Developing Country Trade Access after Brexit: The UK's Plans for the Generalized System of Preferences

L. Alan Winters, Mattia Di Ubaldo, Max Mendez-Parra, Lee Robinson, and Ian Mitchell

Abstract

This paper looks at what the UK's approach to tariffs will mean for developing countries' access to the UK market, and whether the government will achieve its pledge to improve access post-Brexit. It includes a rapid assessment of the structure and the functioning of the future UK Generalized System of Preferences (GSP), in so far as it has currently been announced, and considers, in particular, how the newly announced UK Global Tariff will impinge on developing countries. In addition, it evaluates the loss in market access for Ghana and Kenya if they and the UK fail to rollover their existing EU Economic Partnership Agreements or Market Access Regulation provisions. It finds that, in terms of tariffs, access will not improve for the vast majority of (95) developing countries, though neither are their exports materially damaged. It considers scenarios where the UK can reduce tariffs for developing countries, identifying over 1,000 GSP tariffs that could be reduced without materially harming imports from the poorest countries.

Center for Global Development
2055 L Street NW
Fifth Floor
Washington DC 20036
202-416-4000
www.cgdev.org

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Professor L. Alan Winters and Dr. Mattia Di Ubaldo
UK Trade Policy Observatory, University of Sussex

Dr. Max Mendez-Parra
Overseas Development Institute

Lee Robinson and Ian Mitchell
Center for Global Development

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Center for Global Development
2055 L Street NW
Washington, DC 20036

202.416.4000
(f) 202.416.4050

www.cgdev.org

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Executive Summary

The UK is in the process of designing its international trade regime for when the negotiated transitional arrangement with the EU ends on 31st December 2020. In June 2017, the government pledged to "help improve access to UK markets for world's poorest countries post-Brexit."[1] This report analyses how the UK's Global Tariff (UKGT), and plans to match the EU's preference scheme, will affect developing countries' exports to the UK.

The effects depend on two offsetting forces. On the one hand, the (small) reductions in the UK's tariffs implied by the UK Global Tariff (UKGT) stimulate some developing country exports because they reduce the tariff that those exports face. On the other hand, other exports, on which developing countries currently receive preferential rates, face increased competition because their competitors face lower tariffs. That is, their so-called margins of preference are reduced, which in turn cuts developing country exports.

How any developing country is affected overall depends on the spread of its exports to the UK over these two groups of products. Countries that currently face no tariffs—the poorest ones and those with deep trade agreements with the EU—can only lose from the changes.

Overall, we find that, in terms of tariffs, access will not improve for a vast majority (95) of developing countries though neither are their exports materially damaged. A handful of countries (mainly India, Indonesia, and Vietnam) will likely see small increases in their exports to the UK.

In policy terms, the government appears to have designed the UK Global Tariff in such a way that it does not reduce tariffs in areas that would significantly damage access for the poorest countries. Still, on current plans, and alongside additional admin costs and the risk to some EU trade deals (see below), the government will fail to meet its pledge to improve access and is yet to set out how it might do so in future.

We identify some immediate changes that the UK could make to improve access. In particular, as the UK sets out its "Generalized System of Preferences" (GSP) it could remove tariffs on goods that GSP recipients supply to the UK but the poorest countries do not. We identify over 1000 such tariff lines, the removal of which would reduce costs for UK consumers and businesses without materially harming the current exports from the poorest countries. These changes would benefit the group of (13) low income countries currently in the GSP scheme and perhaps for the 41 poorest countries that will eventually 'graduate' to this level in future.

Aside from its general policy on tariffs, there is also another potential problem for some developing countries. If the UK is unable to agree to the roll over of its current trade deals with four specific developing countries (Kenya, Ghana, Cameron, and Cote D'Ivoire), these

[1] https://www.gov.uk/government/news/government-pledges-to-help-improve-access-to-uk-markets-for-worlds-poorest-countries-post-brexit

countries will face a considerable increase in tariffs. We look at the first two countries as case studies, and conclude that this would damage their exports, particularly in cut flowers and beans in Kenya and tuna in Ghana.

Longer-term, the government should set out its plans to improve access. Trade is crucial to development, and beneficial to UK growth. There is a case for a simpler trade for development regime with fewer tiers; less burdensome 'rules of origin'; and which better-supports Africa's plans for trade integration both regionally and as part of the African Continental Free Trade Area (AfCFTA). The government should reduce its distorting multi-billion support for agriculture at home, and globally through the WTO. The UK is rightly keen to be seen as a global leader on trade—it should take the immediate opportunity to enhance its GSP and set out its plans for reform for beyond January 2021.

Overview of Modelling Results and Recommendations

The UK is in the process of designing its international trade regime for when the negotiated transitional arrangement with the EU ends on 31st December 2020. The UK has announced its UK Global Tariff which sets tariffs across goods but is yet to finalise its "Generalised System of Preferences" (GSP) which will determine arrangements for developing countries. The UK government intends to replicate the EU's approach in the first instance, though it has yet to roll over some trade agreements with developing countries. This paper looks at what the UK's approach will mean for developing countries' trade access, and whether the government will achieve its pledge to improve access post-Brexit.

Lower overall tariffs but reduced 'preferences' for poorer countries

The new UK Global Tariff (UKGT)[2]—which will, after 31st December 2020, apply to all countries which do not have a trade agreement with the UK or fall outside its GSP scheme—has set tariffs slightly lower than those of the EU's equivalent Most Favoured Nation (MFN) tariff. At the same time Ministers have indicated they will aim for continuity with the EU GSP scheme which, in the absence of more detail, we have assumed means that all the tariff rates in the GSP will remain unchanged. Together, these two observations imply that:

- For the products that do not attract GSP concessions, the Standard GSP countries will benefit because they will also face the lower UKGT rates.

- For the 66% of products that are eligible for GSP concessions, on the other hand, GSP recipients will face more competition from other countries, because the UKGT implies that the latter will face lower tariffs than they do under the EU's MFN tariff (that is, GSP 'preference margins' will be squeezed).

Among the exports that are most affected by these changes are those from the poorest countries, whose exports qualify for zero tariffs as part of the Everything But Arms (EBA) component of the GSP. The products which lose the largest margins include agricultural products—particularly some types of corn and maize flour, barley flour, and rice flour (although imports of these products from EBA-eligible countries are small). Among the detailed country-product pairs, the Philippines experiences the largest single decline in the benefit from the GSP: its tariff savings on prepared skipjack tuna (the difference between the GSP tariff and the UKGT tariff multiplied by its exports to the UK) decline by $1.8 million. India experiences similar declines in savings: $1.5 million and $1.4 million respectively on some electric materials and types of turbojets.

[2] https://www.gov.uk/guidance/uk-tariffs-from-1-january-2021

Impacts on imports of UK's new regime

We model the impacts of switching to the new UK tariff and GSP regime under a set of assumptions, including that the UK successfully rolls over all of the EU's trade deals (see below). We find:

- Higher income countries will see an overall increase in their exports to the UK while the different groups of developing countries will see very small impacts

- Imports from higher-income countries facing the UKGT increase by some $1.9bn, around 1.5% of their imports

- The 41 poorest countries[3]—those in the EBA group—face more competition and the value of their exports to the UK falls slightly, by some $3.1m. Similarly, the lower income countries that qualify for the GSP+ scheme, will also see their exports fall by $2.4m (both falls are under 0.1% of their imports)

- The 13 lower income countries[4] that qualify for the GSP benefit overall, with a modest increase in exports of $30.3m (nearly 0.2% if their imports)

- The 33 lower income countries that have Economic Partnership Agreements (EPAs) with the EU, which currently have and, on our assumptions, keep zero-tariff access to the UK, suffer from the increased competition and lose around $19 million in exports (almost 0.3% of their imports).

- We also analyse the issue of tariff escalation, where tariffs on processed products in the Standard GSP are above those of raw materials—and find little difference between the UK and EU approaches.

To some extent this effect is to be expected—any country that lowers its (MFN) tariffs will reduce the preference margins for poorer trading partners. However, the government had pledged to improve access for poorer countries. Moreover, in addition to the effects we model, all importers whose produce arrives via the EU will face additional costs of customs checks. In combination then, it is clear that the UK's post-Brexit trade regime will only improve access for a small number of developing countries (the standard GSP group) with most in groups (49 in the EBA and GSP+, and a further 33 in EPAs) that are slightly worse off.

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[3] The current number of Least Developed Countries (LDCs) obtaining EBA treatment in the EU is 48. In this work we consider some of the LDCs among the EPA countries (e.g. Haiti, Madagascar, Lesotho).

[4] We excluded from the current GSP beneficiaries list the countries that will lose GSP status in 2021 (Nauru, Samoa and Tonga) and included Equatorial Guinea, which is moving out of the EBA group.

Table 1. Impact on exports to the UK from different country groups

Group	Trade scheme	Number of Countries	Income per capita ($k)	Change in exports to the UK, m$	Impact as % imports
Preferences	EBA	41	1.2	-3.2	-0.07
	GSP+	8	2.9	-2.4	-0.08
	GSP	13	3.1	30.3	0.19
Trade agreements	EPAs	33	6.6	-19.0	-0.32
	EUF	78	24.9	-709.5	-0.29
Rest of the World	MFN	59	~18.5	1883.4	1.52

Source: Authors analysis, see annex Table A-6 for sources and notes. Shaded rows are developing countries.

Countries with existing trade agreements with the EU

In addition to the effects of the UK's trade regime above, there are also several lower income countries which have trade agreements with the EU (Economic Partnership Agreements) but which those partners and the UK have not yet agreed to roll over. These include Cameroon, Cote D'Ivoire, Ghana, and Kenya.

We analyse the particular cases of Ghana and Kenya. Based on their level of income, these countries would receive the Standard GSP preferences if the respective agreements are not rolled over. In this eventuality, Ghana would have to pay an additional £12.5 million in duties, primarily in its exports of tuna and prepared fresh fruits and vegetables. Kenya would have to pay an extra £8.5 million, primarily in its exports to the UK of beans and cut flowers. Applying for "GSP+" preferences (a more generous tier of the GSP) would reduce these losses, but these countries have yet to show that they meet the conditions for GSP+.

Together, if neither Ghana nor Kenya roll over their deals, their combined losses could be some £21m ($27m). Although not directly comparable, the magnitude of this additional impact is significant relative to those modelled above; and would be added to further if Cameroon and Cote D'Ivoire do not agree to roll over their deals. **The government should ensure access is not interrupted for these countries either agreeing deals in time or, if necessary, creating a special regime for countries in the process of renew their EPA.**

Immediate and longer-term reform options

The government has signalled it is open to making reforms to improve trade access to developing countries. Some of these will not be feasible before the UK's trade regime takes effect; and to improve access, real reforms will need to be pursued. However, the government can also make immediate improvements to its GSP scheme. We consider two such areas:

First, we model a scenario on textiles where, rather than matching the EU's GSP tariff, the UK instead increases the preference margin to 3.5 percentage points below the EU MFN level. This has some marginal negative effects on the poorest countries in EBA and GSP+ (0.1% fall in export to the UK) but mainly boosts imports from the GSP countries by some $40m.

Second, we identify over 60 tariff lines with tariffs over 10% that could be reduced within GSP without materially affecting either the poorest countries in EBA, nor the UK's negotiating position in future trade deals. For example, EU GSP countries currently face a 25% tariff on unprepared couscous, 32% on jams and marmalades, 20% on tuna; 18% on pineapple, beans and citrus fruits and some fish. The countries gaining the most in terms of a lower tariff bill from the complete elimination of these 60 tariffs are India ($5.2m), Indonesia ($4.6m) and Vietnam ($1.5m). For the poorest countries, this cuts two ways: eventually they will grow, 'graduate' from EBA to GSP, and benefit from these reductions. In the meantime, however, should they start to supply these products while still qualifying for EBA, they will suffer from the elimination of the preference margins that the reductions imply. These tariffs—and likely a large number of other tariffs below 10%—serve no useful purpose in protecting UK producers, and could be removed completely. We identify over 1000 GSP tariff lines that could be cut without materially affecting the poorest countries.

The government should identify a longer list from the over 1000 GSP tariff lines that fulfil the criteria of not immediately affecting the poorest (EBA and GSP+) countries and reduce or remove them.

Longer-term, there is a case for a simpler trade for development regime that encourages mutually beneficial trade and development: simplifying 'rules of origin'; better-supporting Africa's plans for trade integration both regionally and as part of the African Continental Free Trade Area (AfCFTA); reductions in the substantial support for agriculture in the UK, and promoting developing country interests globally through the WTO. A new UK GSP regime should aim to be simpler, focused exclusively on the poorest countries and free from conditionalities.

The government should set out its strategy in these areas to fulfil its pledge to improve market access.

Conclusion

Based on current plans, in terms of tariffs, access will not improve for the vast majority of developing countries though neither are their exports materially damaged. A handful of countries (mainly India, Indonesia and Vietnam) will likely see small increases in exports. Alongside this there is likely to be some additional costs for importers in terms of customs checks for imports entering via the EU. Even if the UK agrees to roll over all four of the outstanding EU trade agreements with lower income countries, it will break its pledge to improve market access for developing countries post-Brexit.

The UK is seeking to be a trade leader—it has the opportunity to make some immediate minor reforms to reduce barriers for developing countries. These changes will benefit the UK and its developing partners; it will demonstrate that the UK is willing to prioritise developing country interests and also provide a platform for further reform in the coming years.

Introduction

While most of the attention paid to the UK's developing international trade policy has concerned major partners such as the European Union, the USA, Japan and Australia, that policy also affects around 95 lower and middle income countries, which together account for about 7% of UK imports.

This paper looks at the UK's approach to these developing countries' access to the UK market and whether the government will achieve its pledge to improve that access post-Brexit. It includes a rapid assessment of the structure and the functioning of the future UK Generalized System of Preferences, in so far as it has currently been announced and models how lower-income economies' exports to the UK will be affected.

This paper:

1. Assesses how the new UK Global Tariff (UKGT) schedule affects preference margins for beneficiaries of the Generalizes System of Preferences (GSP): it identifies countries and sectors which will benefit from the new UKGT because of lower tariffs, and countries whose preferential market access is eroded by the UKGT.

2. Assesses the effect from reducing tariff rates on textiles for Standard GSP members and evaluates the corresponding loss for countries resulting from preference erosion (in the GSP+ and EBA parts of the scheme).

3. Assesses the presence of tariff escalation on imports from GSP countries.

4. Evaluates the loss in preferential market access arising for certain trade partners if they fail to roll over their existing special arrangements (the EU Economic Partnership Agreements) with the UK (Ghana and Kenya).

The EU Generalised System of Preferences and UK's Plans

The Generalized System of Preferences (GSP) of the EU is a scheme offering special and differential treatment to developing countries in form of non-reciprocal trade preferences. The scheme is available to all lower-middle- and low-income countries[5] which do not have an alternative preferential trade arrangement with the EU. The EU's GSP features three sub-schemes, with increasing levels of market access to the EU: the standard GSP scheme, the GSP+ and the Everything but Arms (EBA) initiative. The standard GSP offers lower-than-MFN or zero import tariffs on approximately 66% of the tariff lines applied by the EU at the CN-8 digit product level to a list of 13 beneficiary countries. The GSP+ offers zero import tariffs on approximately the same products as covered by the standard GSP, and is available to countries considered economically vulnerable and that have ratified a list of 27 international conventions on sustainable development. GSP+ members currently number 8. The EBA initiative is the most preferential sub-scheme; it allows duty-free quota-free imports of all products originating from 48 Least Developed Countries (except for arms and ammunition). A table with the current list of beneficiaries is included in Table A-4. More details about the EU's GSP can be found in Di Ubaldo (2019).

For standard GSP suppliers an important limitation on access is that, according to the current EU GSP rules, in case their exports grow beyond a certain share of the total, they will lose their GSP preferences. More specifically a GSP member will "graduate" in a certain product section if its EU imports under GSP exceed 57% (47.5% in textiles, 17.5% in live plants, animal or vegetable oils, and mineral products) of the total EU imports in that section from all GSP members.

The UK government's plan once it leaves the EU customs union is to replicate the structure and functioning of the EU GSP scheme, to try to maintain the same level of market access that EU GSP members currently get at the EU level. This report evaluates how well it will be able to achieve that and how the introduction of the UK Global Tariff announced in May 2020 is likely to affect those countries' market access in the UK (https://www.gov.uk/guidance/uk-tariffs-from-1-january-2021)

Two elements of the tariff structure matter to developing countries—the level of tariffs they face and degree of preference this grants them relative to other traders. Both could affect levels of trade and thus income. A reduction in average tariffs—such as the UK has just undertaken with the UK Global Tariff (UKGT)—cuts both ways: it stimulates developing countries' exports by reducing the tariffs they pay but it potentially harms them by reducing the margin of preference.

[5] According to the World Bank classification.

Non-tariff Costs for Developing Country Importers

The focus of this report is on tariffs, but the costs of non-tariff barriers are also important, often more so (for example see UNCTAD 2020). For at least those importers to the UK whose goods arrive from the EU there will be additional admin burdens as the UK operates a distinct customs system from the EU requiring declarations, rules of origin checks and—if UK standards diverge from those of the EU—the cost of meeting another set of standards. For developing country importers, these can be a particular challenge.

