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Effect of the Utilization of Non-Reciprocal Trade Preferences offered by the QUAD on Economic Growth in Beneficiary Countries

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Abstract

At the second conference of the UNCTAD in 1968, member states adopted a Resolution (Resolution 21(ii)) which stated, *inter alia*, that the offer of the non-reciprocal trade preferences (NRTPs) by wealthier countries to developing countries should aim to increase the export earnings of developing countries, promote their industrialization, and accelerate their rates of economic growth. The extant empirical literature has assessed whether the objectives of increasing export earnings, and promoting industrialization have been achieved, and reached mixed evidence. The present article is the first to investigate empirically whether the third goal, that is, whether NRTPs have been instrumental in promoting economic growth in beneficiary countries, has been achieved. Especially, it has examined the effect of the utilization of NRTPs (and not merely the eligibility to NRTPs) offered by the QUAD countries on the economic growth performance of beneficiary countries. It has, additionally, considered how development aid (which is another major policy tool available to wealthier countries to assist developing countries) interact with NRTPs in influencing beneficiary countries' economic growth performance. Two main blocks of NRTPs have been considered here, namely, Generalized System of Preferences (GSP) programs, and other trade preferences programs. The analysis has used a set of 90 beneficiary countries of NRTPs that are concurrently recipients of development aid, over the period 2002-2018. The two-step system generalized methods of moments is the primary estimator used to conduct the empirical analysis. Results have shown that while a higher degree of utilization of each of these two blocks of NRTPs has been associated with high economic growth rate, development aid enhances this positive effect. This highlights the need for donors to support a development strategy based on the provision of both development aid and NRTPs, if they were to help beneficiary countries to promote economic growth.

Keywords: Utilization of non-reciprocal trade preferences; Economic Growth; QUAD countries; Developing Countries.

Jel Classification: F13; F43; F35; O10.

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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.

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1. Introduction

Among major policy tools available to wealthier nations to assist developing countries in their effort to promote economic development are the Official Development Assistance (ODA) and non-reciprocal (or unilateral) trade preferences (henceforth, NRTPs). The provision of development aid² aims to promote the economic development and welfare of developing countries" (OECD, 2021), while the offer of NRTPs aims to provide developing countries with opportunities to expand their exports, better integrate into the global trading system and ultimately promote development. The present study investigates the effect of NRTPs on beneficiary countries' economic growth performance, and further considers the extent to which development aid matters for this effect.

The first conference of the United Nations Conference on Trade and Development (UNCTAD) held in 1964 recommended explicitly that developed countries need to supply unilateral trade preferences to developing countries, that is, developed nations should grant trade concessions to developing countries, and should not require concessions in return (e.g., Bartels, 2003; Persson³, 2015a,b). At the second conference of the UNCTAD held in 1968, members states adopted a resolution (i.e., Resolution 21 (ii)), which called for the establishment of a "generalized, non-reciprocal, non-discriminatory system of preferences⁴ (referred to as GSP) in favour of the developing countries, including special measures in favour of the least advanced among the developing countries" (see Grossman and Sykes, 2005). The Resolution 21 (ii) further stated that "such preferences had three objectives: to increase the export earnings of developing countries, to promote their industrialization, and to accelerate their rates of economic growth" (Grossman and Sykes, 2005: p 42). The permanent legal basis for granting unilateral trade preferences to developing countries was established in 1979 through the so-called Enabling Clause, also referred to as "Differential and More Favourable Treatment, Reciprocity and Fuller Participation of Developing Countries".

NRTPs are not confined to GSPs, as they also include other non-reciprocal trade preferences authorised through a Waiver under the World Trade Organization (WTO) Agreement⁵ (see WTO, 2010). For example, in addition to the GSP schemes that they provide to eligible developing countries (and least developed countries among them), wealthier countries such as Canada, the European Union, and the United States also offer special treatments to selected developing countries, including through a special Waiver (adopted for each preference granting country) under the WTO Agreement. The United States (US) offers the African Growth and

² In 1969, the Development Assistance Committee (DAC) adopted the official development assistance (ODA) as the "gold standard" of foreign aid, and since then, it has remained the main source of financing for development aid (e.g., OECD, 2021).

³ An overview on the legal and historical background of trade preferences could be found in Persson (2015a), and the history of GSPs has been provided by Cunha et al. (2005).

⁴ These types of preferences are commonly referred to as "Generalized System of Preferences (GSP)".

⁵ NRTPs are referred to as "preferential trade arrangements" (PTA) in the WTO's jargon. The WTO PTA database contains a wealth of information concerning NRTPs offered by WTO Members, and notified to the WTO. These include GSP schemes, NRTPs schemes offered through a special Waiver under the WTO Agreement, as well as other PTAs supplied by developing countries to least developed countries (see WTO, 2010). Information on PTAs notified to the WTO could be found in the WTO PTA database online at: <http://ptadb.wto.org/default.aspx>

Opportunity Act (AGOA) to eligible countries in Sub-Saharan African (SSA). The US also offers the Caribbean Basin Economic Recovery Act to Caribbean countries, and particularly the Hemispheric Opportunity through Partnership Encouragement initiative to Haiti. It also grants special (non-reciprocal) trade preferences to Nepal. The European Union (EU) currently offers non-reciprocal preferential concessions to products originating from the Western Balkans. Canada has currently been providing a tariff treatment to products from Commonwealth Caribbean countries.

A large body of the literature⁶ has examined whether the first objective of the Resolution 21(ii) has been achieved, i.e., whether NRTPs have been effective in increasing the export earnings of beneficiary countries. This literature has reached mixed conclusions, as some studies have obtained a positive effect (recent ones include for example, Hakobyan, 2020; Ito and Aoyagi, 2019; Ornelas and Ritel, 2020); and others have found that the effects are heterogenous across beneficiary countries, sectors, and products (recent studies include for example Cipollina and Demaria, 2017, 2020; Klasen et al. 2021; and Tobin and Busch, 2019). At the same time, other works have uncovered a negative effect of NRTPs on export earnings of beneficiary countries (e.g., Admassu, 2020; Borchert, 2009; Gil-Pareja et al. 2019; Herz and Wagner, 2011; Seyoum, 2006; and Zappile, 2011). For example, some of the latter (e.g., Admassu, 2020; Gil-Pareja et al. 2019; Herz and Wagner, 2011, and Zappile, 2011) have concluded that developing countries would be better off (in terms of exports) if they opted for reciprocal trade agreements at the detriment of NRTPs. Herz and Wagner (2011) have obtained that GSP schemes that existed for less than 10 years have influenced positively beneficiary countries' exports (see also Gil-Pareja et al., 2014), while GSP schemes with a longer duration (i.e., one or two decades) have exerted a negative effect on beneficiary countries' exports. This is because in the long term, the strict or complicated rules of origin exert distortive effects on these countries' exports, and lead these countries to export under most favoured nations tariffs rather than under the non-reciprocal GSP programs.

In contrast with this voluminous literature that has assessed the effectiveness of NRTPs in terms of increasing the export earnings of beneficiary countries, very few works have investigated whether NRTPs have achieved the second objective of the Resolution 21(ii), i.e., promoting industrialization of beneficiary countries, although the concept of "industrialization" may be interpreted in different ways (see for example, the discussion by Persson, 2015a). Some of these works concern the effect of NRTPs on manufacturing exports (e.g., de Melo and Portugal-Pérez, 2008; Gradeva and Martínez-Zarzoso, 2016; Klasen et al., 2021), while others have looked at the effect of NRTPs on export product diversification (e.g., Gamberoni, 2007; Persson and Wilhelmsson, 2016; Yannopoulos, 1986) or on economic complexity (e.g., Gnangnon, 2021). For example, Yannopoulos (1986) has found that unilateral trade preferences offered by the European Community to Mediterranean countries have led to export diversification of these countries. Gamberoni (2007) has obtained for the NRTPs offered by the EU (over the period 1994-2005) that while the GSP and the drug regime have led to export product diversification at the extensive margins in beneficiary countries, this has not been the case for African Caribbean and Pacific (ACP) countries. For the latter, NRTPs have exerted an anti-export diversification effect. Additionally, for least developed countries that have enjoyed special concessions among

⁶ A discussion on the effects of trade preferences could be found in Hoekman and Özden (2005), Cardamone (2007), Gnangnon and Iyer (2021), Klasen et al. (2021) and Ornelas (2016).

beneficiary countries, the effects of NRTPs have been unstable and vary across specifications. Persson and Wilhelmsson (2016) have considered all preference schemes implemented by the EU during the period 1962-2007, and examined how the eligibility for a given preference programme has affected beneficiary countries' export product diversification. They have observed empirically that while some trade preferences have resulted in greater export product diversification, no significant export product diversification effects have been found for preferences offered to Mediterranean countries (although except for some very earlier versions of these programmes). Gnanangnon (2021) has examined the effect of the utilization of NRTPs (GSP programs and other trade preferences) offered by the QUAD countries on the economic complexity level of beneficiary countries. He has established empirically, among others, that the utilization of GSP programs (at the expense of the usage of other trade preferences) has been instrumental in achieving greater economic complexity, with this effect being higher for high income beneficiary countries. In addition, development aid flows are complementary with the utilization of NRTPs in fostering economic complexity in beneficiary countries, especially when beneficiary countries receive high amounts of such aid.

de Melo and Portugal-Pérez (2008) have shown that the more flexible preferential rules of origin under the AGOA preferential regime of the US (than under the EU's EBA initiative and the Cotonou's Economic Partnership Agreement) have allowed the top seven African beneficiaries of the AGOA regime to significantly increase the number of apparels exported (i.e., the export volume rose by 300%). Gradeva and Martínez-Zarzoso (2016) have obtained empirically no significant effect of the EU's EBA initiative on the manufacturing exports of least developed countries (among ACP beneficiaries), possibly because of the erosion of preferences margins that these countries enjoyed (such erosion was due to MFN trade liberalization). Klasen et al. (2021) have reported, *inter alia*, that some individual preferential regimes (among those of developed countries⁷) offered to least developed countries, have been associated with an expansion of export agricultural goods and light manufacturing products, including textiles and leather after 1990.

