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ORIGINAL ARTICLE

The Indirect Effects of Brexit on African, Caribbean, and Pacific Trade with the UK and EU

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Abstract
We analyse the 'indirect effects' of Brexit on African, Caribbean, and Pacific (ACP) countries' exports that use the UK as a platform to access the EU market and *vice versa*. First, we use the EORA26 multi-region input–output database for 186 countries and 26 sectors to characterize the ACP domestic content embedded in bilateral trade between the UK and the EU. Second, we apply the GTAP-VA module to carry out a simulation of how the EU–UK Trade and Cooperation Agreement will impinge on 121 countries and 65 products. The results suggest that while 'indirect effects' on ACP countries' exports may exist, their economic magnitude is small in aggregate because ACP countries supply only small amounts of inputs used in UK–EU bilateral trade. Our simulations also show that these effects may be offset by the likely increase in ACP domestic content in exports because of TCA friction, mainly towards the UK.

JEL-codes: F13; F14; O19

Keywords: Brexit; GVC; trade in value added; EU–UK TCA; ACP countries

1. Introduction

For over four decades, the EU handled most elements of international trade policy on Britain's behalf. Following the decision to leave the EU, the UK has been defining its trade policy and negotiating trade relationships with partner countries. Scholars have long pointed out that Brexit will have implications for the African, Caribbean, and Pacific (ACP) countries (Kennan, 2016; Razzaque and Vickers, 2016). In this paper, we ask how much they have to fear from the EU–UK Trade and Cooperation Agreement (TCA), which entered into force on 1 May 2021. While the TCA is a tariff-free trade deal, customs formalities and new paperwork entail costs for firms that are likely to impact trade. Recent estimates suggest that the TCA has reduced UK exports to the EU by 15% and imports by 32% (Ayele et al., 2021).

ACP countries are likely to face a loss of sales in the UK if the negative consequences of Brexit for UK incomes are sustained. However, there are also potentially 'indirect effects' if increased trade frictions between the UK and the EU disrupt value chains that ACP countries are part of. Before the TCA entered into force, the UK–ACP trade relations have been governed by the Economic Partnership Agreements (EPAs) negotiated by the EU. These are reciprocal regional trade agreements organized into seven regional groups of countries and grant ACP countries duty-free and quota-free (DFQF) market access into the EU for all goods except arms and ammunition.[1] They also grant flexible rules of origin, permitting ACP exporters to source from

[1]The same treatment is offered by the EU to Least-Developed Countries (LDCs) through the Everything-but-Arms (EBA) scheme.

elsewhere the inputs they need to make their final products without losing tariff-free access to the EU. Furthermore, ACP countries can keep their market closed to imports from the EU on 'sensitive products'. The UK is seeking to replicate these agreements, a task that has yet to be completed.[2] However, TCA precludes diagonal cumulation. This means that some existing UK–EU trade will now face tariffs and that related imports of inputs may quite possibly disappear as firms reconfigure their supply chains (Fusacchia et al., 2022), in addition to documentary compliance and border delays (Byrne and Rice, 2018; Bennett and Vines, 2022).

In this paper we analyse these so-called 'indirect effects' of Brexit on ACP exports that use the UK as a platform to access the EU market, and the EU as a platform to access the UK market.[3] To this end, we employ trade in value added data to provide information on the origin of the value-added in UK–EU trade and thus the possibility that ACP countries could pay, indirectly, some of the costs of Brexit. The recent availability of Multi-Region Input–Output (MRIO) tables combined with bilateral trade statistics allows us to allocate the value-added embedded in trade flows to the countries and sectors of origin and destination. Specifically, we use the EORA26 database that provides a balanced global MRIO for 186 countries and 26 harmonized sectors to provide a first assessment of the ACP trade in value added embedded in the UK–EU bilateral trade. In this first exercise, we use a method devised by Borin and Mancini (2019) to decompose ACP countries' gross exports into domestic and foreign components. Our empirical results show that, while 'indirect effects' on ACP countries' exports may exist, their economic effects will be very small in aggregate. Although the ACP domestic content embedded in UK exports to the EU is never zero and there is some degree of heterogeneity across countries and industries, there is little effect in aggregate because the ACP countries supply only small amounts of inputs into the products involved in UK–EU trade.

