

Gnangnon, Sèna Kimm

Preprint

Effect of the Utilization of Non-Reciprocal Trade Preferences on Trade Policy in Beneficiary Countries

Suggested Citation: Gnangnon, Sèna Kimm (2023) : Effect of the Utilization of Non-Reciprocal Trade Preferences on Trade Policy in Beneficiary Countries, ZBW - Leibniz Information Centre for Economics, Kiel, Hamburg

This Version is available at:

<https://hdl.handle.net/10419/279825>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

Effect of the Utilization of Non-Reciprocal Trade Preferences on Trade Policy in Beneficiary Countries

Author: Sèna Kimm GNANGNON¹

Manuscript date: November 2023

Abstract

The present article aims to complement the nascent literature on the effect of non-reciprocal trade preferences (NRTPs) on beneficiary countries' trade policies. It has investigated, at the aggregate level, the effect of GSP programs and other trade preference programs provided by the QUAD countries on beneficiaries' trade policies. The analysis has revealed that the utilization of NRTPs is associated with greater trade policy liberalization. As the utilization rate of other trade preferences increases in countries that make simultaneous use of the two NRTPs, the utilization of GSP programs leads to greater reduction of tariffs and regulatory trade barriers, but at a diminishing rate for the latter.

Keywords: Utilization of unilateral trade preferences; Developing countries; QUAD countries; Trade Policies.

JEL Classification: F13; F14; O11.

DISCLAIMER

This is a working paper, which represents the personal opinions of individual staff members and is not meant to represent the position or opinions of the WTO or its Members, nor the official position of any staff members. Any errors or omissions are the fault of the author.

¹ E-mail for correspondence: kgnangnon@yahoo.fr

1. Introduction

Developing countries benefit from unilateral (non-reciprocal) trade preferences (NRTPs) provided by wealthier countries to foster their economic growth and development. NRTPs are part of the special and differential treatment² (S&D) provisions in World Trade Organization (WTO) Agreements and Decisions in favour of developing country Members of the WTO (e.g., Hoekman, 2005; United Nations, 2018; WTO, 2023a). The generalized system of preferences (GSP) programs represent one form of NRTPs. These programs are "generalized, non-reciprocal, non-discriminatory system of preferences in favour of the developing countries, including special measures in favour of the least advanced among the developing countries" (see Grossman and Sykes 2005). These types of NRTPs are legally authorized by the WTO through the Enabling Clause, also referred to as "Differential and More Favourable Treatment, Reciprocity and Fuller Participation of Developing Countries". NRTPs can also take the form of other non-reciprocal trade concessions provided by developed countries, through a special Waiver under the WTO Agreement (see WTO, 2010). It is important to note that while developing countries benefit from preferential treatment for their goods exported to developed countries, least developed countries³ (LDCs) among them enjoy more generous flexibilities⁴ for their export products to developed countries (e.g., United Nations, 2018; WTO, 2023a,b).

The trade effects (including export effects) of NRTPs have been the subject of an important literature⁵ (see also Tobin and Busch, 2019 for the imports effects of NRTPs). However, the trade policy effects of these preferences have been less investigated empirically in the literature. To the best of our knowledge, only one study (Özden and Reinhardt, 2005) has explored empirically the effect of NRTPs on trade policy. Özden and Reinhardt (2005) have focused on the United States' GSP programs and found that GSP programs (or eventually NRTPs in general) can lead beneficiary countries to adopt restrictive trade policies. The present analysis aims to contribute to the literature on the trade policy effects of NRTPs and hence expand the work by Özden and Reinhardt (2005) by examining (at the aggregate level, i.e., at the country level) the trade policy effects of NRTPs, including both GSP programs (henceforth referred to as "GSP") and other NRTPs (henceforth referred to as "OTHER") provided by the "Quadrilaterals" (also referred to as QUAD countries) to developing (beneficiary) countries. The QUAD countries are Canada, the European Union (EU), Japan and the United States of America (US). The focus on the QUAD countries draws from few recent studies on the economic effects of NRTPs (e.g., Gnanon, 2022a,b; 2023a). In addition, QUAD countries were known to be large suppliers of NRTPs to developing countries. While there exist other preference granting countries⁶ than the QUAD countries, the largest data⁷ coverage on the utilization of NRTPs exists only for these four major providers of NRTPs.

The present analysis covers 140 beneficiaries of NRTPs over the annual period from 2002 to 2019, and utilizes the two-step system Generalized Method of Moments (GMM) estimator. In

² S&D treatment provisions in WTO Agreements and Decisions are special flexibilities provided to developing country Members of the WTO for the implementation of WTO Agreements and Decisions, with a view to fostering their integration into the global trading system (WTO, 2023a). See also information online at: https://www.wto.org/english/tratop_e/dda_e/status_e/sdt_e.htm

³ The category of LDCs contains the poorest countries in the world that experience a high frequency and size of environmental and, external economic and financial shocks. Information on LDCs is available online at: <https://www.un.org/ohrrls/content/least-developed-countries>

⁴ LDCs benefit from duty-free and quota free (DFQF) market access for at least 97 per cent of their products that enter developed countries' markets (see WTO, 2005). In addition, developing countries that are in the position to do so, offer generous preferences schemes to products originating from LDCs (WTO, 2005; 2013).

⁵ See for example the brief literature review by Gnanon (2022) as well as by Klasen et al. (2021).

⁶ See the WTO Preferential Trade Arrangements (PTAs) database accessible online at: <http://ptadb.wto.org/default.aspx>

⁷ This database on the utilization of NRTPs is developed by the United Nations Conference on Trade and Development (UNCTAD) and is available online at: <https://gsp.unctad.org/about>

contrast with Özden and Reinhardt (2005) who have focused only on the trade policy effect of the United States' GSP programs, the present empirical analysis has established that over the full sample, the utilization of GSP programs and other trade preferences programs (considered separately) is associated with greater trade policy liberalization. Moreover, in countries that utilize simultaneously GSP programs and other trade preferences, the utilization of GSP programs leads to greater tariffs reduction (including tariffs on all products, primary products, and manufactured products) as the utilization rate of other trade preferences increases. Likewise, in these countries, the utilization of GSP programs is associated with greater reduction of regulatory trade barriers but at a diminishing rate, as the utilization rate of other trade preferences increases.

The rest of the analysis is structured as follows. Section 2 elaborates on the theoretical effects of the utilization of NRTPs on beneficiary countries' trade policies. Section 3 describes the empirical strategy and Section 4 interprets empirical results. Section 5 concludes.

2. Theoretical motivation

At the outset, it is worth noting that NRTPs cover GSP programs and other trade preference programs.

Intuitively, one could expect that governments of countries that benefit from NRTPs could resist lobby pressures in favour of trade protectionism measures, and liberalize their trade regimes if they wished to encourage the utilization of NRTPs by domestic firms. This would particularly be the case exporting firms that intend to make use of those NRTPs rely on imported intermediate inputs to produce goods exported under these preference schemes. This is because raising applied tariffs on intermediate inputs can undermine export performance and discourage the utilization of NRTPs (e.g., Collier and Venables, 2007; Feng et al., 2016; Hayakawa et al. 2020; Milner, 1988; Mukherjee and Chanda, 2021). For example, Feng et al. (2016) have used Chinese manufacturing firms data to show empirically that firms that expanded their intermediate input imports also enjoyed an expansion of the volume and scope of their exports, and these effects were the largest when the imported inputs were purchased by private firms or firms that started out as non-traders. Moreover, intermediate imported inputs sourced from the higher-income G7 countries were particularly helpful in enhancing firms' exports to the presumably more-demanding G7 export markets. Hayakawa et al. (2020) have established empirically a new mechanism through which reductions in import tariffs result in export expansions. They have shown that a 1% reduction in an importer's tariffs generates a rise in the import freight rates by around 0.8%, a fall in the export freight rates by around 1.1%, and an increase in the export quantity by 0.6% to 1%. Likewise, Mukherjee and Chanda (2021) have used data on Indian manufacturing firms to obtain empirically that tariff reductions on final goods have resulted in lowered markups for these firms, while lower input tariffs have increased their markups. It is worth noting that tariff liberalization on intermediate inputs has benefited more to markups of large firms as opposed to Micro, small and medium-sized enterprises.

In light of the foregoing, one could expect, in the first instance, that ***a higher utilization of NRTPs (either GSP programs or other trade preference programs) would be associated with greater trade policy liberalization, including through lowering tariffs, and non-tariff policy barriers (hypothesis 1).***

On the other hand, the work by Özden and Reinhardt (2005) provides an insight into the possibility that the utilization of NRTPs may result in the adoption of trade protectionism measures. In fact, based on a large set of developing countries (154 developing countries), Özden and Reinhardt (2005) have uncovered empirically that countries that were excluded from the entitlement to the United States' GSP program tended to adopt more liberal trade policies than countries that continued to benefit from this program. The authors have offered two explanations for this negative effect of the United States GSP program on beneficiary countries' trade policies.

The first one is that these programs may have provided dis-incentives to the beneficiary countries' export groups to exert political pressures for trade liberalization, thereby offering the opportunity to import-competing groups to lobby for protectionist measures. The second explanation is that the eligibility to the United States GSP program is influenced by traditional protectionist pressures in the donor-country, especially because there were no GATT legal constraints. Overall, the adverse effect of the United States' GSP program on beneficiary countries' trade policies is a combination of domestic political economy dynamics within both developing countries and preference-granting countries (i.e., wealthier countries). Özden and Reinhardt (2005) have concluded that "*developing countries may be best served by full integration into the reciprocity-based world trade regime rather than continued GSP-style preferences*".

If this finding by Özden and Reinhardt (2005) were to apply to all types of NRTPs, i.e., both GSP programs and other trade preference programs, then one can argue that exporting firms in the beneficiary countries that use imported intermediate goods may end up bearing higher production costs due to increased trade barriers (for example, tariffs) on intermediate inputs sourced from overseas. While trade policies implemented by WTO members are constrained by WTO rules, members whose bound⁸ tariffs exceed the applied tariffs still have the possibility (from the WTO law perspective) to raise their applied tariffs. In line with the findings by Özden and Reinhardt (2005), Hoekman (2005) has stressed that NRTPs have led to significant discrimination among developing countries, and incentivized beneficiary countries to oppose MFN-based trade liberalization, thereby creating less certainty and predictability of trade policy. Similarly, in a related work, Conconi and Perroni (2015) have explored the theoretical rationale for WTO rules on special and differential treatment⁹ (S&D) for developing countries. They have developed a model of bilateral trade between a small country and a large trading partner, where the small country lacks the credibility in terms of commitment to trade policy liberalization. This weak domestic commitment in trade policy arises from the fact that investors in the import-competing sector lobby the government to enact and maintain protectionist policies. They have, then, shown that a reciprocal trade agreement where the large country reduces its tariffs conditionally on the small country moving in the same direction, creates a 'carrot and stick' mechanism that helps the small country to overcome its commitment problem concerning trade policy liberalization. As a result, S&D provisions in the WTO Agreements can help developing countries liberalize and improve their trading prospects if they are reconciled with the principle of reciprocity.