A further risk would arise should the UK and the EU fail to reach a trade agreement making trade between them tariff-free. Currently, products exported into the EU (Holland, in particular) and, making use of the custom union and single market provisions, are freely shipped to the UK. This is particularly the case of agricultural products such as cut flowers. For example, half of the exports of cut flowers from Kenya to the UK are shipped from facilities located in the Continent (see Kenya section below). In the case that no agreement is reached between the UK and the EU, in addition to the costly border controls between the EU and the UK, a tariff would be applied on those products.

While some prior work (for example, Montalbano et al. 2020) suggests these effects are very small in aggregate, there is likely to be some new costs for developing country exporters, and the risk of disruption for particularly exposed sectors.

Part I. Changes in Tariffs and Preference Margins and Trade Impact

Changes in Tariffs and Preference Margins

Despite altering the majority of tariffs, the change from the EU MFN tariff to the UK Global Tariff (UKGT) was, in fact, rather minor. Winters et al. (2020) show that the weighted average ad valorem tariff on partners facing MFN rates changed from 2.1% to 1.5%, and the unweighted average from 4.9% to 3.9%.[6] On only four (minor) products are tariffs increased. The effects on the GSP are likely to be correspondingly modest.

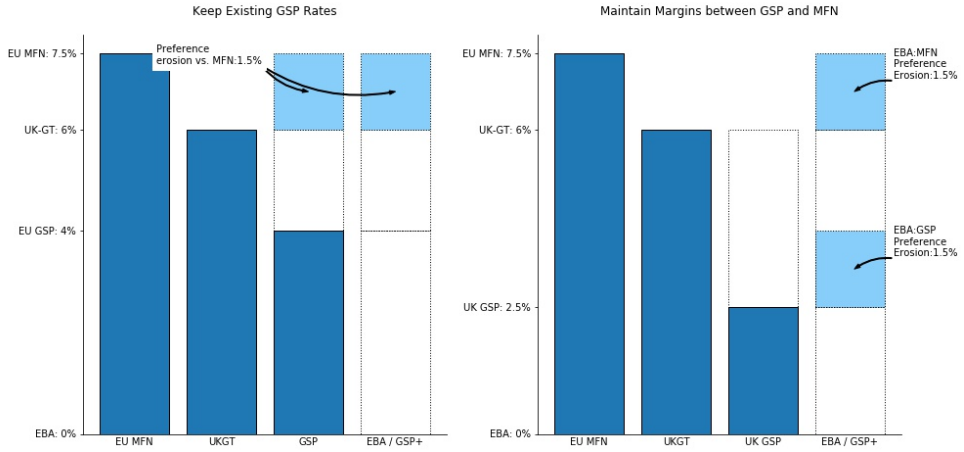
We do, however, have to make an assumption about exactly what the UK government means when it says, as noted above, that it intends to maintain the EU GSP scheme. It has not yet clarified whether this means that the GSP tariffs will be maintained at the EU levels or that the GSP margins of preference will be maintained the same. Remembering that EBA

[6] The figures in this paper refer to 2020 data on tariffs and, where needed for calculations like weighting tariffs together, 2018 trade flows.

countries get zero tariffs on virtually everything; a little reflection shows that it cannot do both.[7]

In Figure 1, below, we illustrate how the UK tariff levels affect preferences using a specific example.

Figure 1. Changes in preference margins resulting from the move to the UK Global Tariff



Source: Authors' calculations.

The above figure shows the effects on preference scheme beneficiary countries of the UK setting its MFN tariff below that of the EU's, using the example of commodity code 76042990, an 8-digit tariff line describing aluminium,[8] for which the EU's MFN tariff is 7.5% and the UKGT will be 6%, which is 1.5% lower. If the UK keeps the GSP tariff rate at its current levels of 4%, then the schemes' beneficiaries will see the size of their preference margins vis-à-vis MFN countries eroded by 1.5%, the size of the MFN rate cut. EBA beneficiaries will also see this erosion as their current rates of 0% tariffs cannot be cut further. The situation is shown in the left panel of Figure 1. The right panel shows the result if the GSP scheme has its rates reduced in a bid to maintain its preference margins. The size of the GSP margins vis-à-vis UKGT will now be the same as they were before against the EU MFN rate. But the EBA countries suffer double-fold in this case: they still see their margins over MFN countries eroded by 1.5%, but now their margins against GSP countries are also eroded by 1.5%.

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[7] The GSP implies that there are potentially three tariffs on each product: an MFN tariff, a GSP tariff and 0 (for EBA countries), with MFN > GSP > 0. If you move MFN closer to 0 (i.e. reduce the MFN tariff) either you reduce (MFN-GSP)—the margin GSP recipient receive relative to MFN—or you reduce (GSP-0)—the margin EBA countries receive relative to GSP ones.

[8] Chosen as it most effectively illustrates the issue of preference erosion across all schemes.

Unless we state otherwise, we assume below that the UK maintains the EU's GSP tariff levels, squeezing the margin that GSP countries receive relative to MFN.

The shift from the EU to the UK GSP regime can first be evaluated by comparing average tariffs, and trade bills that apply to UK imports from GSP beneficiaries. Under our assumption that GSP rates apply where eligible, and MFN or UKGT rates otherwise, UK average tariffs in the various GSP sections are never above the EU ones, but neither are they ever much below.[9] The switch of regime reduces average tariffs the most in chemicals and cereals (both by -1.84%), followed by ferro alloys (-0.87%). These three sectors also see the largest reduction in tariff bills, -5.28 $m, -4.11 $m, and -3.75 $m, respectively. The differences in the average tariffs and tariff bills are mostly due to graduations—graduated sectors fall back on different tariff schedules (EU MFN or UKGT)—but there are also a few sections (e.g. cereals etc.) where, because not all products in a section are eligible for GSP concessions, the tariff applied on the non-eligible product differs.

Moving to the UK regime also affects preference margins, i.e. the gap between the MFN tariff and the GSP ones. Due to the UKGT being lower than the EU MFN, the preferential margins in the UK GSP are smaller; alternatively expressed, the preferences GSP members benefit from in the UK are eroded by the lower UKGT. Figure 2 plots the GSP margins of preference for the EU and the UK regimes by GSP Section. In all the sections, average margins under the new UKGT rates are lower than those in the EU MFN tariff schedule (i.e. the points lie below the 45° line. The largest differences in margins are found in tobacco (-2.69%), raw hides, skins and leather (-1.92%), manufactures or cork, straw and plaiting materials (-1.63%) and preparation of meat and fish (-1.52%).

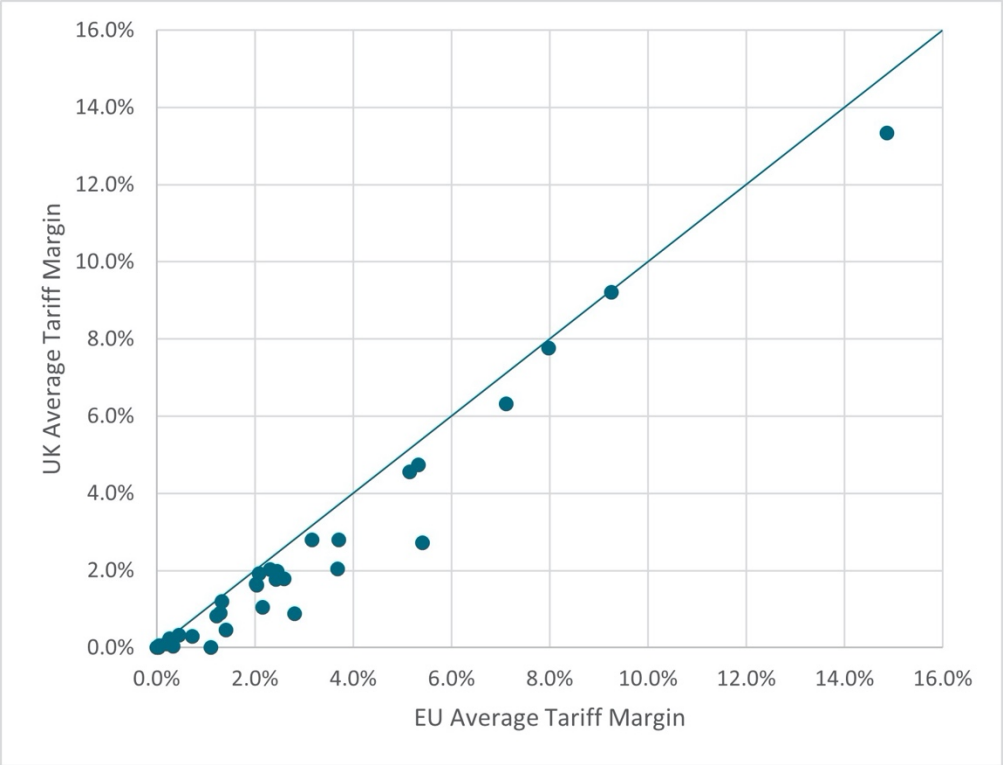
Table A-1 in the Appendix provides more details, reporting for each GSP section and for all GSP beneficiaries (GSP, GSP+ and EBA), the current (EU) tariff bill collected on imports into the UK[10], the weighted average tariff and the tariff margin relative to MFN along with the changes in each induced by the switch to the UK regime.

Figure 2 and Table A-1 capture the tension in the (minor) UK liberalisation so far as developing countries are concerned. The reductions in average tariffs and the tariff bill are welcome, though small, but the decline in preference margins is a threat.

[9] On only 4 products the UKGT is larger than the EU MFN tariff, with the difference being negligible (average is 0.25%)—possibly due to rounding.

[10] This is the tariff bill the pay at present.

Figure 2. EU and UK average GSP tariff margins



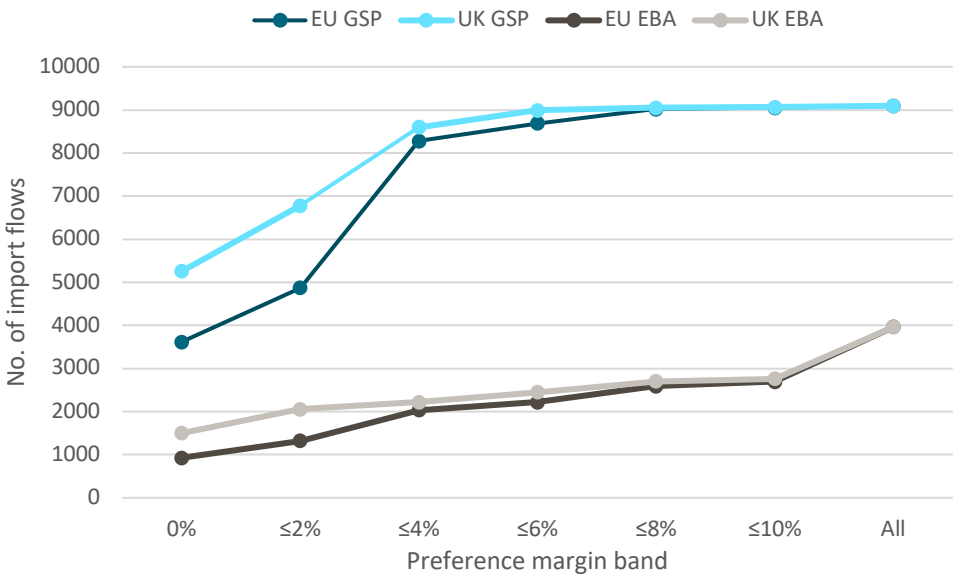
Source: Authors' calculation.

Figure 3 focuses on the reduction in preference margins and shows how many import flows are affected by changes in margins. More specifically the figure plots, for the (current) EU and (future) UK regimes, the number of 8-digit import flows from GSP beneficiaries into the UK in 2018 with preference margins falling below certain thresholds. At each threshold, we cumulate the overall number of flows with margins up to that threshold, such that the "All" category denotes all UK import flows at the 8-digit level from GSP beneficiaries.

The upper pair of lines refers to standard GSP recipients, which between them supplied exports in 9097 country-commodity combinations (corresponding to 5,050 different tariff lines), while the lower pair refers to EBA recipients which supplied, between them, only 3965 combinations (corresponding to 1,815 tariff lines).[11]

[11] Each import flow is a country-CN8 observation, i.e. each CN8 tariff line can be exported by multiple countries (hence the number of import flows is larger than the tariff lines). The lower number of flows for EBA relative to GSP countries is due to the lower number of CN8 products exported by EBA countries to the EU.

Figure 1. Cumulative number of 8-digit UK import flows by size of preference margin and regimes



Source: Authors' calculation.

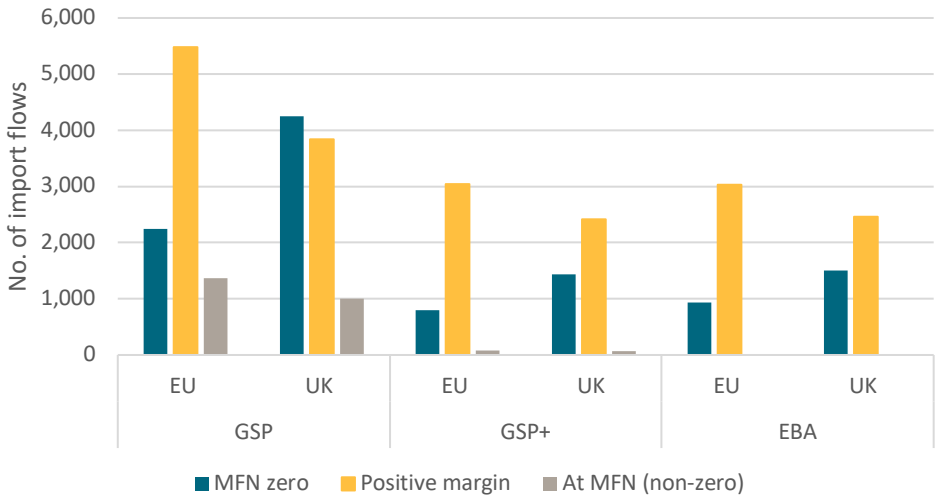
For example, while on the EU regime about 40% of import flows from GSP countries receive no preference (this can be either because the MFN rate is already zero, or because the product is not eligible for GSP), that increases to 57% (or 67% of the tariff lines) in the UK regime.[12] The corresponding figures for EBA recipients are 23% and 38% of the import flows, respectively (or 22% and 40% of the tariff lines): these latter arise only from flows on which a zero MFN rate applies. The preference erosion introduced by the UK regime is obvious for preference margins of 2% or less, but actually continues throughout the distribution. That is, the UK GSP will unambiguously shift the distribution of tariff preferences leftwards—it reduces preferences. Note that we opted for computing these figures exploiting the number of import flows, instead of the value of trade, because we intended to capture the effect of the change in regime for the many small import flows performed by smaller GSP members, while the value of trade is dominated by a few large countries (e.g. India, Indonesia, Vietnam).

An alternative way of looking at the issue of preference erosion is to group the import flows by three broad categories: those that have a zero MFN rate (and thus no preference margin), those that are eligible for a preferential rate (i.e. a positive margin) and those which are not

[12] 2,570 out of the 5,050 8-digit tariff lines imported in the UK from GSP countries receive no preference in the EU regime, with the corresponding figure for the UK regime being 3,398 out of 5,050. These figures are computed exploiting only the product eligibility information. We do not have information on the preference utilization rate, i.e. on whether the preferential regime is actually used or not.

eligible for preferences and face a positive MFN rate. Figure 2 provides this disaggregation for the three GSP sub-schemes and compares the EU and UK regimes. Focusing on products eligible for a positive preferential margin, the share of flows in this group in the EU regime is 60% (5,479/9097) for standard GSP countries, 77% (3041/3923) for GSP+ countries, and 76% (3035/3965) for EBA countries, while the corresponding numbers for the UK regime are substantially lower at 42%, 61% and 62%, respectively.

Figure 2. Number of flows eligible for preferences, by regime



Source: Authors' calculation.

In summary, by lowering its tariffs in its UKGT regime, the UK has lowered some of the tariffs faced by GSP recipients. But, because it also reduced the MFN tariff on products that received a preferential GSP rate, it has simultaneously reduced average preference margins relative to non-GSP countries.

Table 2 shows which countries stand to lose the most in terms of tariff savings (i.e. preference margin * value exported) from the reduction in preference margin on the products they export to the UK. We focus on the 20 most affected countries: on the left, we report the countries with largest losses in tariff savings relative to paying MFN as a share of their total exports to the UK; on the right, we report the countries with largest losses in tariff savings in absolute terms.

The countries most affected in relative terms are all very small, perhaps unsurprisingly, and mostly EBA beneficiaries. Lesotho is going to lose $23k in tariff savings which, for such a small country, are worth as much as 9% of its total exports to the UK. More consistent losses in absolute terms are experienced by large developing countries such as India, Vietnam and Indonesia, although, relative to the amount they export to the UK, these losses are worth less than 1% of the total export value of these countries.

