South African Trade Reform since Democracy

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African Development and Poverty Reduction: The Macro-Micro Linkage

Forum Paper 2004

13 - 15 October 2004
Lord Charles Hotel, Somerset West, South Africa

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Trade and Industrial Policy Strategies
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1st Draft, not to be quoted

As part of a wider investigation by the National Institute for Economic Policy, covering a range of economic policy issues, the main aim of this paper is to provide an *overview* of how trade policy has evolved since democracy. We use standard quantities measures of trade policy analysis as an input into a discussion of the impact of the trade regime on the economy. The paper also undertakes some sensitivity analysis about how we think about some basic welfare concepts.

1. Introduction

South Africa is a middle-income country with high unemployment (an estimated 30%), increasing income inequality and stagnant growth. Some of the major challenges that the country faces, include low investment (both domestic and foreign), a skills shortages, and lack of competition in various sectors of the economy. South Africa is currently a moderately protected economy, with an average unweighted tariff of about 11% yet has considerable peaks in some sectors such as clothing, textiles and the motor industry and components.

In assessing the broader role of trade in the South African economy, it is important to bear in mind that the trade regime is one instrument, amongst a range of others that play a role in growth and distribution and that its impact, be it positive or negative, is notoriously exaggerated. In an environment in which conventional tariffs and quotas have decreased considerably, the gains from further conventional trade liberalisation for an economy like South Africa's are, at best, modest. However in analyzing services trade, the tracking of the impact of trade reform has to be radically revised as there are a range of additional channels through which services affect the economy. Notwithstanding the potential gains from services trade reform, a great deal of unfinished business remains in the so-called conventional trade agenda – tariffs peaks still exists in many sectors in countries like South Africa and this has significant welfare implications.. Moreover, South Africa's exports still face severe restrictions in some markets and product categories. Hence, this paper focuses primarily on trade in goods, bearing in mind that this is really one aspect to trade policy.

During the last decade, trade policy in South Africa has undergone several changes. These include multilateral reductions in tariffs and subsidies through the country's World Trade Organisation (WTO) commitments, the signing of two significant Free Trade Agreements (FTAs) , and more recently several negotiations around future commitments to liberalisation both at the multilateral level as well as the regional levels. This paper comprises of three facets. The first, provides a reflection of trade policy changes in South Africa since the introduction of democracy. While changes in the trade regime in South Africa have been well documented and South Africa's trade reform in a multilateral sense has been well researched, there has been very sparse research incorporating this form of trade reform with the country's dual track of regional and bilateral Free Trade Agreements (FTAs). As such this paper aims to provide a tighter synthesis and analysis of developments since 1994. The second facet of the paper seeks to provide a preliminary analysis of these FTA agreements. The fact that these agreements effectively came into effect in the year 2000, poses major methodological challenges in doing a serious ex-post analysis. However, this analysis attempts to review what changes have taken place without the benefit of time series data to, for example, execute an econometric study, Instead, the paper will derive some analysis by evaluating trends in the last few years. Finally the paper looks at future developments

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in both global trade and regional aspects on the South African economy. We employ a tentative approach in analysing the potential welfare implications that may follow from South Africa's further liberalisation in the context of multilateral reform of the global economy. The implications of South Africa's further opening of markets will examined while attention will be paid to gains South African firms can secure in the further liberalisation of global tariffs.

2. Changing Incentives in the Trade Regime

The transition from import substitution industrialization to export orientation posed specific challenges for South Africa. The most important was the extent to which the policy environment gave firms incentives to export. The last two decades can be described as a period that was aimed at creating an environment to improve the prices of tradeables relative to non-tradeables. This was achieved primarily through real exchange rate depreciation, a reduction in tariffs, and- in specific cases- sector specific instruments to create incentives beyond tariff liberalisation for exports. Three critical policy instruments that have an impact on trade are: tariff reform or import liberalisation, trade related export measures and the exchange rate. Trade liberalisation in pre-1990 South Africa was based primarily on export promotion measures and less on tariff reforms or a competitive real exchange rate. It is essentially in the 1990s that the combination of these three instruments played a role creating an environment conducive to exports. The main focus of this paper is on tariff reform. Before we proceed to a more detailed analysis of protection, it is necessary to make several observations about subsidies and exchange rates.

In relation to subsidies, there were several policies that reduced the anti-export bias that firms faced in the 1990s. Most notable was the General Export Incentive Scheme (GEIS) in April 1990. GEIS was designed as an economy-wide package, based on value added and local content, and offered considerable incentive to export. This was, in accordance with South Africa's WTO commitment, phased out in 1995. This was a significant policy landmark as it meant the government had to rely, essentially on tariffs as an instrument used in reducing anti-export bias while it phased out most of the subsidies in the economy. The phase-out of price distorting subsidies coincided with the introduction of WTO compatible supply-side incentives. These were essentially grants for research and development, technological innovation and skills development. There, are however, two particular sectors, in the economy that are notable for the implicit subsidies which they enjoy, namely:-clothing and textiles; and the motor vehicles and components industry.

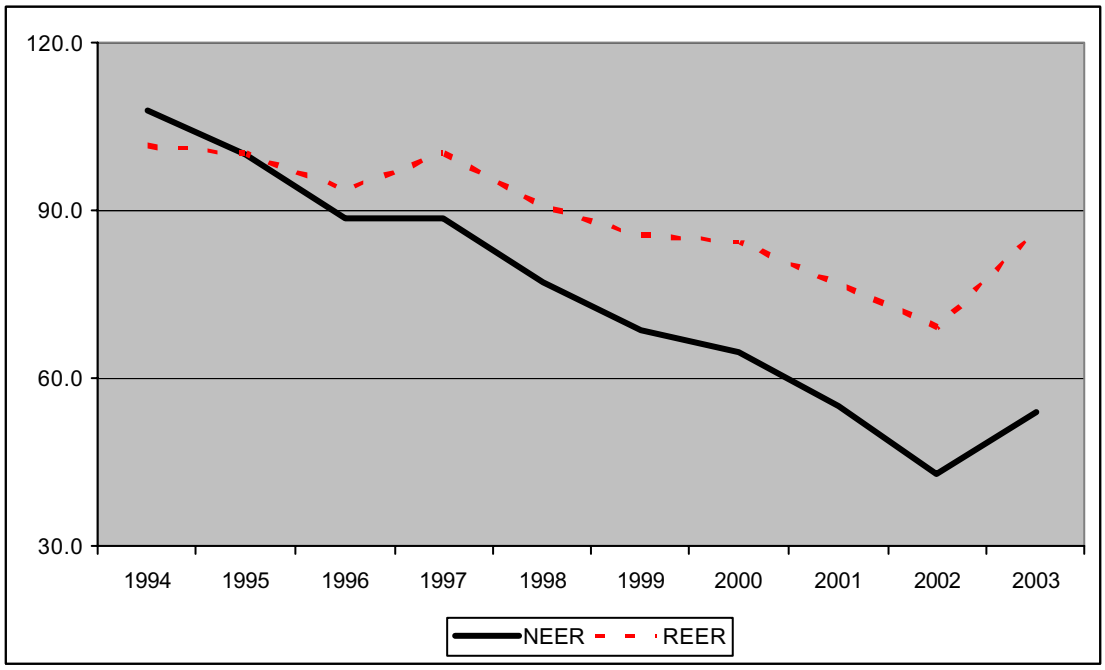
The Duty Credit Certificate Scheme (DCCS), which targets the clothing and textile sector, was introduced in 1993 and remains in place until 2005. It offers duty credit certificates to qualifying exporters, and can be used to access imported inputs. DCCS can be claimed for up to 35 % of the value of exports with the highest value for clothing and the lowest for yarn (8 % to 12 %). Other salient features of the DCCS are that they are only eligible for offsetting duties on the importation of similar products to those exported. It gives firms that export the advantage of sourcing inputs at prices close to international levels, while providing high levels of protection thereby placing a limit on the extent to which firms can become efficient. The Motor Industry Development Program (MIDP), introduced in 1995, is a system of incentives based on selective import duty reductions, and which provides substantial subsidies to investment and exports in return for the production and sale of motor vehicles in the protected domestic market. Essentially, the MIDP allows firms using local content in exports to import duty free permits equivalent to local content value exports. The MIDP can be described as an implicit subsidy whereby firms who export are able to source motor-vehicles at internationally competitive prices and sell vehicles in the local market at the international price plus the tariff. [2]

The exchange rate, on the other hand, is a critical determinant to export success, particularly in the case of manufactured goods. Having suffered the effects of an overvalued exchange rate for several years, there was a consistent depreciation of both the nominal and real effective exchange rates in South Africa throughout the 1990s with an average annual depreciation of about 3 % for the real effective exchange rate and about 7 % for the nominal effective exchange rate (see Figure 1). However, there was an appreciation in 1997, and more recently specifically in 2003 and 2004.. These appreciations have an

[2] For a critical analysis of these schemes see Flatters (2002) and Kaplan (2003).

extremely adverse effect on exports. It is pertinent to note that a sustained depreciation of the currency over the long run was relatively important to South Africa in developing a sustained export base.

Figure 1: Nominal and Real Effective Exchange Rates (1994-2003, 1995=100)



Source: South African Reserve Bank, Quarterly Bulletin, Pretoria

3. Nominal Tariff Reform:

The reform of South Africa's nominal tariffs, in the 1990's, has been a gradual progression. The nature of protection is determined not only by tariff levels, but also the extent to which they are cumbersome in terms of numbers of different tariffs lines and categories (often referred to as a form of non-tariff measure in its own right). Four important indicators of South Africa's tariff reform process in the last 15 years are:

1. The emergence of a sustained process of reduction in nominal tariff reforms, particularly in manufacturing, which has historically been the most protected sector
2. In conjunction with the reduction of tariffs, a declining dispersion of the number of tariffs bands and categories was observed which automatically enhanced protection in the economy.
3. The elimination of surcharges and quantitative controls, particularly in agriculture. Conversion from quantitative controls to tariffs reflects a typical trajectory of trade reform, particularly associated with the transparency that tariffs offer relative to quotas.
4. Finally, phased reduction of tariffs that transcends multilateral tariff reform, in the form of FTAs.

These issues are discussed detail below.