As for the third objective of Resolution 21(ii) (i.e., the expectation that NRTPs would accelerate economic growth rates of beneficiary countries), we are not aware of a work in the empirical literature that has examined whether NRTPs have really achieved this objective. As a matter of fact, while Ornelas (2016) has provided a theoretical discussion on the possible effects of NRTPs on beneficiary countries' economic growth performance, no empirical work has been performed on the matter.

The present paper aims to fill this gap in the empirical literature, including by investigating whether NRTPs provided by the QUAD countries have led to a higher economic growth performance in beneficiary countries. The QUAD countries include Canada, the EU, Japan, and the US. It is worth noting that in contrast with many previous empirical works that have examined the effect of eligibility to NRTPs on the export performance of beneficiary countries, the current article investigates the effect of the 'utilization' of these NRTPs (rather than the eligibility to them) on beneficiary countries' economic growth performance. Two main blocks of NRTPs provided by the QUAD countries have been considered, namely the Generalized System of Preferences (GSP) programs and the other trade preferences programs.

⁷ The trade preference regimes offered to LDCs that have been considered in the study by Klasen et al. (2021) are those of the EU, USA, Canada, Japan, Australia, New Zealand, Norway, and Turkey.

The focus on QUAD countries (and not on all preference granting countries, including all wealthier countries that provide NRTPs to developing countries) is explained by the availability data to conduct the analysis. The latter covers an unbalanced panel dataset of 90 countries over the period of 2002-2018. Using primarily the two-step system Generalized methods of moments (GMM) estimator, it has established that a higher utilization rate of GSP programs, on the one hand, and a higher utilization rate of other trade preference programs, on the other hand, are associated with a higher economic growth performance in beneficiary countries. Moreover, the concomitant utilization of the two blocks of NRTPs contributes to enhancing economic growth in beneficiary countries. On another note, the utilization of both GSP programs and other trade preferences improves economic growth when beneficiary countries in the context of strong improvements in terms of trade. Finally, and interestingly, development aid flows are strongly complementary with the usage of NRTPs in promoting economic growth in beneficiary countries.

The rest of the article is organized around four sections. Section 2 provides a theoretical discussion on the effect of both NRTPs and development aid on economic growth. Section 3 lays out the model specification used to examine empirically the effect of the utilization of NRTPs (and development aid) on economic growth, and discusses the econometric approach used to perform the empirical analysis. Section 4 discusses the empirical outcomes. Section 5 concludes.

2. Theoretical discussion

This section provides a theoretical discussion on the effect of NRTPs on economic growth (**sub-section 2.1**) and on the effect of development aid on economic growth (**sub-section 2.2**).

2.1. Effect of non-reciprocal trade preferences on economic growth

The utilization of NRTPs programs can affect economic growth in the beneficiary countries through aggregate productivity and firm delocation effects, learning spillovers, but also the insecurity that may be associated with NRTPs (e.g., Grossman and Helpman, 2015; Ornelas⁸, 2016).

The utilization of foreign market access opportunities under NRTPs could promote economic growth in beneficiary countries through its positive effect on aggregate productivity. The theoretical model developed by Melitz (2003) provides that export expansion thanks to a better access to foreign markets would lead to the expansion of most efficient firms, and a better resources allocation in the beneficiary economy. This expansion of the most efficient firms would contribute to enhancing economic growth in the beneficiary country. At the same time, it would also induce a rise in local wages, and limit the ability of indigenous firms to take advantage of these foreign market access opportunities, as they could not sustain paying higher wages to workers in the domestic market. Attempts by the government to prevent the decline of indigenous firms could result in a limited expansion of exporting firms in the beneficiary country of the preferences, and ultimately hurt economic growth.

The model developed by Melitz and Ottaviano (2008) has shown that better access to foreign markets (e.g., through preferential treatment) facilitates firm entry, in the presence of less domestic competition. Additionally, more firm entry in the presence of firms heterogeneity would generate

⁸ Ornelas (2016) has discussed the theoretical channels through which NRTPs can affect beneficiary countries' economic growth performance.

a higher industry productivity. Ossa (2011) has demonstrated that in the context of trade agreements, greater firm entry in the domestic market of the beneficiary country would be beneficial to that country when there are increasing returns to scale, and international trade costs. All these would contribute to promoting economic growth in the country that enjoys a better access to foreign markets. However, the positive economic growth effect of better access to foreign markets (that works through the improvement in aggregate productivity due to firm entry) could be mitigated by competition over domestic resources if purely domestic firms remain large and protected (Ornelas, 2016).

'Learning spillovers' associated with export expansion⁹ (arising from better access to foreign markets through NRTPs) could also contribute to promoting economic growth in the beneficiary country. According to Hausmann and Rodrik (2003), preferential market access may spur beneficiary-countries' exports by promoting pioneer firms from which domestic rivals can learn. The export expansion induced by positive spillovers from pioneers firms to domestic rivals can promote economic growth. Along the same lines, Albornoz et al. (2012) have proposed a model to explain why despite substantial entry costs, new exporters give up exporting very shortly, while other firms shoot up foreign sales and expand to new destinations. They have posited and provided empirical support to the theoretical hypothesis that while individual export profitability might be initially uncertain, it can become positively correlated over time and across destinations. This leads to what Albornoz et al. (2012) refer to as a "sequential exporting" whereby the possibility of profitable export expansion (at both the intensive and extensive margins) makes initial entry costs worthwhile despite high failure rates. This suggests, in the context of the present study, that the utilization of NRTPs could spur economic growth through export expansion as these trade preferences could allow firms to learn their own capabilities by expanding their exports not only to the market of the preference-granting country but also to other destinations.

Innovation could be another avenue through which better foreign market access (including through NRTPs) could foster economic growth (e.g., Bustos, 2011; De Loecker, 2007; Lileeva and Trefler, 2010; Spulber, 2010). The innovation effect of NRTPs could arise from the fact that NRTPs enlarge the potential export market for firms in the beneficiary country and hence increase their expected return from innovation, thereby leading them to improve their innovation performance. For example, Lileeva and Trefler (2010) have shown that the size of firms' export market is key for firms' innovation performance, and hence for their productivity. In fact, exporting is complementary with innovation when having access to new export opportunities (for example through NRTPs) allows firms (especially low-productivity firms) to innovate and start exporting, so that their productivity improves as they further export (for example, see also De Loecker, 2007; Spulber, 2010). On another note, Chui et al. (2001) have documented theoretically and empirically that developing countries (i.e., the South) could benefit from North-South trade

⁹ Many studies have demonstrated a positive economic growth effect of export expansion, via for example, the productivity channel (e.g., Al-Yousif, 1997; Awokuse and Christopoulos, 2009; Bernard and Jensen, 1999; Feder, 1983; Hagemeyer and Mućk, 2019; Kalaitzi and Cleeve, 2018; Lucas, 1988; Tang et al., 2015; Tyler, 1981; Van Biesebroeck, 2005). However, other studies have reported that the type of products exported matters for economic growth, as reliance for example on export of low value-added products (e.g., primary commodities) is negatively associated with economic growth (e.g., Hausmann et al., 2007; Herzer et al., 2006; Kim and Lin, 2009). See also Giles and Williams (2001) for a literature review on the relationship between export and economic growth concerning studies pre-2000 studies. Wagner (2007) has provided a literature survey on the relationship between export and productivity based on firm-level data.

(as it is the case for NRTPs) through the creation of new winners and better skilled workers. Their model has built on four stages of Southern development, whereby the country in the South first specializes in a traditional good, then start copying Northern high-tech manufactured goods (second stage), start innovating (third stage); and finally, only innovates in the same way as in the North (fourth stage).