In a more recent study, Tobin and Busch (2019) have provided empirical support for the hypothesis that GSP programs exert a negative effect on beneficiary countries' trade by reducing their imports, when beneficiary countries become GATT/WTO Members. This is explained by the fact that exporters in GSP beneficiary countries that become GATT/WTO members demobilize politically because the multilateral trade regime lessens their concern for ad hoc conditionality¹⁰ (their access to the markets of preference-granting countries is not subject to trade liberalization at home). This leads to greater trade protectionism and reduced imports, which may be a disadvantage for WTO members compared to non-WTO members in terms of the utilization of NRTPs.

⁸ Negotiated bound tariffs levels are the highest levels of tariffs that a WTO member commits not to exceed, and that are charged on other WTO members.

⁹ S&D treatment provisions in WTO Agreements and Decisions are special flexibilities provided to developing country Members in WTO Agreements and Decisions for the implementation of WTO Agreements and Decisions, with a view to fostering their integration into the global trading system (WTO, 2023a). See also information online at: https://www.wto.org/english/tratop_e/dda_e/status_e/sdt_e.htm

¹⁰ The GATT/WTO makes GSP non-discriminatory, not that GSP, by itself, is non-reciprocal. In the event a NRTP is conditioned upon the respect by a beneficiary country for intellectual property or workers' rights, its exporters will have to lobby on a wide variety of commercial and foreign policies. As the membership in the GATT/WTO makes the effect of non-reciprocity (of trade preferences) more credible, it will incentivize exporters to demobilize more fully.

Against this backdrop, *one can postulate, in the second instance, that a higher utilization of NRTPs may result in a lesser extent of trade liberalization in the beneficiary country (hypothesis 2).*

Therefore, the net effect of the utilization of NRTPs on the beneficiary countries' trade policy is an empirical matter.

3. Empirical strategy

This section first presents the model specification used to address empirically the subject matter under analysis (sub-section 3.1). Then, it provides a brief presentation of data on the main variables in the analysis, including trade policy indicators, and indicators of the utilization of NRTPs, both GSP and other preference programs (sub-section 3.2). Finally, it briefly discusses the econometric approach used to carry out the empirical analysis (sub-section 3.3).

3.1. Model specification

To investigate empirically the effect of the utilization of NRTPs on trade policy in developing countries, we draw from the extensive literature on the macroeconomic determinants of trade policy (e.g., Ancharaz, 2003; Aggarwal, 2004; Esfahani and Squire, 2006; Fukumoto and Kinugasa, 2017; Gnanngnon, 2018, 2021, 2023b; Milner and Kubota, 2005; Svaleryd and Vlachos, 2002; Rose, 2013). We consider a parsimonious model where the dependent variable is an indicator of trade policy, and where the main explanatory variables of interest are the indicator of the utilization rate of GSP programs (denoted "URGSP") and the indicator of the utilization rate of other trade preference programs (denoted "UROTP"). The control variables are the real per capita income ("GDPC") as a proxy for the development level; the duration¹¹ of membership in the GATT/WTO ("DUR"); the institutional and governance quality ("INST") and the structure of the population captured through the share (in percentage) of the population aging 15-64 in the total population ("SHPOP1564") and the share (in percentage) of the population aging 65 and above of the total population ("SHPOP65") (see Fukumoto and Kinugasa, 2017).

Based on previous works, the effect of the real per capita income on trade policy may be mixed, but there seems to be a tendency for a positive effect of the real per capita income on trade policy liberalization. We expect that a higher duration of membership in the GATT/WTO would be associated with greater trade policy liberalization (Gnanngnon, 2023b). The share of the working-age population (and the share of the population aging higher than 65 years old) is associated with greater trade openness (Fukumoto and Kinugasa, 2017), and potentially with greater trade policy liberalization.

The baseline model specification takes the following form:

$$TRPOL_{it} = \alpha_1 TRPOL_{it-1} + \alpha_2 URGSP_{it} + \alpha_3 UROTP_{it} + \alpha_4 \text{Log}(GDPC)_{it} + \alpha_5 INST_{it} + \alpha_6 SHPOP1564_{it} + \alpha_7 SHPOP65_{it} + \alpha_8 DUMOUT_{it} + \mu_i + \gamma_t + \omega_{it} \quad (1)$$

The subscript i represents a country and the subscript t stands for a time-period. The panel dataset used to estimate this model is unbalanced and covers 140 countries that are beneficiaries of NRTPs, and the period from 2002 to 2019. To limit the effect of business cycles on variables at hand, while also obtaining medium-term effects, we use non-overlapping sub-periods of 3-year

¹¹ In the present analysis, we do not use the variable capturing the membership in WTO because the time span of the analysis is relatively short (a significant number of WTO Members joined the WTO before 2002). In addition, and more importantly, a dummy variable capturing the membership in WTO would not take into account the difference among developing countries in terms of time spent at the WTO as Member of the WTO. Longstanding WTO Members might have taken, all things being equal, greatly advantage of the WTO network, implement WTO rules, while mitigating trade liberalization costs – relatively to new WTO Members. The duration of WTO membership is definitely the appropriate variable, which captures not only the membership in the WTO but also the duration of this membership.

averages for all variables in model (1). These sub-periods are 2002-2004, 2005-2007; 2008-2010; 2011-2013, 2014-2016 and 2017-2019. The parameters α_1 to α_8 are to be estimated. μ_i represent countries' time invariant specific effects; γ_t represent global factors that affect simultaneously all countries' trade policy. ω_{it} is an error term.

The dependent variable "TRPOL" is measured using different indicators: the applied tariff rate (in percentage) for all products (weighted mean) (denoted "TARIFF"); the applied tariff rate (percentage) for primary products (weighted mean) (denoted "TARIFFPRIM"); the applied tariff rate (in percentage) for manufactured products (weighted mean) (denoted "TARIFFMAN"); and the indicator of regulatory trade barriers (denoted "REGTP") covers tariff barriers and non-tariff trade policy barriers along with compliance costs of importing and exporting. The indicator of regulatory trade barriers is computed by the Fraser Institute¹². Higher values of the tariff indicators reflect higher tariffs. The values of the indicator of regulatory trade barriers range between 0 and 10, with higher values reflecting lower regulatory trade barriers, i.e., greater liberalization (i.e., removal) of regulatory barriers.

As noted above, we draw from few recent studies on the effects of NRTPs (e.g., Gnanngnon, 2022a,b; 2023) and focus on the utilization of the NRTPs provided by the QUAD countries (Canada, the EU, Japan and the US). The introduction of the one-period lag of the dependent variable as a regressor follows from recent studies that underline the state-dependence nature of trade policies (e.g., Gnanngnon, 2018, 2023b). This helps also account for omitted variables, such as the indicator of the utilization rate of other NRTPs.

The first main explanatory variable of interest is "URGSP". It represents the utilization rate of unilateral trade preferences under the GSP schemes provided by the QUAD countries. It captures the extent to which imports (by preference-granting countries from beneficiaries of GSP programs) which are eligible for trade preferences are actually imported under these preferences (e.g., WTO, 2016). This indicator has been computed using a formula adopted both by the WTO (see WTO, 2016) and the UNCTAD and which goes as follows: $URGSP = 100 * (\text{GSP Received Imports}) / (\text{GSP Covered Imports})$, where "GSP received imports" refers to the value of imports (by all preference-granting countries) that received GSP treatment, and "GSP covered imports" indicates the value of imports (by preference-granting countries), i.e., exports by beneficiary countries that are classified in dutiable tariff lines covered by the GSP scheme of the preference-granting country. The values of the indicator "URGSP" range between 0 and 100, with higher values indicating a greater utilization rate of GSP programs.

The second main explanatory variable of interest is "UROTP". It represents the utilization rate of other trade preferences than the GSP programs provided by the QUAD countries to developing countries. This indicator has been calculated using a formula similar to the one used to compute the indicator "USGSP". The formula goes as follows: $UROTP = 100 * (\text{Other-Preferential Imports}) / (\text{Other Preferential Covered Imports})$, where "Other-Preferential Imports" refers to the value of imports (by preference-granting countries) that benefitted from NRTPs other than GSP and under selected Economic Partnership Agreements that the EU has entered with some African countries. "Other-Preferential Covered Imports" refers to the value of imports (by preference-granting countries) that are classified in tariff lines that are dutiable and covered by the other-preferential schemes. The values of the indicator "UROTP" range between 0 and 100, with higher values indicating greater utilization rate of other trade preferences programs. Detailed information on the indicators "URGSP" and "UROTP" is available over the Internet at: <https://gsp.unctad.org/about>

The variable "DUMOUT" is a dummy outlier that captures outliers in the panel dataset (see section 3.2. below).

¹² Details on the computation of this indicator could be found online at: <https://www.fraserinstitute.org/sites/default/files/economic-freedom-of-the-world-2023.pdf>

The description and source of all variables, including control variables in model (1) are presented in Appendix 1. Descriptive statistics on these variables are displayed in Appendix 2. Appendix 3 contains the list of the 140 countries in the full sample, and the 35 LDCs contained in the full sample that will be utilized later in the analysis.

3.2. Data analysis

Figure 1 shows how the indicators of the utilization rate of NRTPs, the applied tariff rate (weighted mean) for all products and regulatory trade policy had evolved over the full sample, and the period under analysis (2002-2019). Figure 2 displays the correlation patterns in the form of scatter plot between these indicators respectively over the full sample, the sub-sample of LDCs, and the sub-sample of NonLDCs.

[Insert Figure 1, here]

We note from Figure 1 that both the utilization rate of GSP programs, and the utilization rate of other trade preferences increased steadily, especially from 2005-2007 to 2017-2019, with the former being consistently higher than the latter. In the meantime, the average applied tariff rates over all products declined from 2002-2004 to 2014-2016 (reflecting a tendency for tariff liberalization), and increased between 2014-2016 and 2017-2019. Concurrently, regulatory trade policy fluctuated over the entire period. It improved (i.e. non-tariff policies were liberalized) between 2002-2004 and 2008-2010, and was then slightly restricted between 2008-2010 and 2011-2013. Again, non-tariff trade policies were liberalized between 2014-2016, and were restricted until the end of the period.