These findings are confirmed by a simulation exercise in which we use the GTAP-VA Model (Antimiani et al., 2018) to exploit the more granular GTAP dataset spanning 121 countries and 65 products. This exercise confirms that the indirect economic effects of Brexit are, overall, limited for ACP countries. Larger impacts are possible for some sensitive products (e.g., sugar). Thus, there may be specific industries in specific ACP countries for which 'indirect effects' are substantial, but overall they should not be a major concern for policymakers in either the ACP countries or the UK. The simulation results also highlight that these 'indirect effects' are likely compensated for by an increase in the overall ACP domestic content in the post-Brexit exports towards the EU and mainly the UK. A natural implication for policymaking is that it is not worth spending much time or effort on preserving or protecting the ACP countries' indirect links to the EU.

The rest of the paper is organized as follows. Section 2 presents the data and the decomposition method. Section 3 provides some descriptive statistics on ACP trade in value added. Section 4 computes the 'indirect effects' of Brexit on ACP countries' trade. Section 5 proposes a simulation exercise based on the TCA scenario. Section 6 concludes.

2. Data and Decomposition Method

We combine Multi-Region Input–Output (MRIO) tables with bilateral trade statistics to allocate the value-added embedded in trade flows to countries and sectors of origin and destination.[4]

[2]Table A1 in the online Appendix describes the country coverage of EU Economic Partnership Agreements and the UK's progress in replicating them. Updates on this process can be found at: www.gov.uk/guidance/uk-trade-agreements-with-non-eu-countries#trade-agreements-from-1-january-2021.

[3]Fusacchia et al. (2022) simulate these indirect effects and show they are substantial. However, they do not focus on low-income countries and do not provide a careful analysis of ACP value chain integration with both the UK and the EU. A similar exercise limited to the Turkey–EU custom union was implemented by Demir et al. (2022).

[4]Value-added is the value that is added to purchased inputs to create a product – e.g. processing, manufacturing, and branding. It is what creates incomes for the factors of production – labour, capital – that provide it. GDP comprises the sum of all domestic value added across the whole economy.

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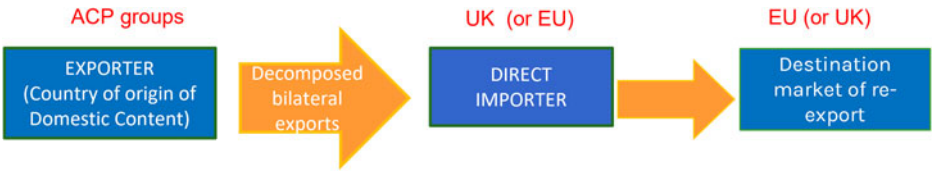

Figure 1. ACP–UK/EU Trade relationships in value-added

Specifically, we use the EORA26 database that provides a balanced global MRIO (Lenzen et al., 2013), where all countries are aggregated to a common 26-sector harmonized classification (International Standard Industrial Classification – ISIC Rev. 3), and the supply-use tables have been converted to symmetric product-by-product IO tables. Notwithstanding certain limitations,[5] EORA data have been widely used in research because they provide data on GVC participation for many developing countries, including most of ACP countries.[6]

To disentangle the ACP countries' trade in value-added components, we use a method devised by Borin and Mancini (2019), who decompose countries' gross exports into domestic and foreign components. The domestic content of exports is the sum of the domestic value-added (value-added in the ACP country that is then exported in final or intermediate goods); the foreign content is the sum of the foreign value-added (value-added embedded in intermediate inputs that the ACP country imports from abroad and then exports in the form of final or intermediate goods).[7] Borin and Mancini's approach allows us to decompose ACP gross exports, disentangling the share of domestic content embedded in exports directly absorbed by the UK (or EU) from that which is embedded in exports that are then exported to third or final markets (Figure 1).[8] Although the domestic content includes the value added of services, we focus our analysis on the primary and secondary sectors.

