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Brexit: Implications for agricultural exporters

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Abstract

Citizens of the United Kingdom have voted to leave the European Union. The question remains what effect Brexit, once implemented, will have on the United Kingdom, the European Union and third countries. In this paper, we focus on the potential impacts on agricultural exporters. Many countries have preferential trading arrangements with the European Union, and hence the United Kingdom. As a lapsed member of the European Union, the United Kingdom could remove these preferences and impose MFN rates on all WTO members, or it could remove its tariffs altogether, allowing non-ACP countries to compete with preference beneficiaries. This would allow, for example, Brazil, Thailand and Australia to supply sugar to the United Kingdom in competition with Mauritius, Zimbabwe, Fiji and several other developing countries. This would have a negative impact on these countries. Similar concerns apply to beef and dairy products. Although the terms and condition of exit have not yet been negotiated, the potential effects are quantified with a global general equilibrium model. The impacts of third countries depend on the approach taken by the United Kingdom.

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Brexit means Brexit

UK citizens voted in 2016 to leave the European Union. The outcome of the vote came as somewhat as a surprise, and it appears that little thought had been given to the terms of the withdrawal and potential impacts. Nonetheless, it seems that the withdrawal will proceed by March 2019, within two years of the United Kingdom notifying the European Union of its intention as required under Article 50 of the Treaty of European Union. The key issues driving the vote to remain or leave hinge on limiting migration on the one hand as against maintaining trade and investment links on the other. The UK Government would prefer to maintain the free movement of goods with the European Union but limit the movement of people. The EU position is that each member country must permit the free movement of labour, capital, goods and services, the so-called four freedoms.

Given the United Kingdom has decided to leave and has already notified the European Union of its intention, it would make economic sense for both parties to allow the operation of the single market in goods, services and capital even if the movement of labour is restricted. However, while the United Kingdom would favour this outcome, the European Union is unlikely to agree because of concerns other member countries would follow the British example, leading to a domino run of exits. It has an incentive to make exiting the Union sufficiently unattractive to deter others, in spite of the short term losses involved.

The question remains what effect Brexit, once implemented, will have on the United Kingdom, the European Union and third countries. In this paper we focus on the potential impacts on agricultural exporters. For 40 odd years the UK's trade and investment policy has been determined by the European Union. Many ACP countries have preferential trading arrangements with the European Union, and hence the United Kingdom, through the Everything But Arms (EBA) agreement which provides duty free and quota free access to all LDC countries. In addition, the European Union has Economic Partnership Agreements (EPA) with ACP countries, which have formed themselves into seven regional groupings. Members of these groups have preferential access. As a lapsed member of the European Union, the United Kingdom could remove these preferences and impose MFN rates on all WTO members, or it could remove its tariffs altogether, allowing non-ACP countries to compete with preference beneficiaries. This would allow, for example, Brazil, Thailand and Australia to supply sugar to the United Kingdom in competition with Mauritius, Zimbabwe and other countries in Africa, the Caribbean and the Pacific. This would have a negative impact on these countries.

In addition to changes in trade and trade policy, investment is another concern. The United Kingdom has 106 bilateral investment treaties but another 50 or so negotiated by the European Union. These latter set of agreements would need to be renegotiated at some stage. However, a greater problem for the United Kingdom is its position as an investment gateway to Europe. Third country investment in the United Kingdom may fall if access to the rest of the European Union is perceived to be diminished.

The United Kingdom has several options. In this analysis, we look at two somewhat extreme scenarios and examine the potential impacts on agricultural exporters.

Methodology, data and scenarios

The effects on agricultural exporters of the United Kingdom leaving the European Union are likely to be twofold:

(i) changes in tariffs and non-tariff barriers that diminish market access or erode preferential access by opening up competition from others exporters to the United Kingdom; and

(ii) a fall in demand for exports of goods and services because of slower growth in the United Kingdom and the European Union more generally.

The direction and magnitude of these impacts is assessed with the help of a well-known CGE model, GTAP (Hertel 1997). Given the likely shocks, the resulting impacts on national income, trade flows and sectoral output can be estimated.

GTAP

The use of a general equilibrium model such as GTAP enables us to capture the interactions in the whole economy by linking all the sectors through input-output tables and by linking all countries through trade flows. GTAP is a well-documented, multiregional, multi-sector model that assumes perfect competition, constant returns to scale and imperfect substitution between foreign and domestic goods and between imports from different sources.[2] In this application, version 9 of GTAP is used (Aguiar et al. 2016). This has base quantity and policy data of 2011, although many of the input-output tables linking the sectors are from previous periods.

