Chapter 4

SACU, China and India: the implication of FTAs for Botswana, Lesotho, Namibia and Swaziland (BLNS)

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Summary and key points

China and South Africa (more specifically, SACU) have mooted entering into a free trade agreement (FTA), although one must say that there is apprehension in South Africa about such an agreement. Meanwhile, India and SACU are actively discussing the prospects of entering into a free trade agreement. This paper uses the pre-release Version 7 of the Global Trade Analysis Project (GTAP) database to assess the welfare and trade gains for the BLNS (Botswana, Lesotho, Namibia and Swaziland) from FTAs between SACU and China and SACU and India as determined by merchandise goods access only.

The results for a South African/China FTA show that there are comfortable welfare gains to South Africa, but negating these are the labour market-related losses where employment falls by 0.13% and the real wage declines by 0.19%. Scrutinising the production and trade results reveals that South Africa gains modestly in the agricultural sector, but the big action is in the manufacturing sector.

Both Botswana and the rest of SACU (Lesotho, Namibia and Swaziland as one 'region) gain modestly in terms of enhanced welfare of a little over one half of a percent of real GDP. For Botswana there is a large decline in the apparel sectors performance but overall not much other change to the productive sectors other than output price declines in most of these. The biggest change in production after the apparel losses is gains to textiles and the vehicle and parts sectors, and, although constraints to services are not modeled, the second-round effect here accounts for much of the overall production increases. In trade, the direct effects are of less important than the indirect effects as Chinese imports in particular replace those from South Africa and other sources. For the rest of SACU the increases in production are greater but they are spread unevenly across sectors. Gains in the production value of 'other agriculture', 'other meats', textiles and non-ferrous metals (NFM) are recorded, while exports overall decline to South Africa but increase to both China and the rest

of the world. Overall imports into the rest of SACU increase by more than exports, with big increases in textile imports from China leading the way.

For the Indian FTA we find that a simulation of comprehensive tariff reform in India is dominated by the massive effects on South Africa's gold sector, and given the implausibility of this we have opted for an alternative simulation that holds the Indian non-ferrous metal (gold) tariffs at their initial value. This simulation still produces an outstanding welfare gain of $1,200 million for South Africa and a lesser but still good $715 million gain for India, with most of the results concentrated in South African agriculture (sugar) and natural resources (coal).

For the BLNS the welfare results are a decline in real GDP of 0.12% in Botswana but a marginal increase of 0.04% in the rest of SACU. For Botswana there are declines in output for many sectors, but except for apparel and vehicles and their parts, and especially services, these are minor. Following declines in the exports of all manufacturing sectors except non-ferrous metals, the relatively small changes show an overall reduction, while for Botswana's import profile modest increases from India and the rest of the world more than displace South African imports, with the latter leading to an overall decline in imports. Changes for trade in the rest of SACU are even more modest, with slightly increased exports to India and a richer South Africa just ahead of declines to the rest of the world. For imports, the Indian displacement of South African exports (around $40 million in each case) paves the way for increased imports of $6 million from the rest of the world, giving the final modest increase of $7 million overall.

The direct effects of these FTA results are modest, with most of the changes coming about as the BLNS trade with South Africa changes at the margin.

1. Introduction

In assessing the future trade policy options for SACU, China and India's dramatically increasing role as trading giants on the world scene has to be taken into account in these considerations. The focus in this paper is on how the SACU trading relationships with both China and India may be advanced by the adoption of free trade agreements between SACU (that includes BLNS) and China and SACU and India. To assist with this analysis the internationally accepted benchmark Global

Trade Analysis Project (GTAP)[1] database and the associated general equilibrium model will be used as the analytical tool. In undertaking this analysis, the starting point is a simulation of the 'known' and best estimate conditions that will prevail at the end of a given period (2020 in this case) followed by an assessment of the difference that the selected policy change under consideration is likely to make. The implications of these FTAs for South Africa have been discussed in Sandrey et al. (2008). The objective of this paper is to discuss the implications for the BLNS countries.

