REGIONAL INTEGRATION IN SOUTHERN AFRICA IN A GENERAL EQUILIBRIUM FRAMEWORK: MODEL, DATA AND FIRST RESULTS

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SUMMARY

The Southern African Development Community (SADC) had at its inception a strong anti-apartheid political orientation. From 1992, economic co-operation has been based on 'efficiency, economy and competitiveness'. In 1996 SADC Protocol on Trade Co-operation for the creation of a Free Trade Area (FTA) was agreed and the ratification process is almost complete.

Realisation of the full benefits of the FTA requires rule-based system institutional arrangements. The institutional reform that could deliver a workable FTA is demanding. Moreover, the FTA, or more accurately the 'intended' FTA, requires the application of strict rules of origin to succeed. Given the weak administrative capacity of the member countries, it is likely that the 'intended' FTA would, in practice, operate like a Customs Union with the Common External Tariff based on the lowest tariff rates prevailing for each commodity amongst member states (CUmin).

This paper is intended to provide the main exposition of the background to the research on regional integration in South Africa and to present some of the core findings of that work. Thus, the central findings of this paper are:

- The impact effects of the 'intended' FTA on economic welfare are a modest 0.11% of Final Demand, or roughly 0.11% of GDP.

- With unenforcable rules of origin, the 'intended' FTA operates like a CUmin. A CUmin is likely to hve impact effects on economic welfare are over four times that estimated for the 'intended' FTA, or nearly 0.5% of GDP.

- The government revenue effects of the 'intended' FTA are important for several countries, but minor for South Africa. For the CUmin, the government revenue effects are substantial for over half of the SADC countries. This means that the expansion of the tax base is critical for the success of both the 'intended' FTA and a CUmin.

- For the most part, the exchange rate effects of the 'intended' FTA and a CUmin are small.

- In the case of the 'intended' FTA, a partial equilibrium model is a reasonably accurate predictor of sectoral employment effects, compared with a general equilibrium model. However, the accuracy of the partial equilibrium model declines markedly for the CUmin.

- The estimates of the changes in intra SADC trade are sensitive to the choice of Armington elasticities. However, the estimated welfare effects are not sensitive.

- Roughly speaking, the estimates of the impact and dynamic benefits of the 'intended' FTA are likely to be at least 0.4% of GDP and 2% for a CUmin.

- In policy terms, the recommendation is that SADC should proceed as fast as possible to an explicit CUmin, thus dispensing with unenforceable rules of origin. However, given the large disparities in the over all welfare effects between countries and the disparities between sectoral employment changes for the 'intended' FTA and for the CUmin, the political economy of adjustment is likely to be difficult to manage.

Finally, an exciting research agenda should be developed for future with the CGE version of the model. This new agenda could include an exploration at a highly disaggregated level of issues such as SACU and SADC relations with the EU or even COMMESA, gender and poverty implications of the 'intended' FTA, food security implications.

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1 INTRODUCTION

1.1 The Political and Economic Background

The Southern African Development Co-ordination Conference (SADCC) and its successor, the Southern African Development Community (SADC) had a strong anti-apartheid orientation driven by the political posture of the member states. Within the SADCC, economic co-operation was based on a sectoral approach. The Windhoek Treaty of 1992 changed the basis of economic co-operation to allow for 'efficiency, economy and competitiveness'. This shift and the change to SADC lead to the SADC Protocol on Trade Cooperation SADC (1996) for the creation of a Free Trade Area or FTA.

SADC has a rapidly expanding membership. In terms of economic conditions, the SADC countries are an extremely heterogeneous group. The GDP per capita ranges roughly 20:1 from richest to poorest; in terms of economic size, the range is nearly 100:1. GDP growth performance over the last 20 years varied considerably, but some SADC countries had a surprisingly good record of economic management, measured in terms of the average rate of inflation, and in terms of poverty reduction and human development. A significant characteristic of the SADC region is the historically high level of trade barriers. Whilst there have been a considerable lowering of protection in the SADC region in the 1990s, there are still significant barriers to trade. Thus, the basis exists for the first steps to be taken towards regional integration around the mutual reduction of trade barriers.

1.2 The Structure of SADC Economies

The structure of **SADC** economies is highly diverse with opportunities for exploiting comparative advantage for specialisation. Thus, SADC countries differ substantially in GDP per capita, the height of tariffs, and in the trade share of GDP. Broadly speaking, these differences are described in Table 1.1 below.

The two sets of estimates of average tariffs reflect the fact that several SADC countries underwent World Bank/IMF Structural Adjustment Programmes or SAPs during the 1990s. Thus, there was an overall fall in the average tariffs from 15.1% to 9.3% from the early 1990s to the most recent estimates. Although this decline in the average tariffs was relatively large, the height of the tariffs that prevailed prior to the FTA are nevertheless substantial, particularly in the SACU countries, Mozambique, Tanzania, Zambia and Zimbabwe. As expected, the smaller countries have a larger GDP to trade ratio. The direction of trade statistics show the SADC shares of imports and exports vary greatly from country to country. Thus, the direction of trade, the height of tariffs, the sectoral structure of each economy, and the level of per capita GDP interact in a complex way in influencing the effects of the FTA.

An overall picture of the trade flows within SADC can be seen from the last four columns of Table 1 showing the over all magnitude of the trade flows and direction of the intra SADC trade compared with the Rest of the World. Further details of the pattern of trade are taken up in the next section.

Table 1.1 GDP Per Capita, Tariffs and the Direction of Trade in 12 SADC Countries

`	GDP per capita $USm current 1991-3 avg.	Tariffs Early 1990s Average %	Tariffs Most recent Average %	Imports to GDP ratio 1991-3 %	SADC share Imports 1991-3 %	Exports to GDP ratio 1991-3 %	SADC share Exports 1991-3 %
Angola	339	11.4	10.8	19.9	13.8	39.6	0.1
Botswana	2651	9.4	11.8	51.8	84.9	51.1	10.5
Lesotho	282	9.4	11.7	163.9	90.4	18.1	45.3
Malawi	204	22.9	20.6	24.5	40.7	23.1	13.3
Mauritius	2418	15.3	22.7	65.4	10.9	56.5	6.3
Mozambique	79	25.5	12.0	73.7	37.2	29.8	6.1
Namibia	1601	9.4	12.6	58.7	89.3	63.9	29.7
RSA	2985	9.4	5.6	12.9	8.1	19.2	27.0
Swaziland	914	9.4	6.3	94.1	93.9	74.3	53.1
Tanzania	161	24.2	19.0	46.5	2.0	20.6	2.2
Zambia	356	29.7	11.4	34.1	42.0	53.5	2.2
Zimbabwe	502	40.3	15.8	39.2	27.9	30.2	32.5
SADC	1103	15.1	9.3	19.6	26.3	24.1	21.4

Note: GDP is measured at factor cost. Estimates are from the World Bank Economic Indicators, 1998. These estimates of GDP differs slightly from earlier estimates used in the model database (see Evans (1998a, Appendix 2)). The latter were retained in the model for consistency reasons. All other data are from the model database described in Appendix 2 and in Evans (1998a, Appendix 2). The early 1990s tariff estimates are from IDC/NOC 1996. Estimates of 'Early 1990s Tariffs' for SACU countries based on the SACU average.

1.3 The Pattern of Trade

The available trade data suggest that there are opportunities for both inter-industry trade in agriculture and intra-industry trade in manufactures within SADC

The ADB (1993) notes that for all countries of the region the majority of exports are made up of mineral and agricultural commodities, those products with low processing or manufactured value added, sold to industrialised countries. The majority of their imports, on the other hand, are intermediate and capital goods originating in industrialised countries[1.] The pattern of intra-SADC trade is somewhat different as can be seen by looking at the pattern of intra-trade in the 36 traded sectors as shown in Table 1.2.

In Table 1.2, net imports for each SADC country, for aggregate SADC trade, and for ROW trade, are shown as a % of total trade. A score of –100 indicates that all trade is exports, and a score of +100 indicates that all trade is imports. When there is intra trade such that imports and exports are equal, the score is zero. Taking first trade with the rest of the world, there is a high degree of specialisation in ROW trade. There is a significant amount of intra trade in three agricultural and 9 manufacturing sectors. For aggregate SADC trade, there appears to be a great deal of intra trade, but at the country level, much of this disappears. Thus, Zimbabwe appears to have the greatest amount of intra SADC trade (taking the absolute value of the scores).

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[1]A breakdown between RSA imports from the rest of Africa and from elsewhere is not available from the RSA trade data.

Table 1.2 Intra Trade SADC and ROW: Net Imports 1991-1993 Average as % of Total Trade

Sectors	Ang.	Bots.	Les.	Mal.	Mau.	Moz.	Nam.	RSA	Swaz.	Tanz.	Zam.	Zim.	SADC	ROW
Maize	-100	-100	-84	-100	-100	-100	-100	85	-100	-100	-97	59	-5.6	88
Other grains	-100	-100	-71	-100	-100	-100	-100	87	-100	-100	46	38	3.5	23
Tobacco	-100	-100	-100	68	-100	-86	-100	-81	-100	-100	95	89	10.0	-96
Sugar	-100	-100	-100	96	100	-100	-100	86	-100	-100	99	-100	-9.8	-91
Beef	-100	84	10	-100	-100	-41	100	-88	-100	-100	-100	100	71.1	85
Horticulture	-100	-87	-100	10	-91	-65	-100	66	-100	93	81	86	3.7	-27
Cotton	-100	-100	-100	99	-100	-100	-100	100	-100	100	91	-98	-82.2	-31
Tea and Coffee	-100	-100	-100	99	-2	-100	-100	-19	-100	65	-83	100	3.2	-82
Agriculture n.e.c.	-99	-87	-70	-50	-97	-11	1	36	-10	16	-49	24	0.2	-74
Mining	-100	-14	-100	-100	-100	-100	-8	58	-10	-98	-94	-44	0.5	-77
Food Products	-100	-17	-62	-80	-96	-97	15	40	0	-20	-90	32	1.9	14
Beverages	-100	-83	-100	-81	-93	-100	-100	40	63	-100	-100	49	-11.2	-60
Tobacco	17	-100	-100	-17	-97	-88	-100	100	-100	9	56	31	-15.7	-38
Textiles	-100	-68	-85	-6	68	-37	-36	37	-31	-53	-90	11	3.2	22
Clothing	-100	-100	-100	-7	-20	-63	-100	80	-100	-100	-46	93	-6.3	-60
Leather Products	-100	-71	-100	-100	35	-100	-100	71	-100	-100	-100	90	23.0	9
Footwear	-100	-100	-100	-100	57	-100	-100	89	-100	-100	-100	98	13.9	88
Wood Products	-100	-84	-100	29	-81	15	-100	44	28	-57	56	69	-5.0	9
Furniture	-100	-100	-76	-100	-99	-100	-76	91	-100	-100	-100	64	0.7	75
Paper and Paper Products	-100	-69	-100	-99	-98	-100	-100	68	1	-31	-98	-59	-5.1	-2
Printing and Publishing	-100	-100	-97	-100	-99	-95	-86	93	-100	-100	-99	-37	-6.4	10
Industrial Chemicals	45	-64	-100	-100	-92	-91	-100	93	-95	-33	-91	-45	-0.5	50
Other Chemicals	-100	-100	-99	-86	-95	-100	-44	93	-100	-98	-97	-39	-0.1	96
Rubber Products	-100	-100	-100	-98	-80	-27	-100	99	-100	67	-96	20	5.9	75
Plastic Products	-100	-100	-100	-100	-98	-100	-100	97	-100	-100	-98	-48	6.6	81
Pottery,China and Earthenwear	-100	-100	-100	-100	-100	-100	-100	93	-100	-100	-100	-21	54.1	85
Glass and Glass Products	-100	-100	-100	-100	-100	-90	-100	77	-7	-100	27	16	7.6	53
Other non-metallic mineral products	-100	-100	-99	-82	-100	-100	-68	86	-100	-58	-51	25	-2.4	30
Basic Iron and Steel	-100	-100	-100	-100	-100	-100	-100	59	-100	8	-98	66	-2.5	-66
Non-ferrous metals	-100	-100	-100	-100	-100	60	-100	13	-100	-100	-100	67	-9.4	-69
Fabricated Metal Products	-100	-84	-100	-46	-97	-100	-85	91	-85	32	-99	-51	-5.2	69
Machinery	-100	-100	-100	-100	-90	-98	-100	98	-88	-81	-98	-77	-7.6	61
Electrical Machinery	-100	-100	-100	-100	-80	-100	-100	93	-100	-98	-89	-48	4.5	37
Motor vehicle	-93	-100	-100	-100	20	-99	-100	99	-100	-73	-92	-80	-4.7	77
Transport Equipment	-100	-100	-100	-100	4	-79	-100	99	-100	-100	-100	68	55.4	59
Other Manuf.	30	87	33	70	70	-21	42	95	24	24	-46	-11	33.5	-35

In manufacturing, textiles appear to have the greatest intra SADC trade. Significant amounts of intra-trade existed for other countries and sectors. The fact that two-way intra-industry trade was already present in the early 1990s suggests that the seeds can be found for the development of thriving intra-sectoral trade in the region. Proximity and removal of border barriers can promote intra-industry trade[2] and stimulate technical change.

