Title:

Free trade with Europe - the winners and losers;

The results of the SMART simulation

Preface

This study summarises the findings of the technical assistance provided jointly by UNCTAD and TIPS to the Department of Trade and Industry of South Africa during its negotiations with the European Union for a free trade area agreement. The technical assistance involved preparing and keeping up to date a complete data set of SA-EU trade and tariffs as well as the negotiating proposals in digital format at the tariff line level. This effort was completed by the customisation of the SMART simulation model for the specific purpose of the negotiations. This allowed for the simulation of the impact of the proposed free trade area (FTA) agreement on bilateral trade flows as well as on trade with other commercial partners. Additionally, several relevant indicators of the impact of the FTA, such as the preference margins and product coverage, were elaborated.

The authors of the study would like to acknowledge the support of both the UNCTAD Project INT/97/A04 - specifically its sub component for the Countries of the SADC Region, financed by a voluntary contribution of the Government of Italy - and of the Trade and Industrial Policy Secretariat (TIPS).

Mr. G. Krasnik of IDC provided the data on South Africa's trade and tariffs, and Mr. Aki Kuwahara of UNCTAD provided the data on the European Union's trade and tariffs from the UNCTAD database "TRAINS". Their support was crucial for the successful completion of this study. We are also grateful to Mr. S. Inama of UNCTAD, Mr. S. Marchese, of World Trade Organization, and Dr. T. Mhlongo, of Department of Trade and Industry, for all their helpful comments and discussions. Finally, the assistance of Mr. C. Sellars, Mr. F. Gagiano and Mr. K. E. Wojciechowicz - also from the Department of Trade and Industry - in the data manipulation was also greatly appreciated.

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May 1998

Executive summary

This study projects the impact of the proposed free trade area (FTA) between South Africa and the European Union on the bilateral trade flows between the two. The South African and European respective proposals, as formulated in 1996, served as a basis. The results are evaluated both at an aggregate level, to gauge its impact on the balance of payments and on Government revenue, and at a sectoral level to assess its implications for specific industries. Additionally, a simulation of the impact of the agreement on South Africa's trade with other commercial partners is discussed. The simulation was conducted utilising a static, partial equilibrium methodology, '*SMART*', jointly developed by UNCTAD and the World Bank and widely utilised by negotiators of both bilateral and multilateral trade agreements.

Our results show that the impact of the proposed free trade area agreement on bilateral trade flows is likely to be uneven, with a relatively large effect on SA's imports from the EU and a comparatively smaller effect on its exports towards this market. The size of this projected imbalance will depend on the exact terms of the agreement, which are currently under negotiation. Depending on the scenario used, our projections show an increase in South African imports from the EU between 2.3% and 12.3% of 1996 SA imports from EU. By contrast, the estimated increase in SA exports to the EU will approximate between 1.3% and 1.4% of 1996 SA exports to the EU (see Table "Summary Results " below).

Table 1: Summary Results - Impact of tariff liberalisation (FTA & UR) (million Rands)

		Elasticity of import demand	
		-0.85	**-1.5**
(1)	SA exports to EU 1996	46,791	
(2)	SA imports from EU 1996	51,041	
(3)=(1)-(2)	SA - EU trade balance 1996	-4251	
(4)	Projected increase SA exports to EU*	637	
(5)	Projected increase SA imports to EU - Scenario I	1,190	2,100
(6)	Projected increase SA imports from EU - Scenario II	3,563	6,288
(7)=(1+4)-(2+5)	Projected SA - EU trade balance Scenario I*	-4,803	-5,713
(8)=(1+4)-(2+6)	Projected SA - EU trade balance Scenario II*	-7,176	-9,901

* The import demand elasticity used for the projection of SA exports to the EU was -1.5 in all cases.

It is important to note that a deterioration in the trade balance *vis-à-vis* the EU will occur regardless of the scenario used, i.e. despite significant differences in proposed tariff eliminations. Scenario I for example, allows SA to liberalise only 85% of its European imports, yet even a 94%

duty-free access concession to South African exports on the European side will not prevent a worsening of the trade balance.

These asymmetrical results from the SMART simulation are caused partly by the current patterns of import tariffs and trade flows between the two parties and partly by the structure of the proposals. The current patterns are of particular importance to SMART because this simulation tool projects trade creation as directly proportional to the relative tariff reduction, the current level of trade and the import demand elasticity.

Regarding the relative size of the tariff reductions, the results reflect the fact that the relative tariff reductions are smaller on the European side than on the South African side. This is mainly due to the divergence in the tariffs which the two partners currently face; European tariffs on South African imports are currently much lower than SA tariffs on imports from the EU, as illustrated by their respective trade-weighted tariff averages: 1.7% on the EU side as compared to 11.2% on the SA side. Since SA is currently a beneficiary of the EU GSP scheme, our simulation is based on the assumption that GSP tariffs are applied to all SA exports to the EU. This assumption may lead to an underestimation of the tariffs currently applied to imports from SA and thus to an underestimation of the effect on exports.

As regards current levels of imports and exports, Table 1 shows that SA currently faces a trade deficit *vis-à-vis* the EU, thus adding to the imbalance in trade creation in the EU's favour. The assumptions regarding the elasticity of import demand also affect the results; Table 1 provides a summary of the results obtained using different values for this parameter.

The structure of the proposals is the second major contributing factor to the outlined results. The European proposal contains a rather lengthy list of exclusions to which no tariff liberalisation will apply, comprising close to 50% of total current South African agricultural exports to the EU. The EU proposal implies an increase in the share of SA exports which enter the EU duty-free from 75% at present (85% of all industrial products and 7% of all agricultural products) to 94% in 2011 (100% of industrial products and 50% of agricultural exports to the EU). Many obstacles to trade with the EU are actually non-tariff barriers, the reduction of which was under negotiation at the time of writing and is not included in the present study. Moreover, trade creation as a result of reductions of 'prohibitive' tariffs or other de facto bans on SA imports cannot be captured by the SMART simulation.

The South African proposal suggests a complete elimination of tariffs, yet provides for exclusions in the highest tranche of tariffs, amounting to a potential exclusion of 15% of import-weighted tariffs. Much depends on the exact terms of the Agreement and the extent to which these tariffs are included. This is particularly the case as most of the trade creation (approximately 67%) for the EU on the SA market, i.e. the expected increase in South African exports to the EU, will be a direct result of the elimination of these specific tariffs.

The proposed Agreement is, under all scenarios, projected to have a negative impact on both the

balance of payments and on Government revenue. The estimated deterioration of the overall balance of payments is between R 553 million and R 5,651 million. The projected decrease of revenue from customs lies between R 1,604 million (including an R 318 million decrease due to the Uruguay Round) and R 5,733 million.

At a broad sectoral level, South African exports of agricultural products are poised to benefit most strongly, despite the European exclusions. This by itself creates a strong argument against these exclusions for the SA negotiators. The effect on manufactured exports to the EU is projected to be small, with the exception of textile products. This finding hinges on the fact that European GSP tariffs on industrial products are very low and SA manufactured exports to the EU are limited.

The impact of the Agreement on South Africa's trade with its regional partners is projected to be relatively insignificant, with evidence of a limited diversion of trade from the regional partners to Europe. A more substantial trade diversion may occur at the expense of Japan and the United States.

In evaluating these results, one should bear the static and partial nature of the SMART simulation tool in mind. The results should be interpreted in this context only. Additional research into the dynamic and indirect effect of the FTA, as well as various other aspects of the Agreement which were not specifically analysed here, is therefore strongly recommended.

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1. Introduction

Following South Africa's historic transition to democracy, the European Union Council of Ministers - recognizing the importance of trade and market access as an instrument to facilitate the country's reintegration into the global economy - called for a package of support measures. In

particular, the European Union proposed that, in the short term, South Africa be included in the Generalised System of Preferences (GSP) and that comprehensive negotiations towards a long-term agreement be initiated. Following this offer, South Africa obtained access to GSP preferences and called for a long-term agreement under terms as close as possible to the Lomé Convention. The European Union rejected this request and proposed a free trade agreement in addition to South Africa's qualified accession to Lomé (excluding the trade aspects of the Convention). The negotiations for the free trade area were formally opened in June 1995 and are currently ongoing.

The aim of this study is to project the impact of the proposed free trade area (FTA) between South Africa and the European Union on the bilateral trade flows between the two, based on the two countries' respective negotiating proposals as formulated in 1996. The simulation is conducted utilising a static, partial equilibrium methodology, '*SMART*', jointly developed by UNCTAD and the World Bank and widely utilised by negotiators of both bilateral and multilateral trade agreements.

The results are evaluated both at an aggregate level, to gauge its impact on the balance of payments and on Government revenue, and at a sectoral level to assess its implications for specific industries. Additionally, a simulation of the impact of the agreement on South Africa's trade with its other commercial partners is discussed. The paper also introduces alternative methods of analysis - such as calculation of preference margins, product coverage and of revealed comparative advantage which provide useful indications of the potential impact of the Agreement.

The paper is organized as follows. The methodology is outlined in Section 2, while Section 3 provides a description of the data set and of its sources. Section 4 provides a summary of the current structure of tariffs between SA and the EU, followed in Section 5 by an analysis of the features of the negotiating proposals. Section 6 discusses the results of the SMART simulation. Alternative methods for the derivation and interpretation of negotiating proposals as well as for the general analysis of trade data are outlined in Section 7 and 8.The conclusion provides a critical discussion of the SMART methodology.

2. Methodology

This study is a practical application of the '*SMART*' simulation technique - constructed to provide a simple tool for the quantification of the effects on trade flows induced by changes in market access conditions - to the proposed FTA between the European Union (EU) and South Africa (SA).

In order to project the impact of the agreement, it is useful to analyse the import and the export side separately, and to subsequently combine the two to assess the net impact. On the import side, the total effect of a reduction in tariffs on SA imports from the EU is represented in SMART as the

sum of two components, namely:

- Trade creation (TC), which measures the increase in SA imports from EU due to a decrease in the relative price of these imports *vis-à-vis* domestically produced goods, resulting in a net increase in SA's total imports and a net decrease in SA's domestic production; and

- Trade diversion (TD), which measures the increase in SA imports from EU due to a decrease in the relative price of these imports *vis-à-vis* imports from other countries resulting in a different geographical composition of imports, whereby imports from EU increase at the expense of imports from other sources, with no change in total SA imports.

The same calculations need to be performed on the export side, to assess the impact of the Agreement on the SA's exports to the EU, which - as the result of the agreement - will also increase at the expense on the one hand of domestic EU production (trade creation) and on the other hand of imports of the EU from other sources (trade diversion)[(1)]. These quantitative analyses are performed at the 8-digit level of the Harmonised System. The results are subsequently summed to obtain the total trade effect for SA exports to the EU.[(2)]

2.1 Notation

M Imports

P Domestic Price

RP Relative Price

E_m Elasticity of import demand with respect to domestic price of imports

E_S Elasticity of substitution between imports from SA and imports from other

sources

0,1 subscript 0= before liberalisation, 1= after liberalisation

$$TC = E_m \times M \times \frac{(1+T_1)-(1+T_0)}{(1+T_0)}$$

It should be noted that in SMART trade creation is proportional to current imports. Thus, for those tariff lines in which no trade occurred before the liberalisation, the simulation will project no trade after the liberalisation either(5). In the case where the absence of trade is due to a lack of comparative advantage of the commercial partner, this is of course a perfectly acceptable projection. However, if the lack of trade was due to *prohibitive* tariffs, a tariff liberalisation may well result in a substantial increase in trade, and the SMART simulation would be an underestimation. An attempt to identify the tariff lines that might suffer from this drawback is made in section 8, Additional Analyses: identification of trade barriers.

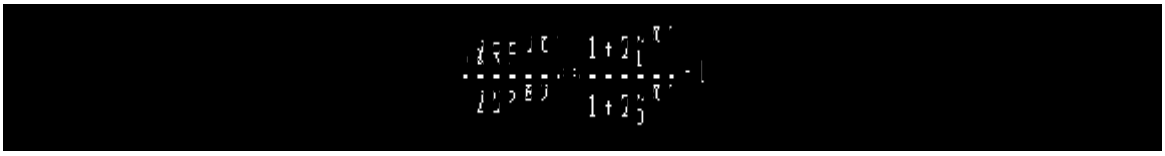
It can also be observed from the formula that trade creation in SMART is proportional to the elasticity of import demand. Hence this parameter influences the results of the simulation rather weightily.

