Working paper

Improving market for LDCs: The impact of the EU Reform of Rules of Origin on Utilization Rates and Trade Flows under the Everything But Arms Initiative (EBA)

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Abstract

Market access for Least Developed Countries (LDCs) has often been analyzed based on the assumption that Most Favored Nation (MFN) rates were not considered as a real market access obstacle because of existing trade preferences. Most of the empirical research measuring the impact of preferences on trade flows considers trade preferences as an acquired fact, i.e. all trade from LDCs systematically benefits from tariff cuts or duty free entry assuming that the origin criteria are automatically met.

However, this assumption led to an overestimation of the effective market access granted by trade preferences. Contrary to this conventional wisdom, the mere granting of tariff preferences or duty-free market access to exports originating in LDCs or beneficiary countries of trade preferences does not automatically ensure that these trade preferences are effectively utilized. Preferences are conditional upon the fulfillment of an array of requirements related to rules of origin, which, in many instances, beneficiary countries may not be able to comply with.

In spite of numerous attempts there are no multilateral disciplines on Rules of Origin (RoO). The major problem in seeking consensus on a common platform to regulate rules of origin is the lack of evidence that a given set of RoO is more trade creating and less costly than another one. At the Organization for Economic Co-operation and Development (OECD) in the '70, preference-giving countries stated that each national (and different) RoO are the best. Fifty years later at the World Trade Organization (WTO), their statement remains the same. LDCs argued in the WTO that the reform of RoO in the European Union (EU), which entered into force in 2011, set a model for the rest of the world: moving from a more stringent set to a more liberal one is generating an increase of Preference Utilization Rates (URs) and trade volumes. Despite an obvious correlation and factual evidence, the LDC argument has been objected alleging the absence of a causal effect between a liberal reform of RoO and increase of trade volume and URs.

This paper investigates the role of the stringency of RoO on URs. URs are defined as the ratio of imports receiving the preferential treatment out of the dutiable imports covered by the preferential agreement. URs are based on the customs origin declaration made by the importer at the time of importation. Results show that RoO constitute a significant barrier in utilizing trade preferences that varies according to the products exported from and the industrial background of beneficiary countries.

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Following the RoO reform of the European Union, a significant boost in trade values and URs has been observed. This papers constitutes the first attempt to establish a causal link and quantify this impact by (i) identifying and coding the sectors in which the rules became more or less lenient after the EU RoO reform of 2011, and (ii) using panel data econometrics and a triple-difference model to estimate the impact of the change on both, EU imports from beneficiary countries and utilization rates.

This paper provides evidence that the LDCs arguments at the WTO Committee on Rules of Origin are legitimate, demonstrating beyond any reasonable doubt that more liberal rules of origin lead to higher URs and contribute to boost trade. In short better rules of origin are possible and within reach if Governments are willing to engage in a reform of rules of origin using identified best practices. This paper shows that the EU reform constitutes a valid precedent to advocate reforms of rules of origin for LDCs in other preference giving countries providing trade preferences to LDC to meet the commitment contained in target 17.12 of SDGs.

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1 Introduction

Market access for developing countries has often been analyzed based on the assumption that MFN rates do not constitute a real market access obstacle because of existing trade preferences.[1]. Most of the empirical research measuring the impact of preferences on trade flows considers trade preferences as an acquired fact i.e. all trade from Least Developed Countries (LDCs) or beneficiary countries[2] systematically benefits from tariff cuts, assuming that the origin criteria are automatically met.

However, this assumption led to an overestimation of the effective market access granted by trade preferences. Contrary to this conventional wisdom, the mere granting of tariff preferences or duty-free market access to exports originating in LDCs or beneficiary countries does not automatically ensure that the trade preferences are effectively utilized. Preferences are conditional upon the fulfilment of an array of requirements related to Rules of Origin (RoO), which, in many instances, LDCs or beneficiary countries may not be able to comply with.

The United Nations Conference on Trade and Development (UNCTAD) has been mandated to monitor the utilization of trade preferences granted under unilateral trade preferences like the Generalized System of Preferences (GSP) since 1975 and most recently has focused on LDCs performance. UNCTAD studies have found a persistent trend of underutilization of trade preferences due to rules of origin[3] and have consistently argued for more liberal rules of origin echoed by repeated calls contained in LDC Ministerial declarations.

In spite of numerous attempts there are no multilateral disciplines on Rules of origin. The major problem in seeking consensus on a common platform to regulate rules of origin is the lack of evidence that a given set of RoO is more trade creating and less costly than another one. At the Organization for Economic Co-operation and Development (OECD) in the '70, preference-giving countries stated that each national (and different) RoO are the best. Fifty years later at the World Trade Organization (WTO), their statement remains the same. LDCs argued in the WTO that the reform of RoO in the European Union (EU), which entered into force in 2011, set a model for the rest of the world: moving from a more stringent set to a more liberal one is generating an increase of Preference Utilization Rates (URs) and trade volumes. Despite an obvious correlation and factual evidence, the LDC argument has been objected alleging the absence of a causal effect between a liberal reform of RoO and an increase of trade volume and URs.

This paper therefore addresses the fundamental question - why trade preferences are not fully utilized? More precisely, we investigate the role of the stringency of rules of origin (RoO) on the Preference Utilization Rate (UR) that is defined as the ratio of imports receiving the

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[1] UNCTAD, Market access for LDCs, 2001 UNCTAD/DITC/TNCD/4, and Inama (2001)

[2] *Beneficiary countries* refer to developing countries that are benefitting from unilateral or reciprocal trade preferences since the concept of trade preferences covers the notion of unilateral and reciprocal trade preferences and concerns LDC, developing countries and parties to Free Trade Area (FTAs)

[3] See UNCTAD "Trade preferences for LDCs: an early assessment of benefits and possible improvement (2003 and UNCTAD Erosion of trade preferences in the post-Hong Kong framework: From "trade is better than aid" to "aid for trade", 2008.

preferential treatment out of the dutiable imports covered by the preferential agreement. URs are based on the customs declaration made by the importer at the time of importation. Results show that RoO constitute a significant barrier in utilizing trade preferences that varies according to the products exported from and industrial background of beneficiary countries. Following the RoO reform of the European Union, which entered into force in 2011, a significant boost in trade values and utilization rates has been observed.

This paper constitutes the first attempt to quantify this impact by (i) identifying and coding the sectors in which the rules became more or less lenient after the EU RoO reform of 2011, and (ii) estimating the impact of the change on both, EU imports from beneficiary countries and utilization rates.

The identification of the stringency of a given RoO cannot be based exclusively on its form (CTH, CTC, ad valorem percentage criteria, etc.) since the form is just the way in which the rule is drafted. Indeed, the same form of RoO (CTH, CTC, ad valorem percentage criteria, etc.) might be much more stringent in some sectors than in others. Codifying the stringency of rules of origin therefore requires a careful look at the meaning of such rules in terms of manufacturing processes: what manufacturing is required to obtain origin and what changes did the EU reform introduce? This constitutes the first major contribution of our research.