Estimates vary as to the importance of the regional market for manufactures historically. The ADB (1993) estimates for 1985 suggest that for all manufactures about 7% of RSA exports go to the region. The equivalent figure for the average of 1991-3 is over 40% (see Table 6.2), indicating a striking increase in the degree of the RSA's mutual interdependence in the 1990s.[3]

The pattern of trade in SADC shown in Tables 1 and 2 is governed by comparative advantage, which also determines the underlying distribution of income. The principal determinants of comparative advantage are resource endowments of each country, including technological know-how. In a world where capital is increasingly mobile and, from the point of view of SADC, is available at a given price, the critical resources which determine the level of income and the pattern of trade are the relative human and natural resource

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[2] Chipeta (1997).
[3] See Table 1.1 above and Mayer and Thomas (1997)

Table 1.3: Access to Schooling and Land in SADC

	1 *Land Availability* Sq. km. Per '000 Pop.	2 *Skill* Average Years Schooling per person over 15	3 *Indicator of skill* *versus land* *endowment*	4 *Rank*
Angola	121.1	2.4	20	7
Malawi	11.2	2.7	240	2
Mauritius	1.8	5.6	3136	1
Mozambique	53.1	0.9	17	8
SACU (RSA)	58.9	5.3	90	4
Tanzania	33.8	2.6	77	5
Zambia	84.6	4.7	56	6
Zimbabwe	36.5	3.4	93	3
Average	53.3	3.6	67	

Note: The relative availability of skill vs. land (column 3) is the ratio of skill availability (column 2) divided by land availability (column 1) multiplied by 1,000[4].

endowments. One way to consider a country's crucial resource endowments relative to its trading partners is to draw up an indicator of the availability of skills relative to land, and to compare this indicator with the estimate for other countries. This measure of comparative advantage has been found to be useful in recent studies of skills-based comparative advantage[5]. The elements of such an indicator for SADC countries can be constructed by taking the ratio of average skills per person to the average amount of land per person, shown in Table 1.3:

In Table 1.3, column 3 indicates the relative ease of access for the people to schooling on the one hand, and to land on the other. Another way of looking at this is to see that this is a measure of the relative availability of land vs. skilled labour for production. It serves to emphasise the link between institutional capability, economic policy and the extent to which exports and imports are responsive to underlying factor endowments. The indices shown in Table 1.3 are a first approximation. For example, the Malawi data may be misleading, as they take no account of their relatively high land quality. The very high skill to land ratio for Mauritius reflects the fact that it is a small island economy. Overall, the indicators do not take account of how the endowments are translated into actual economic capability. Nevertheless, they can offer useful insights into comparative advantage. The key point in each case is the ranking of countries by the comparative advantage index (col. 4) and whether for each country the advantage index (col. 3) is above or below the SADC average. Ideally, the SADC average should be compared with the world average, but for the

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[4] Sources: World Development Reports, Barro and Lee (1996, Appendix Table A.1). Note that total population rather than population over 15 is used in constructing the indicator for land per person since estimates of adult population over 15 are not available for all countries. This discrepancy should not much affect the accuracy of the result.

[5] See Wood and Ridao-Cano (1996).

moment the SADC average can be taken as a proxy for the world average. Thus, overall shares of agricultural and manufacturing trade are likely to be based on comparative advantage in land and skill. However, as already seen from Table 1.2, within both agricultural and industrial sectors, there is some intra industry trade that may be based on product differentiation. It is therefore important to recognise that factor endowments and product differentiation be recognised as potential determinants of the pattern of SADC trade.

1.4 The Institutional Framework for Regional Integration

SADC's ambitious project of regional integration will cost members a lot in terms of effort, loss of sovereignty and economic adjustment. Equally the costs of non-integration, that is the costs of not ceasing this historical opportunity for greater regional integration, are potentially high. They lie not only in foregoing all the gains from the agreed FTA, but also in a loss of credibility should the FTA fail and the sacrifice of an opportunity to go further to a full Customs Union or CU

The SADC Trade Protocol as it stands, not yet finally ratified by all member states at the time of writing, embodies a limited ambition. But a FTA requires a rule-based system to succeed. Otherwise producers, traders and consumers will not be willing to take the FTA seriously. If economic actors in the region are to plan their economic activities to take advantage of the opportunities for linkages across the region, they must know that the commitments are real and irreversible. The conditions for institutional reform that could deliver a workable FTA are demanding, and amount to a requirement that inter-state economic relations be governed by codes of law rather than political pressures. This process can be seen as a pooling rather than as a loss of sovereignty. If this argument were correct, a failure by SADC to realise the FTA would not just lose the potential benefits of the FTA itself; it would diminish the credibility of commitments made by the region's governments. It would also lose the potential benefits from turning the region into a rule-based entity and the chance to move on towards establishing a CU, or regional co-operation through Open Regionalism (OR). This may be defined by a process of trade barrier reduction towards regional Freer Trade carried out on the basis of Most Favoured Nation or MFN tariff reductions by each co-operating member state.

Each form of regional integration has different levels of mutual co-operation, from collaboration on infrastructure projects to establishing common laws and policies governing economic life. With the possible exception of OR, the alternative forms of regional integration will require an additional element of supra-nationality for SADC, in which member states can gain from the transition to a rule-based economic environment. In each case, estimated costs and benefits of integration have both impact effects and more dynamic consequences that are realised over a longer period of time. Both the impact and dynamic effects are influenced by the global economic environment affecting the access of regional products into world markets, the terms of trade, and the growth of the world economy.

2 THE QUESTIONS ADDRESSED

This paper is intended to provide the main exposition of the background to the research on regional integration in South Africa and to present some of the core findings of that work. Thus, the central questions addressed in this paper are:

- What are the impact effects of the SADC FTA?
- What are the consequences of a possible breakdown of the enforcement of the rules of origin for the FTA, leading to the de-facto formation of a Customs Union with a minimum common external tariff or CUmin?
- What is the impact of the FTA or possible CUmin on government revenue?
- What are the exchange rate effects of the FTA or possible CUmin?
- To what extent is a partial equilibrium model an accurate predictor of sectoral employment effects, compared with a general equilibrium model?
- How sensitive are the results to key parameter estimates such as the Armington elasticities?
- What are the likely dynamic consequences of the FTA? Will these be different for a CUmin?

These questions are addressed in the sections that follow. The mathematical formulation is described in Appendix 1 and the main data sources and methods are described in Appendix 2.

3 TRADE CREATION AND TRADE DIVERSION

At the heart of the analysis of regional integration is the concept of trade creation and trade diversion. Thus, regional integration through tariff variation has a total effect that is the sum of trade creation less trade diversion.

- **Trade creation** occurs when an economic union leads to the growth of intra union trade that exploits comparative advantage i.e. when the union members experiencing expanded trade have lower relative costs compared with the rest of the world suppliers.
- **Trade diversion** takes place when an economic union leads to an expansion in intra union trade in which the relative costs are higher than for competitor countries in the rest of the world. That is, where the expanded intra trade is against comparative advantage.

It follows from the above that the static or impact effect of economic union is to improve members' welfare when trade creation outweighs trade diversion. This statement is qualified in three important ways. First, when the trade expansion worsens the terms of trade of members of the economic union the union could lower economic welfare, even when trade creation outweighs trade diversion. Second, a customs union that is predominantly trade diverting and therefore welfare worsening can, by appropriate choice of the common

external tariff, be transformed into a gainful and predominantly trade creating customs union[6]. Finally, regional integration involves possible dynamic benefits, many of which are difficult to quantify. The empirical results reported in section 6 focus on the impact effects of the FTA and the CUmin. The back-of-the-envelope estimates of some possible dynamic effects are discussed in section 7. Arguably, the empirical estimation of the impact effects has a stronger empirical foundation than the estimation of the dynamic benefits. Yet the latter are likely to be far more important quantitatively.

4 THE SADC FTA

4.1 A FTA and the GATT

GATT Article XXIV requires that, for GATT/WTO members forming a FTA, the external tariffs must be set on a MFN basis. The existing member country tariffs for ROW countries must not increase, and the intra FTA tariffs are reduced to zero. Rules of origin are required to back-up this arrangement, preventing individual economic agents from importing goods into the country with the lowest ROW tariff amongst member states for any item and Trans shipping them within the FTA without further tariff charges. This FTA is also referred to as the 'intended' FTA to allow for the FTA 'actual', where the rules of origin are unenforceable, discussed in section 6.3 below.

4.2 Determining Common External Tariff

For GATT/WTO members forming a CU under GATT Article XXIV, the external tariffs must be set on a MFN basis. Also, the common external tariff must not represent and increase in tariffs when a CU is formed. One way of defining the common external tariff for a CU would be to choose for each commodity the highest tariff of the member countries, or CUmax. However, this method would fall foul of GATT Article XXIV whereby the common external tariff should not increase. A second method of forming the common external tariff could be to average the individual tariff items for the member countries, or CUavg. The CUavg would be less likely to fall foul of Article XXIV since there is some ambiguity in the definition of what is an increased tariff. Finally, the common external tariff could be formed by taking, for each traded item, the lowest of the member country tariffs and applying that as the common external tariff, or CUmin. The CUmin is unambiguously consistent with GATT Article XXIV. Compared with the CUmax and CUavg alternatives, of the CUmin is more likely to produce an overall welfare gain.

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[6] As noted by Kemp and Wan (1976), it is always possible to define a CU for which trade creation dominates trade diversion. Although the gains from a CUmin, the common external tariff is formed by an easy rule and is more likely to lead to gains that either CUavg or CUmax.

4.3 Unenforceable Rules of Origin

One of the characteristics of SADC already noted is that member states have a weak capacity to enforce the rules of origin of the 'intended' FTA. In practice, the importers will seek to route their imports through the country with the lowest relevant sectoral tariff with scant regard to the formal customs requirements. Thus, the 'intended' FTA could turn out to operate as if it had a common external tariff chosen on the basis, for each commodity, of the lowest tariff amongst member countries. That is, the FTA 'actual' with unenforceable rules of origin will in fact operate as the CUmin defined in section 4.2 above. This is to be compared with the FTA 'intended' in the empirical calculations of the impact effects.

5 METHODOLOGY USED IN THIS STUDY

The initial work on the impact of the SADC Free Trade Area FTA described in Evans (1996, 1997) relied on a simple partial equilibrium model and weak data set. The data set was greatly improved in Evans (1998a), but the earlier partial equilibrium methodology was retained. Early results of the extension to a Computable General Equilibrium or CGE framework was reported in Evans (1998b, 1999a, b). The additional data requirements for the CGE version of the model, over and above the partial equilibrium version, were mainly on the final demand side, and input/output coefficients. Whilst these data were assembled in a consistent fashion using strong assumptions, the main structural characteristics of the SADC countries were preserved. Thus, it was judged that the extended data set was adequate for a first general equilibrium exploration of SADC integration.

The CGE model is based on 12 SADC countries and 37 productive sectors for each country. There were 9 agricultural sectors, a mining sector, one non-traded service sector, and 26 manufacturing sectors. The production and trade data are for the early to mid 1990s, and the tariff data are for the most recent year available. The complete database is described in Evans (1998a) in Appendix 2.

Some of the key assumptions and structural characteristics built into the general equilibrium model include:

- Armington functions on the import side capture the effects of imperfect substitutions between different types of tradeables. The share of imports in total supply of a tradable good is inversely related to the price of imports relative to the price of domestic production. Similarly, imports from within the SADC region and from the Rest of the World (ROW) are treated as imperfectly substitutable and responsive to relative price changes. It is therefore possible to use the Armington functions to construct a composite import commodity made up of imports from within SADC and from the ROW, and for this composite import to be imperfectly substitutable with import competing production. The composite importable commodity enters into domestic demand in a straightforward manner.

- Tariffs, but not non-tariff barriers, were directly estimated as a part of the trade control measures. In terms of the model structure, this means that the Armington functions capture not only imperfect substitution between tradeables but also the effects of non-tariff barriers. Thus, in the model

experiments reported, only tariffs are changed. In effect, keeping the non-tariff barriers in place means that, in effect, the substitution possibilities between domestic and importable sources of supply is lower than would otherwise be the case. This feature of the model needs to be borne in mind when interpreting the results.

- Perfectly elastic supply of goods in each sector. Where there is excess capacity, this assumption is likely to be a good approximation. For agriculture, mining and manufacturing sectors operating close to full capacity, the supply response is likely to be exaggerated compared with estimates in which supply constraints are modelled.

- A mark-up model of domestic cost formation. The mark-up is on wages and intermediate input costs. The model assumes fixed coefficients in production for labour, as well as the more usual assumption of fixed proportions for intermediate inputs.

- A macro expenditure adjustment is made to maintain a full employment level of employment at the initial constant wage. Balance of payments equilibrium is maintained via variation of the real exchange rate.

- Government expenditure and investment was held constant, whilst consumer demand and intermediate demand varied through price and income change.

- A micro based welfare function was constructed, based on an estimate of the consumer surplus change less the loss of tariff revenue, plus any lump sum taxes (minus if subsidies) required to maintain macro economic balance.

- An attempt was made to estimate SADC price elasticities of demand for exports to the Rest of the World. This exercise was entirely unsatisfactory. Given the underlying weakness of these data, sensitivity tests were carried. Here, only calculations for 'high' export demand elasticities were used.

- Solution of the model was achieved with a Gauss-Seidel iterative procedure.

The mathematical specification is set out in Appendix 1.

6 IMPACT EFFECTS

In this section, the aggregate and 7-sector impact effects of the 'intended' FTA and the CUmin are shown, and together with a comparison between the partial and general equilibrium results.

