	.	.
1995	Paraguay	IPR	10.1996	11.1998	774	None	.	.
1997	Belarus	WR	05.1997	07.2000	1161	Loss	09.2000	.
1997	Swaziland	WR	05.1997	01.2001	1349	None	.	.
1997	Philipines	MA	05.1997	02.1998	267	None	.	.
1998	India	MA	01.1999	09.2003	1680	None	.	.
1999	Armenia	IPR	02.2000	09.2003	1297	None	.	.
1999	Dominican Republic	IPR	02.2000	06.2004	1598	None	.	.
1999	Kazakhstan	IPR	02.2000	05.2006	2268	None	.	.
1999	Moldova	IPR	02.2000	01.2001	331	None	.	.
1999	Ukraine	IPR	02.2000	08.2001	543	Loss	08.2001	01.2006
1999	Uzbekistan	IPR	02.2000	10.2019	7193	None	.	.
1999	Bangladesh	WR	06.2000	01.2005	1669	None	.	.
2000	Brazil	IPR	01.2001	01.2006	1829	None	.	.
2000	Pakistan	MA	01.2001	09.2003	966	None	.	.
2000	Russia	IPR	01.2001	05.2014	4865	Graduation	10.2014	.
2001	Bulgaria	RPT	09.2003	12.2006	1215	EU	01.2007	.
2001	Dominican Republic	IPR	09.2003	06.2004	301	None	.	.
2001	Guatemala	WR	09.2003	06.2004	301	None	.	.
2001	Lebanon	IPR	09.2003	02.2013	3460	None	.	.
2001	Swaziland	WR	09.2003	05.2006	971	None	.	.
2001	Pakistan	IPR	07.2004	01.2006	567	None	.	.
2005	Romania	RPT	09.2005	12.2006	473	EU	01.2007	.
2005	Uganda	WR	09.2005	01.2007	490	None	.	.
2006	Niger	WR	01.2007	01.2017	3659	None	.	.
2007	Bangladesh	WR	09.2007	07.2013	2126	Loss	09.2013	
2007	Philippines	WR	09.2007	11.2015	3002	None	.	.
2007	Uzbekistan	WR	09.2007	10.2020	4803	None	.	.
2008	Sri Lanka	WR	06.2010	06.2012	730	None	.	.
2008	Iraq	WR	06.2012	10.2019	2674	None	.	.
2009	Argentina	AA	06.2010	03.2012	635	Loss	05.2012	01.2018
2010	Georgia	WR	11.2011	10.2020	3286	None	.	.
2011	Fiji	WR	06.2012	01.2017	1669	None	.	.
2011	Indonesia	IPR	06.2012	.	.	Ongoing	.	.
2011	Ukraine	IPR	06.2012	12.2017	2002	Partial Loss	04.2018	10.2019
2012	Ecuador	AA	06.2013	.	.	Ongoing	.	.
2015	Thailand	WR	11.2015	10.2019	1430	Partial Loss	04.2020	.
2017	Bolivia	CL	07.2017	10.2019	837	None	.	.
2018	India	MA	04.2018	03.2019	326	Loss	06.2019	.
2018	Indonesia	MA	04.2018	10.2020	932	None	.	.
2018	Kazakhstan	WR	04.2018	.	.	Ongoing	.	.
2018	Thailand	MA	05.2018	10.2020	897	Partial Loss	12.2020	.
2018	Turkey	MA	08.2018	03.2019	213	Graduation	05.2019	.
2019	Azerbaijan	WR	10.2019	.	.	Ongoing	.	.
2019	South Africa	IPR	10.2019	.	.	Ongoing	.	.
2020	Eritrea	WR	10.2020	.	.	Ongoing	.	.
2020	Zimbabwe	WR	10.2020	.	.	Ongoing	.	.

Note: The lists includes all US GSP country practice reviews as of May, 2021. Information has been collected from publications in the federal register, letters and press releases of the US president and the US Trade representative. Simultaneous cases involving the same subject matter and country under review have been subsumed. The column "Review" shows the year of the corresponding GSP country practice review as indicated by the office of the US USTR. Note that Annual Reviews 2001 and 2002 have been conducted jointly due to the temporary lapse of the US GSP program (above jointly denoted by "2001"). The column "Country" lists the respective country under review. Reviews include the following subject matters: AA = Arbitral Awards, CL = Child Labor, CN = Contract Nullification, EXP = Expropriation, IPR = Intellectual Property Rights, MA = Market Access, RPT = Reverse Preferential Treatment, WR = Worker Rights. The column "Action" indicates the actions taken: Loss = Loss of benefits for all imports, Partial Loss = Loss of benefits for certain product categories only, Graduation = Graduation from the GSP program, EU = Loss of benefits due to EU membership, None = No loss of benefits, Ongoing = Ongoing review, Suspended = Request for review formally accepted and suspended, Withdrawn = Request withdrawn. The columns "(Partial) loss from" and "(Partial) loss to" indicate (if applicable) the start and end dates for the (partial) loss of GSP benefits for the beneficiary under review, respectively.