2. The direct trade background

It is difficult to obtain a complete picture of the trade between the BLNS countries and China. Much of the import trade from 'outside' of SACU comes through South Africa, and the BLNS trade data itself tends to be dated. To proxy the direct trade between the BLNS and China we have used the Chinese data as sourced from the World Trade Atlas (WTA), a commercially obtainable source. The data is shown in Table 1, where 'total imports into China' represents the BLNS exports as given by Chinese import data, and similarly 'total exports from China' are the BLNS imports as given by Chinese export data. Totals and the main HS 6 lines are given. Botswana and Namibia are given on the left-hand side of the table, with Lesotho and Swaziland on the right. Imports into China from BLNS are basically commodities; exports from China to BLNS are concentrated in fabrics and clothing.

[1] See the GTAP website at https://www.gtap.agecon.purdue.edu/ for a full introduction to the model.

Table 1: Direct trade between BLNS and China, year to June 2008, US$ million

	Year June 2008			**Year June 2008**
Botswana	$m		**Lesotho**	$m
Total imports into China	**121.65**		**Total imports into China**	**0.87**
Nickel ores	105.89		Animal hair	0.85
Diamonds	12.81			
Total exports from China	**142.98**		**Total exports from China**	**58.20**
Sweaters	9.28		Televisions	9.16
Women's trousers	6.72		Fabric	9.68
Men's trousers	7.96		Knitted fabrics	6.56
			Denim	4.27
Namibia			**Swaziland**	
Total imports into China	**193.75**		**Total imports into China**	**17.47**
Lead ores	29.43		Chemical wood pulp	7.51
Unrefined copper	13.99		Chemical wood pulp	9.15
Total exports from China	**161.83**		**Total exports from China**	**11.80**
Bed linen	29.88		Fabrics cotton	0.80
Trucks	12.03		Dyed fabric	0.87
Curtain	13.21		Woven fabric	0.41
Portland cement	6.89		Telephones	0.75

Source: World Trade Atlas, Chinese data

3. The GTAP database/model

GTAP is supported by a fully documented, publicly available, global database and underlying software for manipulating data and implementing the model. The framework is a system of multisector country economy-wide input/output tables linked at the sector level through trade flows between commodities used both for final consumption and intermediate use in production. The latest GTAP pre-release Version 7 database divides the global economy into 106 countries/regions with 57 commodities specified in the database. The Version 7 database represents the global economy/trade in the year 2004 measured in millions of 2004 US dollars. At the time of writing, the Version 7 pre-release was not available for public release but tralac, through its association with the Institute of Food and Resource Economics, University

of Copenhagen (as a Board Member of GTAP), was able to use it. For a full discussion of the GTAP model as used in this paper, see Sandrey and Jensen (2008).

The FTA primary scenario considered in this chapter entails the result from the removal of trade barriers between China (India) and South Africa (SACU) as measured in the year 2020 in a world shaped by the baseline scenario. Differences between the so-called baseline scenario and this so-called primary scenario are therefore the results of implementation of the goods-only South African/China (India) FTA. With India we model scenarios with and without elimination of tariffs on imports of non-ferrous metals (gold) into India from South Africa, and report on the 'without gold' as our main scenario.

4. GTAP results for the SACU/China FTA

The big picture results

Table 2 shows the changes in welfare from the FTA assuming the eliminations of merchandise tariffs, with the data expressed in US$ millions as one-off increases in annual welfare at the assessed end point of 2020. South Africa's gains are $295 million, a figure much lower than China's $1,364 million. Notable are the enhanced welfare results accruing to both Botswana ($67m) and the rest of SACU ($93m) from increased investment expanding the capital stock and allocative efficiency in particular.