South Africa's trade reform is locked into the country's commitment to the WTO. This commitment was made, in 1993, against a backdrop of many tariff peaks in a range of sectors, as well as a highly cumbersome and a dispersed tariff structure with over a 200 tariff categories. The country's offer consisted of reducing tariff categories to 6. These were at the rates of 0, 5 %, 10 %, 15 %, 20 %, and 30 % with any discretionary changes to the system being disallowed (Cassim, 2003). The tariff-phase-down schedule under the WTO is shown in Table 1. As a result, South Africa's average tariff declined from about 15 % in 1996 to about 8 % in 2003. South Africa's commitment to phase down tariffs was to last for an approximate ten year period (see Appendix 1, Table 1).

While import controls and surcharges in manufacturing were gradually phased out by the beginning of the 1990s, the trade regime in agriculture was still governed by quotas. Not surprisingly, the major process of

trade reform in agriculture entailed a conversion of quantitative restrictions into tariffs. This represents a major landmark for the agricultural sector. The second phase comprised some further liberalisation of agricultural tariffs.

The process of tarrification commenced in 1992 and was essentially completed by 1994. By the end of the decade agricultural tariffs were fairly low with the exception of a number of highly protected commodities such as Sugar (40 %), Dairy (20 %), Beef and Veal (20 %), Mutton (50 %) and Wheat (20 percent) according to Steenkamp (2000). A more significant concern was the cumbersome nature of South Africa's tariff structure. In 1990, there were 12 500 tariff lines and 200 tariff bands.

Table 1: Tariff changes at a glance, 1990

	All rates, 1990
Number of tariff lines	12 500
Number of different rates (bands)	200
Minimum rate (%)	0
Maximum rate (%)	1 389
Unweighted mean rate (%)	27.5
Coefficient of variation (%)	159.8

Source: adapted from Lewis (2001

Subsequently in the period from 1996 to 2003 (see Table 2 below) more significant uniformity of the tariff structure transpired. A 30% decline in the number of commodity lines from 1990 to 1996 continued with a further reduction to 7900 lines in 2000. The MFN schedule, however, has not changed significantly between 2000 and 2003. Approximately 40% of the number of commodity lines identified in the schedule product lines is zero-rated. More than 20% has a non-ad valorem tariff and about 8% of lines occupy the 15%-20%, the 10%-15% and 5%-10% ranges. 4% of the lines are associated with tariffs in the 0%-5% nuisance range as well as in the 20%-30% range. Less than 1% of the product groups face a tariff over 20%.

The number of commodity lines has dropped considerably, while the number of zero rates commodity lines has increased. This occurrence has been most significant in the upper brackets yet is visible throughout the schedule.

Table 2: South Africa's MFN tariff schedule, 1996 – 2003 (number of commodity lines and value of imports, R billion current prices)

	1	2	3	4	5	6	7	8	9	10	11	12
	1996 # lines	2000 # lines	2003 # lines	1996 %	2000 %	2003 %	1996 R million	2000 R million	2003 R million	1996 %	2000 %	2003 %
40%+	1739	365	306	19.4%	4.6%	3.9%	14,594	7,948	6,028	13.2%	4.3%	4.1%
30%-39%	323	189	207	3.6%	2.4%	2.6%	1,745	18,466	14,213	1.6%	9.9%	9.8%
20%-29%	1276	2,112	2,151	14.3%	27.0%	27.2%	8,129	12,183	8,569	7.3%	6.6%	5.9%
15%-19%	940	586	673	10.5%	7.5%	8.5%	6,558	6,370	4,924	5.9%	3.4%	3.4%
10%-14%	1005	546	573	11.2%	7.0%	7.2%	7,760	6,663	6,636	7.0%	3.6%	4.6%
5%-9%	776	377	407	8.7%	4.8%	5.1%	6,098	10,052	4,764	5.5%	5.4%	3.3%
1%-4%	57	131	132	0.6%	1.7%	1.7%	121	1,034	1,630	0.1%	0.6%	1.1%
0%	2831	3,518	3472	31.6%	45.0%	43.8%	65,833	123,058	98,785	59.4%	66.2%	67.9%
Total	8947	7,824	7,921	100.0%	100.0%	100.0%	110,837	185,774	145,549	100.0%	100.0%	100.0%

Source: IDC (1996) and DTI (2000 and 2003) for tariffs and Customs & Excise for import values. Note: Non ad valorem tariffs for 2000 and 2003 have been converted to ad valorem equivalents by multiplying specific rates with unit values and by taking the ad valorem component of combination tariffs. The 2003 MFN schedule does not apply to imports from the EU and SADC. Not all commodity lines could be allocated to the respective tariff lines

In terms of the value of associated imports (columns 7 - 12) it can be seen that the proportion of duty free imports has increased considerably from 1996 to 2000 from 60 % to 66% after which only a small rise was recorded to 68% in 2003. Note that the total value of imports under MFN drops in 2003 to about R145 billion down from R186 billion in 2000 as the EU and SADC FTA schedule became effective.

Comparing columns 7 – 12 with 1 – 6 of Table 2 it can be seen that the proportion of the value of imports in the 20% - 29% is much lower than the proportion of number of commodity lines. The opposite is the case of the 30% - 39% range because since 1996, the value of imports in the top range has dropped considerably due to downward migration following tariff liberalisation during the latter part of the 1990s.

Table A2, in the appendix, presents unweighted averages (of ad-valorem equivalent rates calculated at the HS8 level of disaggregation) for HS2 product groups for selected years (1996, 2000 and 2003), sorted according to the 1996 schedule. There, we can confirm the earlier observation that a considerable reduction in the tariff schedule has taken place between 1996 and 2000 but that the phase down has slowed down during the period 2000-2003. At the bottom of the Table A2 it can be seen that the unweighted average of the full schedule dropped from 14% in 1996 to about 11% in 2000 and has remained constant ever since. The same applies to the standard deviation at the HS8 level, which has been reduced by about 40% between 1996 and 2000. The maximum HS8 rate has not declined much over the period and in fact went up between 1996 and 2000 due to outlying ad valorem equivalents of specific rates. Relatively high tariffs were recorded in 1996 mainly for clothing and textiles, leather and footwear, motor vehicle components, alcoholic beverages, dairy and cereals. Only a few of these commodity groups have seen a dramatic decline in their tariffs, notably: manmade fibres, dairy and wool. All the other high tariff commodities identified in the 1996 schedule, although undergoing some reduction, maintained relatively high rates during the 2000-2003 period. The unweighted average is calculated for 2003 at 11% which was more or less the same as for 2000.

As is shown in the appendix, nominal tariffs vary considerably amongst the different sectors of the economy although this dispersion has decreased owing to a reduction in nominal tariff levels over the years. The above picture does not, however, take into consideration the fact that due to discriminatory trade agreements, tariff reform is more far-reaching in nature. Next, the analysis turns to South Africa's FTAs.

4. Regional Tariffs and FTAs

South Africa's trade reform consisted not only of the multilateral route but also of regional and bilateral trade arrangements that have, to a large extent, defined trade policy in the new democratic era. The two main types of agreements on the table were Free Trade Agreements (FTAs) with the European Union (EU) and with the Southern African Development Community (SADC). These agreements, however, did not have a significant impact during the 1990s as they only took effect at the end of the decade. Indeed, EU-SA FTA, only came into effect in January 2000. On the other hand, the SADC Trade Protocol was concluded in August 1996, although it has taken some time for the majority of member states to ratify the treaty and as such its effect was only actualised at the end of the decade.

The EU–SA FTA came into effect in January 2000. The agreement used the principle of asymmetry in the bilateral liberalisation, with the EU liberalising at a faster pace (three years compared to 12 for South Africa), and with a broader coverage (95% of all imports as compared with 86% for South Africa). As far as the SADC FTA is concerned, a central feature of the Trade Protocol is the asymmetrical implementation of tariff reductions, with South Africa subject to more rapid liberalisation reforms and a set of 'general offers', while other members are permitted a set of 'differential offers'. The phasing-in of this agreement is scheduled to occur over an eight-year period and it is expected that by 2012 98% of the SADC region's trade will be subject to zero tariffs (Cassim & Zarenda, 2004).

In Table 3 below, we reproduce the MFN schedule for 2000 and 2003 to provide some contrast to South Africa's EU and SADC commitments. In columns 1-3 we show the number of commodity lines for each broad tariff range, followed in columns 4-6 by its distribution. In columns 7-9 the value of imports is presented with the distribution in the last three columns. In the top half of the table we can see that for the year 2000 the number of commodity lines in each broad range is more or less the same[3] However, a much higher proportion of imports were imported by South Africa from the region that were faced with a 40% or higher tariff, while the proportion of these high tariff imports from the EU and from the rest of the

[3] But not quite, due to ad valorem equivalent computations.

world was much lower. On the other hand the proportion of imports with low tariffs, below 10%, is much higher. EU imports seem to focus on the 20-30% range, while imports from the rest of the world are more represented in the 30-40% range. The proportion of South African imports from SADC (excluding SACU) that were zero rated was also much lower than imports from the rest of the world and even from the EU. It would seem that imports from SADC were therefore penalised before the inception of the SADC trade protocol.

Table 3: South Africa's MFN, EU and SADC tariff schedule, 2003 – 2003 (number of commodity lines and value of imports, R billion current prices)

	1	2	3	4	5	6	7	8	9	10	11	12
	RoW / MFN	EU	SADC	RoW / MFN	EU	SADC	RoW / MFN	EU	SADC	RoW / MFN	EU	SADC
	# of lines	# of lines	# of lines	% of lines	% of lines	% of lines	Imports (R billion)	imports (R billion)	imports (R billion)	% of imports	% of imports	% of imports
	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
40%+	360	357	367	4.6%	4.6%	4.7%	3,750	3,799	326	3.3%	4.6%	14.2%
30%-39%	190	188	188	2.4%	2.4%	2.4%	11,312	7,157	56	10.1%	2.4%	2.4%
20%-29%	2,112	2,109	2,111	27.0%	27.0%	27.0%	7,402	4,596	177	6.6%	27.0%	7.7%
15%-19%	589	588	587	7.5%	7.5%	7.5%	3,045	2,866	475	2.7%	7.5%	20.7%
10%-14%	546	545	546	7.0%	7.0%	7.0%	3,473	3,047	125	3.1%	7.0%	5.4%
5%-9%	374	384	376	4.8%	4.9%	4.8%	4,673	5,224	115	4.2%	4.9%	5.0%
1%-4%	135	134	132	1.7%	1.7%	1.7%	653	337	106	0.6%	1.7%	4.6%
0%	3,518	3,517	3,517	45.0%	45.0%	45.0%	78,071	44,071	916	69.5%	45.0%	39.9%
Total	7,824	7,822	1	100.0%	100.0%	100.0%	112,380	71,097	2,296	100.0%	100.0%	100.0%
	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
40%+	306	49	16	3.9%	0.6%	0.2%	6,028	7,262	98	4.1%	6.9%	2.4%
30%-39%	207	450	19	2.6%	5.7%	0.2%	14,213	13,932	0	9.8%	13.3%	0.0%
20%-29%	2,151	782	380	27.2%	9.9%	4.8%	8,569	5,552	332	5.9%	5.3%	8.1%
15%-19%	673	1,876	408	8.5%	23.7%	5.2%	4,924	4,262	82	3.4%	4.1%	2.0%
10%-14%	573	607	1,687	7.2%	7.7%	21.3%	6,636	3,535	598	4.6%	3.4%	14.7%
5%-9%	407	329	269	5.1%	4.2%	3.4%	4,764	2,848	143	3.3%	2.7%	3.5%
1%-4%	132	205	18	1.7%	2.6%	0.2%	1,630	1,434	6	1.1%	1.4%	0.1%
0%	3,472	3,623	5124	43.8%	45.7%	64.7%	98,785	66,228	2,818	67.9%	63.0%	69.1%
Total	7,921	7,921	7,921	100.0%	100.0%	100.0%	145,549	105,054	4,078	100.0%	100.0%	100.0%