3. Do ACP Countries' Incomes Depend Significantly on UK–EU Trade?

Whether the additional frictions on UK–EU trade matter significantly to ACP countries depends ultimately on the economic importance of the ACP value added embedded in UK–EU trade. In this section, we use linked Input–Output Tables for 55 countries from the EORA database[9] to identify the ACP value-added in UK exports to the EU and EU exports to the UK.

Table 1 shows that the UK market is important for ACP countries, whereas this is not the case *vice versa*. Although there is significant variation across regional groups, EORA data reveals that

[5]EORA MRIO tables have some well-known shortcomings. They are constructed by combining different types of data and are estimated when IO tables from the national statistics offices are not available. This is the case for all African countries (De Melo and Solleder, 2022). EORA also embodies a 'proportionality assumption' that proportionately distributes imported commodities over target sectors, which implies little product differentiation between what is produced for export and the domestic market (Schulte et al., 2021), and a 'production assumption' that because of the aggregation levels used, each industry grouping produces all its different outputs using a single production function (Slany, 2019). Finally, EORA tables are constructed with an emphasis on fulfilling balancing conditions predominantly for large countries.

[6]Other sources such as the Asian IO tables (IDE-Jetro), the GTAP project, the OECD–WTO TiVA initiative and the WIOD project have more limited country coverage.

[7]In addition, there also is a small amount of so-called 'double counted' value added in each block where a good is exported as an intermediate, processed abroad, re-imported and then exported again in another good.

[8]To this end, we used the icio STATA code (Belotti et al., 2020).

[9]These are the ACP members by EPA groups reported in Table A1 in the online Appendix, except those not covered by EORA data or that have data limitations, namely: Equatorial Guinea (Central Africa); Guinea Bissau (West Africa); Ethiopia, The Comoros, Sudan and Zimbabwe (ESA); South Sudan (EAC); Cuba, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines (Caribbean); Cook Islands, Kiribati, the Marshall Islands, Micronesia, Nauru, Niue, Palau, the Solomon Islands, Tonga, Tuvalu (Pacific).

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Table 1. ACP gross exports and domestic content to UK (2015)

	GROSS EXPORTS TO THE UK			DOMESTIC CONTENT	
ACP GROUPS	(millions $)	(% of total exports)	(% of UK total imports)	(% of gross exports to the UK)	(% of ACP groups GDP)
SADC	8252.00	6.31	0.99	85.28	1.24
West Africa	1206.18	2.28	0.25	92.34	0.22
Central Africa	150.70	0.91	0.06	90.83	0.12
ESA	981.09	7.71	0.08	68.72	1.85
EAC	639.60	9.06	0.08	87.70	0.63
Caribbean	663.25	2.22	0.09	79.28	0.15
Pacific	242.48	3.46	0.03	86.63	0.86

Source: Authors' elaboration on EORA data.

the UK takes about 9% of all exports of the East African Community and about 8% of exports of the Eastern and Southern Africa grouping. Conversely, the ACP shares of UK imports are always below 1%. Table 1 also shows that the value-added embodied in ACP gross exports to the UK is primarily domestic: the share is generally above 80% and above 90% in the case of West and Central Africa. Trade flows to the UK are more important in economic terms for SADC (1.24% of overall GDP) and for Eastern and Southern Africa (1.85%); much less so for Central Africa (0.12%) and the Caribbean (0.15%).

The regional data hide a good deal of heterogeneity. From EORA data, we can see, for example, that 0.05% of Angola's exports go to the UK, compared to 9.4% for Kenya (although the latter is not an EPA member). Except for Lesotho, the percentage of domestic content embedded in exports directed to the UK market is never below 75% for any ACP country. Moreover, in some cases, the domestic value-added exported to the UK is quite important in economic terms (about 1% of the overall GDP in Malawi and Kenya and 0.5% for Madagascar). Table A2 in the online Appendix reports the domestic content of ACP exports to the UK by sector. It ranges from a minimum of 37% ('Other Manufacturing' in ESA) to a maximum of 97% ('Agriculture' in West Africa). On average, the largest domestic content (over 86%) is registered in West Africa and the smallest in Eastern and Southern Africa (60%). The range is even greater at the country level. This heterogeneity is likely attributable to structural differences in the economic characteristics of these countries.