Table 2: Change in welfare (EV of income) due to SACU/China, US$ millions at 2020

	Total	Allocative efficiency	Change in unskilled labour employment	Change in capital stocks	Term of trade
South Africa	295	337	-133	417	-326
China	1,364	231	47	612	474
Botswana	67	29	2	33	3
Lesotho, Namibia, Swaziland	93	13	11	62	7
Total including others	3,471	820	-109	2,761	-1

Source: GTAP results

In further examining the GTAP results we are able to decompose the results to find that:

- South Africa's welfare gains of $535 million all derive from better access into China. This is, however, negated by losses of $111 million as China, following the SACU tariff eliminations, makes inroads into the South African market, and a further $103 million and $29 million as China competes more vigorously with South Africa in Botswana and rest of SACU respectively.
- China's gains are overwhelmingly from SACU tariff reductions with better access into South Africa ($1,210m), Botswana ($50m) and the rest of SACU ($43m), with these augmented by gains of $52 million from elimination of its own tariffs against South African imports.

The results also show real GDP increases in Botswana of 0.60 and in the rest of SACU of 0.82%, and these are relatively high for an FTA. For the rest of SACU in particular, the impacts upon agricultural factor income are very positive. Land prices increase significantly, while contributions from employed unskilled agricultural labour also rise. Thus, a SACU/China FTA is beneficial for SACU's agricultural sector.

Changes in trade flows

Table 3 starts by introducing the aggregate overall changes to trade flows for the partner countries in 2020, expressed as percentage changes for both exports and imports, and then in US$ million for the trade balance. Neither Botswana nor the rest

of SACU registers much overall change (albeit slightly negative change) in their trade balances, with both exports and imports increasing in percentage terms.

Table 3: Percentage change in the quantity of total import\export & trade balance, 2020

	South Africa	Botswana	RSACU	China
Exports % change	2.8	0.7	2.5	0.1
Imports % change	2.2	0.8	3.2	0.2
Trade balance US$ millions	-103	-5	-6	796

Source: GTAP results

The specific sector results

This section will discuss the production, trade and relative price changes in the main GTAP sectors as they relate to firstly Botswana and then the rest of SACU (Lesotho, Namibia and Swaziland). Note that only those sectors where there has been a change in output of greater than $100,000 ($0.1m) at 2020 are included.

The production and trade impacts in Botswana from the China FTA

Table 4 shows the general overview of the changes by GTAP sector for Botswana. Column 1 shows the GTAP sectors; Column 2 shows the percentage changes in production while Column 3 shows the value of that change in production. Columns 4 and 5 show the respective percentage changes in Botswana's exports and imports, while the final Column 6 shows the percentage change in domestic output prices. Note that in some sectors (rice, for example), the changes are off a very low base so the percentages are misleading.

Table 4: Change in Botswana's GTAP sectors, $ million and percentage

	Change in production		**% Change in quantity of**		**Market**
		value	**exports**	**imports**	**price**
	% change	**US$ millions**	**%**	**%**	**% change**
Primary agriculture					
other grains	0.5	1.0	-0.4	0.9	0.2
vegetable/fruit	0.1	0.3	6.1	0.6	0.3
cattle	0.0	0.7	0.2	0.3	0.3
other agricultural products	0.4	0.4	1.8	0.6	0.2
Resources					
other metals	0.1	3.3	0.1	0.6	-0.1
Secondary agriculture					
beef, sheep meat	-0.4	-0.2	-1.6	1.9	0.2
other meats	0.5	1.4	-0.1	0.9	0.0
dairy	0.5	0.4	1.9	0.6	-0.3
rice	18.8	0.7	19.0	0.4	-4.4
other foods	2.0	2.3	3.4	0.3	-0.8
Manufacturing					
textiles	34.9	17.0	36.8	-0.1	-9.0
apparel	-42.0	-22.3	-47.0	2.5	-9.2
leather	-24.9	-7.2	-25.7	0.6	-0.6
lumber	-0.7	-1.2	-2.7	1.2	-0.4
paper products	1.7	1.1	3.2	0.4	-0.9
petroleum, etc.	0.2	0.2	-0.5	0.7	0.1
non-ferrous metals	-3.1	-3.6	-3.1	2.5	0.4
other metal prod	1.8	2.1	-1.4	0.9	-1.2
vehicles & parts	4.2	12.0	4.2	0.9	-1.1
other transport	8.5	2.7	9.4	0.4	-1.2
elect goods	-3.8	-0.5	-5.2	0.8	-0.7
machinery equipment	-0.8	-1.4	-1.0	0.8	-0.7
other manufacture	-0.2	-1.7	1.6	6.9	-0.5
Services	0.7	47.3	0.9	0.2	-0.3
Total		**55.2**			