6.1 General Equilibrium Effects of the 'Intended' FTA

In this section, the aggregate welfare and industrialisation effects are shown for all SADC. In welfare terms, measured by changes in consumer surplus, the impact of the 'intended' FTA is quite modest in % terms, being 0.11% of the initial Final Demand. However, in absolute terms, the estimated gains are substantial at $US150m in 1991-93 prices. The raw numbers of employed persons actually falls slightly, reflecting an implicit rise in the average wage for all SADC since it is employment in wage units which is held constant.

Table 6.1: SADC 'Intended' FTA: Overall Impact Effects: % Change on Base
Large Export Elasticities, Market Clearing Taxes and Subsidy

	SADC tariffs		ROW tariff		Final	Consumer	Customs	Lump Sum	TOTAL	% Final	ToT	% SADC	% L	% L	% L
	pre	post	pre	post	Demand	Surplus	Revenue	Tax	GAINS	Demand	Pe/Pm	Imports	All	Indust.	Manuf.
Angola	10.1	0.0	10.8	10.8	6974	28.4	-34.1	14.7	8.9	0.13	0.999	20.2	-0.09	-0.38	-1.30
Botswana	0.5	0.0	11.8	11.8	3386	13.1	-8.2	-10.1	-5.2	-0.15	1.001	0.2	0.23	2.30	3.55
Lesotho	1.5	0.0	11.7	11.7	1279	15.4	-13.0	2.7	5.1	0.39	0.999	0.4	-0.15	6.61	10.32
Malawi	21.8	0.0	20.6	20.6	1886	72.3	-44.9	26.0	53.4	2.83	0.999	22.7	-0.04	1.97	1.99
Mauritius	24.5	0.0	22.7	22.7	2525	67.5	-38.3	-21.3	8.0	0.32	1.004	25.0	-0.90	-4.11	-4.11
Mozambique	19.5	0.0	12.0	12.0	1589	66.1	-59.7	6.8	13.1	0.83	0.989	19.0	-0.02	-0.11	-0.08
Namibia	0.1	0.0	12.6	12.6	1959	1.0	-0.7	-0.8	-0.6	-0.03	1.000	0.1	0.07	-0.24	-0.19
RSA	6.5	0.0	5.6	5.6	108822	108.2	-87.7	-6.6	13.9	0.01	1.001	20.8	-0.03	-0.13	0.00
Swaziland	0.1	0.0	6.3	6.3	1035	3.1	-0.5	1.3	4.0	0.38	1.003	0.3	-0.11	-0.57	-0.60
Tanzania	21.9	0.0	19.0	19.0	3315	7.0	-5.8	1.0	2.2	0.07	1.000	33.6	0.01	0.25	0.40
Zambia	14.0	0.0	11.4	11.4	1898	14.6	-48.3	2.0	-31.7	-1.67	0.998	18.8	-0.63	-0.97	-2.07
Zimbabwe	18.8	0.0	15.8	15.8	4240	118.9	-94.0	56.0	80.9	1.91	0.979	32.5	-0.21	3.16	4.41
SADC	**5.7**	**0.0**	**9.3**	**9.3**	**138909**	**516**	**-435**	**72**	**152**	**0.11**	**0.999**	**9.4**	**-0.07**	**0.02**	**0.12**

Notes: $USm average 1991-3 for financial variables; '000 for employment; Government revenue excludes grants; Imports and exports valued cif;
Average tariff import weighted; ToT: Terms of Trade, average price exports/average price imports; L: Labour employed

A feature of the over-all welfare and employment results for the 'intended' FTA is the marked unevenness of the changes. In the case of the of measured welfare changes, three out of 12 countries actually show a decline in measured welfare, namely Botswana and Namibia from the Southern African Development Community SACU, and Zambia. For the employment effects, the unevenness of the impact is greater, with 7 out of 12 countries showing negative effects. The over all industrial and manufacturing employment changes have much larger orders of magnitude with only 6 out of 12 countries showing gains. It is striking that the over-all and industrial employment effects in each country do not correlate. To the extent that wage differentials capture skill differentials, the rise or fall in overall employment provides an indicator of changes in the skill composition of total output. It is apparent that the rise or fall in the level of employment does not correlate with the gains and losses for each country in moving to the 'intended' FTA. That is, there is no particular pattern of skill-based comparative advantage revealed by the results.

The finding in Table 6.1 shows that there will be a large increase in SADC trade of 9.4%. The implications of this for trade creation and trade diversion and the potential dynamic gains from the 'intended' FTA are taken up in section 7.

A 7-sector disaggregation of the 'intended' FTA results for each of the 12 SADC countries identified are shown in Table 6.2:

Already with 7 sectors, there is a large increase in the amount of information to be digested. To illustrate the detail of the results, note the strong differentiation of the sectoral effects across the 12 SADC countries. For example, two of the sensitive sectors are Textiles and Clothing. The 'intended' FTA has relatively large positive combined employment effects for these sectors in Botswana, Lesotho, Malawi and Zimbabwe. Countries with significant negative employment effects are Angola, RSA, and Zambia. Overall, the SADC employment effects of the 'intended' FTA are shown in Table 6.3:

Table 6.2: SADC 'Intended' FTA: Seven Sector Impact Effects: % Change on Base

Large Export Elasticities, Market Clearing Taxes and Subsidies

Angola

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	24.0	0.1	4.4	0.0	8.5	8.53	852	-0.03	1872.0	-0.07	9.3	3.88	29.5	0.00	0.0	43.85	16.9	-0.63	-0.5	3191.9	-0.07	2.9	-15.0	0.0
Mining	0.2	0.0	10.5	0.0	19.7	19.65	1219	-0.03	4198.0	-0.11	0.0	16.95	2.9	-0.21	0.0	0.00	3354.0	0.48	16.1	212.8	0.15	0.6	-0.3	0.0
Food, tobacco, beverages	39.4	2.9	4.2	0.0	12.0	11.99	538	0.22	269.8	-0.16	173.9	7.68	267.3	-4.27	2.0	0.53	65.5	1.64	-0.8	36.0	0.05	39.3	-26.8	0.0
Textiles	34.3	0.0	30.1	0.0	28.7	28.73	89	0.72	89.4	-9.85	32.1	73.79	61.6	-19.70	0.0	0.00	0.0	22.17	-11.5	13.2	-9.83	27.3	-48.0	0.0
Clothing	25.9	0.0	34.5	0.0	28.2	28.25	87	0.79	77.2	-5.49	9.6	94.88	27.6	-13.46	0.0	0.00	0.0	17.07	-5.4	7.7	-5.49	11.1	-39.3	0.0
Other manufactured	2.3	0.6	17.4	0.0	9.2	9.19	1209	0.05	683.0	0.06	28.2	15.85	1194.4	-0.34	1.4	21.75	223.1	0.97	1.9	64.8	0.19	114.7	-4.9	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.00	2981	-0.04	4781.8	-0.07	0.1	-0.07	0.1	-0.08	0.1	-0.01	0.1	-1.33	0.0	723.5	-0.07	0.0	0.0	0.0
Total or Average	**13.8**	**0.1**	**10.1**	**0.0**	**10.8**	**10.8**	**6974**	**0.00**	**11971.2**	**-0.19**	**253.2**	**20.19**	**1583.4**	**-1.99**	**3.5**	**9.21**	**3659.5**	**0.53**	**0.0**	**4249.8**	**-0.09**	**196.0**	**-17.4**	**-3.7**

Botswana

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	81.1	57.4	0.1	0.0	3.74	3.7	158	-0.03	201.4	-0.18	99.0	0.19	23.1	-0.02	17.2	2.84	12.8	-2.57	0.0	5.8	-0.09	1.0	-9.6	0.0
Mining	92.6	0.4	0.0	0.0	0.58	0.6	46	-0.06	142.9	-0.20	6.0	-0.02	0.5	0.13	4.6	6.62	1210.3	-1.86	-22.2	7.9	-1.65	0.0	-4.8	0.0
Food, tobacco, beverages	79.9	39.8	0.1	0.0	29.91	29.9	282	-0.04	137.4	-0.09	182.6	0.08	46.0	-0.40	102.4	9.99	154.7	-0.91	8.9	6.4	2.40	13.9	-1.4	0.0
Textiles	83.6	22.1	1.9	0.0	44.30	44.3	46	0.15	13.6	-2.16	66.1	1.72	13.0	-4.30	12.6	42.77	44.4	5.34	7.1	4.2	10.57	7.0	-21.4	0.0
Clothing	97.8	0.0	6.6	0.0	72.86	72.9	24	0.93	0.0	0.00	30.4	1.57	0.7	-14.58	0.0	0.00	0.0	0.00	-0.4	0.0	0.00	2.5	-83.2	0.0
Other manufactured	86.0	27.1	0.4	0.0	5.69	5.7	817	0.08	129.8	0.17	1095.9	-0.05	179.0	0.02	43.2	16.43	116.5	-0.04	6.6	14.4	2.01	14.5	-29.9	0.0
Services	45.8	50.0	0.0	0.0	0.00	0.0	2013	-0.07	3186.6	-0.12	0.1	3.24	0.1	0.09	0.1	0.01	0.1	-1.17	0.0	188.1	-0.12	0.0	0.0	0.0
Total or Average	**84.9**	**10.5**	**0.5**	**0.0**	**11.8**	**11.8**	**3386**	**-0.03**	**3811.7**	**-0.12**	**1480.1**	**0.16**	**262.3**	**-0.31**	**180.1**	**13.05**	**1538.8**	**-1.42**	**0.0**	**226.8**	**0.23**	**38.8**	**-21.1**	**-4.1**

Lesotho

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	82.6	97.9	0.0	0.0	0.7	0.7	101	-0.09	111.8	-0.34	80.7	0.10	17.0	-0.65	13.1	0.07	0.3	2.68	0.0	577.3	-0.29	0.1	-0.7	0.0
Mining	81.1	0.0	0.0	0.0	0.1	0.1	4	-0.22	1.5	-0.82	11.5	-0.83	2.7	-0.78	0.0	0.00	0.0	0.00	0.1	6.1	-0.82	0.0	-0.8	0.0
Food, tobacco, beverages	88.2	30.7	0.0	0.0	18.3	18.3	303	-0.28	258.6	-0.33	133.5	-0.22	17.8	-0.46	20.6	-0.81	46.5	-5.21	-2.2	2.3	-0.92	3.3	-1.0	0.0
Textiles	96.8	62.5	13.1	0.0	48.7	48.7	47	1.27	9.9	-13.10	88.8	5.51	2.9	-28.23	7.4	48.21	4.5	40.04	1.0	6.9	18.63	13.1	-92.2	0.0
Clothing	99.7	0.0	1.4	0.0	74.9	74.9	46	0.30	0.0	0.00	61.5	0.41	0.2	-3.62	0.0	0.00	0.0	0.00	-0.2	0.0	0.00	1.0	-88.3	0.0
Other manufactured	90.6	51.7	0.0	0.0	11.4	11.4	312	-0.21	41.9	-0.56	473.0	-0.32	49.1	-0.21	5.8	5.73	5.4	-8.88	1.3	3.1	0.18	5.7	-1.5	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	466	-0.20	764.4	-0.33	0.1	0.32	0.1	0.32	0.1	-0.77	0.1	-9.74	0.0	247.4	-0.33	0.0	0.0	0.0
Total or Average	**90.4**	**45.3**	**1.5**	**0.0**	**11.7**	**11.7**	**1279**	**-0.09**	**1188.1**	**-0.45**	**849.2**	**0.41**	**89.7**	**-1.28**	**47.0**	**7.96**	**56.7**	**-1.98**	**0.0**	**843.1**	**-0.15**	**23.1**	**-56.4**	**-31.4**

Table 6.2 cont.: SADC 'Intended' FTA: Seven Sector Impact Effects: % Change on Base

Large Export Elasticities, Market Clearing Taxes and Subsidies

Malawi

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	43.9	6.6	18.4	0.0	4.8	4.8	171	-0.15	451.1	-0.89	9.3	23.32	11.9	-0.60	25.9	16.97	365.9	-0.31	1.2	329.6	-0.35	2.3	-76.3	0.0
Mining	62.5	0.0	6.1	0.0	9.0	9.0	0	0.09	0.0	0.00	0.6	1.87	0.4	-1.74	0.0	0.00	0.0	0.00	0.0	0.8	0.00	0.1	-53.7	0.0
Food, tobacco, beverages	90.3	34.2	20.8	0.0	20.8	20.8	318	-0.14	385.2	-1.90	36.8	18.92	4.0	-4.34	4.2	22.93	8.1	-5.35	-6.3	44.2	-1.50	8.5	-90.7	0.0
Textiles	59.9	99.8	39.3	0.0	35.2	35.2	32	0.61	53.1	-17.96	16.2	84.98	10.8	-27.50	14.4	139.06	0.0	21.47	8.8	8.3	15.52	10.2	-72.8	0.0
Clothing	81.3	98.1	40.0	0.0	39.9	39.9	15	1.12	18.6	-8.01	2.2	88.10	0.5	-24.25	1.9	208.80	0.0	36.55	2.0	3.8	12.14	1.1	-85.9	0.0
Other manufactured	33.5	48.3	19.9	0.0	20.7	20.7	274	1.25	222.3	-2.15	127.6	12.69	253.1	-3.08	13.2	13.60	14.1	27.77	-5.6	22.5	2.13	77.7	-34.9	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	1076	-0.19	1911.5	-0.35	0.1	-1.13	0.1	-0.98	0.1	0.81	0.1	7.11	0.0	201.0	-0.35	0.0	0.0	0.0
Total or Average	40.7	13.3	21.8	0.0	20.6	20.6	1886	-0.02	3041.9	-1.11	192.8	22.72	280.8	-3.97	59.7	52.14	388.3	0.62	0.0	610.1	-0.04	99.8	-45.0	-9.9

