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**GLOBAL TRADE ANALYSIS FOR SOUTHERN
AFRICA
THE RESOURCE ALLOCATIVE EFFECTS OF
FREE TRADE AREAS IN SOUTHERN AFRICA**

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Executive Summary

There is currently a great deal of interest in free trade areas in Southern Africa, particularly in the context of South Africa's negotiations with the European Union. This paper uses a multi-country, multi-sector model to examine some implications of alternative trade arrangements. It simulates a sequence of agreements between the European Union and South Africa, working up to a full European Union-South Africa FTA, and then simulates a FTA involving South Africa and the Rest of Southern Africa.

The main conclusions to emerge from the analysis are:

- ❑ A partial FTA which does not cover all commodities, nevertheless affects trade in the excluded commodities, mainly through the resource flows in the source country.
- ❑ There is the danger of negative trade diverting effects swamping any positive trade creating ones for South Africa in a South Africa-European Union FTA. Trade diversion arises because South African tariffs are currently lower on imports from the European Union than on imports from a number of other sources. This implies that the European Union is not the cheapest supplier and will displace other more cost effective sources if it is given even greater preferences than it currently enjoys.
- ❑ The trade creating effects are, for the same reasons, low. Trade creation occurs when domestic producers are displaced by cheaper partner country firms as tariff barriers are removed. But if the initial tariffs are low, the scope for reducing costs are correspondingly low.
- ❑ To minimize the costs of trade diversion, and maximize the gains from trade creation, South Africa's tariff reductions should be introduced gradually and applied to all sources on a most-favored nation (MFN) basis. South Africa should examine the possibility of such non-preferential reductions in its tariffs as an alternative to any FTA.
- ❑ In any bilateral FTA with the European Union, the gains from trade creation would be greatest from South Africa's initial tariff reductions while the costs of trade diversion would become relatively greater as the tariffs fall towards zero. As a result, in implementing any such agreement South Africa should consider a gradualist approach.
- ❑ For the European Union, the trade creating effects of an European Union-South Africa FTA dominate, since the predominant effect is to displace European producers with cheaper South African ones.
- ❑ In a South Africa-Rest of Southern Africa FTA, there is scope for trade creation to outweigh trade diversion since intra-regional barriers are high. Low trade volumes mean that the overall gains may be small, but there is scope for reducing intra-regional trade barriers.
- ❑ The database and modeling framework offered by the Global Trade Analysis Project provides a fruitful approach for further systematic analysis, to test the preliminary conclusions reached here. The GTAP data and framework are particularly valuable in showing the spillover effects of a trade agreement covering some sectors and countries on other sectors and countries.

Introduction

Historically South Africa has been the dominant economy in the Southern African region. Much of the capital that sponsored the colonization of the region originated in, or was channeled through, South Africa. Migratory labor from the region into South Africa played a crucial part in the development of the latter. In the twentieth century, trade linkages became increasingly important as South Africa exploited the natural advantage afforded it by geographical proximity.

There have been periods in which this economic dominance has been challenged. The immediate post-1948 period saw substantial migration of capital from South Africa, following the uncertainty created by the Nationalist Party's political ascendancy. The Federation of Rhodesia and Nyasaland (1943-1962) protected Southern Rhodesian producers from South African competition in the Federal market. Both of these provided an impetus to Southern Rhodesia's efforts to establish itself as a rival regional economic power. To some extent this was countered during the UDI period, during which Rhodesia's bilateral trade and investment linkages with South Africa were strengthened and South Africa's access to other markets in the region were expanded at Rhodesia's expense.

After Zimbabwe's independence in 1980 there followed a period in which linkages between South Africa and its neighbors were weakened. Particularly during the later part of the apartheid era, the 'natural' economic linkages were broken, partly through the effect of sanctions and partly through military conflicts. The formation of SADCC was seen as a political program to reduce regional dependence on South Africa, not only in the short run, but more importantly in the anticipated post-apartheid era.

With the ending of apartheid, the question of the re-integration of South Africa into the region came once more to the fore. Most governments in the region had the expectation that South Africa's legitimization would provide a boost to the region, particularly by providing a market for their exports. In the event, the South African government has regarded its integration into the region as neither its only nor necessarily its best trade policy option. It has been considering the alternative of integrating into a different economic bloc. Although the formation of a 'South Atlantic Economic Community' with Brazil and Argentina has also been mooted, the creation of a free trade area with the European Union is the most likely. Agreement has already been reached on many aspects of such a FTA and negotiations on finer details continue.

It is not immediately obvious what effects the formation of a SA-EU free trade area (SAEFTA) would have on the rest of Southern Africa. To the extent that it changes the South African economy, there will be important spillovers for the region. The significance of these spillovers will depend on the precise modalities of a SAEFTA.

It is also not clear that this is the best strategy, from either a South African or a Southern African point of view. Would the region grow faster in the absence of a SAEFTA? Would this lead to faster growth in South Africa itself? In so far as they are mutually exclusive options, would the region (including South Africa) benefit more from a Southern African free trade area? Within these broad issues, are there alternative configurations of a FTA which provide better outcomes? If there were a formal establishment of a SAEFTA, what would be the appropriate response of the rest of Southern Africa?

This paper attempts to examine some of these issues. To do so, it employs the publicly available Global Trade Analysis Project (GTAP) database and modeling framework (Hertel, 1997). This provides data on global trade, protection and production on which a

multiregional general equilibrium model is constructed. This framework allows a broader consideration of interactions amongst the relevant variables than is possible using either a partial equilibrium or a single country CGE approach.

The data on which the model is based represent global trade, production and protection for 1995. For this paper, an aggregation of the global economy into five regions and seven goods is employed. The 5 regions are:

- South Africa (SAFRICA),
- Rest of Southern Africa (RESTSAF)
- Rest Of Sub-Saharan Africa (RESTSSH)
- European Union (EUNION) and
- Rest Of the World (RESTWLD).

The 7 goods² are:

- Agriculture (AGRIC)
- Natural Resource, Extractive and Related Industries (EXTRACT)
- Food manufacturing (FOOD)
- Unskilled labor intensive manufactures (LITMNFC)
- Skilled labor intensive manufactures (TECHMNFC)
- Capital intensive manufactures (HVYMNFC)
- Services (SVCES).

The basic model is essentially a static resource allocation model, best suited for undertaking comparative static analysis of the various resources pulls that emanate from different exogenous shocks. This means that it cannot address directly certain issues that are important for a broader consideration of regional integration. First, it cannot capture growth effects, except insofar as improvements in resource allocation lead to a better foundation for growth. Second, the level of aggregation in the model does not allow it to address some of the more subtle aspects of FTAs. For example, there is the possibility of South Africa's 'partial' accession to Lomé, allowing its exports to the region to qualify in terms of rules of origin. (Jenkins and Naude, 1996). Such issues cannot be captured in GTAP.

This paper has two concerns. The primary focus of the paper is to analyze the changes in resource allocation, trade and output that would emanate from various South Africa-European Union and South Africa-Rest of Southern Africa FTA scenarios. A subsidiary concern is to explore how the multi-regional modeling approach provided by GTAP can be used for trade policy analysis and to suggest ways in which this can be strengthened as a tool for policy makers in Southern Africa.

The paper begins with a brief review of the structure of protection in the three regions as represented in the GTAP data. It then examines the consequences of different FTA arrangements, undertaking a sequence of experiments broadening the scope of the FTA. It then considers how GTAP can be used as a policy tool in Southern Africa.

The Structure of Protection

We begin by reviewing the structure of protection in the three regions in which we are interested, as contained in the base data. Table 1 to Table 3 show the relevant tariff levels. Consider first the average levels of tariffs on imports from each region (Table 1)³. We see that, if we consider all trade, the European Union has the lowest rate (1.4%) and South Africa

² For a full description of the aggregations see Jenkins, Carolyn and Willem Naude

³ These averages are worked out by comparing the value of the imports in the particular country with their cif world price. They are essentially trade-weighted averages, and thus face the common problem that the trade flow, and therefore the weight, is inversely related to the tariff.

the highest (8%). These averages are however misleading since they include intra-regional trade – which is significant but attracts zero tariffs in the case of the European Union – and trade in services, which generally attracts low or zero tariffs. While adjusting for both these influences does not affect the rankings, the difference is narrowed (European Union 4.7%, Rest of Southern Africa 8.9% and South Africa 10%).

Table 1 also shows the average tariffs in each region by country of origin. Here we note that Rest of Southern Africa faces the highest tariffs in both South Africa and the European Union. South African imports into the European Union face, on average, higher tariffs than those from either the rest of sub-Saharan Africa or the rest of the world. This feature exerts an important influence on our subsequent analysis of an South Africa-European Union FTA, since these change the structure of preferences in favor of South Africa.

Table 2 gives similar averages distinguishing between types of commodity. In South Africa, light manufactures attract the highest nominal protection (36.6%), with food and high tech manufactures also receiving substantial protection. The Rest of Southern Africa appears to have a more uniform tariff structure, with lower rates on light manufactures but higher on agriculture. In the European Union, most nominal protection is afforded to food and agriculture. Table 3 gives more disaggregated data.

This preliminary review of the tariff structures for the three regions suggest that:

1. a South Africa-European Union FTA would have the most impact on South Africa if it freed up of trade in food and agriculture. As Table 3 shows, the tariffs faced by other South African exports to the European Union are relatively low.
2. From the European Union's point of view, removal of South Africa duties on non-agricultural⁴ imports would appear to provide the most action.
3. The high barriers on bilateral trade in light manufactures between South Africa and its neighbors suggest there may be considerable gains from a South Africa-Rest of Southern Africa FTA.