2.3 Calculation of trade diversion

In order to calculate Trade Diversion, it is useful to break the process into two steps once more. First, we need to know the relative price change (dRP/RP). In the case of a preferential liberalisation, which brings tariffs on imports from the EU to zero whilst retaining a positive tariff on imports from other sources, the price of imports from the EU relative to the price of imports from other sources will fall proportionally to the reduction in the tariff. Formally, equation (2):

$$\frac{dRP^{EU}}{RP^{EU}} = \frac{\frac{1+T_1^{EU}}{1+T_1^{other}}}{\frac{1+T_0^{EU}}{1+T_0^{other}}} - 1$$

If there is no change in the tariffs applicable to imports from other sources, as is the case for both partners engaging in a free trade agreement, the expression reduces to equation (3):



Once we have calculated the relative price change, we can proceed to calculate the trade diversion (TD) by applying the following formula (4)[(6)]:

$$TD^{EU} = \frac{M^{EU} \times M^{other} \times \frac{dRP^{EU}}{RP^{EU}} \times E_s}{M^{EU} + M^{other} + M^{EU} \times \frac{dRP^{EU}}{RP^{EU}} \times E_s}$$

TD^{EU} indicates the increase in South African imports from the EU, over and above the increase due to trade creation, which does not increase net imports yet results in the displacement of SA imports from other sources. The formula indicates that the substitution of imports from a foreign supplier whose price is unchanged to imports from a foreign supplier whose price has fallen, is proportional to:

the change in relative price,

the existing import level from each of the two sources, and

the elasticity of substitution between goods of the two sources (assumed to be -1.5).

It can be easily verified that in the case of a reduction in tariffs (dRP/RP < 0) the trade diversion will be higher, the higher the elasticity of substitution, the higher the change in price and the higher the existing imports from both sources.

The caveats discussed above in relation to trade creation, namely the importance of the value of the estimate of elasticity and the drawbacks of utilising historical trade in the calculations, also apply in the case of the trade diversion. For the interested reader, the hypothetical example outlined in Annex A may prove useful for the practical utilisation of this methodology.

3. Data set utilised in the simulation

3.1 Trade data

We utilised 1996 import data from the European Union and from South Africa respectively, since this can safely be assumed to be the most reliable indicator of trade flows. EU trade data was supplied by UNCTAD from the "TRAINS" database(7), while on the SA side trade data was obtained from the Industrial Development Corporation (IDC) based on information from Customs and Excise(8).

3.2 Tariff data

To ensure that the tariff data would match the 1996 trade data, we utilised 1996 applied tariffs for both South Africa and the EU. Since South Africa is currently a GSP beneficiary country, we utilised GSP duties(9) where applicable and MFN duties elsewhere.

This would imply that all SA exports to the EU of products covered by the scheme actually receive preferential market access. In practise, this is not likely to be the case, due to the fact that not all SA exports to the EU comply with European rules of origin or meet European obligations regarding documentary evidence. As a consequence, not all exports qualify for preferential

treatment, and not all qualifying exports actually receive it(10). However, since disaggregated utilisation rates were not available at the time of writing, the current levels of tariffs that South African exports currently encounter when entering the EU may be underestimated in our analysis, resulting in an underestimation of the projected impact of the FTA on SA exports destined for Europe.

It should also be noted that to evaluate the net effect of the agreement only against the 'status quo' 1996 tariffs would be misleading since both South Africa and the EU are implementing their Uruguay Round commitments, and hence are scaling down their MFN rates accordingly to gradually reach their targeted rates by 2004. In our analysis we therefore isolated the tariff reductions in the context of the FTA from the tariff reductions implied by the respective Uruguay Round commitments.

As regards the European Union, the post-Uruguay MFN rates were obtained from UNCTAD. However, since future GSP tariffs were not available, we calculated the 2004 GSP rates under the assumption that the ratio of GSP to MFN rates will remain constant upon the implementation of the WTO commitments, as has indeed been the case up to the present.

In the case of South Africa, MFN 2004 tariffs were received from IDC, but were unavailable for Chapter 3, much of Chapters 27 and 84 and various other subheadings: in these cases 1996 applied tariffs were used.

3.3 Elasticity of import demand

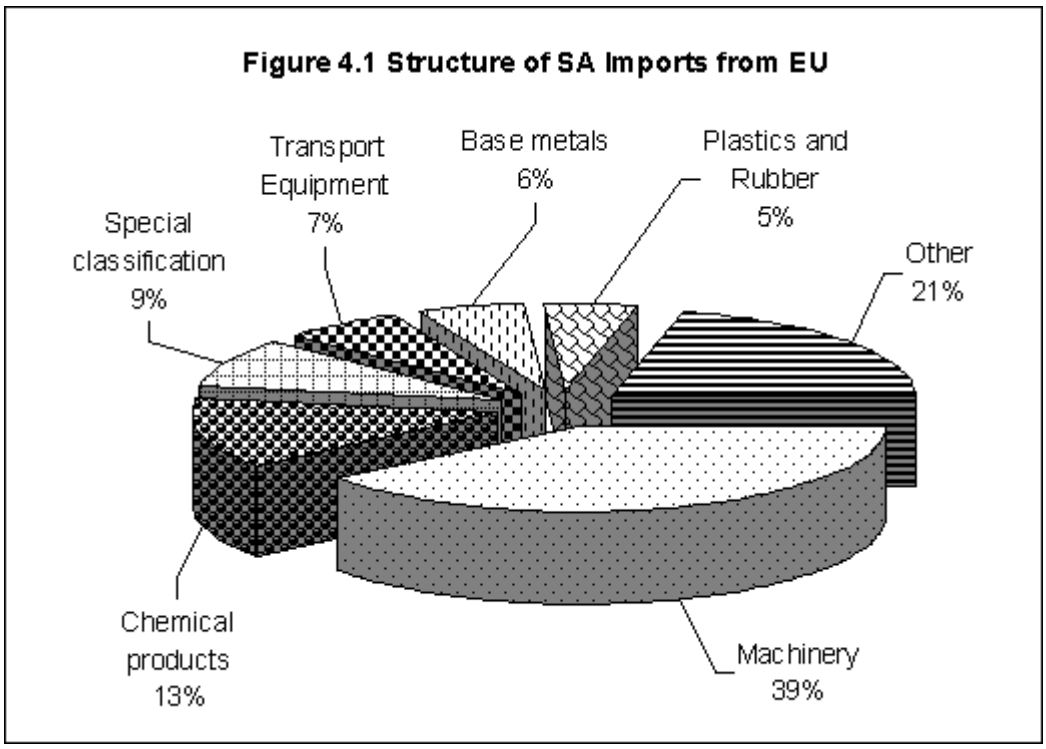
The elasticity of import demand with respect to domestic price of imports is, as is mentioned above, a key parameter which influences the results to an important extent.

The literature[2] suggests that the "default" SMART parameter value of -1.5, is a statistically significant estimate for developed countries, this value was therefore used for the EU. Recent research(11) indicates a lower value for SA, namely -0.85. This value is smaller than unity indicating that SA imports from the EU are relatively price inelastic.

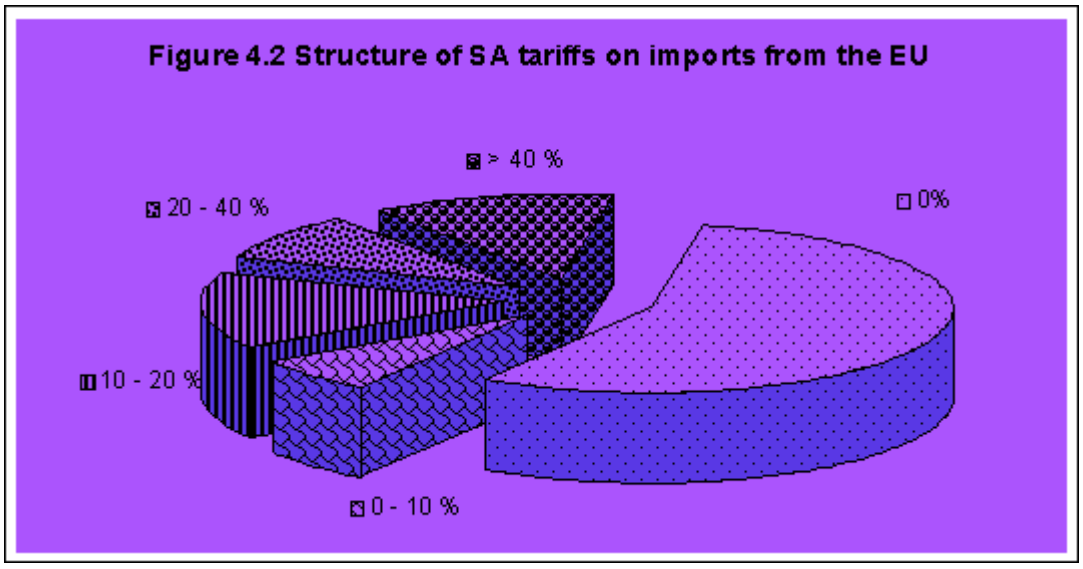
Estimates for the increases in SA imports from the EU would be higher if a common parameter for the elasticity of import demand were used in both calculations. For completeness' sake, we have included an alternative simulation for the SA market utilising

-1.5. For the elasticity of substitution, important for the trade diversion calculation, the value of -1.5 was assigned.

4. Current structure of trade



Currently, 56% of imports from the EU enters South Africa free of duty. However, the remaining 44% is levied relatively high tariff duties: in fact, only 6.6 % of imports face a tariff lower 10%, while the proportion levied duty in excess of 40% is almost double that amount at 13.1%, (see Figure 4.2). Import weighted tariffs amount to 11.2% of total imports.



During the transition phases of the proposed free trade area, the share of imports from the EU facing a zero-tariff will gradually increase to a share between 85% and 100%, depending on the precise terms of the agreement currently under negotiation (see Section 5 for details). The import weighted tariffs are expected to drop to 10.6% of total imports from the EU after a full implementation of the Uruguay Round reductions. Depending on the duty-free share of imports from the EU implied by the final terms of the FTA Agreement the value of import-weighted tariffs will drop to between 0% (worst case Scenario) and 7.9% (best case Scenario).

The European Union is also an important export market for SA: in 1996 exports to the EU amounted to R 46.8 billion, or approximately 38% of total SA exports. As shown in Figure 4.3, SA exports to the EU are concentrated in three HS sections, the largest of which - Pearls, (semi-) Precious Stones & Jewellery - constitutes 36% of total exports.