4. The 'Indirect' Trade between ACP Countries, the UK, and the EU

To assess the vulnerability of ACP countries to 'indirect effects' of Brexit (here expressed as ACP exports that use the UK as a platform to access the EU market and the EU as a platform to access the UK market), we examine the trade in value added data to track the ACP domestic content embedded in the bilateral trade flows between the UK and EU. This provides information on the origin of the value-added embodied in the UK–EU trade and thus the possibility that ACP countries could pay, indirectly, some of the cost of Brexit.

For each EPA group of ACP countries, Table 2 shows the domestic content embedded in their exports towards the UK that is then further re-exported to the EU market, expressed as a percentage of the ACP sectoral gross exports to the UK. For instance, ACP domestic value-added in the amount of 11.21% of agricultural exports from SADC to the UK will eventually be re-exported from the UK to the EU. These percentages are of course low in comparison with those of the ACP domestic content exported to the UK (see Table 1), though they are not negligible.

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Table 2. Domestic Content of ACP exports towards the EU via the UK, by sector (% of their sectoral gross export to the UK), 2015

Sector	SADC	West Africa	Central Africa	East and South Africa	East African Community	Caribbean	Pacific
Agriculture	11.21	11.04	15.20	10.72	10.47	10.65	11.30
Fishing	11.24	13.14	12.90	12.78	13.43	13.73	13.89
Mining and Quarrying	13.51	17.97	14.58	14.57	17.24	13.95	13.64
Food & Beverages	4.07	4.55	13.95	9.44	3.83	8.73	11.77
Textiles and Wearing Apparel	9.09	8.24	13.56	0.96	18.53	4.02	4.92
Wood and Paper	12.61	12.44	12.41	–	11.92	12.61	12.87
Petroleum, Chemical, and Non-Metallic Mineral Products	15.06	21.55	15.00	–	8.70	11.44	14.29
Metal Products	23.02	19.85	21.67	–	12.77	23.35	11.11
Electrical and Machinery	9.03	10.28	10.66	–	9.65	16.38	12.82
Transport Equipment	8.00	14.08	15.15	–	11.28	8.58	12.50
Other Manufacturing	2.44	4.30	9.26	–	1.90	5.22	0.00
Average	***10.84***	***12.49***	***14.03***	***9.69***	***10.89***	***11.69***	***10.83***

Source: Authors' elaboration on EORA data.

However, the fact that they are never higher than 23% shows that the bulk of the ACP–UK trade is primarily oriented towards the UK market rather than using it as a platform to reach the larger EU market. As before, we acknowledge the presence of some degree of heterogeneity by sector and EPA group. The highest percentages of domestic content entering the EU market indirectly via the UK pertain to raw materials such as: 'Metal products', 'Mining and Quarrying', 'Petroleum, Chemicals and Mineral Products', followed by 'Fishing' and 'Wood and Paper'.

Further information can be derived by looking at the converse indirect channel, i.e., the EU as a platform for supplying the UK market. Online Appendix Table A3 reports these figures by sector showing that the UK final absorption of ACP domestic content through the EU market is low as well. The highest contribution of ACP countries to EU–UK bilateral trade flows is 7% in the case of Agriculture from the East African Community. The average contribution is below 4%.

Table 3 summarizes the exposure of each ACP group to the indirect costs of Brexit by computing the sum of the domestic content embedded in the bilateral export flows to the UK, and the EU further re-exported to them as a percentage of their sectoral value added. The final row (Average) shows that only between 0.002% and 0.008% of GDP in the ACP groups is generated by the flows of goods between the UK and the EU. Even if this was all lost to Brexit, these 'indirect costs' appear to be distinctly bearable.

A caveat to this preliminary analysis concerns the high level of aggregation of the EORA sectors. While the overall effect on the proportion of ACP exports impacted by Brexit will be small, there could be significant and disproportionate consequences for specific sectors that are heavily reliant on the UK market (Mendez-Parra et al., 2016) or on exports to the EU via the UK. To explore this important issue, in the next section we take advantage of the higher level of disaggregation of the GTAP database to carry out a simulation exercise.