Table 2. Countries with largest losses in tariff savings

Country	GSP type	Losses in tariff savings Total, $m.	% UK imp	Country	GSP type	Losses in tariff savings Total, $m.	% UK imp.
Lesotho	EBA	0.023	8.80	India	GSP	22.75	0.31
Sao Tome and Principe	EBA	0.000	6.50	Vietnam	GSP	9.88	0.23
Solomon Islands	EBA	0.021	3.58	Indonesia	GSP	6.61	0.58
Cook Islands	GSP	0.000	1.85	Philippines	GSP+	4.37	0.77
Nepal	EBA	0.336	1.78	Pakistan	GSP+	2.69	0.21
Kiribati	EBA	0.000	1.70	Kenya13	GSP	2.07	0.48
Syria	GSP	0.084	1.58	Cambodia	EBA	1.46	0.17
Togo	EBA	0.046	1.36	Ethiopia	EBA	1.37	0.77
Bhutan	EBA	0.083	1.35	Sri Lanka	GSP+	1.21	0.17
Afghanistan	EBA	0.022	1.13	Mozambiq ue	EBA	1.00	0.95
Mozambique	EBA	0.998	0.95	Bangladesh	EBA	0.83	0.03
Central Africa Republic	EBA	0.000	0.92	Nigeria	GSP	0.57	0.02
Senegal	EBA	0.361	0.87	Senegal	EBA	0.36	0.87
Niger	EBA	0.013	0.78	Nepal	EBA	0.34	1.78
Ethiopia	EBA	1.373	0.77	Myanmar	EBA	0.31	0.12
Philippines	GSP+	4.367	0.77	Angola	EBA	0.25	0.29
Uganda	EBA	0.087	0.73	Uganda	EBA	0.09	0.73
Armenia	GSP+	0.014	0.67	Syria	GSP	0.08	1.58
Chad	EBA	0.001	0.59	Bhutan	EBA	0.08	1.35
Indonesia	GSP	6.607	0.58	Malawi	EBA	0.07	0.55

Source: Authors' calculation.

Table A-2 (in the Appendix) narrows the focus on the product dimension and shows, in panel A, the 20 8-digit products suffering the largest declines in preference margin and, in panel B, the 20 country-product pairs with the largest losses in tariff savings relative to paying MFN. The largest losses in margin arise from the liberalization introduced with the UKGT: while the tariff changes relative to the currently used EU MFN tariff are small on average, they can imply changes in preference margins of up to 50 percentage points for single tariff lines.[14] Among the products, the most affected countries are EBA members such as Lesotho, Nepal, Bangladesh and Uganda which lose the largest margins in several agricultural products (some types of corn and maize flour, barley flour, rice flour, etc.).

[13] The situation of Kenya is discussed fully in Part III of this paper. Note, however, that in Part I and II we treat Kenya as a GSP country, as it formally among the EU GSP beneficiaries. However, Kenya currently benefits from the market access regulation (MAR), which is more similar to EBA.

[14] Note that figure 2 above plots the number of import flows by preference margin band, implying that the last step (from ≤10% to all) includes margins above 10 percentage points.

These products are admittedly exported in small quantities, but for small countries such as Lesotho and Nepal, the loss in tariff savings can be relatively sizeable. Among the country-product pairs, the Philippines experiences the largest loss in tariff saving in prepared skipjack tuna (1.7 $millions), followed by India in some electric materials and types of turbojets.

Impact on trade

The question is 'how will this affect the amount of trade?' It is impossible to know precisely, but we can make estimates based on standard approaches in the literature. These assume the structure and parameters of economic behaviour and for now make these the same for all commodities and countries. It is perfectly feasible to allow for differences in parameters across cases, but this does require information about what the differences are. It is also feasible to conduct detailed empirical investigations of specific cases. However, both are beyond the scope of the present paper.

Approach

The basic approach assumes that, for every product, each country supplies its own unique variety and that demand across these varieties can be described by a so-called constant elasticity of substitution (CES) utility function. Ideally, we would include both imported and domestic suppliers in the model, but because data on domestic sales are not available in sufficient detail, we have to work with imports data alone. We assume that the only thing that is changed by the change in tariff regime is the tariffs levied on different imports and that these changes in tariffs are fully passed onto consumers/users of the imports. The model we use distinguishes two margins of response to these price changes: first, as the relative prices of imports from different countries change, expenditure is switched between sources; second, the tariff changes may affect the average price of imports so the allocations between imports and domestic supplies and between different products adjust. The details of the analysis are set out in Appendix B.

For each product, we distinguish six sources of imports: those from EBA countries, GSP+ countries, GSP countries, members of Economic Partnership Agreements (EPAs), the EU plus EU FTA partners (EUF, which we assume pay no tariffs) and the rest of the world (ROW, which pays MFN tariff rates). For the EUF category we assume, for this exercise, that EU FTA partners all sign Continuity Trade Agreements with the UK by the time the UKGT comes into operation. This is not precisely true—and nor is it true that they pay absolutely no tariffs at present—but neither assumption is likely to be materially misleading. To make the results manageable we group commodities with reference to the tariff that they would face under the current (EU) GSP regime. Table 3 describes the calculation of trade effects.

Modelling results

The first block merely shows how significant each group of commodities is in UK imports and the second how these trade aggregates are distributed over the six supplier groups. It is plain that the shares from EBA and GSP+ countries tend to increase as the GSP tariff increases—because these two groups do not (generally) pay the tariff and hence get a competitive advantage that grows with the GSP tariff. Another noticeable feature is that the share of EUF countries is the largest (unsurprisingly), across all the tariff bands, whereas the share of the ROW declines as the tariff rates increase.

The third block gives the price change induced by the switch in regime by supplier block. These are weighted averages over all the commodities in the commodity groups and so reflect the pattern of exports to the UK. The EBA, EPA and EUF countries paid no tariffs already and so the liberalisation implied by moving to the UK regime gives them nothing. The GSP+ countries pay few tariffs and so they are in a similar position. Standard GSP countries, instead, face a mixed position. On one hand, they suffer from preference erosion on products eligible for GSP. On the other hand, they benefit from the liberalisation on products on which they don't get GSP treatment: because of the rounding down element of the UKGT, they pay lower tariffs on products not eligible for GSP and products in sections that have been graduated. This is where the "gain" for GSP countries materializes. The price reduction (tariff cut) for ROW exporters in the highest tariff group is less than that for GSP exporters because at the detailed level the tariff reductions were greater on products supplied heavily by GSP countries than on other products.

The fourth block reports the aggregate import price change. It is smaller absolutely (less negative) than the price change for the ROW, because the largest share of supplies is accounted for by the EUF countries, which see no price change.

The next block is the percentage change in exports to the UK (both in volume and value terms since we assume that the change in regime in the UK is too small to change any local prices in supplier countries). The essence of the story is that the move to the UKGT reduces aggregate import prices and thus boosts aggregate imports. In addition, in most bands, it reduces tariffs on ROW suppliers more than on other groups, granting the latter an unambiguous improvement in competitiveness and so increases its share of aggregate imports. The EBA, EPAs and EUF countries get no benefits from the tariff reductions and so lose market shares; despite the overall increase in demand, their exports to the UK fall in all tariff bands. The percentage fall in UK imports is the same for EBA, EPAs and EUF countries, due to our modelling structure, but the absolute fall is larger for EUF than for EPAs and EBA, because the former group exports much more to the UK than the latter two groups. The situation is the same for GSP+ countries. The GSP countries report the largest losses due to preference erosion in the 0% tariff band (where they have nothing to gain from the UKGT tariff changes) although, overall, they gain in four of the tariff bands and lose in the other three.

The final block of Table 3 converts the percentage changes into absolute amounts and sums them, showing that the switching to the UK regime results in an increase in UK imports from ROW countries (approx. $ 1.9bn, or 1.52%) and from GSP countries (approx. $ 30m, or 0.19%). The other country groups see a decrease in exports to the UK, with the largest fall in absolute terms calculated for EUF countries and in relative terms for EPA countries.

Table 3. Changes in trade induced by switch from EU to UK GSP/tariff regime

	Commodities with GSP tariffs in range								
	0%	0.01–2%	2.01–4%	4.01–6%	6.01–8%	8.01–10%	>10%		
Value of UK imports by group, $m								**Total**	
EBA	408.8	14.9	31.4	225.1	24.5	3469.0	120.4	4294.1	
GSP+	1182.7	7.2	32.7	151.1	96.9	1382.0	114.2	2966.8	
GSP	11053.1	161.9	535.5	1010.5	499.5	1793.9	596.9	15651.2	
EPAs	4859.4	5.5	249.9	172.4	168.0	201.2	313.6	5969.9	
EUF	168938.8	4987.8	14753.8	8105.2	15159.2	29346.3	6128.9	247420.0	
ROW	106570.4	3160.5	3773.2	1925.7	2143.0	5230.1	1362.7	124165.7	
Market share, percent									
EBA	0.1	0.2	0.2	1.9	0.1	8.4	1.4		
GSP+	0.4	0.1	0.2	1.3	0.5	3.3	1.3		
GSP	3.8	1.9	2.8	8.7	2.8	4.3	6.9		
EPAs	1.7	0.1	1.3	1.5	0.9	0.5	3.6		
EUF	57.7	59.8	76.1	69.9	83.8	70.8	71.0		
ROW	36.4	37.9	19.5	16.6	11.8	12.6	15.8		
Percentage change in tariff-inclusive price by supplier group									
EBA	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
GSP+	0.00	-0.05	-0.02	-0.11	0.00	0.00	-1.12		
GSP	-0.07	-0.31	-0.86	-0.98	-0.39	0.00	-2.18		
EPAs	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
EUF	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
ROW	-0.89	-1.65	-1.72	-1.43	-0.78	-0.07	-1.99		
Percentage change in aggregate price of imports									
ALL	-0.33	-0.63	-0.36	-0.32	-0.10	-0.01	-0.48		
Percentage change in exports by supplier group									
EBA	-0.33	-0.63	-0.36	-0.32	-0.10	-0.01	-0.48		
GSP+	-0.33	-0.54	-0.32	-0.10	-0.10	-0.01	1.75		
GSP	-0.18	-0.01	1.35	1.65	0.68	-0.01	3.88		
EPAs	-0.33	-0.63	-0.36	-0.32	-0.10	-0.01	-0.48		
EUF	-0.33	-0.63	-0.36	-0.32	-0.10	-0.01	-0.48		
ROW	1.45	2.67	3.08	2.53	1.45	0.12	3.50		
Change in exports to the UK, m$								**Total**	**% of imp**
EBA	-1.33	-0.09	-0.11	-0.73	-0.03	-0.29	-0.58	-3.16	-0.07
GSP+	-3.86	-0.04	-0.11	-0.14	-0.10	-0.12	2.00	-2.36	-0.08
GSP	-20.06	-0.02	7.24	16.62	3.42	-0.09	23.16	30.28	0.19
EPAs	-15.86	-0.03	-0.89	-0.56	-0.17	-0.02	-1.50	-19.04	-0.32
EUF	-551.45	-31.53	-52.81	-26.31	-15.61	-2.45	-29.37	-709.54	-0.29
ROW	1549.02	84.42	116.05	48.74	31.12	6.41	47.68	1883.45	1.52

Source: Authors' calculation.

Discussion of results and country-level impacts

An aspect of the result worth noting is that the preference erosion introduced by the UKGT has surprisingly small effects for EBA and GSP+ countries. This appears to be due to the fact that, where the market share of EBA and GSP+ countries is the largest (in the 8–10% tariff band), the overall price change arising from moving to the UKGT is lowest. In this tariff band, the price reduction for ROW countries is the smallest, which, combined with very few non-GSP eligible products exported by standard GSP countries (the products that gain from lower UKGT tariffs) results in a small change in the aggregate price index, and minimal losses for EBA and GSP+ exporters.

One further clarification is that in this exercise we do not model each individual country's tariff and trade changes, as we group the UK trade partners in the six supplier groups. This means that we cannot make accurate predictions about the effects at the country level. If we took our modelling framework literally the gains/losses for each country would be proportional to their market shares within the supplier group. On this (unrealistic) basis we can identify winners and losers: India is likely to get the largest share of the gains among standard GSP countries, and Bangladesh is likely to get the largest share of the (small) losses among EBA countries.

These numbers are obviously very approximate and there are some reasons to believe that the CES structure we have used understates the degree of change that policy shocks induce. However, the shock in this case is fairly small so the error is not likely to be very large. Also, of course, these are aggregates and may hide significant disruption for certain firms or suppliers and hence for their employees. Hence these results are not sufficient to dismiss the problem of preference erosion altogether.

Finally, it is worth repeating that, under our assumption that the UK Government will maintain the current *level* of GSP tariffs (instead of the current *margin* between MFN and GSP tariffs) the gains accruing to GSP countries under the UKGT are exclusively due to GSP shipments to which the UKGT applies: these are products in sectors that are subject to graduations, or products not eligible for GSP treatment. To get a sense of which countries are likely to gain from the lower UKGT tariff, Table 4 reports the number (at the 8-digit level) and value of UK import flows that would experience a lower tariff in the UK than in the EU, broken down by countries, tariff bands, and graduation status.

Table 4. Number and value of UK imports from GSP countries with lower tariff in UK than in EU

Tariff band		0%	0.01–2%	2.01–4%	4.01–6%	6.01–8%	8.01–10%	>10%	Total
Imports of non-GSP eligible products									
India	No.		5	12	12	3	1	75	108
	$m		0.7	10.7	53.8	0.1	0.0	28.0	93.3
Indonesia	No.		2	1			1	3	7
	$m		0.8	2.2			0.0	0.1	3.1
Kenya*	No.		1	1	2			5	9
	$m		0.0	0.1	1.7			0.0	1.8
Nigeria	No.		1		1	1		6	9
	$m		0.21		0.00	0.03		0.01	0.25
Syria	No.							6	6
	$m							0.2	0.2
Uzbekistan	No.						1		1
	$m						0.0		0.0
Vietnam	No.		1	3	2		1	15	22
	$m		0.0	1.2	0.0		0.1	2.1	3.4
Imports from graduated sectors									
India	No.	181	40	220	236	154		1	832
	$m	662.2	24.2	107.0	105.8	134.8		0.0	1034.0
Indonesia	No.	8	2	5		7		2	24
	$m	15.8	0.4	52.4		11.2		10.1	90.0
Kenya	No.	1		3	2	1	2		9
	$m	4.1		0.5	50.5	0.0	1.1		56.3

Source: Authors' calculation. *See note on treatment of Kenya above.

The country standing to gain the most is India, which accounts for the largest (number and value) UK imports on which a lower tariff will apply.

Part II. Scenarios for Immediate Changes to GSP

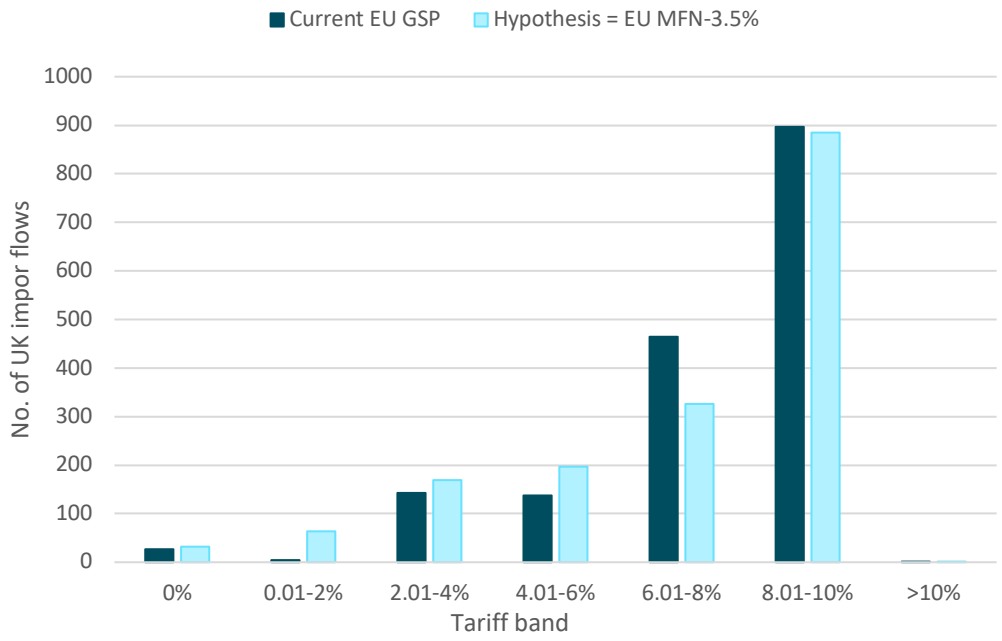
This part of the report looks at two scenarios for immediate changes to the UK's Generalised System of Preferences (GSP). The first looks at enhancing the margin for the Standard GSP countries on textiles, increasing the margin to 3.5 percentage points. The second scenario looks at reducing tariffs on goods in the GSP which are not currently exported by the poorest countries (those in the Everything But Arms, EBA scheme).