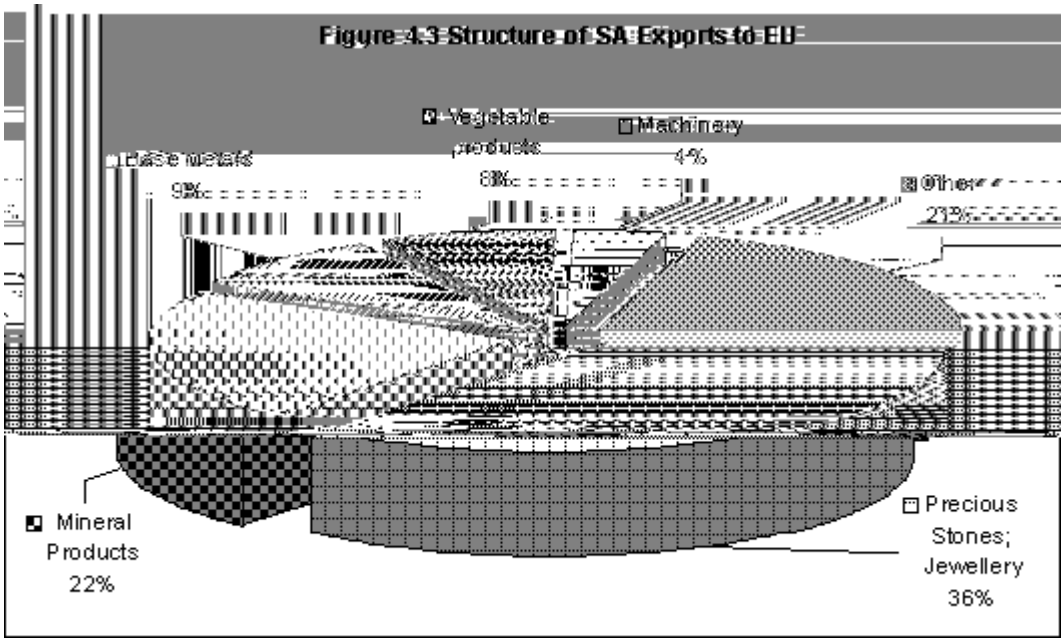
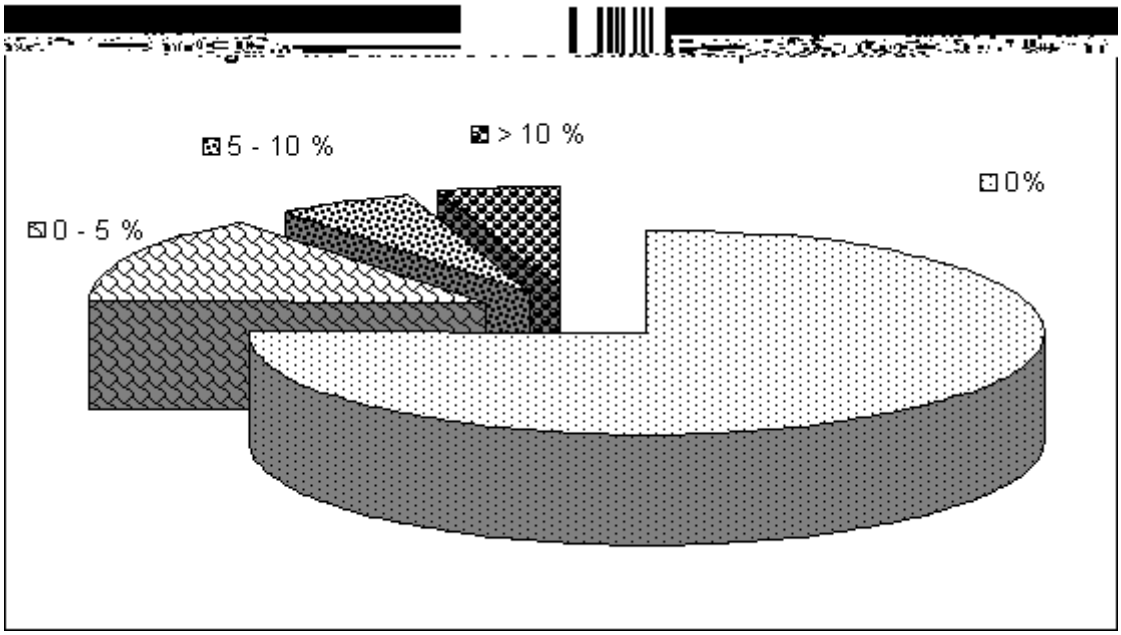


Figure 4.3 Structure of SA Exports to EU
Machinery
4%
Other
21%
Mineral
Products
22%
Precious
Stones;
Jewellery
36%

European tariffs on imports from SA are generally quite low, only 5% of all imports faces a tariff higher than 10%, moreover, the major part of imports from SA (75%) enters the EU free of duty. Of total trade weighted tariffs (i.e. non-duty free imports) 58% is levied less than 5% ad valorem. After a full implementation by the European Union of its commitments within the Uruguay Round - scheduled for 2004 - as much as 78% of all SA imports will enter the EU duty free. The implementation of the FTA will raise this share to 94%. The EU tariffs on SA imports are represented graphically in Figure 4.4.



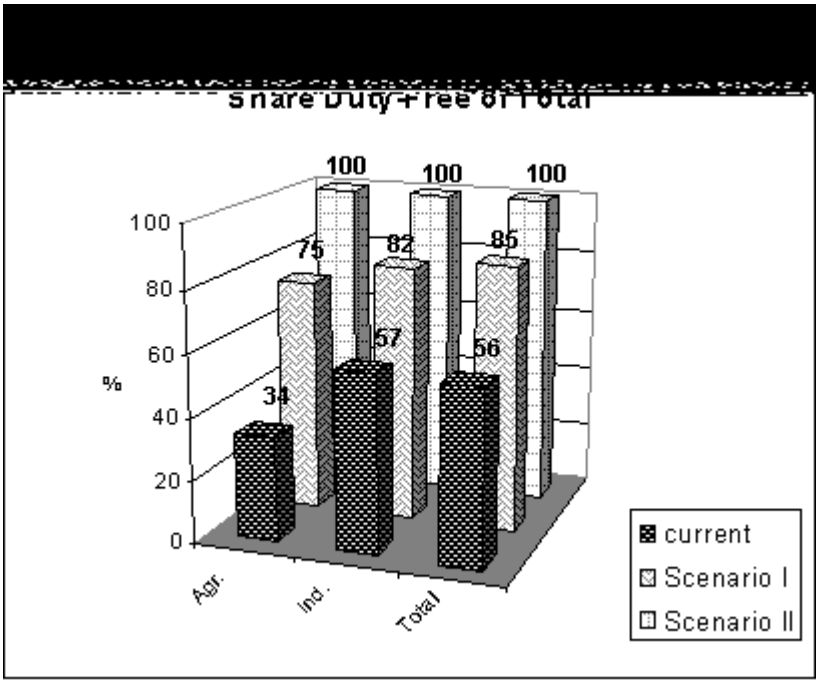
Currently at 1.7%, tariffs weighted by South African 1996 exports to the EU are expected to drop to 1.3% of the value of total 1996 SA exports to the EU, after the full implementation of the Uruguay Round(12). However, in evaluating these findings one should be reminded of the caveat discussed earlier, namely that utilising GSP tariffs as a proxy for applied tariffs inevitably underestimates the actual amount of duty paid by the SA exporter.

5. The features of the proposed agreement

This study is based on the negotiating proposals for an FTA between the EU and SA as they were presented in 1996, constructed on the assumption that the most developed partner, the EU, should liberalise its duties on imports from SA at a faster pace and in higher proportions than its South African counterpart.

The 1996 SA negotiating proposal to the EU is straightforward, and can be roughly represented as follows. First, all tariffs levied on European imports are weighted by the corresponding trade in 1996. These trade-weighted tariffs are arranged in order of increasing tariffs (from 0% to the highest tariff of 132%). From a simple calculation it then followed that in the base year of 1996, 56% of all EU imports entered SA free of duty. The FTA proposal defines the tariff liberalisation in four phases, via which this share is to increase. According to this version of the proposal phase 1 will lead to an increase of duty-free trade to 65%, Phase 2 to 70%, Phase 3 to 85% and Phase 4 to 100% (see Annex B - *SA proposal to EU* - for details).

The liberalisation of tariff lines implied by Phase 4 is currently under negotiation: it is envisaged that a certain share of the relevant products will be covered by protocols and therefore excluded from a complete tariff elimination. We have therefore elaborated two alternative scenarios. On the one extreme, SA excludes all products covered by the fourth Phase and only implements the eliminations implied in the first three phases: 'Scenario I' or the *best case* scenario. At the other extreme, SA makes no exclusions, which results in a progressive liberalisation of 100% of current imports from EU over a period of the 12 years, starting upon the entry into force of the Agreement, 'Scenario II' or the *worst case* scenario. The actual terms of the agreement will lie somewhere in between these two poles (see Fig. 5.1).


Share Duty+Free of Total
100
100
100
75
82
85
57
56
34
100
80
60
40
20
0
%
Agr.
Ind.
Total
current
Scenario I
Scenario II

For technical reasons the actual share of trade-weighted duty-free imports from the EU is closer to 82% in Scenario I, see Annex B - SA proposal to the EU.

Source: Authors' calculations.

The European negotiating proposal to SA is more complex. Due to the differentiated level of market access granted to various commercial partners and geographical regions, the EU tariff structure has grown into a complex web of tariff rates including, in addition to MFN rates, preferential rates granted under the GSP schemes, the Lomé Convention and a number of other bilateral and multilateral trade agreements.

Finding out what the EU proposal to SA actually entails at the 8-digit HS level was therefore quite a task in itself. Based on the definition of "sensitive products" contained in the GSP scheme - of which South Africa is currently a beneficiary - in combination with the level of the MFN tariffs, the EU proposal defines three groups of industrial products and five groups of agricultural products. Each of these categories is then assigned its own respective liberalisation calendar (see Annex B2, *EU negotiating proposal to SA*, for details).

A preliminary evaluation of the EU proposal may be attempted on the basis of the analysis of the proposal by tariff line. Out of the 10,539 tariff lines that are included in the European Union tariff book, 4,400 are already duty free on an MFN basis. Upon implementation of the 2004 UR commitments, 4,905 lines will be MFN duty free. After the FTA is fully implemented, 9,612 lines will be duty free, 8,064 for industrial goods and 1,548 for agriculture.

It is interesting to note that out of the 927 tariff lines which will be excluded from the Agreement -

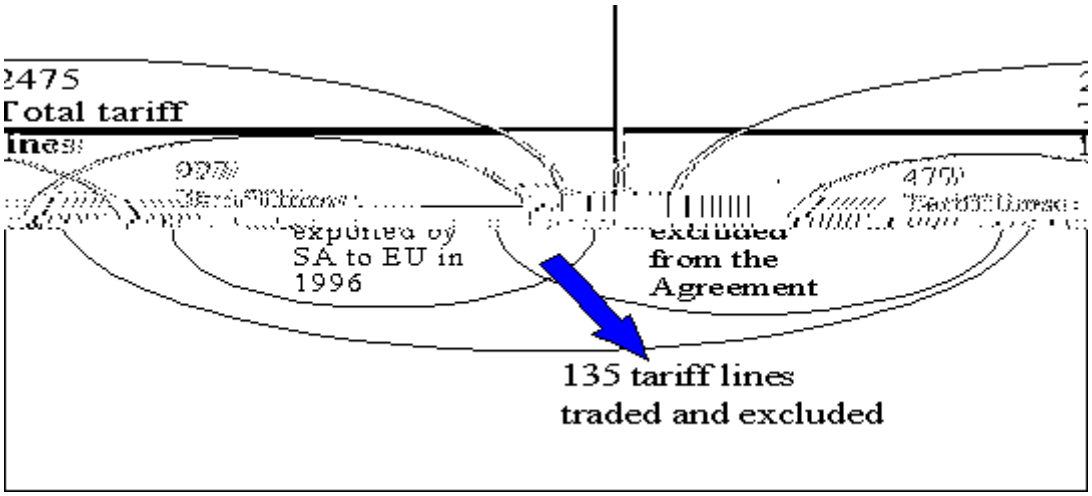
all of them referring to agricultural products - only 135 were exported by SA to the EU in 1996 (See Fig. 5.2)[(13)].

In addition, there is a possibility that fishery products (corresponding to Chapter 3 of the Harmonised System) will also be excluded from tariff concessions by the EU in the context of the Free Trade Area Agreement[(14)]. It is on this basis that two scenarios were developed for the estimation of the impact of the Agreement on SA exports to the EU: under the first, HS Chapter 3 (Fish) is included in the proposed agreement, while under the second it is excluded.

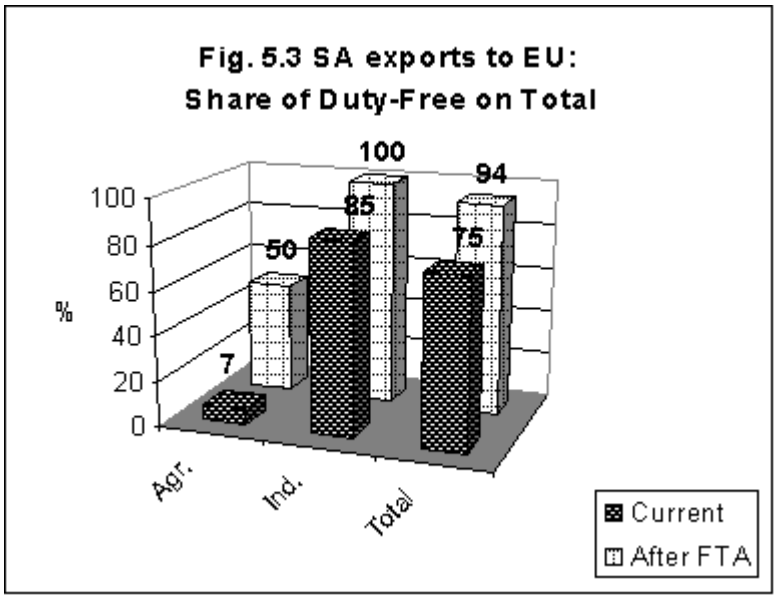
Should Chapter 3 indeed be excluded completely, only 9,455 tariff lines, i.e. all of the 8,064 industrial tariff lines plus 1,391 of the agricultural ones, would be free of duty. A total of 1,084 (agricultural) lines would be excluded from any tariff reductions. In 1996, SA exported only 164 of these to the EU markets.