[Insert Figure 2, here]

[Insert Figure 3, here]

[Insert Figure 4, here]

We observe from Figure 2 the absence of clear correlation patterns between the indicators of utilization of NRTPs and trade policy indicators over the full sample. In contrast, Figure 3 shows (for LDCs) that the average tariffs on all products are slightly negatively correlated with the indicators of utilization of NRTPs, while the correlation patterns between the indicator of regulatory trade policy and the indicators of the utilization of NRTPs are positive. In other words, for LDCs, tariff liberalization and the fall in regulatory trade barriers are positively correlated with the indicators of the utilization of NRTPs. For NonLDCs, lower regulatory trade barriers are negatively associated with the indicators of the utilization of NRTPs, while higher average tariffs tend to be positively correlated with the indicators of the usage of NRTPs (see Figure 4).

Incidentally, Figures 2 to 4 show the presence of some outliers that are captured through the dummy "DUMTARIFF" for tariff indicators, and the dummy "DUMREG" for the indicator of regulatory barriers in the baseline model (1) (i.e., the dummy outlier "DUMOUT" could be "DUMTARIFF" when the dependent variable is "TARIFF", "TARIFFPRIM" or "TARIFFMAN", and "DUMREG" when the dependent variable is "REGTP").

3.3. Econometric approach

We estimate the dynamic model (1) by means of the two-step system GMM estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998) and that has now been extensively used in the empirical macroeconomic literature. This estimator does not address only unobserved country heterogeneity, measurement errors¹³, but it also allows handling other problems such as the potential endogeneity concerns due to the bi-directional causality between

¹³ This is for example the fact that model (1) does not include an indicator of other NRTPs than the ones supplied by non-QUAD preference-granting countries.

regressors and the dependent variable, the potential correlation¹⁴ between the lagged dependent variable and the fixed effects in the error term, and the endogeneity problem stemming from omitted variable biases. The two-step system GMM estimator is more efficient than the difference GMM estimator¹⁵ of Arellano and Bond (1991) to address the endogeneity problems highlighted above. This is because the difference GMM estimator suffers from sample bias (and generates weak instruments) when the time dimension of the panel is small, and time series (including the dependent variable) display a high degree of persistence over time (e.g., Alonso-Borrego and Arellano, 1999; Bond, 2002). More specifically, the two-step system GMM estimator reduces the imprecision and potential bias associated with the use of the difference GMM estimator by allowing to utilize lagged levels and lagged differences of variables as instruments. In so doing, it improves the consistency and efficiency of the estimates.

In the empirical analysis, in view of their potential endogeneity (owe to the bi-directional causality), the following variables are treated as endogenous in the analysis: the variable capturing the utilization rate of both GSP programs, the variable capturing the utilization rate of other trade preferences, the membership duration in the GATT/WTO, the real per capita income, and the institutional and governance quality. Conversely, the variables representing the share of the working-age population and the share of elderly population (in total population) are considered as exogenous in the regressions. The appropriateness of the use of the two-step GMM estimator in the analysis, that is the correctness of the different specifications of model (1) that will be estimated later, is evaluated by relying on three tests, which are the Arellano-Bond test of first-order serial correlation in the first-differenced error term (denoted AR(1)), the Arellano-Bond test of the absence of second-order autocorrelation in the first-differenced error term (denoted AR(2)), and the Sargan/Hansen test of over-identifying restrictions (OID). The latter test permits to test the joint validity of the instruments utilized in the regressions. A model is correctly specified if we are able to reject the null hypothesis of absence of first-order serial correlation in the first-differenced error term (for the AR(1) test¹⁶), and if we fail to reject the null hypotheses of the two other tests, that is, the AR(2) test¹⁷ (i.e., absence of second-order correlation in the first-differenced error term), and OID test¹⁸, which concerns the validity of the internal instruments used in the regressions. To avoid the concern of instruments proliferation, we follow the rule of thumb that requires that the number of instruments be lower than the number of countries (e.g., Roodman, 2009). To that end, we use two lags of the dependent variable and two lags of endogenous variables to generate internal instruments in our regressions.

We use the two-step system GMM estimator to estimate model (1) (as it stands) as well as several variants of this model (described below) where the dependent variable "TRPOL" is measured by the indicators "TARIFF", "TARIFFPRIM"; "TARIFFMAN" and "REGTP".

The outcomes of the estimation of model (1) as it stands, are reported in Table 1. In Table 2, we provide the estimates obtained from the estimation of a variant of model (1) that allows examining the effect of the utilization rate of NRTPs on trade policy in LDCs versus NonLDCs, given that LDCs enjoy greater preferential treatment for their export products than NonLDCs, among developing countries.

¹⁴ As the time dimension of the panel dataset is small (i.e., $T = 6$ years), the correlation between the lagged dependent variable and the fixed effects in the error term would lead to biased estimates (Nickell bias - Nickell, 1981) if the dynamic models were to be estimated by means of the pooled ordinary least squares or the within fixed effects estimator.

¹⁵ The difference GMM estimator wipes out countries' fixed effects and uses lags of variables as instruments of endogenous variables.

¹⁶ The p-value of the AR(1) test should be lower than 0.10 at the 10% level of statistical significance.

¹⁷ The p-value related to the AR(2) test needs to be higher than 0.10 at the 10% level of statistical significance.

¹⁸ The p-value of the OID test of over-identifying restrictions needs to be higher than 0.10 at the 10% level of statistical significance.

Results in Tables 1 and 2 allow examining the effect of the utilization of GSP programs and other trade preference programs considered separately. In Table 3, we report the estimation's outcomes that allow assessing how the utilization of both GSP programs and other trade preferences programs affect trade policy in beneficiary countries. In other words, results in Table 3 allow testing how the utilization of GSP programs and the utilization other trade preferences interact in influencing trade policy in beneficiary countries. These outcomes are obtained by estimating a variant of model (1) that includes the interaction between the indicators "URGSP" and "UROTP".

4. Interpretation of empirical outcomes

We note from Tables 1 to 3 that the coefficients of the one-period lagged dependent variable are always positive and significant at the 1% level, thereby confirming the state dependence nature of trade policy indicators, as found in previous studies. The outcomes of the diagnostic tests reported at the bottom of Tables 1 to 3 help assess the correctness of the different specifications of model (1) whose results are reported in these three Tables. We find that all requirements for these models to be correctly specified, are all met. This suggests that all model specifications estimated in the present analysis are well defined, and that the two-step system GMM estimator is appropriate for carrying out the empirical analysis.

Now, we can interpret estimates relating to our main variables of interest as well as control variables. We find in Table 1 that a higher utilization rate of GSP programs affects negatively and significantly (at the 1% level) the average tariffs on all products (see column [1]), and particularly the average tariffs on manufactured products (see column [3]). Meanwhile, there is no significant effect (at the conventional significance levels) of the utilization rate of other trade preference programs on the average tariff on primary commodities (see column [2]). In terms of the scale of the effects, we obtain that doubling the utilization rate of GSP programs (i.e., an increase in the utilization rate of GSP programs by 100 per cent) leads to a fall in the average tariffs on all products by 0.888 percentage point, and particularly in the decline of the average tariffs on manufactured products by 1.15 percentage point.

As for the effect of the utilization rate of other trade preference programs on trade policy indicators, we observe that such effect on the average tariffs on all products is not significant (at least at the 10% level) (see column [1]). However, this outcome reflects the fact that the utilization rate of other trade preference programs exerts a positive and significant effect (at the 1% level) on the average tariff on primary commodities (see column [2]), and a negative and significant effect (at the 5% level) on the average tariff on manufactured products (see column [3]). A rise in the utilization rate of other trade preference programs by 100 per cent is associated with an increase in the average tariffs on primary products by 1.45 percentage point, and with a fall in the average tariff on manufactured products by 0.6 percentage point. These positive and negative effects of the utilization of other trade preferences respectively on the average tariffs on primary products, and the average tariffs on manufactured products suggest that countries that improve the utilization of other trade preferences tend to discourage the import of primary products (perhaps to allow domestic producers that use them as intermediate inputs to have easier and cheaper access to those products) and encourage the import of manufactured products (through lower tariffs on manufactured goods), for example, machinery and equipment needed to produce higher value-added exportable goods.

Outcomes in column [4] of the Table indicate that at the 1% level, a higher utilization rate of both types of NRTPs, that is, GSP programs and other trade preference programs, is associated with a decline in regulatory trade barriers. Specifically, an increase in the utilization rate of GSP programs by 100 per cent leads to an increase in the value of the indicator of regulatory trade barriers by 3.13 points, i.e., a greater trade liberalization by 3.13 points. Likewise, an increase in the

utilization rate of other trade preference programs by 100 per cent is associated with an increase in the value of the indicator of regulatory trade barriers by 3.56 points.

[Insert Table 1, here]

Overall, results in Table 1 suggest that countries that improve their utilization rate of GSP programs experience a reduction of the average tariffs on all products (and specifically lower tariffs on manufactured products), while countries that enjoy an increase in the utilization rate of other trade preference programs tend to raise (on average) tariffs on primary commodities and reduce tariffs on manufactured products. At the same time, the utilization of both types of NRTPs lead to lower regulatory trade barriers, that is, greater trade liberalization.

Results relating to control variables in Table 1 indicate that an improvement in the real per capita income is associated with lower tariffs on all products (see column [1]), and specifically tariffs on primary commodities (see column [2]), whereas it exerts no significant effect on tariff on manufactured products (see column [3]). At the same time, we observe that as countries enjoy a higher real per capita income, they tend to increase their regulatory trade barriers, eventually non-tariff barriers, either to achieve legitimate objectives or as a way to implement disguised protectionist measures (see column [4]). On the other hand, the improvement in the institutional and governance quality tends to be associated with higher average tariffs on all products (see column [1]), and specifically higher tariffs on primary commodities (see column [2]), but it exerts no significant effect on tariff on manufactured products (see column [3]). Concurrently, an improvement in the quality of governance and institutions leads to a reduction of regulatory trade barriers, that is, possibly non-tariff barriers. The share of the working-age population does not affect significantly (at the 10% level) tariff policies (see columns [1] to [3]), but it also induces lower regulatory trade barriers only at the 10% level. Finally, a higher duration of membership in the GATT/WTO and an increase in the share of the elderly population in total population are associated with greater trade policy liberalization (see columns [1] to [4]). It is important to note that the outcomes of control variables in Tables 2 and 3 are in general, consistent with those in Table 1.

[Insert Table 2, here]

Outcomes in Table 2 show that compared to NonLDCs, an increase in the utilization of GSP programs in LDCs induces greater reduction of average tariffs on all products (see column [1]), greater reduction of average tariffs on primary products (see column [2]), and greater fall in regulatory trade barriers (see column [4]). However, the utilization of GSP programs is associated with the same extent of fall in average tariffs on manufactured products in LDCs and NonLDCs (see column [4]). For LDCs, the net effects of the utilization rate of GSP programs on the different trade policy indicators (average tariffs on all products, average tariffs on primary products, average tariffs on manufactured products and regulatory trade barriers) amount respectively to -0.0202; -0.0325 ($=+0.0177-0.0502$); -0.007; and 0.0082 ($= 0.00211 +0.00605$). Thus, an improvement in the utilization rate of GSP programs in LDCs leads to greater trade liberalization, including lower tariffs on all products, especially lower tariffs on primary products and lower tariffs on manufactured products, as well as greater reduction in regulatory trade barriers.