Finally, the insecurity associated with NRTPs could hamper economic growth (Ornelas, 2016). As highlighted by Ornelas (2016), the key issue here is whether S&D treatment, and in particular NRTPs, genuinely promotes the industries that could foster economic growth in the long term. This might be the case because the sectoral and product coverage of NRTPs are deemed to promote infant industries and accelerate economic growth in the beneficiary countries, as envisaged in the UNCTAD Resolution 21 (II)). However, the choices of products and country eligibilities are at the discretion of preference-granting countries, and it is a priori unclear whether the latter always choose the products that would generate learning externalities¹⁰ (Ornelas, 2016). Additionally, there are often some conditionalities¹¹ attached to the supply of NRTPs by developed nations (e.g., Silva, 2011; Tobin and Busch, 2019) that could raise questions about the predictability of these preferences (e.g., Zappile, 2011). The uncertainty that could surround these preferences could lead to lower exports and hamper economic growth. For example, Zappile (2011) has obtained no significant effect of AGOA membership and eligibility for AGOA textile benefits on eligible African trade. The author has explained this outcome by the uncertainty surrounding the expiration of these preferences, the erosion of preferential margins, and the inability of African producers to adequately exploit preferences. Hakobyan (2020) has uncovered that the 2011 expiration of the United States' GSP program has had a detrimental impact on developing countries' exports to the USA. On average, further to this expiration, these exports dropped by 3% in 2011. Specially, developing countries' exports of agricultural products, as well as of textiles and clothing fell respectively by 5% and 9%. Additionally, exports did not fully recover by 2012, thereby suggesting that the adverse export effect of the 2011 expiration of the US's GSP has been persistent over time. Ornelas (2016) has pointed out that flexible criteria for graduation from the list of beneficiaries of NRTPs, as well as occasional overhauls in NRTPs might not generate dynamic gains, given that exports would not expand beyond a certain level. Li (2018) has developed and tested empirically a dynamic model of exporting with a view to investigating how productivity on the one hand, and uncertain foreign demand, on the other hand, influence firms' export participation. In this model, firms face uncertainty about their own foreign demand, and update their beliefs by relying on individual export transactions according to Bayes' rule. Using data on firm-level production and transaction-level exports to Germany in the Chinese ceramics and glass industry, Li (2018) has found empirically that productivity is the main driver of export participation for experienced firms, while demand learning drives export participation for potential entrants.

Overall, the uncertainty (if any at all) arising from NRTPs could lead to a wait-and-see behaviour of exporting firms in the beneficiary countries, avert a clear horizon for proper planning, weaken incentives for investment and innovation, and result in lower exports than expected

¹⁰ Ornelas (2016) has also pointed out that it would be difficult to identify whether the export industries and products covered by the existing NRTP schemes are those that have the potential of generating significant learning spillovers.

¹¹ Such conditionalities include for example intellectual property rights, investors rights, and labor standards (e.g., Zappile, 2011).

(Ornelas, 2016), that is, a lower utilization of the NRTPs. In that context, NRTPs would be associated with lower economic growth performance in beneficiary countries.

Considering the foregoing, we postulate that NRTPs could spur economic growth in beneficiary countries through its productivity enhancement, improved innovation performance, and export expansion effects (*hypothesis 1*). However, these economic growth benefits of NRTPs could be eroded if there is an uncertainty surrounding the preferences, so that these trade preferences would ultimately lead to lower economic growth (*hypothesis 2*).

2.2. Effect of development aid on economic growth

A voluminous literature has explored the effect of development aid on economic growth, and reached an inconclusive outcome¹². More generally, development aid is a controversial issue in the field of development economics (Edwards, 2014). Some believe that foreign aid has been ineffective in promoting the development of poor countries and their integration in the global economy (e.g., Easterly, 2014; Moyo, 2010), while others claim that aid should not only increase significantly to reach its intended objective (that is, promoting economic growth and reducing poverty), but the way it is provided should be rethought (e.g., Sachs, 2009 and Stiglitz, 2002). Other researchers such as Collier (2007) have argued - in the context of lack of aid effectiveness in promoting economic development in beneficiary countries - that it would be important that the international community, including industrialized nations adopt a bold new plan to help failed states that are home to the poorest billion people on Earth. Such a plan could include, *inter alia*, the offer of preferential trade; policies, new laws against corruption, and new international charters (Collier, 2007). Banerjee and Duflo (2011) have proposed that the fight against poverty and underdevelopment might require that researchers rely on ‘randomised control trials’ to devise effective and specific aid programmes.

On the empirical front, the large literature survey (based on 97 studies) conducted by Doucouliagos and Paldam (2008, 2009) has led to the conclusion that development aid has a small positive, but statistically insignificant effect on economic growth. Bourguignon and Sundberg (2007) have contended that the inconclusiveness of empirical studies on the effect of development aid on economic growth could be attributed to the use of aggregate data. They have suggested that empirical analyses on the effect of development aid on economic growth should go beyond econometrics, and break down the ‘black box’ of development aid. In the same vein, Edwards (2014) has put forth there are multiple black boxes, as the black box referred to as by Bourguignon and Sundberg (2007) is in fact, highly elastic, and changes over time. Therefore, it is important to carry out in details country specific analyses to understand why aid works sometimes and not others, and why some projects are successful while others fail. In the same vein, Addison and Tarp (2015) have emphasized the need for accounting for country-specific situations and problems when studying the effect of development aid on economic growth.

Among recent studies, the one by Chauvet and Ehrhart (2018) is worth emphasizing. The authors have used firm-level data to investigate the mechanisms through which development aid affects economic growth. They have obtained evidence that development aid helps to relax

¹² We do not intend to present here an extensive literature survey on the economic growth effect of development aid. Such a survey could be found, for example, in Asatullaeva et al. (2021). The latter have provided a systematic literature review and content analysis of the top 50 most influential papers on the impact of development aid on economic development in recipient countries.

financing constraints of firms, and exerts a positive effect on firms' sales growth. Specifically, this positive effect appears to be stronger for firms that operate in sectors intensive in infrastructure and external finance. Among other recent works, Pham and Pham (2020) have shown that while development aid may promote economic growth in the recipient country, the global dynamics of equilibrium are complex because of the non-monotonicity and steady state multiplicity.

In the present study, one could not dissociate the effect of the utilization of NRTPs from that of development aid on economic growth, given the debate on whether NRTPs regimes are superior, inferior, or complementary with development aid in promoting economic growth in the recipient countries (e.g., Adam and O'Connell, 2004; Ornelas, 2016). According to Adam and O'Connell (2004), the two policy instruments are equivalent in a simple neoclassical model with a non-traded good, and lack of market imperfections. However, Ornelas (2016) has argued that due to the terms of trade effects, the export response of beneficiary countries of NRTPs is stronger with tariff preferences than with an equivalent transfer. In the meantime, in their endogenous growth model, Acemoglu and Ventura (2002) have shown that in a sufficiently open world, countries that accumulate capital faster (and hence enjoy a higher economic growth) than average, experience declining export prices, which depress the rate of return to capital and discourage further accumulation of capital. In other words, Ornelas (2016) has argued that the export-led growth in a country would result in lower economic growth in the future due to terms of trade effects. In such a context, NRTPs could generate a higher economic growth than development aid because the improvement in terms of trade that could result from these preferences for beneficiaries countries could more than outweigh the negative economic growth effect via the terms of trade (as demonstrated by Acemoglu and Ventura, 2002).

Besides, we can also argue that development aid could be complementary with the utilization of NRTPs in promoting economic growth in countries that are both beneficiaries of these trade preferences, and aid recipients. In fact, in a recent study, Gnangnon and Iyer (2021) have found evidence that Aid for Trade (AfT) - i.e., the part of the overall development aid package devoted to the promotion of the integration of developing countries into the global trading system - contributes to enhancing the utilization of NRTPs. The other part of the overall development (i.e., NonAfT flows) could also contribute to improving the utilization of NRTPs if for example, they were instrumental in enhancing human capital and improving the institutional quality that are both essential for export expansion, notably under NRTPs regimes. For example, Birchler and Michaelowa (2016) and Dreher et al. (2008) have reported a positive effect of aid for education on educational outcomes. Kotsadam et al. (2018), Pickbourn and Ndikumana (2016) and Yogo and Mallaye (2015) have uncovered empirically a positive effect of health aid on health outcomes in the recipient countries. Likewise, aid could help improve the utilization of NRTPs through its positive effect on the quality of institutions and governance in the recipient countries (e.g., Freytag and Heckelman, 2012; Jones and Tarp, 2016; Dijkstra, 2018). Gnangnon (2020) has obtained empirical evidence that the cumulated amount of the total development aid exerts a positive effect on the regulatory policies quality in recipient countries. Dzhumashev and Hailemariam (2021) have shown empirically that the effect of development aid on economic growth and development works mainly through economic institutions, as aid has been found to exert a significant positive effect on the quality of economic institutions in recipient countries. Against this backdrop, we can postulate that by enhancing the utilization of NRTPs, development aid could be complementary

with the utilization of NRTPs in spurring economic growth in beneficiary countries (*Hypothesis 3*).

3. Empirical strategy

This section presents the model specification that would help to examine the effect of the utilization of NRTPs on economic growth (**sub-section 3.1**). It then discusses the econometric method used to perform the empirical analysis (**sub-section 3.2**).

3.1. Model specification

We investigate the effect of the utilization of NRTPs on economic growth by building upon the standard literature on the macroeconomic determinants of economic growth, in particular the literature on the effects of exports on economic growth (see studies cited in section 2 - recent studies include for example, Hagemeyer and Mućk, 2019; Jetter, 2017; Kalaitzi and Cleeve, 2018; Tang et al., 2015). Hence, the model specification contains not only the variables capturing the utilization of NRTPs, as well as the development aid variable (which represents the main other way through which developed countries assist developing countries ones), but also the following control variables: trade policy, terms of trade, economic complexity, government consumption, inflation rate, FDI inflows and population size. At this stage of the analysis, it is worth noting that according to the literature on the determinants of economic growth, human capital¹³ and the institutional quality¹⁴ also matter for countries' economic growth performance. However, we have not included these two variables in the baseline model (1) because we found a strong correlation between them and other control variables in model (1), such as economic complexity, development aid and FDI inflows.