5. The Simulation Exercise

In this section, we simulate the effects of the EU–UK TCA using a standard computable general equilibrium (CGE) model of the world economy from the Global Trade Analysis Project (GTAP)

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Table 3. ACP Domestic Content in overall exports towards the EU via the UK and the UK through the EU, by sector (% of sectoral value added), 2015

Sector	SADC	West Africa	Central Africa	East and South Africa	East African Community	Caribbean	Pacific
Agriculture	0.007	0.015	0.009	0.014	0.008	0.005	0.011
Fishing	0.008	0.002	0.000	0.002	0.001	0.000	0.000
Mining and Quarrying	0.015	0.021	0.017	0.002	0.001	0.000	0.007
Food & Beverages	0.003	0.008	0.002	0.027	0.007	0.005	0.017
Textiles and Wearing Apparel	0.003	0.003	0.000	0.010	0.003	0.000	0.001
Wood and Paper	0.004	0.009	0.020	–	0.001	0.001	0.001
Petroleum, Chemical and Non-Metallic Mineral Products	0.008	0.002	0.000	–	0.000	0.001	0.000
Metal Products	0.029	0.001	0.003	–	0.001	0.005	0.000
Electrical and Machinery	0.003	0.001	0.000	–	0.001	0.001	0.001
Transport Equipment	0.003	0.001	0.000	–	0.001	0.000	0.000
Other Manufacturing	0.002	0.000	0.000	–	0.000	0.000	0.000
Average	***0.008***	***0.006***	***0.005***	–	***0.002***	***0.002***	***0.004***

Source: Authors' elaboration on EORA data.

Consortium.[10] Specifically, to assess trade policy effects in a value-added metric, we use the GTAP-VA module (Antimiani et al., 2018), enabling the attribution of impacts to the various segments of value-added traded up to the final market, both directly and indirectly through other countries. The data are drawn from the MRIO version of the GTAP database, which provides information on consumption, production, and bilateral trade flows for 65 sectors, 121 countries, and 20 regions (Aguiar et al., 2019; Carrico et al., 2020).[11]

To simulate the effects of TCA implementation relative to the 2019 baseline,[12] we follow Fusacchia et al. (2022) and introduce trade frictions due to Brexit, reflecting border formalities, rules of origin, and other non-tariff measures, all pertaining to goods, and non-tariff measures on services.[13]

[10]The GTAP model is a perfectly competitive comparative static CGE model, built on general equilibrium theory and designed to assess the inter-regional, economy-wide incidence of economic policies (Hertel and Tsigas, 1997; Corong et al., 2017). GTAP is a real comparative model with no nominal rigidities. Capital stocks and total labour supply are fixed in each country. For the description of the assumptions underlying the model and modelling choices in terms of closure, see Fusacchia et al. (2022).

[11]The last release of MRIO is based on Version 10 of the GTAP database and includes 27 ACP countries (Benin, Botswana, Burkina Faso, Cameroon, Cote d'Ivoire, Dominican Republic, Ethiopia, Ghana, Guinea, Jamaica, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Nigeria, Puerto Rico, Rwanda, Senegal, South Africa, Tanzania, Togo, Trinidad and Tobago, Uganda, Zambia, Zimbabwe) and 8 aggregate regions (Caribbean, Central Africa, Rest of Central America, Rest of Eastern Africa, Rest of South African Customs, Rest of South America, Rest of Western Africa, South Central Africa).

[12]The baseline year of MRIO version of GTAP is 2014. To carry out our simulation exercise, we updated the baseline year to 2019 to include recent trade policy changes (e.g., EU trade agreements with Japan, Canada, and Singapore). We avoid updating the baseline year to 2020 because of the COVID-19 pandemic.

[13]We model non-tariff measures as a 'home-biased' import policy using a 'phantom tax' modelling approach (e.g., imposing subsidy accruing to domestic producers and a concurrent tax levied on imports, assuring no tax revenues gains/losses from the ad valorem equivalents, see Aguiar et al., 2016). Although our analysis does not focus on services, changes in NTMs on services are considered in the simulation exercise as ACP value added is also embedded in the exchange of services between the UK and the EU.