Based on this classification, a triple difference regression model has been applied on a panel dataset of beneficiary countries and HS headings to provide empirical evidence that higher or lower utilization rates are mainly the result of the stringency and/or complexity of rules of origin and ancillary requirements.

2 Utilization of trade preferences - concepts and mechanics

2.1 The mechanics of trade preferences and the application of rules of origin

As pointed out by UNCTAD and Inama (2001) the analysis of the market access conditions for least developed countries (LDCs) has been traditionally conducted on the basis of market access provided under trade preferences. Since currently available trade preferences are granting substantially better market access than Most Favored Nation (MFN) rates to LDCs, the current MFN rates of duty were not deemed to constitute a market access barrier to exports of LDCs. However, a closer look to the functioning of trade preferences revealed a less optimistic reality. The assumption that MFN tariffs do not represent a substantial trade barrier for exports from LDCs covered by preferential schemes and are seldom applied to their exports is not tenable once the utilization rate of the available trade preferences is taken into account. For instance, the difference between the average MFN tariffs and preferential rates (preference margin) is often utilized to quantify the preferential market access or impact of preference erosion. In fact, the analysis of trade flows under the Generalized System of Preferences (GSP) appears to demonstrate that such an analytical framework largely ignores substantial underpinnings and mechanisms regulating the effective functioning of trade preferences.

The granting of tariff preferences under unilateral (Generalized System of preferences (GSP) or Africa growth and Opportunity Act (AGOA)) or reciprocal trade preferences under

Preferential trade agreements (PTAs) is subject to compliance with RoO requirements that are of substantial and administrative nature.

In day-to-day real world, a certificate of origin (CO) or an origin declaration by the exporter/importer must be submitted to customs at the time of customs clearance. These documents are issued only upon compliance with RoO substantive requirements. In the absence of such CO or exporter/importer declarations, the imported good will not enter duty-free. Instead, the MFN rate of duty will be levied leading to nil effects from trade preferences that are not applied in practice. Hence it is of crucial importance to measure if tariff preferences are effectively granted at the time of customs clearance to assess correctly the trade and economic effects of trade preferences granted under unilateral or contractual trade preferences (FTAs).

2.2 The concept of utilization of trade preferences

The concept of utilization rates has been conceived and used by UNCTAD to measure the value of unilateral trade preferences since 1975, the first year since the major Generalized System of preferences were implemented. Most recently the WTO secretariat adopted an identical measurement[4] following the Nairobi decision on preferential rules of origin for LDCs.[5]

In this paper, we follow the same pattern and adopt UNCTAD's indicators, as follows:

− **Utilization rate** answers the question: to which extent preferential treatment is used whenever the products are covered by the preferential scheme? It is defined as the ratio between the values of imports that have effectively received the preferential tariff at the time of importation and the value of dutiable imports covered by the agreement[6]. More specifically, the utilization rate of product h importer i, exporter j, year t, is defined as follows:

$$UR_{ijht} = \frac{Imports\ receiving\ preferential\ treatment_{ijpt}}{Imports\ covered\ by\ the\ prferential\ agreement_{ijht}} * 100$$

The data is based on customs declaration of the preference giving countries analyzed in this paper. It is important to note that the amount of imports covered by the preferential agreement, ie. imports that are eligible to receive the preferential treatment, exclude all MFN duty free tariff lines and corresponding trade values as it would be tantamount to cover empty trade preferences.

− **Product coverage rate,** defined as the ratio between imports that are covered by a preferential trade arrangement (eligibility of imports to receive the preferential treatment) and the total dutiable imports from the beneficiary/partner countries. The higher the percentage, the more generous the preferences may appear depending on the structure of dutiable imports of the beneficiary/partner countries. Coverage does not automatically mean that preferences are granted at the time of customs clearance. It is important to note

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[4] See: WTO (2015), "Preferential Rules of Origin for Least Developed Countries", Ministerial Decision of 19 December 2015. WT/MIN(15)/47, WT/L/917/Add.1.
[5] WTO (2016), "Modalities for the calculation of Preference Utilization", Note by the Secretariat, G/RO/W/161 25 August 2016.
[6] Duty-free products (MFN rate=0) are excluded from the calculation.

that MFN duty free tariff lines and trade values are not counted in the amount of covered imports as it would be tantamount to cover empty trade preferences.

3   The EU Reform of EBA rules of preferential rules of origin – Main changes and stylized facts

3.1   The changes in EU rules of origin

The reasoning behind the EU reform of rules of origin could be best summarized by the introduction to the EU impact assessment at that time: [7]

"…Rules of origin are old and have not followed evolutions in world trade. The present rules were initially drawn up in the 1970s and they have not materially changed much since, whereas the commercial world has. They were also based on the need to protect Community industry and on the premise that beneficiary countries should be encouraged to build up their own industries in order to comply. In most cases, this has not happened. Instead, there has been a trend towards the globalization of production, but rules of origin have not been adapted to this. At the same time, compliance costs are high and the paper-based procedures are outdated.

Lower preferential margins combined with high compliance costs make preferences unattractive. As a result of successive rounds of trade agreements, preferential margins are much smaller than they used to be."

The new EU rules of origin contained in the new regulation of 2010 heralded a new era: they are far more liberal than the previous one, with the notable exception of fishery products and processed agricultural food. The EU regulation also introduced a new administration of rules of origin whereby origin declarations are made by registered exporters upon their submission of necessary application to the certifying authorities and maintained in a database. This new system has been introduced after a transitional phase lasting until 2020.

Preferential rules of origin are, in general, of a trade-restrictive nature and the former EU rules of origin were a classic example. Many regional trade agreements (RTAs) and preference-giving countries have founded their rules of origin on the EU model as others have adopted a North American model. Thus, a change towards leniency of rules of origin in a major model like the EU may induce long awaited reform of rules of origin by other preference-giving countries and in RTAs.

Most notably, such reforms towards liberalization of rules of origin would be welcomed in the Japanese and US rules of origin under their respective GSP schemes and other preferences like AGOA. This reform should also apply to the rules of origin applicable under the Duty-Free Quota-Free (DFQF) Initiative for the least developed countries (LDCs) progressively implemented by developed and developing countries alike.

With respect to the previous EU Regulation on GSP rules of origin, the following changes have been introduced in three major areas:

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[7] European Commission (2007), Page 16.