The effect of trade policy reform (for example, trade policy liberalization) on economic growth has been the subject of a huge theoretical and empirical literature¹⁵ that reach inconclusive outcomes. From a theoretical viewpoint, trade policy liberalization can affect economic growth through a variety of channels, including an efficient allocation of resources, increased competition on domestic markets, productivity enhancement (e.g., Melitz, 2003), the expansion of market size, which allows for economies of scale (e.g., Alesina et al., 2005), the diffusion of knowledge (e.g., Grossman and Helpman, 2015), a procompetitive effect in the R&D sector and/or financial sector (e.g., Baldwin and Forslid, 2000), and access of consumers to a wide range of imported products (e.g., Broda and Weinstein, 2006).

Recently, Fukuda (2019) has documented theoretically that trade liberalization promotes economic growth if in an exogenous international spillover and endogenous growth model with firm heterogeneity, the population size is small. The same condition is also sufficient for welfare gain through further exposure to trade. Hsieh et al. (2020) have challenged the standard narrative - whereby trade liberalization expands import variety and improves domestic productivity - by showing that there could be negative “new” gains from trade. They have explained this phenomenon by the fact that import variety gains associated with trade liberalization are

¹³ See for example Lucas (1988); Matousek and Tzeremes (2021); Zhang and Zhuang (2011); Zhang and Wang (2021).

¹⁴ See for example Aixelá and Fabro (2008); Alesina and La Ferrara (2005); Barro (1996); Corradini (2021); Efendic et al. (2011); and Rigobon and Rodrik (2005).

¹⁵ See for example, Irwin (2019) for a recent survey on this literature.

counteracted by domestic variety losses, and domestic productivity gains are counteracted by import productivity losses. Thus, taken all these factors into account, some negative “new” gains emerge from trade.

On the empirical front, Greenaway et al. (2002) have documented that trade liberalisation may affect favourably the growth of real GDP per capita, but with a lag. Clemens and Williamson (2004) have established that high tariffs were associated with fast growth before World War II, but they have been associated with slow growth thereafter. However, the world economic environment matters for the effects of tariffs on economic growth. Specially, an increase in average tariff rates among trading partners by just one third might be sufficient to reverse any negative relationship between an average country's tariffs and its growth. Rutherford and Tarr (2002) have demonstrated that complementary reforms are crucial to ensure the full realization of the potential gains from the trade reform. Along the same lines, Chang et al. (2009) have shown that trade policy liberalization can significantly improve economic growth if countries undertake certain complementary reforms. These reforms can include human capital enhancement, deepening of domestic financial markets, maintaining a stable inflation rate, developing public infrastructure, enhancing governance, promoting labour market flexibility, and ease both firm entry and firm exit. Summing-up, we expect a positive effect of trade policy liberalization on economic growth, although we do not rule out the possibility that trade policy liberalization can lower economic growth.

Regarding the effect of other control variables on economic growth, Kaneko (2000) has shown that the economic growth rate effect of terms of trade in a country depends on the country's trade pattern. Economic growth would not be affected by terms of trade when the country specializes in a capital commodity. In contrast, if it specializes in a consumption commodity, the terms of trade would significantly affect its economic growth rate. Recent studies have reported a positive effect of terms of trade improvements on economic growth (e.g., Jawaid and Raza, 2013; Vianna and Mollick, 2021). We expect that an improvement in terms of trade would be positively associated with economic growth.

Economic complexity, which reflects the diversity (i.e., the number of products exported) and the ubiquity (i.e., the number of countries that also export these products) of an economic system, measures the amount of knowledge embedded in a country's productive (including export) structure (Hausmann et al. 2014; Hausmann and Hidalgo, 2009). The literature has established empirically that greater economic complexity (i.e., a higher level of economic sophistication) exerts a strong positive effect on economic growth (e.g., Hausmann and Hidalgo, 2009, 2011; Hidalgo, 2021; Jarreau and Poncet, 2012; Koch, 2021). Therefore, we expect that an improvement in countries' level of economic complexity would be positively associated with economic growth.

The effect of government consumption on economic growth can take place through multiple channels, including for example, factor accumulation or technical progress such as public research and development (Gemmell, 2001), and private investment (e.g., Alesina et al., 2002). The empirical findings on the effect of government consumption on economic are mixed. For example, Mo (2007) has found a negative effect of government consumption, while Lin (1994) and Olaoye et al. (2020) have obtained a positive effect of government consumption on economic growth. In the present analysis, it would be difficult to anticipate the direction of the effect of government consumption on economic growth.

Lower inflation rates reflect a greater macroeconomic stability, and contributes to promoting economic growth (e.g., Barro, 2013; Christiansen et al., 2013; De Gregorio, 1993).

Finally, the variable capturing FDI inflows (in percentage of GDP) has been introduced in the analysis, in light of the importance of FDI inflows for utilizing NRTPs (e.g., Yannopoulos, 1987), and given that FDI inflows could exert a significant positive effect on economic growth, (e.g., Baldwin et al. 2005; De Gregorio, 2005). The effect of FDI inflows on economic growth can work through many channels, including the facilitation of technology transfer, spillover effects on domestic investment, jobs creation and improvement of human capital and institutions (e.g., Alfaro et al., 2010; Li and Liu, 2005; Makki and Somwaru, 2004). The literature on the effect of FDI inflows on economic growth is yet voluminous, but still inconclusive. For example, while some studies have reported a positive effect of FDI inflows on economic growth, others have found that their effect depends on whether they crowd-in or crowd-out domestic investment (e.g., Morrissey and Udomkerdmongkol, 2012; Farla et al., 2016), and could be conditioned upon host countries' characteristics, such as the level of human capital (e.g., Borensztein et al., 1998; Su and Liu, 2016), the depth of financial development (e.g., Alfaro et al., 2010; Hermes and Lensink, 2003; Kottaridi and Stengos, 2010; Osei and Kim, 2020); the level of information and communication technology (ICT) (e.g., Asongu Odhiambo, 2020), and the institutional and governance quality (e.g., Azman-Saini et al., 2010; Bengoa and Sanchez-Robles, 2003; Hayat, 2017). Building on the existing works on this issue, we cannot predict the direction of the effect of FDI inflows on economic growth, and the issue is essentially empirical.

Finally, according to Becker et al. (1999), the population size can affect the per capita income through both a positive and a negative effect on aggregate productivity. On the one hand, the rise in the population size may lead to lower productivity due to the traditional diminishing returns induced by an intensive use of land and other natural resources. On the other hand, an increase in the population size can encourage greater specialization and induce higher investments in knowledge, mediated in part through bigger and more important cities. Thus, the net effect of the population size on economic growth (via the productivity channel) depends on whether its positive effect on human capital and knowledge expansion outweighs its negative effect via the diminishing returns to natural resources. Therefore, we may find empirically either a net positive or negative effect of the population size on economic growth.

We consider the following baseline model specification (1):

$$GROWTH_{it} = \alpha_1 GROWTH_{it-1} + \alpha_2 URGSP_{it} + \alpha_3 UROTP_{it} + \alpha_4 ODA_{it} + \alpha_5 TERMS_{it} + \alpha_6 TP_{it} + \alpha_7 ECI_{it} + \alpha_8 GCONS_{it} + \alpha_9 INFL_{it} + \alpha_{10} FDI_{it} + \alpha_{11} Log(POP)_{it} + \mu_i + \delta_t + \epsilon_{it} \quad (1)$$

where the subscripts i and t indicate respectively a country and a time-period. The parameters α_1 to α_{11} are to be estimated. μ_i represent time invariant specific effects of each country in the panel dataset. δ_t are time dummies that capture global shocks that influence together all countries' economic growth path. ϵ_{it} is a well-behaving error-term. The panel dataset used to estimate model (1) and its different variants described below, is unbalanced, and contains 90 countries (beneficiaries of both NRTPs and development aid) over the period 2002-2018. This dataset has been constructed based on data availability. Following studies such as Christiansen et al. (2013), we use non-overlapping sub-periods of 3-year that are 2000-2002; 2003-2005; 2006-2008; 2009-

2011; 2012-2014 and 2015-2018 (the latter sub-period covers 4 years rather than 3 years). This helps to mitigate the effect of business cycles on variables at hand. Appendix 1 presents a description of all variables in model (1) as well as their respective source.

The dependent variable "GROWTH" is the growth rate (annual percentage) of the real GDP per capita (constant prices 2010 US\$). We have followed the extant literature by including the one period lag of this variable as a regressor in model (1). This helps capture the state-dependence feature of economic growth rate, and concurrently helps address possible omitted variables bias in the model specification.

The variable "URGSP" represents the utilization rate (in percentage) of GSP programs provided by the QUAD countries to developing countries. It captures the extent to which imports which are eligible for GSP programs are actually imported under these preferences. It has been computed using a formula adopted by both the WTO and the UNCTAD (see WTO, 2016). The formula goes as follows: $URGSP = 100 * (GSP \text{ Received Imports}) / (GSP \text{ Covered Imports})$, where "GSP received imports" refers to the value of imports that received GSP treatment, and "GSP covered imports" indicates the value of imports that are classified in tariff lines that are dutiable and covered by the GSP scheme of the preference-granting country.