Scenario 1: Enhancing GSP preference margin in textiles

Very nearly half of the tariff bill on UK imports from GSP countries is imposed on Section 11 textiles and clothing. EU MFN tariffs are high, and the EU GSP offers only low concessions on many of the headings within the section. This creates a situation where the UK GSP could improve on the current EU regime, as it may be possible to make all headings in Section 11 eligible for the GSP reduction of 3.5 percentage points on the MFN

rate. The EU GSP regulation (EU Regulation No 978/2012), in fact, states that "*ad valorem duties should be reduced by a flat rate of 3.5 percentage points from the MFN rate.*" Currently, however, under the EU MFN, the maximum margin in textiles (section 11-a) is 1.6%, and the maximum margin in apparel and clothing is 2.4% (section 11-b).[15] There is therefore room to increase the GSP margin to at least 3.5 percentage points below the EU MFN, as stated in the current EU Regulation. The effect of this on the tariff rates faced within the section is shown in Figure 3. Of the 1674 8-digit UK import flows reported in 2018, 897 face tariffs between 8.01% and 10% at present, but this would only fall to 885 with this reform. However, the number of headings facing tariffs between 6.01% and 8% would fall significantly and the number facing lower tariffs would increase.

Figure 3. Distribution of GSP tariffs on textiles: Current v. hypothetical with maximum margin over EU MFN



Source: Authors' calculation.

In terms of the tariff bill paid by GSP countries, Table 5 shows the bill for sections 11a and 11b under the current (EU) regime, after the UKGT and after the reform proposed here.

The UKGT offers a little extra benefit relative to the EU regime in textiles and none in clothing. Extending the GSP, on the other hand, offers larger gains in clothing than in textiles (in percentage and in absolute terms). However, it is worth noting that the lion's share of these gains accrues to India.

[15] The same maximum margin figures apply under the UKGT. The average figures are 1.3% in textiles and 2.3% in apparel and clothing under the EU MFN, and 2.3% and 2.2% under the UKGT.

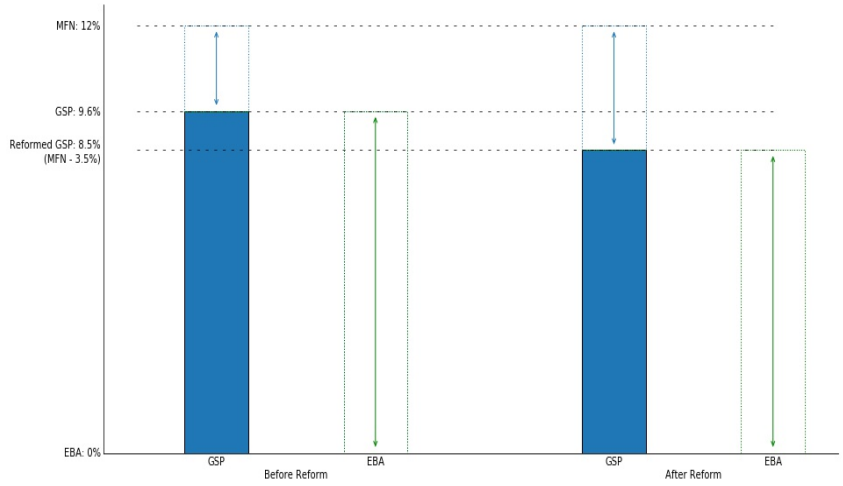
Table 5. Tariff bill from textiles imports from GSP countries, $m

		EU GSP	UK GSP	EU MFN—3.5%
S-11a	Textiles	14.8	13.2	12.1
	of which India	*13.5*	*11.8*	*11.8*
S-11b	Articles of apparel and clothing	173.9	173.9	150.6
	of which India	*113.6*	*113.6*	*98.3*

Source: author's calculation.

A concern associated with reducing tariffs for some GSP members, namely Standard GSP ones, is that these concessions can result in preference erosion for other GSP members. In other words, the tariff margin between Standard GSP members on one hand, and GSP+ and EBA members on the other, is going to be reduced.[16] This effect is shown in the below chart (Figure 6).

Figure 6. Changes in margins from a reduction in GSP to MFN—3.5%



Source: Authors' calculations.

Figure 6 shows the effects of reducing the GSP to MFN-3.5%, using the example of an 8-digit tariff line describing curtains and drapes (commodity code 63039100). On the left panel, a country in the GSP scheme, say India, has a margin over MFN equal to the blue arrow. A country on the EBA scheme, such as Bangladesh, has in turn, a margin over India of the size of the green arrow. When the rate on the GSP scheme is reduced, GSP margin over MFN increases while the EBA margin over GSP reduces, as seen by the blue and green arrows respectively on the right of the axis.

[16] Note that this would be a change in tariff margin within GSP, among beneficiaries of different sub-schemes. This is different from the tariff margin we referred to until now, which is the gap between the MFN and GSP tariff.

To inspect what effect bringing the tariff margin on textiles to 3.5pp (below the EU MFN) for standard GSP members causes for GSP+ and EBA members in terms of preference erosion, we first look at the change in "tariff savings" by country. Tariff savings refers to the savings in tariff payments relative to paying the MFN rate. A negative change means that the savings relative to the MFN are reduced, even if the absolute amount paid by the country is unchanged.

Table 6 shows the change in tariff savings for the three set of countries:[17]

- for standard GSP members, the change is computed as the difference between the savings with respect to the EU MFN under the hypothetical (EU MFN-3.5pp) tariff schedule and those under the current EU GSP regime.

- for GSP+ and EBA members, the change is computed as the difference between saving with respect to GSP tariffs under the current EU GSP regime, and the saving with respect to GSP tariffs under the hypothetical (EU MFN -3.5pp) regime.

Reducing standard GSP tariffs brings an extra $14.38m in tariff savings to India, with respect to those obtained under the current EU MFN regime. This policy, however, reduces the gap between standard GSP and the other two sub-schemes' tariffs. In fact, the reduction in preferential margin with respect to standard GSP tariffs implies a loss in tariff saving of $10.15m for Pakistan and $29.28m for Bangladesh. The latter figures are negative, showing the "saving" is reduced though the tariffs paid would be unchanged.

Note that the changes in tariff savings for standard GSP on one side and GSP+ and EBA on the other do not sum to zero. This is because countries supply the goods whose margins are changed in different proportions from each other.

[17] The countries are ranked depending on savings in the clothing sector, which are much larger than in textiles. We only show the top three beneficiaries per scheme, for which tariff saving changes exceed £1m

Table 6. Changes in tariff savings for scenario 1

			Tariff savings with respect to		
			EU MFN	EU MFN-3.5	Change
Standard GSP	India	Textile	0	0	0
		Clothing	28.45	42.83	14.38
	Indonesia	Textile	0.21	0.82	0.61
		Clothing	3.27	5.08	1.81
	Vietnam	Textile	0.13	0.49	0.36
		Clothing	11.78	17.63	5.85
			Tariff savings with respect to:		
			St. GSP under current EU MFN	St GSP under EU MFN-3.5	Change
GSP+	Pakistan	Textile	4.34	2.92	-1.41
		Clothing	85.61	75.46	-10.14
	Philippines	Textile	0.082	0.05	-0.03
		Clothing	1.701	1.47	-0.22
	Sri Lanka	Textile	0.76	0.51	-0.24
		Clothing	48.67	42.42	-6.24
EBA	Bangladesh	Textile	0.13	0.06	-0.07
		Clothing	247.04	217.76	-29.28
	Cambodia	Textile	0.01	0.01	-0.00
		Clothing	67.86	59.67	-8.19
	Myanmar	Textile	0.03	0.02	-0.01
		Clothing	19.89	17.48	-2.41

Source: authors' calculation.

Looking at Table 6 alone, it would therefore appear that extending the preferential margin for standard GSP countries might be doing more harm than good, as the positive changes in tariff savings for these countries are outweighed by the larger negative changes for GSP+ and EBA countries.

For this reason, we also perform an exercise that models the impact of these tariff changes more formally. Table 7 shows the changes to trade implied by this reform; its structure is the same as that of Table 3. UK imports of textiles are largest in the 8.01–10% tariff band, with $19bn reported for 2018. The distribution of trade among the six supply groups sees the largest shares for EUF countries in all except the 0% band. (The > 10% band is negligible for textiles, with only 1 product falling in this category).

Trade impacts of scenario 1

The price change we model affects only standard GSP countries, as shown in the third panel of Table 7, and affects mostly products in the 4.01–6% band. This implies that the largest percentage change in exports arises for this tariff band (+2.63%), with smaller but similar gains in the other bands for which we modelled a price reduction.

Since the price reduction does not affect any of the supply groups other than standard GSP members, the non-GSP groups lose trade shares and see a fall in their exports of textiles to the UK. The largest fall in absolute terms is found for EUF countries, due to their large base trade volume.

Table 7. Changes in trade induced by a reduction in tariffs on textiles and clothing

	Commodities with GSP tariffs on textiles in range								
	0%	0.01–2%	2.01–4%	4.01–6%	6.01–8%	8.01–10%	>10%		
Value of UK imports by group, $m								**Total**	
EBA	3.4	0.0	1.7	89.3	11.5	3462.3	0.0	3568.2	
GSP+	17.7	0.0	4.3	51.6	74.6	1372.1	0.0	1520.3	
GSP	7.2	0.5	94.6	134.8	155.1	1731.8	0.3	2124.1	
EPAs	0.3	0.1	12.7	2.5	2.1	91.0	0.0	108.8	
EUF	36.3	7.0	662.0	595.5	1518.5	7970.8	0.2	10790.3	
ROW	47.9	5.2	219.4	566.7	546.9	4473.9	0.2	5860.3	
Market share, percent									
EBA	3.0	0.0	0.2	6.2	0.5	18.1	0.0		
GSP+	15.7	0.0	0.4	3.6	3.2	7.2	0.0		
GSP	6.4	3.6	9.5	9.4	6.7	9.1	38.2		
EPAs	0.3	0.6	1.3	0.2	0.1	0.5	0.0		
EUF	32.2	54.9	66.6	41.3	65.8	41.7	31.3		
ROW	42.4	40.8	22.1	39.3	23.7	23.4	30.5		
Percentage change in tariff-inclusive price by supplier group									
EBA	0	0	0	0	0	0	0		
GSP+	0	0	0	0	0	0	0		
GSP	0	-0.009	-0.010	-0.014	-0.006	-0.010	0		
EPAs	0	0	0	0	0	0	0		
EUF	0	0	0	0	0	0	0		
ROW	0	0	0	0	0	0	0		
Percentage change in aggregate price of imports									
All	0.0000	-0.0003	-0.0009	-0.0013	-0.0004	-0.0009	0.0000		
Percentage change in exports by supplier group									
EBA	0	-0.0003	-0.0009	-0.0013	-0.0004	-0.0009	0		
GSP+	0	-0.0003	-0.0009	-0.0013	-0.0004	-0.0009	0		
GSP	0	0.0174	0.0187	0.0263	0.0115	0.0193	0		
EPAs	0	-0.0003	-0.0009	-0.0013	-0.0004	-0.0009	0		
EUF	0	-0.0003	-0.0009	-0.0013	-0.0004	-0.0009	0		
ROW	0	-0.0003	-0.0009	-0.0013	-0.0004	-0.0009	0		
Change in exports to the UK, m$								**Total**	**% of imp**
EBA	0	0.000	-0.002	-0.115	-0.005	-3.178	0	-3.300	-0.092
GSP+	0	0.000	-0.004	-0.066	-0.030	-1.260	0	-1.360	-0.089
GSP	0	0.008	1.766	3.538	1.778	33.482	0	40.571	1.91
EPAs	0	0.000	-0.012	-0.003	-0.001	-0.084	0	-0.099	-0.091
EUF	0	-0.002	-0.617	-0.767	-0.605	-7.317	0	-9.309	-0.086
ROW	0	-0.002	-0.204	-0.730	-0.218	-4.107	0	-5.261	-0.09

Source: authors' calculation.

Overall, Table 7 shows that even a small increase in tariff margins up to 3.5 percentage points can imply a sizeable increase in trade from the affected countries with a $40.6m (or1.91%) increase in their exports. Finally, similarly to the results in Table 3. In Table 7, the country level effects can be gauged by referring to the market shares of each country in the supplier groups. Again, India is the largest supplier of textiles among the standard GSP countries, and hence likely to gain the most from the proposed reform, and Bangladesh is the largest textile exporter among the EBA countries, and hence will be likely to account for the largest share of the relatively small $3.3m loss.

Scenario 2: Larger GSP margins while avoiding EBA preference erosion

As shown in the previous section, to improve market access conditions to the UK for developing countries, a possible intervention could be to increase the preference margin for GSP eligible products. The margin could be increased to 3.5 percentage points (as per current EU regulation) or made even larger. As mentioned above, however, the problem with this intervention is that granting larger preference margins to standard GSP members can hurt EBA members through preference erosion, as the latter already get duty free treatment on all exported products (except arms). In other words, better market access for standard GSP members would come at the expense of a loss of competitiveness for EBA members (the poorest ones).

Preference erosion would be avoided if better market access were granted in sectors or products of relatively low importance for EBA members. There are over 6000 8-digit tariff lines eligible for GSP treatment: out of the 5,355 different products imported in 2018 in the UK from all types of GSP members, 3,391 of these were exported by standard GSP members but not by EBA members (and 1,063 of those face a positive tariff). These products are distributed across various sectors, but an attempt to organize this information has been made in Table 8, which shows the share of UK imports of products exported by standard GSP but not by EBA countries (henceforth *GSP-no-EBA* products), out of UK imports of products exported by all GSP members.

Sections 6-a (Chemicals), Wood (9-a) and 15-a (Ferro-alloys) have the largest shares of imports of *GSP-no-EBA* products. If more generous tariff reductions for standard GSP members were desired, these sectors would offer a potential target due the limited negative impact on EBA members.

Table 8. Share of UK imports in each GSP section lying in the *GSP-no-EBA* category

GSP section	Share (%)	Mean EU GSP tariff (%)	Max EU GSP tariff (%)	Description
S-6a	90.63	5.08	6.5	Inorganic and organic chemicals
S-9a	82.36	2.30	10	Wood and wood charcoal
S-15a	73.56	0.81	4	Ferro-alloys and articles of iron and steel
S-15b	63.63	2.00	10	Base metals (excl. iron and steel), articles of base metals
S-17a	63.36	0	0	Railway and tramway vehicles and products
S-11a	61.41	4.49	12	Textiles
S-6b	59.18	0.74	27.71	Chemicals, other than organic and inorganic chemicals
S-3	58.42	5.17	91.98	Animal or vegetable oils, fats and waxes
S-7b	57.91	0.14	2.2	Rubber
S-13	56.10	0.39	7.5	Articles of stone, ceramic products and glass
S-2d	55.79	4.03	82.99	Cereals, flour, seeds and resins
S-18	53.05	0.00	2.3	Optical instruments, clocks and watches, musical instruments
S-4b	46.17	4.19	79.04	Prepared foodstuffs (excl. meat and fish), beverages, spirits and vinegar
S-4a	44.75	5.71	20.5	Preparations of meat and fish
S-1a	36.64	0	0	Live animals and animal products excluding fish
S-4c	30.13	4.14	29.1	Tobacco
S-7a	26.98	1.44	3	Plastics
S-8a	22.35	0.68	3	Raw hides and skins and leather
S-17b	18.93	2.15	16	Motor vehicles, bicycles, aircraft and spacecraft, ships and boats
S-1b	18.71	5.27	18.5	Fish, crustaceans, molluscs and other aquatic invertebrates
S-5	18.53	0.02	4.48	Mineral products
S-16	11.71	0.00	9.8	Machinery and equipment
S-2b	10.99	5.90	70.53	Vegetables, fruit and nuts
S-20	9.24	0.22	2.2	Miscellaneous
S-2a	8.24	7.46	8.5	Live plants and floricultural products
S-2c	6.22	0.48	4.8	Coffee, tea, mate and spices
S-12a	4.64	2.54	11.9	Footwear
S-8b	3.60	0.68	2.3	Articles of leather and furskins
S-14	2.31	0.17	4	Pearls and precious metals
S-12b	1.34	0.68	1.7	Headgear, umbrellas, sun umbrellas, sticks, whips and prepared feathers and down
S-9b	0.97	0.35	1.2	Cork manufactures of straw and other plaiting materials
S-11b	0.39	5.15	9.6	Articles of apparel and clothing accessories

Source: Authors' calculation.

An alternative way of finding areas where market access conditions for GSP members to the UK can be improved could consist in identifying the GSP-no-EBA products on which high tariffs apply. Table A-3 in the appendix lists the GSP-*no-EBA* products with tariffs exceeding 10%: there are over 60 such tariff lines, at the 8-digit level, where large tariff cuts relative to the UKGT can be made, without harming the competitive position of EBA countries.

Overall, however, as mentioned, there are about 3,300 products exported by GSP and GSP+ countries, but not by EBA-eligible countries; and 1,063 of these face tariffs. Table 9 sheds some light on the distribution of the possible development effects implied by the elimination of tariffs on *GSP-no-EBA* products. For each of the standard GSP and GSP+ members, the table reports the value of UK imports in GSP-no-EBA products from them, the share of these products in the UK's total imports from them and the tariff bill currently applied.