Source: DTI for tariffs and Customs & Excise for import values. Note: Non ad valorem tariffs for 2000 and 2003 have been converted to ad valorem equivalents by multiplying specific rates with unit values and by taking the ad valorem component of combination tariffs. The 2003 MFN schedule does not apply to imports from the SACU, EU and SADC. Not all commodity lines could be allocated to the respective tariff lines

We report on 2003 results in the second tableau of. Table 3. The first observation that can be made is that the total number of commodity lines has increased by about 100. This suggests that a greater variety of products have become available. In column 4 it can be seen that the MFN schedule has stayed more or less the same, as only marginal changed can be observed. The EU schedule has also only liberalized marginally, with the proportion of zero rated commodity lines increasing by less than 1%. The main difference is a large shift of commodity lines from the 20-30% range to the 15%-20% range. Not shown in this table is that this involves mainly textiles. Moreover, there is also a significant shift from the 40%+ bracket to the range below. The main product group involved here (but not shown either) is clothing. A similar but more dramatic shift for both textiles and clothing is behind the changes in the SADC schedule over the period of observation, with a reallocation towards the 10%-15% range (textiles) and the 20%-30% range (clothing), although the latter is hidden by the changes of the former. Moreover, the SADC schedule, as it is in 2003, is characterized by a significant increase in zero rated commodity lines. This shift involves (but not shown here) a broad range of products right across the whole spectrum of commodity lines, including processed food and machinery.

In column 9 we can see, however, that imports from SADC are still small relative to imports from the EU and the rest of the world. Nevertheless, the proportion of zero rated imports from SADC has increased from 40% to 70%. Tariff duties are mainly collected in the 10%-15% and 20%-30% range, again related to textiles and clothing respectively and the amounts of imports involved are R600 million and R300 million in 2003 current prices.

Interestingly, in terms of value of imports, the EU schedule appears to be more restrictive than the MFN schedule, in that a higher proportion of imports faces tariffs of 30% upwards, as can be seen in columns 10 and 11. The EU schedule also features a lower proportion of zero rated tariffs.

Finally, we ask the question, what is the weighted impact of the FTAs on South Africa's tariff schedule. Put differently, to what degree have the FTAs resulted in further tariff liberalization. One way to investigate this issue is to take the weighted average tariff for each HS8 tariff line, using the imports from each of the three sources (EU, SADC and the rest of the world) as weights. We, then, force it into the same framework as before and compare it to the MFN schedule that only applies to imports from the rest of the world.

Table 4: Comparing the MFN with the implied (weighted average) tariffs on imports from all sources (2003)

	1 2003 MFN # lines	2 2003 All # lines	3 2003 MFN %	4 2003 All %	5 2003 MFN R million	6 2003 All R million	7 2003 MFN %	8 2003 All %
40%+	306	57	3.9%	0.7%	6,028	10,956	4.1%	4.3%
30%-39%	207	416	2.6%	5.3%	14,213	29,728	9.8%	11.7%
20%-29%	2,151	764	27.2%	9.6%	8,569	13,686	5.9%	5.4%
15%-19%	673	1,859	8.5%	23.5%	4,924	9,367	3.4%	3.7%
10%-14%	573	638	7.2%	8.1%	6,636	11,156	4.6%	4.4%
5%-9%	407	392	5.1%	4.9%	4,764	7,876	3.3%	3.1%
1%-4%	132	305	1.7%	3.9%	1,630	6,401	1.1%	2.5%
0%	3472	3490	43.8%	44.1%	98,785	165,545	67.9%	65.0%
Total	7,921	7,921	100.0%	100.0%	145,549	254,716	100.0%	100.0%

Source: DTI for tariffs, Note: Non ad valorem tariffs for 2000 and 2003 have been converted to ad valorem equivalents by multiplying specific rates with unit values and by taking the ad valorem component of combination tariffs.

In terms of number of commodity lines it can be seen in column 4 that the FTAs have indeed achieved considerable reduction in the number of commodity lines with a tariff that is higher than 40%. The migration is downwards into the next broad range, hence a proportional increase in the number of lines in the 30%-40% range. Similarly, there is a downward shift from the 20%-30% range into the 15%-20% range. The proportion of zero rated commodity lines remains more or less the same when comparing the MFN schedule with the weighted schedule from all sources [4].

The picture is, however, quite different when expressed in terms of the value of imports, as can be seen in the last two columns of the table. If anything, it would appear that the weighted tariff schedule is more restrictive than the MFN. The reason, is the role of the imports from the EU, which appear to be rather inelastic in price. Imports from the EU seem to be face relatively high tariffs, although the EU schedule is somewhat more liberalised compared to the rest of the world. Perhaps, imports are obtained from the EU that are not available from the rest of the world or less competitive from other sources due to even higher tariffs. Consequently the implied tariff from all sources leads to a higher proportion of imports facing rates higher than 30%, while the proportion of zero rated trade is only slightly lower.

5. Effective Rates of Protection: Has the Economy Become More Protected?

Thus far, an appreciation of the trajectory of nominal tariff reform in South Africa has been developed. Deriving conclusions about de facto nominal protection is not straightforward because a number of variables play a role. Apart from the dispersion of tariffs, there are, for example, exemptions in some sectors, as well as discriminatory liberalization through bilateral and regional FTAs. While nominal tariffs are important and create consumption distortions, they are in principal less successful predictors of resource shifts in the economy – instead effective rates of protection are more appropriate in describing potential resource allocation in the economy. The nature of nominal tariff reform will determine whether effective rates of protection move in tandem with nominal reductions or simply in the opposite direction.

[4] Note that imports from SACU is excluded from the analysis.

The experience in South Africa shows that depending on which sector one looks at, the experience is mixed.

There has been some debate in South Africa, as to the extent to which the economy has become more protected or not, specifically if one uses effective rates of protection as a measurement tool. The simplest way to think about effective rates of tariff protection is to continue with the net protection concept mentioned in the earlier sections. Effective rates of protection suggests that we should be concerned with the impact of nominal tariffs on net production, or value added. In particular, we like to know the difference between a sector's value added in world prices and in domestic (i.e. distorted or observed) prices expressed in terms of the latter. The analysis about whether effective rates of tariff protection have increased or decreased, or whether the magnitude of their change in the economy stems from data and methodological queries tends to be conflicting. These include the preferred method of calculation, the decision to use statutory tariffs or collection rates, the way in which non-ad valorem duties are calculated and so on.

Fedderke & Vase (2000) have argued that effective rates of tariff protection increased for a significant number of sectors, based on contribution to value-added in the economy using two average periods, 1988-93 and 1994-98. Sectors that become more protected were other mining, finance and insurance, leather, gold and uranium mining, beverages, agriculture, food, textiles, tobacco. These, according to Fedderke & Vase (2000), account for 50% of total GDP. However, there is some debate about their classification of sectors and whether the 8 sectors identified as becoming more protected actually constitute 50% of the GDP. Instead, Rangasamy & Harmse (2003), based on their own recalculations, argue that the protected sectors only contributed to an estimated 9% or 19% (depending on classification used). Other issues raised by Rangasamy & Harmse refer to the use of collection rates, as is the case in Fedderke & Vase (2000), rather then statuary tariffs which could affect their results, as well as the tariffication of agriculture, as previously mentioned, which represents a measure of trade reform in stead of the reverse as suggested by Fedderke & Vase.

Despite the lack of consensus on the extent to which effective rates of tariff protection increased or decreased, there is consensus that they are considerably higher than nominal rates of protection in many sectors. No immediate comparable changes in effective rate of protection occurred from the beginning of the 1990s to the end of the period. However, Balassa calculations (see van Seventer 2000 for methodology) for 1996, 2000 and 2003[5] (See Appendix A, Table A3a-c for full results) based on the weighted averages of nominal tariff schedules mentioned in the earlier sections as well as a single 2000 Supply-Use Tables published by Stats SA (for the year 2000, thereby ignoring any structural shifts) indicate that the effective rates of protection are still significantly higher than the nominal rates of protection, although the economy-wide difference has decline over time. Nevertheless, a significant potential misallocation of resources still exists in the economy. The results for all non-tertiary sectors are summarized in the next table

Table 5: Weighted average effective rates of protection for non-service sectors in the South African economy (1996, 2000, 2003)

	Unweighted average nominal tariff	Weighted average nominal tariff	Effective tariff protection, based on weighted average nominal tariff
1996	17.4%	11.0%	17.0%
2000	10.7%	8.0%	13.2%
2003	9.5%	7.8%	11.8%

Source: IDC and DTI for tariffs, Customs & Excise for trade, Stats SA for 2000 Supply-Use Table and own calculation

[5] For 2003 a double weighting was applied. At the HS8 commodity level, nominal tariffs were weighted by source (EU, SADC, rest of the world). At the sector level (matching the Supply-Use Table), nominal tariffs were weighted by commodity imports.

In the majority of sectors in Tables A3a-c it is apparent that output tariffs far exceed input tariffs. These are particularly high for sectors such as carpets, sugar, clothing, textiles and motor vehicles where the effective rates of protection are often in the 3 digit range. A couple of sectors require further attention. One is sugar, where it would appear that effective tariff protection has increased from 1996 to 2003. One reason is that the ad valorem equivalents of the specific rates calculated for 2000 and 2003 yielded nominal tariffs of more than 40%, while the IDC calculated only 10% in 1996. There are indications that the in new schedule for 2004 sugar has been zero rated.