Table A2: Sample Countries

Afghanistan	Ethiopia	Pakistan
Albania	Fiji	Panama
Algeria	Gabon	Papua New Guinea
Angola	Gambia	Paraguay
Antigua and Barbuda	Georgia	Peru
Argentina	Ghana	Philippines
Armenia	Gibraltar	Romania
Azerbaijan	Grenada	Russia
Bahrain	Guatemala	Rwanda
Bangladesh	Guinea	Samoa
Barbados	Guyana	Sao Tome and Principe
Belize	Haiti	Senegal
Benin	Honduras	Serbia
Bhutan	India	Serbia and Montenegro
Bolivia	Indonesia	Seychelles
Bosnia and Herzegovina	Iraq	Sierra Leone
Botswana	Jamaica	Solomon Islands
Brazil	Jordan	Somalia
Bulgaria	Kazakhstan	South Africa
Burkina Faso	Kenya	Sri Lanka
Burma	Kiribati	St Kitts and Nevis
Burundi	Kyrgyzstan	St Lucia
Cabo Verde	Lebanon	St Vincent and the Grenadines
Cambodia	Lesotho	Suriname
Cameroon	Liberia	Tanzania
Central African Republic	Macedonia	Thailand
Chad	Madagascar	Timor-Leste
Colombia	Malawi	Togo
Congo (Brazzaville)	Maldives	Tonga
Congo (Kinshasa)	Mali	Trinidad and Tobago
Costa Rica	Mauritania	Tunisia
Cote d'Ivoire	Mauritius	Turkey
Croatia	Moldova	Turks and Caicos Islands
Djibouti	Mongolia	Uganda
Dominica	Montenegro	Ukraine
Dominican Republic	Morocco	Uruguay
Ecuador	Mozambique	Uzbekistan
Egypt	Namibia	Vanuatu
El Salvador	Nepal	Venezuela
Equatorial Guinea	Niger	Yemen
Eritrea	Nigeria	Zambia
Eswatini	Oman	Zimbabwe

Notes: The table lists all countries that are comprised in the sample for the baseline estimations. Countries above are GSP eligible at the country level and export at least 20 HS 6-digit products to the US throughout at least one entire review episode of 24 months. Not all countries above are GSP eligible at the country level throughout the entire sample period. Besides not all countries export at least 20 HS 6-digit products to the US for all episodes. Hence, they are not necessarily considered for all review episodes. Non-independent beneficiaries are not considered.

Table A3: Different Treatment Thresholds

GSP Eligibilty	(1) ≥80% Trade Values	(2) ≥80% Trade Values	(3) ≥99% Trade Values	(4) ≥99% Trade Values	(5) ≥80% Tariff Lines	(6) ≥80% Tariff Lines	(7) ≥95% Tariff Lines	(8) ≥95% Tariff Lines
Estimator	PPML	OLS	PPML	OLS	PPML	OLS	PPML	OLS
Dependent Variable	Trade	Log Trade	Trade	Log Trade	Trade	Log Trade	Trade	Log Trade
CtryReviewed x Review x GSPeligible	-0.076**	-0.044**	-0.089***	-0.048***	-0.109***	-0.051***	-0.085***	-0.047***
	(0.033)	(0.015)	(0.029)	(0.013)	(0.039)	(0.013)	(0.032)	(0.012)
Observations	4,158,286	4,158,286	12,356,266	4,158,286	12,356,266	4,158,286	12,356,266	4,158,286

Notes: Regressions include all three sets of interactive fixed effects, i.e. episode-country-product, episode-country-month and episode-product-month. For columns 1, 3, 5, 7, the dependent variable contains trade values in levels and zero trade flows are included in the estimations. For columns 2, 4, 6, 8, the dependent variable is the logarithm of trade values and observations with zero trade values are dropped from the sample. Standard errors are clustered at the episode-country-product level and reported in parentheses. Significance at the 1%, 5% and 10% level is indicated by ***, ** and *, respectively.