Fig. 5.2 Implications of EU negotiating proposal for SA exports of agricultural products

(HS Chapters 1-24)



The striking implication of this negotiating proposal is that, when it is applied to current trade flows, as shown in Fig. 5.3, only 50,2% of agricultural trade becomes duty free after the implementation of the free trade area agreement (up from 6.7% in 1996), while for industrial goods, the proportion is 100% (up from 85.1% in 1996)[(15)]. In other words, the 135 tariff lines which are excluded from the EU proposal and currently exported by SA to the EU carry as much as 49.8% of total SA agricultural exports to the EU.



We will see from the following section - which discusses the results from the simulation - how this proposal affects bilateral trade.

6. The results from the SMART simulation

As discussed in Section 2, applying the SMART methodology to the EU-SA Free Trade Agreement implies the completion of four exercises:

context of WTO.

Table 6.1: Aggregate results: Projected increase in SA exports to EU - Fish included

	Agr.	Ind.	Total
Exports to EU - 1996 (R. Mill)	5,793.6	40,998.1	46,791.7
Projected increase due to UR (R. Mill)	133.1	108.0	241.2
Projected increase due to FTA (R. Mill)	151.8	244.1	395.9
Projected increase due to UR & FTA combined (R. Mill)	284.9	352.1	637.1
UR as % of 1996 exports to EU	2.3	0.3	0.5
FTA as % of 1996 exports to EU	2.6	0.6	0.9
UR & FTA combined as % 1996 exports to EU	4.9	0.9	1.4

Table 6.2: Aggregate results: Projected increase in SA exports to EU - Fish excluded

	Agr.	Ind.	Total
Exports to EU - 1996 (R. Mill)	5,793.6	40,998.1	46,791.7
Projected increase due to UR (R. Mill)	133.1	108.0	241.2
Projected increase due to FTA (R. Mill)	128.4	244.1	367.1
Projected increase due to UR & FTA combined (R. Mill)	256.1	352.1	608.2
UR as % of 1996 exports to EU	2.3	0.3	0.5
FTA as % of 1996 exports to EU	2.2	0.6	0.8
UR & FTA combined as % 1996 exports to EU	4.4	0.9	1.3

By isolating these tariffs reductions, we have derived the two components of the projected increase in SA exports the EU. The "Projected increase due to UR", which would occur even in the absence of an FTA Agreement as the result of EU commitments within WTO, is estimated at R 241.2 million or 0.5% of 1996 SA exports to the EU. It is noteworthy that the 'WTO Component' represents roughly 40% of the combined total.

The "Projected increase due to FTA only" shows instead the projected increase in imports that will only occur within the context of the proposed bilateral Agreement. The "Projected increase due to FTA" is estimated at R 395.9 million or 0.9% of 1996 exports. Clearly, if SA decides to sign the FTA Agreement, then the projected increase in exports resulting from the simultaneous implementation of the FTA and the UR will result in an increase in exports to the EU equal to the sum of the two components[(19)]. Depending on the inclusion of Chapter 3, this would then

represent between 1.3 and 1.4 % of current exports towards the EU.

One final observation relates to the timing of the liberalisation. In fact, the major part of the trade creation will take place in the last stage of the FTA, Phase 4, which is to start no later than 2005 and is due for completion in 2011 (see Fig. 6.1).

6.2 Impact on imports: trade creation on SA markets

Imports from the EU form a sizeable part of total SA imports, approximately 44%. The trade creation effects for the EU on the SA market, i.e. the net increase in SA imports from the EU, will therefore have a significant impact on SA imports, even if trade creation for the EU is small as a percentage of imports from EU. For this part of the analysis again, two scenarios were implemented. Both scenario I and II - described above - have been implemented utilising both the relatively low value (-0.85) as well as a more 'standard' value of -1.5 for SA's import demand elasticity.

The total trade creation projected to result from the FTA on the SA market after all the stages are fully implemented ranges between R 1,190 million and R 3,562 million or between 2.3% and 7.0% of current SA imports from EU(20). In the alternative case, where an import demand elasticity of -1.5 is assumed, the estimation ranges between R 2,100 million and R 6,287 million or between 4.1% and 12.3% of current SA imports from EU. The ranges reflect the 'negotiable' part of the South African tariff liberalisation, in the best case scenario (Scenario I) all Phase 4 products are excluded. In that case, the effect on SA imports is estimated between the two lower ends of the ranges, i.e. between 2.3% and 4.1% of current imports from the EU. The worst case scenario (Scenario II), refers to a situation where SA makes no exclusions and offers a complete tariff elimination on European imports. This scenario will result in an increase in European exports to SA of between 7.0% and 12.3%.

As in the case of the trade creation on the EU market, we need to distinguish the component resulting from the implementation of SA's Uruguay Round commitments from the component which is exclusively related to the FTA Agreement.

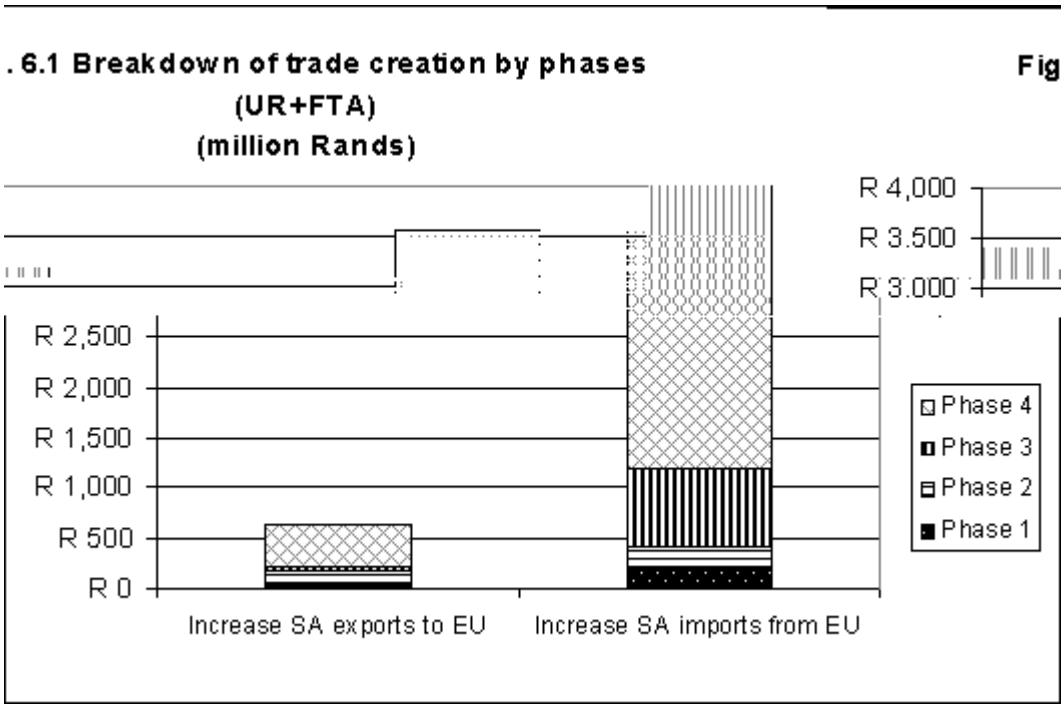
Table 6.3: Aggregate results: Projected increase in SA imports from EU

Elasticity of import demand -0.85

	Agr.	Ind.	Total
Imports 1996 (R. Mill.)	1,822.3	49,219.3	51,041.5
Projected increase due to UR (R. Mill.)	3.7	207.1	210.8
Projected increase due to FTA - Scenario I (R. Mill.)	84.0	895.3	979.3
Projected increase due to FTA - Scenario II (R. Mill.)	195.2	3,157.0	3,352.2
Combined effect UR & FTA - Scenario I (R. Mill)	87.7	1,102.4	1,190.1
Combined effect UR & FTA - Scenario II (R. Mill)			

As regards the projection of the effects of the proposed free trade area only, the estimation for Scenario I ranges between R 979 million and R 1,728 million or 1.9% and 3.4% of current imports from the EU using the two alternative values for the import demand elasticity. The estimation for the worst case scenario is even higher, ranging between R 3,352 million and R 5,916 million or between 6.6% and 11.6% of current South African imports from the EU. The total effect of the FTA and the UR combined is therefore estimated between 2.3% and 4.1 % of current imports from EU under Scenario I and between 7.0% and 12.3% under Scenario II.

If strategic exclusions are effectuated in the final FTA Agreement, the resulting net increase in South African imports from the EU would have to be adjusted accordingly and would lie in between the two extremes that we have set out above. As illustrated in Fig. 6.1, the major part of this increase will occur as a result of the implementation of Phase 4, emphasising the strategic importance of this 'negotiable' part of the tariff liberalisations. Obviously the more exclusions are made among the products in this category (and the closer the proposal approaches Scenario I) the lower trade creation for the EU becomes.



A second point which is apparent from Fig. 6.1 above is the disproportion between the projected increase in SA imports from EU and its projected exports. It should be emphasised that Fig. 6.1 was elaborated under the assumption that import demand elasticity is -0.85 for SA and -1.5 for the EU. Clearly, using -1.5 on both sides would further deepen the discrepancy in the favour of the EU.

6.3 Impact on the South African current account

If the same import-demand elasticity value is assumed for both partners in an FTA agreement and both sides cut their tariffs by relatively equal amounts from a similar base, the mechanistic structure of the SMART trade-creation calculation technique will by definition project an enlarged trade deficit in the future if there is a deficit at the start of the agreement et vice versa. It is therefore all the more interesting to see what happens under a less than perfectly free trade agreement using different values for the import demand elasticity.

As a consequence of the aforementioned results, the trade agreement is projected to increase the trade deficit *vis-à-vis* the EU under all scenarios.

Table 6.5: Impact of tariff liberalisation (FTA & UR) (million Rands)(21)

	Elasticity of import demand	
	-0.85	**-1.5**
Current trade balance	-4,250	
Projected Trade Balance SA-EU - Scenario I*	-4,803	-5,713
Projected Trade Balance SA-EU - Scenario II*	-7,176	-9,901
Current SA-EU trade balance as % of SA exports to EU	-9.0%	
Proj. SA-EU trade balance as % of SA exports to EU Scenario I	-10.1%	-12.0%
Proj. SA-EU trade balance as % of SA exports to EU Scenario II	-13.7%	-18.6%

* Only one value (-1.5) was used for import demand elasticity for the projection of SA exports to the EU

It is significant that a deterioration in the EU-SA trade balance occurs in spite of the fact that - under Scenario I - SA liberalises only 85% of trade with the EU, compared to a European elimination of tariffs of up to 94% of imports from SA.

The trade balance is expected to worsen by at least R 553 million (assuming price-inelastic import demand and implementation of Scenario I) and at most R 5,651 million (assuming price-elastic import demand and implementation of Scenario II), to between R 4,803 million and R 9,901 million. Moreover, South African exports to the EU are expected to increase by only 1.3% or 1.4%, thus providing a minor impetus to the South African economy. Based on 1996 applied tariffs

(22), the amount of total Government revenue lost as a result of the tariff reductions on European imports is estimated between R 1,604 million (including an R 318 million decrease due to the Uruguay Round) and R 5,733 million(23).

These asymmetrical results from the SMART simulation are caused partly by the current patterns of import tariffs and trade flows between the two parties and partly by the structure of the proposals. The current patterns are of particular importance to SMART because this simulation tool projects trade creation as directly proportional to the relative tariff reduction, the current level of trade and the import demand elasticity.