For NonLDCs, the net effects of the utilization rate of GSP programs on the different trade policy indicators (average tariffs on all products, average tariffs on primary products, average tariffs on manufactured products and regulatory trade barriers) amount respectively to 0; +0.0177; -0.007; and 0.0021. These outcomes indicate that an improvement in the utilization rate of GSP programs in NonLDCs does not affect the average tariffs on all products, but is associated with lower tariffs on manufactured products and higher tariffs on primary products. It results in greater reduction in regulatory trade barriers.

Consistent with the findings in column [1] of Table 1, there is no significant effect of the utilization of other trade preferences on tariffs on all products in both LDCs and NonLDCs. Compared to NonLDCs, the utilization of other trade preferences by LDCs exerts a higher

negative effect on the average tariff on primary products, and a higher positive effect on the average tariffs on manufactured products. The utilization of other trade preferences affects equally regulatory trade barriers in LDCs and NonLDCs, that is, it leads to lower regulatory trade barriers in both LDCs and NonLDCs. For LDCs, the net effects of the utilization rate of other trade preference programs on the different trade policy indicators (average tariffs on all products, average tariffs on primary products, average tariffs on manufactured products and regulatory trade barriers) amount respectively to 0; -0.02 ($=+0.0166-0.0367$); +0.011; and 0.0035. These outcomes suggest that the utilization of other trade preferences by LDCs exerts no significant effect on the average tariffs on all products, is associated with lower tariffs on primary products as well as regulatory trade barriers, but tends to be associated with higher tariffs on manufactured products.

For NonLDCs, the net effects of the utilization rate of other trade preference programs on the different trade policy indicators (average tariffs on all products, average tariffs on primary products, average tariffs on manufactured products and regulatory trade barriers) amount respectively to 0; +0.0166; +0.011; and 0.0035. It, therefore, appears that the utilization of other trade preferences by NonLDCs exerts no significant effect on the average tariffs on all products, but is associated with higher tariffs on primary products, and on manufactured products. However, it tends to be associated with lower regulatory trade barriers (this reflects a higher negative fall in non-tariff policy barriers than tariffs might have increased).

[Insert Table 3, here]

Results in columns [1] to [3] of Table 3 show that the interaction term of the variable " $(URGSP*UROTP)$ " is negative and significant at the 1% level. At the same time, the coefficient of the variable " $UROTP$ " is significant at least at the 5% level only in column [2]. Based on these outcomes, we can deduce that at the 5% level, for countries that use simultaneously the two types of NRTPs, the effects of GSP programs on tariffs on all products, and on tariffs on manufactured products are consistently negative as the utilization rate of other trade preferences programs increases. The magnitude of these negative effects are greater, the higher the utilization rate of other trade preferences. Similarly, for countries that use simultaneously the two types of NRTPs, the utilization of GSP programs leads to lower tariffs on primary commodities when the utilization rate of other trade preferences programs exceeds 51.46 per cent ($= 0.0176/0.000342$): above this threshold, the higher the utilization rate of other trade preferences, the greater the reduction of tariffs on primary commodities. Figures 5 to 7 display, at the 95 per cent confidence intervals, the marginal impact of the utilization rate of GSP programs respectively on the average tariffs on all products, the average tariffs on primary products, and the average tariffs on manufactured products, for varying utilization rates of other trade preference programs. It appears that the three Figures show similar patterns, in particular that for lower rates of the utilization of other trade preferences, the marginal is statistically nil. However, the marginal impact becomes negative and statistically significant for higher utilization rates of other trade preferences, with the magnitude of this negative effect becoming higher as the utilization rate of other trade preferences exceeds a certain level. The rate of the utilization of other trade preferences above which the marginal impact of GSP programs on the three tariff indicators becomes negative (or below which this marginal impact is statistically nil) is 23.51 per cent, 50.93 per cent, and 17.63 per cent when the tariff indicator is respectively the average tariffs on all products, the average tariffs on primary products, and the average tariffs on manufactured products.

Outcomes in column [4] of Table 3 suggest that the coefficient of the interaction variable " $(URGSP*UROTP)$ " is negative, while the coefficient of the variable " $URGSP$ " is positive, both coefficients being significant at the 1% level. Figure 8 provides, at the 95 per cent confidence intervals, the marginal impact of the utilization rate of GSP programs on regulatory trade barriers for varying rates of utilization of other trade preferences. It appears from this Figure that the marginal impact of the utilization rate of GSP programs on regulatory trade barriers decreases as the utilization rates of other trade preferences programs increases, but it is not always statistically

significant. It is statistically significant for utilization rates of other trade preferences programs lower than 58.76 per cent. Hence, for countries whose utilization rates of other trade preferences are less than 58.76 per cent, the marginal impact of the utilization rate of GSP programs on regulatory trade barriers is positive and significant, and the lower the utilization rates of other trade preferences, the higher is the magnitude of this positive marginal impact, that is, the greater trade policy liberalization. Conversely, for countries whose utilization rates of other trade preferences exceed 58.76 per cent, there is no significant effect of the marginal impact of the utilization rate of GSP programs on regulatory trade barriers.

To recall, the indicator of regulatory trade barriers covers tariffs and nontariff barriers. As a result, compared to previous findings from Figures 5 to 7, the findings from Figure 8 may suggest that the usage of GSP programs tends to lead to lower tariffs (on all products, including primary and manufactured products) but to higher nontariff barriers (the increase in nontariff barriers may exceed tariff barriers) as the utilization rates of other trade preferences increase.

5. Conclusion

This article has investigated, at the aggregate level, the effect of unilateral trade preferences supplied by wealthier countries to developing countries on the latter's trade policies. It has used data on 140 beneficiary countries of non-reciprocal trade preferences supplied by QUAD countries (Canada, the European Union, Japan and the United States) over the period from 2002 to 2019. The analysis has used two main NRTPs, including GSP programs and other trade preferences.

Estimations' outcomes obtained using the two-step system GMM estimator have revealed that over the full sample, the utilization of GSP programs and of other trade preference programs, considered separately, is associated with greater trade policy liberalization, including lower average tariffs on all products, lower average tariffs on primary products, lower average tariffs on manufactured products, and lower regulatory trade barriers (the latter covering both tariffs and nontariff barriers). Furthermore, the utilization of GSP programs exerts a negative effect on regulatory trade barriers in both LDCs and NonLDCs, with the magnitude of this negative effect being larger in LDCs than in NonLDCs. Concurrently, the utilization of other trade preferences leads to the same extent of fall in regulatory trade barriers in LDCs and NonLDCs alike. The effect of the utilization of each of these two NRTPs on tariff policies is mixed in LDCs and NonLDCs. Results have also shown that in countries that utilize simultaneously GSP programs and other trade preferences, the usage of GSP programs leads to greater tariffs reduction (including tariffs on all products, primary products, and manufactured products) as the utilization rate of other trade preferences increases. Likewise, in these countries, the utilization of GSP programs leads to greater reduction of regulatory trade barriers but at a diminishing rate, as the utilization rate of other trade preferences increases.

The present analysis contribute to the nascent literature on the effect of unilateral trade preferences provided to developing countries on the latter's trade policies. In contrast with Özden and Reinhardt (2005) who have found that the utilization of NRTPs may result in the adoption of trade protectionism measures, the present analysis has shown that the utilization of NRTPs provided by QUAD countries can promote trade liberalization in beneficiary countries, although the effect varies in LDCs and NonLDCs.

The limitation of the analysis is its focus on QUAD countries, based on data available. Future studies may expand the present analysis when data on unilateral trade preferences supplied by wealthier countries to developing countries is available for many other preference-granting countries than QUAD countries, over a long period of time.

References

- Aggarwal, A. (2004). Macroeconomic Determinants of Antidumping: A Comparative Analysis of Developed and Developing Countries. *World Development*, 32(6), 1043-1057.
- Alonso-Borrego, C., and Arellano, M. (1999). Symmetrically normalized instrumental-variable estimation using panel data. *Journal of Business & Economic Statistics*, 17(1), 36-49.
- Ancharaz, V. D. (2003). Determinants of Trade Policy Reform in Sub-Saharan Africa. *Journal of African Economies*, 12(3), 417-443.
- Arellano, M., and Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58(2), 277-297.
- Arellano, M., and Bover, O. (1995). Another look at the instrumental variable estimation of error components models. *Journal of econometrics*, 68(1), 29-51.
- Blundell, R., and Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), 115-143.
- Bond, S. (2002) Dynamic panel data models: A guide to micro data methods and practice. *Portuguese Economic Journal*, 1, 141-162.
- Collier, P., and Venables, A. J. (2007). Rethinking Trade Preferences: How Africa Can Diversify its Exports. *The World Economy*, 30(8), 1326-1345.
- Conconi, P., and Perroni, C. (2015). Special and Differential Treatment of Developing Countries in the WTO. *World Trade Review*, 14(1), 67-86.
- Darvas, Z. (2012a). Real effective exchange rates for 178 countries: a new database. Working Paper 2012/06, Bruegel, Belgium.
- Darvas, Z. (2012b). Compositional effects on productivity, labour cost and export adjustment. Policy Contribution 2012/11, Bruegel, Belgium.
- Esfahani, H.S., and Squire, L. (2007). Explaining Trade Policy in the Middle East and North Africa. *The Quarterly Review of Economics and Finance*, 46(5), 660-684.
- Feenstra, R., C., Inklaar, R., and Timmer, M.P. (2015). The Next Generation of the Penn World Table. *American Economic Review*, 105(10), 3150-3182.
- Feng, L., Li, Z., and Swenson, D.L. (2016). The connection between imported intermediate inputs and exports: Evidence from Chinese firms. *Journal of International Economics*, 101, 86-101.
- Fukumoto, Y., and Kinugasa, T. (2017). Age Structure and Trade Openness: An Empirical Investigation. *The World Economy*, 40(6), 1247-1263.
- Gnangnon, S. K. (2018). Aid for Trade and trade policy in recipient-countries. *The International Trade Journal*, 32(5), 439-464.

Gnangnon, S. K. (2021). 'Tariff Volatility and Tariff Policy in Developed and Developing Countries. *Asian Development Perspectives*, 12(2), 101-131.

Gnangnon, S.K. (2013b). Duration of the Membership in the GATT/WTO, Structural Economic Vulnerability and Trade Costs. *Journal of Risk and Financial Management*, 16(6), 282. <https://doi.org/10.3390/jrfm16060282>

Gnangnon, S.K. (2022a). Effect of the utilization of non-reciprocal trade preferences offered by the QUAD countries on beneficiary countries' economic complexity. *Journal of the Japanese and International Economies*, 65, 101214.