Mauritius

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	12.6	0.8	10.9	0.0	5.8	5.8	23	0.26	27.2	-0.19	8.1	15.21	56.2	-0.30	3.0	42.82	381.2	-2.17	-8.1	43.8	-1.46	4.2	-22.4	0.0
Mining	99.9	10.8	15.0	0.0	14.4	14.4	0	0.35	3.3	0.88	4.4	8.86	0.0	1.38	0.0	-1.33	0.1	-7.62	-0.4	0.2	0.74	0.7	-99.9	0.0
Food, tobacco, beverages	22.8	2.3	16.8	0.0	16.4	16.4	249	1.87	134.2	-3.23	46.7	18.17	158.1	1.34	1.1	19.39	45.6	-9.01	-14.5	13.4	-4.13	33.8	-21.9	0.0
Textiles	3.8	16.1	18.1	0.0	4.2	4.2	146	0.69	69.8	0.03	14.6	51.47	371.9	0.63	75.5	137.66	392.4	-1.49	88.4	4.8	18.25	18.5	-13.9	0.0
Clothing	2.1	0.1	71.4	0.0	74.2	74.2	151	1.13	208.7	0.93	0.2	251.48	11.8	9.26	0.2	156.58	302.1	-12.49	-39.7	69.8	-6.95	9.0	7.1	0.0
Other manufactured	10.7	3.8	30.6	0.0	32.6	32.6	482	2.79	223.3	0.24	98.5	24.42	819.2	1.26	6.5	7.57	165.4	5.67	-25.6	18.9	0.69	297.6	-9.2	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	1476	0.91	2928.7	1.81	0.1	4.80	0.1	4.93	0.1	2.48	0.1	-14.07	0.0	136.4	1.81	0.0	0.0	0.0
Total or Average	10.9	6.3	24.5	0.0	22.7	22.7	2525	0.98	3595.2	1.42	172.7	25.02	1417.4	1.11	86.3	123.02	1286.8	-3.62	0.0	287.4	-0.90	363.6	-10.5	-4.5

Mozambique

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	27.9	4.2	11.7	0.0	3.8	3.8	347	-0.03	642.0	-0.55	30.8	13.91	79.5	-1.58	6.7	29.88	153.5	6.35	8.7	8.1	0.35	6.7	-55.0	0.0
Mining	78.3	0.7	3.1	0.0	2.7	2.7	2	0.02	3.0	-2.06	2.3	3.81	0.6	-3.47	0.0	0.19	0.5	6.31	0.0	2.5	-0.81	0.1	-81.6	0.0
Food, tobacco, beverages	70.9	5.4	26.4	0.0	14.7	14.7	335	1.24	274.0	-6.51	118.9	21.97	48.8	-5.67	1.7	10.80	30.3	8.03	-20.8	25.1	-3.49	38.6	-82.5	0.0
Textiles	21.5	67.7	31.7	0.0	29.0	29.0	66	0.18	97.2	-4.07	9.0	86.98	33.0	-10.29	4.1	149.70	2.0	14.00	1.9	8.2	2.43	12.4	-30.9	0.0
Clothing	77.2	74.8	34.9	0.0	34.9	34.9	51	0.71	59.8	-8.39	6.5	92.18	1.9	-15.74	1.5	229.11	0.5	15.75	-2.2	3.1	-2.50	2.9	-80.8	0.0
Other manufactured	27.6	4.4	13.5	0.0	11.8	11.8	379	0.87	189.2	-1.04	127.6	7.70	334.0	-1.26	5.2	8.02	114.0	17.51	12.5	21.7	3.26	56.7	-31.6	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	409	0.05	664.7	0.07	0.1	-0.52	0.1	-0.46	0.1	1.23	0.1	11.99	0.0	31.4	0.08	0.0	0.0	0.0
Total or Average	37.2	6.1	19.5	0.0	12.0	12.0	1589	0.30	1930.0	-1.65	295.2	18.96	497.9	-2.40	19.4	62.87	300.9	10.82	0.0	100.1	-0.02	117.4	-50.9	-10.8

Table 6.2 cont.: SADC 'Intended' FTA: Seven Sector Impact Effects: % Change on Base

Large Export Elasticities, Market Clearing Taxes and Subsidies

Namibia

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	92.7	87.7	0.7	0.0	5.8	5.8	80	0.02	189.8	0.03	58.6	0.20	4.6	-0.81	173.1	0.31	24.3	-0.26	0.4	195.1	0.14	0.7	-59.6	0.0
Mining	45.2	1.3	0.0	0.0	0.0	0.0	7	0.00	98.7	0.06	8.2	0.00	9.9	0.11	7.0	0.12	521.6	-0.39	-2.0	15.1	-0.31	0.0	0.1	0.0
Food, tobacco, beverages	82.0	32.9	0.0	0.0	16.7	16.7	234	0.07	105.2	0.09	197.3	0.05	43.3	0.04	152.5	0.38	310.8	0.36	1.6	4.4	0.27	7.3	-0.7	0.0
Textiles	91.9	94.4	0.2	0.0	36.7	36.7	23	0.05	16.5	-0.44	51.2	0.44	4.5	-0.92	24.1	-0.67	1.4	1.27	-0.3	13.2	-0.51	1.7	-6.4	0.0
Clothing	93.3	0.0	0.2	0.0	75.3	75.3	32	0.11	0.0	0.00	43.9	0.26	3.1	-1.18	0.0	0.00	0.0	0.00	-0.1	0.0	0.00	2.5	-5.1	0.0
Other manufactured	91.8	33.8	0.0	0.0	7.4	7.4	399	0.04	76.5	0.06	719.5	0.03	63.9	0.08	34.1	3.02	66.7	-0.33	0.5	6.0	0.17	4.8	-1.2	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	1185	0.03	2368.1	0.05	0.1	0.13	0.1	0.08	0.1	0.07	0.1	-0.38	0.0	171.4	0.05	0.0	0.0	0.0
Total or Average	89.3	29.7	0.1	0.0	12.6	12.6	1959	0.03	2854.7	0.05	1078.7	0.08	129.6	-0.03	390.9	0.51	924.9	-0.13	0.0	405.2	0.07	17.0	-4.4	-1.5

South Africa

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	44.0	29.4	2.9	0.0	1.6	1.6	3175	0.01	7825.1	-0.11	302.2	5.43	384.3	-1.36	352.0	2.37	847.1	-0.57	-7.7	876.2	-0.07	14.9	-60.0	0.0
Mining	1.5	1.3	2.5	0.0	0.3	0.3	1526	0.01	7917.6	-0.01	23.0	5.88	1532.9	0.19	85.9	2.34	6639.1	-0.98	-67.1	668.5	-0.43	5.5	-10.0	0.0
Food, tobacco, beverages	52.2	96.5	0.9	0.0	12.1	12.1	11523	0.04	15706.2	0.01	376.7	1.03	344.6	0.05	936.2	5.10	34.1	0.89	44.0	241.8	0.25	44.9	-7.2	0.0
Textiles	19.6	54.9	23.9	0.0	31.7	31.7	788	0.13	1239.3	-6.45	153.3	89.19	629.1	-7.92	331.0	19.20	272.0	2.36	-17.1	90.5	-0.54	236.3	-22.2	0.0
Clothing	40.6	71.7	75.7	0.0	66.8	66.8	883	0.14	1191.2	-3.37	18.3	239.96	26.7	-4.67	160.9	9.70	63.6	2.09	-25.7	121.4	-1.64	31.7	-46.3	0.0
Other manufactured	2.4	34.3	3.7	0.0	4.5	4.5	24843	0.05	47399.1	-0.03	231.6	11.24	9561.2	0.16	3574.6	4.53	6841.5	-0.66	73.8	1040.2	0.18	442.0	-1.8	0.0
Services	62.9	50.0	0.0	0.0	0.0	0.0	66085	0.02	119109.4	0.03	0.1	9.77	0.1	0.24	0.1	0.01	0.1	-0.95	0.0	4830.8	0.03	0.0	0.0	0.0
Total or Average	8.1	27.0	6.5	0.0	5.6	5.6	108822	0.02	200387.8	-0.05	1105.3	20.83	12478.9	-0.31	5440.7	5.50	14697.5	-0.73	0.0	7869.4	-0.03	775.2	-11.3	-0.4

Swaziland

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	90.0	87.8	0.2	0.0	0.7	0.7	68	0.00	187.8	-0.09	68.2	0.28	7.6	-0.31	26.8	0.16	3.7	-4.27	-0.3	23.3	-0.13	0.2	-67.8	0.0
Mining	89.4	76.4	0.0	0.0	0.5	0.5	1	0.00	15.2	0.00	5.9	0.11	0.7	0.17	4.9	0.50	1.5	-2.59	0.0	0.9	-0.07	0.0	-0.3	0.0
Food, tobacco, beverages	99.2	47.1	0.1	0.0	17.1	17.1	287	0.03	306.8	-0.09	128.3	0.32	1.1	0.50	200.9	5.27	226.0	-2.87	3.7	8.1	-0.65	0.3	-33.4	0.0
Textiles	99.3	77.3	0.4	0.0	46.0	46.0	24	0.06	17.4	-2.58	59.0	1.03	0.4	-0.97	31.3	2.41	9.2	-4.27	-0.2	2.3	-0.15	0.4	-59.3	0.0
Clothing	99.2	0.0	0.0	0.0	72.4	72.4	5	0.13	0.0	0.00	7.1	0.20	0.1	-0.82	0.0	0.00	0.0	0.00	0.0	0.0	0.00	0.0	-7.5	0.0
Other manufactured	92.5	56.4	0.0	0.0	6.8	6.8	282	0.09	196.0	-0.31	459.8	0.20	37.5	0.20	61.1	-0.01	47.1	-4.25	-3.1	6.3	-0.69	2.6	-0.7	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	369	0.03	741.6	0.06	0.1	0.21	0.1	0.17	0.1	-0.05	0.1	-1.73	0.0	51.6	0.06	0.0	0.0	0.0
Total or Average	92.0	53.1	0.1	0.0	6.3	6.3	1035	0.03	1464.8	-0.07	728.4	0.31	47.5	0.11	325.1	3.51	287.7	-3.16	0.0	92.5	-0.11	3.5	-13.8	-7.7

Table 6.2 cont.: SADC 'Intended' FTA: Seven Sector Impact Effects: % Change on Base

Large Export Elasticities, Market Clearing Taxes and Subsidies

Tanzania Simulation of FTA

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	9.3	0.9	9.6	0.0	25.3	25.3	1257	0.00	2058.8	-0.01	1.3	15.40	13.1	-0.13	2.6	3.24	283.6	-0.25	-0.8	1818.2	-0.03	3.5	-3.9	0.0
Mining	3.0	0.3	18.4	0.0	16.6	16.6	18	0.03	26.3	-0.02	0.3	9.43	10.0	-0.01	0.0	1.59	1.1	-0.12	0.0	105.9	-0.03	1.7	-3.3	0.0
Food, tobacco, beverages	9.3	3.5	29.6	0.0	25.1	25.1	117	0.49	26.3	-0.14	10.0	46.78	97.8	-4.07	3.0	6.54	82.6	-0.14	-0.6	69.9	0.03	27.6	-13.0	0.0
Textiles	1.5	1.0	37.4	0.0	15.5	15.5	71	0.06	41.3	-0.59	1.1	93.40	71.2	-0.92	0.3	129.55	32.9	0.88	0.4	58.4	0.65	11.4	-4.4	0.0
Clothing	0.2	0.0	26.5	0.0	14.4	14.4	24	0.03	4.1	0.53	0.1	81.10	24.6	-0.23	0.0	0.00	1.0	1.71	0.0	4.7	0.76	3.6	-0.6	0.0
Other manufactured	1.0	5.6	13.9	0.0	18.7	18.7	755	0.07	180.9	-0.01	9.2	14.84	870.9	-0.07	4.7	25.79	79.8	0.92	1.1	66.2	0.56	164.1	-0.9	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	1073	0.01	1474.5	0.01	0.1	0.03	0.1	0.02	0.1	0.10	0.1	-0.09	0.0	1472.5	0.01	0.0	0.0	0.0
Total or Average	2.0	2.2	21.9	0.0	19.0	19.0	3315	0.03	3812.2	-0.01	22.1	33.62	1087.8	-0.49	10.8	17.91	481.2	0.04	0.0	3595.9	0.01	211.8	-2.7	-0.5