The GTAP database has 140 countries or regions and 57 sectors. The full model cannot be solved with this number of countries, so both countries and sectors must be aggregated. Countries are aggregated in to 22 regions with 35 sectors in each. The regional aggregation separates out ACP countries into six groups – North Africa, West Africa, Central Africa, East Africa, Southern Africa and the Caribbean – in line with the EPAs. Sectors are divided into groups that reflect products with high levels of protection, mainly agricultural products, textiles and motor vehicles. The regional and sectoral aggregation is shown in Appendix tables A1 and A2.

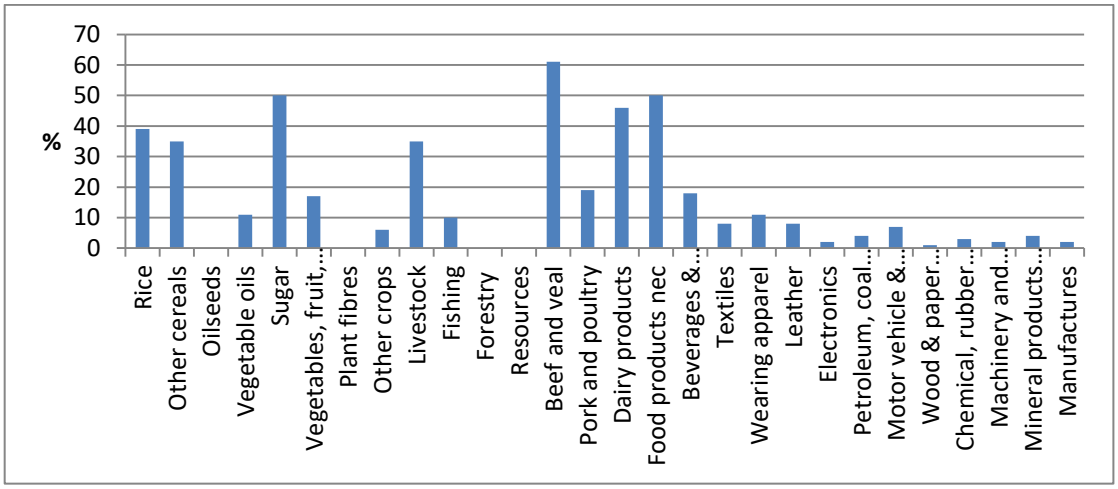
Current tariffs

The UK's MFN tariff rates are currently those negotiated in the WTO by the European Union. The general picture is high tariffs on agricultural products including dairy products, rice, sugar, wheat, beverages and tobacco products (figure 1). Tariffs on industrial products are generally low, although there are significant tariffs on some industrial products including textiles and apparel. The textiles sector has relatively modest tariffs, averaging five to ten per cent, but trade volumes are high, making this a sensitive sector.

As noted earlier, ACP countries have preferential access into the United Kingdom and the rest of the European Union. However, some competitors face MFN or GSP rates (figure 1) on their exports to the European Union. Sugar can be imported duty free from Africa whereas countries such as Brazil (64 per cent), Philippines (25 per cent) and Australia (38 per cent) face substantial tariffs.

[2] For information on GTAP, see https://www.gtap.agecon.purdue.edu/. Hertel (1997) provides further documentation, and Burfisher (2011) gives an introduction to CGE modelling.

Figure 1 UK MFN tariffs, 2011



Source: GTAP v9 database. Trade weighted applied tariffs. See table A2 for description of sectors.

Options

Upon leaving the European Union, the United Kingdom can negotiate its own trade agreements. It has several options with varying degrees of attractiveness. These include the so-called Norwegian, Swiss, Canadian or Turkish models, based on the agreements the European Union has with these countries. Some would involve no change in trade policy and have little implications for third countries. Two options worthy of analysis include:

(i) removing tariffs on imports from all countries; or
(ii) imposing MFN or GSP rates on all countries, including the remaining members of the European Union. This is the WTO option.

Negotiating regional trade agreements tends to be a drawn out process, sometimes taking ten years or more, and there is no guarantee of a successful conclusion, as the TPP illustrates. The United Kingdom has a shortage of trade negotiators as this role has been played by the European Union since 1973. The United Kingdom has two years to come to some arrangements with the remaining EU members, the countries with which the European Union has agreements, and perhaps the remaining 161 WTO members. One option is to take over the EU tariff schedules and apply these on all imports, including from the European Union itself. Another option is to remove tariffs and non-tariff barriers on imports from all countries. This has the virtue of simplicity, ease of negotiation and economic attractiveness. Many economists would see this as the preferred option. The main objections to this would come from domestic agricultural producers, but these producers could be provided with direct income support unrelated to production, much as they receive now from the European Union.

If UK tariffs were removed, importers would switch away from ACP suppliers. By examining tariff changes at an industry level, it is possible to make a reasonable estimate as to their likely effects on the industry's prices and production, consumption and trade.