These three features give some pointers to the political problems entailed in the formation of such FTAs. The lower tariffs on non-agricultural imports into the EU suggest that it may be politically easier to move on these goods first. The current negotiations between South Africa and the EU suggest that agricultural goods are likely to be excluded from the final arrangement, or at most covered only partially. The protection of light manufactures within the Southern African region also highlights the difficulties that have already been encountered in negotiating trade agreements in the region. All the countries appear to see this sector as providing an engine for industrial growth, requiring protection.⁵

Having sketched these stylized facts about the structure of protection, we now turn to considering the consequences of different FTA arrangements. We focus initially on South Africa-European Union FTAs. We begin with a simulation of a non-reciprocal reduction in the EU of tariffs on imports of non-agricultural goods from South Africa. This simulation is discussed in some detail since it provides a straightforward example of the way in which GTAP allows such issues to be analyzed. It also provides a good basis for discussing the ways in which a GTAP simulation can be interpreted. We then broaden the experiments, first by including South African agricultural and food exports to the EU. Although this one-sided reduction in tariffs does not represent the formation of a FTA, it is nevertheless of interest, given the suggestion that the transition to a FTA should involve an immediate reduction of tariffs in the EU coupled with gradual reduction in South Africa (cf. Jenkins and Naude,

⁴ Throughout this paper, "non-agricultural" refers to all commodities other than agriculture and food.

⁵ Given the long period for which some of these industries have existed in the region, it would be something of a misnomer to call them 'infant industries'.

1996). Having looked at the results of these two experiments, we then consider experiments that create a proper FTA, starting by reciprocal removal of duties on non-agricultural goods and then including agriculture and food. These first four simulations do not change tariff barriers relating to the rest of Southern Africa. Our final experiment explores the consequences of a Southern African FTA. This provides a basis for comparison with the South Africa-European Union FTA.

This set of experiments does not exhaust the range of possible configurations of the various FTAs. Possible extensions include examining the consequences of:

- the removal of export subsidies and/or harmonizing output taxes within each FTA, providing a more level playing field;
- incorporating both regional groupings in a FTA;
- removing intra-regional trade barriers in the Rest of Southern Africa as a response to a South Africa-European Union FTA;
- different sequencing scenarios.

It is hoped that the simulations reported in this paper will show how a framework such as GTAP can be useful in examining these kinds of issues and informing policy.

South Africa - European Union Free Trade Arrangements

Non-reciprocal removal of import duties on non-agricultural imports from South Africa into the European Union (SEFTA1)

What happens when the European Union removes all import tariffs on non-agricultural imports from South Africa? From a policy maker's point of view, an appropriate point of departure is to consider how this affects sectoral outputs in each region. Table 4 gives the results of the simulation. In South Africa, only light manufactures experience an increase (1.9%). All other sectors decline. It is interesting to note that there is an effect on both agriculture and food production, even though the European Union tariffs on these goods was not changed. The reason for this lies in the general equilibrium feedbacks in the model. This is perhaps the first important insight we get from using GTAP for this simulation. It reminds us that expanding the output of a particular sector feeds back into an increased demand for inputs – both primary and intermediate – into that sector and that we have to address the issue of where those resources will come from. In the basic GTAP model we have used, this resource constraint shows up in quite a tight way. We can relax this constraint by modeling, say, unemployment amongst unskilled workers, but although this moderates the constraint, it does not remove it. Expanding sectors still have to find additional inputs. While they may be able to draw in unskilled labor from the pool of unemployed, they have to attract the remaining inputs from other sectors in the economy. If these are not in perfectly elastic supply, there will be price changes that will in turn feed back into costs of production and supply responses.

Table 6 shows the changes in prices in South Africa for this simulation. The price of land falls, reflecting the impact of declining agricultural output on an input that cannot be reallocated to any other use. All other prices – of both factors and goods – rise.

It may not be clear why the output of other sectors benefiting from the European Union liberalization should decline. This is because the rising prices interact with the structure of production in these sectors so that the upward shift in their supply curves more than offsets the outward shift of their demand curves. To work this through fully is possible, but rather tedious and we simply sketch out the main stylized facts here. Consider the input proportions in South Africa in the base data as shown in Table 5. We can start by considering the relative intensities between factors and intermediate inputs. We see that, for example, in agriculture, factor inputs constitute 54% of input costs, while in food they comprise only 20%. We thus

expect changes in prices of factors to have a bigger effect on the costs of production in agriculture than in food. We can then consider the composition of each broad type of input. Extraction and high tech manufactures have similar proportions of factor inputs but we see that in extraction 32% of the factor costs are derived from capital inputs, as opposed to 48% in high tech manufactures. Thus, other things being equal we would expect a rise in the price of capital inputs to impact more seriously on costs in the latter. This effect will be mediated through substitution possibilities. We can also look at the composition of intermediate inputs and work through the same implications. A rise in agricultural prices will, for example, have little effect on its costs, but will push up costs of food production, not only directly because it comprises 32% of purchased inputs, but also indirectly because food is an important input into the production of food. There will thus be a significant second round effect.

Table 4 also shows that output rises in most sectors in the Rest of Southern Africa, albeit by small amounts. We will see (page 6) that this is a consequence of an increase in South African imports. It is perhaps useful first to think about the interpretation of the results given in Table 4. While the strict interpretation is that output of agriculture in South Africa falls by 0.5%, while that of light manufactures rises by almost 2%, a broader interpretation is that this shows *relative* changes between the sectors. In other words, as the economy grows this particular trade agreement will result in agriculture being 0.5% smaller than it would otherwise have been. It would be wrong to look at these results and conclude that the agreement will lead to the decline of the agriculture sector.

In many studies of the impacts of a tariff reduction, a partial equilibrium approach is taken. Estimates of elasticities of demand are combined with the tariff reduction to estimate what the likely impact on the volume of imports will be. Such a back of the envelope calculation can give good results and is often useful where we have detailed line-by-line import data. In this case, if the tariff reductions are neither large nor cover a wide range of products, it may be reasonable to make the *ceteris paribus* assumption required to ignore feedbacks. However, we can use the current simulation to point to some of the dangers by contrasting the effects on South African imports into the European Union estimated by the two approaches. Table 8 compares the results. The main difference between them is that while our back of the envelope calculation suggests that there would be no change in the flow of agricultural goods, since the European Union tariff on these goods is not changed, the GE simulation shows that these will decline. We have already seen the reason for this: it is a consequence of the outflow of resources from agriculture into the four liberalized sectors. Agricultural production in South Africa thus declines, as was shown in Table 4.

The second noticeable feature of our comparison between the back of the envelope and GE results in Table 8, is that even in those sectors in which the tariff was reduced, the expansion of imports is sometimes less than we would have predicted and sometimes more. Again the reason for this is the feedbacks that the GTAP model captures, particularly as regards production costs in South Africa. Changing input prices interact with different input intensities to produce non-uniform cost changes in the sectors. It is possible under GTAP to explore the cost structures of sectors in order to anticipate what the outcome of this process will be.

An important result concerns what happens on the balance of trade in South Africa. The expansion of her exports to the European Union improves the overall balance of trade. However, we would expect her imports to rise even faster. This result arises for several reasons. First, as production in South Africa rises, clearly more imports will be sucked in. It is possible for South African producers to substitute domestic for imported inputs, but only imperfectly. But while this process explains why imports should rise as exports rise, it does not explain why they should rise at a *faster* rate. To explain this we have to think through

some of the macroeconomic structure of the model.

In an open economy, macroeconomic consistency requires that savings less investment in any region must equal its exports less imports (or the balance of trade). It is only possible for a country to invest more than it saves (or spend more than it produces) if there is a net inflow of resources. The domestic savings gap has to be filled by foreign savings. In this simulation savings is not significantly affected – the overall impact on income is relatively small. (regional real income rises by 0.96% as does real savings). However, investment rises faster. The demand for capital services has risen, so the rental price of capital rises. At the same time, although the price of capital goods rises, it does not keep pace with the rental price because some capital goods are imported. These two forces raise the return on capital encouraging more investment. If investment is rising faster than savings, imports must be rising faster than exports.

This increase in imports is the main channel through which this trade agreement affects the rest of Southern Africa. Table 9 shows how South Africa's imports from each region have changed and we see that there is an across the board rise for all commodities from all regions. The importance of South Africa as a market for the rest of Southern Africa means that this translates into rising output in the region, as shown in Table 4. This in turn affects prices and incomes in the region.

From this broad assessment we would conclude that this non-reciprocal trade agreement is beneficial to South Africa, which experiences rising output and rising exports. For the rest of Southern Africa however, there is a decline in real investment and real GDP. Although its exports to South Africa increase, those to other regions decrease, partly because of rising costs of production and partly because of increased competition from South Africa in the European Union. The relative importance of these other markets means that there is a net decline in exports.

GTAP allows us to go further in the analysis of the costs and benefits by undertaking a welfare analysis, decomposing the changes in welfare into their component parts⁶. Table 10 provides a summary of the sources of welfare changes for all regions. All the impacts come from changes in either allocative efficiency or terms of trade.

The table shows that South Africa is the only region to experience positive welfare gains. Approximately 25% of this change occurs because of allocative efficiency effects, while the remainder comes from terms of trade effects.

The terms of trade gain should come as no surprise, since the SEFTA1 experiment increases the demand for South Africa exports. Table 11 shows which sectors the TOT effect derives from in each region. One can see that there are no gains to any region other than South Africa. In South Africa high tech manufactures accounts for more than 25% of the overall gain. Note that, as we would expect, the net TOT effect for the global economy is zero (to machine accuracy): terms of trade changes are, for the world economy, a zero-sum game.