- Changes in product-specific rules of origin introducing more lenient criteria for a number of sectors, especially for LDCs. The new regulation introduces a differentiation among developing beneficiary countries and LDCs that did not exist before. In a number of HS chapters and headings, especially in the textile and clothing sector and also in machinery and electronics, more lenient rules of origin are set for developing countries and LDCs. For developing country beneficiaries, in the clothing sector the double transformation (weaving and making-up) is still in place but the dying process has been recognized as a processing requirement. In the case of LDCs, the double processing has been replaced with a single processing requirement (making-up), a major improvement argued for years by LDCs. In machineries of Chapter 84 and electronics of Chapter 84, the chapter rule previously requiring a CTH and a maximum allowance of non-originating materials of 40% out of the ex-works price has been replaced with a CTH or a maximum allowance of 70% of non-originating materials out of the ex-works price for developing countries and LDCs alike. More complex is the analysis in the agricultural and processed agricultural products: in some chapters with high most favoured nation (MFN) duties like Chapter 15, the rules of origin have been substantially liberalized, in others, like Chapter 4, dairy products, limits concerning the use of non-originating sugar have been introduced at chapter level while the use of non-originating fruit juices previously restricted for yogurt has been liberalized. (There are also a number of technical improvements to the rules of origin where, in certain cases, the tolerance rule is expressed a percentage of weight rather than value. The tolerance rule has been generally raised from 10% to 15% and could also be applied to the wholly obtained product when the origin requirement is used as a product-specific rule of origin criterion.
- Cumulation of origin: regional cumulation has always been featured in the EC GSP rules of origin. Mercosur has been added as new entity benefiting from regional cumulation. The rule for the allocation of origin among the different members of a regional organization has been relaxed. Under the previous regulation, the origin was conferred to the country of last manufacturing only if the value added was greater than the customs value of the imported inputs from other country member of the regional organization. In practical terms, it meant that a Cambodian producer wishing to use fabrics originating in Thailand were not obtaining Cambodian origin since the value of the fabrics was greater than the value added achieved in Cambodia. In the new Regulation, this requirement has been lifted provided that the inputs originating in the other members of the regional group have undergone working or processing going beyond minimal working processing operations.[8] In addition, a new type of cumulation is introduced: extended cumulation. Such cumulation may be applied between GSP beneficiary countries and EU Free Trade Agreement partner countries under certain conditions. However, agricultural products classified in Chapters 1–24 of the HS are excluded from extended cumulation.
- The reform drastically changed the EC administration of rules of origin providing a transitional period until 2020. The current system of certification of origin based on certificate of origin Form A officially stamped by the certifying authorities will be

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[8] Some agricultural and fishery products are excluded from regional cumulation.

replaced by statements on origin to be given directly by registered exporters. A database will have to be established in each beneficiary to be administered and updated by the authorities of the country concerned. This new administration will entail a drastic change of business practices for the certifying authorities of beneficiary countries who will be responsible to maintain and administer the database. Only exporters registered in the database could issue statements of origin for receiving trade preferences. The current system will remain in place until 2017 with a provision for extension until 2020 for beneficiaries asking for additional transitional period.

3.2 Impact of EU reform of rules of origin on trade and utilization rates of LDCs - Stylized facts

In a submission[9] prepared by Uganda with the assistance of the authors and presented at Committee on Rules of Origin (CRO) in October 2014 as the LDC WTO group coordinator, the WTO LDC group strongly argued that the EU and Canada reform on rules of origin had a drastic impact on utilization rates and trade flows.

This paper represents a milestone in the advocacy of better RoO for LDCs and tabled the way leading to the WTO Nairobi Decision on preferential rules of origin. It is clear that the world economy had changed since the 1970s. However, only two economies have substantially reformed RoO for LDCs among the Quad group while other preference-giving countries are still adopting RoO conceived decades ago.

The major unilateral reforms of RoO for LDCs conducted by Canada and the EU created new trading opportunities that were immediately seized by those LDCs that were better equipped. This triggered dramatic increases in the utilization rates of existing preferences and, most importantly, generated an overall increase of trade flows due to new investment and manufacturing operations located in LDCs.[10] Such reforms therefore represent the most concrete example of how a change on rules of origin can trigger market responses in terms of access to value chains, productivity and job creation in LDCs.

Other preference-giving countries have yet to follow. While a number of developing countries have introduced DFQF schemes, the associated RoO need to be assessed in the light of the utilization rates that have recently begun to be notified to the WTO secretariat following the Nairobi Decision.[11]

UNCTAD (2021) builds on the results achieved by Canada and the European Union to show that a change in RoO reflecting global value chains generates a market response in terms of

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[9] WTO (2014), *Challenges faced by LDCs in complying with preferential rules of origin under unilateral trade preferences*, G/RO/W/148, Paper Presented by Uganda on Behalf of the LDCs Group, 28 October 2014.

[10] As shown in Figure 1 and see also the testimony of Jon Edwards, Manager, AJ and J bicycle factory available at https://unctad.org/system/files/non-official-document/aldc2014_06_edwards_en.pdf

[11] The LDCs WTO group with the support of the Authors have elaborated a series of technical notes that have been presented at the WTO committee on rules of origin:

- *Further evidence from utilization rates,* WTO document G/RO/W/186 of 8 May 2019;
- *Further evidence from utilization rates: utilization by LDCs of China's preference*, WTO document G/RO/W/192 of 9 October 2019;
- *Direct consignment rules and low utilization of trade preferences*, WTO document G/RO/W/191 9 October 2019.

FDI and trade flows. Obviously, RoO do not operate in a vacuum and a number of other factors concur in the determination of such trade effects. Yet the response has been unequivocal and concrete evidence has been obtained from companies that decided to shift production to LDCs because of a change in RoO.