Source: GTAP results

There are limited changes to agriculture and natural resources, with the action concentrated in the manufacturing and service sectors. There is a major reduction in the production of apparel in particular as Chinese imports become more competitive, but there are solid increases in the production of textiles and motor vehicle parts. The output prices in most manufacturing sectors decline. Finally, it is notable that services output increases by $47 million, a figure that represents most of the total output increase of $55 million. This is because the service sector represents a large share of Botswana's production value; therefore a small increase in production/price of services results in a relatively large change in value. Even though the service sector in this analysis faces no change to its trade barriers, the increased investment and expansion of the capital stock in Botswana make the production of services more competitive relative to other sectors, expanding domestic production and consumption.

The main trade implications for Botswana of a SACU FTA with China are not the direct trade with China but the changes in trade with South Africa and the rest of the world as Chinese trade impacts on South African production and trade patterns. Analysis of the export data shows that there are minor changes in Botswana's exports to China ($3m), but a decline in exports to South Africa ($-25m) and an increase of $43 million to the rest of the world that results in an overall increase of $21 million. By sector, textile exports to the rest of the world increase by $24 million but reduce to South Africa for an overall gain of $17.7 million, while motor vehicle parts increase by $11 million to South Africa – and this accounts for almost all of the global gains of $12 million in this sector. Overall apparel exports decline by $15 million as exports to South Africa decline by $19 million in response to Chinese competition in that market.

At the start we must note that changes in imports are likely to be underestimated in the BLNS GTAP results, as a lot of the 'outside' (outside of SACU) imports into these countries come through South Africa and may not be recorded as 'outside' trade. For imports into Botswana, however, the direct effects of imports from China following an FTA are significantly more important than was the case with exports to China. These imports increase by $228 million, but as total imports only increase by $26 million, most of the imports from China are merely diversion away from other sources.

Analysis of the data shows that imports from South Africa into Botswana decline by $153 million and those from the rest of the world decline by another $49 million. By sector, this is especially evident in the textile, clothing and leather (footwear) sectors; total imports only change by $0.2 million but imports from China increase by $151 million as Chinese imports are displacing previous imports from South Africa ($131m) and the rest of the world ($21m). Imports from China also increase by $22 million in the chemicals, plastic and rubber sectors and by $24.8 million in the 'other metal products' sector, with again much of this merely displacing South African imports.

The production and trade impacts in rest of SACU from the China FTA

Table 5 shows the general overview of the changes by GTAP sector for rest of SACU from the China FTA, with the layout of the table as given in Table 4.

Table 5: Change in rest of SACU's GTAP sectors, $ million and percentage

	Change in production		**% Change in quantity**		**Market**
		value	**exports**	**imports**	**price**
	% change	**US$ millions**	**%**	**%**	**% change**
Primary agriculture					
other grains	-0.2	2.5	-3.3	2.2	1.4
vegetable/fruit	-1.2	-0.4	-3.3	2.7	1.1
oil seed crops	-0.3	0.9	-5.3	4.6	1.6
plant fibre	-1.5	-0.2	-2.9	1.1	0.6
other crops	-0.6	0.5	-6.3	3.6	1.2
cattle	-0.6	1.9	-3.0	2.0	1.1
other agricultural products	6.7	28.7	-6.7	19.3	3.1
raw milk	0.1	0.8	-8.5	4.8	1.3
wool	4.6	0.3	6.3	5.4	-0.1
Natural resources					
fish	0.4	1.6	1.0	3.0	0.7
forestry	0.0	1.8	-0.8	0.4	0.6
other metals	0.3	3.2	-0.1	1.5	0.1
Processed agriculture					
beef, sheep meat	-0.9	-0.6	-5.1	3.7	0.7