⁶ The welfare analysis allows us to place a monetary value on the on the assessment that a region has about the desirability of a particular change. In essence it allows us to say that the effect of a policy change is equivalent to increasing a region's income by x million dollars. Although the precise figure depends on assumptions about welfare functions and the structure of the model, it nonetheless does give us a metric for weighting the different effects. We should note too that, although this may seem to policy makers to be the kind of abstruse game academic economists play, the technique is used in other circles (for example, when estimates are made of the costs of declining primary product prices for SSA).

Further insight into the sources of these gains can be obtained by decomposing the sources of the \$231 million contribution of TOT to South Africa's welfare gain. This is shown in Table 12. From this table, we observe that virtually all of the TOT gain is due to an improvement in the price of exports from South Africa. Note that all exports benefit from the price increase, since at its root is the increased demand for primary factors in SAFRICA.

If we take a similar look at the negative TOT effects for the EU, we see that these emanate mainly from declining export prices (Table 13). These are offset slightly by gains that come from falling import prices, especially for heavy manufactures. The terms of trades effects are of interest but not unexpected. Furthermore, although they dominate the welfare effects, they are likely to be eroded over time as exports from other regions erode the demand for higher priced South African exports in the EU.

The allocative effects, which arise because of improved efficiency in the economy, are of more interest. These effects relate to the trade creation/trade diversion story. One way to interpret them is that a welfare gain from this source arises because a country is moving closer to its comparative advantage pattern of production; a welfare loss implies a movement away from comparative advantage.

Why should removal of EU tariffs on imports from South Africa improve allocative efficiency in South Africa? This is a complex story, but the bottom line is that the economy has shifted resources into relatively higher value uses. Table 10 shows that although South Africa is the only country to experience an improvement in allocative efficiency, its gain more than outweighs the collective losses of the other regions: there is thus a net improvement in global efficiency. This is what we might anticipate – a reduction in tariffs is good for the global economy – although second best considerations might counter this.

The allocative efficiency summary by commodity is shown in Table 14. Here, we see that high tech manufactures generate the most gains – both for South Africa and for the global economy. It is not immediately obvious why this should be so, since high tech manufactures neither received the largest tariff reduction nor did it experience the greatest expansion in imports by the EU from South Africa. We need to explore this further.

We can also divide up the welfare gains by type of distortion (tax). This is done in Table 15. Note that the totals for these two types of breakdowns are the same. However, what Table 15 shows is that it is the change in imports, interacting with the import distortions which gives the bulk of the gains. Why would this arise? First of all note that the existence of tariffs in South Africa lends preference to the domestic product, relative to imported goods. Thus consumers are not able to consume as many imports as they would in the absence of tariffs. When exports to the EU surge under the FTA, domestic costs rise, causing a switch away from domestic towards imported supplies. Indeed, in the absence of any changes in domestic savings and investment, we would expect the trade balance to remain unchanged so that aggregate imports to rise by the same amounts as exports. At the margin, these goods are more valuable to consumers than the domestic good they displace and a welfare gain arises.

Table 16 shows the sources of welfare changes arising in the European Union from imports of light manufactures. Note that **the volume of imports from all sources rises by \$48.5m**. This represents trade creation – more expensive domestic production is being replaced by cheaper imports – which is a good thing. (The traditional trade creation/diversion analysis might stop at this point). However, we can see that from a welfare point of view, this increase in import volumes actually is associated with a welfare *decline*. Why is this?

Prior to liberalization, South Africa's exports of light manufactures into the EU face

relatively low import duties. On the other hand, those from RESTSAF and ROW are relatively heavily taxed. In this model, abstracting from other distortions, this means that these other regions are relatively lower cost *cif* suppliers at the margin.⁷ This means that non-preferential liberalization would lead to a marginal increase in those regions' shares. This would be a good thing for the global allocation of resources in general and for the EU consumers in particular. However, the FTA implemented here is preferential to South Africa. It causes South Africa imports to displace those from the other, lower cost, regions. Thus, while increased imports of light manufactures from any source is a good thing, insofar as it displaces higher cost domestic production, the preferential liberalization is a bad thing. Rather than moving to the lowest cost supplier at the margin, the EU is instead moving towards a higher cost source of imports.

We see then that the reduction of tariffs on South African imports sets in motion two effects which have contradictory effects on welfare. Beneficial trade creation occurs, as more efficient South African producers replace less efficient European Union ones. But there is also harmful trade diversion as more costly South African imports displace cheaper ones elsewhere in the world.

The disparity in tariffs is worsened as liberalization is implemented, since by the end of the shock, the South Africa tariff is zero, versus almost 10% from RESTSAF. In other words, if the FTA was implemented by reducing the tariffs gradually over time, the initial reductions would be dominated by the trade creating effects, as the protection to European Union producers is highest. However, once there have been tariff reductions, the trade diverting effects take over, as the preference given to South Africa over other supplying regions increases and the protection to European Union producers is low.

If the initial tariffs on a commodity were more uniform and generally lower, the diversion would not be so costly and welfare might actually improve. We see this if we look at a similar decomposition for high tech manufactures (Table 17). Here again the change in net import volumes is positive. However, because the initial tax rates are both lower and more uniform, the preferential reduction of tariffs on South Africa imports has less harmful effects on the European Union. The positive welfare effects of trade creation cancel out the negative ones from trade diversion.

Finally, in the case of heavy manufactures, tariffs are even more uniform and lower, and effect on welfare now coincides with the volume change – both increase (Table 18).

We see from Table 10 that the net effect of allocative changes on welfare in the EU is negative (-\$18.4). One of the main reasons for this is the decline in agricultural and food imports into the European Union. Essentially, less efficient EU producers are displacing more efficient foreign ones.

In contrast to the EU, efficiency goes up in South African import markets. Why is this -- tariffs are not being reduced there in this simulation. However, as we saw in the discussion on page 6, South African imports rise in this experiment both because exports rise and because investment rises faster than savings. A greater volume of imports moving across the relatively high trade barriers, generates welfare gains – South African consumers get to raise the share of goods from lower cost foreign suppliers in their consumption basket. See for example Table 19 for LITMNFC imports below.

Non-reciprocal removal of all import duties on imports from South Africa into

⁷ In equilibrium, the *cif* prices plus import duties will be the same for imports from all sources. Therefore those sources which have higher import taxes must have lower *cif* prices.

the European Union (SEFTA2)

The effects of extending the previous trade agreement to allow all South African exports – including agriculture and food – to the European Union duty free access should not be surprising. Since the tariffs on these two sectors are highest, they experience a large surge in demand. Whereas in the previous simulation the benefiting sectors could draw resources in from agriculture and food, now the resource pulls are in the opposite direction. We see from Table 20 that food and agricultural output in South Africa rise sharply, and that all other sectors decline. Table 21 shows the related price changes. In South Africa there are significant increases in prices for all factors and commodities except natural resources, which falls because of the decline in output in the extraction sectors. However, what is of interest is not the rise in all prices, but rather the change in relative prices. On the basis of Table 21, we can deduce that, amongst the commodities, SVCES, FOOD and AGRIC experience greater price rises than the average. There is thus a relative pull towards these sectors. This is counteracted by what is happening on the cost side. Although all sectors experience increases in the price of their endowment and intermediate inputs, the impact of this on costs depends on the input structure and the response of producers in terms of substitution between inputs as discussed previously (page 4). Table 22 compares the price and output changes under the two simulations. Broadening the coverage of the agreement results in more substantial price rises. It also changes the relative prices. Under SEFTA1 the increases in prices are fairly uniform and therefore do not change relative prices much. Under SEFTA2 the price changes and highlights how the extension of the preferences to agricultural goods changes the direction of the changes.

What about changes in trade flows? Table 23 illustrates the dramatic increase in Food and agricultural imports from South Africa by the European Union. This response is the result of a combination of substitution by European purchasers of South African for domestic supplies and of South African imports for those from other sources. It can be seen that share of the Rest of Southern Africa in the European Union market declines. This is significant when we come to look at the impact on the region. Although this loss is offset by the increase in its exports to South Africa (South Africa imports 18.8% more agricultural goods from the Rest of Southern Africa and 10.3% more food), exports from the Rest of Southern Africa rise by only 0.03%. It is losing shares in a big market (in the base data, South Africa accounts for only 4.1% of the Rest of Southern Africa's exports, while the European Union accounts for 37.5%).

Assessing the impact on the overall economies, real GDP rises by less than 0.1% in South Africa, by even less in the European Union and falls elsewhere. The biggest fall is in the Rest of Southern Africa. However, as we saw earlier, this measure does not capture the welfare effects of the change. Table 24 shows the overall welfare effects and its decomposition. The results from SEFTA1 are included for convenience.

It will be seen that there is a much larger welfare gain for South Africa. As before this is mainly because of the terms of trade effects, which accounts for over 86% of the gain. There has been an increase of over 2.5% in the price of South Africa's composite exports, as might be expected. At the same time, the price of its import composite has fallen slightly. The reason for this fall is that the rise in aggregate import demand (by 5.4% in real terms) results in a change in the composition of imports by origin, with a greater proportion being sourced from cheaper suppliers.

The bulk of the efficiency gains in South Africa arise because of the greater volume of imports. Essentially South Africa is moving closer to its comparative advantage production pattern, with a greater share of goods being supplied by cheaper foreign producers rather than (protected) domestic ones. The European Union suffers a decline in overall welfare, worth

\$374m. There is a sharp deterioration in its terms of trade. This is somewhat offset by an improvement in allocative efficiency. Again this is a result of switching from domestic supplies to cheaper South African imports. In the case of agriculture, which receives an average 12% subsidy in the European Union, this trade creation is doubly beneficial. There is a counteracting trade diversion in the composition of imports from other cheaper sources towards South Africa, but it is insufficient to negate the trade creating effects.