Zambia Simulation of FTA

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	29.4	22.9	6.2	0.0	5.2	5.2	93	-0.01	459.2	-0.24	13.6	8.10	32.6	-0.90	9.8	24.25	32.9	2.51	2.4	41.3	0.39	2.5	-33.7	0.0
Mining	64.7	0.1	11.3	0.0	11.2	11.2	4	0.00	203.9	-0.67	19.3	9.09	10.5	-1.02	0.6	1.41	1122.8	3.20	34.2	60.1	2.61	3.3	-65.2	0.0
Food, tobacco, beverages	89.6	69.2	18.8	0.0	8.2	8.2	350	0.27	438.6	-2.29	43.6	26.67	5.1	-1.92	2.5	19.53	1.1	2.45	-11.0	62.1	-1.62	8.6	-95.4	0.0
Textiles	57.1	7.8	18.1	0.0	20.1	20.1	30	0.19	70.5	-10.58	19.3	51.12	14.5	-11.65	1.1	128.46	12.5	2.41	-6.5	19.1	-6.89	6.4	-59.8	0.0
Clothing	90.3	58.3	24.8	0.0	24.9	24.9	57	0.11	82.0	-3.15	3.4	79.56	0.4	-4.89	1.3	235.14	0.9	3.73	0.3	20.6	0.49	0.9	-90.7	0.0
Other manufactured	37.0	22.8	13.3	0.0	11.6	11.6	479	0.79	552.6	-2.51	231.3	11.77	393.1	-3.22	11.7	15.85	39.7	3.21	-19.3	94.0	-1.94	76.3	-42.4	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	887	-0.04	1855.5	-0.08	0.1	-0.17	0.1	-0.18	0.1	9.33	0.1	4.72	0.0	82.9	-0.07	0.0	0.0	0.0
Total or Average	41.8	2.2	14.0	0.0	11.4	11.4	1898	0.10	3662.3	-1.03	330.6	18.82	456.2	-3.26	27.0	33.56	1210.0	3.18	0.0	380.1	-0.63	98.1	-49.2	-10.5

Zimbabwe

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	18.6	13.3	21.1	0.0	22.2	22.2	341	-0.19	720.6	-1.28	21.8	25.13	95.6	0.02	72.8	16.71	474.2	-3.38	-9.4	309.6	-1.28	25.8	-18.1	0.0
Mining	76.3	18.2	5.0	0.0	6.0	6.0	110	-0.31	332.9	-1.30	35.2	0.91	10.9	-0.65	13.7	10.95	61.6	-7.27	-3.2	49.6	-1.79	2.4	-73.1	0.0
Food, tobacco, beverages	35.6	52.9	22.2	0.0	19.2	19.2	713	-0.40	869.0	-1.35	20.4	39.80	36.8	0.04	41.5	30.34	37.0	-7.33	1.6	42.1	-0.16	11.6	-39.1	0.0
Textiles	51.8	63.7	31.4	0.0	30.1	30.1	138	0.06	210.2	-18.42	38.4	114.19	35.8	-13.56	47.5	97.22	27.1	-7.28	4.3	25.3	1.93	22.8	-59.2	0.0
Clothing	41.2	58.7	92.6	0.0	92.0	92.0	41	-0.61	52.6	-3.68	0.6	231.78	0.9	4.86	18.2	221.85	12.8	-15.36	36.6	20.1	43.70	1.4	-38.5	0.0
Other manufactured	25.4	47.3	18.4	0.0	14.6	14.6	1373	0.31	1169.5	-4.58	342.3	15.26	1004.0	-3.25	216.5	17.72	241.1	-4.38	-29.9	110.3	-0.44	209.6	-32.9	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	1525	-0.59	2446.4	-0.94	0.1	-2.95	0.1	0.40	0.1	3.60	0.1	-10.09	0.0	684.2	-0.95	0.0	0.0	0.0
Total or Average	27.8	32.5	18.8	0.0	15.8	15.8	4240	-0.21	5801.3	-2.46	458.8	32.47	1184.2	-3.16	410.3	36.86	853.9	-4.42	0.0	1241.2	-0.21	273.6	-34.4	-6.5

Notes: $USm average 1990-2 for financial variables; Government revenue excludes grants; '000' for employment Imports and exports valued fob; Average tariff uses import weights; D: Domestic demand; SM: Import competing production; MS: imports from SADC; MR: Imports from the Rest of the World; ES: Exports to SADC; ER: Exports to the Rest of the World; dBOP: change in Balance of Payments; L: Labour employed; CR: Customs Revenue; GR: Government Revenue; tMS1,M: Tariffs, SADC, initial, import weighted; tMS2,M: Tariffs, SADC, initial, import weighted, final; tMR1,M: Tariffs, SADC, initial, import weighted, R: Rest of the World.

Table 6.3: SADC 'Intended' FTA: Employment Effects 7 Sectors: % Change on Base
Large Export Elasticities, Market Clearing Taxes and Subsidies

Sectors	L	%
Agriculture	7420	-0.14
Mining	1130	-0.19
Food, tobacco, beverages	556	-0.44
Textiles	254	0.70
Clothing	251	0.81
Other manufactured	1468	0.11
Services	8821	-0.05
Total or Average	**19902**	**-0.07**

Notes: L: Labour employed '000

Thus, whilst there are modest over-all employment gains for both Textiles and Clothing estimated for the 'intended' FTA, the country disaggregation of the results show a markedly uneven distribution of those gains. The full utilisation of the disaggregated results requires integration with the findings of other studies, especially sectoral studies of the most affected sectors.

6.2 General Equilibrium Effects of the CUmin

The case for a low-tariff Customs Union has already been made in Section 4. There are two possible routes to the CUmin discussed here. The first is through the FTA with unenforceable rules of origin, so that the outcome of such a FTA is likely to be in practice the CUmin analysed below. The second route is for CUmin to be set up explicitly with the common external tariff based on the minimum of the tariff rates for any commodity becoming the common tariffs. Either way, the aggregate results for the CUmin are as shown in Table 6.4:

In the case of the CUmin, the estimated welfare effects increase fourfold to 0.48% of Final Demand compared with the 'intended' FTA. The absolute amount of the gain is $US671m in 1991-3 prices. As with

Table 6.4: SADC CUmin: Overall Impact Effects: % Change on Base
Large Export Elasticities, Market Clearing Taxes and Subsidy

	SADC tariffs		ROW tariff		Final	Consumer	Customs	Lump Sum	TOTAL	% Final	ToT	% SADC	% L	% L	% L
	pre	CUmin	pre	CUmin	Demand	Surplus	Revenue	Tax	GAINS	Demand	Pe/Pm	Trade	All	Indust.	Manuf.
Angola	10.1	0.0	10.8	5.4	6974	132.9	-107.4	62.5	87.9	1.26	0.999	13.13	-0.39	-1.14	-4.04
Botswana	0.5	0.0	11.8	3.2	3386	52.3	-29.6	-2.7	20.0	0.59	1.007	-0.60	0.46	4.38	6.37
Lesotho	1.5	0.0	11.7	3.7	1279	21.4	-19.3	3.2	5.3	0.41	0.999	-0.31	-0.34	3.88	6.27
Malawi	21.8	0.0	20.6	4.3	1886	144.6	-87.0	57.2	114.8	6.09	0.996	17.46	0.07	-0.01	-0.01
Mauritius	24.5	0.0	22.7	3.8	2525	310.4	-300.5	6.9	16.8	0.67	0.985	21.16	-0.37	-10.79	-10.82
Mozambique	19.5	0.0	12.0	3.8	1589	114.2	-97.6	11.8	28.4	1.79	0.979	17.01	0.34	0.36	0.28
Namibia	0.1	0.0	12.6	4.2	1959	20.3	-10.4	2.6	12.5	0.64	1.005	-0.40	-0.52	-6.73	-11.00
RSA	6.5	0.0	5.6	2.8	108822	329.8	-373.2	132.4	89.1	0.08	0.995	16.09	0.01	-0.24	-1.24
Swaziland	0.1	0.0	6.3	3.1	1035	5.5	-1.9	-0.2	3.4	0.33	1.004	0.80	0.04	-1.80	-1.95
Tanzania	21.9	0.0	19.0	5.0	3315	204.0	-154.9	17.1	66.2	2.00	0.981	26.80	0.34	4.55	6.39
Zambia	14.0	0.0	11.4	3.7	1898	154.5	-80.5	39.1	113.2	5.96	0.999	18.39	-0.85	-1.21	-3.17
Zimbabwe	18.8	0.0	15.8	3.3	4240	276.0	-229.6	67.4	113.8	2.68	0.957	24.76	0.12	2.13	2.45
SADC	**5.7**	**0.0**	**9.3**	**3.3**	**138909**	**1766.0**	**-1491.9**	**397.3**	**671.4**	**0.48**	**0.994**	**7.20**	**-0.05**	**-0.14**	**-0.95**

Notes: $USm average 1991-3 for financial variables; '000 for employment; Government revenue excludes grants; Imports and exports valued cif; Average tariff import weighted; ToT: Terms of Trade, average price exports/average price imports; L: Labour employed

the 'intended' FTA, the raw numbers of employed persons falls slightly, reflecting an implicit rise in the average wage for all SADC since it is employment in wage units which is held constant.

These initial estimates of the impact effects of 'intended' FTA and CUmin suggest that, far from there being a loss of economic efficiency arising from the violation of the FTA Rules of Origin, there are in fact strong welfare gains to be realised. It would in fact be economically efficient to move quickly from the 'intended' FTA to the CUmin. A first look at the source of improved economic efficiency from the CUmin can be seen from the 7-sector results shown in Tables 6.5 and 6.6:

Table 6.5: SADC CUmin: Seven Sector Impact Effects: % Change on Base

Large Export Elasticities, Market Clearing Taxes and Subsidies

Angola

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	24.0	0.1	4.4	0.0	8.5	0.79	852	-0.12	1872.0	-0.29	9.3	3.66	29.5	0.00	0.0	40.16	16.9	-5.85	-1.3	3191.9	-0.34	2.9	-91.9	0.0
Mining	0.2	0.0	10.5	0.0	19.7	0.03	1219	-0.10	4198.0	-0.38	0.0	17.71	2.9	28.51	0.0	0.00	33540	1.64	54.0	212.8	0.52	0.6	-99.8	0.0
Food, tobac	39.4	2.9	4.2	0.0	12.0	6.91	538	0.68	269.8	-0.97	173.9	3.75	267.3	0.20	2.0	-4.90	65.5	15.94	3.1	36.0	0.76	39.3	-53.4	0.0
Textiles	34.3	0.0	30.1	0.0	28.7	4.25	89	1.87	39.4	-25.64	32.1	47.92	61.6	23.75	0.0	0.00	0.0	58.33	-30.0	13.2	-25.60	27.3	-88.2	0.0
Clothing	25.9	0.0	34.5	0.0	28.2	14.37	37	1.31	77.2	-11.53	9.6	82.35	27.6	13.36	0.0	0.00	0.0	43.09	-11.6	7.7	-11.52	11.1	-59.6	0.0
Other manu	2.3	0.6	17.4	0.0	9.2	5.11	1209	0.89	683.0	-0.82	28.2	10.33	1194.4	1.77	1.4	12.58	223.1	4.53	-14.0	648	-1.41	114.7	-45.7	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.00	2981	-0.18	4781.8	-0.28	0.1	-0.27	0.1	-0.29	0.1	-0.69	0.1	-9.02	0.0	723.5	-0.28	0.0	0.0	0.0
Total or Av	13.8	0.1	10.1	0.0	10.8	5.4	6974	0.03	11971.2	-0.63	253.2	13.13	1583.4	2.59	3.5	2.44	3659.5	2.04	0.0	4249.8	-0.39	196.0	-54.8	-11.7

Botswana

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	81.1	57.4	0.1	0.0	3.74	1.6	158	-0.04	201.4	-0.72	99.0	0.81	23.1	1.80	17.2	1.04	12.8	-4.58	-1.6	5.8	-0.81	1.0	-62.0	0.0
Mining	92.6	0.4	0.0	0.0	0.58	0.0	46	-0.10	142.9	-0.39	6.0	0.79	0.5	0.85	4.6	7.69	1210.3	-2.11	-25.3	7.9	-1.90	0.0	-94.9	0.0
Food, tobac	79.9	39.8	0.1	0.0	29.91	3.3	282	0.89	137.4	-0.46	182.6	-2.62	46.0	17.56	102.4	9.12	154.7	2.48	9.8	6.4	3.33	13.9	-87.9	0.0
Textiles	83.6	22.1	1.9	0.0	44.30	4.2	46	0.98	13.6	-10.82	66.1	-9.78	13.0	75.22	12.6	26.00	44.4	32.55	13.8	4.2	23.04	7.0	-86.2	0.0
Clothing	97.8	0.0	6.6	0.0	72.86	14.4	24	1.54	0.0	0.00	30.4	-0.37	0.7	109.76	0.0	0.00	0.0	0.00	-0.6	0.0	0.00	2.5	-91.9	0.0
Other manu	86.0	27.1	0.4	0.0	5.69	3.2	817	0.42	129.8	-0.14	1095.9	0.01	179.0	1.96	43.2	12.38	116.5	3.22	4.0	14.4	2.86	14.5	-58.7	0.0
Services	45.8	50.0	0.0	0.0	0.00	0.0	2013	-0.12	3186.6	-0.19	0.1	3.44	0.1	-0.04	0.1	0.08	0.1	-0.87	0.0	188.1	-0.19	0.0	0.0	0.0
Total or Av	84.9	10.5	0.5	0.0	11.8	3.2	3386	0.06	3811.7	-0.27	1480.1	-0.60	262.3	8.59	180.1	10.27	1538.8	-0.27	0.0	226.8	0.46	38.8	-76.3	-14.6