	Change in production		**% Change in quantity**		**Market**
		value	**exports**	**imports**	**price**
	% change	**US$ millions**	**%**	**%**	**% change**
other meats	31.8	42.5	92.6	7.0	1.8
dairy	0.3	0.7	-1.5	2.7	0.4
rice	0.2	0.2	-0.6	1.0	0.3
sugar	-1.8	-2.2	-2.5	1.5	0.5
other foods	0.0	2.4	-0.5	1.1	0.2
Manufacturing					
textiles	8.1	22.2	28.5	21.7	-3.4
apparel	-2.0	-2.7	19.4	19.5	-2.7
leather	-7.1	-5.8	0.4	13.8	-1.1
lumber	0.8	0.5	2.6	2.9	-0.6
paper products	0.4	0.5	0.1	1.5	-0.4
chemical plastic rubber	1.3	10.1	2.9	2.6	-0.4
mineral products	0.3	0.2	0.3	2.6	-0.2
iron, steel	0.1	-0.1	0.8	0.6	-0.2
nonferrous metals	4.3	15.7	5.0	2.4	-0.2
other metal prod	-1.0	-4.8	-2.7	7.0	-0.2
vehicles & parts	1.4	5.9	3.3	1.8	-0.5
other transport	2.7	1.9	3.9	0.7	-0.5
elect goods	-20.5	-10.4	1.5	6.6	-0.3
machinery equipment	0.0	-1.6	0.3	2.7	-0.3
other manufacturing	0.9	0.3	3.4	2.0	-0.5
services	0.8	90.7	0.3	0.7	-0.1
Total		**207.6**			

Source: GTAP results

A feature for the rest of SACU is that the changes in production are spread more widely across the economy. In primary agriculture the production of 'other agricultural products' increases by some $28.7 million in response to a price increase of 3.1%, while other meats increase production by an even larger $42.5 million in response to a price increase of 1.8%. Note that there is a small loss in sugar production (Swaziland) even though sugar prices increase marginally. Prices in the entire

manufacturing sectors decline, although some of these declines are small. Production and trade increase in textiles and non-ferrous metals but decline in electrical goods in particular. Note that there is little change in the apparel sector overall even though the FTA has a huge negative impact on this sector in South Africa. Again, there is a large increase in service output as relative prices change in Lesotho, Namibia and Swaziland.

Examination of the data shows that exports of other meats ($44m) and non-ferrous metals ($9.6m) are the largest sector-specific increases in exports to China that increase by $62 million overall. Overall exports to South Africa decline by $11 million, with declines across most sectors, but overall exports increase by a much larger $117 million as the gains in exports to China are augmented by increases in textiles of $56.6 million to the rest of the world.

Imports from China increase by $241 million, with imports of textiles ($106 million), electrical goods ($38m) and machinery and equipment ($22m) leading the way. Imports from South Africa, however, decline marginally across most sectors, as do those form the rest of the world. This cuts the total from China by 50% to an overall increase in imports following the FTA of $122 million.

Tariff reductions and the tariff revenue implications

Sandrey (2007) explores the implications of SACU trade agreements with respect to changes in tariff revenues, and highlights that there are large welfare transfers to the BLNS countries in that they are obtaining revenues over and above what they would have collected at their own borders if, in fact, there was no Customs Union. There are two pathways through which reduced tariff revenue will flow into the revenue pool from an FTA with China. The first is the obvious one in that without an FTA all merchandise goods from China now enter SACU duty-free. The second is that augmenting these duty-free imports are those that previously come from non-Chinese sources but now come duty-free from China (trade diversion). We have not calculated the first direct revenue loss but note that duty foregone from the second pathway of trade diversion is some $477 million. This overall tariff revenue effect may well have a larger impact upon the BLNS countries than the direct production and

trade impacts following an FTA with China given the distributive formula of the current SACU Agreement.

5. The results of the SACU-India FTA for the BLNS

The FTA primary scenario considered in this section entails the result from the removal of trade barriers between SACU and India as measured in the year 2020 in a world shaped by the baseline scenario. This implies that all ad valorem tariffs and ad valorem equivalents of specific tariffs between SACU and India are abolished. Differences between the so-called baseline scenario and the so-called primary scenario are therefore the results of implementation of the SACU/India FTA. Note that we are not modelling reductions in either services or any non-tariff barriers.