Tariff changes are likely to be implemented over a number of years, and during that time tariff levels will be reduced according to a range of free trade agreements and other policy changes that have been signed but not yet implemented, and most economies will grow

regardless. These changes are taken into account in our modelling.[3] The results show the additional impact of the policy change in 2020.

If the United Kingdom were to impose MFN tariffs on all trade, especially with the European Union and other countries that currently have preferential access, the effects would be significant. On the other hand, if the United Kingdom removed all tariffs on countries that currently do not have preferential access, such the United States, Brazil and Australia, many ACP countries would lose through preference erosion.

To explore the likely impact of the United Kingdom leaving the European Union, we run three scenarios (table 1) in addition to a baseline to 2025.

Table 1 Alternative scenarios

No.	Description
Sim1	Baseline to 2025 without Brexit.
Sim 2	MFN. The European Union imposes MFN tariffs on the United Kingdom, which in turn imposes MFN or GSP on all imports.
Sim 3	FTA. United Kingdom removes tariffs on all imports, including from the European Union.
Sim 4	Demand. Fall in demand in European Union and United Kingdom without any tariff changes.

Sim1 shows the business-as-usual baseline without the impacts of Brexit. This takes account of the reduction in tariffs in many countries as negotiated FTAs are implemented. It also illustrates that most economies continue to grow and expand. This places Brexit in context. The effects of tariff changes are of second order importance compared with the underlying growth, which is driven by increases in capital, labour and productivity.

Sim2 illustrates the WTO option, with the United Kingdom imposing MFN tariffs on imports from all countries including the remaining European Union members. Developing country exporters would face GSP rates, which are slightly lower than MFN rates. The European Union imposes MFN rates on imports from the United Kingdom. Here we assume that third countries, such as the ACP members, would maintain their current tariffs, and not retaliate against a rise in tariffs on exports to the United Kingdom.

Sim 3 highlights the option of the United Kingdom removing tariffs on imports from all countries, including the European Union. Thus, the single market is maintained, but ACP exporters now face competition from low cost exporters that had previously been excluded from the UK market. The most significant products are sugar, beef, dairy products, cereals, processed food, fish, textiles and apparel.

Finally, Sim 4 shows the impact of a fall in demand caused by lower growth in the European Union and the United Kingdom. We assume that in 2020 the growth rate in the European

[3] Sources of baseline data include IMF (2015) and ILO (2013).

Union is 1.5 per cent lower than otherwise and in the United Kingdom it is 2.0 per cent lower.[4] This results in a reduction in demand for ACP exports.

Prior to the vote, several economic institutions LSE, HM Treasury, OECD, PwC and Oxford Economics were forecasting a fall in national income (Financial Times 2017). By contrast, Economists for Brexit were forecasting a four per cent increase. To date, little has happened, about from a fall in the pound. Nonetheless, uncertainty remains, and this is likely to deter investors and hold back growth.

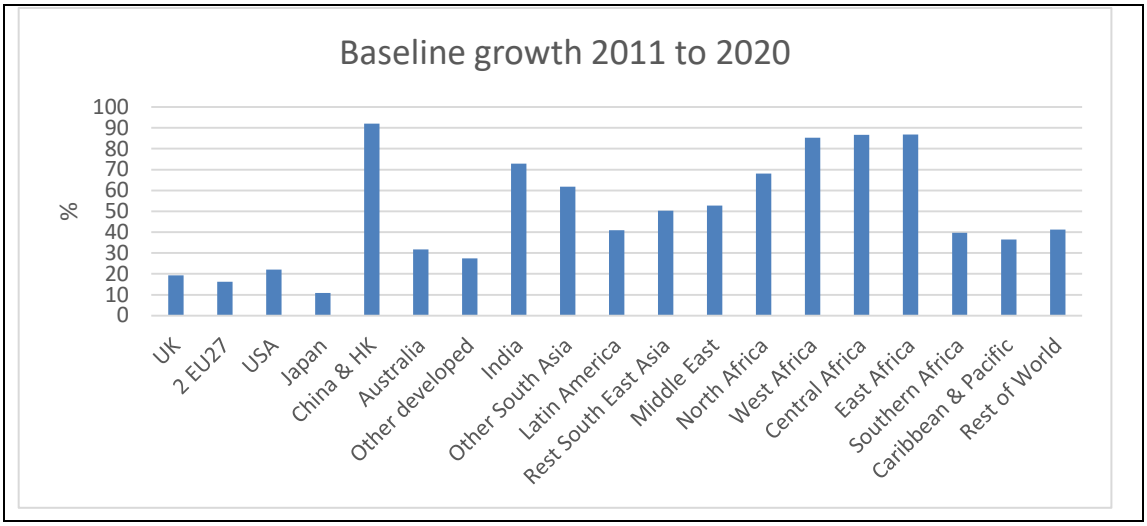
Results

Policy makers are concerned with the trade, output and national income effects of policy changes in their own country and external shocks beyond their control. The impacts are dependent on the initial trade flows, the size of the change in the tariffs and changes in relative tariffs if two or more countries are competing in the same market. We look first at welfare, a measure of national income. Next, we examine trade flows and then changes in trade and output by sector.