The indicator "UROTP" is the utilization rate (in percentage) of the other NRTPs offered by the QUAD countries to developing countries. For the US, the other trade preferences cover the African Growth and Opportunity Act (AGOA) and the Caribbean Basin Initiative. In the case of the EU, it includes preferences under the Economic Partnership Agreements entered with selected Africa Sub-Saharan countries. It has been computed as follows: $UROTP = 100 * (Other\text{-}Preferential \text{ Imports}) / (Other \text{ Preferential Covered Imports})$. "Other-Preferential Imports" refers to the value of imports that benefitted from NRTPs other than GSP programs. "Other-Preferential Covered Imports" refers to the value of imports that are classified in tariff lines that are dutiable and covered by the other-preferential schemes.

The variables "ODA", "TERMS" and "TP" are respectively the transformed development aid variable (see Appendix 1 for more details), terms of trade, and trade policy (higher values of the latter indicate greater trade policy liberalization). Similarly, the variables "ECI", "GCONS" and "INFL" are respectively the economic complexity index, the share of government consumption in GDP, and the transformed inflation variable (see Appendix 1 for more details). Finally, the variables "FDI" and "POP" stand for the FDI-to-GDP ratio and the population size.

3.2. Econometric approach

Regarding the econometric approach, we first estimate model (1) using standard econometric estimators (i.e., the pooled ordinary least squares - POLS - and the within fixed effects estimator -FE) bearing in mind that the estimates obtained and reported in columns [1] and [2] of Table 1 could be biased¹⁶. The first bias can arise from the endogeneity concerns due to the possible bi-directional causality between the economic growth rate variable and the regressors (except for the population size and terms of trade) included in model (1). In fact, the literature on the macroeconomic determinants of economic growth has well established that development aid, trade policy, economic complexity, government consumption, inflation rate, and FDI inflows

¹⁶ We, nevertheless, report results based on the POLS and FE estimators with a view to comparing them with those obtained by means of the two-step system GMM estimator used (later in the analysis) to address the endogeneity concerns that plague model (1).

could be potentially endogenous in a model of the macroeconomic determinants of economic growth rate in developing countries. Furthermore, while we expect the utilization rate of NRTPs to influence beneficiary countries' economic growth performance, it is also possible that the economic growth performance of developing countries influences countries' eligibility to NRTPs as well as the sectors and products coverage of the NRTPs. Another endogeneity problem can stem from the correlation between the one-period lag of the dependent variable and the time invariant countries' specific effects. This is referred to as the Nickell bias (Nickell, 1981), and this bias is high in dynamic panel datasets with a small-time dimension and a relatively large cross-section. This is the case in the present study, as the panel dataset covers 6 non-overlapping sub-periods and 90 countries.

To handle these endogeneity problems, we follow many previous studies (e.g., Chang et al. 2009; Christiansen et al., 2013; Eicher and Schreiber, 2010; Feeny et al., 2014; Lee and Kim, 2009; Museru et al., 2014) and use the two-step system Generalized Methods of Moments (GMM) proposed by Arellano and Bover (1995) and Blundell and Bond (1998). This estimator helps to correct for the unobserved country heterogeneity, measurement errors, the endogeneity issues raised above, and the omitted variable bias. In the present analysis, the omitted bias may arise from the fact that we have not introduced in the baseline model (1) indicators that capture the utilization rates of NRTPs provided by other preference-granting countries than the QUAD countries. This is simply because data on such indicators is, for the time being, not available.

The two-step system GMM estimator combines in a system of equations, an equation in differences and an equation in levels, where lagged first differences are used as instruments for the levels equation, and lagged levels are used as instruments for the first-difference equation. It improves the consistency and efficiency of the estimates compared to the difference GMM estimator¹⁷ proposed by Arellano and Bond (1991), which uses lags of variables as instruments of endogenous variables to address the endogeneity concerns. In fact, the difference GMM estimator suffers from sample bias, and generates weak instruments when the time dimension of the panel is small, and time series display a strong persistence (e.g., Alonso-Borrego and Arellano, 1999; Bond et al., 2001; Bond, 2002). Hence, by using lagged levels and lagged differences of variables as instruments, the two-step system GMM estimator reduces the imprecision and potential bias associated with the difference GMM estimator.

It is worth noting that we expect that the coefficient of the dependent variable obtained by the two-step system GMM estimator should lie between the estimate of this variable generated by the FE estimator and the one generated by the POLS estimator (e.g., Bond et al., 2001). This is because the POLS estimator generates upward biased coefficient of the lagged dependent variable, while the FE estimator leads to a downward bias of the estimate related to the dependent variable.

We evaluate whether model (1) (or its different variants described below) estimated by the two-step system GMM technique is correctly specified by means of several statistical tests. These include the Arellano-Bond test of the presence of first-order serial correlation in the first-differenced error term (denoted AR(1)); the Arellano-Bond test of absence of second-order autocorrelation in the first-differenced error term (denoted AR(2)); and the Sargan/Hansen test of over-identifying restrictions (OID). Even though it is not required, we have also carried the

¹⁷ The difference GMM estimator wipes out countries' fixed effects and uses lags of variables as instruments of endogenous variables.

Arellano-Bond test of the absence of third-order serial correlation in the first-differenced error term (denoted AR(3)). Model (1) and its different variants estimated by means of the two-step system GMM estimator will be considered as correctly specified if we reject the null hypotheses of absence of first-order autocorrelation in the first-differenced error term (associated with the AR(1) test); and if we do not reject the absence of second-order autocorrelation in the first-differenced error term (associated with the AR(2) test); and the null hypothesis of the validity of instruments associated with the OID test of over-identifying restrictions. Accepting the null hypothesis of absence of third-order serial correlation in the first-differenced error term for the AR(3) test could provide indication that model (1) and its different variants (described below) do not suffer from omitted variables bias. Finally, following for example, Bowsher (2002) and Roodman (2009), we make sure that in the regressions carried out, the number of instruments should be lower than the number of countries, as otherwise, the above-mentioned tests may be less powerful. To that effect, the regressions have used a maximum of 3 lags of the dependent variable as instruments and 2 lags of the endogenous variables as instruments.

The analysis has performed several regressions using the two-step system GMM estimator. In all these regressions, the variables "URGSP", "UROTP", "ECI", "TP", "GCONS", "ODA", "INFL", "FDI", and the interaction variables have been treated as endogenous. The population size and terms of trade variables have been considered as exogenous.

First, we estimate model (1), the results of which are reported in column [3] of Table 1.

Second, we estimate a first variant of model (1) in which we interact each of the two variables measuring the utilization of NRTPs with the development aid variable. The results of this estimation are reported in column [1] of Table 2, and would help investigate how the two major policy tools (unilateral trade preferences and development aid) available to donor-countries to assist developing countries interact in influencing economic growth in recipient countries.

Third, we estimate a second variant of model (1) that allows investigating how the two types of NRTPs interact in affecting the economic growth performance in beneficiary countries. The rationale for estimating this variant of model (1) is to examine whether utilizing concurrently both GSP programs and other trade preferences helps to foster economic growth in beneficiary countries, i.e., whether both GSP programs and other trade preferences are complementary or substitutable in promoting economic growth in beneficiary countries. The outcomes of this estimation are presented in column [2] of Table 2.

Fourth and finally, we test whether terms of trade improvements enhances the positive effect of NRTPs to economic growth in beneficiary countries. This is because theoretically, NRTPs provide beneficiary countries with a higher export prices than other exporters (that do not enjoy those preferential regimes) to the preference granting countries. This export prices rise would lead to an improvement in terms of trade for the beneficiary countries, and possibly help foster their economic growth performance. To test empirically this hypothesis, we estimate another specification of model (1), that is, model (1) in which we introduce the interaction between each of the two variables measuring the utilization of NRTPs and the terms of trade indicator. We are, nevertheless, aware that the improvement of the indicator of terms of trade might not always reflect the increase in the export prices of the products exported under the NRTPs regimes. The outcomes of the estimation of this last specification of model (1) are reported in column [3] of Table 2.

4. Empirical results

We observe from the three columns of Table 1 that the coefficients of the lagged dependent variable are all significant at the 1% level. This is in line with the voluminous literature on the macroeconomic determinants of economic growth that has uncovered that there exists a state dependent path of economic growth. In addition, we note, as expected, that the coefficient of the lagged dependent variable obtained in column [3] (i.e., based on the two-step system GMM estimator) is lower than the coefficient of the same variable obtained when using the POLS estimator, but higher than the estimate obtained when using the FE estimator. The same finding applies to estimates of the lagged dependent variable reported in all columns of Table 2 (i.e., these estimates are all significant at the 1% level, and comprised between the one obtained from the use of the FE estimator and the estimate obtained when using the POLS estimator).

[Insert Table 1, here]

We note from results in columns [1] and [2] of Table 1 that the utilization rate of GSP programs influences positively economic growth at the 5% level for results based on the POLS estimator, but only at the 10% level for results based on the FE estimator. Taking up the outcome in column [1], we obtain that a 100-percentage point increase in the utilization rate of GSP programs (i.e., doubling this rate) is associated with a 0.9 percentage point increase in the economic growth rate. At the same time, in both columns [1] and [2], there is no significant effect of the utilization rate of other trade preferences on economic growth at the conventional significance levels.