Gnangnon, S.K. (2022b). Effect of the Utilisation of Unilateral Trade Preferences on Foreign Direct Investment Flows to Beneficiary Countries. *Economic Issues*, 27(1), 39-73.

Gnangnon, S.K. (2023a). Do unilateral trade preferences help reduce poverty in beneficiary countries? *International Journal of Economic Policy Studies*, 17(1), 249-288.

Grossman, G. M., and Sykes, A. O. (2005). A Preference for Development: The Law and Economics of GSP. *World Trade Review*, 4(1), 41-67.

Gwartney, J., Lawson, R., Hall, J., Murphy, R., Callais, J.T., Fike, R., Geloso, V., Khalid, N.S., McMahon, F., and van Staden, M. (2021). *Economic Freedom of the World 2021 Annual Report*. The Fraser Institute, Vancouver, Canada. Data can be retrieved online at: <https://www.fraserinstitute.org/economic-freedom/dataset?geozone=world&min-year=2&max-year=0&filter=0&page=dataset>

Hayakawa, K., Ishikawa, J., and Tarui, N. (2020). What goes around comes around: Export-enhancing effects of import-tariff reductions. *Journal of International Economics*, 126, 103362.

Hoekman, B. (2005). Expanding WTO membership and heterogeneous interests. *World Trade Review*, 4(3), 401-408.

Hoekman, B. (2005). Operationalizing the concept of policy space in the WTO: beyond special and differential treatment. *Journal of International Economic Law*, 8(2), 405-424.

Kaufmann, D, Kraay, A. and Mastruzzi, M. (2010). *The Worldwide Governance Indicators Methodology and Analytical Issues*. World Bank Policy Research N° 5430 (WPS5430), Washington, D.C.

Klasen, S., Martínez-Zarzoso, I., Nowak-Lehmann, F., and Bruckner, M. (2021). Does the designation of least developed country status promote exports? *Journal of International Trade & Economic Development*, 30(2), 157-177.

Milner, H. V. (1988), *Resisting Protectionism: Global Industries and the Politics of International Trade*, Princeton, NJ: Princeton University Press.

Milner, H. V., and Kubota, K. (2005). Why the Move to Free Trade? Democracy and Trade Policy in the Developing Countries. *International Organization*, 59(1), 107-143.

Mukherjee, S., and Chanda, R. (2021). Tariff liberalization and firm-level markups in Indian manufacturing. *Economic Modelling*, 103, 105594.

Nickell, S. (1981). Biases in Dynamic Models with Fixed Effects. *Econometrica*, 49(6), 1417-1426.
Özden, Ç., and Reinhardt, E. (2005). The perversity of preferences: GSP and developing country trade policies, 1976-2000. *Journal of Development Economics*, 78(1), 1-21.

Roodman, D. M. (2009). A note on the theme of too many instruments. *Oxford Bulletin of Economic and Statistics*, 71(1), 135-158.

Rose, A. K. (2013). The March of an Economic Idea? Protectionism Isn't Counter-Cyclic (anymore). *Economic Policy*, 28(76): 569-612.

Svaleryd, H. and Vlachos, J. (2002). Markets for Risk and Openness to Trade: How are they Related? *Journal of International Economics*, 57(2), 369-395.

Tobin, J., and Busch, M. (2019). The Disadvantage of Membership: How Joining the GATT/WTO Undermines GSP. *World Trade Review*, 18(1), 133-160.

United Nations (2018). Handbook on the Least Developed Country Category: Inclusion, Graduation and Special Support Measures, Third Edition. Committee for Development Policy and United Nations Department of Economic and Social Affairs, United Nations, New York.

World Trade Organization (WTO) (2005). Ministerial Declaration on Doha Work Programme. Adopted on 18 December 2005 at the Sixth Session of Trade Ministers Conference (document, WT/MIN(05)/DEC). Hong Kong, China, December 13-18.

World Trade Organization (WTO) (2013). Duty-Free and Quota-Free (DFQF) market access for Least Developed Countries. Decision adopted on 7 December 2013 at the Ninth Session of the Ministerial Conference document, WT/MIN(13)/44). Bali, Indonesia, 3-6 December 2013.

World Trade Organization (WTO) (2023a). Special and Differential Treatment Provisions in WTO Agreements and Decisions - Note by the Secretariat, Committee on Trade and Development, WT/COMTD/W/271, 16 March 2023. World Trade Organization, Geneva, Switzerland.

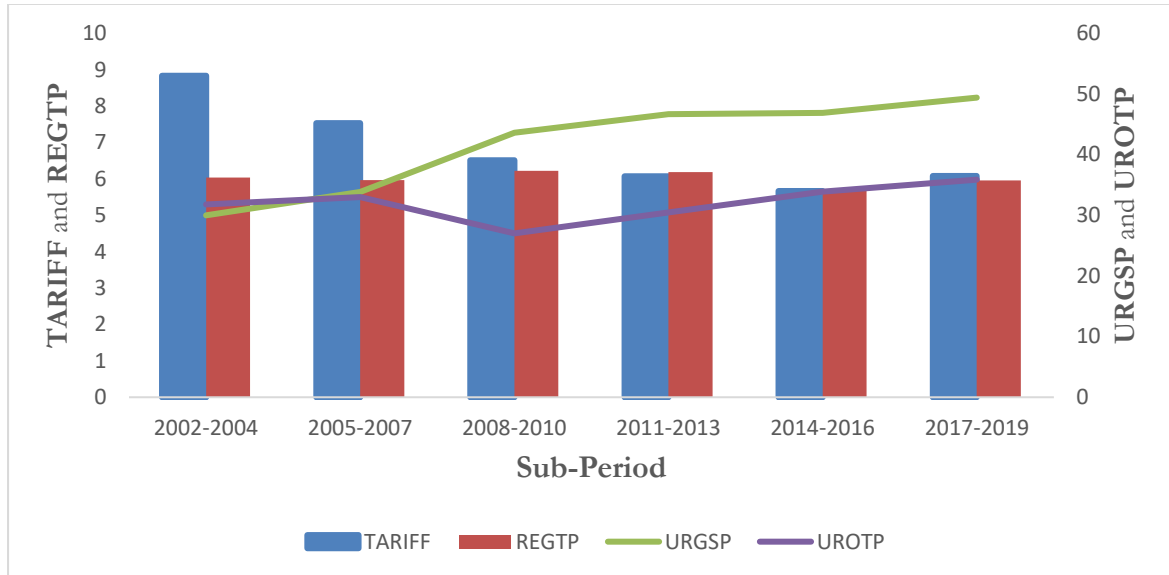
World Trade Organization (WTO) (2023b). Market access for products and services of export interest to least developed countries. Note by the Secretariat for the Sub-Committee on Least Developed Countries, WT/COMTD/LDC/W/71, 30 October 2023. World Trade Organization, Geneva, Switzerland.

World Trade Organization (WTO) (2010). Transparency Mechanism for Preferential Trade Arrangements - General Council Decision of 14 December 2010. WTO document WT/L/806, World Trade Organization, Geneva Switzerland.

World Trade Organization (WTO) (2016). Modalities for the calculation of "Preference Utilization". Note by the Secretariat for the Committee on Rules of Origin, document G/RO/W/161. World Trade Organization, Geneva, Switzerland.

FIGURES

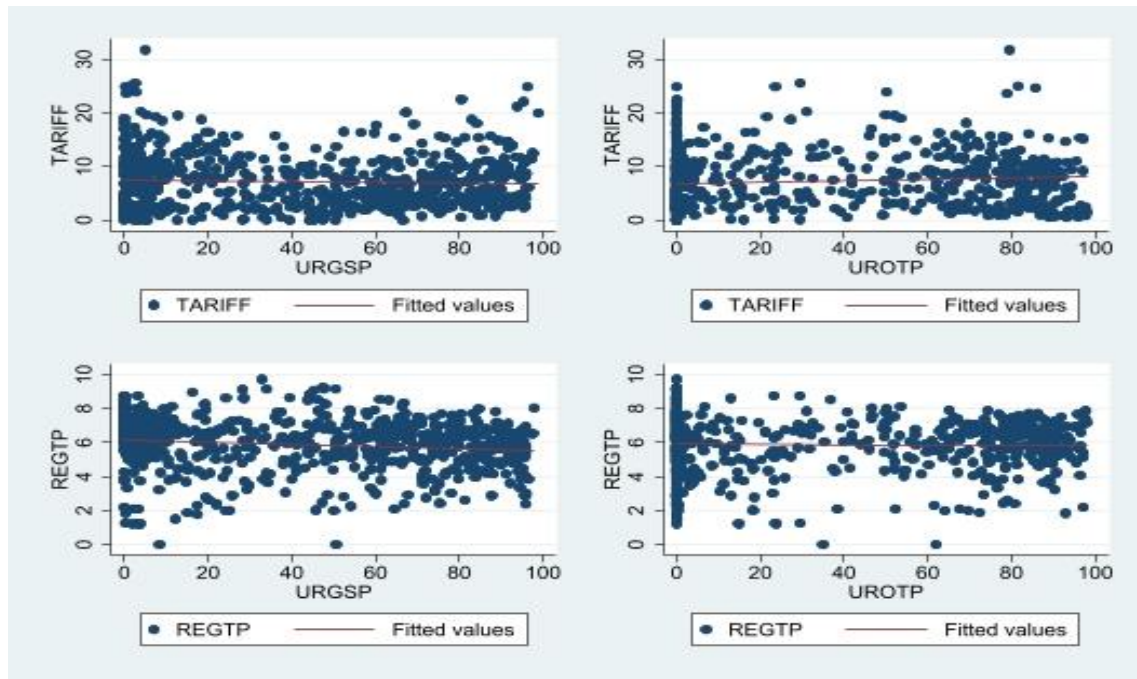
Figure 1: Development of Utilization rate of NRTPs, the applied tariff rate (weighted mean) for all products and regulatory trade policy_Over the full sample



Source: Author

Note: The variable "TARIFF" is the applied tariff rate (weighted mean) for all products (extracted from the WDI database). The variable, "REGTP" represents the regulatory trade policy indicator, which is extracted from the Fraser Institute database.