In running this primary scenario we do, however, obtain seemingly implausible results from the model in that welfare gains to South Africa are exceedingly high; and analysis shows that this result is driven by the removal of tariffs on Indian gold exports from South Africa. This result is consistent with the research presented in Sandrey et al. (2007). While in reality this is a happy juxtaposition of the world's (until 2007) leading gold producer meeting a large jewellery exporter that enables both partners to prosper as India's costs are reduced, we consider that the results are, as stated, implausible. This leaves us with several options, one of which would be to spend considerable time in disaggregating the GTAP database in the particular non-ferrous metal sector and isolating gold from the other precious metals produced in South Africa (platinum, for example). Another would be to place some artificial constraints upon capital accumulation for that same sector in South Africa. We opted for a third situation whereby there is no change to the duty assessed on non-ferrous metal (mainly gold) imports from South Africa as our main scenario.

The big picture results

Table 6 shows the changes in welfare from the FTA assuming complete elimination of all merchandise tariffs except the NFM sector, with the data expressed in US$ millions as one-time increases in annual welfare at the assessed end point of 2020. South Africa's gains are $1,200 million, a figure higher than India's $715 million. Note that Botswana loses $28 million in welfare (from terms of trade losses as South African export prices increase) while the outcome for the rest of SACU is neutral.

Table 6: Change in welfare (EV of income) due to SACU/India, US$ million at 2020

	Total	Allocative efficiency	Labour	Capital	Terms of trade
South Africa	1,200	170	131	371	528
India	715	-95	32	852	-74
Botswana	-28	-1	-1	-9	-16
Lesotho Namibia Swaziland	1	0	1	3	-3
Total including others	-800	-614	71	-257	-1

Source: GTAP results.

In contrast to the China FTA, real GDP in Botswana records a loss of 0.12% while the rest of SACU's 0.04% gain is modest. Botswana's 0.17 percentage decline in total factor income is split between losses in unskilled labour, skilled labour and capital, with modest increases from land and natural resources. For the rest of SACU there are modest gains across all sectors. For all SACU members, and for South Africa in particular, the impacts upon agricultural factor income are very positive, for the BLNS land prices increase, and there are minor contributions from unskilled labour and capital in agriculture.

Changes in trade flows

Table 7 starts by introducing the aggregate overall changes to trade flows for the partner countries in 2020, expressed as percentage changes for both exports and imports and then in US$ million for the trade balance. South Africa has increases in both exports and imports globally once all markets are accounted for, but these result in a deteriorating trade balance as imports increase by more than exports. India has a slightly reduced trade balance as, again, imports increase more than exports. Neither Botswana nor the rest of SACU registers much overall change in their trade balances.

Table 7: Percentage change in the quantity of total import\export and trade balance, 2020

	South Africa	Botswana	RSACU	India
Exports % change	1.7	-0.2	0.2	0.5
Imports % change	2.1	-0.5	0.1	0.8
Trade balance US$ millions	-48	-1	0	-280

Source: GTAP results

The specific sector results

This section will discuss the production, trade and relative price changes in the main GTAP sectors as they relate to firstly Botswana and then the rest of SACU (Lesotho, Namibia and Swaziland). Again, only those sectors where there has been a change in output of greater than $100,000 ($0.1m) at 2020 are included.

The production and trade impacts in Botswana from the Indian FTA

Table 8 shows the general overview of the changes by GTAP sector for Botswana, with again the same layout as Table 4.