Welfare

From our results the first observation for agricultural exporters is that trade and growth are projected to continue to expand in the baseline. Between 2011 and 2020, the UK economy expands 19 per cent, the European Union 16 per cent, Australia 32 per cent and so on. China, India and African countries show high growth rates (table 2) for different reasons. China has high growth in capital and productivity whereas Africa has high labour force growth with low capital and productivity. India is in between. Although the three Brexit scenarios each have a marginal detrimental effect, trade and growth continues to expand because the underlying growth more than offsets any fall in trade due to the tariff changes. The change in the long term growth rate is barely perceptible, apart from the United Kingdom and the European Union, where we assume a fall in demand.

Figure 2 Baseline growth in GDP 2011 to 2020



Source: GTAP baseline simulation.

[4] PwC (2016) estimate a 3.5 per cent loss including the tariff effects, but most of this loss is due to uncertainty.

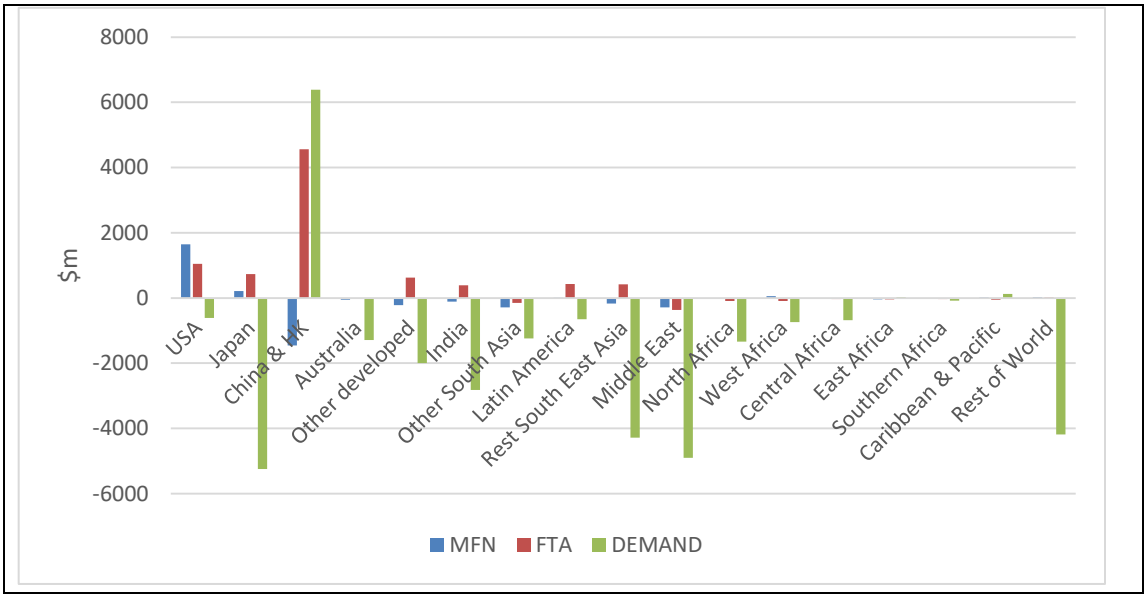
The effects on the United Kingdom and the European Union are negative (table 2). Imposing MFN tariffs across the board is bound to have a negative effect, especially if tariffs are imposed on one's major trading partner. The United Kingdom recuperates some of its losses by removing all tariffs, the FTA scenario. The negative demand shock has by far the greatest effect. Whereas a change in tariff involves shifting resources from one sector to another, the demand shock essentially is a loss in productivity as a result of resources left idle.

Table 2 Welfare impacts of alternative scenarios in 2020 relative to base in 2020

Country	Sim 2 MFN	Sim 3 FTA	Sim 4 Demand
	$m	$m	$m
United Kingdom	-9,279	-1,018	-52,605
European Union 27	-3,652	-2,892	-241,069
Global	-13,634	3403	-317,219

Source: GTAP simulations. Scenarios are described in table 1.