Table 9. UK imports in GSP-no-EBA products from GSP and GSP+ members

	Value, $m.	Share of UK imp.	Tariff bill
Standard GSP			
Congo	15.21	63.30	0.00
Cook Islands	0.00	0.00	0.00
Equatorial Guinea	20.25	84.98	0.00
India	2384.36	32.78	42.99
Indonesia	465.42	40.66	11.31
Kenya	15.70	3.61	1.42
Nigeria	34.55	1.44	0.44
Niue	0.01	27.05	0.00
Syria	4.79	90.12	0.22
Tajikistan	0.88	84.16	0.00
Uzbekistan	0.49	32.73	0.02
Vietnam	356.99	8.23	5.65
GSP+			
Armenia	0.23	11.36	0.0
Bolivia	15.94	82.44	0
Cape Verde	0.00	5.46	0
Kyrgyzstan	2.84	0.56	0
Mongolia	0.04	0.82	0
Pakistan	128.88	10.19	2.80
Philippines	174.26	30.89	0.02
Sri Lanka	58.06	8.38	0.05

Source: Authors' calculation.

The countries first in line to gain from reducing tariffs on *GSP-no-EBA* products are, obviously, the standard GSP members. In absolute terms, the largest gains would accrue to the larger countries such as India, Indonesia, and Vietnam. In relative terms, *GSP-no-EBA* products account for the largest share of imports from Syria, Equatorial Guinea and Tajikistan, although the trade bill for these latter countries would barely be affected, as the majority of products they export already benefit from zero tariffs (either a zero MFN or a zero GSP tariff).

Note how some (very small) benefit from reducing tariffs on *GSP-no-EBA* products would materialize also for GSP+ countries: this is due to exports of non-GSP+ eligible products, on which a positive tariff applies. For the poorest (EBA) countries, this tariff reform cuts two ways: eventually they will grow, 'graduate' from EBA to GSP, and benefit from these reductions. In the meantime, however, should they start to supply any of these products while still qualifying for EBA, they will suffer from the elimination of the preference margins that the reductions imply.

Tariff escalation

This section looks at the potential problem of tariff escalation. It considers the literature on its effects and how to measure it; and then compares the UK and EU GSP schemes in terms of escalation.

Tariff escalation (TE) describes the situation where tariff rates increase with the level of processing of a commodity, such as tariffs increasing on raw cocoa, chocolate paste, and chocolate, respectively. TE is of interest to developing countries, as it represents an entry barrier to higher value segments of value chains; hence it tends to make it more difficult for developing countries to progress beyond low value-added activities and thus reinforces the North-South nature of trade—e.g. Van Berkum (2009) and Hubbard et al (2017).

There was a strong interest in this issue in the early 2000s among researchers assessing Uruguay Round commitments to open markets which showed that, while MFN tariffs were reduced in the round, tariff peaks and escalations were still widespread—Elamin and Khaira (2003). While earlier studies mostly found positive evidence of TE and that TE arises in both developed and developing countries (e.g. Lindland, 1997 and UNCTAD, 2003), more recent evidence on TE is mixed. On one hand, Narayanan & Khorana (2011) find little or no tariff escalation in the coffee sector, but significantly escalating tariffs in the cotton sector; Aziz et al. (2017) find all major importers of cocoa have escalating bound rates, but that the EU has no escalations in its applied rates; and UNCTAD (2019) finds that developed countries display clear and widespread escalation in agriculture and even more so in manufacturing. Conversely, Mohan (2012) finds that although developing countries face large tariff escalations, developed countries do not, but the authors acknowledge it may have been more prevalent in the past.

Preference schemes seem to offer some relief from TE. We did not find recent evidence on this issue, but Elamin and Khaira (2003) found that in EU preference schemes, reductions were apparent mainly in raw materials for GSP countries and both in materials and foods for

ACP countries. Chevassus-Lozza and Gallezot (2003) found that preference schemes had broad country coverage but narrower product coverage. While ACP countries saw strong mitigations of tariff levels and escalations under the Lome Convention, those on the GSP (as configured at that time) received more limited mitigation. Indeed, escalation patterns are largely similar in the GSP schedule to those in the MFN schedule (though at a lower level). More recently, Martin (2018) finds that African exporters face low tariffs from EU because of tariff preferences, but that Africa's second largest market is other African countries which impose high tariffs; Antimiani et al. (2011) find that the EU is the friendliest region for nine African countries in terms of preference schemes.

We have sought to quantify the escalation effects of the UKGT/GSP regime in two ways. First, for all the HS trade headings mapping to each ISIC4 industry we compare the average tariff on intermediates with that on final goods and take the difference as a measure of tariff escalation.[18] It is reasonable to define escalation within a single industry because the concern is that escalation discourages developing countries from processing their own raw or semi-processed materials; thus it is highly likely that the relevant intermediates and final goods will map to the same industry.

Using trade weighted averages of tariffs, Table 10 reports the 20 industries with the highest escalation in the EU GSP/MFN regime (i.e. using the MFN rates when products are not GSP eligible), showing the escalation in the EU and UK regimes and the difference between them, in percentage points. In most cases there is no change (to one decimal place), but there are increases in five areas—for sugar, vegetable and animal oils and fats, cutlery, bicycles and invalid carriages and for motorcycles, and decreases for three: textile fibre spinning, grain mill products and body-work for motor vehicles.

The cases of increases in TE in the UK regime are mostly due to falling tariffs on intermediates, with no corresponding decrease in tariffs on final goods. For instance, for motorcycles, the mean tariff on intermediates goes from 3.1% in the EU regime to 1.7% in the UK regime, whereas the mean tariff on the final good is 5.5% in both regimes. A similar situation explains the increase in TE in cutlery.

The cases of decreases in TE, instead, are mostly due to falling tariffs on final goods not matched by a corresponding decrease in tariffs on intermediates. This is the case in the preparation and spinning of textile fibres sector: tariffs on final goods fall from 4.9% in the EU regime to about 1% in the UK regime, while tariffs on intermediates only fall from 3.4% to 2.1%.

[18] We convert trade data from the HS 6-digit level to ISIC sectors using concordance table from the OECD. There are 177 ISIC4 industries. HS 6-digit headings are classified as intermediates or final according to the UN's Broad Economic Categories (BEC). This approach does not capture escalation between different stages of intermediate goods.

Table 10. Tariff escalation: Top 20 industries in EU GSP (trade weighted tariff averages)

ISIC	Industry	EU GSP	UK GSP	Difference
		Percentage points		
1072	Manufacture of sugar	67.21	67.71	0.50
1200	Manufacture of tobacco products	27.24	27.24	
1080	Manufacture of prepared animal feeds	23.29	23.29	
1061	Manufacture of grain mill products	17.84	16.78	-1.06
113	Growing of vegetables and melons, roots and tubers	9.56	9.54	-0.02
3092	Manufacture of bicycles and invalid carriages	8.19	8.28	0.09
2310	Manufacture of glass and glass products	6.91	6.91	
2910	Manufacture of motor vehicles	6.25	6.25	
2393	Manufacture of other porcelain and ceramic products	4.92	4.92	
2640	Manufacture of consumer electronics	4.87	4.87	
111	Growing of cereals (except rice), leguminous crops and oil seeds	3.36	3.39	0.03
1079	Manufacture of other food products n.e.c.	3.10	3.09	-0.01
1030	Processing and preserving of fruit and vegetables	2.76	2.76	
2593	Manufacture of cutlery, hand tools and general hardware	2.43	4.03	1.60
3091	Manufacture of motorcycles	2.37	3.79	1.42
1392	Manufacture of made-up textile articles, except apparel	2.24	2.24	
1040	Manufacture of vegetable and animal oils and fats	2.22	2.60	0.38
1073	Manufacture of cocoa, chocolate and sugar confectionery	2.13	2.13	
1311	Preparation and spinning of textile fibres	1.54	-1.18	-2.72
2920	Manufacture of bodies for motor vehicles; trailers and semi-trailers	1.00	0.00	-1.00

Source: authors' calculation.

Our second calculation is to take certain illustrative production chains where we can define the chain in terms of HS6 headings, and escalation as the difference between the tariffs on the inputs and the outputs. Table 11 reports the results. Within each product chain and stage of production, we take the unweighted average of tariffs on all the HS headings listed by Berkum (2009). We obtain similar results to those found at the sector level in Table 10: tariff escalation changes from the EU to the UK regime are minimal. It is also important to notice that some products correspond to few HS headings, often not eligible for GSP treatment, and see very little trade from GSP countries (e.g. dairy or bovine meat). For this latter reason we computed the mean tariff figures in Table 11 as unweighted tariffs (unlike Table 10,

which reports trade weighted figures). Most tariff gaps between the three main stages of production are unchanged when moving from the EU to the UK tariffs. The largest changes are found for tomatoes and oranges, an increase in escalation due to lower UKGT tariffs on raw products, and rice, a decrease in escalation due to lower UKGT tariffs on processed products. These increases in escalation, even If substantial, should not be a major source of concern, however. GSP countries are not significant exporters of these products to the UK, with approximately 0.1% and 0.3% of UK imports of raw orange and tomatoes products coming from GSP members, respectively (and smaller shares for the processed products).

Table 11. Tariff escalation in selected agricultural products

		EU GSP			UK GSP			
Product[a]	Stage[b]	Input	Output	Gap	Input	Output	Gap	UK-EU
Bovine meat	U-S	63.4	68.7	5.3	61.3	66.5	5.2	-0.1
	S-P	68.7	16.9	-51.8	66.5	16.4	-50.2	1.6
Cocoa	U-S	0	11.9	11.9	0	11.9	11.9	0
Coffee	U-S	0	4.8	4.8	0	4.8	4.8	0
	S-P	4.8	3.4	-1.4	4.8	3.4	-1.4	0
Dairy	U-S	51.1	83.3	32.1	50.3	82.5	32.2	0.1
	S-P	83.3	45.8	-37.5	82.5	45.6	-36.9	0.6
Ground Nuts	U-S	0	1.5	1.5	0	1.5	1.5	0
	S-P	1.5	3.9	2.4	1.5	3.9	2.4	0
Oranges	U-P	10.7	28.7	17.9	7.5	28.7	21.2	3.2
Palm oil	U-P	0	1.8	1.8	0	1.8	1.8	0
Poultry meat	U-S	14.1	13.3	-0.7	13.9	13.2	-0.7	0.0
	S-P	13.3	56.5	43.1	13.2	56.4	43.3	0.1
Rice	U-P	20.7	24.4	3.7	19.5	20.3	0.8	-2.9
Soya beans	U-S	0	1.0	1.0	0	1.0	1.0	0
	S-P	1.0	3.9	2.9	1.0	3.9	2.9	0
Sugar	U-S	65.8	31.3	-34.5	65.3	30.7	-34.7	-0.2
	S-P	31.3	12.4	-18.9	30.7	12.4	-18.3	0.6
Tomatoes	U-P	21.9	13.4	-8.5	10.5	13.1	2.6	11.1
Wood	U-S	0	0	0	0	0	0	0
	S-P	0	0	0	0	0	0	0
Tuna	U-P	8.4	20.6	12.2	8.4	20.6	12.2	0
Tobacco	U-P	4.8	32.7	27.9	4.8	32.7	27.9	0

Notes: [a] Product chains as defined in Berkum (2009). The HS classification was converted from the HS2007 to the HS2017 version. [b] U=unprocessed; S=semi-processed; P=processed.

Source: authors' calculation.

Part III: The Risk of Failure to Rollover EU Trade Agreements

Finally, we look at two countries (Ghana and Kenya) which have trade agreements with the EU but which have not yet signed continuity trade agreements with the UK.[19] In the case of Ghana, an interim EPA is in place with the EU that, so far, has not been rolled over with the UK. Kenya, although formally beneficiary of the standard GSP, is currently trading with the EU under the Market Access Regulation[20] that provides duty free quota free access to the EU market for products originating in those African, Caribbean and Pacific (ACP) countries which do not benefit from the EBA regime and have concluded an EPA pending their ratification. Unless this situation is reversed, these countries will drop back into the UK's GSP regime (they are outside the EU GSP scheme because they have FTAs). This will imply no change in the tariffs they face in certain sectors (although in principle a danger of being graduated in these sectors) but increased tariffs in others. Table and Table report the tariff bills they would have faced in the UK in 2018 if they had been part of the GSP rather than paying no tariffs at all by virtue of the FTAs with the EU.

Ghana

Crude petroleum and cocoa beans represent more than 60% of Ghana's exports. These traditional products have attracted low or no tariffs when being exported to the UK, primarily because under the EU MFN tariff structure these products had low tariffs. The market access applicable to these products is not going to change after the introduction of the new UK General Tariff (GT).

In the rest of exports, there is a wide range of products that have benefitted from a significant preference margins in the UK. Until 2008, the preferences were provided under the different African, Caribbean and Pacific (ACP) preferences. After 2008, under the EU-Ghana Interim Partnership Agreement (IEPA).

Table 12 presents a summary of the savings in duties on Ghana's exports to the UK by section and in total. The FTA column summarises the current savings on duties (taking the UKGT as counterfactual) and the savings under the Standard GSP (that Ghana would receive should no agreement is reached) and under GSP+ (that Ghana could eventually apply for). Table also presents the average EU MFN, UK GT, GSP+ and GSP tariffs.

The preference margin is translated into savings (around £13.2 million) in the respective value chain. Three sections of the GSP (Preparations of meat and fish, vegetables and fruits and Prepared foodstuffs, beverages, spirits and vinegar) account for almost all the implicit

[19] In the prior section assessing modelling the changes from EU to UKGT and GSP, we assume that Ghana's EPA is rolled over while Kenya is assessed as a standard GSP beneficiary (in both the EU and UK schemes)
[20] Regulation (EU) 2016/1076

tariff bill saved. Table 8 presents a more disaggregated picture using the top 10 products. These tariff lines account for £12.2 million out of the £13.2 million saved in duties.

If an agreement between Ghana is not reached, Ghana will qualify as a Standard GSP beneficiary. This would imply the loss of practically all the duty savings because the Standard GSP does not cover most of the products exported by Ghana to the UK. In this sense, the effect on Ghana would be basically similar to that under a situation where it faces the UKGT. As most of the value chains of which Ghana is a part tend to be buyer-driven, it is likely that the adjustment to higher tariffs will imply either a reduction of the price received by the Ghanaian exporter or its replacement by another competitive supplier in another country.

Finally, should Ghana apply and qualify for the GSP+, Ghana will lose only around £3.9 million in saved duties. This is because the duties applied on vegetable and fruits under GSP+ are slightly lower than those under the UK GT.

Table 12. Implicit tariff bill on Ghana's exports to the UK

		Tariffs—Percentage				Duties saved—Millions of ££			
		EU MFN	UK GT	GSP	GSP+	Value of imports	FTA	GSP+	GSP
S-4a	Preparations of meat and fish	24.0	20.0	20.5	-	39.8	8.0	8.0	–
S-2b	Vegetables and fruit	8.4	7.8	6.9	0.3	43.3	3.5	0.2	0.1
S-4b	Prepared foodstuffs (excl. meat and fish), beverages, spirits and vinegar	12.7	10.6	9.6	4.1	62.8	1.5	1.0	0.3
S-3	Animal and vegetable oils, fats and waxes	9.4	8.4	4.6	-	0.8	0.1	0.1	0.0
S-2d	Cereals, flour, nuts, resins and vegetable plaiting	14.3	8.0	4.5	-	0.4	0.1	0.0	0.0
	Rest of sections	3.4	2.7	1.8	-	186.2	0.1	0.1	0.1
	Total	**4.6**	**3.5**	**3.1**	**0.5**	**333.3**	13.2	9.3	0.5

Table 13. Implicit tariff bill on top Ghana's exports to the UK

CN		Tariffs—Percentage				Duties saved—Millions of US$			
		EU MFN	UK GT	GSP	GSP+	Value of imports	FTA	GSP+	GSP
16041428	Prepared or preserved skipjack, whole or in pieces (excl. minced, fillets known as "loins" and such products in vegetable oil)	24.0	20.0	20	-	28.9	5.8	5.8	—
08039010	Bananas, fresh (excl. plantains)	18.9	18.8	-	-	14.6	2.7	–	—
16041421	Prepared or preserved skipjack, whole or in pieces, in vegetable oil (exc. minced)	24.0	20.0	20	-	7.0	1.4	1.4	—
18040000	Cocoa butter, fat and oil	7.7	6.0	4.2	-	9.7	0.6	0.6	0.2
07143000	Yams "Dioscorea spp.," fresh, chilled, frozen or dried, whether or not sliced or in the form of pellets	7.6	7.6	-	-	6.0	0.5	–	—
16041438	Prepared or preserved Yellowfin tuna "Thunnus albacares," whole or in pieces (exc "loins" and such products in vegetable oil)	24.0	20.0	20	-	1.8	0.4	0.4	- -
18031000	Cocoa paste (excl. defatted)	9.6	8.0	6.1	-	3.6	0.3	0.3	0.1
23023010	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of wheat, with a starch content of <= 28% by weight, and of which the proportion that passes through a sieve with an aperture of 0,2 mm is <= 10% by weight or alternatively the proportion that passes through the sieve has an ash content, calculated on the dry product, of >= 1,5% by weight	28.3	27.7	-	-	0.9	0.2	-	- -
16041441	Prepared or preserved tunas, whole or in pieces, in vegetable oil (excl. minced, skipjack and Yellowfin tuna "Thunnus albacares")	24.0	20.0	20	-	1.1	0.2	0.2	- -
19021990	Uncooked pasta, not stuffed or otherwise prepared, containing common wheat flour or meal but no eggs	24.7	21.5	21.1	17.0	1.0	0.2	0.0	- -
Total Selection						74.6	12.2	8.7	0.2
Total imports from Ghana						333.3	13.2	9.3	0.5

Preparations of meat and fish

The UK accounts for 41% of the exports of processed fish (main product under relevant GSP section) and the product accounts for 1% of the total Ghana's exports (which are dominated by gold and oil). Table 8 indicates that these products involve primarily tuna (Yellowfin and skipjack) processed and preserved in Ghana by canneries.