Grain milling also requires more attention as earlier examinations based on case studies (Flatters, 2002) suggest that effective rates of protection are very high in this industry while our results indicate the opposite. The first observation to be made is that the weighted average nominal rate of protection for *Grain milling (*as captured in the tariff schedules made available to us and bridged over to this activity) is very low at about 1% for each of the selected years. Secondly, the SUT suggests that 80% of the intermediate inputs of *Grain Milling* are drawn from agriculture. Obviously this is mainly maize and wheat but the SUT aggregates this up with other agricultural commodities due to lack of information into a single agriculture commodity. The weighted average tariff for all agricultural commodities is still about 8% in 2003 (although on 5% in 2000), in stead of the much higher levels of nominal protection on wheat, which appear to be around 17% according to the conversion of specific duties to ad valorem equivalents (not shown here but available in the companion spreadsheets). Nevertheless, with the output protection being much lower than input tariffs, the effective rate of protection is negative and this would have been even more so if the (higher) tariffs on just wheat and maize had been taken into account, in stead of a weighted average for agriculture as a whole.

However, *Bakeries*, which is the next level down in the value chain, receives a much higher effective tariff protection. It is clear from this example that noise can enter at various points in the computation process. We use the nominal rates of protection as published by Customs and Excise, which may well deviate from the actual duties levied on the ground. Secondly, a slightly different interpretation in the aggregation of commodities to arrive at SUT industries may also change the overall picture quite dramatically. Bottom-up type of studies need to augment and verify the top-down approach taken here when and where it involves certain critical industries.

Finally, Meat shows highly negative effective tariff protection for 1996 and very high positive effective tariff protection for the later years. Closer observation of the 2000 Supply-Use table reveals very low value added as a proportion of total output. Small changes to the input and output prices could easily move the value added into negative territory, suggesting that the sector as a whole operates at a loss and consequently, the effective tariff protection becomes negative.

The basic principal of negative effective protection appears to apply to a considerable number of industries identified in Tables A3a-c. These industries are all characterized by low or zero output tariffs, while their intermediate inputs are all subject to some form of protection tax. Obviously this applies primarily to the so called non traded industries, as they do not enjoy any output protection (utilities, construction, trade, services). Other industries that do benefit from output protection but end up with a negative effective protection include: *Publishing*, *Basic* and *Other chemicals* and *Pesticides*, *Prepared fish*, *Mining machinery*, *Engines* and *Agricultural machinery*. These industries therefore appear to be punished by the current tariff schedule.

It should be remembered again, we are only considering protection emanating from tariffs. Other types of protection could be associated with non tariff barriers, artificial barriers to market entry, etc. These and other types of protection are ignored here.

In summary, effective rates of protection require an intimate knowledge of sectors and these calculations may be inaccurate in some cases. Despite reductions in nominal tariffs, effective rates remain high in many sectors because input tariffs have decreased faster than output tariffs.

There are a range of methodological issues that could improve the value and meaning of effective tariff protection. One of them is to allow for different treatment of the home goods sectors, as well as

substitution amongst factors of production and amongst imported and domestically produced goods. Ultimately, the most appropriate framework for studying effective tariff protection is a computable general equilibrium framework.

6. How Has the Economy Responded to Trade Reform?

Measuring the extent to which changes in the trade regime, have led to resource shifts or allocation in the economy can prove to be demanding as a complex array of factors other than the trade regime may be responsible for this. It is, however, evident that the structure of the economy has historically been shaped by high levels of protection for a range of sectors, as well a range of subsidies and other incentives. What appears increasingly clear is that a reduction in tariffs, elimination of subsidies and a continuous long-term depreciation of the real effective exchange rate, combined with contractionary local demand, has induced greater export-orientation of the economy and in essence induced some sectoral shifts in the economy.

One way of assessing the impact of trade liberalisation is to examine the export-supply response by simply tracking trade trends. Naturally a more comprehensive analysis of what determines export behaviour will require a formal estimation of what accounts for South Africa's specific export supply response. It is necessary to determine whether capacity utilisation, change in foreign demand, change in the anti-export bias, or other factors account for this response. Apart from the difficulty of doing this, owing to data constraints, this is beyond the scope of this paper. However, a summary review of some of the existing evidence is quite revealing.

Export in both manufacturing and agriculture have grown considerably since the 1990s in real terms. However, it is necessary to note that imports followed a similar trajectory. What is striking about the data in the table below is that export growth was less spectacular in both sectors in the latter parts of the 1990s up to 2003 than in was in the early 1990s. Nevertheless, manufacturing import rates exceeded export growth rates in the early 1990's but it is also evident that the converse has occurred in subsequent years. In the case of agriculture the export growth rate relative to import growth rate was much higher in the latter period than the former.

Table 6: Annual average growth rate of exports

	1991-1996 %		1997-2003 %	
Sector	Exports Average annual ?	Imports Average annual ?	Exports Average annual ?	Imports Average annual ?
Agriculture, forestry and fishing	17.3	12.5	5.4	1.7
Manufacturing	10.5	13.8	4.4	2.2
Sector	Average export-output ratio	Average imports-domestic demand ratio	Average export-output ratio	Average imports-domestic demand ratio
Agriculture, forestry and fishing	11.4	7.6	14.4	7.3
Manufacturing	15.2	22.1	25.3	32.2

Source: Quantec South African Standardised Industry Database, Note: The import-domestic demand ratio or import penetration is equal to total imports divided by total domestic demand. Domestic demand is equal to total output plus imports minus exports. The import-domestic demand ratio is an indication of how much of the domestic demand is satisfied by imports.

A shift in the structure of South Africa's exports took place in the past decade specifically with the increasing importance of manufacturing relative to mining. Some sectors such as motor vehicles and parts, clothing, machinery, electrical machinery, TV and communications equipment and some of the chemicals industries experienced significant growth in exports.

Moreover export /output ratios have increased considerably for manufacturing. Manufacturing exports as

a proportion of total output has increased from 15% in the 1st half of the 1990s to 25% during the more recent period, while agriculture's proportion has increased from 12% to 14%. This suggests that the most important tradable sectors have indeed seen an outward oriented shift..

It is interesting to note that during the last decade there has been a simultaneous increase in both export output and import output ratios, increasing import-penetration ratios have been offset by increasing export output ratios. This has implied that trade liberalisation has not resulted in de-industrialisation effects. However, the impact on employment is a different issue as exports tend to be more capital intensive relative to imports. This is a complex subject and depends on factor markets, competitive advantage and so on. Moreover, non-traditional exports[6] have grown from a low base and are therefore insufficient in offsetting the exports losses recorded in more traditional industries such as gold, coal and other resource based industries

While trade trends are well documented, the extent to which South Africa FTAs have biased trade flows have not been given much attention. The impact of regional agreements through tariff liberalization on trade flows is important yet difficult to track. The timing of this question is perhaps somewhat premature in that South Africa has only had 3 annual trade flow observations since 2000. There are many ways to conduct analysis in an effort to find evidence however and this paper will not dwell on all possible methods. The approach which we use here is one which simply compares trade shares and growth rates of South African exports and imports with the EU and SADC before and after the inception of the agreements, which are taken to be the year 2000 and relates this to changes in tariffs in a descriptive way. It is clear that there are several weaknesses in this approach. Firstly actual tariff reduction, that may or may not have occurred during the time after the inception of the agreements, is not controlled for in a formal except that we know that South Africa's tariffs on imports from the EU have not been reduced by much, while EU tariffs on imports from South Africa have been reduced more. South Africa's tariffs on imports have declined considerably while tariffs on SADC's imports from South Africa are heavily backloaded. Secondly, we do not control for other events that may have had an influence on trade flows. At this stage a fully fledged econometric analysis with three observations since the inception of the Trade Protocol is not yet feasible.

Below is a representation of export shares and growth rates for the four years prior and subsequent to the benchmark year 2000, considered to be the inception year of the EU TDCA and the SADC Trade Protocol, referred to here as the first and second period respectively, as well as the percentage point difference in these shares and growth rates.[7] We perform the same calculation for trade with the rest of the world. The former is simply the difference between total exports and the sum of exports to the EU and exports to SADC. The latter excludes SACU sources and destinations, as these trade flows are zero rated and they have been included in trade flows to the rest of the world.

[6] Not discussed here in any detail as the trade performance of this sector has not been part of active trade policy

Due to the short periods of observation we also had to abandon the preferred weighted average annual growth rate calculations. Since this methods tries to fit an OLS curve, the minimum number of observation is in our view five. In stead, we employ unweighted average growth rates, essentially a compound growth rate calculation, which only considers the first and the last observation and ignores all intermediate observations (only one in our case). The analysis presented below should be considered as a first step in a longer term process as more data becomes available over time.

Table 7: Changes in average shares and growth of South African exports before and after 2000 to selected regions (R billion current prices)

	1 Imports 2003 R million	2 Ave share 96-99	3 Ave share 00-03	4 Change in ave share	5 Ave growth 96-99	6 Ave growth 00-03	7 Change in ave growth
SADC	26,586	11.0%	10.0%	-1.0%	8.0%	7.0%	-1.0%
EU	83,919	28.4%	31.4%	3.0%	23.6%	8.9%	-14.7%
RoW	162,203	60.5%	58.6%	-2.0%	8.1%	9.8%	1.6%
Total	272,709	100.0%	100.0%	0.0%	12.3%	9.2%	-3.1%

Source: Customs & Excise and own calculations

Total South African exports amounted to about R 270 billion in 2003. During the first period, that is the four years prior to 2000, exports to SADC represented about 11%, while exports to the EU contributed 28%. The remaining 61% of South African exports went to the rest of the World. In the 4 years after 2000, the SADC share remained fairly constant but the share of South African exports that was shipped to the EU increased to 31%. This increase in export's share to the EU therefore came mainly at the cost of exports to the rest of the world, as is evident in column 4.

Comparing (nominal) growth rates in exports, it can be seen that exports to SADC have reported a fairly stable growth rates. In spite of the lower EU tariffs, growth in South African exports to this region has declined considerably in Rand terms, while exports to the rest of the world have increased somewhat.

Total imports for South Africa are slightly lower than total exports as can be seen by comparing the last entry of column 1 of Table 7 and Table 8. It is pertinent to note that only merchandise trade is being described here and that trade in services is ignored. South African imports from SADC carry a much lower weight than export to this region. Only about 2% of South African imports originate from SADC. The share has been fairly steady when comparing averages for the 4 years before and after 2000. The share of total imports sourced from the EU carries a high weight and it can be seen that it has been relatively constant when comparing the two periods.