Table A4: Continuous Treatment

Dimension Heterogeneity	(1) Share Eligible Imports	(2) Share Eligible Imports	(3) Share Eligible Tariff Lines	(4) Share Eligible Tariff Lines	(5) Mean Preference Margin	(6) Mean Preference Margin	(7) Mean Utilization Rate	(8) Mean Utilization Rate
Estimator	PPML	OLS	PPML	OLS	PPML	OLS	PPML	OLS
Dependent Variable	Trade	Log Trade	Trade	Log Trade	Trade	Log Trade	Trade	Log Trade
CtryReviewed x Review x (Share Eligible Imports)	-0.073**	-0.041**						
	(0.036)	(0.016)						
CtryReviewed x Review x (Share Eligible Tariff Lines)			-0.147**	-0.052***				
			(0.068)	(0.012)				
CtryReviewed x Review x (Mean Preference Margin)					-3.814**	-1.214***		
					(1.640)	(0.355)		
CtryReviewed x Review x (Mean Utilization Rate)							-0.081**	-0.071***
							(0.035)	(0.014)
Observations	12,356,266	4,158,286	12,356,266	4,158,286	12,355,900	4,158,207	12,356,266	4,158,286

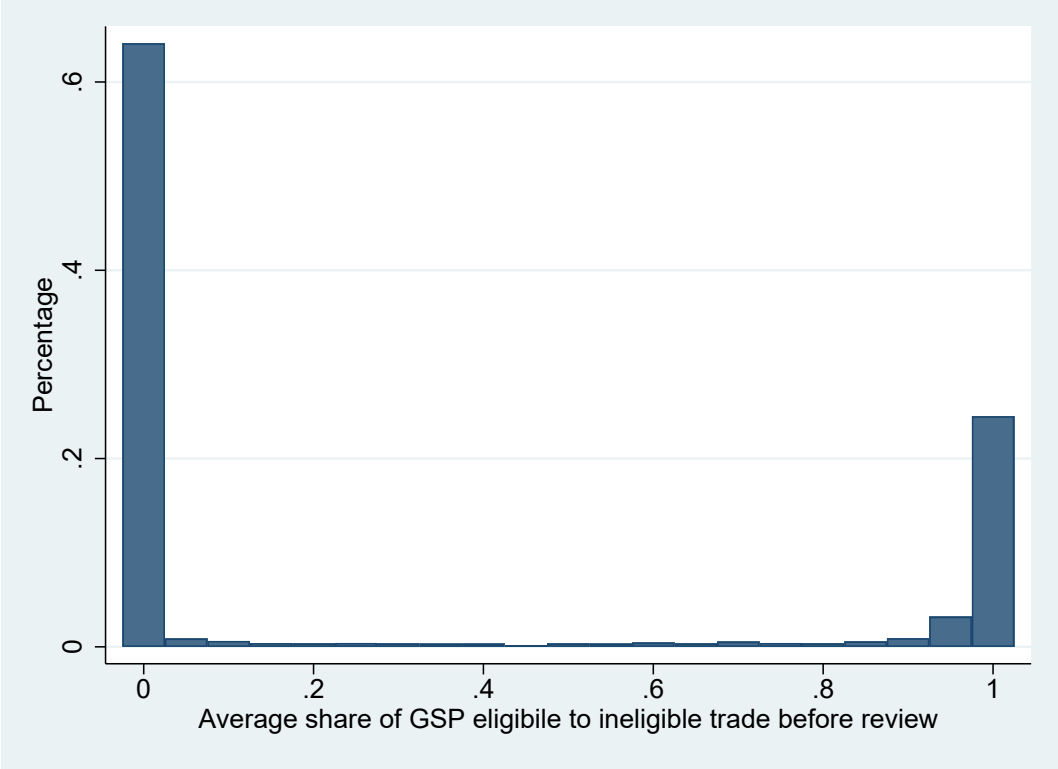
Notes: Regressions include all three sets of interactive fixed effects, i.e. episode-country-product, episode-country-month and episode-product-month. For columns 1, 3, 5, 7, the dependent variable is the logarithm of trade values and zero trade values are dropped from the sample. For columns 2, 4, 6, 8, the dependent variable is trade values in levels and zero trade flows are included in the estimations. Standard errors are clustered at the episode-country-product level and reported in parentheses. Significance at the 1%, 5% and 10% level is indicated by ***, ** and *, respectively.