Lesotho

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	82.6	97.9	0.0	0.0	0.7	0.3	101	-0.08	111.8	-0.49	80.7	0.53	17.0	-1.45	13.1	-0.63	0.3	10.51	-0.2	577.3	-0.48	0.1	-60.5	0.0
Mining	81.1	0.0	0.0	0.0	0.1	0.0	4	-0.24	1.5	-0.90	11.5	-0.85	2.7	-1.12	0.0	0.00	0.00	0.00	-0.6	6.1	-0.90	0.0	-70.8	0.0
Food, tobac	88.2	30.7	0.0	0.0	18.3	4.7	303	-0.26	258.6	-0.36	133.5	-1.46	17.8	9.47	20.6	-0.82	46.5	1.84	0.9	2.3	-0.06	3.3	-72.9	0.0
Textiles	96.8	62.5	13.1	0.0	48.7	4.2	47	1.57	9.9	-15.82	88.8	3.55	2.9	63.11	7.4	19.67	4.5	56.01	-1.3	6.9	10.95	13.1	-98.5	0.0
Clothing	99.7	0.0	1.4	0.0	74.9	14.4	46	0.68	0.0	0.00	61.5	0.59	0.2	124.61	0.0	0.00	0.0	0.00	-0.6	0.0	0.00	1.0	-94.8	0.0
Other manu	90.6	51.7	0.0	0.0	11.4	4.7	312	-0.01	41.9	-0.53	473.0	-0.99	49.1	7.58	5.8	6.85	5.4	-3.22	1.0	3.1	0.57	5.7	-53.5	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	466	-0.19	764.4	-0.31	0.1	-0.05	0.1	-0.05	0.1	-0.20	0.1	-3.97	0.0	247.4	-0.31	0.0	0.0	0.0
Total or Av	90.4	45.3	1.5	0.0	11.7	3.7	1279	-0.02	1188.1	-0.48	849.2	-0.31	89.7	8.00	47.0	3.41	56.7	5.64	0.0	843.1	-0.34	23.1	-83.5	-46.4

Table 6.5 cont.: SADC CUmin: Seven Sector Impact Effects: % Change on Base

Large Export Elasticities, Market Clearing Taxes and Subsidies

Malawi

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	43.9	6.6	18.4	0.0	4.8	0.1	171	-0.39	451.1	-1.73	9.3	23.42	11.9	3.70	25.9	15.67	365.9	4.87	19.2	329.6	0.84	2.3	-99.4	0.0
Mining	62.5	0.0	6.1	0.0	9.0	0.0	0	0.00	0.0	0.00	0.6	-0.26	0.4	0.40	0.0	0.00	0.0	0.00	0.0	0.8	0.00	0.1	-99.8	0.0
Food, tobac	90.3	34.2	20.8	0.0	20.8	2.1	318	-0.97	385.2	-3.11	36.8	18.61	4.0	26.19	4.2	20.55	8.1	-5.91	-7.5	44.2	-2.76	8.5	-98.8	0.0
Textiles	39.9	99.8	39.3	0.0	35.2	4.2	32	0.62	53.1	-27.83	16.2	70.73	10.8	42.39	14.4	112.97	0.0	39.79	-0.5	8.3	2.20	10.2	-93.6	0.0
Clothing	81.3	98.1	40.0	0.0	39.9	14.4	15	0.93	18.6	-8.92	2.2	79.86	0.5	33.88	1.9	204.28	0.0	60.99	1.7	3.8	10.94	1.1	-91.0	0.0
Other manu	33.5	48.3	19.9	0.0	20.7	4.5	274	2.91	222.3	-4.20	127.6	7.31	253.1	4.50	13.2	16.40	141	62.64	-12.6	22.5	2.71	77.7	-84.6	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	1076	-0.66	1911.5	-1.17	0.1	-3.41	0.1	-3.05	0.1	2.19	0.1	21.14	0.0	201.0	-1.17	0.0	0.0	0.0
Total or Av	40.7	13.3	21.8	0.0	20.6	4.3	1886	-0.25	3041.9	-2.23	192.8	17.46	280.8	6.29	59.7	45.60	388.3	6.76	0.0	610.1	0.07	99.8	-87.2	-19.2

Mauritius

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	12.6	0.8	10.9	0.0	5.8	1.8	23	0.61	27.2	-0.24	8.1	13.54	56.2	2.40	3.0	41.91	381.2	16.75	62.7	43.8	11.48	4.2	-74.8	0.0
Mining	99.9	10.8	15.0	0.0	14.4	0.0	0	0.55	3.3	4.83	4.4	11.26	0.0	11.04	0.0	0.97	0.1	9.06	-0.5	0.2	4.89	0.7	-100.0	0.0
Food, tobac	22.8	2.3	16.8	0.0	16.4	4.1	249	4.60	134.2	-13.02	46.7	17.48	138.1	15.33	1.1	13.73	45.6	-22.40	-42.8	13.4	-10.19	33.8	-77.1	0.0
Textiles	3.8	16.1	18.1	0.0	4.2	4.2	146	1.44	69.8	10.68	14.6	55.12	371.9	1.35	75.5	108.78	392.4	23.30	155.5	4.8	33.67	18.5	-13.2	0.0
Clothing	2.1	0.1	71.4	0.0	74.2	14.4	151	2.79	208.7	-7.07	0.2	242.63	11.8	196.12	0.2	139.81	302.1	-26.16	-105.1	69.8	-18.31	9.0	-43.8	0.0
Other manu	10.7	3.8	30.6	0.0	32.6	3.5	482	12.00	223.3	-6.47	98.5	18.02	819.2	15.81	6.5	8.29	165.4	52.69	-68.3	18.9	5.09	297.6	-88.8	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	1476	2.02	2928.7	4.02	0.1	8.70	0.1	9.76	0.1	1.28	0.1	-25.86	0.0	136.4	4.01	0.0	0.0	0.0
Total or Av	10.9	6.3	24.5	0.0	22.7	3.8	2525	2.73	3595.2	2.18	172.7	21.16	1417.4	12.94	86.3	97.68	1286.8	11.90	0.0	287.4	-0.37	363.6	-82.6	-35.2

Mozambique

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	27.9	4.2	11.7	0.0	3.8	0.4	347	-0.03	642.0	-0.76	30.8	13.34	79.5	0.46	6.7	28.05	153.5	8.39	10.3	8.1	0.23	6.7	-95.2	0.0
Mining	78.3	0.7	3.1	0.0	2.7	0.0	2	0.13	3.0	-1.29	2.3	3.18	0.6	-1.03	0.0	-0.67	0.5	21.43	0.0	2.5	2.12	0.1	-99.8	0.0
Food, tobac	70.9	5.4	26.4	0.0	14.7	4.4	315	1.55	274.0	-7.19	118.9	20.85	48.8	3.60	1.7	7.70	30.3	15.68	-21.8	25.1	-3.07	38.6	-94.3	0.0
Textiles	21.5	67.7	31.7	0.0	29.0	4.2	66	1.19	97.2	-14.82	9.0	64.18	33.0	36.75	4.1	125.59	2.0	53.05	-12.1	8.2	-7.90	12.4	-84.6	0.0
Clothing	77.2	74.8	34.9	0.0	34.9	14.4	51	1.77	59.8	-6.83	6.5	79.49	1.9	28.90	1.5	230.12	0.5	57.53	-2.2	3.1	-0.64	2.9	-87.9	0.0
Other manu	27.6	4.4	13.5	0.0	11.8	4.4	379	2.50	189.2	-2.12	127.6	6.56	334.0	2.77	5.2	7.22	114.0	41.70	26.0	21.7	7.39	56.7	-73.6	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	409	0.20	664.7	0.33	0.1	-0.70	0.1	-0.59	0.1	2.02	0.1	20.71	0.0	31.4	0.33	0.0	0.0	0.0
Total or Av	37.2	6.1	19.5	0.0	12.0	3.8	1589	0.69	1930.0	-2.33	295.2	17.01	497.9	4.83	19.4	56.68	300.9	22.14	0.0	100.1	0.34	117.4	-83.2	-17.7

Table 6.5 cont.: SADC CUmin: Seven Sector Impact Effects: % Change on Base

Large Export Elasticities, Market Clearing Taxes and Subsidies

Namibia

Sectors	shares		pre and post-tariffs				levels and percentage changes																
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	92.7	87.7	0.7	0.0	5.8	1.6	80	0.06	189.8	0.09	58.6	0.30	4.6	2.80	173.1	-0.29	24.3	3.81	0.1	195.1	0.16	0.7	-88.3	0.0
Mining	45.2	1.3	0.0	0.0	0.0	0.0	7	0.01	98.7	0.08	8.2	0.58	9.9	0.09	7.0	-0.86	521.6	-0.10	-0.7	15.1	-0.08	0.0	0.1	0.0
Food, tobac	82.0	32.9	0.0	0.0	16.7	5.5	234	0.49	105.2	-1.83	197.3	-1.18	43.3	13.70	152.5	-0.04	310.8	5.15	12.3	4.4	2.15	7.3	-62.5	0.0
Textiles	91.9	94.4	0.2	0.0	36.7	4.2	23	0.39	16.5	-5.34	51.2	-2.57	4.5	68.50	24.1	-33.43	1.4	16.88	-9.4	13.2	-20.68	1.7	-81.6	0.0
Clothing	93.3	0.0	0.2	0.0	75.3	14.4	32	1.09	0.0	0.00	43.9	-6.99	3.1	121.45	0.0	0.00	0.0	0.00	-0.8	0.0	0.00	2.5	-59.4	0.0
Other manu	91.8	33.8	0.0	0.0	7.4	3.7	399	0.51	76.5	0.11	719.5	0.19	63.9	2.98	34.1	0.80	66.7	3.38	-1.5	6.0	0.68	4.3	-48.7	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	1185	0.05	2368.1	0.10	0.1	0.15	0.1	0.12	0.1	0.10	0.1	-0.39	0.0	171.4	0.10	0.0	0.0	0.0
Total or Av	89.3	29.7	0.1	0.0	12.6	4.2	1959	0.13	2854.7	-0.01	1078.7	-0.40	129.6	11.49	390.9	-2.15	924.9	2.04	0.0	405.2	-0.52	17.0	-61.1	-20.3

South Africa

Sectors	shares		pre and post-tariffs				levels and percentage changes																
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	44.0	29.4	2.9	0.0	1.6	1.1	3175	0.01	7825.1	0.02	302.2	4.96	384.3	-3.59	352.0	2.51	847.1	6.32	61.2	876.2	0.68	14.9	-72.4	0.0
Mining	1.5	1.3	-2.5	0.0	0.3	0.0	1526	0.00	7917.6	0.02	23.0	7.08	1532.9	-0.32	85.9	2.09	6639.1	4.35	292.4	668.5	2.00	5.5	-91.5	0.0
Food, tobac	52.2	96.5	0.9	0.0	12.1	5.7	11523	0.05	15706.2	-0.21	376.7	0.82	344.6	10.37	936.2	3.48	34.1	7.46	-5.7	241.8	0.00	44.9	-49.5	0.0
Textiles	19.6	54.9	23.9	0.0	31.7	4.2	788	0.72	1239.3	-37.21	153.3	55.45	629.1	65.69	331.0	12.75	272.0	23.13	-395.9	90.5	-19.32	236.3	-81.3	0.0
Clothing	40.6	71.7	75.7	0.0	66.8	14.4	883	0.40	1191.2	-6.45	18.3	229.21	26.7	157.05	160.9	6.26	63.6	21.29	-60.8	121.4	-3.76	31.7	-68.9	0.0
Other manu	2.4	34.3	3.7	0.0	4.5	3.1	24843	0.09	47399.1	-0.63	231.6	12.61	9561.2	3.25	3574.6	3.32	6841.5	4.90	109.4	1040.2	0.33	442.0	-27.4	0.0
Services	62.9	50.0	0.0	0.0	0.0	0.0	66085	0.00	119109.4	-0.01	0.1	7.67	0.1	-0.96	0.1	0.53	0.1	4.29	0.0	4830.8	-0.01	0.0	0.0	0.0
Total or Av	8.1	27.0	6.5	0.0	5.6	2.8	108822	0.02	200387.8	-0.44	1105.3	16.09	12478.9	6.28	5440.7	3.94	14697.5	5.14	0.0	7869.4	0.01	775.2	-48.1	-1.6

Swaziland

Sectors	shares		pre and post-tariffs				levels and percentage changes																
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	90.0	87.8	0.2	0.0	0.7	0.4	68	0.06	187.8	0.15	68.2	0.63	7.6	-0.65	26.8	-0.09	3.7	1.38	-0.4	23.3	0.14	0.2	-80.0	0.0
Mining	89.4	76.4	0.0	0.0	0.5	0.0	1	0.04	15.2	0.69	5.9	0.68	0.7	0.68	4.9	1.00	4.53	0.1	0.9	1.03	0.0	-94.1	0.0
Food, tobac	99.2	47.1	0.1	0.0	17.1	11.7	287	0.36	306.8	0.24	128.3	0.53	1.1	11.54	200.9	4.51	226.0	3.79	16.8	8.1	1.77	0.3	-50.8	0.0
Textiles	99.3	77.3	0.4	0.0	46.0	4.2	24	0.33	17.4	-6.58	59.0	2.73	0.4	90.35	31.3	-35.34	9.2	1.38	-12.9	2.3	-20.89	0.4	-92.8	0.0
Clothing	99.2	0.0	0.0	0.1	72.4	14.4	5	0.80	0.0	0.00	7.1	0.23	0.1	125.47	0.0	0.00	0.0	0.00	-0.1	0.0	0.00	0.0	-58.2	0.0
Other manu	92.5	56.4	0.0	0.0	6.8	3.4	282	0.61	196.0	0.16	459.8	0.61	37.5	2.35	61.1	-0.41	47.1	1.40	-3.5	6.3	0.17	2.6	-46.1	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	369	0.31	741.6	0.62	0.1	0.26	0.1	0.23	0.1	0.63	0.1	5.83	0.0	51.6	0.62	0.0	0.0	0.0
Total or Av	92.0	53.1	0.1	0.0	6.3	3.1	1035	0.24	1464.8	0.33	728.4	0.80	47.5	2.92	325.1	-0.68	287.7	3.30	0.0	92.5	0.04	3.5	-54.1	-30.1