Table 8: Changes in average shares and growth of South African imports before and after 2000 from selected regions (US$ billion)

	1 Imports 2003 R million	2 Ave share 96-99	3 Ave share 00-03	4 Change in ave share	5 Ave growth 96-99	6 Ave growth 00-03	7 Change in ave growth
SADC	5,516	2.2%	2.1%	-0.1%	14.8%	9.6%	-5.1%
EU	106,210	42.0%	40.0%	-2.0%	7.8%	14.0%	6.3%
RoW	146,725	55.8%	57.9%	2.1%	9.9%	9.6%	-0.3%
Total	258,450	100.0%	100.0%	0.0%	9.1%	11.3%	2.2%

Source: Customs & Excise and own calculations

It is again evident that the growth rates are somewhat deceptive. Average growth of South African imports from SADC was about 15% (in nominal terms) during the first period but abated somewhat during the second period, in spite of the considerably lower tariffs (see previous sections). Growth in imports from the EU increased considerably but this can hardly be attributed to changes in the tariff schedule as these changes are back loaded. Imports from the rest of the world remained more or less constant.

The main conclusion of this analysis is that the link between tariff liberalization and trade (in Rand terms) at least at this level of aggregation, is tenuous. South African imports from SADC as a share of total imports has remain relatively constant, in spite of a considerable decline in the tariffs. A lag response is the best we can hope for at this stage. On the other hand, an increase in the share of South African exports to the EU coincides with lower EU tariffs on imports from South Africa.

7. Welfare Considerations and the Trade Regime: Future Implications

Estimating the welfare effects of South Africa's dual track (multilateralism and bilateralism or regionalism) is a complicated affair. This stems, in part, from the unresolved theoretical literature on the actual effects of trade reform on growth and productivity. Moreover, the impact of FTAs on welfare are wide-ranging depending on various factors such as the relative size of the participating economies, their respective tariff levels, level of trade flows and so on. Moreover, FTAs are associated with greater non-traditional gains such as the signaling device by enhancing the credulity of a country through locking-in its reforms. An exhaustive analysis of the welfare effects is beyond the scope of the current analysis. This paper will, however, attempt to present some basic static calculations of the meaning of future trade, in the context of the WTO, for South Africa. They are nevertheless useful in providing some insight as to the way the future course of trade liberalisation ten years after democracy is thought about.

Looking at changes in the trade regime since democracy, a question that may be posed is whether there is any unfinished business, i.e., whether there is a case for further liberalisation, or the opposite: slowing down the process of liberalisation. In as far as the gains that trade liberalisation can bring to the economy – there are several issues that remain to be tackled. Firstly, it is important to mention that the existence of the World Trade Organization (WTO) has become central to South Africa's trade reform. This impacts on the way that trade can bring additional benefits to the South African economy and relates to the critical importance attached to a reduction of tariffs to secure better market access. The concept of reciprocity means that welfare needs to be assessed in the context of multilateral liberalisation. This raises the question of determining the sources of gains for the South African economy - further domestic liberalisation or producers' gains from securing better market access. The answer to this depends on the preference given to domestic versus external factors in influencing national economic growth. It is imperative for a country like South Africa to determine what impact reciprocal reductions in tariffs, both domestically on the import side and on exports due to partner countries' reductions, will have on the economy. At this stage, we explore simple market access gains of tariff reductions although more comprehensive welfare and impact analysis is suggested to be undertaken in future research.

We conduct an ex-ante analysis of the costs of protection as well as the gains from global liberalisation. The impact of trade reform on employment has been researched in South Africa showing that trade liberalization has had minor impact on unemployment in the aggregate. Instead, unemployment appears to be causes by other factors such as low investment which in turn is determined by issues such as investor confidence, crime, skills crises, technological change and so on.

Taking South Africa's current tariff protection into consideration, it is possible to measure the costs to the economy, using static welfare costs, based on the concept of deadweight loss. The advantage of this approach is that it is easy to calculate and the data is readily available. The only complication is to find the right elasticity of import demand. The major disadvantage of this approach is that it tends to underestimate the costs of protection specifically when protection is low. It does not take on board increasing returns to scale, x-efficiency and other dynamic aspects. In short, static effects, are useful but need to be interpreted carefully. Welfare gains of tariff liberalization for a commodity follows from the text books on international trade policy such as Greenaway (1983) in the following way:

(1) $$WG = 0.5 * t/(1+t) * MAG$$

in which t is the current tariff and MAG is the market access gains given the reduction in the tariffs. Market access gains can be approximated from the elasticity of import demand:

(2) $$MAG = \varepsilon * t/(1+t) * M$$

in which ε is the elasticity of import demand and M the initial value of imports. Given below is the impact of a 10% tariffs liberalisation on market access gains (column 3) and welfare gains (column 4) using FTA weighted average tariffs and a price elasticity of import demand of value 2. We only report on the most important HS2 product groups for reasons of display. The total consumer surplus is calculated to be

about R33 million. The main contributors to the consumer welfare gains are motor vehicles and components. However, it may be noted that the implied tariff is most likely to be much lower than indicated in the table given the incentives that are part of the motor industry development program. Other commodity groups that will benefit consumers are clothing, footwear and electrical machinery.

Table 9: Consumer surplus gains of 10% tariff liberalisation in SA (R, 2003 curr pr, elast: 2)

	HS2 code	HS2 Description	Double weighted average tariff	Imports (R million)	Market access gains (R million)	Consumer gains (R million
		Total		254,716	3,117	33.31
1	98	Special classification of parts for motor vehicles	30.0%	24,254	1,119	12.92
2	87	Vehicles, except railway or tramway, and parts etc	27.8%	19,243	786	10.27
3	85	Electric machinery etc; sound equip; tv equip; pts	3.2%	25,706	143	0.94
4	64	Footwear, gaiters etc. and parts thereof	29.4%	2,042	93	1.06
5	39	Plastics and articles thereof	7.4%	6,483	83	0.52
6	62	Apparel articles and accessories, not knit etc.	37.9%	1,359	75	1.03
7	40	Rubber and articles thereof	12.2%	3,549	71	0.62
8	84	Nuclear reactors, boilers, machinery etc.; parts	0.7%	45,182	56	0.38
9	61	Apparel articles and accessories, knit or crochet	37.9%	843	46	0.64
10	94	Furniture; bedding etc; lamps NESOI etc; prefab bd	17.4%	1,578	46	0.38
11	10	Cereals	7.6%	2,717	36	0.25
12	48	Paper & paperboard & articles (inc papr pulp artl)	9.0%	1,928	31	0.18
13	15	Animal or vegetable fats, oils etc. &waxes	8.5%	1,976	31	0.14
14	73	Articles of iron or steel	5.0%	3,275	29	0.16
15	33	Essential oils etc; perfumery, cosmetic etc preps	11.3%	1,423	27	0.22
16	02	Meat and edible meat offal	16.6%	896	21	0.30
17	42	Leather art; saddlery etc; handbags etc; gut art	27.9%	490	21	0.24
18	69	Ceramic products	7.2%	1,570	18	0.17
19	83	Miscellaneous articles of base metal	13.6%	763	17	0.13
20	52	Cotton, including yarn and woven fabric thereof	12.2%	808	17	0.10
21	04	Dairy prods; birds eggs; honey; ed animal pr NESOI	35.8%	317	16	0.23
22	63	Textile art NESOI; needlecraft sets; worn text art	30.6%	344	16	0.20
23	70	Glass and glassware	8.4%	1,022	15	0.08
24	34	Soap etc; waxes, polish etc; candles; dental preps	14.0%	642	15	0.12
25	21	Miscellaneous edible preparations	14.8%	587	15	0.11

Source: DTI (tariffs), Customs & Excise (trade data) and own calculations

What can be distilled from this is that high tariffs create significant upward pressure on domestic market prices and this in turn does not only affect the cost structure of the economy, but is also expected to have efficiency implications. We turn next to another important welfare effect.

As mentioned earlier, if South Africa were to liberalise tariffs further, this is likely to take place in the context of reciprocity in the global economy. What this implies is that South African exports will benefit from increasing exports as a result reduction of global barriers to trade.

Global barriers to trade have descended considerably in the last few decades. MFN tariffs of developed countries are on average just under 5%. In general, average tariffs in developed countries are considerably lower than developing countries. Although developed countries' imports are generally subject to low or no duty, there are specific product categories in which tariffs are still high that are of direct interests to developing countries. For an extensive literature on the nature of global protection identifying tariff peaks in the different products and countries see Bachetta & Bora (2002).

Whether the extent of the current market access regime around the globe constrains South Africa's export potential is an empirical matter. An important question is whether tariff escalation in developed countries and developing countries for that matter has realistically biased South Africa's exports or, more specifically, the ability to diversify exports. Stated differently, how significantly would South Africa's exports grow if market access were completely unrestricted?

It is possible to measure the impact of a reduction on tariffs on South Africa's exports in various ways. One approach is to use a basic partial equilibrium model where the impact of partner country tariff reduction on South Africa's exports would depend on an import elasticities of demand in the tariff reducing country as a result of the change in the relative price and South Africa's exports supply response.

In order to begin to comprehend the dimensions of the benefits of further tariff liberalisation that may arise in future global trade negotiations on demand for South African exports, we undertake the same simple market access gains calculations based on the principles of import price elasticities of equation 2 above.

We make use of the World Bank's World Integrated Trade Solution (WITS) representation of UNCTAD TRAINS' global trade and tariff data. Market access gains calculations are performed at the HS6 level of detail and subsequently aggregated up to regional totals. The calculations are conducted for the years 2001 and 2002 and the results are summarised in the next table. In the last column it can be seen that total exports reported, amount to US$24 billion. In 2002 exports were slightly down from their 2001 levels. The only region in which South African exports managed to expand (in nominal US$ terms) is Asia, all other regions appear to be rather stagnant. Total exports has, in US$ terms not increased either.