As for the other variables, we find from results presented in column [1] that economic growth rate is positively and significantly driven (at least at the 5% level) by lower government consumption, lower inflation rates, and a rise in the population size. Development aid, terms of trade, economic complexity, trade policy liberalization, and FDI inflows exert no significant effect on economic growth at the conventional significance levels. Outcomes reported in column [2] of Table 1 indicate that the inflation variable is negatively and significantly associated with economic growth (at the 1% level), while FDI inflows exert a positive effect on economic growth only at the 10% level. The other variables show no significant coefficients at the conventional significance levels.

As mentioned above, these results could be biased due to the endogeneity concerns highlighted. Therefore, we turn to the estimates based on the two-step system GMM approach, that are reported in column [3] of Table 1 and Table 2.

[Insert Table 2, here]

We note from the bottom of column [3] of Table 1 and of all columns of Table 2 that all model specifications are correctly specified as they successfully pass the diagnostic tests described above. In fact, the p-values associated with the AR(1) test are lower than 0.1 (i.e., the 10% level) and the p-values related to the AR(2) and AR(3) tests are greater than 0.1. Moreover, the p-values of the OID test are, as expected, higher than 0.1. Taken together, all these outcomes allow concluding that the two-step system GMM approach is appropriate for undertaking the empirical analysis.

Estimates presented in column [3] of Table 1 suggest that both the utilization rate of GSP programs and the utilization rate of other trade preferences programs exert a positive and significant (at the 1% level) effect on economic growth in beneficiary countries. A 1 percentage point increase in the utilization rate of GSP programs is associated with a 0.011 percentage point

increase in economic growth rate in beneficiary countries of these trade preferences. Likewise, a 1 percentage point increase in the utilization rate of other trade preferences is associated with a 0.016 percentage point increase in economic growth rate in beneficiary countries of these trade preferences. Interestingly, the usage of other trade preferences exerts a slightly higher positive effect on economic growth than the usage of GSP programs. Moreover, the magnitude of the effect of the utilization rate of GSP programs on economic growth (which amounts to 0.011) is slightly higher than the one (0.009) obtained in column [2] of Table 1 (results based on the POLS estimator). At the same time, we find, with surprise, that development aid inflows appear to exert a negative and significant effect (at the 1% level) on economic growth. This outcome certainly hides the fact that the effect of development aid on economic growth is dependent on the utilization of NRTPs. Put it differently, this result may suggest the existence of a joint (complementarity or substitutability) effect of the utilization of NRTPs (including both GSP programs and other trade preferences) on economic growth. We will consider later in the analysis whether there exist a complementarity or substitutability between development aid inflows and NRTPs in influencing beneficiaries' economic growth.

The control variables in column [3] of Table 1 display, in general, the expected coefficients. Terms of trade improvements, greater economic complexity, greater trade policy liberalization, higher FDI inflows, and the rise in the population size influence positively and significantly (at the 1% level) economic growth in beneficiary countries. Government consumption influences negatively and significantly (at the 1% level) economic growth, while the inflation rate exerts no significant effect on economic growth at the conventional significance levels. The findings concerning the control variables in columns [1] to [3] of Table 2 are broadly in line with those in column [3] of Table 1, except for the inflation rate whose coefficient is still yet negative, but becomes significant at the 1% level in column [3] of Table 2.

Outcomes displayed in column [1] of Table 2 indicate that the interaction terms related to the variables "URGSP*ODA" and "UROTP*ODA" are positive and statistically significant at the 1% level, while at the same time the coefficients of "URGSP" and "UROTP" variables are respectively negative and significant at the 5% level, and negative but not statistically significant at the conventional significance levels. These outcomes suggest firstly that other trade preferences programs and development aid inflows are strongly complementary in fostering economic growth in beneficiary countries, and the higher the development aid flows, the greater is the magnitude of the positive effect of the utilization rate of other trade preferences programs on economic growth performance in beneficiary countries. Secondly, the utilization of GSP programs and development aid are also strongly complementary in fostering economic growth, notably when development aid flows exceed a certain amount¹⁸. For lower amounts of development aid, the utilization of GSP programs exerts a negative effect on economic growth, and for higher amounts of development aid, it exerts a positive and significant effect on economic growth: the magnitude of this positive effect rises as development aid inflows increase. Interpreting differently, these results in column [1] of Table 2 suggest that higher development aid flows induce a positive and significant economic growth performance in beneficiary countries whose utilization rate of GSP programs exceeds 85.53% ($= 0.0881/0.00103$): for these countries, the greater the utilization rate of GSP programs

¹⁸ It is difficult to compute the amount of total development aid inflows above which the effect of the utilization of GSP programs would influence positively and significant economic growth. This is because of the method used for transforming the aid variable in the analysis.

(i.e., for rates higher than above 85.53%), the higher is the magnitude of the positive effect of development aid flows on economic growth. Similarly, aid flows exert a positive and significant effect on economic growth in beneficiary countries whose utilization rates of other trade preferences exceed 57.21% $0.0881/0.00154$), and the magnitude of the positive effect of development aid flows on economic growth rises as the utilization rate of other trade preferences improves (as far as the rate is at least 57.2%).

Summing-up, the key message conveyed by these findings is that GSP programs are strongly complementary with development aid flows in fostering economic growth performance in beneficiary countries, either for high amounts of development aid flows and/or for high utilization rates of GSP programs, i.e., higher than 85.5%. On the other hand, other trade preferences are also consistently and strongly complementary with development aid flows in enhancing economic growth in beneficiary countries, including when the amount of development aid rises and/or when the utilization rates of these preferences exceeds 57.2%.

We now consider outcomes in column [2] of Table 2. These outcomes aim to help examine whether GSP programs and other trade preferences offered by the QUAD countries are complementary or substitutable in promoting economic growth in beneficiary countries. We find that the interaction term of the variable ["URGSP*UROTP"] is positive and significant at the 1% level, while the coefficients of the variables "URGSP" and "UROTP" are respectively negative and significant at the 5% level, and positive and significant at the 10% level. These outcomes suggest a strong complementarity between GSP programs and other trade preferences in enhancing economic growth in beneficiary countries. However, at the 5% level, this strong complementarity occurs for any rate of utilization of other trade preferences, and becomes higher as this rate increases. Similarly, at the 5% level, GSP programs and other trade preferences are complementary in fostering economic growth in beneficiary countries when the utilization rate of GSP programs is higher than 20.17% ($= 0.00948/0.00047$), holding the utilization rate of other trade preferences constant. Otherwise (that is, for utilization rates of GSP programs lower than 20.17%), GSP programs and other trade preferences are substitutable in enhancing economic growth in beneficiary countries.

As these outcomes represent "averages" effects across countries in the full sample, we find useful to examine how the impact of the utilization of GSP programs on economic growth evolves for varying utilization rates of other trade preferences, and inversely, how the utilization of other trade preferences affects economic growth for varying rates of the utilization of GSP programs. Figure 1 presents, at the 95 per cent confidence intervals, the developments of the marginal impact of the utilization of GSP programs on economic growth for varying levels of the utilization of other trade preferences. The marginal impacts that are statistically significant at the 95 per cent confidence intervals are those encompassing only the upper and lower bounds of the confidence interval that are either above or below the zero line. Figure 1 shows that the marginal impact of the utilization of GSP programs on economic growth takes positive and negative values, and increases as the rate of the utilization of other trade preferences improves. However, it is not always statistically significant. It is not statistically significant for the utilization rates of other trade preferences ranging between 5.83% and 29.14%. This means that countries whose level of utilization of other trade preferences range between 5.83% and 29.14% experience no significant effect of the utilization of GSP programs on economic growth. For countries with very low levels of utilization of other trade preferences (i.e., those with the utilization rates of other trade

preferences lower than 5.83%), GSP programs are associated with a negative economic growth, and the lower the utilization rates of other trade preferences, the higher is the magnitude of the negative effect of GSP programs on economic growth. However, countries whose utilization rates of other trade preferences are higher than 29.14% experience a positive effect of GSP programs on economic growth, and the magnitude of the positive effect rises as the utilization rate of other trade preferences increases. Overall, the key message conveyed by Figure 1 is the strong complementarity between GSP programs and other trade preferences in promoting economic growth in beneficiary countries.

[Insert Figure 1, here]

[Insert Figure 2, here]

Figure 2 presents, at the 95 per cent confidence intervals, the developments of the marginal impact of the utilization of other trade preferences on economic growth for varying levels of the utilization of GSP programs. This Figure confirms the strong complementarity between GSP programs and other trade preferences in enhancing economic growth. In fact, Figure 2 indicates that this marginal impact increases as the degree of utilization of GSP programs rises, but it is only statistically significant when the utilization rate of GSP programs exceeds 29.4%. Otherwise, the utilization of other trade preferences exerts no significant effect on economic growth. Thus, the utilization of other trade preferences exerts a positive and significant effect on economic growth only when countries also utilize GSP programs at a rate higher than 29.4%. Countries concerned enjoy a higher magnitude of the positive effect of the utilization of other trade preferences on economic growth rate, as the utilization rate of GSP programs rises.