Finally, what is the impact on the Rest of Southern Africa? We have seen that although its exports to South Africa rise sharply, overall exports rise by only 0.03%. When combined with the slight improvement in its export price index, this gives an increase in export earnings of only 0.09%. At the same time expenditure on imports falls by 0.3%, despite a rise in the price of imports. The result is a positive change in the balance of trade of \$53m, from -\$475m to -\$422m. However, real GDP falls slightly and the terms of trade move against the region. Welfare declines, dominated by the terms of trade effects.

Reciprocal removal of import duties on non-agricultural trade between South Africa and the European Union (SEFTA3)

When the narrow reciprocal FTA is introduced, the effects mirror some aspects of the first simulation. Although there is an opening up of markets for both members of the FTA, the shift of resources out of the non-included sectors leads to their decline. In South Africa, extraction is the only sector to experience an increase in output. However, the biggest increase in output is in capital goods. This reflects rising investment demand as the rate of return on capital increases under the FTA. In the European Union, a similar flow of resources is experienced, with agriculture and food output declining as light and high tech manufactures expand. Both regions pull in imports of agriculture and food from other parts of the world.

At the same time, the attempt to increase output leads to price changes. As Table 26 shows, most factor prices in South Africa rise, while most output prices fall. The explanation for this is the increased investment. This increases demand for inputs sufficiently to offset the falling demand elsewhere.

Table 27 to Table 30 show that the impact of this arrangement on trade flows differs strikingly from that under the non-reciprocal arrangement (SEFTA1). In that case the removal of tariffs on non-agricultural goods led to a fall in European Union imports of agriculture and food from South Africa. We saw that this result was essentially supply driven. Now, as we see from Table 27, imports of all goods from South Africa rise. The flows are higher in all sectors than they were under SEFTA1. On the export side there is a sharp increase in the exports of light manufactures from the European Union to South Africa. Again this contrasts with the non-reciprocal arrangement.

The overall welfare effects of this FTA on South Africa are negative, with both ToT and allocative efficiency losses. The former, which occurs for the first time in our simulations, arises because of declining export prices, driven mainly by falling domestic price levels.

Table 32 puts the light manufactures imports into South Africa under the spotlight. Here we see that the volume of imports rose by \$647m, but there was a negative welfare impact. This was because of the trade diverting effects of the FTA. Previously the European Union faced tariffs of 31.6%, compared to those on light manufactures imports from the Rest of Southern Africa of 40.9% and the rest of the world of 38.0%. The FTA has caused a switch from these other, cheaper sources towards the more expensive European Union suppliers. The net effect is a loss in welfare in South Africa. Contrast this with what happens in the European Union. There both volume of imports of light manufactures and its welfare contribution rise. The

difference here is highlighted by the fall in the volume of intra-European Union imports (\$205m). This represents trade creation.

It could be argued from these tables that the main effect of this FTA is to impose a trade diversion cost on South Africa while the European Union reaps a trade creating benefit. Of course, the full range of imports should be analyzed before one can come to this conclusion. However, South Africa's loss in allocative efficiency highlighted in Table 31, suggest that this is a warranted conclusion.

Reciprocal removal of import duties on all trade between South Africa and the European Union (SEFTA4)

We now come to the full South Africa-European Union FTA, in which all trade flows between the two are liberalized. This has a much more significant impact on sectoral outputs than did the narrower FTA. As we might expect, free access to the European Union market gives a big boost to food and to agricultural, whose outputs rise by 7% and 6% respectively (Table 34). There is also a rise in CGDS output, related to increased investment. The other sectors experience a relative decline, with light manufactures suffering the most.

Table 34 also shows that this FTA has a more significant effect on the Rest of Southern Africa. To trace this through, examine Table 36 to Table 39. From Table 39 we see that South Africa's agricultural and food exports to the European Union rise dramatically, while those to other regions fall. South Africa is induced by the FTA to switch markets. This switching is not only away from other foreign markets but also from the domestic market towards the European Union. This explains the simultaneous increase in imports of agricultural goods.

We can consider the impact of this FTA on welfare by thinking about the trade creation/diversion effects. Firstly in Table 40, we see that although both South Africa and the European Union gain from the FTA, in South Africa there is a large positive ToT effect that is somewhat diminished by the negative resource allocative effects. The negative effects of the previous simulation have now been countered by rising export prices as South Africa penetrates the European Union market. The negative effects via resource allocation are still dominated by the trade diversion effect, although there is a small effect deriving from domestic distortions. As the FTA induces South Africa to produce more, it expands production of subsidized commodities, reducing its allocative efficiency.

The trade creation/diversion story can be illustrated again by looking at the welfare contribution of the changes in imports of light manufactures (see Table 41 and Table 42). South African imports of light manufactures rise by \$703m. However, this has a negative impact on welfare, because of the substitution of European Union for other sources of supply. (the same inverse relationship occurs in imports of high tech manufactures, but not with the other commodities. In the case of food imports, opening up to the European Union induces a welfare gain, because European Union food previously faced the highest tariffs in South Africa.) For the European Union the reverse is true. Welfare rises along with import volumes, because of the displacement of intra-European Union trade by more efficient producers abroad. There are no commodities for which the inverse relationship is observed.

A Southern African Free Trade Area (SEFTA6)

The most significant output effect of removing all tariffs on trade between South Africa and the Rest of Southern Africa (including those on trade amongst the countries making up the latter) is on light manufactures in the Rest of Southern Africa, which rises by almost 29%

rises⁸ (Table 43). There is little impact on other sectors. In South Africa the output effects are small. In both partners, there is a negative effect on agriculture. This result reflects the regional comparative advantage of the Rest of Southern Africa in light manufactures and the current high tariff barriers on trade in these commodities. Essentially, sub-regional producers replace domestic ones in the South African market. Resources flow into the sector from elsewhere in the economy.

Table 44 shows that prices rise in the Rest of Southern Africa, except for land and natural resources. This reflects the impact of declining output on a sector specific factor, as discussed previously. The rising prices choke off some of the expansion that might otherwise have occurred.

Table 45 to Table 48 show what happens to trade in the two partner regions. Trade within the Rest of Southern Africa rises substantially, particularly in light manufactures. Imports of light manufactures from South Africa rise by some 254% (partly a reflection of the low initial flows). At the same time exports of this commodity to South Africa rise by 643%⁹! Imports and exports to other parts of the world both decline, reflecting substantial switching of markets caused by the FTA. The exception is agricultural imports, which rise to plug the gap caused by reduced output. Table 47 and Table 48 show a similar pattern for the changes in South Africa's imports and exports.

The previous tables show the percentage changes in each bilateral flow. It is difficult to gauge from these figures what the overall impact is. Table 49 compares the changes in volumes of imports and exports for the two partners under this FTA with those occurring under the South Africa-European Union FTA simulation. The FTA with the European Union increased South Africa's import volumes by \$3621m and its export volumes by \$1586m. Under the SADC related FTA, both volumes rise by approximately one quarter of these amounts. The latter has a much smaller impact on South Africa's trade than the former. For the Rest of Southern Africa the reverse is true. Not only are the levels of the changes different but their signs are reversed. South Africa joining with the European Union reduces trade volumes for the Rest of Southern Africa; a SA-SADC FTA raises them substantially.

As we have seen, GTAP allows one to compute the welfare gains from any exogenous change. Table 50 shows the welfare decomposition under a SA-SADC FTA. Both partners to the agreement gain. As usual the effects are dominated by terms of trade effects which occur because of rising export prices. There is little trade diversion because the initial tariffs on the partner countries are high relative to other trade partners. However, Table 51 and Table 52 show that some does occur in light manufactures, where there are high tariffs on other sources as well.

Conclusions on Free Trade Areas

Do any clear conclusions emerge from the mass of tables and figures presented? First, we should be clear about what the analysis does **not** address. The focus is on resource allocation effects. It does not address issues such as creating a commitment strategy for domestic policy credibility (see Jenkins and Naude, 1996) and bargaining strategies in trade negotiations. It also does not address long term growth problems, except in so far as improving efficiency in an economy enhances its growth prospects¹⁰.

⁸ Light manufactures includes textiles and clothing (see APPENDIX I: Commodity Aggregations). This effect is thus in accord with the view that improved access to South African markets for these commodities is important for regional growth.

⁹ The ability of GTAP to capture increases in the trade flows of a good in both directions is a strength compared to models based on homogeneous commodities.

¹⁰ It is possible to use GTAP to examine some aspects of growth by making suitable estimates of

Within these limitations, what conclusions can we draw? A major theme of the paper has been that the FTAs all entail trade diversion effects that can swamp other positive gains. We saw that in the narrow version of the South Africa-European Union FTA – which most closely resembles the version that seems currently to be on the table – the model suggests that the trade diverting consequences for South Africa may negate other benefits. In the light of this, it is as well to recall that the trade creation effects arise because of reduced protection for domestic producers and can be acquired by unilateral non-preferential tariff reductions. One possible extension to the current paper might be to consider explicitly whether South Africa can achieve the gains from an FTA without incurring the costs, by reforming its own tariff structure outside any FTA. This option is often overlooked in negotiations about FTAs.

A second conclusion we could draw stems from the initial discussion of the structure of protection. There it emerged that tariff rates on the sub-regional trade are discriminately high. The Rest of Southern Africa already faces higher barrier in the South African market than does the European Union. Tariffs on trade within the Rest of Southern Africa are also high. Although the final simulation suggested that there is not much benefit for South Africa in a regional FTA, there is scope for exploring further the benefits that might accrue from reducing these barriers.