Regarding the relative size of the tariff reductions, the results reflect the fact that the relative tariff reductions are smaller on the EU side than on the South African side. This is mainly due to the divergence in the tariffs which the two partners currently face; European tariffs on South African imports are currently much lower than SA tariffs on imports from the EU, as illustrated by their respective trade-weighted tariff averages: 1.7% on the EU side as compared to 11.2% on the SA side. Since SA is currently a beneficiary of the European GSP scheme, our simulation is based on the assumption that GSP tariffs are applied to all SA exports to the EU. This assumption may lead to an underestimation of the tariffs currently applied to imports from SA and thus to an underestimation of the effect on exports.

As regards current levels of imports and exports, Table 6.5 shows that SA currently faces a trade deficit *vis-à-vis* the EU, thus adding to the imbalance in trade creation in the EU's favour. The assumptions regarding the elasticity of import demand also affect the results, as illustrated by the difference in net impact when different values are assumed for this parameter.

The structure of the proposals is the second major contributing factor to the outlined results. The EU proposal contains a rather lengthy list of exclusions to which no tariff liberalisation will apply, comprising close to 50% of total current South African agricultural exports to the EU. The European proposal implies an increase in the share of SA exports which enter the EU duty-free from 75% at present (85% of all industrial products and 7% of all agricultural products) to 94% in 2011 (100% of industrial products and 50% of agricultural exports to the EU). Many obstacles to trade with the EU are actually non-tariff barriers, the reduction of which was under negotiation at the time of writing and is not included in the present study. Moreover, trade creation as a result of reductions of 'prohibitive' tariffs or other de facto bans on SA exports cannot be captured by the SMART simulation.

The SA proposal suggests a complete elimination of tariffs, yet provides for exclusions in the highest tranche of tariffs, amounting to a potential exclusion of 15% of import-weighted tariffs. Much depends on the exact terms of the Agreement and the extent to which these tariffs are included. This is particularly the case as most of the trade creation (approximately 67%) for the EU on the SA market, the net increase in imports originating in the EU, will be a direct result of the elimination of these specific tariffs.

In Annex C - *Additional Results* - an attempt was made to estimate the annual net impact resulting from the phased implementation of the proposals[(24)]. The net impact of the FTA will be negative for each year under consideration.

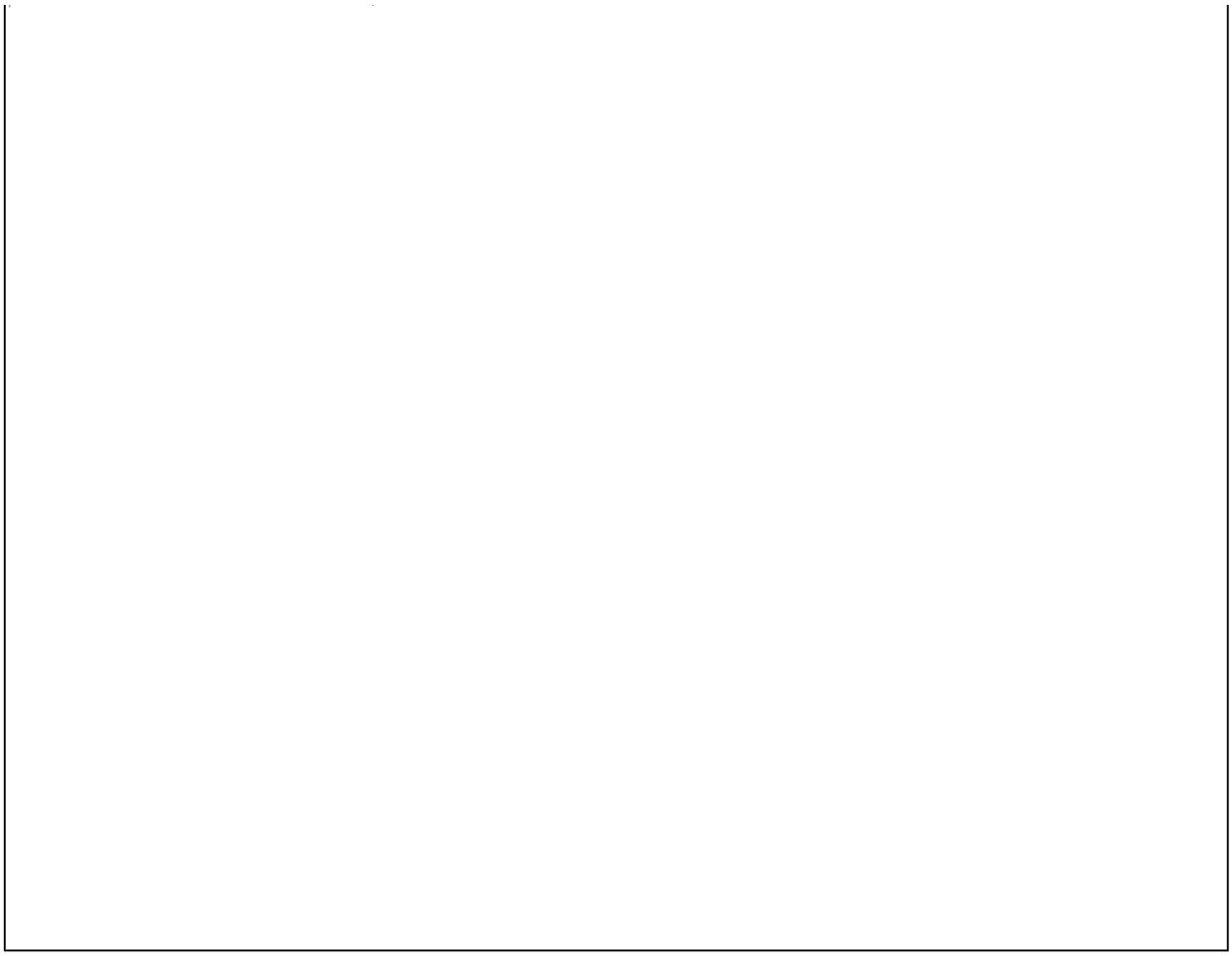
6.4 Impact at the sectoral level

Perhaps the most interesting feature of the SMART simulation model is the fact that results are disaggregated at the highest possible level, the single national tariff line (HS 8 digits). This is why- as pointed out in Section 2 - it can be a useful tool for the negotiating sides of an FTA Agreement. For analytical purposes, different levels of aggregation may be utilised, in addition to the 8 digit level the HS Section (HS 1 Digit, see Table 6.6) and the HS Chapter (HS 2 digits, see Annex C - Additional Results)[(25)] can be of particular interest.

Table 6.6 - Results from the SMART Simulation aggregated at the Section level

(R thousand)

HS Section	**Export increase**	**Import increase Scenario I**	**Import increase Scenario II**	**Net impact Scenario I**	**Net impact Scenario II**
Section I Live animals & prod.	29,181	966	55,883	28,215	



To the contrary, the effect of the agreement on SA exports of manufactures to the EU is projected to be relatively small - with the exception of textile products. This finding hinges on the fact that current exports of manufactures to the EU are limited and moreover, European GSP tariffs on industrial goods are very low. Finally, SMART is a static model which does not provide for increased investment from the EU and other dynamic effects which may well be the most important consequences of the Agreement, especially for the manufacturing sector. Additional research on the aspects of the Agreement that this paper does not attempt to analyse in detail, is therefore strongly recommended. In particular, the regulations regarding rules of origin, which effectively determine the capacity of SA manufacturing exporters to benefit from the Agreement's provisions, as well as the programme of technical and financial assistance that will accompany the FTA should be taken into account. More generally, the FTA needs to be evaluated against the overall direction of the framework of current industrial, trade and macroeconomic policies for a more in-depth analysis of the sectoral impact.

6.5 Trade diversion

For an evaluation of the total trade effect we need to add the trade creation effect, analysed above, to the trade diversion effect, defined as the displacement of imports from other sources by increased imports from the EU(27).

Trade diversion towards the EU is estimated at R 2.4 billion (representing an increase in European exports to SA, yet not resulting in a net increase in South African imports). This must be compared to the estimated trade creation for the EU of R 1.2 - R 6.3 billion (depending on the scenario and the value of the elasticity used). The total trade effect for the EU therefore ranges between R 3.6 and R 8.7 billion.

In volume terms, most of the trade diversion occurs at the expense of Japanese and American exports to SA, as illustrated in Tables 6.7 and 6.8 . Nevertheless, SADC countries, both individually and as a group, are also adversely affected when the trade diversion is expressed as a percentage of own trade with SA. Within this group Mauritius stands out as the country worst affected.

It should however be noted that in our analysis we have not taken into account the preferential tariffs which SA applies to these countries' exports, so that this effect may well be overestimated. Moreover, the assumed value of the elasticity of substitution, -1.5, is rather high, thus adding to the potential overestimation.

Table 6.7: Trade Diversion (decrease in SA imports from other trade partners)

	Trade diversion (Rands million)	Trade diversion as % of 1996 exports (%)
EU	+2,424.7	4.8%
Japan	-322.5	-6.1%
U.S.	-136.6	-2.4%
SADC	-50.5	-2.2%
All other trading partners	-1,915.1	-3.5%

Table 6.8: Trade Diversion (decrease in SA imports from SADC trade partners)

	Trade diversion (Rands thousands)	Trade diversion as % of 1996 exports (%)
Angola	-44.4	-0.02%
Malawi	-11,302.7	-3.3%
Mauritius	-1,330.8	-5.8%
Mozambique	-1,533.9	-1.6%
Tanzania	-187.9	-0.7%
Zambia	-1,154.4	-0.6%
Total SADC	-50,524.2	-2.2%

Trade diversion, although by definition not a threat to domestic SA production, is significant in at least two ways. First, depending on the particular tariff structures, it may result in substitution away from the most efficient producer to the preferential partner, so it may have adverse consequences on the overall efficiency of the productive system. It is for this potentially adverse effect that standard economic analysis considers bilateral free trade agreements as second best to a general 'MFN' tariff liberalisation.

Secondly there is a political dimension, trade diversion may result in pressures from disadvantaged commercial partners, both at a bilateral level and at a multilateral level, when the Agreement is presented before the Committee on Regional Trade Agreements of WTO for examination.

To counter any potentially harmful effect on the regional partners, other aspects of the Agreement which we do not attempt to analyse in the paper may be significant, such as the measures of

support given to the business community and the commitment by the European Union to provide compensatory financial assistance to counter the negative effects on SACU countries' tariff revenue.

7. Additional analyses: the calculation of product coverage and preference margins

This section will discuss the results from analyses that were undertaken in addition to and independently of the SMART methodology. In particular, we will evaluate two indicators of the potential economic gain arising from preferential access to foreign markets, namely 'product coverage' and 'preference margins'.

The 'product coverage' is defined simply as the percentage of exports to which preferential treatment applies. Since at present SA is a beneficiary of GSP one can compare the percentage of exports currently covered by the GSP scheme to the percentage of exports that would be covered by the FTA Agreement. Table 7.1 shows that the proposed FTA will increase the share of South African exports to the EU which benefit from preferential market access. However, it can also be verified that this increase will be dampened by the implementation of reductions of the MFN tariffs in the context of the Uruguay Round, particularly for industrial products.

Table 7.1 Comparison of Product coverage for all traded goods

	Agr.	**Ind.**	**Total**
Current product coverage (1996 GSP compared to 1996 MFN)	43.7 %	21.9 %	24.6 %
Product coverage after FTA (2011 SA tariffs compared to 1996 MFN)	49.2 %	26.0 %	28.9 %
Product coverage after FTA (2011 SA tariffs compared to 2004 MFN : Uruguay Round implementation)	46.0 %	20.6 %	23.7 %

Source: Authors' calculations

The 'preference margin', which is the natural complement of product coverage, provides an

Based on this information, we can attempt to make some comparisons with other trade agreements the EU has recently signed with countries of the Mediterranean Basin, which - similar to the proposed agreement with SA - aim at the establishment of bilateral free trade areas following a transition period of 12 years(30).

A recent UNCTAD study(31) regarding the preferential market access to European markets for agricultural goods from Mediterranean countries, provides the basis for a comparative evaluation of the proposal that the European Commission has made to SA with respect to agricultural goods (32). Table 7.3 provides an interesting basis for discussion.