Figure 3 Welfare in 2020 relative to base



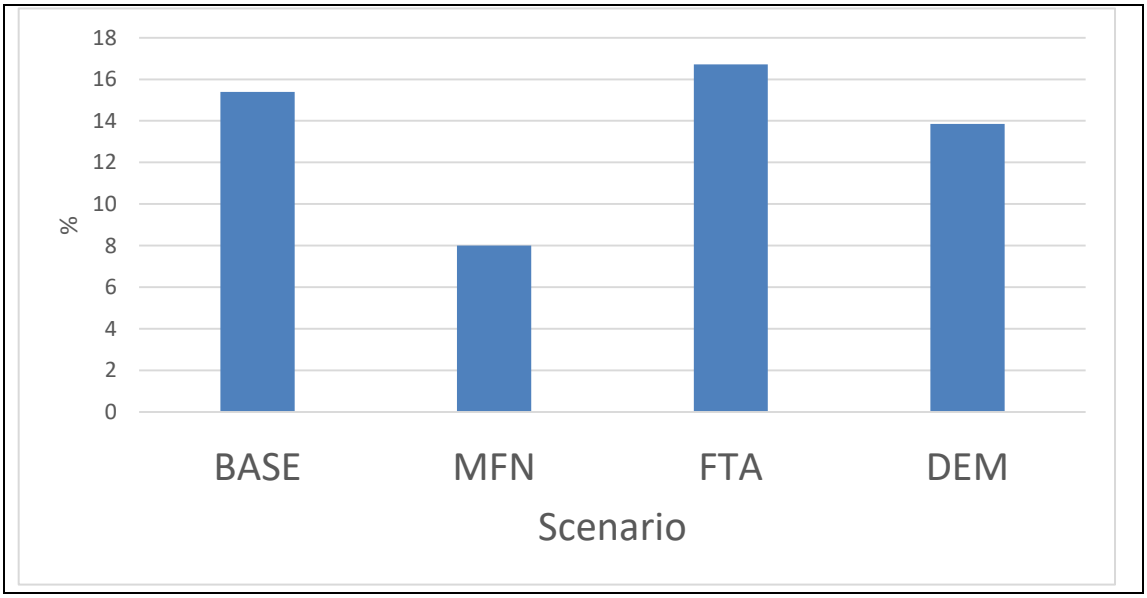
Source: GTAP simulations.

The different scenarios have somewhat different impacts on exporters (figure 3). The first two scenarios involve preference erosion as the driving force, which means ACP countries lose but other exporters such as India, Latin America and South East Asia tend to gain. Countries that trade heavily with the European Union or the Unite Kingdom are worse off as a result of the fall in demand in the third scenario. However, China benefits from reduced demand for resources (coal, oils and gas).

Trade

The story for trade is somewhat similar to that of welfare. Changes in ACP exports are influenced by UK imports. Baseline growth in imports of 15 per cent is reduced drastically under the MFN scenario, but in fact increases marginally under the FTA scenario where tariffs are removed on imports from third countries. The demand shock reduces imports by half a per cent, much less than the fall in demand.

Figure 4 UK imports in 2020 relative to base in 2011



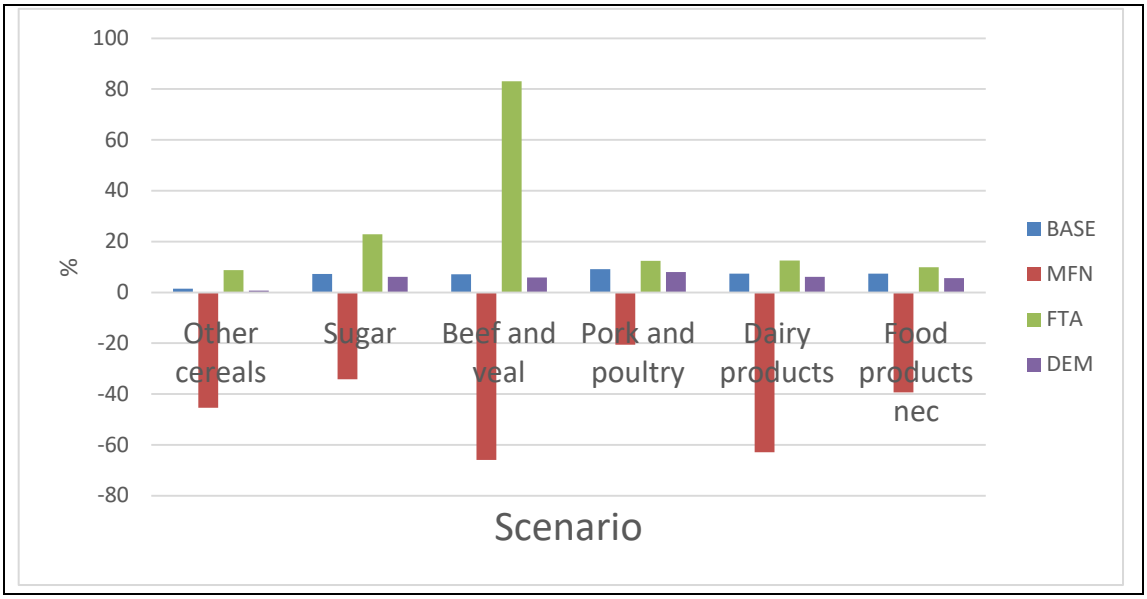
Source: GTAP baseline simulation.