Figure 1. EU Imports from LDCs and Utilization Rates (excluding HS27 – fuel products)
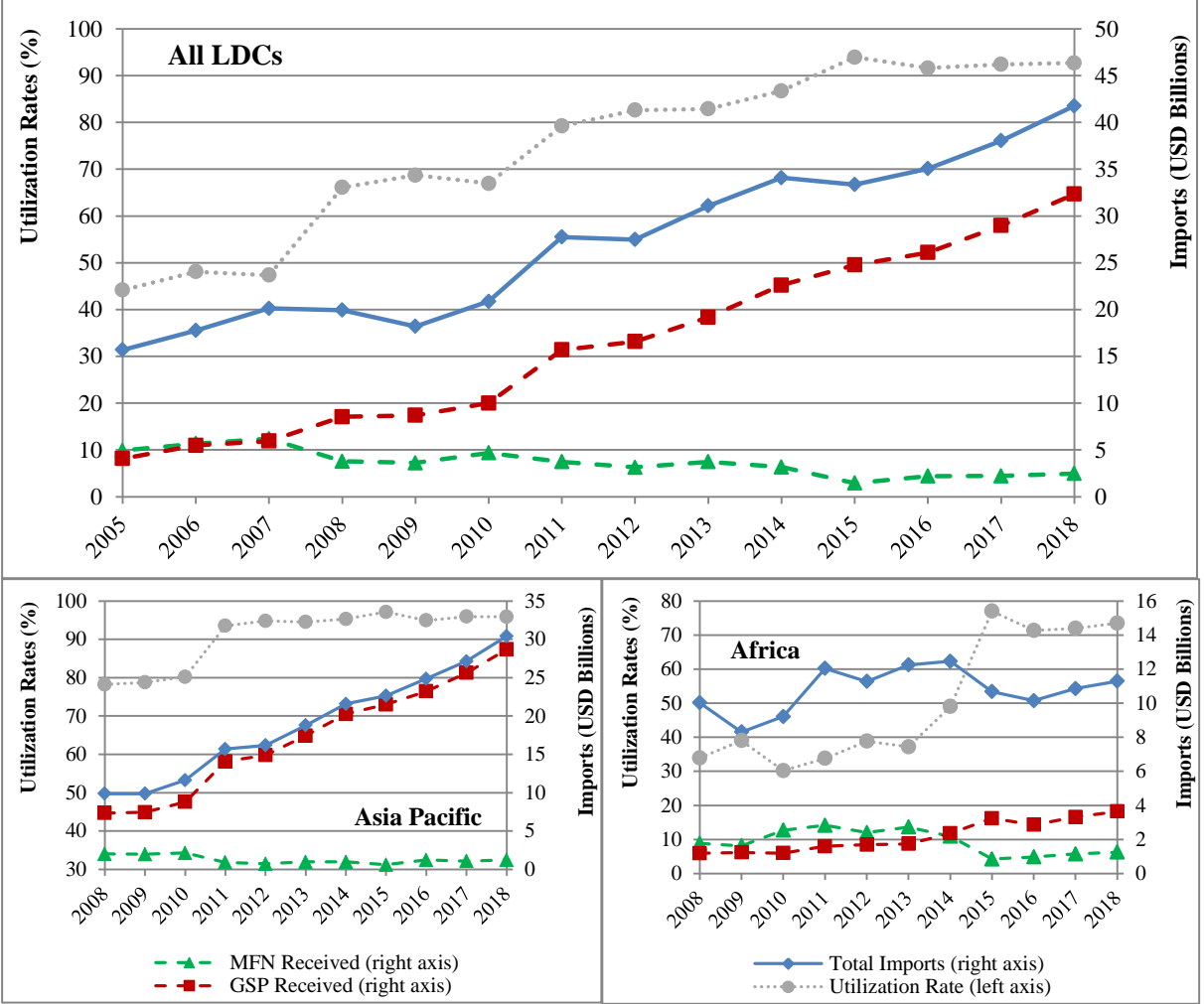
Figure 1[12] a dalt reports the results for the EU, showing that the reform of EBA rules of origin undertaken in 2011 has significantly impacted both utilization rates and the import values. When fuel products are excluded[13] total imports of the EU from LDCs raised from 20.8 to 27.7 billion USD (+6.9 billion USD, +33%) between 2010 and 2011. Utilization rates follow a similar path raising from 66.9 per cent to 79.2 per cent (+12.3pp, +18%). Both series show steady increases from 2011 to 2018.

Regional differences are observed. On average, imports from LDCs located in the Asia and the Pacific reacted more strongly to the reform (see lower left panel of Figure 1). The countries in the region started from a higher base of supply capacity that had major flexibility

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[12] The trade data and utilization rates are based on calculations drawn from notifications by preference giving countries to the UNCTAD secretariat.
[13] Given the fact that fuels are in most cases wholly obtained products not meeting particular rules of origin difficulties, the analysis tends to exclude those products except where, as in the case of the US, they play an important role in better appreciating the utilization of trade preferences.

and potential to positively react to the positive changes introduced by the reform in terms of leniency of PSROs. However, aggregated data show an incomplete picture as sectoral differences are remarkable for a number of African LDCs. In fact there is a strong increase in utilization rates in Africa observed in 2014 and 2015 mostly driven by Mozambique exports of aluminum (see Table 1) raising by 76.9pp in one year to reach 99.7% in 2015. Tanzania, Mozambique and Zambian exports of tobacco products also significantly increased leading to an average increases of UR of around 50 percentage points. In terms of trade volume receiving trade preferences, the major increases are recorded for Mozambique (aluminum products) and Tanzania (tobacco products) with an increase of respectively 704 and 116 USD million. Most notably there is a conspicuous increase of exports from Mozambique Sugars (+55pp), as well as fish products from Tanzania and Uganda ranging between 70 and 80 percentage points.

Table 1. Change in imports receiving EBA preferences 2014-2015

	HS Product		Imports 2015 ($000)				Change 2014-2015	
LDC	Code	Description	Dutiable	Covered	Received	UR (%)	Δ Imports Received ($000)	Δ UR (pp)
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
MOZ	760110	Aluminium; unwrought, not alloyed	968'341	968'341	965'809	99.7	703'625	76.9
TZA	240120	Tobacco; partly or wholly	232'956	232'956	231'363	99.3	115'755	42.4
MOZ	240120	stemmed or stripped	157'660	157'660	157'296	99.8	85'286	44.3
MOZ	170114	Sugars; cane sugar, raw, solid	100'866	96'146	69'903	72.7	41'090	54.8
ZMB	240120	Tobacco; partly or wholly stemmed or stripped	49'816	49'816	46'902	94.2	37'050	65.2
TZA	030463	Fish fillets; frozen, Nile Perch	38'809	38'809	37'137	95.7	28'585	69.1
UGA	240120	Tobacco; partly or wholly stemmed or stripped	29'456	29'456	29'305	99.5	28'018	96.1
UGA	030433	Fish fillets; fresh or chilled,	40'573	40'573	40'437	99.7	25'929	70.5
TZA	030433	Nile perch	35'037	35'037	34'900	99.6	25'825	79.6
UGA	060311	Flowers, cut; roses, flowers	28'731	28'731	28'731	100.0	21'373	78.7

Note: sorted in descending order of column (8), reporting threshold > $20 million.

Given the export composition of LDCs the most dramatic and immediate effects of the rules of origin reforms mostly concerned sectors and countries where LDCs had export capacity or potential that were affected by stringent rules of origin.

The most important sector by far in terms of trade dynamics and increase of utilization is the clothing sector of HS 61 and 62. Both utilization rates and import values for garments (HS chapters 61-62), have been positively affected. The impact is particularly striking in HS chapter 62, not knitted and crocheted garments, where the utilization rate by LDCs exporters raised from 46 per cent to 88 per cent (+42pp) between the end of 2010 and the end of 2011, the first year of entry into force of the EU reform (see Figure 2). While utilization rates reacted instantly to stabilize at a higher level, trade values started to increase progressively and steadily at a higher pace from 2011 onwards (change in slope). Starting at 2.9 billion USD in 2011, the value of EU imports from LDCs covered by EBA almost quadruple in eight years, reaching 11.1 billion USD in 2018.

The rise in utilization rates of knitted or crocheted garments (HS chapter 61), has been moderated as the latter started from a much higher value than in the case of HS chapter 62.

Indeed, on average, LDCs used the GSP preferences with a rate of 90 per cent in 2010 and of 93 per cent 2011. The rise in import values was nevertheless significant with an increase by US$2.2 billion (+33%) In fact rules of origin for chapter 61, garments, knitted and crocheted benefitted from a previous EU sectorial reform in the nineties that brought the previous requirements of three manufacturing stages to two manufacturing stages that already liberalized RoO for this.[14] The EU reform further liberalized the RoO for chapter 61 bringing to one manufacturing stage. A similar pattern of rise of URs and trade volume has been observed in the case of Japan that liberalized progressively RoO for chapter 61 in 2011 and 2015.[15]

The liberalization in chapter 62, garments, not knitted or crocheted, brought by the EU reform had a different industrial impact since it abolished the requirement of weaving the fabric form yarn. Since there is little or non-existent industrial capacity in LDCs to weave fabrics and establishing a weaving capacity requires large investments this requirement was a formidable barrier to comply with RoO for chapter 62.