Table 7.3: International Comparisons: Product Coverage and Preference Margins

Agricultural products

	Israel	Morocco	Tunisia	SA (proposal)
Product Coverage before FTA - %	59.5	73.5	93.7	43.7
Product Coverage after FTA - %	72.6	92.0	91.3	46.0
Preference Margin before FTA and UR - %	6.62	8.4	14.3	1.1
Preference Margin after UR before FTA - %	4.81	7.3	12.96	0.1
Preference Margin after FTA and UR - %	5.6	9.4	12.9	3.3

Source: UNCTAD (1997), Authors' calculations

It is evident that the product coverage and preference margin granted to SA are significantly lower than those granted to the Mediterranean countries. The row 'preference margin after UR before FTA' shows the relative impact on SA's preferential treatment of the implementation of the UR, making perhaps the most compelling case yet for the benefits of the FTA as proposed, as well as providing the first step towards a cost/benefit analysis of the FTA.

Of course, particular care should be applied before concluding from these comparisons that the European proposal to SA is particularly penalising, and this for the following reasons. First of all, several of the preferences granted to the Mediterranean countries are in the form of preferential tariffs, which often do not amount to complete duty-free market access, but are simply some percentage reduction of the MFN tariff. By contrast, the proposal made to SA grants duty-free market access to all agricultural products which are not part of the list of exclusions. A second important caveat is that, both in the case of the Mediterranean countries and in the case of SA, many of the tariff concessions take place within 'tariff quotas': this means that the reduced tariff

- *Vegetable Products*

- *Base Metals*

- *Live Animals*

- *Vehicles, Aircraft & other transport equipment*

Out of the disadvantaged sections, Section X, *Pulp of Wood, Paper and Paperboard*, is particularly hard hit, its preference margin is actually reduced to zero. However, it should be noted that, since the proposals used in this study indicate a complete elimination of tariffs on industrial goods on the EU side, the decrease cannot be cushioned by further tariff reductions, but merely serves as an indicator to be used in further analyses of the affected sectors.

Once again - as observed from the results of the SMART simulation at the sectoral level - the FTA is likely to boost agricultural exports by increasing the preference margin which South Africa enjoys on the European markets. However, as regards exports of manufactures - in particular pulp and paper, electrical machinery and miscellaneous manufactured goods, the projected evolution of the margin of preference will be to South Africa's disadvantage, due to the erosion which follows from the general reduction in EU tariffs in the context of the Uruguay Round.

8. Alternative analyses: identification of trade barriers

As was mentioned before, the SMART methodology suffers from several drawbacks. One of these involves its inability to capture trade creation effects of tariff reductions on products which are currently not traded. In order to measure the potential effects of the complete set of tariff reductions we need to include these products. However, two problems arise: firstly, not all non-traded goods are victims of trade barriers (lack of competitiveness could be to blame) and secondly, non-tariff barriers or tariff quotas could be effectively reducing trade to below its optimum, but not to zero (a detection problem).

We have made use of the theory of revealed comparative advantage(33) for the identification of de facto barriers to trade, whether tariff or non-tariff barriers, whether completely prohibitive to trade or merely trade-dampening. This information may prove useful during the negotiations for a free trade agreement, as the main 'offensive interests', i.e. important tariff lines which the negotiators should target as valuable inclusions in the tariff phase-down schedule, need to be identified. One first needs to consider the impact of the partner's existing trade barriers on SA exports to isolate those products which are particularly disadvantaged.

8.1 Revealed comparative advantage

According to the theory a comparative advantage is revealed if country *i*'s share of world exports for a particular product *j* is greater than that country's share in total world exports for all products [(34)] (or a selected range thereof). Formally: -

$$RCA = \frac{\frac{x_{ij}}{x_{wj}}}{\frac{\sum x_{ij}}{\sum x_{wj}}}$$

Where x_{ij} = *exports of country i of product j,* x_{wj} = *world exports of product j,* x_{ij} = *total exports of country i (all products)* and x_{wj} = *total world exports (all products)*.

If RCA is greater than 1, a comparative advantage is revealed.

To suit our present purpose, namely analysing European barriers to SA exports, we can adjust this indicator to measure relative trade barriers by constructing the 'revealed trade barrier' indicator (RTB) as follows:

Calculate the share of SA in EU imports for a particular product *j*.

Consider the share of SA in imports of all other countries excluding EU (rest of world) of the same product *j*.

Divide SA's share on the EU market by the share of SA on the sum of all other markets, formally: -

$$RTB = \frac{\frac{EU_{SAj}}{EU_{wj}}}{\frac{ROW_{SAj}}{ROW_{wj}}}$$

Where EU_{SAj} = *imports of EU from SA for product j,* EU_{wj} = *imports of EU from world for product j,* ROW_{SAj} = *world imports (excl. EU) from SA for product j* and ROW_{SAj} = *world imports (excl. EU) from all sources for product j.*

If the resultant ratio is less than 1 we may conclude that South Africa is exporting relatively more to the rest of the world than it is to EU, so it is possible that SA exporters are encountering trade barriers on the EU markets. By analogy, if the ratio is greater than unity SA appears to be at a

relative advantage due to either superior competitiveness or to the fact that EU grants SA preferential market access.

However, it is important to remember that the outcome of this exercise, akin to Balassa's RCA indicator, can only be used in an ordinal ranking fashion. No watertight conclusions can be derived from the absolute numerical values obtained, other than a categorisation of all products in two groups, namely *facing a Relative Trade Barrier* and *facing Preferential Access*(35).

In order to 'operationalise' the findings we can combine these two indicators. One evident sifting mechanism would include those products for which SA has a revealed comparative advantage in world markets whilst facing a relative trade barrier in EU markets. Coupled with information of market potential and strategic industrial importance, these products can be considered highly relevant to policy makers(36).

8.2 Results RCA - RTB analysis

This analysis served to capture the economic importance of the in- or exclusion of two types of disadvantaged products: those products which have a revealed comparative advantage in world markets which does not translate into *any* exports to the EU as well as those products which experience a revealed comparative advantage which translates in to *some* exports to the EU but which total value is less than the potential maximum.

Of the first type, 125 products were identified at the eight digit level, only 23 of which form part of the agricultural chapters of the HS. The agricultural products on this list face relatively high tariffs and are often excluded from the FTA all together. The industrial goods generally face extremely low tariffs, indicating perhaps the presence of non-tariff barriers, or the difficulty for SA to fulfill the rules of origin criteria to qualify for market access under GSP. The total value of the unexploited SA exports to the EU in this category amounts to $157 million, or 1.6% of current exports to the EU. As the SMART methodology does not capture trade creation effects for the sub-headings in which no exports to the EU are realised in the base year (1996 in this case), this unexploited potential should be added in full to the trade creation estimation(37).

Of the second category as many as 312 products were identified as facing a *Relative Trade Barrier* on the EU market. The values for exports to the EU were compared to the South African share in world exports, resulting in an objective reference value for the potential share of South African exports in world trade. The total value of the potential SA exports to the EU in this category amounts to $1.6 billion, of which as much as $698.7 million is currently unexploited. This translates into 7.1 % of current exports to the EU(38).

Achieving free trade in the tariffs lines identified in these two categories alone, could increase SA exports to the EU by 8.8%. Thus, eliminating tariffs and other barriers to this limited number of products would result in an increase in South African exports in excess of the total FTA and UR effects combined. Clearly these simple exercises can provide valuable additions to a SMART simulation and be of practical importance in the negotiating process.

9. Conclusions

In conclusion we would like to make two set of comments, the first regarding the methodology and the second discussing the policy implications of the analysis.

9.1 Methodological conclusions

The main strengths of the SMART simulation tool can be summarised as follows:

the practical application of the methodology is straightforward, thus simplifying the task of constructing and evaluating alternative phase-out scenarios;

the calculations are detailed at the level of the 8-digit tariff line, providing the negotiators with an indication of the projected outcome of the phase-out of tariffs on both imports and exports at the highest possible level of dis-aggregation;

the data requirements are relatively small in comparison with alternative forms of impact evaluation.

However, it appears that SMART's main strength, simplicity, is also its main weakness. The implementation of SMART for the purpose of the present study exposed the following constraints.

SMART is a static, partial equilibrium model operable only under strict *ceteris paribus* conditions. It provides a *snapshot* of the projected impact of tariff reductions, whilst disregarding any adjustment process accompanying this change. The analysis is limited to export and import projections, leaving policy makers uninformed about general price level and other macro-economic variables.

In addition, no time series are used, so that the TC becomes a linear extrapolation of current exports, dependent only on the level of tariff reduction and the elasticities used. Outlier years in terms of export performance or a miscalculation of the import demand elasticity on either side of the agreement will therefore seriously affect the results(39).

Furthermore, SMART can be used to manipulate ad valorem tariffs only, non-tariff barriers are not taken into consideration, unless it is possible to estimate ad valorem equivalents. This limitation also applies when specific tariffs are used - as in the case of the EU for agricultural products(40).

Another problem regarding the interpretation of these results stems from SMART's exclusively demand-side focus and the assumption of infinite supply elasticity. The relative price of imports is assumed to be the overriding factor in consumer spending. Secondly, one could certainly argue that in the case of many developing countries the infinite supply elasticity assumption does not correspond to reality. In particular, one could question this assumption in the case of a South African agreement with the EU, since almost half of all exports are destined for the EU. Apart from obvious raw material supply constraints, for some products significant increases in the value of exports are projected. These increases may be of such magnitude that they affect SA export prices, so that the estimated increase in SA exports may not materialise to the full extent of the projection.

In spite of these limitations, the SMART methodology was used - amongst others - by many countries in preparation of their negotiating position during the Uruguay Round. Both the European Union delegation and South Africa have utilised it in the context of the current negotiations.

The reason for the success of this simple methodology is twofold: on the one hand, alternatives are limited. On the other hand, SMART is particularly well-suited to detailed trade negotiations.

It may appear that the model of choice for this kind of analysis would be a CGE model. However, this is not always the case, first and foremost because there are many problems regarding the availability or reliability of the type of time series data required. The results generated by CGE modelling may also be quite difficult to unravel, as the impact on every macroeconomic aspect must be taken into consideration. Partial equilibrium analyses such as SMART allow an exclusive focus on certain parts of the economy, which may prove more useful in the context of trade negotiations. SMART proves invaluable when different trade agreement proposals need to be evaluated against each other and time is limited. Detailed analyses on a whole range of variables may be cumbersome to compare quickly, whereas one can compare trade creation results under different scenarios at a glance. Finally and perhaps most importantly, a CGE model cannot provide a tariff-line detail, yet actual trade agreement negotiations are conducted at this highly dis-aggregated tariff line level.

In summary, the evaluation of the pros and cons of the SMART tool, leads us to the following observation: SMART can be extremely effective provided it is used in context. SMART's main contribution lies in facilitating the evaluation of alternative trade agreement proposals. For a meaningful interpretation of the results however, the trade creation and diversion outcomes must be appraised in the context of the country's industrial and macro-economic policies as well as the prevalent export climate and envisaged export strategies, leading to an informed position on the main offensive interests in the FTA negotiations.

Moreover, the SMART analysis is in many ways the starting point of various lines of inquiry, necessary for a full analytical evaluation of the FTA. Since SMART is able to incorporate non-

proposal it should be remembered that these indicators show significant improvements when the eroding effects of the implementation of the Uruguay Round are taken into consideration. These analyses also provided some indication of the export potential of the SA products faced with de facto barriers at the European borders.

It is very clear from the analysis that from a purely mercantilistic point of view South Africa stands to lose from the FTA. In fact, even adopting the best case scenario - thus assuming that SA liberalises only 85% of its imports while the EU liberalises 94%- does not prevent a worsening of the trade deficit *vis-à-vis* the European Union.

However, in a rigorous evaluation of the FTA, it should be emphasised that the displacement of domestic production by imported goods is no evil per sé(41), and could lead to a more efficient domestic resource allocation. Moreover, the exposure to international competition could induce the type of restructuring often imperative in previously protected industries. In addition, the program of technical and financial assistance that will accompany the FTA, as well as the changes in the rules of origin regulations may have a cushioning effect on the asymmetry of the estimations presented in this study.

For instance, it has been observed in the context of the European Agreements with the countries of the Mediterranean Region(42), that the commitments regarding the increased protection of foreign direct investment, the provisions concerning competition policy and government procurement as well as the protection of intellectual property rights may play a role in creating a business environment that is conducive to investment, both by foreign and by local entrepreneurs. Despite the obvious differences with the South African context, characterised by a more advanced legal framework as well as firmly established WTO commitments in many of these areas, these and other dynamic effects should be included in the overall assessment of the FTA.