Finally, we might consider the usefulness of a multi-regional, multi-commodity model for analyzing topical policy issues such as FTAs. If this nibble has created a desire to consume the whole meal, the question then arises as to how the tool can be strengthened. A number of areas for action suggest themselves.

- Developing the database. The usefulness of the model in any circumstances depends on both the reliability and suitability of the data. This is the main motivation for the GTA project: to develop consistent and reliable data for global trade policy analysis. Clearly a focus on this in the Southern African region while provide a better basis for informed policy making.
- Developing the modeling capacity. We need to develop our own capacity, not simply to use the tool but to adapt and extend it. This requires recognition of the need not only for training but also for hands on experience using the tool.
- Developing policy makers' absorptive capacity. In order to translate the results of analysis into effective policy, policy makers need a critical understanding of the basis for the recommendations. Here again, experience is probably the best teacher; but it can only teach if there is a receptive attitude.
- Regional cooperation in policy analysis. Perhaps it is important to develop the necessary tools and capacity on a regional basis.

Finally, it is only by strengthening our capacity to make informed policy decisions, based on competent applied analysis, that we will make our way in the global economy. But that perhaps reflects the bias of an academic modeler.

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exogenous changes which affect growth (like population growth and technical change) and to incorporate these into the simulations. This will, however, tell us more about the consequences than the causes of growth.

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Tables

Table 1: “Average” Tariff Rates by Source

Source:	SAFRICA		RESTSAF		EUNION	
	All	Excl SVCES	All	Excl SVCES	All	Excl SVCES
SAFRICA	0.0	0.0	5.9	6.0	4.8	5.5
RESTSAF	16.8	17.6	6.1	6.5	14.3	15.4
RESTSSH	1.8	2.0	7.6	10.0	3.0	3.2
EUNION	6.3	8.2	7.5	9.4	0.0	0.0
RESTWLD	9.3	11.4	7.1	10.6	3.6	4.6
Total incl Intra	8.0	10.0	7.0	8.8	1.4	1.7
Total excl Intra	8.0	10.0	7.0	8.9	3.7	4.7

Table 2: “Average” Tariff by Commodity

	SAFRICA	RESTSAF	EUNION1	EUNION2 ¹
AGRIC	5.9	8.3	4.7	10.3
EXTRACT	0.5	6.0	0.4	0.5
FOOD	12.7	10.4	3.4	21.4
LITMNFC	36.6	17.3	3.1	6.8
TECHMNFC	10.6	7.2	1.4	3.9
HVYMNFC	4.9	7.5	0.8	2.8
SVCES	0.0	0.1	0.0	0.0
AVG ALL	8.0	7.0	1.4	3.7
AVG excl SVCES	10.0	8.8	1.7	4.7

¹This column excludes intra-European Union trade in estimating the average

Table 3: Import Tariffs by Commodity in Various Regions (%)

A: South Africa

	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	6.6	0.4	6.5	6.5
EXTRACT	5.2	0.9	1.1	0.3
FOOD	12.4	6.8	20.4	9.2
LITMNFC	40.9	12.8	31.6	38.0
TECHMNFC	11.5	8.9	8.0	13.3
HVYMNFC	4.6	5.7	4.7	5.2
SVCES	0.0	0.0	0.0	0.0

B: Rest of Southern Africa

	SAFRICA	RESTSAF ¹¹	RESTSSH	EUNION	RESTWLD
AGRIC	1.7	3.4	9.7	13.6	11.4
EXTRACT	4.1	3.6	3.3	7.6	9.4
FOOD	6.9	8.9	5.9	12.0	11.9
LITMNFC	21.9	21.4	22.2	16.4	16.6
TECHMNFC	4.8	5.0	6.3	7.3	8.4
HVYMNFC	5.3	5.5	7.0	11.1	8.1
SVCES	0.5	0.1	0.1	0.1	0.1

C: European Union

	SAFRICA	RESTSAF	RESTSSH	RESTWLD
AGRIC	15.3	32.6	6.1	10.2
EXTRACT	1.0	0.9	0.5	0.5
FOOD	40.0	57.3	10.4	21.3
LITMNFC	4.5	9.5	3.6	6.9
TECHMNFC	3.3	4.5	3.2	3.9
HVYMNFC	2.9	2.6	3.1	2.8
SVCES	0.0	0.0	0.0	0.0

Tables Relating to SEFTA1**Table 4: Changes in Output by Region (%)**

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	-0.46	0.04	0.00	0.01	0.00
EXTRACT	-0.21	0.02	0.00	-0.00	0.00
FOOD	-0.12	0.08	0.00	0.00	0.00
LITMNFC	1.92	0.05	-0.01	-0.02	-0.00
TECHMNFC	-0.19	0.03	0.00	0.00	-0.00
HVYMNFC	-0.28	0.14	0.02	-0.00	0.00
SVCES	0.04	-0.06	-0.00	0.00	-0.00
CGDS	1.01	-0.60	-0.02	-0.00	-0.01

¹¹ These figures reflect the import taxes on intra-regional trade in RESTSAF.

Table 5: Input Proportions in South Africa in the Base Data

	AGRIC	EXTRACT	FOOD	LITMNFC	TECH MNFC	HVY MNFC	SVCES	CGDS	TOTAL
Land	0.15	0.00	0.00	0.00	0.00	0.00	0.00		0.01
UnskLab	0.39	0.32	0.46	0.63	0.43	0.40	0.40		0.40
SkLab	0.01	0.06	0.10	0.10	0.09	0.08	0.26		0.20
Capital	0.45	0.32	0.44	0.26	0.48	0.52	0.34		0.38
NatRes	0.00	0.30	0.00	0.00	0.00	0.00	0.00		0.01
Factors	0.54	0.40	0.20	0.34	0.42	0.36	0.54	0.00	0.42
AGRIC	0.10	0.00	0.35	0.03	0.00	0.01	0.00	0.00	0.04
EXTRACT	0.12	0.35	0.02	0.01	0.02	0.06	0.05	0.00	0.05
FOOD	0.19	0.01	0.26	0.02	0.00	0.01	0.02	0.00	0.04
LITMNFC	0.02	0.02	0.01	0.50	0.02	0.02	0.03	0.00	0.04
TECHMNFC	0.08	0.13	0.05	0.04	0.37	0.06	0.15	0.49	0.19
HVYMNFC	0.25	0.10	0.11	0.18	0.35	0.43	0.15	0.01	0.18
SVCES	0.24	0.40	0.19	0.21	0.24	0.41	0.61	0.51	0.46
Commodities	0.46	0.60	0.80	0.67	0.58	0.65	0.46	1.00	0.58

Table 6: Changes in Prices in South Africa after SEFTA1

Factors	% Commodities	%
Land	-1.41 AGRIC	0.58
NatRes	0.33 EXTRACT	0.58
Capital	0.88 FOOD	0.64
UnskLab	0.94 LITMNFC	0.67
SkLab	0.95 TECHMNFC	0.69
	HVYMNFC	0.73
	SVCES	0.80
	CGDS	0.57

Table 7: Changes in Bilateral Trade

South Africa's Exports

	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	-2.10	-2.31	-2.20	-2.26
EXTRACT	-1.93	-2.62	2.46	-2.67
FOOD	-2.23	-2.62	-2.75	-2.68
LITMNFC	-3.73	-4.06	28.96	-3.94
TECHMNFC	-3.73	-4.25	18.86	-4.27
HVYMNFC	-1.96	-2.79	9.95	-2.86
SVCES	-3.08	-3.00	-2.92	-3.00

South Africa's Imports

	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	1.24	1.20	1.20	1.19
EXTRACT	0.51	0.55	0.57	0.54
FOOD	1.18	1.29	1.29	1.29
LITMNFC	2.36	2.47	2.50	2.47
TECHMNFC	1.40	1.71	1.74	1.72
HVYMNFC	1.14	1.27	1.29	1.28
SVCES	1.68	1.61	1.61	1.61

European Union Exports

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	1.20	0.22	0.01	0.02	0.01
EXTRACT	0.57	0.81	0.04	-0.03	0.05
FOOD	1.29	0.51	0.05	0.01	0.01
LITMNFC	2.50	0.42	0.05	-0.07	0.03
TECHMNFC	1.74	0.62	0.06	-0.01	0.01
HVYMNFC	1.29	0.98	0.11	-0.02	0.03
SVCES	1.61	-0.07	0.01	0.01	0.01

European Union imports

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	-2.20	0.06	0.02	0.02	0.01
EXTRACT	2.46	-0.09	-0.05	-0.03	-0.06
FOOD	-2.75	-0.11	-0.00	0.01	-0.00
LITMNFC	28.96	-0.20	-0.09	-0.07	-0.09
TECHMNFC	18.86	-0.35	-0.04	-0.01	-0.03
HVYMNFC	9.95	-0.18	-0.04	-0.02	-0.04
SVCES	-2.92	0.07	0.00	0.01	-0.00

Table 8: Estimated Changes in Quantities of EUNION Imports from SAFRICA

Sector	PE	GE
Agric	0.00	-2.2
Extraction	5.2	2.5
Food	0.00	-2.8
Litmnfc	28.9	29.0
Techmnfc	21.2	18.9
Hvymnfc	12.2	10.0
Svces	0.1	-2.9

Table 9: Change in Quantity of Imports into South Africa by Commodity and Origin (%)

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	-1.43	1.24	1.20	1.20	1.19
EXTRACT	-2.49	0.51	0.55	0.57	0.54
FOOD	-1.71	1.18	1.29	1.29	1.29
LITMNFC	-2.01	2.36	2.47	2.50	2.47
TECHMNFC	-2.90	1.40	1.71	1.74	1.72
HVYMNFC	-1.87	1.14	1.27	1.29	1.28
SVCES	-1.45	1.68	1.61	1.61	1.61

Table 10: Summary of Welfare Decomposition¹

	Allocative Efficiency	Terms of Trade	Total
SAFRICA	75	231	306
RESTSAF	-2	-16	-17
RESTSSH	-3	-5	-8
EUNION	-18	-113	-131
RESTWLD	-17	-98	-115
Total	35		35

¹These figures are a translation of the welfare effects into 1995\$m.