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[14] The main manufacturing requirements for garments are spinning, weaving and making up of finished garment. In the case of chapter 61 garments the finished garments can be directly knitted to shape i.e. a T-shirt.
[15] See for a discussion of Japan GSP rules of origin and trade effects of the reform for chapter 61 Getting to better Rules of Origin for LDCs using Utilization rates: From the WTO Ministerial decision in Hong Kong (2005) to Bali (2013), Nairobi (2015) and beyond, UNCTAD 2021.

Figure 2. EU imports from LDCs and GSP utilization rates - Art of apparel & clothing access, HS 61 knitted/crocheted and HS62 not knitted/crocheted
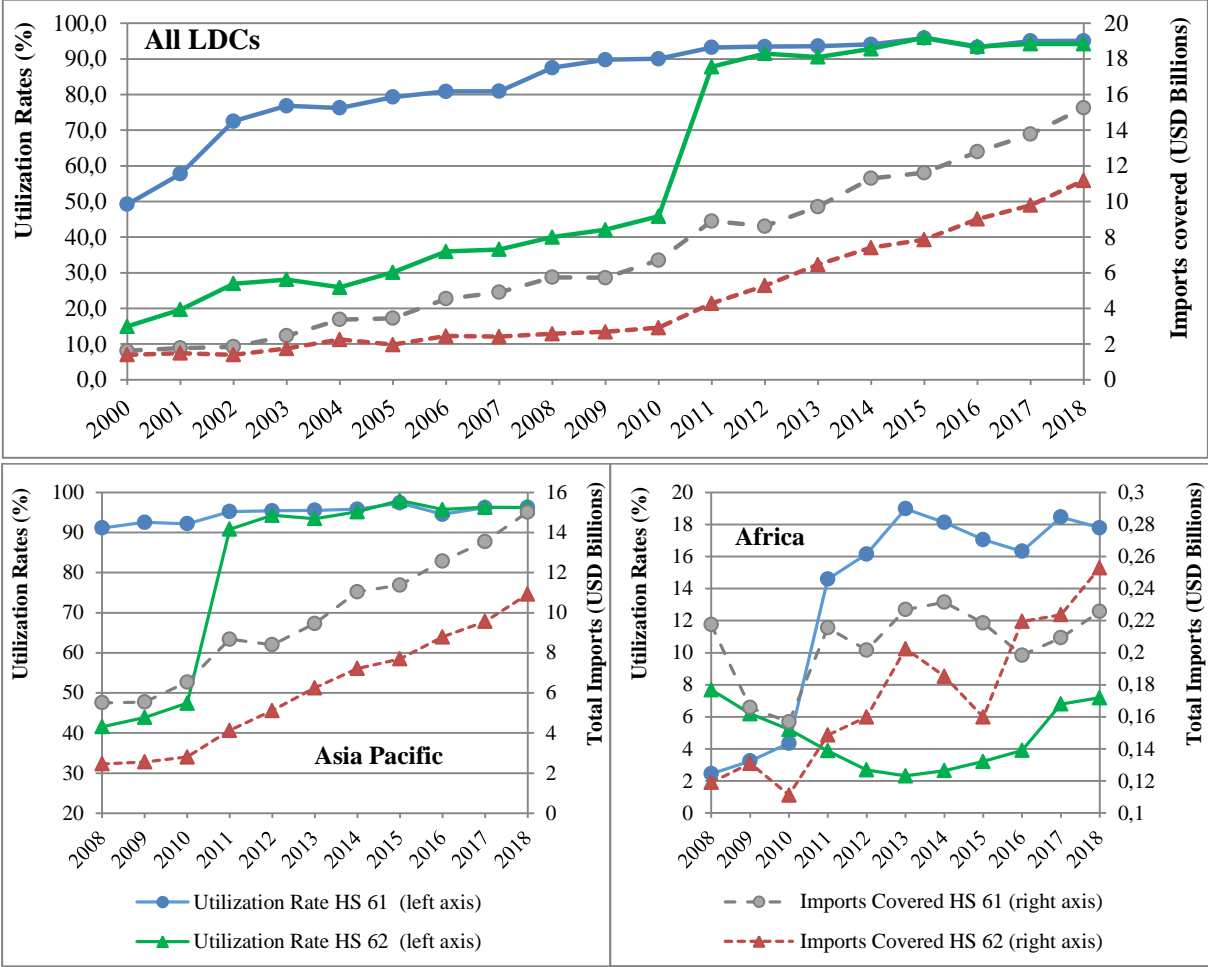
The lower panel of Figure 2 shows that the aggregated trends observed for HS Chapter 62 are mostly driven by Asian LDCs, with a rise in utilization rates from 47.5 in 2010 to 90.8 in 2011. However, African LDCs, in particular Ethiopia, significantly and quickly reacted to the change of EBA's RoO with a massive investment plan in the textile and clothing industry, leading Ethiopian exports of HS Chapter 61 receiving EBA preferential treatment to raise by 23.5 million in one year from 3 to 26.5 million USD. Given the high utilization rate of Ethiopian exports in this sector (99%), the aggregated African utilization rates increased from 4.3% to 14.6% between 2010 and 2011. While the magnitude may not appear as important as for Asian LDCs, given the low African trade values, this is nevertheless a notable change in relative terms (+10.3pp, +240%).

4   The impact the EBA reform of rules of origin – An empirical analysis[16]

As explained earlier, in spite of decades of multilateral attempts there is no multilateral discipline on Rules of origin. One of the major problems affecting progress at multilateral/sub-regional level towards reform and consensus on RoO is the lack of evidence that a given RoO would be better or more trade creating and less costly than another one. LDCs have argued in international negotiations that a reform of RoO from a more stringent set to a more liberal one is generating an increase of utilization of trade preferences and trade volumes However, despite an obvious correlation, their argument is often diminished due to the difficulty in establishing a causal effect. In other words, during WTO negotiations at the CRO, LDCs faced oppositions from preference granting countries, in particular the United States, arguing that the raise in utilization rates after the reforms may be explained by exogenous factors, independent from RoO.

While economic research on RoO determines the ad valorem tariff equivalents of RoO using an ex-ante general coding of RoO, this type of research is not particularly useful in trade negotiations to create consensus on the reduction of the trade distorting effects of product specific rules of origin (PRSO).

In contrast, this research is the first attempt to establish a causal link between the liberalization of rules of origin in terms of manufacturing requirements with the increase of UR and trade volume. More specifically, this research shows, on the basis of a coding of the product specific rule of origin (PSRO), a first detailed – product specific-analysis of the trade effects of a reform of RoO.