The outcomes in column [4] of Table 2 aim to examine how the utilization of NRTPs affect economic growth rate as terms of trade improve. Estimates in this column suggest negative and significant (at the 1% level) coefficients of the variables "URGSP" and "UROTP". At the same time, we obtain that the interaction terms associated with the interaction variables ["URGSP*TERMS"] and ["UROTP*TERMS"] are positive and significant (at the 1% level). Taken together, these outcomes suggest, on the one hand, that at the 1% level, the utilization of GSP programs affects positively and significantly economic growth rate in beneficiary countries as terms of trade improve, and in particular when the terms of trade level is higher than 93.2 ($= 0.0384/0.000412$). On the other hand, at the 1% level, the utilization of other trade preferences affects positively and significantly economic growth rate in beneficiary countries as terms of trade improve, notably when the terms of trade level is higher than 116.3 ($= 0.0479/0.000412$). It is worth noting that the values of the variable capturing the terms of trade range between 50.64 and 453.72.

5. Conclusion

Among major policy tools available to wealthier countries to assist developing countries in their efforts to promote development are development aid and non-reciprocal trade preferences. The offer of NRTPs by industrialized nations builds upon the Resolution 21(ii) adopted by member states at the second UNCTAD conference held in 1968. This Resolution stated, *inter alia*, that the provision of NRTPs, including GSPs in favour of developing countries and the less developed countries among them, should have three goals, namely "increase the export earnings

of developing countries, promote their industrialization, and accelerate their rates of economic growth".

Many studies have assessed whether NRTPs have been effective in increasing export earnings of beneficiary countries, as envisaged in the Resolution 21(ii), and have reached mixed conclusions. Few other works have explored whether the second goal stated in the Resolution 21(ii), i.e., the promotion of industrialization of the beneficiary countries, has been achieved. These works have also obtained mixed empirical evidence. However, less attention has been paid to the issue as to whether NRTPs have been effective in promoting economic growth in beneficiary countries.

The present paper aims to fill this void in the empirical literature by using the recent dataset compiled by the UNCTAD on the utilization of NRTPs offered by the QUAD, and investigating the effect of the utilization of NRTPs provided by the QUAD countries on the beneficiary countries' economic growth performance. The paper also examines how development aid and the utilization of NRTPs interact in influencing economic growth performance of beneficiary countries. The empirical exercise has established several findings. First, both the utilization rate of GSP programs and the utilization rate of other trade preferences promote economic growth in beneficiary countries. Second, GSP programs and other trade preferences are complementary in fostering economic growth in beneficiary countries, notably for high rates of the utilization of GSP programs. Third, GSP programs and development aid flows are complementary in fostering economic growth performance in beneficiary countries, especially for high amounts of development aid flows and/or high utilization rates of GSP programs. Moreover, development aid flows are complementary with other trade preferences, with the specificity here being that this complementarity occurs for any level of the utilization of other trade preferences, and becomes higher as the utilization rate of other trade preferences rises. Finally, results have suggested that for high levels of improvements in terms of trade, both GSP programs and other trade preferences influence positively economic growth.

From a policy perspective, this analysis suggests that wealthier countries should support the development strategy of developing countries by combining the supply of high amounts of development aid and the offer of generous NRTPs (that would, *inter alia*, cover the export products of interest to beneficiary countries accompanied with lenient preferential rules of origin).

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TABLES and APPENDICES

Table 1: Effect of the utilization of non-reciprocal trade preferences on economic growth
Estimators: POLS, Within Fixed Effects and Two-Step System GMM

	POLS	Within Fixed Effects	Two-Step System GMM
Variables	GROWTH	GROWTH	GROWTH
	(1)	(2)	(3)
GROWTH _{t-1}	0.371*** (0.0483)	0.157*** (0.0518)	0.241*** (0.0161)
URGSP	0.00944** (0.00468)	0.0105* (0.00623)	0.0114*** (0.00225)
UROT	-0.00259 (0.00458)	0.00927 (0.00751)	0.0163*** (0.00224)
ODA	-0.000997 (0.0141)	0.00937 (0.0171)	-0.00988** (0.00442)
TERMS	-0.00218 (0.00298)	0.0112 (0.00827)	0.0133*** (0.00222)
ECI	0.324 (0.259)	0.694 (1.146)	0.714*** (0.125)
TP	0.0326 (0.0199)	0.0172 (0.0288)	0.0331*** (0.00944)
GCONS	-0.122*** (0.0424)	-0.0927 (0.105)	-0.0903*** (0.0235)
INFL	-0.0334*** (0.0111)	-0.0508*** (0.0159)	-0.0110 (0.0110)
FDI	0.101 (0.0642)	0.156* (0.0863)	0.148*** (0.0184)
Log(POP)	0.262** (0.123)	-3.104 (3.310)	0.845*** (0.0777)
Observations - Countries	404 - 90	404 - 90	404 - 90
R-squared	0.395		
Within R-squared		0.2975	
Number of Instruments			84
AR1 (P-Value)			0.0001
AR2 (P-Value)			0.1989
AR3 (P-Value)			0.1996
OID (P-Value)			0.2474

*Note: *p-value<0.1; **p-value<0.05; ***p-value<0.01. Robust Standard Errors are in parenthesis, as they have been clustered at the country level. Time dummies have been included in the regressions.*

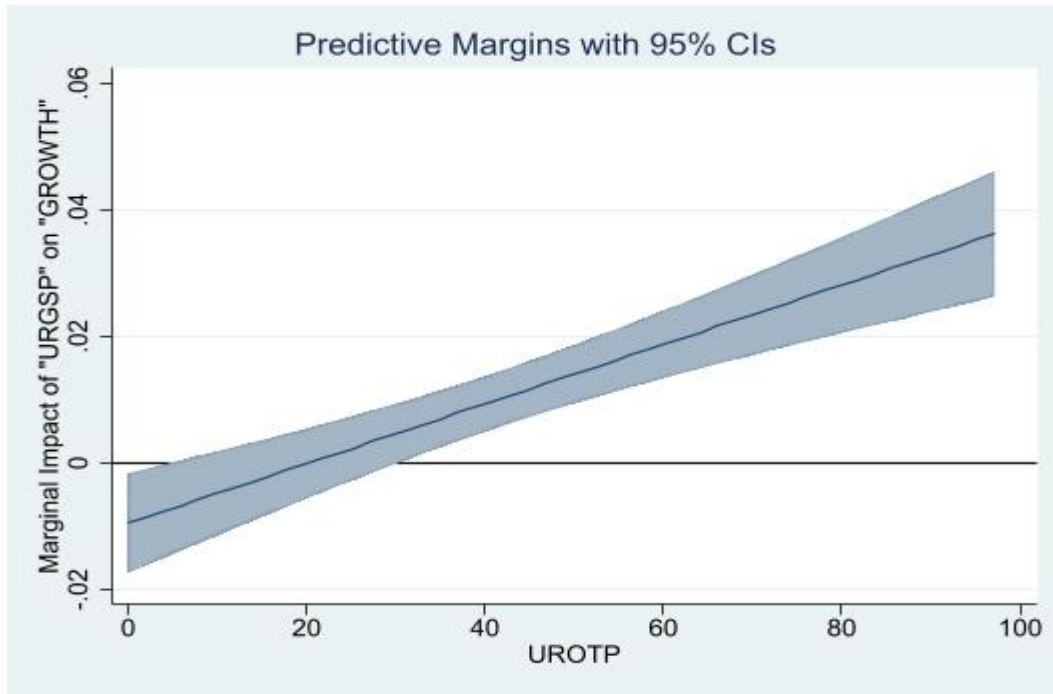
Table 2: Effect of the utilization of non-reciprocal trade preferences on economic growth
Estimator: Two-Step System GMM

Variables	GROWTH	GROWTH	GROWTH
	(1)	(2)	(3)
GROWTH _{t-1}	0.219*** (0.0130)	0.238*** (0.0167)	0.237*** (0.0145)
URGSP	-0.0205** (0.00917)	-0.00948** (0.00401)	-0.0384*** (0.00590)
UROTP	-0.00179 (0.00598)	-0.00841* (0.00468)	-0.0479*** (0.00574)
URGSP*ODA	0.00154*** (0.000508)		
UROTP*ODA	0.00103*** (0.000302)		
URGSP*UROTP		0.000470*** (8.10e-05)	
URGSP*TERMS			0.000412*** (4.29e-05)
UROTP*TERMS			0.000422*** (3.95e-05)
ODA	-0.0881*** (0.0267)	-0.00253 (0.00444)	0.0189*** (0.00633)
TERMS	0.0124*** (0.000973)	0.0150*** (0.00132)	-0.0312*** (0.00318)
ECI	0.648*** (0.0838)	0.518*** (0.109)	1.718*** (0.0965)
TP	0.0346*** (0.00739)	0.0564*** (0.0112)	0.0393*** (0.00975)
GCONS	-0.0756*** (0.0232)	-0.148*** (0.0293)	-0.0807*** (0.0182)
INFL	-0.0110 (0.00775)	-0.00851 (0.00692)	-0.0309*** (0.00325)
FDI	0.144*** (0.0143)	0.158*** (0.0145)	0.157*** (0.0122)
Log(POP)	0.546*** (0.0898)	1.051*** (0.0710)	0.489*** (0.106)
Observations - Countries	404 - 90	404 - 90	404 - 90
AR1 (P-Value)	0.0001	0.0001	0.0001
AR2 (P-Value)	0.1970	0.2425	0.1434
AR3 (P-Value)	0.2020	0.2078	0.2147
OID (P-Value)	0.4268	0.4594	0.6026

Note: *p-value<0.1; **p-value<0.05; ***p-value<0.01. Robust standard errors are in parenthesis. The variables "URGSP", "UROTP", "ECI", "TP", "GCONS", "ODA", "INFL", "FDI", and the interaction variables have been treated as endogenous. The variable "POP" and "TERMS" has been treated as exogenous. Time dummies have been included in the regressions. The latter have used a maximum of 3 lags of the dependent variable as instruments, and 2 lags of endogenous variables as instruments.