In technical terms, they measure the equivalent variation.

Table 11: Terms of Trade effects by Commodity and Region

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	9.35	-0.92	-0.25	-4.86	-3.33
EXTRACT	38.71	-0.55	-0.70	-21.09	-16.41
FOOD	7.08	-1.69	-0.55	-3.50	-1.36
LITMNFC	10.31	-0.61	-0.16	-7.56	-2.01
TECHMNFC	20.76	-5.46	-0.87	-17.74	3.25
HVYMNFC	62.91	-6.18	-2.02	-20.87	-33.91
SVCES	45.45	-0.71	-0.30	-19.98	-24.49
CGDS	37.16	0.14	0.08	-17.52	-19.88
Total	231.74	-15.98	-4.77	-113.11	-98.15

Table 12: Terms of Trade Decomposition for South Africa

	pworld	pexport	pimport	Total
AGRIC	0.04	9.23	0.05	9.32
EXTRACT	0.29	38.07	0.25	38.60
FOOD	-0.00	7.05	0.01	7.06
LITMNFC	0.00	10.27	0.01	10.28
TECHMNFC	0.21	20.36	0.13	20.70
HVYMNFC	0.09	62.32	0.32	62.73
SVCES	-0.02	45.12	0.23	45.32
CGDS	-0.07	37.13	-0.00	37.06
Total	0.53	229.54	1.00	231.07

Table 13: Terms of Trade Decomposition for EUNION

	pworld	pexport	pimport	Total
AGRIC	-1.10	-3.34	-0.42	-4.86
EXTRACT	-5.54	-10.57	-4.97	-21.08
FOOD	0.06	-5.52	1.96	-3.50
LITMNFC	0.24	-8.16	0.36	-7.56
TECHMNFC	-1.87	-21.56	5.69	-17.74
HVYMNFC	1.36	-41.32	19.09	-20.87
SVCES	0.13	-23.76	3.65	-19.98
CGDS	0.65	-18.17	-0.00	-17.52
Total	-6.07	-132.40	25.36	-113.11

Table 14: Welfare Decomposition by Commodity

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD	Total
AGRIC	0.29	0.15	0.34	-7.03	-6.21	-12.46
EXTRACT	0.92	-0.26	0.28	-0.97	3.67	3.62
FOOD	15.09	0.01	0.10	-7.38	-2.17	5.65
LITMNFC	20.78	-0.48	-0.42	-2.78	-2.08	15.01
TECHMNFC	30.91	-0.35	-1.73	0.62	-7.33	22.12
HVYMNFC	6.92	0.58	-1.19	1.16	0.61	8.09
SVCES	0.35	-1.24	-0.37	-1.96	-3.39	-6.61
Total	75.25	-1.59	-3.00	-18.35	-16.90	35.42

Table 15: Welfare Decomposition by Tax Type

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD	Total
prodtax	-0.08	0.39	0.18	-5.30	0.58	-4.23
inputtax	0.69	-1.24	-0.34	-0.67	-4.53	-6.10
finaldtax	24.10	-0.40	-0.27	-2.15	-2.84	18.45
xtax	1.17	-0.04	0.21	-1.63	0.20	-0.09
mtax	49.34	-0.23	-2.76	-8.28	-10.22	27.85
Total	75.23	-1.52	-2.99	-18.03	-16.81	35.89

Table 16: Welfare Decomposition for Light manufactures imports into the EUNION

	Welfare Contrib.	Change in Imp Vol.	Tariff Before	Tariff After
SAFRICA	4.6	213.9	4.5	-0.0
RESTSAF	-0.2	-2.2	9.5	9.5
RESTSSH	-0.0	-1.4	3.6	3.6
EUNION	0.0	-77.5	0.0	0.0
RESTWLD	-5.8	-84.3	6.9	6.9
Total	-1.4	48.5		

Table 17: Welfare Decomposition for Technmfc imports into the EUNION

	Welfare Contrib.	Change in Imp Vol.	Tariff Before	Tariff After
SAFRICA	2.8	174.9	3.3	-0.0
RESTSAF	-0.0	-0.5	4.5	4.5
RESTSSH	-0.0	-0.2	3.2	3.2
EUNION	0.0	-61.4	0.0	0.0
RESTWLD	-3.1	-80.1	3.9	3.9
Total	-0.3	32.7		

Table 18: Welfare Decomposition for Hvymnfc imports into the EUNION

	Welfare Contrib.	Change in Imp Vol.	Tariff Before	Tariff After
SAFRICA	2.7	188.6	2.9	-0.0
RESTSAF	-0.0	-0.8	2.6	2.6
RESTSSH	-0.0	-0.4	3.1	3.1
EUNION	0.0	-86.4	0.0	0.0
RESTWLD	-1.5	-52.5	2.8	2.8
Total	1.2	48.6		

Table 19: Welfare Decomposition for Litmnfc imports into SAFRICA

	Welfare Contrib.	Change in Imp Vol.	Tariff Before	Tariff After
SAFRICA	0	-0.0	0	0
RESTSAF	1.3	3.1	40.9	40.9
RESTSSH	0.0	0.2	12.8	12.8
EUNION	3.7	11.6	31.6	31.6
RESTWLD	12.1	31.9	38.0	38.0
Total	17.0	46.8		

Tables Relating to SEFTA2

Table 20: Sectoral Output Changes by Region under SEFTA2 %

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	5.83	0.23	-0.02	-0.15	-0.00
EXTRACT	-2.34	0.06	0.02	0.02	0.02
FOOD	7.87	0.37	-0.02	-0.14	-0.01
LITMNFC	-1.26	-0.09	0.02	0.02	-0.00
TECHMNFC	-2.74	0.01	0.04	0.04	-0.00
HVYMNFC	-2.72	0.41	0.07	0.03	0.01
SVCES	0.16	-0.23	-0.00	0.00	-0.00
CGDS	3.73	-1.98	-0.06	-0.02	-0.02

Table 21: Price Changes under SEFTA2

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
Land	38.37	0.88	-0.14	-0.74	-0.01
UnskLab	3.19	-0.26	-0.04	-0.02	-0.00
SkLab	3.16	-0.45	-0.03	-0.01	-0.00
Capital	3.13	-0.33	-0.02	-0.02	-0.00
NatRes	-3.26	-0.04	0.05	0.04	0.05
AGRIC	5.66	0.08	-0.03	-0.08	-0.00
EXTRACT	1.43	0.03	0.01	-0.00	0.01
FOOD	3.26	0.20	-0.02	-0.05	-0.00
LITMNFC	2.37	0.09	-0.01	-0.02	-0.00
TECHMNFC	2.38	0.18	-0.01	-0.02	-0.00
HVYMNFC	2.53	0.14	-0.00	-0.02	0.00
SVCES	2.75	-0.03	-0.02	-0.02	-0.00
CGDS	1.95	0.18	-0.01	-0.02	-0.00

Table 22: Price and Output Changes in South Africa under SEFTA1 and SEFTA2

	PRICE CHANGES		OUTPUT CHANGES	
	SEFTA1	SEFTA2	SEFTA1	SEFTA2
Land	-1.41	38.37		
UnskLab	0.33	3.19		
SkLab	0.88	3.16		
Capital	0.94	3.13		
NatRes	0.95	-3.26		
AGRIC	0.58	5.66	-0.46	5.83
EXTRACT	0.58	1.43	-0.21	-2.34
FOOD	0.64	3.26	-0.12	7.87
LITMNFC	0.67	2.37	1.92	-1.26
TECHMNFC	0.69	2.38	-0.19	-2.74
HVYMNFC	0.73	2.53	-0.28	-2.72
SVCES	0.80	2.75	0.04	0.16
CGDS	0.57	1.95	1.01	3.73

Table 23: Changes in the Quantity of Imports into the European Union by Commodity and Origin (%)

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	52.81	-0.98	-0.54	-0.35	-0.66
EXTRACT	-1.44	-0.09	0.01	0.06	0.00
FOOD	319.52	-1.60	-0.70	-0.54	-0.77
LITMNFC	15.90	-0.71	-0.04	0.01	-0.12
TECHMNFC	6.88	-1.23	-0.05	0.01	-0.08
HVYMNFC	2.51	-0.59	-0.04	0.02	-0.05
SVCES	-9.79	0.10	0.02	0.03	-0.03

Table 24: Welfare Changes under SEFTA2 and SEFTA1

	SEFTA2			SEFTA1		
	Allocative Efficiency	Terms of Trade	Total	Allocative Efficiency	Terms of Trade	Total
SAFRICA	133	840	973	75	231	306
RESTSAF	-4	-54	-58	-2	-16	-17
RESTSSH	-9	-17	-26	-3	-5	-8
EUNION	167	-542	-374	-18	-113	-131
RESTWLD	-62	-238	-300	-17	-98	-115
Total	225	-11	214	35		35