Table 9: Aggregate South African exports, their tariffs and market access gains in selected global regions (US$ '000, 2001 and 2002)

2001	Africa	Asia	Europe	LatAm	NAFTA	Oceania	Total
Exports (US$ '000)	2,241,875	3,510,878	12,115,352	552,531	4,951,319	436,394	23,808,349
Unweighted average tariff (%)	12.6	5.0	2.5	2.7	2.1	1.6	4.4
Weighted average tariff (%)	13.3	2.8	7.8	1.9	5.2	543,881.4	5.5
Market access gains (elast = 2, tariff reduct = 10%)	54,388	73,908	62,259	7,694	17,181	4,223	219,654
Market access gains / exports (%)	2.4%	2.1%	0.5%	1.4%	0.3%	1.0%	0.9%
2002							
Exports (US$ '000)	2,229,622	4,128,085	12,641,226	42,699	3,913,623	474,073	23,429,329
Unweighted average tariff (%)	12.8	4.2	2.4	1.4	1.9	1.5	4.1
Weighted average tariff (%)	14.3	11.3	2.7	10.9	2.2	5.1	5.3
Market access gains (elast = 2, tariff reduct = 10%)	51,663	75,933	63,634	831	15,598	4,512	212,170
Market access gains / exports (%)	2.3%	1.8%	0.5%	1.9%	0.4%	1.0%	0.9%

Source: WITS and own calculations

Turning to the tariffs that South African exports face, we report on unweighted and weighted average tariffs. In general, it appears that South African exports face the highest tariff barriers in Africa, Asia and Latin America. Based on a given import price elasticity in the export markets, uniformly set at 2, and a 10% tariff liberalisation, uniformly assumed in all regions, Africa and Asia also show some of the highest absolute market access gains, based on eqn (2) above. The ratio of market access gains to exports to these regions is around 3%, while it is less than 1% in the developed markets of the EU and NAFTA. In spite of the low initial tariffs, market access gains in Europe are nevertheless the second highest in absolute terms. This is due to the high initial imports to this region. Market access gains to NAFTA are currently modest. In total, it can be seen that the market access gains are rather limited with a 10% liberalisation amounting to about 1% of the total value of South Africa's exports.

It is clear from the above table that the effects on market access on exports are small, particularly when the whole world, and not only South Africa, benefits from tariff reductions. Nevertheless, exports gains are relatively higher in those market where protection is above average such as Africa and Asia. Finally, the gains reported in our hypothetical example are based on the assumption that South Africa will be able to realize all exports in its destination markets when tariffs come down. Many other factors have also been identified as major deterrents to export growth including unit labour costs, transport costs and exchange rate misalignment (see Edwards, 2002, Tsikata 1999). So, in this sense the gains reported above may also be exaggerated. However, it is also true that reduction of tariffs could lead to an increase in exports in markets where tariff levels have been prohibitive. In sum, the figure of gains is an important first cut indicator but more research is needed.

There are many other more elaborate approaches one can pursue to measure welfare that has been beyond our scope here. Francois et al (2003), using global computable general equilibrium models, for example, introduce increasing returns, trade facilitation costs and services liberalization to estimate the costs of protection. They show that the welfare effects of increasing returns on a country like South Africa almost doubled in equivalent variation dollar terms. Greater welfare gains under increasing returns are consistent through all kinds of shocks for South Africa, be it agricultural liberalization, manufacturing liberalization or services liberalization.

Conclusion

In our attempt to bring together different aspects of trade reform in South Africa, the paper shows that the trade policy landscape has changed considerably in the last decade, in view of the various policy changes that have taken place. These include reduction in nominal tariffs, reductions in the number of tariff lines as well as the tariffication of quotas and the introduction of bilateral and regional trade agreements. The multi-faceted nature of South Africa's trade policy trajectory poses considerable challenges in providing an accurate analysis of the de facto level of trade reform in the economy. We have attempted to, amongst other things, assist both policy makers and other researchers to grasp the extent and level of trade reform using a range of indicators and measures. Another contribution of this paper has been to provide a more accurate and up to date analysis of changing protection in the economy, in addition to linking South Africa's tariff liberalization with the bilateral and regional agreements. In doing so we offered a more comprehensive review of de-facto protection to the economy taking into consideration South African imports from sources regions that now enjoy preferential access relative to the country's MFN phase down trajectory.

The paper has not dwelled much on the actual impact of trade reform on poverty and employment as this has received ample attention elsewhere. In stead we focused on what has happened to the economy during trade reform without assuming any formal causality. This does, however, give one a sense of how trade may have impacted on the economy. For example, both imports and exports have increased under trade liberalization, showing some positive signs of increasing specialization in the economy bringing perhaps greater efficiency with it. The latter, again, is a topic that is currently studied elsewhere.

The paper finally ends with cost of protection measures. Although trade reform is not the major driver of growth, high tariffs could act as a deterrent to increasing the efficiency and reducing the cost structure of the economy. Indeed other policies such as transport costs, exchange can overwhelm effects from tariffs and in the long run a consistent moderate exchange rate is very important to ensuring efficiency.

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Appendix A

Table A1: Tariff phase-down under the WTO

NEW ISIC	Description	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
3	Textiles	30.1	33.8	31.8	24.9	23.4	21.9	20.3	18.7	17.3	17.3	17.3
4	Clothing, excl. footwear	73.7	73.6	68.2	54.6	50.5	46.4	42.4	37.7	33.2	33.2	33.2
5	Leather and leather products	14.9	14.8	14.1	16.5	15.7	14.8	14.8	14.8	14.8	14.8	14.8
6	Footwear	37.5	41.6	39.1	36.8	34.2	29.1	29.1	29.1	29.1	29.1	29.1
7	Wood and wood products	13.9	3.6	3.4	3.5	3.3	3.1	3.1	3.1	3.1	3.1	3.1
8	Paper and paper products	9.6	9.3	9.1	8.8	8.7	8.5	7.9	7.3	6.8	6.2	5.6
9	Printing and publishing	8.1	1.3	1.2	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0
10	Petroleum and petroleum products	1.6	-	-	-	-	-	-	-	-	-	-
11	Industrial chemicals	9.3	7.5	7.5	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6
12	Other chemical products	9.0	3.8	3.7	2.7	2.6	2.5	2.5	2.5	2.5	2.5	2.5
13	Rubber products	30.5	14.5	14.1	15.8	15.4	14.9	14.6	14.4	14.0	14.0	14.0
14	Plastic products	19.8	14.7	13.7	13.2	12.6	12.0	12.0	12.0	12.0	12.0	12.0
15	Glass and glass products	11.8	9.5	9.0	8.3	7.9	7.6	7.6	7.6	7.6	7.6	7.6
16	Non-metallic mineral products nec	10.6	8.7	8.1	8.4	8.0	7.7	7.7	7.7	7.7	7.7	7.7
17	Basic iron and steel products	7.6	4.4	4.2	4.2	4.1	3.9	3.9	3.9	3.9	3.9	3.9
18	Non-ferrous metal products	2.3	2.3	2.3	2.3	2.2	2.0	2.0	2.0	1.9	1.7	1.7
19	Metal products, excl. machinery	13.1	8.2	7.8	7.8	7.6	7.4	7.4	7.4	7.4	7.4	7.4
20	Non-electrical machinery	6.5	1.4	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3
21	Electrical machinery	11.0	6.1	6.0	5.8	5.8	5.7	5.7	5.7	5.7	5.7	5.7
22	Radio, television and	12.1	5.1	3.7	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3
23	Professional equipment etc.	7.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
24	Motor vehicles, parts and	55.4	33.5	31.7	29.3	27.9	26.1	24.8	23.2	22.1	22.1	22.1
25	Other transport equipment	1.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2
26	Furniture	28.1	21.4	20.8	20.2	19.6	18.9	18.9	18.9	18.9	18.9	18.9
27	Other manufacturing	2.9	1.0	1.0	5.2	5.1	5.0	4.9	4.9	4.9	4.9	4.9
82	Mining	2.7	0.6	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Total		11.7	7.2	6.8	6.1	5.8	5.5	5.3	5.1	4.9	4.9	4.9

Source: IDC

Table A2: Unweighted South African tariffs for selected years (HS2, ad valorem equivalent tariffs)