There is substantial growth of exports in the baseline and the alternative scenarios have a negligible effect. For example, Australia growth rate over the baseline from 2011 to 2020 is 49.06 per cent. This is reduced to 48.8 in the fall in demand scenario. The largest change is 4 percentage points, from 54.0 to 49.7 per cent for South East Asia.

Sectoral impacts

Changes in exports by sector in ACP countries are determined mainly by changes in imports in the United Kingdom. These vary greatly from one scenario to another and are shown in Appendix tables A3. The most dramatically affected sectors are wheat, sugar, livestock products, other processed food (including fish), textiles and motor vehicles. Selected agricultural commodities are shown in figure 5. Some agricultural products are protected with tariff rate quotas. This means that tariffs are low before imports reach a certain level and then raised substantially once that level is reached. In Sim 2 the United Kingdom would impose MFN tariffs on all imports and as a result imports would fall substantially for selected products. Under Sim 3, all tariffs would be removed and imports would rise above their baseline levels, particularly for beef and veal, but also for sugar, textiles and fish, products which are supplied by ACP countries.

Figure 5 UK imports in 2020, selected sectors



Source: GTAP baseline simulation.

Unfortunately, ACP countries are not in a good position to take advantage of an expanding UK market for sugar, textiles and fish, because they must compete with other countries that previously did not have preferential access to the UK market. Bilateral exports to the United Kingdom fall under both scenarios Sim 2 and Sim 3, but at least these countries can switch some of their exports to other destinations, so the fall in national exports by sector is not as great as the change in UK imports. The change in exports for selected commodities are shown in Appendix tables A4-8. Most ACP sugar is exported to France and Germany rather than the United Kingdom. These exports would be maintained, notwithstanding that the European Union is reforming its sugar sector.

The fall in UK and EU demand, Sim 4, has a relatively minor effect on most sectors, as the effects are fairly even across the board. Exports are not affected by the initial level of tariffs.

Policy implications and conclusions

What should developing countries do in light of significant changes that may occur when the United Kingdom leaves the European Union? Our alternative scenarios show UK imports going in opposite directions, depending on the approach taken by the United Kingdom. It has several options. Imposing MFN tariffs or removing tariffs altogether affects all countries, particularly ACP countries which have preferential access.

At a national level, trade changes are of second order importance to other factors that drive growth and incomes. These factors are labour, capital and productivity. Developing countries should implement policies that upgrade the skills of the labour force, maintain an inflow of capital and ensure that labour and capital are used productively.

Trade is important in enhancing productivity. Imports of industrial products and services embody more advanced technology that improves productivity and allows exporting firms to be more competitive. ACP countries that have signed the EPA agreement with the European

Union have taken the right steps in removing tariffs on raw material and capital goods and phasing out tariffs on intermediate goods.

As they become more common, preferential arrangements such as FTAs, EBA, EPAs and the like are becoming less and less effective and ought to be phased out. Developing countries may argue for continued preferential access, but they have little bargaining power, and they should not limit access to their own markets, or limit inflows of foreign investment as a negotiating tool. They should focus on facilitating adjustment to changing circumstances.

The analysis presented here demonstrates that the options chosen by the United Kingdom can have a significant impact on trade in selected products. However, the impacts on most developing countries generally are not so significant. Certain sectors will experience a fall in bilateral trade with the United Kingdom, but the changes in total trade in these sectors are manageable because exporters can look for alternative destinations for their exports.

Limitations of CGE modelling should be kept in mind and results interpreted with care. In particular, the model does not include a financial sector, so we can't analyse the effects of a fall in confidence on investment or consumption. Here we have just assumed, based on the results of other studies, a drop in growth in demand in Europe and analysed the likely impacts on exporters. A relevant criticism is that the dire prediction held almost unanimously prior to the vote have not come to pass, as yet at least. We have not tried to model changes in rules or origin, or utilisation rates, or non-tariff barriers that might be erected or removed. Finally, we have not modelled changes in domestic support in the United Kingdom. Much domestic support for agriculture in the United Kingdom is funded from Brussels. We assume the UK Government would replace some or all of these subsidies.

Notwithstanding these limitations, the conclusions are robust. The options chosen by the United Kingdom affect itself the most. The impacts on the European Union and third countries are marginal or at least manageable.