Table 8: Change in Botswana's GTAP sectors, US$ millions and percentage

	Change in Production		% Change in quantity		Market price
		value	exports	imports	
	% change	US$ millions	%	%	% change
Primary agriculture					
other grains	0.1	0.9	2.0	-2.4	0.5
vegetable/fruit	0.9	0.9	-1.9	-1.6	0.6
oil seed crops	2.5	0.3	6.0	-4.9	1.1
other crops	2.5	0.4	-0.1	-2.1	1.2
cattle	-0.4	-0.7	3.4	-4.2	0.1
other agricultural products	0.3	0.4	1.5	-1.9	0.5
Natural resources					
coal, oil, gas	0.0	1.1	0.3	0.3	0.6
other metals	-0.1	1.1	-0.1	-1.4	0.1
Secondary agriculture					
beef, sheep meat	-0.5	-0.6	-0.8	-8.0	0.1

	Change in Production		% Change in quantity		Market price
		value	exports	imports	
	% change	US$ millions	%	%	% change
other meats	-0.4	-0.8	0.7	-7.8	0.1
dairy	0.1	1.2	-1.3	-3.6	0.6
other foods	0.9	2.7	1.9	-1.7	0.5
Manufacturing					
textiles	-2.9	-2.1	-2.9	-4.7	0.2
apparel	-13.7	-6.4	-21.4	-1.3	0.2
leather	-1.8	-0.4	-3.1	-1.3	0.3
lumber	1.2	1.6	0.4	-1.9	0.3
paper products	1.0	2.1	0.4	-0.9	0.5
petroleum etc	0.0	0.2	-0.4	-1.0	0.3
chemical, plastic, rubber	-0.1	0.8	-1.3	-1.0	0.5
minera products	0.5	0.6	0.1	-1.3	0.2
non-ferrous metals	3.8	4.3	3.8	-1.9	-0.5
other metal products	-1.7	-4.7	-7.8	-2.0	0.5
vehicles & parts	-3.2	-10.6	-3.2	-1.0	0.5
other transport	-1.9	-0.5	-2.1	-0.8	0.5
elect goods	-2.4	-0.2	-2.6	-0.9	0.4
machinery equipment	-0.7	-0.3	-0.9	-0.9	0.4
other manufacture	-1.0	-1.1	-3.0	-2.1	0.6
Services	-0.8	-72.2	-0.5	-0.5	0.1
Total		**-81.5**			

Source: GTAP results

There are limited changes to agriculture and natural resources, with the action again concentrated in the manufacturing and service sectors. There is a reduction (-6.4%) in the production of apparel as Indian imports become more competitive, and there is an even greater decline in motor vehicle and parts as Indian competition both here and in South Africa is felt. Market prices in most manufacturing sectors increase although the output picture in manufacturing is mixed. The export picture is also

mixed, but imports decline in all sectors. Note also that there are output declines in the service sector that account for most of the overall production changes.

The main trade implications for Botswana of a SACU FTA with India are again not the direct trade with India but rather the changes in trade with South Africa and the rest of the world as Indian trade impacts on South African production and trade patterns. Analysis of the export data shows that there are minor changes in Botswana's exports to India ($11m), but declines in exports to South Africa ($-19m) and to the rest of the world ($-23m) that result in an overall decline of -$23 million. By sector, coal exports to India increase by $8 million, but this is at the expense of exports to other destinations with no real change overall. For apparel exports to South Africa decline by -$6.4 million and this is carried over to a total decline of the same amount. The other main change is in motor vehicles and parts where exports to South Africa decline by -$10.2 million and are again carried through to declines in total exports.

For imports into Botswana the direct effects of imports from India following an FTA are marginally more important than was the case with exports to India. These direct imports from India increase by $27 million, while imports from South Africa into Botswana decline by $84 million, and those from the rest of the world increase by $37 million to complete a picture whereby total imports from all sources actually decline by - $19 million. By sector, the changes to overall imports are almost all in the manufacturing sectors where minor declines take place across virtually all sectors. Imports from India show increases that are again concentrated in the manufacturing sectors, with increases of $7.1 million in 'machinery and equipment' and $7.8 million in chemicals, plastics and rubber as the main contributors. The large declines from South Africa are in machinery and equipment (-$21.9m) and chemicals, plastics and rubber (-$14.0m) as Indian competition replaces South African trade at the margin.