If the UK does not maintain the current level of market access (e.g. zero duties), exports of processed tuna from Ghana will attract a tariff of 20% from January 2021. This is a significant change in the market conditions, and it is unlikely that it will be absorbed by any other stage in the chain (e.g. UK importer). The Standard GSP preferences do not cover these products. Only GSP+ preferences would help to offset the impact.

It is important to highlight that 99% of the tuna exported by Ghana is absorbed by either the UK or the EU. This suggests that the preferential margin in both markets may be compensating some lack of global competitiveness of Ghana in this product. Consequently, the loss of the preferences in this product may be a serious hit for the sector and it may be impossible to absorb.

The reduction of the MFN tariff also affects the preference margin for Ghana. There is a four-percentage points reduction from the EU MFN to the one applied under the UKGT. This suggests that even if the IEPA is rolled over, there will be a reduction in the preference margins. However, given its relatively small magnitude, there is a somewhat better chance that it would be absorbed along the chain.

The tuna fish chain employs around 6,500 in Ghana people considering those in fleet, processing, upstream and downstream with most of the capture of tuna (almost 82%) made by the domestic fleet (Asiedu et a. 2015).

Vegetables and fruit

Bananas (fresh and dried); guavas and mangoes (fresh and dried); and pineapples (fresh and dried) account for the bulk of the exports from Ghana to the UK in this section. The UK represents 25%, 40% and 13%, respectively, of Ghanaian exports. Together, they represent almost 2% of Ghana's total exports. However, fresh bananas appear as the single most affected product, where the loss of saved duties will be around US$ 3.5 million should the agreement with the UK not be rolled over.

If duty free access is not maintained, Ghanaian exports in this sector would face a tariff of 18.8%. This means a significant increase that could imply tilting the decision in favour of investments into other countries whose tariffs are not changing and that, in addition, are not facing a limitation in the availability of air cargo services between the UK and Ghana (Mendez-Parra et al, 2020).

There are no employment statistics. However, Blue Skies Ltd, a British firm that accounts for over 90% of the exports of cut fresh fruits, has 1900 employees involved in the

processing and packaging of the fruit. It is worth highlighting that the existence of preferences is a key component of the investment decision by the company (Torvikey, 2018)

Kenya

The exports of Kenya to the UK are dominated by a wide range of agriculture products (almost 86%) including tea, cut flowers, beans and prepared vegetables among others. The UK accounts for 6.5% of total Kenyan exports but in some products (beans and frozen vegetables) the share of the UK can go well above 40%. In the case of cut flowers, which tend to be exported to the UK via large wholesale markets in the Netherlands, direct Kenyan exports underrepresent the actual size of the UK as a destination of exports. Some estimations put the share of the UK in total cut flowers trade as high as 38% (Fairtrade Foundation, 2020)

Kenya is part of the East African Community and with the rest of its members (all Least Developed Countries) negotiated an EPA with the EU. The agreement has not been ratified by all members and, consequently, since 2014 Kenya exports to the EU under the Market Access Regulation that covers trade with ACP countries establishing or leading to the establishment of an EPA.

The UK aims to roll over the EPA with the EAC. This will maintain the current agreement with Kenya and it will also imply preferential access to UK exports into the country. Kenya seems to favour an agreement like the one negotiated between the UK and the South African Development Community (Mutambo, 2020). However, the problem arises in the relationship with the rest of the EAC members that will receive unilateral duty free and quota free access under the new UK GSP. A scenario in which the UK negotiates with Kenya an agreement without including the rest of the EAC members would jeopardize the regional integration process.

If the UK and Kenya do not agree on a trade agreement before the end of 2020, they will trade under WTO terms. Given its level of development, Kenya would qualify for access under the Standard GSP. However, this will imply a significant loss in the preference margins from which Kenyan products currently benefit when exporting to the UK. Alternatively, Kenya could apply for GSP+ preferences which will help to maintain some of the current market access.

Table Table 14 presents how much Kenya is saving and could save in duties paid when exporting to the UK under different regimes. Based on the UKGT, the roll over of the existing agreement will imply a saving of £ 12.2 million, with most of the savings generated in vegetable and fruits and on live plants and floricultural products.

If Kenya and the UK fail to agree on continuing the agreement and Kenya receives Standard GSP preferences, the saved duties will fall from £12.2 million to £3.7 million. If, on the other hand, Kenya applies for GSP+ preferences, there is only a marginal reduction on the saved duties. Table 15 presents similar information for the top 10 products in terms of saved duties.

Table 14. Implicit tariff bill on Kenya's exports to the UK

		Tariffs —Percentage				Duties saved —Millions of US$			
		EU MFN	UK GT	GSP	GSP+	Value of imports	FTA	GSP+	GSP
S-2b	Vegetables and fruit	7.7	6.9	6.4	0.2	74.8	7.0	7.0	1.8
S-2a	Live plants and floricultural products	7.6	5.0	3.5	0.0	47.2	3.8	3.8	1.6
S-4b	Prepared foodstuffs (excl. meat and fish), beverages, spirits and vinegar	17.0	16.0	11.7	3.1	6.1	0.9	0.9	0.2
S-11b	Apparels and clothing	11.5	11.5	9.2	0.0	1.0	0.1	0.1	-
S-3	Animal and vegetable oils, fats and waxes	7.9	6.7	4.4	0.0	1.7	0.1	0.1	-
S-4c	Tobacco Products	7.2	4.5	4.1	0.0	1.7	0.1	0.1	-
	Rest	3.5	2.7	1.1	0.0	210.6	0.1	0.1	0.1
Total		4.5	3.7	3.0	0.2	343.3	12.2	12.1	3.7

Beans

The UK accounts for almost 40% of the Kenyan exports of beans and the product represents 1% of total Kenyan exports. Currently being exported duty free, Kenyan exports would face a GSP duty of 6.9% should no agreement is reached, and Kenya receive GSP preferences. This will imply a loss of £2.5 million in saved duties. Under GSP+, the sector will not suffer any loss in saved duties.

Production of beans is dominated by small and medium-sized farms (60% of production) and around 60,000 days of paid work/year of informal and casual workers (European Commission, 2018). Hired labour, farmers and packers' profits account for 29%, 16% and 30%, respectively, of the value added in the chain. The reduction of duties saved in case of no agreement will be distributed between these actors. The exact proportion will depend on the power they have in the chain which suggests that workers and small farmers are likely to be the groups that will face most of the impact.

Cut flowers

There are two issues that may affect Kenyan exporters of this product. First, if Kenya is treated as a Standard GSP beneficiary, Kenyan exports will be subject of a 5% duty (8% should UKGT is applied). This will constitute a significant reduction of the preference margin offered in this product.

The impact of Brexit on the sector has received significant attention (Mwai, 2019; Whitehouse, 2019). The sector employs around 100,000 directly in Kenya (Hakeenah, 2019). Based on its share in the total exports, at least 15,000 workers will depend on the direct exports to the UK. A larger number if the exports through Holland are considered. The issue is of potential significance as key competitors of Kenyan cut flowers in the UK (Colombia and Ethiopia) have either negotiated an agreement with the UK or will export

under LDC preferences. Second, a no-deal scenario presents particular risks. Although it is expected to be marginal in the rest of the products, there is a potential disruption in these products associated with the additional controls and certifications that may arise in a no-deal scenario between the EU and the UK.. As mentioned, a significant share (around half) of the Kenyan exports of cut flowers into the UK are channelled through the Netherlands. A no-deal scenario between the EU and the UK could imply the need for additional certification of origin and compliance with, potentially, different standards being applied in the EU and the UK. Moreover, border delays and additional procedures could complicate the operation of the supply chain in this kind of perishable products. Unless UK importers increase the volumes imported directly from Kenya, which is not easy as there are significantly higher transactional costs, a failure to agree with the EU will affect cut flowers imported by the UK.

Conclusion: Market Access for Ghana and Kenya

From a general perspective, failing to maintain current levels of market access for Ghana and Kenya will have minor implications. The losses in saved duties are expected to be limited (below 3% of total exports to the UK). However, it will be detrimental for specific industries that rely on this preferential access and that are key in the economic transformation and diversification processes of both countries. In this sense, it is critical that the UK work together with both partners in an alternative solution that can, whilst negotiations continue, maintain existing market access provisions. For example, creating a special regime for countries in the process of renew their EPAs (such as the EU market access regulation) for both countries for a limited time may help.

Kenya and Ghana are not the only cases where developing countries are at risk of losing the current level of market access into the UK. Cote d'Ivoire and Cameroon are in a similar position as their EPAs have not yet been rolled over with the UK. However, their volume of trade with the UK is significantly lower. Kenya and Ghana illustrate the problem and their implications can be extended to Cote d'Ivoire and Cameroon.

Table 15. Implicit Tarff bill on top Kenya's exports to the UK

		Tariffs - Percentage				Duties saved - Millions of US$			
CN		EU MFN	UK GT	GSP	GSP+	Value of imports	FTA	GSP+	GSP
07082000	Fresh or chilled beans "Vigna spp., Phaseolus spp.," shelled or unshelled	10.4	10.0	6.9	-	36.5	3.6	3.6	1.1
06031100	Fresh cut roses and buds, of a kind suitable for bouquets or for ornamental purposes	8.5	8.0	5.0	-	38.1	3.0	3.0	1.1
07041000	Fresh or chilled cauliflowers and headed broccoli	13.6	8.0	10.1	-	14.4	1.1	1.1	-
07099990	Fresh or chilled vegetables n.e.s.	12.8	12.0	8.9	-	8.4	1.0	1.0	0.3
20082079	Pineapples, prepared or preserved, containing added sugar but no added spirit, with sugar content of > 13% but <=19%, in immediate packings of a net content of <= 1 kg	19.2	18.0	15.7	-	3.4	0.6	0.6	0.1
07081000	Fresh or chilled peas "Pisum sativum," shelled or unshelled	8.0	7.5	4.5	-	5.0	0.4	0.4	0.2
07093000	Fresh or chilled aubergines "eggplants"	12.8	12.0	9.3	-	2.6	0.3	0.3	0.1
06039000	Dried, dyed, bleached, impregnated or otherwise prepared cut flowers and buds, of a kind suitable for bouquets or for ornamental purposes	10.0	10.0	6.5	-	2.7	0.3	0.3	0.1
06031200	Fresh cut carnations and buds, of a kind suitable for bouquets or for ornamental purposes	8.5	8.0	-	-	3.2	0.3	0.3	0.3
20082090	Pineapples, prepared or preserved, not containing added spirit or added sugar	18.4	18.0	14.9	-	1.0	0.2	0.2	0.0
Total Selection						115.3	10.9	10.9	3.22
Total Imports from Kenya						343.3	12.2	12.1	33.7

Overall Conclusion

Based on current plans, in terms of tariffs, access to the UK market will not improve for the vast majority of developing countries, though neither are their exports materially damaged. A handful of countries (mainly India, Indonesia and Vietnam) will likely see small increases in exports. Alongside this there is likely to be some additional costs for importers in terms of customs checks for imports entering via the EU. Even if the UK agrees to roll over all four of the outstanding EU trade agreements with lower income countries, it will break its pledge to improve market access for developing countries post-Brexit.

The UK is seeking to be a trade leader—it has the opportunity to make some immediate minor reforms to reduce barriers for developing countries. These changes will benefit the UK and its developing partners; it will demonstrate that the UK is willing to prioritise developing country interests and also provide a platform for further reform in the coming years.

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Appendix A

Table A-1. Tariff bills, average tariffs and preference margins

		Current EU regime			Changes due to adopting UK regime		
	GSP Section	Tariff bill, $m	Wted mean tariff, %	Tariff margin, %	Tariff bill, $m	Wted mean tariff, %	Tariff margin, %
S-11a	Textiles	14.85	4.1%	2.0%	-1.63	-0.45%	-0.37%
S-11b	Articles of apparel and clothing accessories	173.88	2.5%	9.2%	0.00	0.00%	-0.03%
S-12a	Footwear	64.39	6.4%	5.3%	0.00	0.00%	-0.58%
S-12b	Headgear, umbrellas, sun umbrellas, sticks, whips and prepared feathers and down	0.00	0.0%	2.4%	0.00	0.00%	-0.47%
S-13	Articles of stone, ceramic products and glass	1.42	0.9%	2.2%	0.00	0.00%	-1.11%
S-14	Pearls and precious metals	5.18	0.5%	0.0%	-0.96	-0.09%	-0.01%
S-15a	Ferro-alloys and articles of iron and steel	4.39	1.0%	0.3%	-3.75	-0.87%	-0.30%
S-15b	Base metals (excl. iron and steel), articles of base metals (excl. articles of iron and steel)	7.55	2.2%	1.2%	-2.81	-0.81%	-0.40%
S-16	Machinery and equipment	0.35	0.0%	0.7%	0.00	0.00%	-0.43%
S-17a	Railway and tramway vehicles and products	0.00	0.0%	1.1%	0.00	0.00%	-1.10%
S-17b	Motor vehicles, bicycles, aircraft and spacecraft, ships and boats	16.08	3.2%	2.1%	-3.32	-0.66%	-0.18%
S-18	Optical instruments, clocks and watches, musical instruments	0.02	0.0%	1.4%	0.00	0.00%	-0.95%
S-1a	Live animals and animal products excluding fish	0.35	8.1%	0.3%	-0.03	-0.61%	-0.02%
S-1b	Fish, crustaceans, molluscs and other aquatic invertebrates	10.68	3.4%	8.0%	0.00	0.00%	-0.22%
S-20	Miscellaneous	0.58	0.1%	1.3%	0.00	0.00%	-0.40%
S-2a	Live plants and floricultural products	5.28	7.1%	1.3%	-0.31	-0.41%	-0.12%
S-2b	Vegetables, fruit and nuts	11.74	2.7%	2.4%	-0.02	-0.01%	-0.66%
S-2c	Coffee, tea, mate and spices	0.22	0.1%	0.5%	0.00	0.00%	-0.13%
S-2d	Cereals, flour, seeds and resins	14.78	6.6%	2.3%	-4.11	-1.84%	-0.29%
S-3	Animal or vegetable oils, fats and waxes	4.21	6.4%	2.0%	-0.39	-0.58%	-0.41%
S-4a	Preparations of meat and fish	12.32	6.3%	14.9%	0.00	0.00%	-1.52%
S-4b	Prepared foodstuffs (excl. meat and fish), beverages, spirits and vinegar	11.40	4.3%	7.1%	-0.15	-0.06%	-0.79%
S-4c	Tobacco	0.27	1.9%	5.4%	0.00	0.00%	-2.69%
S-5	Mineral products	0.13	0.0%	0.0%	-0.13	0.00%	0.00%
S-6a	Inorganic and organic chemicals	13.33	4.6%	0.2%	-5.28	-1.84%	-0.10%
S-6b	Chemicals, other than organic and inorganic chemicals	1.12	0.4%	2.6%	0.00	0.00%	-0.81%
S-7a	Plastics	3.37	1.2%	5.1%	0.00	0.00%	-0.58%
S-7b	Rubber	0.16	0.1%	3.2%	0.00	0.00%	-0.36%
S-8a	Raw hides and skins and leather	0.02	0.3%	2.8%	0.00	-0.06%	-1.92%
S-8b	Articles of leather and furskins	1.20	0.4%	3.7%	0.00	0.00%	-0.91%
S-9a	Wood and wood charcoal	3.17	1.9%	0.0%	-0.52	-0.31%	-0.03%
S-9b	Cork manufactures of straw and other plaiting materials	0.01	0.1%	3.7%	0.00	0.00%	-1.63%