This research brands the EU reform of RoO undertaken in 2010 as example for the remaining preference giving countries to LDCs as a possible blueprint of development friendly RoO according to target 17 .12 of SDG 17 :"*Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access*".

This does not necessarily mean that other preference giving countries have to adopt rules of origin for LDCs identical to those of the EU since the same results may be achieved with similar reforms of their rules of origin systems. The aim of the research is to show the link existing between liberalization of rules of origin and trade effects i.e. increase of URs and trade volume from beneficiaries that has been recently object of other studies.[17]

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[16] This section reports the research presented by Prof. Pramila Crivelli at the Roundtable on the Future of Rules of Origin and Utilization Rates of 26-28 June 2019 at the European University Institute. Empirical specifications and results are further developed in a forthcoming EUI working paper, The Impact of the European Reform of Rules of Origin under the Everything But Arms Initiative – An Empirical Analysis, Crivelli & Inama (2022).

[17] See for example: Crivelli, P., Inama, S., and Kasteng, J., 2021. *Using utilization rates to identify rules of origin reforms: the case of EU free trade area agreements*, EUI RSC, 2021/21, Global Governance Programme-437, https://hdl.handle.net/1814/70396.

4.1   PSRO coding - time varying measure of RoO stringency

The main challenge in establishing a causal effect between utilization rates and the stringency of rules of origin is twofold:

1. The measure of the stringency of rules of origin have to reflect the industrial capacities and realities of the beneficiary countries or partner countries as applicable. The measure cannot be based exclusively on the form of the PSRO (CTH, CTC, ad valorem percentage criteria, etc.) since it is just the way in which the PSRO is drafted but does not necessarily reflect its stringency.
2. Even when such a measure is computed, it is usually not time varying, preventing the use of sophisticated econometric techniques such as panel data and fixed effects models to isolate exogenous factors that could impact utilization rates.

The major contribution of this research is to address the challenges above through a codification of rules of origin based on the change in stringency between two time periods, before and after 2010 when the EBA reform was implemented.

Codifying the stringency of rules of origin requires a careful look at the meaning of such rules in terms of manufacturing processes: what manufacturing is required to obtain origin and what are the changes introduced by the reform? Such codification should be based on the "substance" of PSROs in each sector independently from the "form" in which the PSRO are drafted.

The most suitable way to answer these questions is to adopt a codifying methodology focusing on the change in stringency in terms of manufacturing requirements instead of the establishment of a stringency measure "ex ante" based on the form in which the PSRO are drafted. For example, while a wholly obtained PSROs might be very stringent for industrial goods, the same rule might be by far more lenient in the case of live animals. Assigning the same code based on the "form" to this PSRO when applied to different sectors would therefore not reflect the economic reality.

In contrast, codifying the change of PSROs in terms of manufacturing requirements as explained in the case of garments in the preceding section i.e. from the previous 2 manufacturing requirement to one single requirement permits a much more accurate depiction of a change in stringency/lenience of a PSRO before and after the reform. This constitutes the first major contribution of our research. Table 2 més avall provides examples of the way rules of origin have been codified.

In the case of Garments of HS chapter 62, the rule became less stringent, moving from a double to a single transformation requirement. Similarly, for of bicycles of HS heading 8712 it is clear that the raise in the percentage of the use of non-originating materials from 40% to 70% makes the rule easier to comply with and therefore classified as less stringent. In contrast, in the case of olive oil of HS headings 1509 and 1510, the requirement that all vegetable materials (including olives) must be wholly obtained is much more stringent than the initial change of tariff heading requirement. In addition, we notice a change in the drafting of the rule, which is also recorded in the codification for future research purposes.

The last case shows a different scenario. The *fruits, nuts or vegetables* used to produce prepared or preserved tomatoes, mushrooms and truffles of HS 2002 and 2003 being all included in HS chapters 7 or 8, the old and new rule are similar in terms of stringency.[18]

Table 2. Codification of EBA product-specific rules of origin - examples

HS and product description	Old PSRO	New PRSO	Stringency Change
Chapter 62 – Garments, not knitted or crocheted	Manufaturing from yarn	Manufacuring from fabric	Less Stringent
HS 8712 Bicycles	Manufacture where the value on non-originating material does not exceed 40% of the ex works price of the finished products	Manufacture where the value on non-originating material does not exceed 70% of the ex works price of the finished products	Less Stringent
1509 and 1510 Olive oil and its fractions	Manufacture from materials of any heading, except that of the product	Manufacture in which all the vegetable materials used are wholly obtained	More Stringent + Different form
2002 and 2003 Tomatoes, mushrooms and truffles prepared or preserved otherwise than by vinegar of acetic acid	Manufacture in which all the fruit, nuts or vegetables used are wholly obtained	Manufacture in which all the materials of Chapters 7 and 8 used are wholly obtained	Similar

Such analysis has been conducted for all old and new PSRO to be further matched with trade data and utilization rates in an empirical analysis. The analysis covers a total of 343 PSROs to be compared with the old legislation and defined at different level of the HS classification:

- 43 chapter rules: one single chapter rule of origin for all the heading in the chapter;
- 50 "**ex** chapter rules": one rules of origin for the majority of the headings in the chapter but some headings are singled out with different rules of origin not always matching the HS classification;
- 187 headings (4 digits of the Harmonized System (HS) classification) PSROs;
- 46 "**ex** headings rules": rules of origin applicable to part of the heading that is defined in the description;
- 17 rules of origin at subheading level.

Matched with the full HS-classification, out of 5'224 headings, 74(%) have been liberalized (see Table 3).

Table 3. EBA Liberalization of PSRO – Distribution of Tariff headings

HS heading	Frequency	(%)
Non-liberalized	1,361	26.05
Liberalized	3,863	73.95
Total	5'224	100

4.2 Data and Empirical strategy

Based on the PSRO classification described in the previous subsection, a regression analysis is carried out on a panel of beneficiary countries and HS heading chapters to provide evidence that higher or lower utilization rates are mainly the result of the stringency and/or complexity of PSROs.

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[18] Some cases are not so clear-cut. These cases have been classified as undefined but their relative importance is marginal

The following equation has been estimated with Ordinary least squares and logit model:

$$Y_{ijpt} = \alpha + \beta_1 LS_p \times post_{ir} + \beta_2 MS_p \times post_{ir} + \gamma_{ijp} + \gamma_t + controls + \epsilon_{ijpt}$$

Where:

- Y_{ijpt}: UR / imports receiving GSP treatment of reporter i, partner j, product p *(HS-4)* at year *t*.

- LS, MS: RoO stringency change dummy variable equal to one if at least one PSRO became less (LS) or more (MS) stringent within a given HS heading.