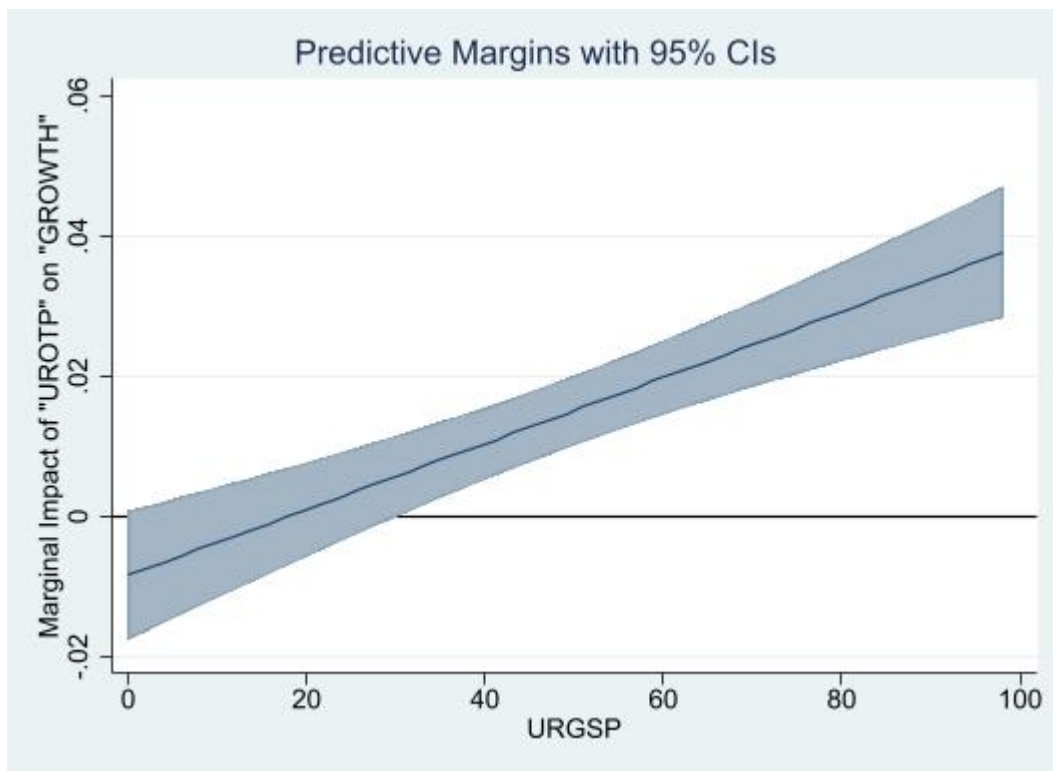
FIGURES

Figure 1: Marginal Impact of "URGSP" on "GROWTH", for varying levels of "UROTP"



Source: Author

Figure 2: Marginal Impact of "UROTP" on "GROWTH", for varying levels of "URGSP"



Source: Author

Appendix 1: Definition and Source of variables

Variables	Definition	Source
GROWTH	Growth rate of the real GDP per capita (constant 2010 US\$), annual percentage	World Development Indicators (WDI)
URGSP	<p>This is the indicator of the utilization rate of unilateral trade preferences under the Generalized System of Preferences (GSP) schemes provided to developing countries 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). 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 that received GSP treatment, and "GSP covered imports" indicates the value of imports that are classified in tariff lines that are dutiable and covered by the GSP scheme of the preference-granting country. Detailed information on the dataset is available over the Internet at: https://gsp.unctad.org/about</p>	<p>United Nations Conference on Trade and Development (UNCTAD) Dataset: https://gsp.unctad.org/utilization</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. In particular, this covers preferences granted by USA under the African Growth and Opportunity Act (AGOA) and the Caribbean Basin Initiative; in the case of the European Union, it includes preferences under the Economic Partnership Agreements (EPAs) entered with selected Africa Sub-Saharan countries. 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 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 that are classified in tariff lines that are dutiable and covered by the other-preferential schemes. Detailed information on the dataset is available over the Internet at: https://gsp.unctad.org/about</p>	<p>United Nations Conference on Trade and Development (UNCTAD) Dataset: https://gsp.unctad.org/utilization</p>

ECI	This is the economic complexity index. It reflects the diversity and sophistication of a country's export structure. It has been estimated using data connecting countries to the products they export, and applying the methodology in Hausmann et al. (2014).	MIT's Observatory of Economic Complexity (https://oec.world/en/rankings/eci/hs6/hs96)
GCONS	This is the measure of the general government final consumption expenditure. It is the ratio (in percentage) of the general government final consumption expenditure to GDP.	Data on General government final consumption expenditure (% GDP) extracted from the WDI.
ODA	This is the 'transformed' real net disbursements of total Official Development Assistance, expressed in constant prices 2018, US Dollar. Let us denote "ODA1" the real net disbursements of total Official Development Assistance, expressed in constant prices 2018, US Dollar. As this variable displays a high skewness, it has been transformed using the following formula (see Yeyati et al. 2007; Dabla-Norris et al., 2015): $ODA = \text{sign}(ODA1) * \log(1 + ODA1)$, where $ ODA1 $ refers to the absolute value of the variable "ODA1".	Author's computation based on data extracted from the database of the Organization for Economic Cooperation (OECD).
INFL	The variable "INFL" has been calculated using the following formula (e.g., Yeyati et al. 2007): $INFL = \text{sign}(INFLATION) * \log(1 + INFLATION)$ (2), where $ INFLATION $ refers to the absolute value of the annual inflation rate (%), denoted "INFLATION". The annual inflation rate (%) is based on Consumer Price Index -CPI- (annual %) where missing values has been replaced with values of the GDP Deflator (annual %).	Author's calculation based on data from the WDI.
TERMS	This is the indicator of the terms of trade, measured by the net barter terms of trade index (2000 = 100).	WDI
FDI	The variable represents the net inflows of Foreign direct investment (in percentage of GDP).	WDI
TP	This is the indicator of trade policy, measured by the trade freedom score. The latter is a component of the Economic Freedom Index. It is a composite measure of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services. The trade freedom score is graded on a scale of 0 to 100, with a rise in its value indicating lower trade barriers, i.e., higher trade liberalization, while a decrease in its value reflects rising trade protectionism.	Heritage Foundation (see Miller et al., 2021)
POP	This is the measure of the total Population	WDI

Appendix 2: Descriptive statistics on variables used in the analysis

Variable	Observations	Mean	Standard deviation	Minimum	Maximum
GROWTH	404	2.825	3.273	-9.571	27.902
URGSP	404	51.670	32.532	0.000	98.145
UROTTP	404	34.279	36.595	0.000	97.130
ECI	404	-0.422	0.704	-2.352	1.190
TP	404	71.662	10.230	27.400	89.200
GCONS	404	13.386	3.941	3.964	26.254
ODA1	404	743,000,000	873,000,000	-852,000,000	6,880,000,000
INFL	404	7.362	9.568	-3.107	146.285
FDI	404	4.504	4.862	-11.196	42.331
TERMS	404	133.411	47.522	50.636	453.720
POP	404	65,400,000	204,000,000	1031486	1,390,000,000

Appendix 3: List of countries contained in the full sample

Albania	Georgia	Nicaragua
Algeria	Ghana	Niger
Angola	Guatemala	Nigeria
Argentina	Guinea	North Macedonia
Armenia	Haiti	Oman
Azerbaijan	Honduras	Pakistan
Bangladesh	India	Panama
Belarus	Indonesia	Paraguay
Benin	Iran, Islamic Rep.	Peru
Bolivia	Jamaica	Philippines
Bosnia and Herzegovina	Jordan	Saudi Arabia
Brazil	Kazakhstan	Senegal
Burkina Faso	Kenya	Sierra Leone
Cambodia	Kyrgyz Republic	Sri Lanka
Cameroon	Lao PDR	Sudan
Chad	Lebanon	Syrian Arab Republic
Chile	Liberia	Tanzania
China	Libya	Thailand
Colombia	Madagascar	Togo
Congo, Rep.	Malawi	Tunisia
Costa Rica	Malaysia	Turkey
Cote d'Ivoire	Mali	Turkmenistan
Croatia	Mauritania	Uganda
Dominican Republic	Mauritius	Ukraine
Ecuador	Mexico	Uruguay
Egypt, Arab Rep.	Moldova	Uzbekistan
El Salvador	Mongolia	Venezuela, RB
Equatorial Guinea	Morocco	Vietnam
Ethiopia	Mozambique	Zambia
Gabon	Myanmar	Zimbabwe