Appendix

Table A1 Regional aggregation

Label	Label	Description
1	GBR	United Kingdom
2	EU27	European Union 27
3	MUS	Mauritius
4	MDG	Madagascar
5	ZWE	Zimbabwe
6	USA	USA
7	JPN	Japan
8	CHINA	China & HK
9	AUS	Australia
10	ODV	Other developed
11	IND	India
12	XAS	Other South Asia
13	LAM	Latin America
14	SEA	South East Asia
15	ME	Middle East
16	NAF	North Africa
17	WAF	West Africa
18	CAF	Central Africa
19	EAF	East Africa
20	SAF	Southern Africa
21	CRB	Caribbean & Pacific
22	RoW	Rest of World

Table A2 Sectoral aggregation

Label	Description	Label	Description
RCE	Rice	TXT	Textiles
CER	Other cereals	WAP	Wearing apparel
OSD	Oilseeds	LEA	Leather
VOL	Vegetable oils	ELE	Electronics
SUG	Sugar	P_C	Petroleum, coal products
VFN	Vegetables, fruit, nuts	MVT	Motor vehicle & trans equip
PFB	Plant fibres	WPP	Wood & paper products
OCR	Other crops	CRP	Chemical, rubber & plastics
LVS	Livestock	OME	Machinery and equipment nec
FSH	Fishing	NMM	Mineral products nec
FF	Forestry	MAN	Manufactures
RES	Resources	WTP	Sea transport
BV	Beef and veal	ATP	Air transport
PP	Pork and poultry	TSP	Transport and comm.
DRY	Dairy products	UTL	Utilities
OFD	Food products nec	ROS	Recreation
B_T	Beverages & tobacco	BSV	Business services
		SVC	Other services

Table A3 UK imports

Sector	Sim 1 BASE	Sim 2 MFN	Sim 3 FTA	Sim 4 Demand
	%	%	%	%
Rice	7	2	7	6
Other cereals	1	-45	9	1
Oilseeds	5	6	5	8
Vegetable oils	16	10	15	15
Sugar	7	-34	23	6
Vegetables, fruit, nuts	1	-5	2	2
Plant fibres	11	14	7	9
Other crops	16	12	15	15
Livestock	10	4	-4	9
Fishing	42	33	42	38
Forestry	16	15	16	15
Resources	70	68	70	67
Beef and veal	7	-66	83	6
Pork and poultry	9	-21	12	8
Dairy products	7	-63	13	6
Food products nec	7	-39	10	6
Beverages & tobacco	8	-1	8	6
Textiles	9	-9	17	7
Wearing apparel	13	-7	25	11
Leather	8	-1	13	6
Electronics	6	3	7	4
Petroleum, coal products	54	44	55	52
Motor vehicle & trans equip	11	-1	12	9
Wood & paper products	10	7	10	8
Chemical, rubber & plastics	12	6	13	11
Machinery and equipment nec	12	6	13	10
Mineral products nec	23	11	27	21
Manufactures	12	7	13	11
Sea transport	32	32	32	30
Air transport	24	24	24	22
Transport and comm.	26	26	25	24
Utilities	3	2	3	2
Recreation	8	8	8	7
Business services	11	10	10	9
Other services	10	10	10	9
Total	15	8	17	14

Source: GTAP simulation. Change in 2020 relative to base in 2011.

Table A4 Exports of cereals other than rice

Sector	Sim 1 BASE	Sim 2 MFN	Sim 3 FTA	Sim 4 Demand
	%	%	%	%
United Kingdom	66	-53	71	68
European Union 27	33	34	33	35
Mauritius	29	30	30	32
Madagascar	42	45	41	43
Zimbabwe	34	35	34	37
USA	56	56	56	40
Japan	136	136	137	159
China & HK	40	41	40	61
Australia	19	19	19	22
Other developed	76	75	77	67
India	139	139	140	115
Other South Asia	3	3	3	8
Latin America	28	28	28	30
South East Asia	-5	-5	-5	3
Middle East	14	14	14	19
North Africa	37	37	37	43
West Africa	-17	-16	-18	-8
Central Africa	-8	-7	-7	-2
East Africa	38	38	38	42
Southern Africa	19	19	19	53
Caribbean & Pacific	10	10	10	19
Rest of World	21	21	21	23

Source: GTAP simulation. Change in 2020 relative to base in 2011.