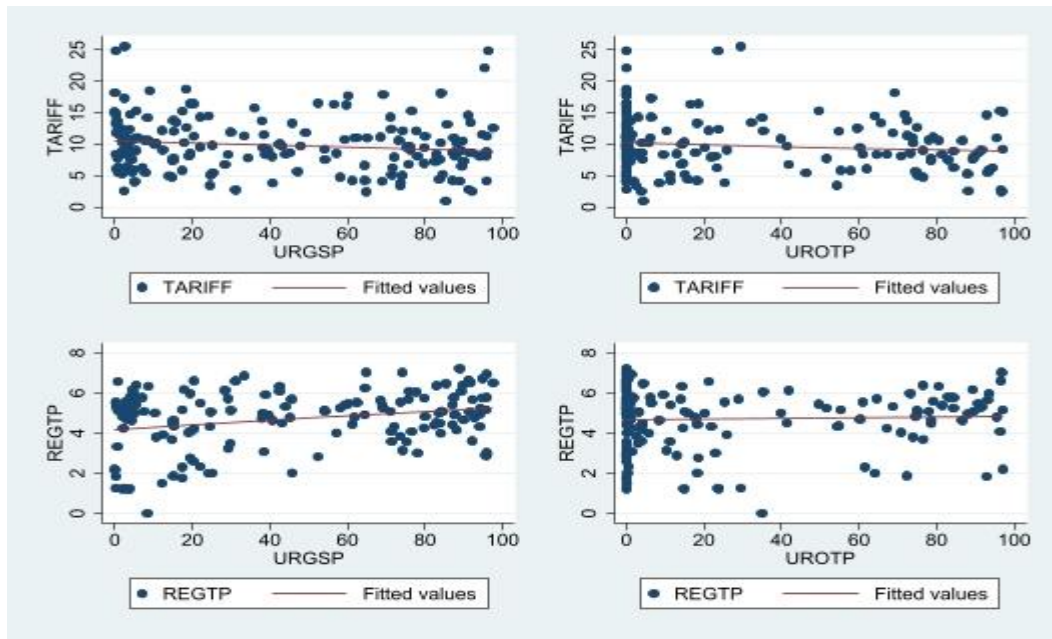
Figure 2: Correlation pattern (scatter plot) between the utilization rate of NRTPs, the applied tariff rate (weighted mean) for all products and regulatory trade policy_Over the full sample



Source: Author

Note: The variable "TARIFF" is the applied tariff rate (weighted mean) for all products (extracted from the WDI database). The variable, "REGTP" represents the regulatory trade policy indicator, which is extracted from the Fraser Institute database.

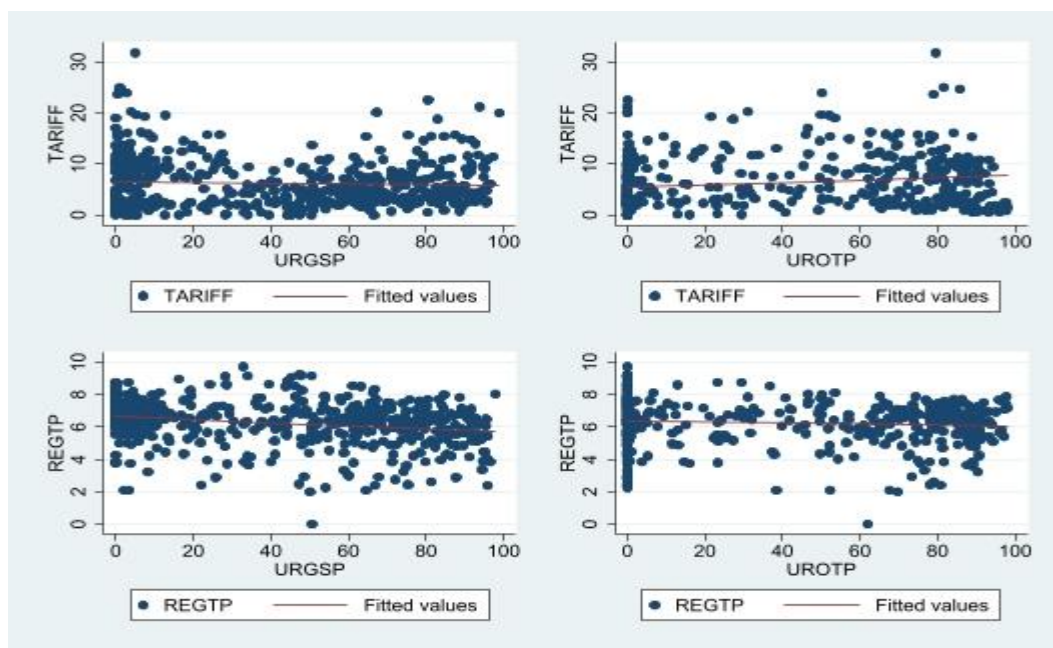
Figure 3: Correlation pattern (scatter plot) between the utilization rate of NRTPs, the applied tariff rate (weighted mean) for all products and regulatory trade policy_Over the sub-sample of LDCs



Source: Author

Note: The variable "TARIFF" is the applied tariff rate (weighted mean) for all products (extracted from the WDI database). The variable, "REGTP" represents the regulatory trade policy indicator, which is extracted from the Fraser Institute database.

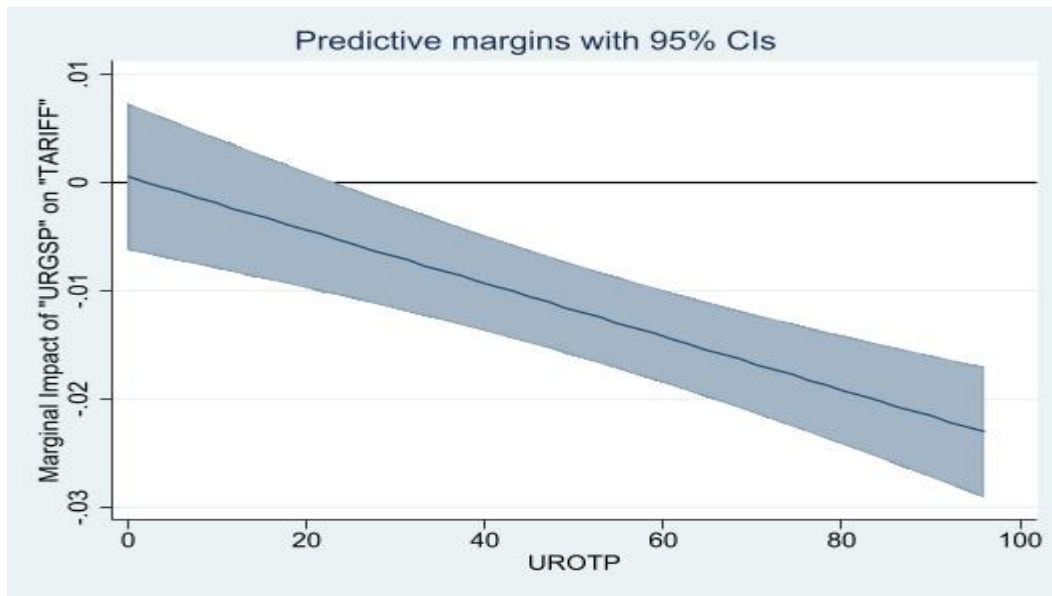
Figure 4: Correlation pattern (scatter plot) between the utilization rate of NRTPs, the applied tariff rate (weighted mean) for all products and regulatory trade policy_Over the sub-sample of NonLDCs



Source: Author

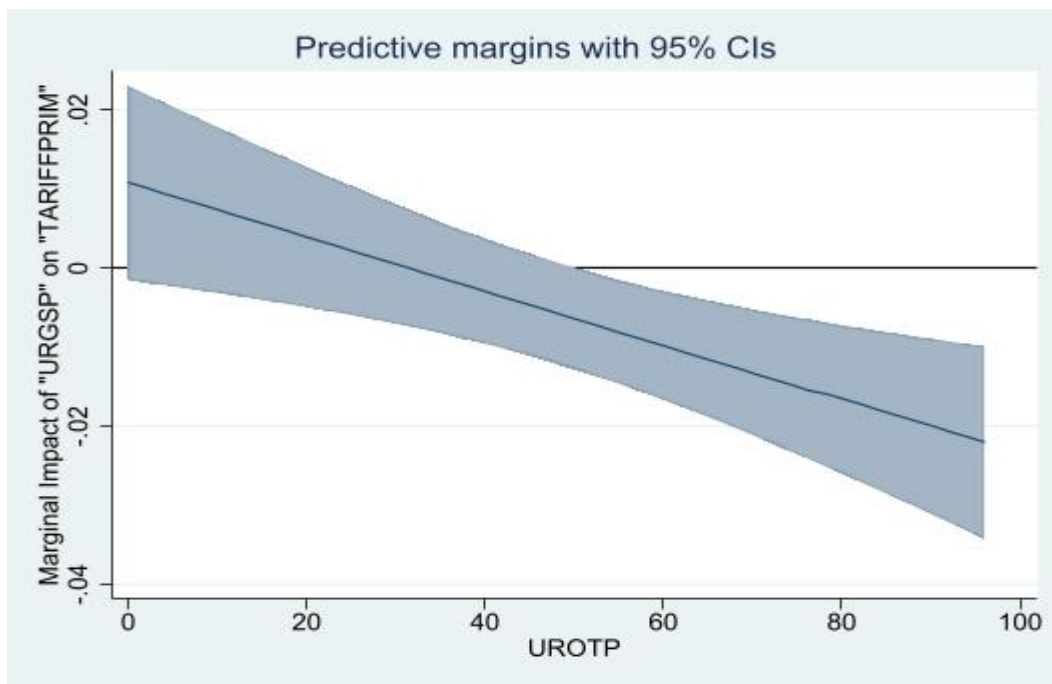
Note: The variable "TARIFF" is the applied tariff rate (weighted mean) for all products (extracted from the WDI database). The variable, "REGTP" represents the regulatory trade policy indicator, which is extracted from the Fraser Institute database.