Tables relating to SEFTA3

Table 25: Changes in Sectoral Output by Region under SEFTA3

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	-0.09	0.12	0.01	-0.03	0.00
EXTRACT	0.90	0.10	-0.00	-0.04	0.00
FOOD	-0.12	0.15	0.01	-0.02	0.00
LITMNFC	-1.54	-1.62	-0.03	0.13	-0.03
TECHMNFC	-1.91	-0.35	-0.00	0.03	0.00
HVYMNFC	-0.10	0.06	0.00	-0.02	0.01
SVCES	0.27	0.05	-0.00	-0.00	-0.00
CGDS	5.00	-0.37	-0.04	0.00	-0.03

Table 26: Price Changes under SEFTA3

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
Land	-0.13	0.39	0.03	-0.11	0.01
UnskLab	0.32	-0.20	0.00	0.06	-0.01
SkLab	0.46	-0.20	-0.00	0.06	-0.01
Capital	0.31	-0.21	-0.00	0.05	-0.01
NatRes	2.80	0.21	-0.02	-0.05	-0.01
AGRIC	-0.06	-0.10	0.00	0.04	-0.01
EXTRACT	0.15	-0.03	-0.01	0.02	-0.01
FOOD	-0.09	-0.10	0.00	0.04	-0.01
LITMNFC	-1.71	-0.15	-0.00	0.04	-0.01
TECHMNFC	-0.59	-0.13	0.00	0.05	-0.01
HVYMNFC	-0.21	-0.11	-0.00	0.04	-0.01
SVCES	-0.03	-0.15	-0.00	0.05	-0.01
CGDS	-1.23	-0.12	0.00	0.04	-0.01

Table 27: Change in Quantity of Imports into the European Union under SEFTA3

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	0.32	0.54	0.09	-0.05	0.12
EXTRACT	4.55	0.09	-0.04	-0.16	-0.04
FOOD	0.56	0.60	0.16	-0.02	0.20
LITMNFC	50.28	1.08	0.09	-0.18	0.13
TECHMNFC	29.24	1.01	0.20	-0.09	0.26
HVYMNFC	14.27	0.56	0.11	-0.07	0.14
SVCES	0.36	0.70	0.15	-0.05	0.18

Table 28: Change in Quantity of Exports from the European Union under SEFTA3

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	-0.46	-0.46	-0.13	-0.05	-0.17
EXTRACT	5.62	0.07	-0.07	-0.16	-0.11
FOOD	-0.46	-0.36	-0.13	-0.02	-0.19
LITMNFC	267.96	-2.35	-0.35	-0.18	-0.30
TECHMNFC	36.95	-1.08	-0.26	-0.09	-0.30
HVYMNFC	13.19	-0.61	-0.15	-0.07	-0.18
SVCES	-0.28	-0.48	-0.17	-0.05	-0.19

Table 29: Change in Quantity of Imports by South Africa under SEFTA3

	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	0.09	-0.33	-0.46	-0.29
EXTRACT	0.08	-0.04	5.62	-0.04
FOOD	0.11	-0.29	-0.46	-0.25
LITMNFC	-41.37	-41.93	267.96	-41.90
TECHMNFC	-17.49	-18.15	36.95	-18.10
HVYMNFC	-6.80	-7.22	13.19	-7.19
SVCES	0.47	-0.08	-0.28	-0.05

Table 30: Change in Quantity of Exports from South Africa under SEFTA3

	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	-0.09	0.25	0.32	0.20
EXTRACT	-0.54	-0.66	4.55	-0.72
FOOD	0.22	0.43	0.56	0.38
LITMNFC	9.17	11.35	50.28	10.95
TECHMNFC	3.01	3.85	29.24	3.78
HVYMNFC	0.40	0.87	14.27	0.83
SVCES	-0.16	0.15	0.36	0.12

Table 31: Welfare Effects of SEFTA3

	Allocative Efficiency	Terms of Trade	Total
SAFRICA	-123	-153	-276
RESTSAF	-2	-4	-6
RESTSSH	4	-6	-2
EUNION	118	789	907
RESTWLD	-99	-626	-726
Total	-103	-0	-104

Table 32: Decomposition of South African Welfare Gains from Changes in Imports of Light Manufactures under SEFTA3

	welcnt	Dvol	Taxrateb	taxrateu
SAFRICA	0	-0.0	0	0
RESTSAF	-22.3	-54.5	40.9	40.9
RESTSSH	-0.4	-3.3	12.8	12.8
EUNION	159.6	1245.2	31.6	0.0
RESTWLD	-205.8	-540.3	38.0	38.0
Total	-69.0	647.1		

Table 33: Decomposition of European Union Welfare Gains from Changes in Imports of Light Manufactures under SEFTA3

	welcnt	Dvol	Taxrateb	Taxrateu
SAFRICA	7.1	371.5	4.5	0.0
RESTSAF	1.1	11.5	9.5	9.5
RESTSSH	0.0	1.3	3.6	3.6
EUNION	0	-205.2	0	0
RESTWLD	8.3	120.5	6.9	6.9
Total	16.6	299.6	24.5	20.0

Tables Relating to SEFTA4

Table 34: Changes in Sectoral Output by Region under SEFTA4

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	6.07	0.27	-0.02	-0.17	-0.00
EXTRACT	-0.99	0.15	0.02	-0.02	0.01
FOOD	7.11	-0.19	-0.03	-0.11	-0.01
LITM NFC	-4.60	-1.69	-0.00	0.17	-0.03
TECHM NFC	-4.29	-0.31	0.04	0.06	0.00
HVYM NFC	-2.32	0.36	0.06	0.01	0.02
SV CES	0.36	-0.09	-0.00	-0.00	-0.00
CGDS	7.52	-1.78	-0.08	-0.02	-0.04

Table 35: Price Changes under SEFTA4

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
Land	38.89	0.97	-0.13	-0.77	-0.04
UnskLab	2.33	-0.41	-0.04	0.05	-0.01
SkLab	2.42	-0.54	-0.03	0.05	-0.01
Capital	2.32	-0.46	-0.02	0.04	-0.01
NatRes	-0.39	0.22	0.04	-0.01	0.03
AGRIC	4.65	-0.08	-0.04	-0.03	-0.02
EXTRACT	0.89	-0.02	0.00	0.02	-0.00
FOOD	1.88	0.02	-0.02	-0.00	-0.01
LITM NFC	-0.26	-0.11	-0.02	0.03	-0.01
TECHM NFC	0.90	-0.03	-0.01	0.04	-0.01
HVYM NFC	1.36	-0.05	-0.01	0.04	-0.01
SV CES	1.69	-0.20	-0.02	0.04	-0.01
CGDS	-0.02	-0.02	-0.01	0.04	-0.01

Table 36: Change in Quantity of Imports into the European Union under SEFTA4

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	58.82	-0.22	-0.41	-0.44	-0.49
EXTRACT	1.07	0.14	0.02	-0.09	0.03
FOOD	345.84	-0.67	-0.51	-0.59	-0.55
LITMNFC	36.92	0.77	0.19	-0.12	0.13
TECHMNFC	17.57	0.34	0.24	-0.08	0.24
HVYMNFC	7.44	0.31	0.14	-0.04	0.14
SVCES	-5.97	0.88	0.20	-0.04	0.17

Table 37: Change in Quantity of Exports from the European Union under SEFTA4

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	51.31	1.69	0.06	-0.44	0.09
EXTRACT	5.47	1.05	-0.03	-0.09	-0.08
FOOD	110.15	1.32	0.07	-0.59	-0.04
LITMNFC	276.23	-1.46	-0.26	-0.12	-0.24
TECHMNFC	41.69	0.21	-0.16	-0.08	-0.28
HVYMNFC	15.58	1.45	0.07	-0.04	-0.12
SVCES	3.22	-0.66	-0.17	-0.04	-0.16

Table 38: Change in Quantity of Imports by South Africa under SEFTA4

	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	13.81	13.62	51.31	13.53
EXTRACT	-0.09	-0.19	5.47	-0.18
FOOD	-12.36	-12.23	110.15	-12.25
LITMNFC	-40.26	-40.60	276.23	-40.63
TECHMNFC	-15.20	-15.29	41.69	-15.29
HVYMNFC	-5.10	-5.26	15.58	-5.26
SVCES	4.17	3.47	3.22	3.44

Table 39: Change in Quantity of Exports from South Africa under SEFTA4

	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	-15.45	-16.85	58.82	-16.54
EXTRACT	-2.97	-3.92	1.07	-4.06
FOOD	-6.50	-7.50	345.84	-7.67
LITMNFC	0.34	1.56	36.92	1.51
TECHMNFC	-5.12	-5.43	17.57	-5.52
HVYMNFC	-3.79	-5.07	7.44	-5.24
SVCES	-6.65	-6.18	-5.97	-6.18

Table 40: Welfare Effects of SEFTA4

	alloc_A1	tot_E	Total
SAFRICA	-63.7	401.3	337.5
RESTSAF	-5.1	-41.8	-46.9
RESTSSH	-2.3	-19.5	-21.7
EUNION	221.1	480.7	701.8
RESTWLD	-131.0	-823.3	-954.3
Total	19.0	-2.6	16.4

Table 41: Decomposition of South African Welfare Gains from Changes in Imports of Light Manufactures under SEFTA4

	welcnt	dvol	Taxrateb	taxrateu
SAFRICA	0	-0.0	0	0
RESTSAF	-21.6	-53.0	40.9	40.9
RESTSSH	-0.4	-3.2	12.8	12.8
EUNION	162.5	1283.7	31.6	0.0
RESTWLD	-198.2	-523.9	38.0	38.0
Total	-57.7	703.4		