- $post_{ir}$: dummy variable equal to 1 from 2011-2015 in the European Union (*r: time variable before/after reform)*

- γ_{ijp} and γ_t: country-pair-product and year fixed effects

- Controls: preference margin (PM) before and after the reform, total imports, time trend and additional fixed effects $\left[\gamma_{ir}, \gamma_{jr}, \gamma_{hs2r}\right]$

The model has been estimated using UNCTAD Database on Utilization rates[19] over 10 years, from 2006 to 2015, dividing therefore the sample into two time periods of equal length, before and after the 2011 EBA reform of rules of origin. In addition to the European Union, as counterfactual, the analysis includes two other preference granting (importing) countries where no reform was implemented during the time period considered, namely the United States and Canada. Table 6 in appendix shows the list of reporter and partner included in the estimations. All trade values at the tariff line level have been converted to HS-2002 nomenclature and aggregated at the 4-digits level. Preference margin (PM) are calculated based on preferential (LDC) and MFN tariffs reported in TRAINS database. Finally, given the specificities of petroleum oil products, products of HS chapter 27 have been excluded from the analysis. Post-estimation summary statistics are reported in appendix Table 7.

4.3 Results

Table 4 reports the results when estimating the impact of the reform on utilization rates (dependent variable) for various level of preference margin and different sets of fixed effects.

Results clearly show that utilization rates of products for which the PSRO have been liberalized have increased in the EU after the reform ($LS_p \times postEU_{ir}$).

Columns (1), (3) and (5) all account for product (HS-4), reporter, partner and time fixed effects. Therefore, the rise in utilization rate cannot be explained by any external factor fixed over time for a given product, reporter or partner. This includes all country and product specific characteristics. Since it may be argued that reforms implemented by partner countries at the same time as the EU could explain the rise in utilization rates, columns (2), (4) and (6) all include partner-post 2010 interacted fixed effects. Not only all coefficients on the $LS_p \times postEU_{ir}$ variable remain statistically significant but the magnitude of the Reform impact on RoO increases ranging between 9.5 and 12.9 percentage points depending on the level of preference margin.

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[19] https://inf-dmz-gsp-frontend-uat.azurewebsites.net/home

Interestingly, the preference margin only became a significant determinant of the utilization rate after 2010 in the EU while the coefficients where insignificant. When the full sample is considered (see column (2)), an increase in the preference margin by 1pp translates into a 0.371 (=0.588-0.217) percentage point raise in utilization rates, statistically significant at 1%.[20]

The last columns report an estimation including all fixed effects interacted with the post 2010 variable. While most coefficients became statistically insignificant, despite a reduction in magnitude, the effect of the $LS_p \times postEU_{ir}$ variable appear to be robust to the inclusion of the fixed effects, leaving no doubt that the EBA PSRO reform had a positive impact on utilization rates.

All coefficients are statistically significant even when including a partner-post reform fixed effect to account for exogenous factors in the partner country before or after 2010, and whose effect cover the period after 2010.

Table 4. Baseline Results – Utilization rates

Model: OLS (xtreg)	(1) PM>0	(2) PM>0	(3) PM>3	(4) PM>3	(5) PM>5	(6) PM>5	(7) PM>5
$LS_p \times postEU_{ir}$	5.348***	9.551***	8.583***	10.587***	9.711***	12.862***	4.098*
	(0.90)	(1.31)	(1.22)	(1.58)	(1.49)	(1.93)	(2.23)
$MS_p \times postEU_{ir}$	0.736	-1.782	4.128	-0.198	4.705	1.760	-5.324
	(5.07)	(5.47)	(4.99)	(5.35)	(5.01)	(5.74)	(5.69)
$PM_{ijpt} \times postEU_{ir}$	0.786***	0.588***	0.626***	0.537***	-0.263	0.395***	-0.001
	(0.09)	(0.10)	(0.10)	(0.10)	(0.22)	(0.11)	(0.12)
PM_{ijpt}	-0.310*	-0.217	-0.226	-0.153	0.533***	-0.176	-0.144
	(0.19)	(0.18)	(0.18)	(0.18)	(0.10)	(0.21)	(0.21)
$Ln(Tot.Imp)_{ijpt}$	1.982***	1.763***	2.650***	2.296***	2.808***	2.278***	2.338***
	(0.23)	(0.22)	(0.33)	(0.32)	(0.40)	(0.38)	(0.38)
Fixed Effects							
Rep x Part x HS4; Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Part x Post_r	No	Yes	No	Yes	No	Yes	Yes
HS2 x Post_r	No	Yes	No	Yes	No	Yes	Yes
Rep x Post_r	No	No	No	No	No	No	Yes
Observations	23'081	23'081	15'804	15'804	23'081	12'208	12'208
R²	0.067	0.105	0.089	0.131	0.105	0.152	0.158

* $p < 0:10$, ** $p < 0:05$, *** $p < 0:01$; Robust standard errors in parenthesis.

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[20] Results of the test not reported.

Table 5. Extensive Margin – Probability to start using preferences: Imp. received > 0

Model: xtlogit	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	PM>0	PM>0	PM>3	PM>3	PM>5	PM>5	PM>5
$LS_p \times postEU_{ir}$	**0.249****	**0.149**	**0.385*****	**0.379****	**0.360*****	**0.478****	**0.273**
	(0.10)	(0.15)	(0.12)	(0.18)	(0.13)	(0.23)	(0.31)
$MS_p \times postEU_{ir}$	-0.167	-0.617	-0.064	-0.484	-0.142	-0.444	-0.524
	(0.37)	(0.57)	(0.37)	(0.59)	(0.38)	(0.61)	(0.62)
$PM_{ijpt} \times postEU_{ir}$	0.028***	0.018*	0.026***	0.007	0.024***	-0.001	-0.009
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
PM_{ijpt}	-0.020*	-0.013	-0.016	-0.010	-0.025**	-0.020	-0.019
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Fixed Effects							
Rep x Part x HS4 ; Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Part x Post$_r$	No	Yes	No	Yes	No	Yes	Yes
HS2 x Post$_r$	No	Yes	No	Yes	No	Yes	Yes
Rep x Post$_r$	No	No	No	No	No	No	Yes
Observations	9'971	9'971	7'919	7'919	6'377	6'377	6'377.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; Robust standard errors in parenthesis.

Table 5 reports the results of estimating the impact of the reform on the probability of starting to use the preference. The dependent variable is therefore a dummy variable equal to 1 if the value of imports receiving preferential treatment is positive and zero otherwise. The model is estimated using a logistic regression model in panel data over various level of preference margin.

Including partner-post 2010 interacted fixed effects in columns (2), (4) and (6) show that the probability to start using the preference increases after the reform, but only when the preference margin is above 3pp. This model is not robust to the inclusion of the full set of fixed effects reported under column (5). However, this can also be explained by the high level of aggregation at the HS-4 level.[21]

As a conclusion, while it is clear from previous sections that heterogeneity across sectors is observed, the wide range of fixed effects included in this research strongly suggest a causal average effect of the EBA RoO reform on utilization of trade preferences, excluding most of possible external factors that could explain the surge in imports and utilization. The study also controls for the preference margin, ruling out the idea that the latter is the driving factor behind the utilization rate evolution.