Table 6.5 cont.: SADC CUmin: Seven Sector Impact Effects: % Change on Base

Large Export Elasticities, Market Clearing Taxes and Subsidies

Tanzania

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	9.3	0.9	9.6	0.0	25.3	1.0	1257	0.09	2058.8	-0.08	1.3	12.01	13.1	34.76	2.6	-1.48	283.6	4.33	7.5	1818.2	-0.43	3.5	-94.7	0.0
Mining	3.0	0.3	18.4	0.0	16.6	0.0	18	1.30	26.3	0.60	0.3	9.29	10.0	7.94	0.0	3.10	1.1	12.64	-0.7	105.9	1.09	1.7	-99.8	0.0
Food, tobac	9.3	3.5	29.6	0.0	25.1	5.3	117	3.34	26.3	-10.98	10.0	41.57	97.8	3.41	3.0	-9.61	82.6	7.60	-1.6	69.9	4.15	27.6	-82.2	0.0
Textiles	1.5	1.0	37.4	0.0	15.5	4.2	71	1.77	41.3	-10.54	1.1	73.56	71.2	9.50	0.3	120.41	33.9	31.24	2.7	58.4	8.48	11.4	-71.1	0.0
Clothing	0.2	0.0	26.5	0.0	14.4	14.4	24	0.81	4.1	19.29	0.1	79.10	24.6	-2.20	0.0	0.00	1.0	48.37	0.9	4.7	24.85	3.6	-2.6	0.0
Other manu	1.0	5.6	13.9	0.0	18.7	4.9	755	4.90	180.9	-0.17	9.2	6.71	870.9	6.09	4.7	24.48	79.8	61.04	-8.3	66.2	5.60	164.1	-72.5	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	1073	0.30	1474.5	0.41	0.1	0.60	0.1	0.63	0.1	-0.81	0.1	-9.94	0.0	1472.5	0.41	0.0	0.0	0.0
Total or Av	2.8	2.2	21.9	0.0	19.0	5.0	3315	1.01	3812.2	-0.06	22.1	26.80	1087.8	6.25	10.8	11.37	481.2	16.25	0.0	3595.9	0.34	211.8	-73.1	-12.6

Zambia

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	29.4	22.9	6.2	0.0	5.2	0.1	93	0.00	459.2	-0.28	13.6	8.42	32.6	2.12	9.8	22.15	32.9	12.45	-4.4	41.3	0.26	2.5	-98.2	0.0
Mining	64.7	0.1	11.3	0.0	11.2	0.0	4	0.02	203.9	-0.16	19.3	9.19	10.5	8.53	0.6	0.00	1122.8	6.14	65.7	60.1	5.17	3.3	-99.9	0.0
Food, tobac	89.6	69.2	18.8	0.0	8.2	2.5	350	0.25	438.6	-3.04	43.6	31.48	5.1	18.16	2.5	5.52	1.1	-16.32	-14.7	62.1	-2.14	8.6	-98.2	0.0
Textiles	57.1	7.8	18.1	0.0	20.1	4.2	30	0.39	70.5	-19.86	19.3	52.74	14.5	36.45	1.1	88.64	12.5	-15.51	-16.5	19.1	-17.85	6.4	-86.9	0.0
Clothing	90.3	58.3	24.8	0.0	24.9	14.4	57	0.77	82.0	-2.20	3.4	78.47	0.4	26.23	1.3	223.82	0.9	10.16	0.1	20.6	1.32	0.9	-92.9	0.0
Other manu	37.0	22.8	13.3	0.0	11.6	4.0	479		552.6	-2.36	231.3	10.26	393.1	3.97	11.7	8.67	39.7	18.41	-38.9	94.0	-1.86	76.3	-78.3	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	887	-0.13	1855.5	-0.27	0.1	0.13	0.1	0.19	0.1	5.94	0.1	-20.65	0.0	82.9	-0.27	0.0	0.0	0.0
Total or Av	41.8	2.2	14.0	0.0	11.4	3.7	1898	0.34	3662.3	-1.33	330.6	18.39	456.2	5.15	27.0	26.26	1210.0	6.47	0.0	380.1	-0.85	98.1	-82.0	-17.5

Zimbabwe

Sectors	shares		pre and post-tariffs				levels and percentage changes																	
	MS%	ES%	tMS1,M	tMS2,M	tMR1,M	tMR2,M	D	%	SM	%	MS	%	MR	%	ES	%	ER	%	dBOP	L	%	CR	%	GR%
Agriculture	18.6	13.3	21.1	0.0	22.2	0.6	341	-0.09	720.6	-3.00	21.8	21.27	95.6	15.69	72.8	17.33	474.2	15.06	64.4	309.6	0.52	25.8	-97.8	0.0
Mining	76.3	18.2	5.0	0.0	6.0	0.0	110	-0.21	332.9	-0.91	35.2	-0.10	10.9	2.74	13.7	13.63	61.6	7.81	6.1	49.6	0.89	2.4	-99.9	0.0
Food, tobac	35.6	52.9	22.2	0.0	19.2	4.1	713	0.10	869.0	-2.08	20.4	32.62	36.8	33.60	41.5	33.70	37.0	12.75	-1.2	42.1	-0.23	11.6	-81.7	0.0
Textiles	51.8	63.7	31.4	0.0	30.1	4.2	138	0.45	210.2	-31.07	38.4	100.97	35.8	81.58	47.5	83.67	27.1	2.99	-28.9	25.3	-3.69	22.8	-87.9	0.0
Clothing	41.2	58.7	92.6	0.0	92.0	14.4	41	-0.58	52.6	-6.87	0.6	230.33	0.9	196.41	18.2	210.21	12.8	-15.97	32.5	20.1	39.05	1.4	-72.9	0.0
Other manu	25.4	47.3	18.4	0.0	14.6	3.5	1373	2.05	1169.5	-7.97	342.3	9.84	1004.0	7.43	216.5	18.72	241.1	13.05	-68.2	110.3	-0.64	209.6	-81.3	0.0
Services	50.0	50.0	0.0	0.0	0.0	0.0	1525	-0.49	2446.4	-0.78	0.1	-4.80	0.1	-0.54	0.1	4.82	0.1	-1.85	0.0	684.2	-0.78	0.0	0.0	0.0
Total or Av	27.8	32.5	18.8	0.0	15.8	3.3	4240	0.22	5801.3	-3.86	458.8	24.76	1184.2	11.25	410.3	35.84	853.9	13.02	0.0	1241.2	0.12	273.6	-83.9	-15.9

Notes: $USm average 1990-2 for financial variables; Government revenue excludes grants; '000' for employment Imports and exports valued fob; Average tariff uses import weights; D: Domestic demand;
SM: Import competing production; MS: imports from SADC; MR: Imports from the ROW; ES: Exports to SADC; ER: Exports to the ROW; dBOP: change in Balance of Payments;
L: Labour employed; CR: Customs Revenue; GR: Government Revenue; tMS1,M: Tariffs, SADC, initial, import weighted; tMS2,M: Tariffs, SADC, initial, import weighted, final; tMR1,M: Tariffs, SADC, initial, import weighted;
R: ROW.

**Table 6.6: SADC CUmin: Employment Effects 7 Sectors: % Change on Base
Large Export Elasticities, Market Clearing Taxes and Subsidies**

Sectors	L	%
Agriculture	7420	-0.07
Mining	1130	1.68
Food, tobacco, beverages	556	-0.21
Textiles	254	-8.59
Clothing	251	-3.41
Other manufactured	1468	0.51
Services	8821	-0.01
Total or Average	**19902**	**-0.05**

Notes: L: Labour employed '000

Carrying through the discussion of the effects of the 'intended' FTA on Textiles and Clothing, these sectors show a similar pattern of gains and losses across countries under the CUmin, except the magnitude of the gains and losses are very much greater. In fact, in both sectors, there are considerable employment losses across the whole of SADC, as shown in Table 6.6.

Since the Textiles and Clothing sectors had an over-all gain in employment across the whole of SADC under the 'intended' FTA, the employment loss under the CUmin suggests that there must have been some trade diversion under the 'intended FTA. It is through the elimination of the trade diverting consequences of the 'intended' FTA that the CUmin gains in terms of economic efficiency. This point is elaborated in section 7 below.

6.2 Customs Revenue Effects

One of the important macro consequences of the radical changes in tariffs implied by both the 'intended' FTA and the CUmin is impact on government revenue. A first estimate of the changes in customs revenue and over-all government revenue is shown in Table 6.7:

The estimated over-all effects of the 'intended' FTA and CUmin on customs and government revenue are not particularly large, being 1.4% and 5.0% respectively. However, the aggregate changes mask the fact that, for the RSA, the revenue impact is not large in % terms, but the RSA has a very large weight in over-all SADC averages. Thus, for the 'intended' FTA, the government revenue effects in 6 countries are over 5%, and under the CUmin, 11 countries have a revenue effect of over 10%. If the estimates are in the right ballpark, then these orders of magnitude of change in government revenue are extremely large. Maintenance of macro economic balance in these circumstances cannot be achieved over-night since either income or indirect tax alternatives such as a value-added tax take time to implement. The theoretical assumption used to facilitate the calculations, the imposition of a lump-sum tax to maintain full employment, implicitly assumes that a lump-sum tax or alternative taxation to maintain fiscal balance can be instantaneously achieved. This is obviously not the case. Since the revenue effects of the 'intended' FTA and CUmin do not much affect the RSA, this observation underlines the central role that the RSA must take in transitional arrangements affecting any lag in real time between changes in tariff rates and the development of alternative revenue sources.

Table 6.7 Revenue Effects of 'Intended' FTA and CUmin

	'intended' FTA			CUmin		
	Customs		Govt	Customs		Govt
	Revenue		Rev	Revenue		Rev
	CR	%	GR%	CR	%	GR%
Angola	196.0	-17.4	-3.7	196.0	-54.8	-11.7
Botswana	38.8	-21.1	-4.1	38.8	-76.3	-14.6
Lesotho	23.1	-56.4	-31.4	23.1	-83.5	-46.4
Malawi	99.8	-45.0	-9.9	99.8	-87.2	-19.2
Mauritius	363.6	-10.5	-4.5	363.6	-82.6	-35.2
Mozambique	117.4	-50.9	-10.8	117.4	-83.2	-17.7
Namibia	17.0	-4.4	-1.5	17.0	-61.1	-20.3
RSA	775.2	-11.3	-0.4	775.2	-48.1	-1.6
Swaziland	3.5	-13.8	-7.7	3.5	-54.1	-30.1
Tanzania	211.8	-2.7	-0.5	211.8	-73.1	-12.6
Zambia	98.1	-49.2	-10.5	98.1	-82.0	-17.5
Zimbabwe	273.6	-34.4	-6.5	273.6	-83.9	-15.9
SADC	**2218**	**-19.6**	**-1.4**	**2218**	**-67.3**	**-5.0**

Notes: $USm average 1991-3 for financial variables

6.3 Exchange Rate Effects

Another important part of the adjustment process in moving to the 'intended' FTA or the CUmin is the adjustment of the real exchange rate, the price of non-tradeables relative to the price of tradeables. The estimated changes in the prices of services relative to the average price change of tradeables is shown in Table 6.8:

It can be readily seen from Table 6.8 that the estimated real exchange rate changes required to restore balance of payments equilibrium are generally small, except for three countries whose real exchange rate devaluation is 2% or more (Mauritius, Mozambique and Zimbabwe). In the case of the CUmin, the exchange

Table 6.8: Exchange Rate Effects of 'intended' FTA and CUmin

Base = 1	Real Exchange Rates	
	'intended' FTA	CUmin
Angola	1.00	0.99
Botswana	1.00	0.98
Lesotho	0.99	0.99
Malawi	0.99	0.97
Mauritius	0.97	0.87
Mozambique	0.98	0.97
Namibia	1.00	0.99
RSA	1.00	1.00
Swaziland	1.00	1.00
Tanzania	1.00	0.95
Zambia	0.99	0.91
Zimbabwe	0.98	0.96

rate adjustment is much greater. Put the other way around, all except 5 countries are estimated to have a real exchange rate change of more than 2%. As with the implied customs revenue adjustment, the estimated real exchange rate adjustment for the RSA is very small. This reinforces the point made in the previous section about the pivotal role of the RSA in the transitional arrangements for the 'intended' FTA or the CUmin.

6.4 Trade Creation and Trade Diversion

Trade creation and trade diversion under the 'intended' FTA and the CUmin is analysed from several different empirical perspectives in Evans (1999b, section 7.2). The regression estimates gives the definitive statement, suggesting that trade creation is weak compared with trade diversion under the 'intended' FTA. However, under the CUmin the trade creation effects are much more powerful. Thus, on static welfare grounds, whilst the 'intended' FTA shows a small positive welfare gain, the welfare gains under the CUmin are very much greater. In other words, the 'intended' FTA pulls intra SADC trade away from SADC comparative advantage much more powerfully than the CUmin.

6.5 General and Partial Equilibrium Results Compared

At has already been noted that the earlier estimates of the employment effects of the SADC FTA (Evans (1997, 1998a)) were based on a partial equilibrium model, whilst the present estimates of employment and other changes are based on a general equilibrium model. Whilst the general equilibrium model provides the basis for more comprehensive analysis of the sectoral and other changes, it is useful to know just how good the partial equilibrium approximation is. There is evidence to suggest that the partial equilibrium approach is a good first approximation to the full general equilibrium result (Evans (1972, ch 8)) on the resource allocation effects of a tariff change.