Table 42: Decomposition of European Union Welfare Gains from Changes in Imports of Light Manufactures under SEFTA4

	welcnt	dvol	taxrateb	Taxrateu
SAFRICA	5.6	272.7	4.5	-0.0
RESTSAF	0.8	8.3	9.5	9.5
RESTSSH	0.1	2.7	3.6	3.6
EUNION	0	-137.6	0	0
RESTWLD	8.2	118.6	6.9	6.9
Total	14.7	264.6		

Tables relating to SEFTA6

Table 43: Changes in Sectoral Output by Region under SEFTA6

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	-0.21	-1.79	0.01	0.03	0.01
EXTRACT	-0.62	-1.86	0.00	0.01	0.01
FOOD	0.27	-0.68	-0.00	-0.00	-0.00
LITMNFC	0.49	28.95	-0.04	-0.04	-0.03
TECHMNFC	0.46	0.40	-0.01	-0.00	-0.00
HVYMNFC	-0.19	-3.50	0.00	0.00	0.00
SVCES	-0.01	-0.31	-0.00	-0.00	-0.00
CGDS	1.11	15.15	-0.02	-0.01	-0.01

Table 44: Price Changes under SEFTA6

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
Land	-0.28	-4.06	0.06	0.17	0.04
UnskLab	0.79	5.15	0.01	-0.00	-0.00
SkLab	0.79	5.39	0.00	-0.00	-0.00
Capital	0.78	5.05	0.01	-0.00	-0.00
NatRes	-0.91	-3.07	0.02	0.02	0.03
AGRIC	0.53	2.49	0.01	0.01	0.01
EXTRACT	0.29	0.49	0.01	0.01	0.01
FOOD	0.48	1.51	0.01	0.01	0.00
LITMNFC	-0.38	0.37	0.01	0.00	-0.00
TECHMNFC	0.53	1.20	0.01	0.00	-0.00
HVYMNFC	0.56	1.43	0.01	0.00	-0.00
SVCES	0.64	2.70	0.01	-0.00	-0.00
CGDS	0.43	0.96	0.01	0.00	-0.00

Table 45: Change in Quantity of Imports into the Rest of Southern Africa under SEFTA6

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	11.56	11.34	5.52	5.52	5.54
EXTRACT	14.56	10.36	-6.28	-6.26	-6.26
FOOD	27.64	33.33	-5.01	-4.99	-4.97
LITMNFC	254.23	229.03	-9.11	-9.07	-9.06
TECHMNFC	31.76	27.94	-0.75	-0.69	-0.68
HVYMNFC	16.20	13.44	-5.06	-5.03	-5.02
SVCES	5.22	-3.86	5.92	5.95	5.96

Table 46: Change in Quantity of Exports from the Rest of Southern Africa under SEFTA6

	SAFRICA	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	21.23	11.34	-9.55	-9.64	-9.30
EXTRACT	27.88	10.36	-2.17	-2.32	-2.33
FOOD	63.43	33.33	-6.17	-6.16	-6.24
LITMNFC	643.00	229.03	-2.31	-2.36	-2.34
TECHMNFC	95.51	27.94	-7.23	-7.25	-7.31
HVYMNFC	16.13	13.44	-5.24	-5.47	-5.63
SVCES	-8.55	-3.86	-9.65	-9.67	-9.67

Table 47: Change in Quantity of Imports by South Africa under SEFTA6

	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	21.23	-0.14	-0.13	-0.11
EXTRACT	27.88	-0.24	-0.22	-0.21
FOOD	63.43	-0.23	-0.20	-0.19
LITMNFC	643.00	-24.61	-24.58	-24.57
TECHMNFC	95.51	1.19	1.25	1.26
HVYMNFC	16.13	0.88	0.91	0.92
SVCES	-8.55	1.21	1.24	1.25

Table 48: Change in Quantity of Exports from South Africa under SEFTA6

	RESTSAF	RESTSSH	EUNION	RESTWLD
AGRIC	11.56	-2.01	-1.86	-2.00
EXTRACT	14.56	-1.27	-1.29	-1.30
FOOD	27.64	-1.91	-2.03	-1.99
LITMNFC	254.23	2.43	2.45	2.32
TECHMNFC	31.76	-3.28	-3.34	-3.32
HVYMNFC	16.20	-2.12	-2.18	-2.20
SVCES	5.22	-2.37	-2.39	-2.39

Table 49: Comparison of Impacts on Volumes of Trade of Two FTAs (1995\$m)

	South Africa				Rest of Southern Africa			
	Imports		Exports		Imports		Exports	
	EU	REST SAF	EU	REST SAF	EU	REST SAF	European Union	REST SAF
AGRIC	146	19	378	-15	-11	41	14	-136
EXTRACT	20	1	-106	-70	-2	12	4	-58
FOOD	419	26	1457	60	-7	54	-6	32
LITMNFC	632	408	267	365	-12	295	-41	837
TECHMNFC	1839	227	45	199	-31	258	-9	48
HVYMNFC	346	58	-218	-18	-17	106	2	-72
SVCES	220	80	-237	-89	-16	156	13	-155
Total	3621	818	1586	431	-96	923	-22	496

Table 50: Welfare Effects of a SA-SADC FTA

	Allocative Efficiency	Terms of Trade	Total
SAFRICA	18.1	146.2	164.3
RESTSAF	15.7	154.2	169.9
RESTSSH	-2.1	-0.2	-2.3
EUNION	-68.7	-87.8	-156.5
RESTWLD	-43.3	-213.7	-257.0
Total	-80.3		-81.6

Table 51: Decomposition of Rest of Southern African Welfare Gains from Changes in Imports Heavy Manufactures under a SA-SADC FTA

	Welcnt	Dvol	Taxrateb	taxrateu
SAFRICA	4.0	161.5	5.3	0.0
RESTSAF	0.3	10.6	5.5	-0.0
RESTSSH	-0.1	-1.2	7.0	7.0
EUNION	-3.2	-29.4	11.1	11.1
RESTWLD	-2.3	-28.7	8.1	8.1
Total	-1.3	112.8		

Table 52: Decomposition of South African Welfare Gains from Changes in Imports of Light Manufactures under a SA-SADC FTA

	Welcnt	dvol	Taxrateb	Taxrateu
SAFRICA	0	-0.0	0	0
RESTSAF	118.3	847.1	40.9	0.1
RESTSSH	-0.3	-2.0	12.8	12.8
EUNION	-36.0	-114.2	31.6	31.6
RESTWLD	-120.2	-316.9	38.0	38.0
Total	-38.1	414.0		

APPENDIX I: Commodity Aggregations

AGRIC:	Paddy rice, Wheat, Cereal grains nec, Vegetables, fruit, nuts, Oil seeds, Sugar cane, sugar beet, Plant-based fibers, Crops nec, Bovine cattle, sheep and goats, horses, Animal products, Raw milk Wool silk-worm cocoons, Bovine cattle, sheep and goat, horse meat prods,
FOOD:	Meat products nec, Vegetable oils and fats, Dairy products, Processed rice, Sugar, Food products nec, Beverages and tobacco products
EXTRACT:	Forestry, Fishing, Coal, Oil, Gas, Minerals nec, Petroleum, coal products
LITMNFC:	Textiles, Wearing apparel, Leather products, Wood products,
HVYMNFC:	Paper products, publishing, Chemical, rubber, plastic products, Mineral products nec, Ferrous metals, Metals nec,
TECHMNFC:	Metal products, Motor vehicles and parts, Transport equipment nec, Electronic equipment, Machinery and equipment nec, Manufactures nec
SVCES:	Electricity, Gas manufacture, distribution, Water, Construction Trade, transport, Financial, business, recreational services, Public admin and defence, education, health, Dwellings & Svces

APPENDIX 2: Description of Simulations

- SEFTA 1 implements part (namely removal of EU import tariffs on South African goods excluding agriculture and food) of a FTA between South Africa and the European Union.
- SEFTA2: implements part (namely removal of all EU import tariffs) of a FTA between South Africa and the European Union.
- SEFTA3 implements part (namely bilateral removal of tariffs on all goods excluding agriculture and food) of a FTA between South Africa and the European Union.
- SEFTA4 implements part (namely bilateral removal of all tariffs) of a FTA between South Africa and the European Union.
- SEFTA5 implements all (namely bilateral removal of all tariffs and export subsidies) of a FTA between South Africa and the European Union.
- SEFTA6 implements a FTA between South Africa and the rest of southern Africa (removal of import tariffs only, including those on intra regional trade). No EU FTA occurs.
- SEFTA7 implements two FTAs: between South Africa and the rest of southern Africa, and between South Africa and the EU (both involve removal of import tariffs only). The SA-EU FTA doesn't include agriculture.
- SEFTA8 implements two FTAs: between South Africa and the rest of southern Africa, and between South Africa and the EU (both involve removal of import tariffs only). The SA-EU FTA includes agriculture.

Trade instrument removed	Experiment #							
	1	2	3	4	5	6	7	8
Non-agricultural import tariffs from SAFRICA to EU	x	x	x	x	x		x	x
Agricultural import tariffs from SAFRICA to EU		x		x	x			x
Non-agricultural import tariffs from EU to SAFRICA			x	x	x		x	x
Agricultural import tariffs from EU to SAFRICA				x	x			x
Non-agricultural export subsidies from SAFRICA to EU					x			
Agricultural export subsidies from SAFRICA to EU					x			
Non-agricultural export subsidies from EU to SAFRICA					x			
Agricultural export subsidies from EU to SAFRICA					x			
Import tariffs from RESTSAF to SAFRICA						x	x	x
Import tariffs from SAFRICA to RESTSAF						x	x	x