Figure 5: Marginal Impact of "URGSP" on "TARIFF" for varying utilization rates of UROTP



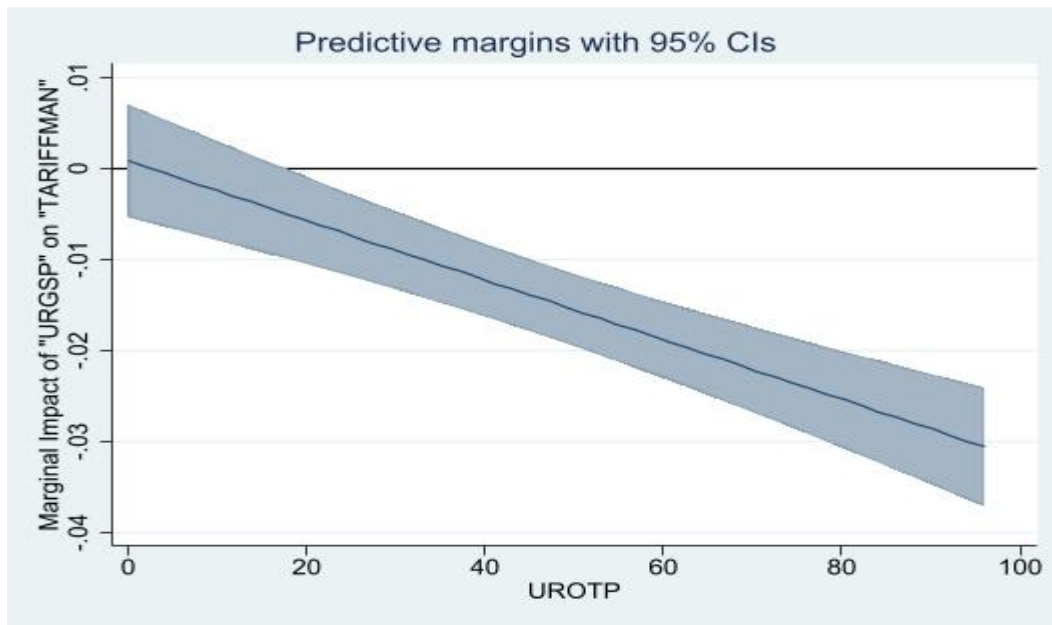
Source: Author

Figure 6: Marginal Impact of "URGSP" on "TARIFFPRIM" for varying utilization rates of UROTP



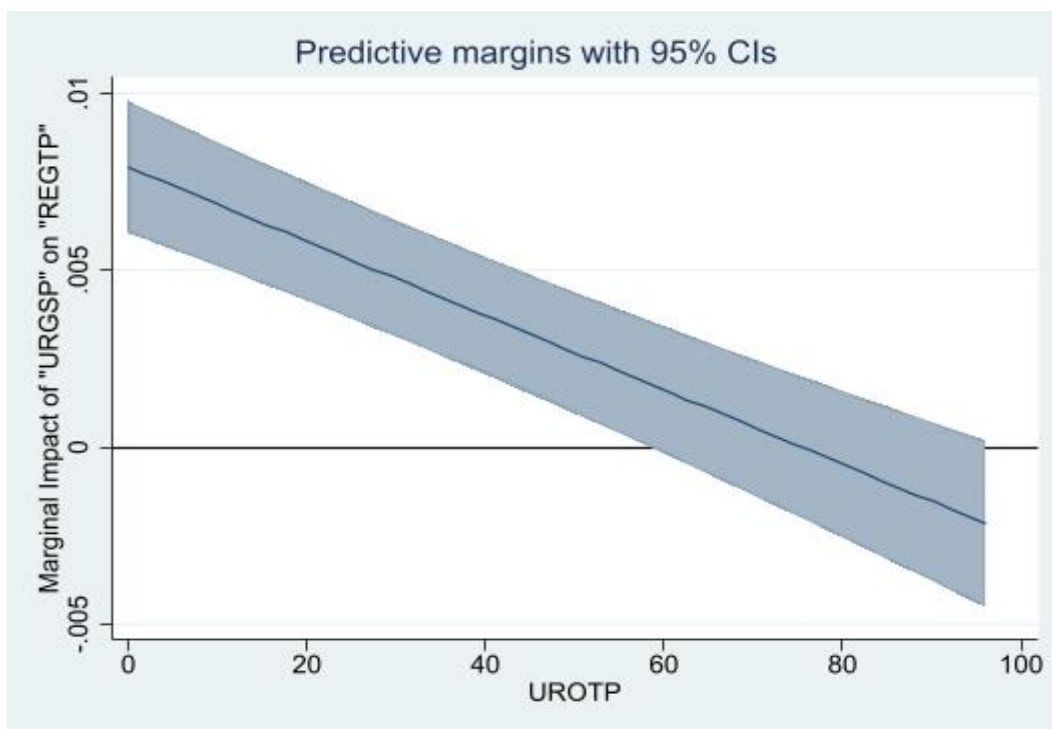
Source: Author

Figure 7: Marginal Impact of "URGSP" on "TARIFFMAN" for varying utilization rates of UROTP



Source: Author

Figure 8: Marginal Impact of "URGSP" on "REGTP" for varying utilization rates of UROTP



Source: Author

TABLES and APPENDICES

Table 1: Effect of the utilization rate of NRTPs on trade policy

Estimator: Two-Step System GMM

Variables	TARIFF	TARIFFPRIM	TARIFFMAN	REGTP
	(1)	(2)	(3)	(4)
One-period lag of the dependent variable	0.644*** (0.0304)	0.394*** (0.0309)	0.759*** (0.0271)	0.733*** (0.0241)
URGSP	-0.00888*** (0.00280)	0.00285 (0.00346)	-0.0115*** (0.00288)	0.00313*** (0.000921)
UROTP	-0.00437 (0.00320)	0.0145*** (0.00483)	-0.00601** (0.00300)	0.00356*** (0.000743)
DUR	-0.0273*** (0.00620)	-0.0582*** (0.0124)	-0.0220*** (0.00458)	0.00250 (0.00154)
DUMTARIFF	1.027 (1.205)	5.786*** (0.828)	-1.184 (1.384)	
DUMTREG				0.693*** (0.136)
Log(GDPC)	-0.527** (0.222)	-1.976*** (0.334)	0.0304 (0.201)	-0.147*** (0.0544)
INST	0.417*** (0.139)	1.476*** (0.229)	0.146 (0.144)	0.141*** (0.0285)
SHPOP1564	0.0278 (0.0256)	0.0303 (0.0442)	-0.00410 (0.0294)	0.0101* (0.00564)
SHPOP65	-0.300*** (0.0365)	-0.386*** (0.0664)	-0.240*** (0.0387)	0.0363*** (0.00745)
Observations - Countries	570 - 140	570 - 140	570 - 140	514 - 123
AR1 (P-Value)	0.0007	0.0046	0.0093	0.0000
AR2 (P-Value)	0.2750	0.2020	0.4900	0.1471
OID (P-Value)	0.2299	0.5931	0.3470	0.1054

*Note: *p-value<0.1; **p-value<0.05; ***p-value<0.01. Robust standard errors are in parenthesis. The variables "URGSP", "UROTP", "DUR", "DUMTARIFF", "DUMREG", "GDPC", "INST" and the interaction variables have been treated as endogenous. The variable "SHPOP1564" and "SHPOP65" have been treated as exogenous. The dummy variable "DUMTARIFF" is the outlier dummy for the tariff indicators. It takes the value of 1 for identified outliers in Figures 2 and 3 (concerned tariffs indicators), and 0, otherwise. Likewise, the dummy variable "DUMREG" is the outlier dummy for the indicator of regulatory trade barriers. It takes the value of 1 for identified outliers in Figures 2 and 3, and 0, otherwise. Time dummies have been included in the regressions. The latter have 3 lags of endogenous variables as instruments.*

Table 2: Effect of the utilization rate of NRTPs on trade policy in LDCs versus NonLDCs
Estimator. Two-Step System GMM

Variables	TARIFF	TARIFFPRIM	TARIFFMAN	REGTP
	(1)	(2)	(3)	(4)
One-period lag of the dependent variable	0.642*** (0.0233)	0.446*** (0.0261)	0.716*** (0.0218)	0.731*** (0.0145)
URGSP	0.00243 (0.00234)	0.0177*** (0.00366)	-0.00700*** (0.00213)	0.00211*** (0.000764)
URGSP*LDC	-0.0202*** (0.00483)	-0.0502*** (0.00818)	-0.00497 (0.00520)	0.00605*** (0.00138)
UROTP	-0.00127 (0.00306)	0.0166*** (0.00469)	-0.00472 (0.00308)	0.00353*** (0.000670)
UROTP*LDC	0.00329 (0.00494)	-0.0367*** (0.0102)	0.0109** (0.00525)	-0.00119 (0.000876)
LDC	2.198*** (0.563)	3.105*** (1.133)	1.364*** (0.490)	-0.592*** (0.178)
DUR	-0.0102** (0.00489)	-0.0463*** (0.00982)	-0.00710** (0.00354)	0.00264* (0.00138)
DUMTARIFF	2.945** (1.208)	7.242*** (0.785)	0.991 (0.668)	
DUMTREG				0.356*** (0.0748)
Log(GDPC)	0.124 (0.134)	-1.575*** (0.276)	0.418** (0.182)	-0.169*** (0.0554)
INST	0.178* (0.0993)	1.325*** (0.158)	-0.0840 (0.114)	0.164*** (0.0293)
SHPOP1564	0.0443* (0.0242)	0.0115 (0.0404)	0.0343* (0.0197)	-0.00936** (0.00459)
SHPOP65	-0.212*** (0.0267)	-0.264*** (0.0472)	-0.198*** (0.0245)	0.0548*** (0.00851)
Observations - Countries	570 - 140	570 - 140	570 - 140	514 - 123
AR1 (P-Value)	0.0005	0.0026	0.0083	0.0000
AR2 (P-Value)	0.1909	0.1724	0.3789	0.1925
OID (P-Value)	0.3259	0.7467	0.3063	0.1362

*Note: *p-value<0.1; **p-value<0.05; ***p-value<0.01. Robust standard errors are in parenthesis. The variables "URGSP", "UROTP", "DUR", "DUMTARIFF", "DUMREG", "GDPC", "INST" and the interaction variables have been treated as endogenous. The variable "SHPOP1564" and "SHPOP1564" have been treated as exogenous. The dummy variable "DUMTARIFF" is the outlier dummy for the tariff indicators. It takes the value of 1 for identified outliers in Figures 2 and 3 (concerned tariffs indicators), and 0, otherwise. Likewise, the dummy variable "DUMREG" is the outlier dummy for the indicator of regulatory trade barriers. It takes the value of 1 for identified outliers in Figures 2 and 3, and 0, otherwise. Time dummies have been included in the regressions. The latter have 3 lags of endogenous variables as instruments.*

Table 3: Interaction effect of the utilization of the two types of NRTPs on trade policy
Estimator. Two-Step System GMM