		HS2 description	Unweighted average of tariff 1996	Unweighted average of tariff 2000	Unweighted average of tariff 2003			HS2 description	Unweighted average of tariff 1996	Unweighted average of tariff 2000	Unweighted average of tariff 2003
1	61	Apparel articles and accessories, knit or crochet	77.3%	38.5%	37.5%	51	44	Wood and articles of wood; wood charcoal	9.6%	7.5%	8.0%
2	62	Apparel articles and accessories, not knit etc.	72.9%	37.1%	36.7%	52	48	Paper & paperboard & articles (inc papr pulp artl)	9.4%	8.1%	7.3%
3	98	Special classification of parts for motor vehicles	49.0%	35.0%	30.0%	53	76	Aluminum and articles thereof	9.4%	5.8%	6.0%
4	55	Manmade staple fibers, incl yarns & woven fabrics	40.3%	21.4%	21.2%	54	68	Art of stone, plaster, cement, asbestos, mica etc.	9.2%	5.1%	5.6%
5	54	Manmade filaments, including yarns & woven fabrics	38.7%	20.7%	20.6%	55	43	Furskins and artificial fur; manufactures thereof	9.2%	9.2%	10.7%
6	60	Knitted or crocheted fabrics	38.3%	22.6%	20.8%	56	71	Nat etc pearls, prec etc stones, pr met etc: coin	8.9%	5.3%	4.4%
7	52	Cotton, including yarn and woven fabric thereof	37.4%	21.4%	21.1%	57	35	Albuminoidal subst; modified starch; glue; enzymes	8.5%	2.8%	2.8%
8	63	Textile art NESOI: needlecraft sets: worn text art	36.0%	30.2%	27.2%	58	06	Live trees, plants, bulbs etc.: cut flowers etc.	8.3%	8.3%	8.3%
9	04	Dairy prods; birds eggs; honey; ed animal pr NESO	32.7%	30.1%	25.3%	59	29	Organic chemicals	8.1%	1.3%	1.5%
10	57	Carpets and other textile floor coverings	30.0%	30.0%	30.0%	60	91	Clocks and watches and parts thereof	8.0%	0.0%	0.0%
11	22	Beverages, spirits and vinegar	29.7%	14.3%	17.0%	61	74	Copper and articles thereof	8.0%	4.8%	5.1%
12	24	Tobacco and manufactured tobacco substitutes	29.6%	27.9%	27.9%	62	92	Musical instruments; parts and accessories thereof	7.4%	0.0%	0.0%
13	64	Footwear, gaiters etc. and parts thereof	29.6%	22.9%	22.6%	63	08	Edible fruit & nuts: citrus fruit or melon peel	7.3%	8.0%	7.4%
14	42	Leather art; saddlery etc; handbags etc; gut art	26.2%	25.2%	25.2%	64	11	Milling products; malt; starch; inulin; wht gluten	7.3%	7.3%	6.6%
15	58	Spec wov fabrics; tufted fab; lace; tapestries etc	25.9%	19.2%	17.9%	65	89	Ships, boats and floating structures	6.9%	2.4%	2.2%
16	66	Umbrellas, walking-sticks, riding-crops etc. parts	25.0%	25.0%	25.0%	66	12	Oil seeds etc.: misc grain, seed, fruit, plant etc	6.8%	6.5%	6.4%
17	65	Headgear and parts thereof	20.9%	20.0%	20.0%	67	37	Photographic or cinematographic goods	6.2%	5.5%	5.4%
18	87	Vehicles, except railway or tramway, and parts etc	19.8%	13.4%	12.4%	68	72	Iron and steel	6.1%	3.2%	3.1%
19	95	Toys, games & sport equipment; parts & accessories	19.4%	2.3%	2.3%	69	86	Railway or tramway stock etc; traffic signal equip	5.9%	0.0%	0.4%
20	94	Furniture; bedding etc; lamps NESOI etc; prefab bd	19.3%	13.9%	13.9%	70	84	Nuclear reactors, boilers, machinery etc.; parts	5.9%	2.7%	2.7%
21	19	Prep cereal, flour, starch or milk; bakers wares	19.3%	17.8%	18.1%	71	13	Lac; gums, resins & other vegetable sap & extract	5.6%	5.6%	5.6%
22	34	Soap etc; waxes, polish etc; candles; dental preps	19.0%	13.8%	13.5%	72	49	Printed books, newspapers etc; manuscripts etc	5.6%	4.3%	4.3%
23	02	Meat and edible meat offal	18.8%	18.5%	16.6%	73	27	Mineral fuel, oil etc.: bitumen subst: mineral wax	5.6%	4.0%	3.6%
24	96	Miscellaneous manufactured articles	18.4%	9.5%	9.4%	74	80	Tin and articles thereof	5.4%	0.0%	0.0%
25	33	Essential oils etc; perfumery, cosmetic etc preps	17.9%	9.8%	9.8%	75	28	Inorg chem; prec & rare-earth met & radioact compd	5.2%	0.9%	0.9%
26	67	Prep feathers, down etc; artif flowers; h hair art	17.6%	17.5%	17.5%	76	23	Food industry residues & waste; prep animal feed	5.1%	3.8%	4.1%
27	46	Mfr of straw, esparto etc.; basketware & wickerwrk	17.1%	17.1%	16.7%	77	41	Raw hides and skins (no furskins) and leather	5.1%	2.9%	3.9%
28	56	Wadding, felt etc; sp yarn; twine, ropes etc.	16.7%	15.6%	15.0%	78	79	Zinc and articles thereof	4.4%	0.0%	0.0%
29	83	Miscellaneous articles of base metal	16.3%	12.1%	12.1%	79	90	Optic, photo etc, medic or surgical instrments etc	3.9%	0.4%	0.4%
30	93	Arms and ammunition; parts and accessories thereof	16.1%	14.1%	11.8%	80	10	Cereals	3.6%	7.5%	4.2%
31	20	Prep vegetables, fruit, nuts or other plant parts	16.0%	15.1%	15.6%	81	75	Nickel and articles thereof	3.2%	0.0%	0.0%
32	51	Wool & animal hair, including yarn & woven fabric	14.3%	10.7%	8.9%	82	09	Coffee, tea, mate & spices	2.4%	2.9%	3.1%
33	03	Fish, crustaceans & aquatic invertebrates	14.1%	10.9%	10.3%	83	97	Works of art, collectors' pieces and antiques	2.3%	0.0%	0.0%
34	16	Edible preparations of meat, fish, crustaceans etc	14.0%	12.1%	10.4%	84	26	Ores, slag and ash	1.8%	0.0%	0.0%
35	21	Miscellaneous edible preparations	13.6%	12.4%	12.4%	85	25	Salt; sulphur; earth & stone; lime & cement plaster	1.7%	0.9%	1.0%
36	39	Plastics and articles thereof	13.5%	8.3%	8.2%	86	78	Lead and articles thereof	1.6%	0.0%	0.0%
37	59	Impregnated etc text fabrics; tex art for industry	13.5%	12.7%	12.6%	87	81	Base metals NESOI; cermets; articles thereof	1.4%	0.0%	0.0%
38	69	Ceramic products	13.4%	8.6%	8.6%	88	53	Veg text fib NESOI; veg fib & paper yns & wov fab	1.4%	2.1%	2.6%
39	17	Sugars and sugar confectionary	13.1%	11.7%	16.6%	89	45	Cork and articles of cork	1.3%	0.0%	0.0%
40	40	Rubber and articles thereof	12.7%	10.1%	9.4%	90	14	Vegetable plaiting materials & products NESOI	1.3%	1.3%	1.3%
41	82	Tools, cutlery etc. of base metal & parts thereof	12.4%	10.0%	10.0%	91	30	Pharmaceutical products	0.8%	1.5%	0.6%
42	18	Cocoa and cocoa preparations	12.2%	9.5%	9.3%	92	99	Unclassified goods & BOP adjustments	0.7%	0.0%	0.0%
43	15	Animal or vegetable fats, oils etc. & waxes	12.0%	5.0%	7.4%	93	01	Live animals	0.0%	0.0%	0.5%
44	07	Edible vegetables & certain roots & tubers	11.6%	10.8%	11.4%	94	88	Aircraft, spacecraft, and parts thereof	0.0%	0.0%	0.0%
45	73	Articles of iron or steel	11.2%	6.7%	6.7%	95	05	Products of animal origin, NESOI	0.0%	0.0%	0.0%
46	36	Explosives; pyrotechnics; matches; pyro alloys etc	10.5%	3.1%	3.1%	96	47	Wood pulp etc; recovd (waste & scrap) ppr & ppbd	0.0%	0.0%	0.0%
47	32	Tanning & dye ext etc; dye, paint, putty etc; inks	10.4%	2.6%	2.4%	97	31	Fertilizers	0.0%	0.0%	0.0%
48	85	Electric machinery etc; sound equip; tv equip; pts	10.3%	6.1%	6.1%	98	50	Silk, including varns and woven fabric thereof	0.0%	0.0%	0.0%
49	38	Miscellaneous chemical products	10.0%	3.3%	2.9%	99		Average	17.36%	10.7%	10.7%
50	70	Glass and glassware	9.9%	7.6%	7.7%	100		Stand Dev at HS8	0.1920	0.1218	0.1181
						101		Max at HS8	131.53%	186.7%	135.7%

Source: IDC (1996) and Customs & Excise (2000 & 2003), Note: We have converted non-ad valorem tariffs of both schedules to ad valorem equivalents using the following rules: 1) Specific tariff: we multiply the specific rate through with the unit value of total imports. For MFN we ignore imports from the EU, SADC and SACU. If MFN or EU imports are zero, we take the unit value of total imports, i.e., including imports from the EU and SADC. 2) Combination tariff: a combination of a specific and an ad valorem tariff can occur in the following way: a) "Either or" tariff: we adopt the ad valorem rate if it is the first component, likewise for the specific rate. The ad valorem equivalent of the specific rate is described in 1) above. b) additive tariff: we add the ad valorem equivalent of the specific component to the ad valorem component 3) If a maximum ad valorem or specific rate is specified in the combination tariff, this is ignored as we do not know whether or not this was relevant for individual shipments.

Table A3a Nominal and effective rates of protection for South Africa (2003)

	SU-tables description	NRP	EPRs		SU-tables description	NRP	EPRs
1	Sugar	46.0%	463.2%	49	Petroleum	0.7%	1.4%
2	Carpets	28.7%	309.6%	50	Jewellery	0.7%	1.2%
3	Knitting mills	34.6%	173.6%	51	Electrical equipment	2.8%	1.0%
4	Meat	12.3%	162.8%	52	Pumps	1.7%	0.7%
5	Textile articles	29.7%	151.0%	53	Gears	1.6%	0.3%
6	Dairy	28.1%	148.3%	54	Wood	3.3%	0.0%
7	Motor vehicles	30.4%	142.5%	55	FSIM	0.0%	0.0%
8	Wearing apparel	37.3%	113.3%	56	Real estate	0.0%	-0.3%
9	Handbags	29.7%	97.5%	57	Basic chemicals	1.0%	-0.3%
10	Soap	18.7%	92.4%	58	Insurance	0.0%	-0.4%
11	Motor vehicle parts	28.3%	86.7%	59	Lifting equipment	1.4%	-0.5%
12	Bakeries	22.8%	85.5%	60	Electricity	0.0%	-0.6%
13	Footwear	29.4%	80.3%	61	Paints	3.5%	-0.7%
14	Other paper	17.0%	68.6%	62	Cement	0.0%	-0.7%
15	Furniture	18.4%	62.8%	63	Business activities	0.0%	-0.9%
16	Tyres	16.1%	57.3%	64	Water	0.0%	-1.0%
17	Wire and cable	12.7%	38.4%	65	Publishing	1.8%	-1.0%
18	Lighting equipment	11.1%	31.3%	66	Communications	0.0%	-1.1%
19	Animal feeds	9.0%	29.7%	67	Trade	0.0%	-1.2%
20	Plastic	12.8%	25.5%	68	Fertilizers	0.0%	-1.2%
21	Textiles	11.3%	23.9%	69	Other mining	0.0%	-1.3%
22	Non-structural ceramics	8.4%	23.4%	70	Engines	0.5%	-1.4%
23	Other non-metallic	6.8%	22.5%	71	Health and social work	0.0%	-1.4%
24	Other textiles	10.9%	21.0%	72	Gold	0.0%	-1.4%
25	Leather	11.8%	20.4%	73	General government	0.0%	-1.5%
26	Containers of paper	9.6%	20.4%	74	Accumulators	1.6%	-1.9%
27	Glass	9.1%	17.6%	75	Machine-tools	0.3%	-2.0%
28	Other food	12.8%	17.3%	76	Coal	0.0%	-2.1%
29	Confectionery	13.2%	17.0%	77	Activities/services	0.0%	-2.1%
30	Other rubber	8.5%	16.7%	78	Fish	1.8%	-2.1%
31	Fruit	10.6%	14.9%	79	Pharmaceuticals	0.1%	-2.1%
32	Primary plastics	4.8%	13.3%	80	Pesticides	0.7%	-2.3%
33	General hardware	6.0%	11.9%	81	Office machinery	0.0%	-2.3%
34	Agriculture	8.1%	11.8%	82	Agricultural machinery	0.3%	-2.7%
35	Structural ceramics	5.4%	11.8%	83	Treated metals	0.0%	-2.8%
36	Oils	8.2%	11.3%	84	Mining machinery	0.8%	-2.9%
37	Fabricated metal	5.0%	9.7%	85	Transport services	0.0%	-3.0%
38	Iron and steel	3.3%	9.3%	86	Hotels	0.0%	-3.1%
39	Household appliances	4.9%	7.0%	87	Other transport	0.1%	-3.4%
40	Structural metal	4.4%	6.4%	88	Special machinery	0.4%	-3.5%
41	Paper	4.9%	6.1%	89	Other chemicals	1.2%	-3.8%
42	Beverages & tobacco	7.5%	5.9%	90	Other construction.	0.0%	-3.9%
43	Other manufacturing	4.6%	4.3%	91	Optical instruments	0.3%	-4.0%
44	Electric motors	3.8%	3.7%	92	Food machinery	0.0%	-5.1%
45	Electricity apparatus	3.4%	2.8%	93	Buildings	0.0%	-6.5%
46	Non-ferrous metals	1.4%	2.1%	94	Recorded media	0.0%	-6.8%
47	Radio and television	2.4%	1.8%	95	Grain mills	0.7%	-15.8%
48	General machinery	2.4%	1.6%				