Table A.1 continued. Tariff bills, average tariffs and preference margins

	Countries	Current EU regime			Changes due to adopting UK regime		
		Tariff bill, $m	Wted mean tariff, %	Tariff margin, %	Tariff bill, $m	Wted mean tariff, %	Tariff margin, %
Standard GSP countries	Congo	0.00	0.0%	0.2%	0.00	0.0%	-0.1%
	Cook Islands	0.00	0.0%	2.1%	0.00	0.0%	-1.8%
	Equatorial Guinea	0.00	0.0%	0.1%	0.00	0.0%	-0.1%
	India	203.94	2.8%	1.3%	-19.94	-0.3%	-0.3%
	Indonesia	47.54	4.2%	2.3%	-0.92	-0.1%	-0.6%
	Kenya	13.43	3.1%	1.1%	-0.31	-0.1%	-0.5%
	Nigeria	0.55	0.0%	0.0%	0.00	0.0%	0.0%
	Niue	0.00	0.4%	4.5%	0.00	0.0%	-0.5%
	Syria	0.24	4.5%	1.8%	-0.01	-0.2%	-1.6%
	Tajikistan	0.00	0.0%	0.1%	0.00	0.0%	0.0%
	Uzbekistan	0.03	1.7%	1.1%	0.00	0.0%	-0.4%
	Vietnam	110.00	2.5%	1.6%	-0.05	0.0%	-0.2%
GSP+ countries	Armenia	0.00	0.0%	3.2%	0.00	0.0%	-0.7%
	Bolivia	0.03	0.2%	0.3%	-0.02	-0.1%	0.0%
	Cape Verde	0.00	0.0%	1.7%	0.00	0.0%	-0.2%
	Kyrgyz, Republic	0.00	0.0%	0.0%	0.00	0.0%	0.0%
	Mongolia	0.00	0.0%	9.8%	0.00	0.0%	-0.1%
	Pakistan	6.26	0.5%	9.5%	-2.14	-0.2%	-0.2%
	Philippines	0.15	0.0%	4.8%	0.00	0.0%	-0.8%
	Sri Lanka	0.31	0.0%	10.0%	-0.03	0.0%	-0.2%
EBA countries	Afghanistan	0.00	0.0%	4.4%	0.00	0.0%	-1.1%
	Angola	0.00	0.0%	0.9%	0.00	0.0%	-0.3%
	Bangladesh	0.00	0.0%	11.8%	0.00	0.0%	0.0%
	Benin	0.00	0.0%	0.5%	0.00	0.0%	-0.1%
	Bhutan	0.00	0.0%	1.3%	0.00	0.0%	-1.3%
	Burkina Faso	0.00	0.0%	0.2%	0.00	0.0%	0.0%
	Burundi	0.00	0.0%	0.0%	0.00	0.0%	0.0%
	Cambodia	0.00	0.0%	11.7%	0.00	0.0%	-0.2%
	Central Africa Republic	0.00	0.0%	0.9%	0.00	0.0%	-0.9%
	Chad	0.00	0.0%	0.6%	0.00	0.0%	-0.6%
	Comoros	0.00	0.0%	3.1%	0.00	0.0%	0.0%
	Congo (Democratic Republic of the)	0.00	0.0%	1.0%	0.00	0.0%	-0.6%
	Djibouti	0.00	0.0%	0.8%	0.00	0.0%	-0.1%
	Eritrea	0.00	0.0%	0.0%	0.00	0.0%	0.0%
	Ethiopia	0.00	0.0%	1.6%	0.00	0.0%	-0.8%
	Gambia	0.00	0.0%	2.9%	0.00	0.0%	-0.1%
	Guinea	0.00	0.0%	0.7%	0.00	0.0%	-0.1%
	Guinea Bissau	0.00	0.0%	0.1%	0.00	0.0%	0.0%
	Haiti	0.00	0.0%	11.5%	0.00	0.0%	0.0%
	Kiribati	0.00	0.0%	5.7%	0.00	0.0%	-1.7%
	Laos	0.00	0.0%	11.9%	0.00	0.0%	0.0%
	Lesotho	0.00	0.0%	9.0%	0.00	0.0%	-8.8%
	Liberia	0.00	0.0%	1.3%	0.00	0.0%	-0.1%
	Madagascar	0.00	0.0%	10.3%	0.00	0.0%	-0.1%
	Malawi	0.00	0.0%	9.6%	0.00	0.0%	-0.5%
	Mali	0.00	0.0%	0.1%	0.00	0.0%	-0.1%
	Mauritania	0.00	0.0%	2.0%	0.00	0.0%	-0.4%
	Mozambique	0.00	0.0%	8.4%	0.00	0.0%	-1.0%
	Myanmar	0.00	0.0%	11.4%	0.00	0.0%	-0.1%
	Nepal	0.00	0.0%	9.1%	0.00	0.0%	-1.8%
	Niger	0.00	0.0%	2.3%	0.00	0.0%	-0.8%

Rwanda	0.00	0.0%	3.8%	0.00	0.0%	-0.5%
Sao Tome and Principe	0.00	0.0%	6.5%	0.00	0.0%	-6.5%
Senegal	0.00	0.0%	6.6%	0.00	0.0%	-0.9%
Sierra Leone	0.00	0.0%	2.7%	0.00	0.0%	-0.2%
Solomon Islands	0.00	0.0%	22.0%	0.00	0.0%	-3.6%
Somalia	0.00	0.0%	2.4%	0.00	0.0%	-0.5%
South Sudan	0.00	0.0%	6.2%	0.00	0.0%	-0.4%
Sudan	0.00	0.0%	0.4%	0.00	0.0%	-0.2%
Tanzania (United Republic of)	0.00	0.0%	1.5%	0.00	0.0%	-0.3%
Timor-Leste	0.00	0.0%	0.2%	0.00	0.0%	-0.2%
Togo	0.00	0.0%	2.0%	0.00	0.0%	-1.4%
Tuvalu	0.00	0.0%	1.5%	0.00	0.0%	-0.5%
Uganda	0.00	0.0%	6.4%	0.00	0.0%	-0.7%
Vanuatu	0.00	0.0%	0.7%	0.00	0.0%	-0.3%
Yemen	0.00	0.0%	1.0%	0.00	0.0%	-0.3%
Zambia	0.00	0.0%	5.7%	0.00	0.0%	-0.3%

Source: authors' elaboration.

Table A-2. Preferential margin loss at product level

PANEL A. Products with largest loss in preferential margin

CN	GSP type	EU MFN	UKGT	EU GSP tariff	UK GSP tariff	EU GSP margin	UK GSP margin	LOSS in margin	Description
11031310	eba	0.499	0	0	0	0.499	0	0.499	Groats and meal of maize, "corn", with a fat content, by weight, of <= 1,5%
11022010	eba	0.353	0	0	0	0.353	0	0.353	Maize flour, with fat content of <= 1,5% by weight
11029010	eba	0.267	0	0	0	0.267	0	0.267	Barley flour
11029050	eba	0.215	0	0	0	0.215	0	0.215	Rice flour
11022090	eba	0.200	0	0	0	0.200	0	0.200	Maize flour, with fat content of > 1,5% by weight
19030000	eba	0.190	0	0	0	0.190	0	0.190	Tapioca and substitutes therefor prepared from starch, in the form of flakes, grains, pearls, siftings or similar forms
33021010	gsp	0.173	0	0	0	0.173	0	0.173	Preparations based on odoriferous substances, containing all flavouring agents characterizing a beverage, of an actual alcoholic strength of > 0,5% vol, of a kind used in the drink industries
11029090	eba	0.153	0	0	0	0.153	0	0.153	Cereal flours (excl. wheat, meslin, rye, maize, rice, barley and oat)
17049030	eba	0.228	0.08	0	0	0.228	0.08	0.148	White chocolate
33021021	gsp	0.128	0	0	0	0.128	0	0.128	Preparations based on odoriferous substances, containing all flavouring agents characterizing a beverage, containing no milkfats, sucrose, isoglucose, glucose or starch or containing, by weight, < 1,5% milkfat, < 5% sucrose or isoglucose, < 5% glucose or < 5% starch, of a kind used in the drink industries (excl. of an actual alcoholic strength of > 0,5% vol).
9109999	eba	0.125	0	0	0	0.125	0	0.125	Spices, crushed or ground (excl. pepper of the genus Piper, fruit of the genus Capsicum or of the genus Pimenta, vanilla, cinnamon, cinnamontree flowers, clove "wholefruit", clove stems, nutmeg, mace, cardamoms, seeds of anise, badian, fennel, coriander, cumin and caraway, and juniper berries, ginger, saffron, turmeric "curcuma", thyme, bay leaves, curry and seeds of fenugreek, and mixtures of various types of spices)
11051000	eba	0.122	0	0	0	0.122	0	0.122	Flour, meal and powder of potatoes
7119090	eba	0.120	0	0	0	0.120	0	0.120	Mixture of vegetables provisionally preserved, e.g. by sulphur dioxide gas, in brine, in sulphur water or in other preservative solutions, but unsuitable in that state for immediate consumption
91089000	eba	0.118	0	0	0	0.118	0	0.118	Watch movements, complete and assembled, with hand winding only
7020000	eba	0.219	0.105	0	0	0.219	0.105	0.114	Tomatoes, fresh or chilled
6049099	gsp+	0.109	0	0	0	0.109	0	0.109	Foliage, branches and other parts of plants, without flowers or buds, and grasses, suitable for bouquets or for ornamental purposes, dyed, bleached, impregnated or otherwise prepared (excl. dried)
85287199	eba	0.105	0	0	0	0.105	0	0.105	Reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus, not designed to incorporate a video display or screen (excl. video tuners, set-top boxes with a communication function)
85219000	gsp	0.104	0	0	0	0.104	0	0.104	Video recording or reproducing apparatus, whether or not incorporating a video tuner (excl. magnetic tape-type and video camera recorders)

	84521019	gsp	0.097	0	0	0	0.097	0	0.097	Sewing machines "lock-stitch only" of the household type, with heads weighing <= 16 kg without motor or <= 17 kg with motor, having a value "not incl. frames, tables or furniture" of <= € 65; heads for these machines, weighing <= 16 kg without motor or <= 17 kg with motor
	7119080	gsp+	0.096	0	0	0	0.096	0	0.096	Vegetables provisionally preserved, e.g., by sulphur dioxide gas, in brine, in sulphur water or in other preservative solutions, but unsuitable in that state for immediate consumption (excl. olives, capers, cucumbers and gherkins, mushrooms, truffles, fruits of the genus Capsicum or of the genus Pimenta, other than sweet peppers, sweetcorn, onions and mixtures of vegetables)

PANEL B. Country-product pairs with largest loss in tariff saving

Country	CN	GSP type	EU MFN	UKGT	EU tariff	UK tariff	EU GSP margin	UK GSP margin	Loss in margin	Tariff saving loss (m$)	Description
Philippines	16041428	gsp+	0.24	0.2	0	0	0.24	0.2	0.04	1.755	Prepared or preserved skipjack, whole or in pieces (excl. minced, fillets known as "loins" and such products in vegetable oil)
India	90283011	gsp	0.014	0	0	0	0.014	0	0.014	1.548	Electricity supply or production meters for alternating current, single-phase, incl. calibrating meters therefor
India	84111280	gsp	0.009	0	0	0	0.009	0	0.009	1.439	Turbojets of a thrust > 132 kN
Vietnam	64041100	gsp	0.169	0.16	0.119	0.119	0.05	0.041	0.009	1.219	Sports footwear, incl. tennis shoes, basketball shoes, gym shoes, training shoes and the like, with outer soles of rubber or plastics and uppers of textile materials
Ethiopia	84111280	eba	0.009	0	0	0	0.009	0	0.009	1.181	Turbojets of a thrust > 132 kN
India	84111230	gsp	0.009	0	0	0	0.009	0	0.009	1.043	Turbojets of a thrust > 44 kN but <= 132 kN
India	8061010	gsp	0.115	0.08	0.08	0.08	0.035	0	0.035	0.850	Fresh table grapes
Kenya	84111280	gsp	0.009	0	0	0	0.009	0	0.009	0.788	Turbojets of a thrust > 132 kN
Mozambique	76011000	eba	0.03	0.02	0	0	0.03	0.02	0.01	0.755	Aluminium, not alloyed, unwrought
India	64061010	gsp	0.03	0	0	0	0.03	0	0.03	0.728	Uppers and parts thereof, of leather (excl. stiffeners)
Indonesia	85219000	gsp	0.104	0	0	0	0.104	0	0.104	0.721	Video recording or reproducing apparatus, whether or not incorporating a video tuner (excl. magnetic tape-type and video camera recorders)
Kenya	7041000	gsp	0.136	0.08	0.101	0.101	0.035	0	0.035	0.636	Fresh or chilled cauliflowers and headed broccoli
Indonesia	16041428	gsp	0.24	0.2	0.205	0.205	0.035	0	0.035	0.632	Prepared or preserved skipjack, whole or in pieces (excl. minced, fillets known as "loins" and such products in vegetable oil)
Indonesia	64041100	gsp	0.169	0.16	0.119	0.119	0.05	0.041	0.009	0.616	Sports footwear, incl. tennis shoes, basketball shoes, gym shoes, training shoes and the like, with outer soles of rubber or plastics and uppers of textile materials
Indonesia	85071020	gsp	0.02775	0.01	0	0	0.02775	0.01	0.01775	0.555	Lead-acid accumulators of a kind used for starting piston engines (starter batteries), working with liquid electrolyte (excl. spent)
India	84099900	gsp	0.027	0.02	0	0	0.027	0.02	0.007	0.536	Parts suitable for use solely or principally with compression-ignition internal combustion piston engine "diesel or semi-diesel engine", n.e.s.
India	42022100	gsp	0.03	0.02	0	0	0.03	0.02	0.01	0.488	Handbags, whether or not with shoulder straps, incl. those without handles, with outer surface of leather, composition leather or patent leather
Indonesia	38231930	gsp	0.029	0	0	0	0.029	0	0.029	0.486	Fatty acid distillate
India	85443000	gsp	0.032375	0.0175	0	0	0.032375	0.0175	0.014875	0.442	Ignition wiring sets and other wiring sets for vehicles, aircraft or ships
Philippines	16041421	gsp+	0.24	0.2	0	0	0.24	0.2	0.04	0.423	Prepared or preserved skipjack, whole or in pieces, in vegetable oil (excl. minced)

Table A-3. Tariff peaks (i.e. GSP tariff > 10%) for *GSP-no-EBA* products

CN code	UK imports, m$	GSP tariff	GSP+ tariff	EBA tariff	EU MFN	UK GT	Description
19043000	0.0052	37.74	32.94	0	41.24	40.01	Bulgur wheat in the form of worked grains, obtained by cooking hard wheat grains
20079939	0.0331	31.96	11.46	0	35.46	32.28	Jams, jellies, marmalades, fruit purÃ©es or pastes, obtained by cooking, with sugar content of > 30% by weight (excl. raspberries, strawberries, cherries and citrus fruits, chestnut purÃ©e and paste, homogenised preparations of subheading 2007.10, and plum purÃ©e and paste, in packings of > 100 kg, for industrial processing)
24039910	0.0266	29.1	0	0	41.6	40	Chewing tobacco and snuff
20099029	0.0083	28.5	0	0	33.6	30	Mixtures of fruit juices, incl. grape must, and vegetable juices, unfermented, Brix value > 67 at 20Â°C, value of > 25 GBP per 100 kg, whether or not containing added sugar or other sweetening matter (excl. containing spirit and mixtures of apple and pear juice)
19024010	0.0152	24.64	20.44	0	28.14	24.63	Couscous unprepared
20082011	0.0027	24.3	2.2	0	27.8	26.86	Pineapples, prepared or preserved, containing added spirit, with sugar content of > 17%, in immediate packings of a net content of > 1 kg
20079950	0.3336	22.59	2.09	0	26.09	23.86	Jams, fruit jellies, marmalades, fruit purÃ©e and fruit pastes, obtained by cooking, with a sugar content of > 13 to 30% by weight (excl. such products made from citrus fruits and homogenised preparations of subheading 2007.10)
20071010	0.0030	21.95	1.55	0	25.55	23.37	Homogenised preparations of jams, fruit jellies, marmalades, fruit or nut purÃ©e and pastes, obtained by cooking, put up for retail sale as infant food or for dietetic purposes, in containers of <= 250 g, with sugar content of > 13% by weight
16042070	0.3032	20.5	0	0	24	20	Prepared or preserved tunas, skipjack or other fish of genus Euthynnus (excl. whole or in pieces)
16041448	0.2720	20.5	0	0	24	20	Prepared or preserved tuna, whole or in pieces (excl. minced, fillets known as "loins" and such products in vegetable oil, skipjack and Yellowfin tuna "Thunnus albacares")
22029999	0.0224	18.97	17.07	0	22.47	19.09	Non-alcoholic beverages containing >= 2% fats derived from milk or milk products
19021100	0.0212	18.55	14.35	0	22.05	19.30	Uncooked pasta, not stuffed or otherwise prepared, containing eggs
3034290	0.0989	18.5	0	0	22	20	Frozen yellowfin tunas "Thunnus albacares" (excl. for industrial manufacture of products of 1604)
3034390	0.0029	18.5	0	0	22	20	Frozen skipjack or stripe-bellied bonito "Euthynnus -Katsuwonus- pelamis" (excl. for industrial processing or preservation)
3034985	0.0076	18.5	0	0	22	20	Frozen tunas of the genus "Thunnus" (excl. tunas for industrial processing or preservation and Thunnus alalunga, Thunnus albacares, Thunnus obesus, Thunnus thynnus, Thunnus orientalis and Thunnus maccoyii)
3023290	0.4453	18.5	0	0	22	20	Fresh or chilled yellowfin tunas "Thunnus albacares" (excl. for industrial processing or preservation)
16056900	0.0126	18.2	0	0	26	25	Aquatic invertebrates, prepared or preserved (excl. smoked, crustaceans, molluscs, sea cucumbers, sea urchins and jellyfish)
20089967	0.0987	17.3	0	0	20.8	20	Fruit and other edible parts of plants, prepared or preserved, not containing added spirit but containing added sugar, in immediate packings of a net content of <= 1 kg (excl. preserved with sugar but not laid in syrup, jams, fruit jellies, marmalades, fruit purÃ©e and pastes, obtained by cooking, and nuts, groundnuts and other seeds, pineapples, citrus fruits, pears, apricots, cherries, peaches, strawberries, cranberries, ginger, passion fruit, guavas, mangoes, mangosteens, papaws "papayas", tamarinds, cashew apples, lychees, jackfruit, sapodillo plums, carambola and pitahaya)
20083079	0.0204	17.3	0	0	20.8	20	Citrus fruits, prepared or preserved, containing added sugar but no added spirit, in immediate packings of a net content of <= 1 kg (excl. grapefruit segments, mandarins, incl. tangerines and satsumas, clementines, wilkings and similar citrus hybrids)
20082051	0.2027	15.7	0	0	19.2	18	Pineapples, prepared or preserved, containing added sugar but no added spirit, with sugar content of > 17%, in immediate packings of a net content of > 1 kg
20082079	6.9266	15.7	0	0	19.2	18	Pineapples, prepared or preserved, containing added sugar but no added spirit, with sugar content of > 13% but <=19%, in immediate packings of a net content of <= 1 kg
20055900	5.1994	15.7	0	0	19.2	18	Unshelled beans "Vigna spp., Phaseolus spp.", prepared or preserved otherwise than by vinegar or acetic acid (excl. frozen)
20039090	0.0022	14.9	0	0	18.4	0	Mushrooms, prepared or preserved otherwise than by vinegar or acetic acid (excl. mushrooms of the genus "Agaricus")
20083090	0.0218	14.9	0	0	18.4	18	Citrus fruit, prepared or preserved, not containing added spirit or added sugar
20082090	6.1250	14.9	0	0	18.4	18	Pineapples, prepared or preserved, not containing added spirit or added sugar