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Table 4. Changes in the costs of conducting UK–EU trade

Trade costs	Base (2019)	Source for estimates under TCA	Mean (%) under TCA	
			UK exports	UK imports
Non-tariff measures: goods	zero	Cadot and Gourdon (2016), non-FTA, with 3 exceptions	8.0	8.4
Border formalities: goods	zero	2% plus supplements in a few sectors	2.1	2.2
Rules of origin: goods	zero	3% plus supplements in some sectors	1.8	1.9
Non-tariff measures: services	zero	Increments derived from Fusacchia et al. (2022)	15.7	14.7

Note: All other flows and barriers do not change. We do not introduce tariff changes as TCA involves no tariffs on UK–EU trade.

Table 4 summarizes the simulated scenario: the average increase of bilateral trade costs for both goods and services is roughly 14%.[14]

Table 5 simulates the indirect costs of Brexit for each ACP group, by looking at the cumulated effects on the ACP domestic content embedded in indirect trade both to the EU via the UK and to the UK through the EU. To get a measure of relative magnitudes, we relate these changes to sectoral value added. To compare these outcomes with those in Table 3, we aggregate the products available in the GTAP database to the sectors as in Table 3 using the concordance reported in Online Appendix Table A4.

Two key features can be drawn from our simulation exercise (Table 5). Due to the increase in trade costs because of Brexit, ACP countries will actually experience a substantive reduction in their domestic content embedded in the bilateral UK–EU trade flows. However, as anticipated in Table 3, these 'indirect effects' are estimated to be very low in economic terms. For most sectors, they are less than 0.005% of the sectoral value added, except for 'Mining and Quarrying' and 'Metal Products' but even there the decline does not exceed 0.01%.[15] Although we find a low impact on ACP domestic content indirectly exported in 'Agriculture' and 'Food', the more granular sectoral coverage of the GTAP database, reveals that for some specific sensitive products, such as 'sugar', likely impacts are larger. The UK represents the biggest export market for sugar, both as a final consumer and as a platform to reach other markets. As a result, the increase in trade costs between the UK and the EU reduces the Pacific group's value added in sugar exported towards the EU via the UK by 4% of the total value added of that sector. Caribbean value-added originated in 'Sugar cane', 'sugar beet' is also affected by the increased trade frictions between UK and EU (Tables A5 and A6 in the online appendix).

Table 6 reports the simulated effects of Brexit on ACP domestic content in exports towards the UK and EU. This includes the above 'indirect effects' and the possible substitution effect by ACP of the likely contraction of bilateral trade between the UK and EU due to Brexit, net of the effect of post-Brexit demand contraction in the UK. The results show that some ACP groups will likely register an increase in their domestic content in exports, mainly towards the UK, compensating for the above indirect trade costs.[16] As usual, there is a significant degree of heterogeneity across

[14]The derivation and treatment of trading costs are discussed in detail in Fusacchia et al. (2022).

[15]Although, by construction, the indirect effects cannot exceed the overall value of the domestic content as a percentage of sectoral value added, a few small discrepancies between Tables 5 and 3 can be detected. These are related to the fact that they are based on different samples of ACP countries and different baseline years.

[16]Although percentage changes of ACP exports are quite large, the ACP substitution effect is low: it only accounts for a small portion of the trade losses between the UK and the EU. Overall, changes in ACP countries' exports to the UK correspond to slightly more than 1% of the decrease in the UK gross imports from the EU and even less for the EU imports from the UK, as the EU imports are less intensive of ACP domestic content.

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Table 5. Change in the Domestic Content in ACP indirect trade towards the EU via the UK and the UK through the EU, by sector (shares of sectoral value added), TCA scenario