Source: DTI for tariffs, Customs & Excise for trade, Stats SA for Supply-Use Table and own calculation

Table A3b Nominal and effective rates of protection for South Africa (2000)

	SU-tables description	NRP	EPRs		SU-tables description	NRP	EPRs
1	Meat	16.8%	330.2%	49	Paints	4.1%	1.4%
2	Carpets	29.0%	281.1%	50	Petroleum	0.5%	0.9%
3	Sugar	42.3%	270.3%	51	Gears	1.8%	0.3%
4	Motor vehicles	36.6%	231.0%	52	FSIM	0.0%	0.0%
5	Dairy	31.7%	166.9%	53	Pumps	1.6%	-0.1%
6	Textile articles	32.8%	160.4%	54	Real estate	0.0%	-0.3%
7	Knitting mills	33.1%	131.0%	55	Insurance	0.0%	-0.4%
8	Motor vehicle parts	32.7%	107.0%	56	Basic chemicals	1.0%	-0.5%
9	Wearing apparel	38.6%	103.3%	57	Jewellery	0.6%	-0.6%
10	Bakeries	24.8%	97.0%	58	Electricity	0.0%	-0.7%
11	Soap	18.9%	94.7%	59	Cement	0.0%	-0.7%
12	Handbags	30.0%	90.0%	60	Business activities	0.0%	-0.9%
13	Footwear	31.0%	82.9%	61	Engines	0.6%	-1.1%
14	Tyres	18.9%	69.4%	62	Water	0.0%	-1.1%
15	Furniture	19.3%	64.6%	63	Machine-tools	0.8%	-1.1%
16	Other paper	16.0%	51.1%	64	Communications	0.0%	-1.2%
17	Textiles	18.2%	46.7%	65	Trade	0.0%	-1.2%
18	Wire and cable	14.2%	43.0%	66	Fertilizers	0.0%	-1.2%
19	Lighting equipment	12.4%	37.3%	67	General machinery	1.4%	-1.2%
20	Other textiles	13.7%	26.4%	68	Other mining	0.0%	-1.3%
21	Plastic	13.0%	25.5%	69	Electrical equipment	2.0%	-1.4%
22	Animal feeds	9.2%	20.7%	70	Pesticides	1.2%	-1.5%
23	Agriculture	12.1%	20.1%	71	Lifting equipment	1.1%	-1.5%
24	Containers of paper	10.2%	19.9%	72	Gold	0.0%	-1.5%
25	Other non-metallic	6.0%	18.6%	73	Health and social work	0.0%	-1.5%
26	Confectionery	13.8%	18.0%	74	General government	0.0%	-1.7%
27	Glass	8.9%	17.1%	75	Publishing	2.0%	-1.7%
28	Other rubber	9.0%	16.9%	76	Agricultural machinery	0.8%	-1.9%
29	General hardware	7.3%	14.9%	77	Coal	0.0%	-2.2%
30	Structural ceramics	6.2%	14.1%	78	Pharmaceuticals	0.1%	-2.3%
31	Other food	12.5%	13.5%	79	Activities/services	0.0%	-2.3%
32	Primary plastics	4.8%	13.2%	80	Office machinery	0.0%	-2.4%
33	Household appliances	6.7%	12.4%	81	Wood	3.1%	-2.7%
34	Non-structural ceramics	5.0%	12.0%	82	Mining machinery	0.9%	-2.9%
35	Leather	12.6%	11.4%	83	Treated metals	0.0%	-3.0%
36	Fruit	10.2%	11.1%	84	Other transport	0.4%	-3.2%
37	Fabricated metal	5.3%	10.0%	85	Transport services	0.0%	-3.2%
38	Paper	7.1%	10.0%	86	Optical instruments	0.6%	-3.3%
39	Iron and steel	3.4%	9.6%	87	Hotels	0.0%	-3.6%
40	Structural metal	4.7%	6.3%	88	Other construction.	0.0%	-4.1%
41	Beverages & tobacco	8.6%	6.2%	89	Special machinery	0.3%	-4.1%
42	Electricity apparatus	4.6%	5.8%	90	Other chemicals	1.2%	-4.4%
43	Electric motors	4.4%	5.8%	91	Fish	1.4%	-4.6%
44	Non-ferrous metals	2.5%	4.4%	92	Food machinery	0.0%	-5.1%
45	Accumulators	4.1%	4.2%	93	Buildings	0.0%	-6.9%
46	Other manufacturing	4.8%	3.5%	94	Recorded media	0.0%	-7.0%
47	Radio and television	2.7%	2.7%	95	Grain mills	0.8%	-21.4%
48	Oils	7.6%	2.4%				

Source: DTI for tariffs, Customs & Excise for trade, Stats SA for Supply-Use Table and own calculation

Table A3b Nominal and effective rates of protection for South Africa (1996)

	SU-tables description	NRP	EPRs		SU-tables description	NRP	EPRs
1	Knitting mills	64.8%	1197.6%	49	Accumulators	6.2%	5.8%
2	Wearing apparel	72.4%	359.3%	50	Treated metals	4.5%	5.4%
3	Carpets	29.2%	218.3%	51	Basic chemicals	3.5%	4.8%
4	Textile articles	39.8%	206.9%	52	Oils	5.9%	4.5%
5	Dairy	29.4%	191.0%	53	Electricity apparatus	5.6%	4.2%
6	Motor vehicle parts	44.3%	171.7%	54	Pumps	4.4%	3.9%
7	Motor vehicles	38.8%	124.5%	55	Gears	3.8%	3.1%
8	Footwear	39.6%	119.3%	56	Wood	4.0%	2.6%
9	Bakeries	24.5%	98.0%	57	Agriculture	4.5%	2.5%
10	Soap	21.1%	97.9%	58	Other chemicals	4.6%	1.6%
11	Textiles	26.6%	92.6%	59	Structural metal	4.1%	0.4%
12	Animal feeds	12.1%	85.5%	60	Cement	0.9%	0.4%
13	Handbags	30.0%	75.6%	61	FSIM	0.0%	0.0%
14	Furniture	19.4%	55.9%	62	Pharmaceuticals	1.6%	0.0%
15	Lighting equipment	18.2%	53.1%	63	Fish	2.4%	-0.2%
16	Non-structural ceramics	15.9%	50.8%	64	Insurance	0.0%	-0.5%
17	Other non-metallic	13.1%	50.3%	65	Real estate	0.0%	-0.6%
18	Beverages & tobacco	21.2%	45.6%	66	Electricity	0.0%	-1.0%
19	Plastic	19.5%	41.9%	67	Business activities	0.0%	-1.3%
20	Other rubber	15.8%	41.4%	68	Communications	0.0%	-1.6%
21	Other paper	15.4%	40.5%	69	Trade	0.0%	-1.7%
22	Containers of paper	15.1%	36.2%	70	Other mining	0.2%	-1.8%
23	Paints	13.6%	35.0%	71	Machine-tools	1.7%	-1.8%
24	Other manufacturing	15.5%	34.3%	72	Radio and television	1.9%	-1.9%
25	Wire and cable	14.5%	32.2%	73	General government	0.0%	-2.0%
26	Sugar	11.0%	29.7%	74	Water	0.0%	-2.3%
27	Leather	15.5%	27.9%	75	Health and social work	0.0%	-2.3%
28	Fruit	13.5%	27.8%	76	Agricultural machinery	1.5%	-2.4%
29	Other textiles	15.1%	23.9%	77	General machinery	2.6%	-2.4%
30	Recorded media	14.6%	23.0%	78	Fertilizers	0.2%	-2.6%
31	Engines	8.4%	22.7%	79	Activities/services	0.0%	-2.7%
32	Other food	12.5%	21.8%	80	Coal	0.0%	-3.3%
33	Lifting equipment	8.2%	21.8%	81	Publishing	1.8%	-3.3%
34	Structural ceramics	9.3%	21.5%	82	Pesticides	1.1%	-3.4%
35	General hardware	10.1%	19.7%	83	Jewellery	1.2%	-3.6%
36	Glass	10.5%	18.9%	84	Hotels	0.0%	-4.1%
37	Fabricated metal	9.8%	18.6%	85	Office machinery	0.0%	-4.1%
38	Petroleum	5.6%	16.0%	86	Other transport	1.8%	-4.2%
39	Iron and steel	5.7%	15.6%	87	Transport services	0.0%	-4.8%
40	Paper	7.8%	15.5%	88	Other construction.	0.0%	-6.4%
41	Tyres	7.9%	15.2%	89	Special machinery	0.5%	-7.3%
42	Confectionery	9.7%	13.1%	90	Optical instruments	0.8%	-8.5%
43	Non-ferrous metals	6.8%	11.8%	91	Grain mills	1.1%	-8.5%
44	Primary plastics	5.7%	11.1%	92	Food machinery	0.0%	-8.5%
45	Household appliances	8.1%	10.6%	93	Mining machinery	1.6%	-9.1%
46	Electrical equipment	7.4%	8.0%	94	Buildings	0.0%	-9.8%
47	Gold	6.0%	7.8%	95	Meat	15.5%	-610.8%
48	Electric motors	7.0%	6.0%				

Source: IDC for tariffs, Customs & Excise for trade, Stats SA for 2000 Supply-Use Table and own calculation