3044500	0.9689	14.5	0	0	18	18	Fresh or chilled fillets of swordfish "Xiphias gladius"
3044990	4.1122	14.5	0	0	18	18	Fresh or chilled fillets of fish, n.e.s.
3048700	6.4843	14.5	0	0	18	18	Frozen fillets of tuna "of the genus Thunnus", skipjack or stripe-bellied bonito "Euthynnus [Katsuwonus] pelamis"
19042099	0.0336	14.17	12.57	0	17.67	15.73	Prepared foods obtained from unroasted cereal flakes or from mixtures of unroasted and roasted cereal flakes or swelled cereals (excl. obtained from maize or rice and preparations of the MÃ¼sli type based on unroasted cereal flakes)
20041099	0.0060	14.1	0	0	17.6	16	Potatoes, prepared or preserved otherwise than by vinegar or acetic acid, frozen (excl. cooked only and in the form of flour, meal or flakes)
20082059	0.7346	14.1	0	0	17.6	16	Pineapples, prepared or preserved, containing added sugar but no added spirit, with a sugar content of > 13% but <= 17%, in immediate packings of a net content of > 1 kg
20011000	4.4071	14.1	0	0	17.6	16	Cucumbers and gherkins, prepared or preserved by vinegar or acetic acid
20099098	0.0109	14.1	0	0	17.6	16	Mixtures of fruit juices, incl. grape must and juices of vegetables, unfermented, Brix value <= 67 at 20Â°C, value of <= GBP 25 per 100 kg (excl. containing added sugar or containing spirit and mixtures of apple and pear juices or of citrus fruit and pineapple juices and of juices of guavas, mangoes, mangosteens, papaws "papayas", tamarinds, cashew apples, lychees, jackfruit, sapodillo plums, passion fruit, carambola and pitahaya)
20083059	0.0070	14.1	0	0	17.6	16	Citrus fruits, prepared or preserved, containing added sugar but no added spirit, in immediate packings of a net content of > 1 kg (excl. grapefruit segments, mandarins, incl. tangerines and satsumas, clementines, wilkings and similar citrus hybrids)
16042005	1.7200	14	0	0	20	20	Preparations of surimi
22029991	0.0235	13.93	11.03	0	17.43	16.53	Non-alcoholic beverages containing < 0,2% fats derived from milk or milk products
20060035	0.0211	13.88	4.88	0	17.38	16.65	Guavas, mangoes, mangosteens, papaws "papayas", tamarinds, cashew apples, lychees, jackfruit, sapodillo plums, passion fruit, carambola, pitahaya, coconuts, cashew nuts, brazil nuts, areca "betel" nuts, cola nuts and macadamia nuts, preserved by sugar drained, glacÃ© or crystallised, with a sugar content of > 13% by weight
20089778	0.1931	13.4	0	0	19.2	18	Mixtures of fruit or other edible parts of plants, prepared or preserved, not containing added spirit but containing added sugar, in immediate packings of a net content of <= 1 kg (excl. mixtures of nuts, tropical fruits and tropical fruits and nuts of a type specified in Additional Notes 7 and 8 to chapter 20, of >= 50% by weight, groundnuts and other seeds, mixtures in which the weight of no single fruit exceeds 50% of the total weight of the fruits, and preparations of the MÃ¼sli type based on unroasted cereal flakes of subheading 19042010)
20059100	0.0250	12.3	0	0	17.6	16	Bamboo shoots, prepared or preserved otherwise than by vinegar or acetic acid (excl. frozen)
8119011	0.0302	12.23	2.73	0	15.73	15.06	Guavas, mangoes, mangosteens, papaws "papayas", tamarinds, cashew apples, lychees, jackfruit, sapodillo plums, passion fruit, carambola, pitahaya, coconuts, cashew nuts, brazil nuts, areca "betel" nuts, cola nuts and macadamia nuts, uncooked or cooked by steaming or boiling in water, frozen, containing added sugar or other sweetening matter, with a sugar content of > 13% by weight
64029950	0.7248	11.9	0	0	16.8	16	Slippers and other indoor footwear, with outer sole and upper of rubber or plastics (excl. covering the ankle, footwear with a vamp made of straps or which has one or several pieces cut out, and toy footwear)
64021290	0.0831	11.9	0	0	17	16	Snowboard boots with outer soles and uppers of rubber or plastics (excl. waterproof footwear of heading 6401)
64029905	0.1283	11.9	0	0	17	16	Footwear incorporating a protective metal toecap, with outer soles and uppers of rubber or plastics (excl. covering the ankle, waterproof footwear of heading 6401, sports footwear and orthopaedic footwear)
64019900	0.1127	11.9	0	0	17	16	Waterproof footwear covering neither the ankle nor the knee, with outer soles and uppers of rubber or of plastics, the uppers of which are neither fixed to the sole nor assembled by stitching, riveting, nailing, screwing, plugging or similar processes (excl. covering the ankle but not the knee, footwear incorporating a protective metal toecap, orthopaedic footwear, skating boots with ice or roller skates attached and sports and toy footwear)
64059010	5.4273	11.9	0	0	17	16	Footwear with outer soles of rubber, plastics, leather or composition leather and uppers of materials other than leather, composition leather or textile materials (excl. orthopaedic footwear and toy footwear)
20094930	1.1928	11.7	0	0	15.2	14	Pineapple juice, unfermented, Brix value > 20 but <= 67 at 20Â°C, value of > 25 GBP per 100 kg, containing added sugar (excl. containing spirit)
20093119	0.0863	11.7	0	0	15.2	14	Single citrus fruit juice, unfermented, Brix value <= 20 at 20Â°C, with a value of > 25 GBP per 100 kg (excl. containing added sugar, containing spirit, mixtures, orange juice and grapefruit juice)
24039100	0.0012	11.6	0	0	16.6	16	Tobacco, "homogenised" or "reconstituted" from finely-chopped tobacco leaves, tobacco refuse or tobacco dust
24039990	0.0021	11.6	0	0	16.6	16	Manufactured tobacco and tobacco substitutes, and tobacco powder, tobacco extracts and essences (excl. chewing tobacco, snuff, cigars, cheroots, cigarillos and cigarettes, smoking tobacco whether or not containing tobacco substitutes in any proportion, "homogenised" or "reconstituted" tobacco, nicotine extracted from the tobacco plant and insecticides manufactured from tobacco extracts and essences)
20079993	0.0862	11.5	0	0	15	14	Jams, fruit jellies, marmalades, fruit purÃ©e and pastes of guavas, mangoes, mangosteens, papaws "papayas", jackfruits, passion fruit, tamarinds, cashew apples, lychees, sapodillo plums, carambola, pitahaya, coconuts, cashew nuts, brazil nuts, areca "betel" nuts, colanuts and macadamia

							nuts, obtained by cooking, whether or not containing added sugar or other sweetening matter (excl. with a sugar content of > 13% by weight and homogenised preparations of subheading 2007.10)
3035330	0.0177	11.5	0	0	15	14	Frozen sardines "Sardinops spp." and sardinella "Sardinella spp."
3022980	0.0012	11.5	0	0	15	14	Fresh or chilled flat fish "Pleuronectidae, Bothidae, Cynoglossidae, Soleidae, Scophthalmidae and Catharidae" (excl. lesser or Greenland halibut, Atlantic halibut, Pacific halibut, plaice, sole, turbot and megrim)
3035910	0.0290	11.5	0	0	15	14	Frozen anchovies "Engraulis spp."
3033985	0.0137	11.5	0	0	15	14	Frozen flat fish "Pleuronectidae, Bothidae, Cynoglossidae, Soleidae, Scophthalmidae and Citharidae" (excl. halibut, plaice, sole, turbot, flounder, Rhombosolea spp., Pelotreis flavilatus and Peltorhamphus novaezelandiae)
3048949	0.0596	11.5	0	0	15	14	Frozen fillets of mackerel "Scomber scombrus, Scomber japonicus" and fish of the species Orcynopsis unicolor
3035490	0.0027	11.5	0	0	15	14	Frozen mackerel "Scomber australasicus"
22060039	0.0067	11.25	0	0	16.13	16.06	Mead and other fermented beverages and mixtures of fermented beverages and mixtures of fermented beverages with non-alcoholic beverages, sparkling, n.e.s.
20019070	0.0338	11.2	0	0	16	16	Sweet peppers, prepared or preserved by vinegar or acetic acid
20059920	0.0172	11.2	0	0	16	16	Capers, prepared or preserved otherwise than by vinegar or acetic acid (excl. frozen)
87022010	0.0036	11.2	0	0	16	16	Motor vehicles for the transport of >= 10 persons, incl. driver, with both diesel engine and electric motor as motors for propulsion, of a cylinder capacity of > 2.500 cmÂ³
7104000	0.4835	10.94	9.34	0	14.44	12.82	Sweetcorn, uncooked or cooked by steaming or by boiling in water, frozen
7101000	0.0215	10.9	0	0	14.4	14	Potatoes, uncooked or cooked by steaming or by boiling in water, frozen
7103000	0.0800	10.9	0	0	14.4	14	Spinach, New Zealand spinach and orache spinach, uncooked or cooked by steaming or by boiling in water, frozen
3049910	0.0316	10.7	0	0	14.2	14	Frozen surimi of fish n.e.s.
20052020	0.2166	10.6	0	0	14.1	14	Potatoes in thin slices, cooked in fat or oil, whether or not salted or flavoured, in airtight packings, suitable for direct consumption, not frozen
19022099	0.1748	10.49	5.69	0	13.99	13.59	Pasta, otherwise prepared, stuffed with meat or other substances (excl. cooked, or containing > 20% by weight of sausages and the like, of meat and meat offal of any kind, incl. fats of any kind or origin or > 20% by weight of fish, crustaceans, molluscs or other aquatic invertebrates)
7061000	0.0323	10.1	0	0	13.6	12	Fresh or chilled carrots and turnips

Table A-4. Members of EU's GSP

Standard GSP	GSP+	EBA	
Congo	Armenia	Afghanistan	Mali
Cook Islands	Bolivia	Angola	Mauritania
Equatorial Guinea	Cape Verde	Bangladesh	Myanmar
India	Kyrgyz Republic	Benin	Nepal
Indonesia	Mongolia	Bhutan	Niger
Kenya	Pakistan	Burkina Faso	Rwanda
Micronesia	Philippines	Burundi	Sao Tome and Principe
Nigeria	Sri Lanka	Cambodia	Senegal
Niue		Central African Rep.	Sierra Leone
Syria		Chad	Somalia
Tajikistan		Congo (Dem. Rep.)	South Sudan
Uzbekistan		Djibouti	Sudan
Vietnam		Eritrea	Tanzania
		Ethiopia	Timor-Leste
		Gambia	Togo
		Guinea	Tuvalu
		Guinea Bissau	Uganda
		Kiribati	Vanuatu
		Laos	Yemen
		Liberia	Zambia
		Malawi	

Source: authors' elaboration.

Table A-5. Members of EU trade agreement and EU27 members

EPA countries	Free Trade Agreement partners, overseas territories and EU27 members—EUF countries		
Antigua and Barbuda	Albania	Peru	Austria
Bahamas	Algeria	San Marino	Belgium
Barbados	Andorra	Serbia	Bulgaria
Belize	Azerbaijan	Singapore	Croatia
Dominica	Bosnia-Herzegovina	South Korea	Cyprus
Dominican Republic	Canada	Switzerland	Czech Republic
Grenada	Chile	Tunisia	Denmark
Guyana	Colombia	Turkey	Estonia
Haiti	Costa Rica	Ukraine	Finland
Jamaica	Ecuador		France
St Lucia	Egypt	Aruba	Germany
St Vincent & the Grenadines	El Salvador	Antarctica	Greece
St Kitts and Nevis	Faroe Islands	Bonaire, Sint Eustatius, Saba	Hungary
Surinam	Georgia	French Polynesia	Ireland
Trinidad and Tobago	Guatemala	New Caledonia	Italy
Comoros	Honduras	Saint Barthelemy	Latvia
Madagascar	Iceland	St Pierre and Miquelon	Lithuania
Mauritius	Israel	Sint Maarten (Dutch part)	Luxembourg
Seychelles	Iraq	Wallis and Futuna	Malta
Zimbabwe	Japan		Netherlands
Fiji	Jordan		Poland
Papua New Guinea	Kazakhstan		Portugal
Samoa	Kosovo		Romania
Solomon Islands	Lebanon		Slovakia
Botswana	Liechtenstein		Slovenia
Lesotho	Mexico		Spain
Mozambique	Moldova, Republic of		Sweden
Swaziland	Montenegro		
Namibia	Morocco		
South Africa	Nicaragua		
Cameroon	Macedonia		
Ghana	Norway		
Cote D'Ivoire	Occ. Palestinian Territory		

Source: authors' elaboration.

Table A-6. Mean GDP and GDP per capita for country groups

	No. countries	Mean GDP, $m.	Mean GDP per capita, $.
EBA	41	23496.1	1184.675
GSP+	8	86004.81	2924.188
GSP	13	454793.5	3140.81
EPA	33	25122.93	6639.159
EUF	78	480123.7	24947.54
ROW	59*	1113198	18548.02

Source: Authors' elaboration on data from the World Bank World Development Indicators (WDI). Figures are for 2017, in 2010 constant dollars.

*Due to some discrepancies in the number of countries available in the WDI data and the trade data used in this report, and some missing GDP data, the number of countries in the ROW out of which the figures in this table were calculated is 33, while we used 59 countries in the analysis of trade patterns in this report.

Appendix B

Modelling trade effects

We assume that within each product heading imported varieties are differentiated by source, and that demand for imports is captured in a constant elasticity of substitution (CES) utility function

$$U = \left(\sum_{i=1}^{n} a_i q_i^{\theta}\right)^{1/\theta} \quad (1)$$

Where U is utility, q_i imports from source i, a_i a constant for source i and $\theta \leq 1$ a parameter.

The related demand curves are:

$$q_i = \frac{M}{P} a_i^{\sigma} \left(\frac{p_i}{P}\right)^{-\sigma} \quad (2)$$

Where M is total expenditure, P the price index (cost of utility), p_i the price of good i and σ the elasticity of substitution $\sigma = (1-\theta)^{-1} > 0$.

$$P = \left(\sum_j a_j p_j^{(1-\sigma)}\right)^{1/(1-\sigma)} \quad (3)$$

We assume that all source prices of this commodity are unity, so that $p_i = (1 + t_i)$ where t is the tariff on i.

We want to calculate the changes in q_i implied by changes in the range of tariffs t_j, $j = 1 \ldots N$. We substitute Q = M/P in equation (2) where Q is aggregate quantity of the commodity concerned and take the total derivative of (2):

$$d\ln q_i = -\sigma\, d\ln p_i + \sigma\, d\ln P + d\ln Q \quad (4)$$

a good approximation for $d \ln P$ is $$d\ln P = \sum_j s_j\, d\ln p_j \quad (5)$$

i.e. the percentage change in the aggregate is a weighted average of the percentage changes of the component parts and in addition we can write

$$d\ln Q = \gamma\, d\ln P \quad (6)$$

Where $\gamma < 0$ is the price elasticity of demand for aggregate imports of the commodity concerned. Substituting (5) and (6) into (4) yields

$$d\ln q_i = -\sigma\, d\ln p_i + (\sigma + \gamma) \sum_j s_j\, d\ln p_j$$

Which shows that the change in I's exports depends on its own price change but also that of all other sources of the commodity concerned. This is the calculation behind the figures given in the text using parameter values $\gamma = -1$ and $\sigma = -2$.