Table A5 Exports of sugar

Sector	Sim 1 BASE	Sim 2 MFN	Sim 3 FTA	Sim 4 Demand
	%	%	%	%
United Kingdom	23	-41	26	22
European Union 27	16	15	13	15
Mauritius	0	-6	-7	1
Madagascar	5	7	5	5
Zimbabwe	10	-7	-5	8
USA	16	22	15	15
Japan	178	178	179	48
China & HK	52	51	56	53
Australia	-28	-28	-27	-29
Other developed	40	44	40	32
India	70	73	69	68
Other South Asia	54	73	51	56
Latin America	31	31	33	32
South East Asia	25	25	24	23
Middle East	12	12	12	13
North Africa	18	20	18	19
West Africa	15	16	15	16
Central Africa	-2	-2	-2	1
East Africa	37	36	35	37
Southern Africa	9	9	8	9
Caribbean & Pacific	17	9	14	18
Rest of World	2	0	14	2

Source: GTAP simulation. Change in 2020 relative to base in 2011.

Table A6 Exports of beef and veal

Sector	Sim 1 BASE	Sim 2 MFN	Sim 3 FTA	Sim 4 Demand
	%	%	%	%
United Kingdom	12	-87	19	12
European Union 27	16	12	9	16
Mauritius	7	9	3	11
Madagascar	-5	-6	-10	-3
Zimbabwe	101	107	102	100
USA	20	20	21	25
Japan	51	125	39	62
China & HK	139	205	127	150
Australia	-43	-44	-39	-44
Other developed	48	43	75	43
India	190	191	191	147
Other South Asia	384	387	382	410
Latin America	7	6	16	7
South East Asia	-48	-44	-50	-41
Middle East	-10	0	-12	-8
North Africa	46	45	40	51
West Africa	10	9	5	13
Central Africa	-25	-25	-25	-23
East Africa	112	138	108	114
Southern Africa	0	-19	-17	2
Caribbean & Pacific	26	26	25	29
Rest of World	-5	-5	-6	-3

Source: GTAP simulation. Change in 2020 relative to base in 2011.

Table A7 Exports of pork and poultry

Sector	Sim 1 BASE	Sim 2 MFN	Sim 3 FTA	Sim 4 Demand
	%	%	%	%
United Kingdom	23	-37	31	24
European Union 27	21	17	17	21
Mauritius	11	17	14	17
Madagascar	-21	-20	-20	-20
Zimbabwe	-18	-15	-18	-19
USA	37	37	37	39
Japan	79	80	79	82
China & HK	1	2	1	4
Australia	-19	-19	-19	-19
Other developed	48	49	48	29
India	43	44	43	8
Other South Asia	10	16	10	15
Latin America	15	13	25	16
South East Asia	-16	-15	-9	-17
Middle East	3	3	3	4
North Africa	-8	-4	-9	-6
West Africa	1	8	1	5
Central Africa	-31	-26	-31	-28
East Africa	59	60	59	61
Southern Africa	25	27	25	27
Caribbean & Pacific	4	5	5	7
Rest of World	-14	-12	-14	-12

Source: GTAP simulation. Change in 2020 relative to base in 2011.

Table A8 Exports of dairy products

Sector	Sim 1 BASE	Sim 2 MFN	Sim 3 FTA	Sim 4 Demand
	%	%	%	%
United Kingdom	14	-72	18	14
European Union 27	16	11	15	16
Mauritius	177	178	177	56
Madagascar	-41	-42	-41	-43
Zimbabwe	23	24	24	22
USA	21	20	22	19
Japan	36	36	36	43
China & HK	102	102	129	108
Australia	-43	-43	-43	-43
Other developed	54	54	56	45
India	24	20	105	21
Other South Asia	184	186	214	194
Latin America	23	23	24	24
South East Asia	41	42	42	33
Middle East	6	6	6	7
North Africa	62	62	63	66
West Africa	76	75	76	66
Central Africa	-87	-87	-87	-87
East Africa	71	69	70	75
Southern Africa	33	34	36	39
Caribbean & Pacific	51	51	51	36
Rest of World	-10	-9	-10	-9

Source: GTAP simulation. Change in 2020 relative to base in 2011.

Table A9 Exports of processed food

Sector	Sim 1 BASE	Sim 2 MFN	Sim 3 FTA	Sim 4 Demand
	%	%	%	%
United Kingdom	12	-47	14	15
European Union 27	13	8	12	15
Mauritius	18	19	18	13
Madagascar	-10	-8	-10	-8
Zimbabwe	63	58	63	64
USA	19	20	21	22
Japan	35	36	36	40
China & HK	10	11	10	13
Australia	-17	-17	-17	-13
Other developed	52	51	52	17
India	24	26	25	26
Other South Asia	44	42	45	51
Latin America	12	12	12	16
South East Asia	11	12	12	11
Middle East	18	18	18	21
North Africa	8	10	8	10
West Africa	10	11	9	13
Central Africa	-45	-44	-45	-42
East Africa	44	40	43	47
Southern Africa	15	16	15	18
Caribbean & Pacific	40	40	40	44
Rest of World	8	7	8	12

Source: GTAP simulation. Change in 2020 relative to base in 2011.

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