	SADC	West Africa	Central Africa	East and South Africa	East African Community	Caribbean	Pacific
Agriculture	−0.001	0.000	0.000	−0.001	0.000	−0.001	−0.002
Fishing	0.000	0.000	0.000	0.000	0.000	0.000	−0.002
Mining and Quarrying	−0.007	−0.014	−0.007	−0.003	−0.009	−0.004	−0.004
Food & Beverages	−0.001	0.000	0.000	−0.001	0.000	−0.001	−0.004
Textiles and Wearing Apparel	−0.001	0.000	−0.001	0.000	−0.001	0.000	−0.001
Wood and Paper	−0.002	−0.001	−0.003	−0.001	0.000	−0.001	−0.001
Petroleum, Chemical and Non-Metallic Mineral Products	−0.001	−0.002	−0.002	−0.001	0.000	−0.001	−0.001
Metal Products	−0.010	−0.003	−0.003	−0.002	−0.003	−0.007	−0.005
Electrical and Machinery	−0.001	0.000	−0.001	−0.001	−0.001	−0.001	−0.001
Transport Equipment	−0.001	0.000	0.000	−0.001	−0.001	−0.002	0.000
Other Manufacturing	−0.001	0.000	−0.002	−0.001	−0.001	−0.001	0.000
Average	**−0.004**	**−0.003**	**−0.004**	**−0.001**	**−0.001**	**−0.002**	**−0.003**

Source: Authors' simulations using the GTAP-VA model.

Table 6. Domestic content in exports of goods from ACP countries to the UK, EU, and total (% change to the baseline, extra-regional only), TCA scenario

	UK	EU	Total exports
SADC	22.2%	0.9%	2.2%
West Africa	−4.0%	1.2%	0.9%
Central Africa	−10.5%	1.2%	1.0%
East and South Africa	27.0%	2.1%	3.1%
East African Community	46.1%	2.7%	4.7%
Caribbean	32.6%	6.7%	8.3%
Pacific	66.0%	7.2%	5.6%

Source: Authors' simulations using the GTAP-VA model.

Table 7. Welfare changes (US$ billion, relative to 2019 baseline values, 2014 prices) and as percentage of private consumption

	Allocative efficiency	Terms of trade	Total	% of private consumption
SADC	0.0	0.5	0.5	0.2
West Africa	0.1	0.4	0.4	0.1
Central Africa	0.0	0.3	0.4	0.2
East and South Africa	0.0	0.1	0.2	0.1
East African Community	0.0	0.2	0.2	0.1
Caribbean	0.0	0.2	0.2	0.1
Pacific	0.0	0.1	0.1	0.3
UK	−18.4	−30.9	−49.4	−2.4
EU	−12.1	−4.5	−16.6	−0.2
Rest of the world	6.0	32.8	38.8	0.1

Source: Authors' simulations using the GTAP model.

ACP groups (as well as within each group) with overall increases ranging from 0.9% for West and Central African regions to 8.3% for the Caribbean.[17]

Table 7 reports the simulated effects in terms of welfare. As expected, we register the biggest welfare reduction in the UK (–US$ 49.4 billion) and the EU27 (–US$16.6 billion). Conversely, we find small but positive effects on welfare in ACP countries (between 0.1 and 0.3 percentage points regarding consumption). The total effect is a combination of allocative efficiency losses (e.g., the change in the allocation of resources due to the distortions, or, in other words, the deadweight loss associated with them), and losses in the terms of trade (relative change in the price of exports relative to that of imports).[18]

[17]These non-linear effects depend on the trade structure of each country (e.g., West and Central African trade contractions towards the UK are related to the fact that more than 80% of their exports are made by oil, the demand for by the UK demand is projected to fall post-Brexit).

[18]Note that we assume in this simulation that the ACP countries do not change their post-Brexit trade policies.

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6. Conclusion

This paper analyses the 'indirect effects' of Brexit on ACP countries' exports that use the UK as a platform to access the EU market, and exports to the EU as a platform to access the UK market. We carried out two empirical exercises: a descriptive analysis of trade in value added flows using MRIO data and a simulation scenario using GTAP-VA module. Both exercises suggest that ACP countries will not suffer seriously from an 'indirect' loss of trade because these economies supply only small amounts of inputs into the products traded between the UK and the EU. While the simulation exercise using more granular input–output data shows that there may be products for which 'indirect effects' can be substantial and these products may be important to individual ACP countries, overall our analysis suggests that 'indirect effects' should not be a major concern for policymakers either in ACP countries or in the UK. Furthermore, our simulations suggest that these effects can be compensated by an increase of the domestic content of ACP exports due to TCA frictions. Any losses from Brexit for developing countries are undesirable, but if – as it seems – these are light enough to be bearable, developing country negotiators and UK policy makers should devote their attention to other matters, at least until very specific cases of potential harm are brought to their attention.

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