Another important dimension is the impact of the Agreement on South Africa's trade with its regional partners - particularly the countries of SADC. To counter this potentially harmful effect, again, other aspects of the Agreement which we do not attempt to analyse in the paper may be significant, such as the commitment by the European Union to provide compensatory financial assistance to counter the negative effects on SACU countries' tariff revenue.

These and other dynamic considerations, such as an evaluation of the transition to freer trade in terms of the cost to human and technological capital or the potentially positive effects on productivity and foreign direct investment, are not adequately provided for by the static and partial SMART analysis and should be carefully evaluated against the background of the South African policy framework. Additional research in all of these areas is therefore recommended.

Annex A - Practical example of how to construct a SMART simulation

This example serves to guide the interested reader through the construction of a SMART simulation model. Table A1 below, illustrates the hypothetical trade data utilised in this exercise.

Table A1 - Hypothetical trade & tariff data

Trading partners	**Exports to SA ($)**	**Tariff before FTA (%)**	**Tariff after FTA (%)**
European Union	150	20	0
BLNS Countries	100	0	0
SADC Country with preferential market access to SA	50	10	10
Other trading partners	10	20	20

In addition let us assume that the elasticity of import demand (E_m) and the elasticity of substitution (E_s) are both -1.5.

Calculations

Impact on European exports:

Trade Creation for EU on SA market equation (1):

$$TC = E_m \times M \times \frac{(1+T_1)-(1+T_0)}{(1+T_0)}$$

$$TC = 150 \times -1.5 \times \frac{(1.0-1.2)}{1.2} = \$37.5$$

Trade Diversion in favour of EU on the SA market equation (3) and (4):

$$\frac{dRP^{EU}}{RP^{EU}} = \frac{1+T_1^{EU}}{1+T_0^{EU}} - 1$$

$$TD^{EU} = \frac{M^{EU} \times M^{other} \times \frac{dRP^{EU}}{RP^{EU}} \times E_s}{M^{EU} + M^{other} + M^{EU} \times \frac{dRP^{EU}}{RP^{EU}} \times E_s}$$

Trade Diversion away from other partners:

Diversion away from BNLS Countries (combined):

For our calculation of the relative price change, we need to use the tariff applying to countries other than the BLNS, both before and after the preferential liberalisation *vis-à-vis* the EU. We therefore need to compute a weighted average of tariffs applicable to countries other than the BLNS.

Before the EU-SA FTA, this weighted average is:((150*0.2)+(50*0.1)+(10*0.2))/210=17.6 %

After the EU-SA FTA the weighted average is: ((150*0) + (50*0.1) +(10*0.2))/210 = 3.3%

The tariff on BLNS exports remains constant at 0%, yet the relative price worsens because the weighted average of tariffs falls. This is a typical example of erosion of trade preferences.

$$\frac{dRP^{BLNS}}{RP^{BLNS}} = \frac{1.0/1.033}{1.0/1.17} - 1 = 13.8\%$$

$$TD^{BLNS} = \frac{\quad}{100+210+(100\times 0.13\times -1.5)} = \$-15.0$$

Diversion away from a typical SADC partner with preferential market access:

Before the EU-SA FTA, the weighted average is:((150*0.2)+(100*0.0)+(10*0.2))/260 =12.3%

After the FTA the weighted average is:((150 * 0) + (100 * 0.0) + (10 * 0.2)) / 260 = 0.7%

$$\frac{dRP^{SADC}}{RP^{SADC}} = \frac{1.0/1.0076}{1.1/1.12} - 1 = 11.4\%$$

$$TD^{SADC} = \frac{50 \times 260 \times 0.11 \times -1.5}{50 + 260 + (50 \times 0.11 \times -1.5)} = -\$7.4$$

Diversion away from other trading partners:

The weighted average of tariffs applying to countries other than 'other trading partners' is:

Before the FTA: ((150 * 0.2) + (100 * 0) + (50 * 0.1))/300 = 11.6%

After the FTA: ((150*0) + (100 * 0) + (50 * 0.1))/300 =1.6%

$$\frac{dRP^{OTHER}}{RP^{OTHER}} = \frac{1.2/1.016}{1.2/1.116} - 1 = 9.8\%$$

Summary results:

$$TD^{OTHER} = \frac{10 \times 300 \times 0.098 \times -1.5}{10 + 300 + (10 \times 0.098 \times -1.5)} = -\$1.4$$

Trade Creation for EU on SA market : =**+ $37.50**

Diversion towards EU: =**+ $ 17.26**,

Diversion away from BLNS, SADC, other = -$15.05 -$ 7.40 -$ 1.43 = **-$ 23.89**

In theory, trade diversion does not affect total imports so that the diversion towards EU should be exactly equal to the diversion away from other trading partners. In this example however - as is often the case in practice - the diversion towards the EU and the sum of the diversion away from other trading partners show a discrepancy. Therefore, the difference should be spread proportionally to the share in total trade as follows:

Table A.2 Trade diversion: results of the simulation exercise

Partner	Original TD	Spread difference	Corrected TD
EU	+17.26	+3.2	+20.47
BLNS	-15.055	-2.13	-12.91
SADC	- 7.40	-1.06	- 6.33
OTHER	-1.43	-0.21	-1.22

Annex B - The negotiating proposals utilised in the simulation

1. The SA negotiating proposal to the EU (Dec. 1996)

The South African FTA proposal is based on cumulative duty-free shares of total trade for both agricultural and industrial goods. The calculation is as follows: first, all trade-weighted tariffs are sorted in ascending order. Then, a calculation regarding the share of duty free trade as part of total trade is made. The SA proposal aims for a total elimination of tariffs vis-à-vis the EU by 2011, via cumulative increases in the share of zero-tariff EU imports.

Phase 1: Base Year

Year of Completion: 1999

At the entry of the Agreement 65% of all EU Exports to SA must have a zero tariff (i.e. duty free). An assessment of the current (1996) situation with regard to the percentage of EU exports to SA which is duty free indicates that the 1996 share of total EU exports which is levied a zero tariff is 56.3%. The first phase therefore entails an immediate elimination of all tariffs between the 56.3 and 65% mark (for technical reasons, it is 64.9% in this study). This group has been assigned "1", the corresponding phase in which these are set 0 is phase 1. The tariffs will then be held constant for the following 3 years, until 2002.

Phase 2: 2003-2004

Year of Completion: 2004

In this phase the next 5% of non-zero tariff lines, group "2", will be set equal to zero, bringing

the total of trade-weighted duty free tariff lines up to 70% (cumulative share duty free is in fact 69.9%).

Phase 3: 2005-2011

Year of Completion: 2011

By the end of this phase an additional 15% of tariffs, group 3, will be reduced to zero, this elimination will be accompanied by Protocol Reviews. By the end of 2011 it is thus envisaged that 85% of all EU imports will be free of duty. For technical reasons the actual increase in duty free lines in the simulation will only amount to 11.9%, resulting in a cumulative share of 81.8%.

Phase 4: 1999-2011

Year of completion 2011

This phase is envisaged to be implemented alongside the other phases. It mainly covers cross-cutting protocols which will be dealt with in negotiations. The tariffs will become either zero, MFN duties or a percentage thereof. Due to technical reasons the actual share of tariffs that will be eliminated is 18.2%, leading to the full elimination of tariffs. This phase is currently under negotiation, the outcome of which will determine the extent of actual implementation of this phase.

Notes:

The SA dismantling offer is subject to asymmetrical configuration of SADC.

The FTA will include all trade whilst making provision for specialised protocols in agreed sectors within 12 years. Non-traded products are not covered by this proposal but have to be incorporated, with specific reference to subsidy regimes in the EU.

2. The EU negotiating proposal to SA (Dec. 1996)

The EU proposal employs a classification of products based on GSP sensitivity list and

level of MFN tariff. In the definition of categories a distinction is made between three groups of industrial products and five groups of agricultural products.

All products are initially divided into 4 product sensitivity categories, namely Part 1, 'very sensitive' products, Part 2, 'sensitive' products, Part 3, 'semi-sensitive' products and Part 4, 'non-sensitive' products. The division used in this study is based on the "Official Journal", L82/30, April 12th 1995 for the industrial goods (HS Chapters 25-99). The product sensitivity categories for agricultural goods are contained in Council Regulation no. 1256 June 20 1996, Official Journal of the E, June 29 1996.

Agricultural Products

The EU offer to SA is built on five groups of agricultural products (HS chapters 1-24), defined as follows:

List 1: Non-GSP products with an (MFN) tariff duty of less than 3.5% plus products listed under Part 4 of the product sensitivity categories, indicated by 'i'.

List 2: Non-GSP products with an (MFN) tariff duty of 3.5 to 7% plus products listed in Part 3 of the product sensitivity categories, indicated by 'ii'.

List 3: Non-GSP products with an (MFN) tariff duty of 7 to 10% plus products listed in Part 2 of the product sensitivity categories, indicated by 'iii'.

List 4: Products listed in Part 1 of the GSP sensitivity categories, indicated by 'iv'.

List 5: Non-GSP products with an (MFN) tariff duty of more than 10% plus products specified in list 1 and 2 of the EU Negotiating Directives of March 25th 1996, indicated by 'v'.

For these groups the following liberalisation regime has been proposed to SA:

List i: Full elimination of tariff duties and taxes having an equivalent effect at the entry into force of the Agreement.

List ii: Full elimination of tariff duties and taxes having an equivalent effect within three years after the entering into force of the Agreement.

List iii: Elimination of tariff duties and taxes having an equivalent effect within ten years after the entering into force of the agreement, starting not later than four years after the entering into force of the agreement.

List iv: Elimination of tariff duties and taxes having an equivalent effect within ten or twelve years after the entering into force of the agreement, starting not later than six years after the entering

For these groups the following liberalisation calendar has been proposed to SA:

List I: Full elimination of tariff duties and taxes having an equivalent effect at the entry into force of the Agreement.

List II: Full elimination of tariff duties and taxes having an equivalent effect within three years after the entering into force of the Agreement.

List III: Elimination of tariff duties and taxes having an equivalent effect conditional on and in parallel with a similar process at the SA side.

A limited number of industrial products is expected to be excluded from the FTA.

The category '0' was subsequently constructed to deal with exceptions, e.g. those cases where an ad valorem equivalent was not available, and to indicate those HS codes for which the applied

tariff was actually zero before the implementation of the FTA.

By setting the category '0' if no applied ad valorem tariff was available and the product was not covered by GSP, certain tariff lines may have had '0' assigned when 'v' was appropriate.

Either way this specific exception does not affect the outcome since neither v nor o results in trade creation.

Interpretation

Phases related to the EU proposal:

Phase 1: 1999

In this phase all agricultural goods which have been classified as 'i' in the 'EU proposal category', as well as all industrial goods classified as 'I' will undergo a full elimination of tariff duties

and taxes having an equivalent effect. All tariff lines corresponding to '0' entries in the 'EU proposal category' retain their zero tariffs.

Phase 2: 1999-2002

Completed by 2002

In this phase all agricultural goods classified as 'ii' as well as all industrial goods classified as 'II' will have their duties and taxes having the equivalent effect eliminated. The calculation of Trade Creation is cumulative and therefore the year by the end of which all tariff reductions are meant to have been implemented is chosen as the year in which the Trade Creation will occur.

Phase 3: 2002-2009

Completed by 2009

In this phase all agricultural goods classified as 'iii' will have their duties and taxes having an equivalent effect will be eliminated. For this group of agricultural goods, the elimination should start no later than four years after the entering into force of the Agreement, which would be 2004 in this scenario, and be completed by 2009.

The elimination of duties and taxes having an equivalent effect of an additional group of industrial

products was made conditional on a similar process at the SA side and should be in parallel with that process. The SA proposal states that the third phase of tariff reductions will be fully implemented by 2011, this year has thus been chosen as the terminal date for elimination of tariffs on industrial goods labeled as 'III'. This is part of the next phase.