Table A5: Further Robustness Checks

	(1)	(2)	(3)	(4)
	Incl Short-term Reviews		Non-AGOA Countries	
Estimator	PPML	OLS	PPML	OLS
Dependent Variable	Trade	Log Trade	Trade	Log Trade
CtryReviewed x Review x GSPeligible	-0.081***	-0.033**	-0.082***	-0.044**
	(0.023)	(0.015)	(0.029)	(0.015)
Observations	13,148,157	4,420,117	9,254,877	3,402,371

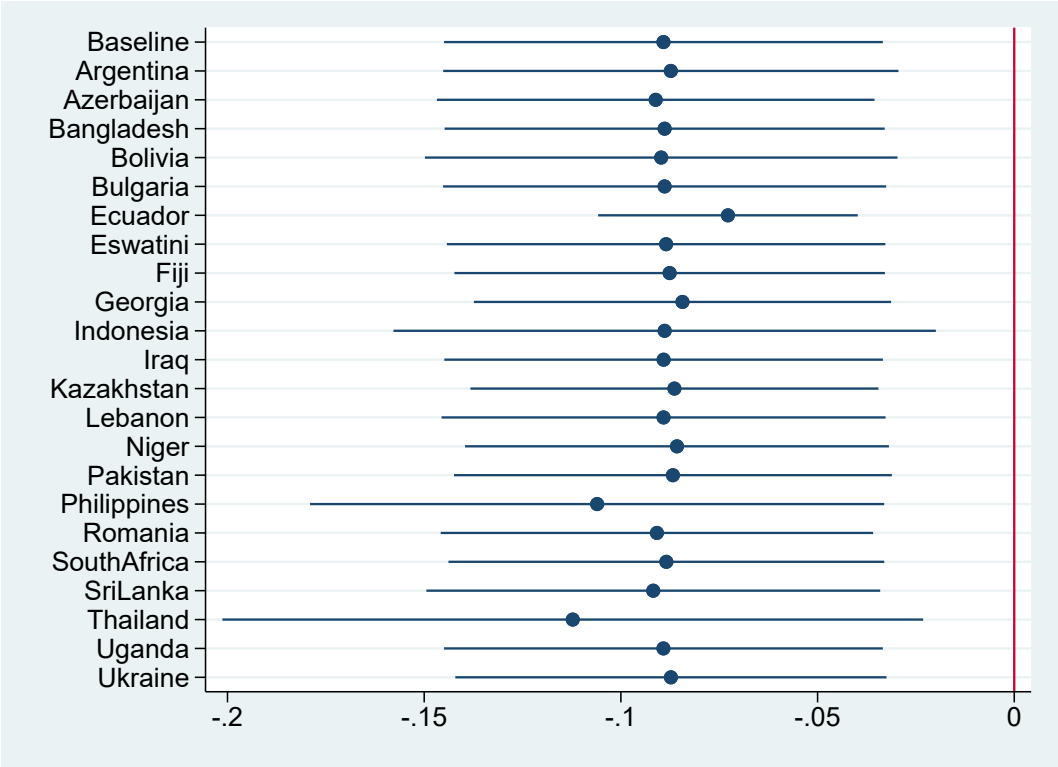
Notes: Regressions include all three sets of interactive fixed effects, i.e. episode-country-product, episode-country-month and episode-product-month. For columns 1 and 3, the dependent variable contains trade values in levels and zero trade flows are included in the estimations. For columns 2 and 4, the dependent variable is is the logarithm of trade values and observations with zero trade values are dropped from the sample. For the regressions in columns 1-2, the review dummies are equal to one also for the three reviews during the sample period that latest less than one year, i.e. the 2001 review of Guatemala (301 days), the 2018 review of Turkey (213 days), the 2018 review of India (326 days). The review of the Dominican Republic initiated in 2001 and the review of Uzbekistan initiated in 2007 have been excluded, as they have already been under review since 2000. For regressions in columns 3-4, I drop all countries that have been eligible for trade preferences under AGOA at any time during the sample period. Standard errors are clustered at the episode-country-product level and reported in parentheses. Significance at the 1%, 5% and 10% level is indicated by ***, ** and *, respectively.

Figure A1: Histogram Positive Trade Flows from Countries under Review



Notes: The histogram above is created using the sample of positive 6-digit trade flows from countries under review per trade-weighted GSP eligibility subcategory. Trade weights are computed as average shares of GSP eligible to total trade in the 12 months before the respective reviews.

Figure A2: Jackknife Re-sampling



Notes: The graph above shows the results of re-sampling following the Jackknife method. Point estimates and 95 percent confidence intervals above are obtained from PPML regressions excluding the country displayed on the vertical axis from treatment.