The production and trade impacts from the Indian FTA in the rest of SACU

Table 9, using the now-familiar layout, shows the general overview of the changes by GTAP sector for rest of SACU from the Indian FTA.

Table 9: Change in rest of SACU's GTAP sectors, US$ millions and percentage

	Change in production		% Change in quantity		market price
	% change	value US$ millions	exports %	imports %	% change
Primary agriculture					
other grains	0.0	1.0	-0.3	-2.0	0.5
vegetable/fruit	0.0	1.1	-0.2	-1.8	0.5
oil seed crops	-0.1	0.2	-1.8	-0.7	0.5
other crops	0.3	0.8	-1.6	-4.2	0.5
cattle	0.6	4.7	4.4	-2.9	0.6
other agricultural products	0.0	1.4	1.2	-2.3	0.5
Natural resources					
fish	0.3	1.5	-0.5	-0.7	0.8
other metals	0.1	2.1	-0.1	0.8	0.2
Secondary agriculture					
other meats	0.0	0.6	-2.4	-4.6	0.5
vegetable oils	0.0	0.3	-1.5	-2.5	0.3
dairy	0.2	0.4	-1.3	-3.0	0.3
rice	-0.1	0.2	-2.0	-1.3	0.4
sugar	-0.8	-0.9	-1.2	-0.8	0.3
other foods	-0.3	-1.3	-0.7	-1.5	0.3
beverages and tobacco	0.1	1.7	0.1	-0.7	0.2
Manufacturing					
textiles	0.0	-1.0	1.1	1.7	-0.2
apparel	-1.3	-0.8	0.0	2.1	-0.1
leather	-0.8	-0.5	-1.3	0.7	0.1
lumber	0.1	0.8	-0.8	-1.4	0.2
paper products	1.2	10.8	2.4	-1.8	0.2
petroleum, etc.	0.9	0.3	-0.3	-0.2	0.2
chemical, plastic, rubber	-0.1	0.7	-0.9	-0.8	0.2
mineral products	0.4	1.4	-0.4	-2.0	0.2
Iron, steel	0.0	0.2	-0.6	0.4	0.1
non-ferrous metals	0.6	2.9	0.5	-1.4	0.2
other metal products	0.1	1.1	-2.8	-1.3	0.1
vehicles & parts	0.2	2.3	-0.8	-0.8	0.2

	Change in production		% Change in quantity		market price
	% change	value US$ millions	exports %	imports %	% change
other transport	-0.4	-0.2	-0.3	0.1	0.1
machinery equipment	0.3	3.0	-0.7	-0.6	0.1
other manufacturing	9.1	6.5	30.8	1.1	0.1
Services	**-0.1**	**7.2**	**-0.6**	**0.2**	**0.1**
Total		**48.9**			

Source: GTAP results

Again, the direct impacts on production are modest, although there are increases in almost all sectors that total $49 million. The largest increases are in 'other' manufacturing, paper products (Swaziland?) and cattle (Namibia?). Notably, there are market price increases in all sectors except textiles and apparel.

The data shows very little change to the rest of SACU's export profile to India. These increase by $9 million, as do total exports, since the increases of $25 million to South Africa are exactly offset by declines of that level to the rest of the world. Some $7.4 million of the increase to both India and rest of the world is in the same 'other' manufacturing sector where the largest increase in production takes place. Exports to South Africa increase in the non-ferrous metals sector (gold?), paper products and live cattle. These increases generally transfer across to total export increases but they are balanced by declines to the rest of the world across almost all sectors.

A similar pattern is seen in imports into the rest of SACU. Those imports directly from India increase by $41 million, with this almost exactly balanced overall by a decline of -$40 million from South Africa. There is, however, not the same one-for-one mapping in the detailed sector profile except that South African imports decline in almost all sectors while Indian imports increase in all sectors. Textiles with an increase of $14.8 million show the largest increase from India, followed by apparel, machinery and equipment and 'other' manufacturing, with declines in machinery and equipment, and chemicals, plastic and rubber showing the largest declines from South Africa.

Increased imports of textiles ($3.9m) are the only sector that increase imports in total by more than $1.2 million.

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