Phase 4:

a) 1999-2009/2011 for agricultural goods, starting no later than 2005

b) 2005-2011 for industrial goods

Completed by 2011

In this phase all agricultural goods classified as 'iv' will have their duties and taxes having an equivalent effect eliminated. For this group of agricultural goods, the elimination should start no later than six years after the entering into force of the Agreement, which would be 2005 in this scenario, and be completed by 2009 or 2011.

All industrial goods in the 'III' EU proposal category will have the corresponding duties and taxes having an equivalent effect eliminated, starting in 2005.

Annex C - Additional Results

Table C.1 Origin of South Africa's Imports - 1996

Source	Value (Million rands)	Share (%)
EU	51,042	44%
Japan	13,026	11%
USA	15,879	14%
SACU	17,803	15%
Rest of the world	36,353	31%
Total	116,317	100%

Table C.2 Trade Creation per annum (from FTA and Uruguay Round)

Em=-0.85, R million

Year	Phase	Projected increase in imports from EU		Projected increase in exports toEU	Phase	Net impact - Scenario I	Net impact - Scenario I
		Scenario I	Scenario II				
1999	1, 4	217	400	49	1, 4a	-168	-351
2000	4	217	582	116	2, 4a	-101	-467
2001	4	217	765	183	2, 4a	-35	-582
2002	4	217	947	249	2, 4a	32	-698
2003	2, 4	318	1,231	272	3, 4a	32	-959
2004	2, 4	419	1,514	295	3, 4a	33	-1,219
2005	3, 4	529	1,807	345	3, 4a, 4i	-49	-1,461
2006	3, 4	639	2,099	396	3, 4a, 4i	-131	-1,703
2007	3, 4	749	2,392	446	3, 4a, 4i	-213	-1,946
2008	3, 4	859	2,685	497	3, 4a, 4i	-295	-2,188
2009							

Since the implementation will be a gradual process, the estimated annual impact also needs to be phased. For example, phase 2 of the trade creation for the EU in SA (scenario II) occurs over 2 years and phase IV over 13 years, thus in the year 2003 we should add the total (R 318 million) of phase 2 (divided by 2) and phase 4 (divided by 13) to the TC of 2002 (R 947 million) = R 1,231 million.

Table C.3 Trade Creation per HS chapter

(Combined effect of FTA & UR, Elasticity of import demand =-0.85)

HS Chapter	Increase SA exports	Increase SA imports - Scenario I	Increase SA imports - Scenario II	Net Impact - Scenario I	Net Impact - Scenario II
01 Live animals	0	0	0	0	0
02 Meat and edible meat offal	350,920	52,691	29,937,118	298,229	-29,586,198
03 Fish & crustacean, mollusc & other aquatic invertebrates	28,830,286	658,048	2,089,875	28,172,238	26,740,412
04 Dairy products; birds' eggs; natural honey; etc.	0	255,619	23,855,510	-255,619	-23,855,510
05 Products of animal origin	0	0	0	0	0
06 Live trees & other plants; bulbs, roots; cut flowers	2,593,992	74,401	74,401	2,519,590	2,519,590
07 Edible vegetables and certain roots and tubers	13,586,102	988,198	1,118,231	12,597,904	12,467,872
08 Edible fruit and nuts; peel of citrus fruit etc.	202,714,784	2,487,514	2,491,428	200,227,271	200,223,356
09 Coffee, tea, mat and spices	67,203	225,894	282,185	-158,692	-214,982
10 Cereals	2,461	133	3,326	2,328	-865
11 Products of the milling industries; malt; starches; etc.	4,476	2,675,786	2,688,672	-2,671,310	-2,684,196
12 Oil seed, oleagi fruits; etc.	45,133	405,862	405,862	-360,729	-360,729

13 Lac; gums, resins & other vegetable saps & extracts	3,250	394,823	519,692	-391,573	-516,442
14 Vegetable plaiting materials; vegetable products	0	0	0	0	0
15 Animal/veg fats & oils & their cleavage products, etc.	829,566	9,986,151	14,584,382	-9,156,586	-13,754,816
16 Preparations of meat, fish or crustaceans etc.	640,510	348,041	1,288,352	292,469	-647,842
17 Sugars and sugar confectionery	3,139,334	568,415	3,871,259	2,570,919	-731,925
18 Cocoa and cocoa preparations	1,104,400	4,390,058	6,577,573		

extracts; tannins & derivatives; etc.					
33 Essential oils & resinoids; perfumes, toiletries etc.	0	4,353,506	18,233,786	-4,353,506	-18,233,786
34 Soap, organic surface-active agents, washing preparations	0	23,490,411	24,203,471	-23,490,411	-24,203,471
35 Albuminoidal substances; modified starches; glues; enzymes etc.	0	8,752,209	8,753,466	-8,752,209	-8,753,466
36 Explosives; pyrotechnic prod; matches; etc.	0	1,410,122	1,410,122	-1,410,122	-1,410,122
37 Photographic or cinematographic goods	0	11,146,473	11,146,473	-11,146,473	-11,146,473
38 Miscellaneous chemical products	16,806	37,308,459	38,116,859	-37,291,654	-38,100,054
39 Plastics and articles thereof	3,962,925	59,912,058	121,993,770	-55,949,133	-118,030,845
40 Rubber and articles thereof	7,945,457	25,299,732	58,772,941	-17,354,274	-50,827,484
41 Raw hides and skins (other than furskins)	829,762	8,688,793	8,688,793	-7,859,031	-7,859,031
42 Articles of leather	239,227				

50 Silk	3,947	0	0	3,947	3,947
51 Wool, fine/coarse animal hair, horsehair etc.	7,014,685	8,514	6,025,140	7,006,171	989,545
52 Cotton	7,478,424	1,079,861	15,074,241	6,398,563	-7,595,818
53 Other vegetable textile fibres	45,499	460,970	460,970	-415,472	-415,472
54 Man-made filaments	12,194,700	9,846,668	23,946,134	2,348,032	-11,751,434
55 Man-made staple	2,833,677	115,041	16,650,717	2,718,636	-13,817,040
[redacted]					
63 [redacted] textile a[redacted]					
64 Footwear[redacted] etc.					
65 Headgear and parts thereof					
66 Umbrellas, walking-sticks, seat-sticks, whips, etc.	301,451				
67 Feathers; articles of flowers, etc.	0	155,299	155,299		

pearls, precious stones & metals, etc.					
72 Iron and steel	162,908,614	37,120,959	37,120,959	125,787,655	125,787,655
73 Articles of iron or steel	5,949,613	59,200,648	62,341,403	-53,251,035	-56,391,790
74 Copper and articles thereof	1,056,478	6,741,648	6,941,328	-5,685,169	-5,884,849
75 Nickel and articles thereof	0	171,818	171,818	-171,818	-171,818
76 Aluminium & articles	3,389,118	15,727,213	17,129,834	-12,338,095	-13,740,716
78 Lead & articles	56,889	24,235	24,235	32,655	32,655
79 Zinc & articles	253,286	60,264	60,264	193,022	193,022
80 Tin & articles	0	127,550	127,550	-127,550	-127,550
81 Other base metals	2,152,625	139,973	139,973	2,012,651	2,012,651
82 Tools, implements, cutlery etc. of base metal	1,023,833	11,150,431	15,151,474	-10,126,598	-14,127,641
83 Miscellaneous articles of base metal	315,400	18,730,363	22,933,940	-18,414,963	-22,618,540
84 Nuclear reactors, boilers, machinery & mechanical appliances, etc.	6,909,098	155,339,505	192,525,594	-148,430,407	-185,616,496
85 Electrical machinery & equipment, parts thereof; etc.	10,730,144	226,450,444	272,442,970	-215,720,301	-261,712,826
86 Railway/tramway locomotives, rolling-stock & parts thereof	0	223,047	223,047	-223,047	-223,047
87 Vehicles of the railway /tramway rolling-stock & parts	28,485,297	76,581,949	583,315,096	-48,096,652	-554,829,799
88 Aircraft, spacecraft, and parts thereof	0	0	0	0	0
89 Ships, boats and floating structures	3,936	313,643	744,243	-309,707	-740,307
90 Optical, photographic, precision instruments etc.	593,952	7,103,077	10,854,448	-6,509,124	-10,260,496
91 Clocks, watches & parts	71,677	1,337,252	1,492,290	-1,265,575	-1,420,613
92 Musical instruments & parts	23,151	258,241	258,241	-235,091	-235,091
93 Arms and	815,668	0			

ammunition; parts and accessories					
94 Furniture; bedding, etc.	813,891	1,732	35,611,457	812,160	-34,797,565
95 Toys, games & sports requisites; parts	136,762	2,402,985	15,443,331	-2,266,223	-15,306,569
96 Miscellaneous manufactured articles	382,551	10,926,322	17,599,888	-10,543,770	-17,217,337
97 Works of art, collectors' pieces and antiques	0	2,476	2,476	-2,476	-2,476
98 Original equipment components	n.a.	0	1,287,900,366	0	-1,287,900,366
99 returned goods; used machinery and rest category	n.a.	537,769		537,769	537,769
Total	**637,078,650**	**1,190,062,614**	**3,562,930,086**	**-552,983,964**	**-2,925,851,436**

Table C.4 Calculations of Preference Margins

Preference Margin	Formula	Agriculture %	Industry %	Total %
a. Current preference margin	$\frac{MFN_{96}-GSP_{96}}{1+MFN_{96}} \times Exports_{96}$	1.1	0.6	

1. Due to the colossal technical problems involved with EU import data and tariff structures, the TD on the EU side has not been estimated.

2. Useful references for the foundations of SMART model include:

- Robert Stern et al., "Price elasticities in International Trade", London,1975.

- William Cline et al., "Trade Negotiations in the Tokyo Round: A Quantitative Assessment", Washington D.C., The Brookings Institution, 1978.

- Rolf Langhammer, "Problems and effects of a Developing Country's Tariff Concessions Round on South-South trade", Kiel working paper, n. 167, Institute for World Economics, February 1983.

3. Based on Viner, 1956.

4. It should be noted for the sake of completeness that this formula is only valid when the export elasticity is infinite, i.e. when demand in the importing country is too small to affect the world price of its imports, an assumption that we will retain throughout the paper.

5. See the Conclusion -Section 9 -for a thorough discussion of the merits and weaknesses of the SMART methodology.

6. Both the Trade Creation and Trade Diversion equations provide estimations defined in the currency chosen to express import values.

7. Where necessary we have converted this data (originally expressed in US$) to Rands using December 1996 average $1 = R 4.8 exchange rate.

8. The DTI's trade and tariff database was not used here because the tariff data base 'Jacobsen's Electronic Tariffs' does not allow for retrieving tariffs applied in a particular year (1996) since the tariffs are updated continuously. Exceptions were made for USA and Japan trade data which were extracted from the DTI database.

9. Information on the EU GSP scheme was constructed based on material available at DTI, complemented by and improved upon with information from the Official Journal, L160, volume 19 June 29th 1996, C 102A, April 1997 and C255A, volume 39, September 3rd 1996, as well as tariff data from the IDC, namely the 'EU Defensive List (estimation)' September 23rd 1997.

10. Of course, similar utilisation problems will indeed be encountered by exporters in attempting to obtain preferential market access under the FTA, so that the magnitude of our under-estimation is somewhat reduced.

11. Small, Reserve Bank Bulletin, June 1996.

12. The full implementation of the FTA will cause import weighted tariffs to drop to 0,7%.

13. For agricultural products one should bear in mind that different product lines can refer to different dates of production, i.e. SA may not be exporting in a particular line, because the relevant 8-digit code refers to the European summer/SA winter.

14. The inclusion of fish in the Agreement by the EU was made conditional on free access to SA fishing waters to the EU fishing vessels, a condition that SA regards as unacceptable.

15. If Fish is excluded, the proportion of duty free agricultural exports drops further to 44.63%.

16. The calculation of trade diversion on the European market was not included, since the complexity of the EU tariff book makes it extremely difficult to assess the rate of duty levied on imports from the various trade partners.

17. Including the UR tariff reductions. When Chapter 3 (Fish) is excluded, the projected increase drops by R. 28.8 million to R 608.3 million (1.3 % of 1996 exports).

18. It may be worthwhile to point out that this one-off increase projects the permanent increase in imports that will occur (on top of normal trade growth) after the liberalisation is completed. In the transition period, only the component of the trade creation which relates to commitments already implemented will be realised each year, see table C.2 in Annex C - *Additional Results.*