Variables	TARIFF	TARIFFPRIM	TARIFFMAN	REGTP
	(1)	(2)	(3)	(4)
One-period lag of the dependent variable	0.656*** (0.0233)	0.505*** (0.0252)	0.728*** (0.0246)	0.748*** (0.0163)
URGSP*UROTP	-0.000246*** (5.10e-05)	-0.000342*** (0.000111)	-0.000327*** (5.32e-05)	-0.000105*** (1.36e-05)
URGSP	0.000505 (0.00346)	0.0108* (0.00627)	0.000824 (0.00317)	0.00791*** (0.000947)
UROTP	0.00488 (0.00308)	0.0176*** (0.00540)	0.00575* (0.00337)	0.00809*** (0.000671)
DUR	-0.00690 (0.00538)	-0.0249*** (0.00914)	-0.00628 (0.00389)	0.00236 (0.00162)
DUMTARIFF	1.655* (0.905)	4.668*** (0.893)	-1.598 (1.004)	
DUMTREG				0.482*** (0.113)
Log(GDPC)	-0.0289 (0.173)	-0.516* (0.302)	0.399** (0.171)	0.0154 (0.0449)
INST	-0.110 (0.0961)	0.530*** (0.165)	-0.285*** (0.0889)	0.0482 (0.0321)
SHPOP1564	-0.0115 (0.0214)	-0.0665 (0.0419)	-0.0352 (0.0251)	-0.00248 (0.00620)
SHPOP65	-0.173*** (0.0317)	-0.184*** (0.0588)	-0.144*** (0.0294)	0.0654*** (0.00785)
Observations - Countries	570 - 140	570 - 140	570 - 140	514 - 123
AR1 (P-Value)	0.0006	0.0025	0.0089	0.0000
AR2 (P-Value)	0.2979	0.1703	0.4539	0.2238
OID (P-Value)	0.2344	0.5487	0.3231	0.2511

*Note: *p-value<0.1; **p-value<0.05; ***p-value<0.01. Robust standard errors are in parenthesis. The variables "URGSP", "UROTP", "DUR", "DUMTARIFF", "DUMREG", "GDPC", "INST" and the interaction variables have been treated as endogenous. The variable "SHPOP1564" and "SHPOP1564" have been treated as exogenous. The dummy variable "DUMTARIFF" is the outlier dummy for the tariff indicators. It takes the value of 1 for identified outliers in Figures 2 and 3 (concerned tariffs indicators), and 0, otherwise. Likewise, the dummy variable "DUMREG" is the outlier dummy for the indicator of regulatory trade barriers. It takes the value of 1 for identified outliers in Figures 2 and 3, and 0, otherwise. Time dummies have been included in the regressions. The latter have 3 lags of endogenous variables as instruments.*

Appendix 1: Definition and Source of variables

Variables	Definition	Source
TARIFF	This is the applied tariff rate for all products (weighted mean) (%).	World Development Indicators (WDI) of the World Bank.
TARIFFPRIM	This is the applied tariff rate for manufactured products (weighted mean) (%).	WDI
TARIFFMAN	This is the applied tariff rate for primary products (weighted mean) (%).	WDI
REGTP	This is the indicator of regulatory trade barriers (tariff barriers, and non-tariff barriers and compliance costs of importing and exporting) computed by the Fraser Institute. Its values range between 0 and 10, with higher values of the indicator reflecting lower regulatory trade barriers, i.e., greater liberalization (i.e., removal) of regulatory barriers.	Data collected from the Fraser Institute (https://www.fraserinstitute.org/economic-freedom/dataset) (see Gwartney et al., 2021)
DUR	This is a country's duration of GATT/WTO membership. For a given country, it represents the time elapsed since the country has joined the GATT/WTO. This variable takes the value of "0" for years during which the country was not a GATT/WTO Member. As it has been computed taking into account the month a state has joined the GATT/WTO, it takes the value of $x/12$ the first year the country had become a WTO Member (i.e., the year it acceded to the WTO), where x represents the month of the year a country joined the GATT/WTO. For example, if two countries A and B joined the GATT in 1985, with country A joining the GATT on June 1985, and country B joining it on October 1985, then the variable "DUR" would take the value of 0.5 ($= 6/12$) for country A in 1985, and 0.25 ($= 3/12$) for country B in 1985. The variable "DUR" is then incremented by 1 for every subsequent (additional) year of the GATT/WTO membership. As the GATT entered into effect in 1948, the variable "DUR" has been constructed from 1948, i.e., counting the duration from that year for any country in the sample that joined the GATT in 1948 (or from a given year between 1948 and 2002 - start year of the period under analysis – for any country that joined the GATT/WTO after 1948). For a given country, the higher the value of the indicator "DUR", the greater the duration of the GATT/WTO membership.	Author's computation based on data collected from the website of the WTO. The list of countries (128) that had signed GATT by 1994 is accessible online at: https://www.WTO.org/english/thewto_e/gattmem_e.htm The list of states that were GATT Members, and that joined the WTO, as well as those that joined the WTO under the WTO's Article XII is accessible online at: https://www.WTO.org/english/thewto_e/whatis_e/tif_e/org6_e.htm
URGSP	This is the indicator of the utilization rate of unilateral trade preferences under the Generalized System of Preferences (GSP) schemes provided by the so-called “Quadrilaterals” (i.e., QUAD countries), namely Canada, European Union (EU), Japan and the United States of America (USA). It captures the extent to which imports which are eligible for trade preferences are actually imported under these preferences (e.g., WTO, 2016).	United Nations Conference on Trade and Development (UNCTAD) Dataset: https://gsp.unctad.org/utilization

	<p>This indicator has been computed using a formula adopted both by the WTO (see WTO, 2016) and the UNCTAD and which goes as follows:</p> $\text{URGSP} = 100 * (\text{GSP Received Imports}) / (\text{GSP Covered Imports}),$ <p>where "GSP received imports" refers to the value of imports (by preference-granting countries) that received GSP treatment, and "GSP covered imports" indicates the value of imports (by preference-granting countries), i.e., exports by beneficiary countries that are classified in tariff lines that are dutiable and covered by the GSP scheme of the preference-granting country.</p> <p>Detailed information on the dataset is available over the Internet at:</p> <p>https://gsp.unctad.org/about</p> <p>Values of the indicator "URGSP" range between 0 and 100, with higher values indicating a greater utilization rate of GSP programs.</p>	
UROTP	<p>This is the indicator of the utilization rate of the other trade preferences than the GSP programs provided by the QUAD countries to developing countries, including least-developed countries among them. This indicator has been calculated using a formula similar to the one used to compute the indicator "USGSP". The formula goes as follows:</p> $\text{UROTP} = 100 * (\text{Other-Preferential Imports}) / (\text{Other Preferential Covered Imports}),$ <p>where "Other-Preferential Imports" refers to the value of imports (by preference-granting countries) that benefitted from NRTPs other than GSP and under selected Economic Partnership Agreements that the EU has entered with some African countries.</p> <p>"Other-Preferential Covered Imports" refers to the value of imports (by preference-granting countries) that are classified in tariff lines that are dutiable and covered by the other-preferential schemes.</p> <p>Detailed information on the dataset is available over the Internet at:</p> <p>https://gsp.unctad.org/about</p> <p>Values of the indicator "UROTP" range between 0 and 100, with higher values indicating a greater utilization rate of other trade preferences programs.</p>	<p>United Nations Conference on Trade and Development (UNCTAD) Dataset:</p> <p>https://gsp.unctad.org/utilization</p>
GDPC	Real per Capita Gross Domestic Product (constant 2015 US\$).	World Development Indicators (WDI)
SHPOP1564	This is the indicator of the share of the population aging 15-64 in percentage of the total population.	WDI

SHPOP65	This is the indicator of the share of the population aging 65 and above in percentage of the total population.	WDI
INST	<p>This is the variable representing the institutional and governance quality in a given country. It has been computed by extracting the first principal component (based on factor analysis) of the following six indicators of institutional quality and governance. These indicators include an index of: political stability and absence of violence/terrorism; regulatory quality; rule of law index; government effectiveness index; Voice and Accountability; and corruption.</p> <p>Higher values of this index are associated with better governance and institutional quality, while lower values reflect worse governance and institutional quality.</p>	<p>Author's computation based on data on the six indicators components of institutional quality and governance collected from World Bank Governance Indicators (WGI) developed by Kaufmann, Kraay and Mastruzzi (2010) and recently updated (see data online at:</p> <p>https://info.worldbank.org/governance/wgi/)</p>

Appendix 2: Standard descriptive statistics on variables used in the analysis

Variable	Observations	Mean	Standard deviation	Minimum	Maximum
TARIFF	570	6.617	4.450	0.000	24.863
TARIFFPRIM	570	6.597	5.617	0.000	43.870
TARIFFMAN	570	6.779	4.799	0.000	31.330
REGTP	504	5.906	1.520	0.000	9.729
URGSP	570	43.566	33.352	0.000	98.883
UROTP	570	32.034	36.575	0.000	97.940
DUR	570	30.584	20.954	0.000	72.000
SHPOP1564	570	62.963	7.282	47.233	85.620
SHPOP65	570	6.486	4.250	0.697	20.748
GDPC	570	7601.833	10044.280	253.216	66950.390
INST	570	-0.504	1.609	-4.724	4.120

Appendix 3: List of countries in the full sample, and the sub-sample of LDCs

Full sample				
Afghanistan**	China	Guinea-Bissau**	Malta	Senegal**
Albania	Colombia	Guyana	Mauritania**	Seychelles
Antigua and Barbuda	Comoros**	Haiti**	Mauritius	Sierra Leone**
Argentina	Congo, Rep.	Honduras	Mexico	Singapore
Armenia	Costa Rica	Hong Kong SAR, China	Moldova	Slovak Republic
Aruba	Cote d'Ivoire	Hungary	Mongolia	Slovenia
Azerbaijan	Croatia	India	Morocco	Solomon Islands**
Bahamas, The	Cuba	Indonesia	Mozambique**	South Africa
Bahrain	Cyprus	Israel	Namibia	Sri Lanka
Bangladesh**	Czech Republic	Jamaica	Nicaragua	St. Vincent and the Grenadines
Barbados	Dominican Republic	Jordan	Niger**	Suriname
Belarus	Ecuador	Kazakhstan	Nigeria	Tajikistan
Belize	Egypt, Arab Rep.	Kenya	North Macedonia	Tanzania**
Benin**	El Salvador	Korea, Rep.	Oman	Thailand
Bhutan**	Equatorial Guinea	Kuwait	Pakistan	Togo**
Bolivia	Eritrea**	Kyrgyz Republic	Panama	Tonga
Bosnia and Herzegovina	Estonia	Lao PDR**	Papua New Guinea	Trinidad and Tobago
Botswana	Eswatini	Latvia	Paraguay	Tunisia
Brazil	Ethiopia**	Lebanon	Peru	Turkey
Brunei Darussalam	Fiji	Lesotho**	Philippines	Uganda**
Bulgaria	Gabon	Liberia**	Poland	Ukraine
Burkina Faso**	Gambia, The**	Lithuania	Portugal	United Arab Emirates
Cabo Verde	Georgia	Macao SAR, China	Romania	Uruguay
Cambodia**	Ghana	Madagascar**	Russian Federation	Uzbekistan
Cameroon	Greece	Malawi**	Rwanda**	Vanuatu**
Central African Republic**	Grenada	Malaysia	Samoa	Vietnam
Chad**	Guatemala	Maldives	Sao Tome and Principe**	Yemen, Rep**
Chile	Guinea**	Mali**	Saudi Arabia	Zambia**

Note: LDCs are marked with the symbol "**"