By empirically demonstrating that Utilization rate is a crucial indicator of the restrictiveness of rules of origin, results and conclusions could be used to advocate for reforms in regional and multilateral negotiations. Indeed, it is clear that the use of UR could help addressing one of the major problem affecting reforms and consensus at WTO and in FTAs.

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[21] New results at the HS 6-digits level of disaggregation will be reported in Crivelli & Inama (2022).

5   Conclusion

As stressed in the LDC submission[22] to the WTO secretariat at the 5 anniversary of the Nairobi Decision of the Nairobi Decision on preferential rules of origin for LDCs the LDCs should not be left alone in the quest to "b*) Ensure that preferential rules of origin applicable to imports from LDCs are transparent and simple, and contribute to facilitating market access.[23]"* as this is an objective of the multilateral community embedded since 2005 in the Hong Kong WTO Ministerial Decision and in target 17.12 of the SDGs 17[24]

Such commitment of the international community has been so far elusive albeit some progress has been made. It is for this reason that the statement of the WTO LDC Coordinator and the Ambassador of the United Republic reiterated at WTO General Council meeting of July 2021 in preparation for MC 12 that the LDCs believe necessary to revitalize the debate in the CRO and recognize that a new mandate involving all WTO members with a fresh work program setting a time horizon should be an outcome of MC 12

This paper provides empirical evidence that higher or lower utilization rates are mainly the result of the stringency and/or complexity of PSROs. Further research has also started on how related administrative requirements such as direct shipment[25] have an impact on URs.

This paper takes the reform of the EU rules of origin of 2011 as litmus test to demonstrate that reforms of rules of origin are trade creating and should be embarked by all preference granting countries to live up to their commitments to implement faithfully the WTO Hong Kong decision and target 17.12 of SDG. The analysis quantifies the impact of the reform by (i) identifying and coding the sectors in which the rules became more or less lenient after the EU RoO reform of 2011, and (ii) estimating the impact of the change on both, EU imports from beneficiary countries and utilization rates.

The assessment of the stringency of a PSRO cannot be based exclusively on the form of a PSRO (CTH, CTC, ad valorem percentage criteria, etc.) since the form of a given rule of origin is just the way in which is drafted. Indeed, the same form of PSRO might be much more stringent in some sectors than in others independently from the form in which is written. Hence codifying the stringency of PSRO requires a careful look at the meaning of such rules in terms of manufacturing processes: what manufacturing is required to obtain origin and the changes introduced by the reform. This constitutes the first major contribution of our research.

Based on this classification, regression analysis has been carried out on a dynamic panel of beneficiary countries and HS chapters to provide empirical evidence that levels of utilization

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[22] See WTO document WTO G/RO/W/194 of 5 March 2020.

[23] See Hong Kong WTO Ministerial Decision on Measures in Favour of Least-Developed Countries, 2005.

[24] Target 17 .12 of SDG 17 reads as follows Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access.

[25] The administration of rules of origin is the process of proving the origin of a product during a customs transaction. See Crivelli & Inama (2019), "Selected Issues on Rules of Origin for Least Developed Countries", 4 October 2019. Paper drafted for the Least Developed Countries Group of the World Trade Organization in preparation for the Committee on Rules of Origin of October 2019 and LDC submissions G/RO/W/191.

rates are mainly driven by the stringency and/or complexity of rules of origin and ancillary requirements.

It follows that contrary to the fifty years long standing stereotype that *my rules of origin are the best!* asserted in OECD in the seventies and most recently in WTO a reform of rules of origin towards more lenient substantive and administrative requirements are generating positive trade and economic effects in LDCs.

In short there are indeed best rules of origin than others. The EU reform has taken the lead in showing this as far as LDC are concerned[26] as well as the Canada reform of rules of origin undertaken as early as 2003. The remaining preference granting countries have just to follow and embark on a similar route to live to their multilateral commitment rather than entrench in the convictions.

Since 2016 the LDC have made not less than 18 submissions to the WTO Committee of rules of origin to make progress on the implementation of the Nairobi decision on preferential rules of origin. We hope that this paper could provide further empirical evidence that time has come to move towards a general reform of the Rules of origin for LDCs. There are indeed gains and spillovers for the overall benefit of the multilateral community from living up to this commitment.

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[26] Again, this soul not be read as arguing that EU rules of origin are the best that could be adopted, EU rules of origin even for LDCs remain overly stringent even after the reform for some sectors such as fishery and agro-processed products.

6 References

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7 Annexes

Table 6. Reporter and Partner country: number of observations in baseline equation (1)

Partner (ISO-3)	Reporting country (importer) Canada	EU	USA	Total	Partner (ISO-3)	Reporting country (importer)	EU	USA	Total
AFG	72	386	117	575	MLI	25	389	65	479
AGO	13	842	4	859	MOZ	19	362	35	416
BDI	0	74	0	74	MRT	2	288	6	296
BEN	0	210	2	212	MWI	16	129	30	175
BFA	23	403	14	440	NER	23	178	96	297
BGD	811	2'018	493	3'322	NPL	594	1'311	406	2'311
BTN	5	29	16	50	RWA	8	113	34	155
CAF	2	29	5	36	SDN	0	174	0	174
COM	0	34	0	34	SEN	64	1,345	0	1,409
CPV	1	360	10	371	SLB	10	47	0	57
DJI	0	77	10	87	SLE	60	158	225	443
ERI	1	108	0	109	SOM	0	17	1	18
ETH	71	698	197	966	STP	0	73	15	88
GIN	31	304	89	424	TCD	2	81	0	83
GMB	0	153	11	164	TGO	81	377	30	488
GNB	0	58	0	58	TMP	0	9	0	9
GNQ	0	320	10	330	TUV	0	3	1	4
HTI	176	256	237	669	TZA	21	750	103	874
KHM	459	779	260	1,498	UGA	34	525	72	631
KIR	11	13	1	25	VUT	11	52	13	76
LAO	122	458	0	580	WSM	0	35	52	87
LBR	1	106	7	114	YEM	2	337	21	360
LSO	100	125	23	248	ZAR	0	395	44	439
MDG	205	1'573	172	1'950	ZMB	59	364	25	448
MDV	3	66	0	69	Total	3'138	16'991	2'952	23'081

Table 7. Post-Estimation summary statistics (Baseline equation (1))

Variable	Obs	Mean	Std. Dev.	Min	Max
UR_{ijpt}	23'081	40.5	44.8	0.0	100
$Tot.Imp_{ijpt}$ ($000)	23'081	8901.3	88795.7	2.0	3'334'916
$Ln(Tot.Imp)_{ijpt}$	23'081	4.4	2.7	0.7	15
LS_p	23'081	0.8	0.4	0.0	1
$LS_p \times postEU_{ir}$	23'081	0.3	0.4	0.0	1
$MS_p \times postEU_{ir}$	23'081	0.0	0.1	0.0	1
MSdp	23'081	0.0	0.1	0.0	1
PM_{ijpt}	23'081	7.4	7.0	0.1	237.5
$PM_{ijpt} \times postEU_{ir}$	23'081	2.4	5.2	0	90.4