A complete analysis of the accuracy of the earlier studies would have to account for errors in data estimation, changes in economic assumptions such as generalised unemployment vs full employment, as well as the change from partial to general equilibrium. All that is attempted here is the effects of using a partial compared with general equilibrium model, given the same data set and the same assumptions regarding the operation of the labour market. The comparison was carried out for the absolute employment changes in the tradable sectors. For the partial equilibrium model, the real exchange rate was held constant and there were no lump-sum taxes and subsidies to maintain full employment measured in wage units for both the 'intended' FTA and the CUmin. The findings are summarised in Table 6.9 (a). and (b).

In each case considered, the partial equilibrium result was taken as the independent variable, and the general equilibrium result the dependent variable. Thus, it can be seen from the summary regression statistics that the partial equilibrium estimate of the employment change was statistically significant. In both cases, the partial equilibrium estimate of the employment change was a little over 2/3 of the full general equilibrium result. However, the goodness of fit of the 'intended' FTA regression was markedly higher than for the CUmin. This suggests that there is a marked loss of accuracy of the partial equilibrium assumptions for the analysis of the CUmin compared with the 'intended' FTA.

Table 6.9 Regression Analysis of Partial and General Equilibrium Employment Response

(a) 'intended' FTA

Dependent Variable:		dL (CGE)			
Independent Variable:		dL (Partial))			
R Square	0.6372				
Adjusted R Square	0.6363		Estimate	S. E.	t Statistic
Standard Error	0.3051	Intercept	0.0307	0.0147	2.0870
Observations	432	Coefficient	0.6809	0.0248	27.4793

(b) CUmin

Dependent Variable:		dL (CGE)			
Independent Variable:		dL (Partial))			
R Square	0.3598				
Adjusted R Square	0.3583		Estimate	S. E.	t Statistic
Standard Error	1.3886	Intercept	0.1143	0.0674	1.6964
Observations	432	Coefficient	0.7668	0.0493	15.5441

6.6 Sensitivity Tests

Broadly speaking, the FTA shows an increase in overall improvement in employment and income of about 0.15%, an increase in intra SADC trade of around 6.5% with little change in imports from the ROW. The over-all SADC employment gain of 0.15% is very modest. This reflects the fact that the share of SADC trade in the over all trade of SADC countries is only about 25%. Also, the simple partial equilibrium model leaves out a number of important effects. For example, there is little increased utilisation of excess capacity or taking up of unemployed labour because the full macro income and expenditure circuit is excluded from the partial equilibrium results presented. Nor are the likely dynamic effects included, such as scale economies, where even small-scale effects can bring big further specialisation gains, including the better use of infrastructure. Also excluded are the effects of the reinvestment of initial gains. As argued in Mandaza, Holmes and Evans (1998, Table 4 and discussion), inclusion of these effects could plausibly increase the size of the benefits of the FTA estimated with the partial equilibrium model by around 6 times. That is, the benefits could increase total SADC employment and GDP by about 1%.

There are some important parameters in the model that are found by little more than guesstimates. The Armington elasticities are a prime example. In their original form, the Armington elasticities were estimated for the IDC for their economy wide computable general equilibrium model of the RSA. These basic estimates are intended to reflect short run changes in relative prices. They have been extended to cover all of SADC as discussed in Table A2.8.1. For the calculations reported above, the short run Armington elasticities were increased by 50% to arrive at medium run elasticities, and by 100% to arrive at long run elasticities. The results of these sensitivity tests are reported in Tables 4.1- 4.3:

There are some important parameters in the model that are found by little more than guesstimates. The Armington elasticities are a prime example. In their original form, the Armington elasticities were estimated

Table 6.10: Summary of sensitivity tests on Armington Elasticities

	Short run elasticities			Long run elasticities		
	% Increase			% Increase		
	SADC	ROW	Welfare	SADC	ROW	Welfare
	Trade	Trade		Trade	Trade	
FTA large	4.9	-0.3	0.13	9.4	-0.7	0.11
CUmin large	4.0	4.2	0.54	7.2	6.8	0.48

Long run elasticities 2X short run elasticities

for the South African IDC for their economy wide computable general equilibrium model of the RSA. These basic estimates are intended to reflect short run changes in relative prices. They have been extended to cover all of SADC as discussed in Appendix 2. For the calculations reported below, the short run Armington elasticities as originally estimated were used. The long run elasticities are 2X the short run elasticities, as used in all of the calculations reported. The results of these sensitivity tests on the 'intended' FTA and CUmin are reported in Table 6.10:

Since the Armington elasticities relate to the degree of substitutability between different sources of traded goods, and between traded goods and domestic production, it is likely that their size will affect most the amount of the changes in the pattern of trade and the over all welfare effects. These results suggest that the amount of trade creation is more sensitive to the differences between the short and long run estimates of the Armington elasticities than the changes in the welfare effects. The results shown in Table 6.10 conform to this expectation. The welfare benefits of the 'intended' FTA and the CUmin hardly change at all as the Armington elasticities change and are slightly larger with the lower short run elasticities because there is a small amount of monopoly power in trade that can be exploited. Thus, the basic conclusion is that the over all welfare effects are not sensitive to the changes in the Armington elasticities, but the changes in the volume of trade are.

7 DYNAMIC GAINS

Over and above the impact effects of the 'intended' FTA and the CUmin, there are likely other benefits of trade liberalisation include:

- dynamic scale effects
- the dynamic effects of increased savings on the capital stock
- the dynamic effects on specialisation, innovation and learning

The dynamic benefits are likely to be much larger than the static effects, and their realisation usually requires the development of a favourable institutional environment. While the impact benefits are worthwhile in their own right, regional experts generally agree that the further gains will go significantly beyond what can be estimated using a model based on existing structures. A review of some of the arguments and a 'back-of-the-envelope' estimate of the size of possible dynamic benefits is offered in the sub-sections that follow.

7.1 Regional Integration in Developing Countries and Economies of Scale

'Economies of scale' exist when expanding the scale of production lowers unit costs. They can be 'internal' economies of scale where bigger productive units reduce costs, or they can be 'external' where grouping firms together, or facilitating contact between firms, which creates clusters of firms who can benefit from each other. These gains include the creation of a common pool of skilled labour and specialised input supplies, and the fact that one can copy ideas from nearby competitors as well as more obviously sharing know-how with suppliers and customers.

The fastest growing type of trade in the world economy has been 'intra-industry trade'. That means trade in which quite similar products are exchanged for each other. Countries specialise in quite narrow niches of the productive spectrum, for example producing and exchanging slightly differentiated components for the same process. Alternatively they exchange finished products with slightly different specifications. Networks of contractors and subcontractors co-operate and compete at the same time, above all in Asia. Until now, the SADC region has not been unable to profit from participation in this kind of trade to any great extent except in a few cases such as Textiles and Clothing, examined in Table 1.2. If it is to do so, what is needed is not so much larger productive units but the creation of a business culture of interdependence of firms within countries and across the region, for example through networks of subcontracting. In short, the institutional environment within which regional integration takes place is likely to be more important than scale economies. This is beginning to emerge embryonically in textiles and clothing in the region.

In the typical plantation crops, sugar cane, bananas, oil palm and tea, economies of scale arise from the processing or marketing stage rather than in the farming operations. Access to well organised downstream activities is therefore the critical thing that integration can bring.[7] Most SADC economies have very limited amounts of traditional industrial activity where scale economies matter. Moreover experience suggests that where such industries are given monopoly power by trade protection, they fail to exploit scale advantages. [8]

The textiles and clothing industries have different possibilities for scale economies. In the clothing industry, increasing returns to scale cannot be realised to the same extent as in the textile industry primarily because the production of clothing does not lend itself easily to mechanisation and automation, but also because some new technology can be used by small firms. In part, the manufacture of large production runs has been shifted to low-wage developing countries, whereas the EU manufacturers have specialised in the manufacture of high quality and fashionable products. In the textile market too, the ability to react rapidly to changing market demand has become increasingly important. The EU's movement into special segments has created market openings for Mauritius and there may be further scope for other SADC producers, e.g. Malawi, Zimbabwe and Zambia. Strategies based on mass production and concentration of firms have become less advantageous. The worldwide industry has become an example of network structures *par excellence*, both within developed countries and between them. Small productive units can survive but will only flourish if they are part of wider business networks offering design and marketing capability. In the first

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[7] See Binswanger et al. (1995).
[8] Kaplinsky (1990).

instance, however, new entrants will be obliged to compete purely on price on the low end products that previous new entrants will have to abandon

New technologies are radically changing many traditional assumptions. At a very simple level, the cost of computers has fallen so much that they are not beyond the reach of small and middle-sized businesses. But the greatest benefits of simple computing come when compatible software and the knowledge of how to use it become common among firms. Information can be exchanged, and common skills and technology can be developed. The new information technology is very much network-oriented and for information technology to be best exploited, there must be socio-economic networks eager to use them. Lest these remarks appear Utopian, it must be pointed out that Internet technology is particularly useful for facilitating communication when telecommunications are poor since messages can be stored and re-routed automatically.[9] Even without these new factors it can easily be seen that there are likely to be big traditional economies of scale in the use of infrastructure, such as ports, roads, and airports which all need a minimum size to be viable.

So, using integration to capture the benefits of economies of scale does not necessarily mean increasing the size of firms. 'Clusters', i.e. geographical and sectoral concentration of enterprises, play a big role. It is not the concentration of firms *per se* which may bring gains, but the subsequent developments that it might carry with it such as the division of labour and specialisation amongst the small producers or the emergence of suppliers who provide raw materials or components, new and second-hand machinery and spare parts.[10] Clustering may also induce technology slipover by facilitating the rapid diffusion of know-how and ideas.

Clustering is thus an important institutional arrangement for small firms to overcome growth constraints and enables them to trade with distant markets, nationally and abroad. This can be induced by cultural factors, by small firms acting in their own interests, or by encouragement from local or even national governments. Clustering has so far had only a limited impact in Africa, while at the other end, Latin America and especially Asia have taken full advantage of the opportunities for clustering. It has recently become an active part of South African industrial policy. It is obviously not possible for us to claim that the promotion of this idea across borders in SADC will be a miracle cure, but the absence of regional business networks is one of the most obvious economic-institutional differences between SADC and more rapidly growing parts of the world, with the notable exception of Mauritius. Here, geographical isolation has not proved a barrier to participation in industrial organisation and trade of this kind. Mauritius has historically been a home to sub-contracting partners for firms elsewhere in the world, but Mauritian firms are now seeking links with the rest of mainland SADC. In the Zimbabwean horticultural industry, direct foreign investment played an important role in transferring technology, and strongly influenced the institutional arrangements of the industry affecting the organisational and institutional structure for the realisation of external economies in information and training.[11]

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[9] The Internet is used in the former Yugoslavia and former Soviet Union in areas where traditional forms of communication are lacking. The potential value of Internet services to SADC was illustrated by a display at the February 1997 Windhoek Conference.
[10] Schmitz (1997).
[11] See Heri 1997.

The importance of SADC here is that all the dimensions of scale that have been touched upon require a predictable institutional context for doing business, across time and geographically. The SADC project provides an opportunity for countries to re-think and define just what the rules of the game are to be, and to make differences across borders as small and above all as predictable as possible. Very often the requirement to make an external agreement forces governments to make reforms that they have been putting off. In SADC the 'external' pressure to make and stick to policies can come from the regional integration process rather than the IMF or the World Bank.[12]

7.2 Trade Liberalisation and Productivity

There is scope for trade to promote productivity if appropriate productive economic institutions develop. Productivity was the theme of the 1997 SADC Windhoek conference. Those who argue that increased trade and integration can help firms to gain improved productivity from economies of scale and setting up networks of co-operation always have to answer the question: if this is such a good idea, is trade liberalisation necessary to encourage it? There are a number of answers to this. First of all though it is true that small tariffs will not stop firms specialising and overcoming such barriers, unpredictable tariffs and administrative barriers will make business people very reluctant to invest in equipment or buildings if they risk losing everything.

Secondly the opening up of markets by removing tariff and other barriers to new entrants will drive prices down and force firms that are in the market either to quit or to exploit economies of scale to be had by working at full capacity or enlargement of the firm.[13] Empirical evidence from developing countries is very mixed however.[14]

Arguably it is the lack of competitive pressure from imports that has caused producers of sub-Saharan exports to become uncompetitive in world markets, rather than the barriers faced elsewhere by the exporters[15]. This is as true of South Africa as the rest of the region (see Box 3).

One must hope for more than an initial surge of productivity soon after the measures increasing exports: a relationship should develop between exports and productivity growth, thus helping countries adopt best technologies. It is the skilled labour force that permits the mastering of such technologies, allowing for a rapid increase in productivity. But even if an initial productivity boost for exports has to be generated due to domestic efforts, the cumulative magnitude of productivity growth over many years is unlikely to be the sole result of such domestic efforts.[16]

In the case of SADC, if scale economies are less important than other effects such as clustering, then the arguments for the link between trade liberalisation and productivity are likely to revolve around changes

Box 7.1 South Africa as Motor of Technical Change in SADC?

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[12] EU governments have regularly used 'Brussels' i.e. they themselves acting collectively as an excuse to force through much needed internal reforms. The Uruguay Round deal is reported to have been a not unwelcome discipline to the new South African government.
[13] See Rodrik (1992).
[14] See Pack (1989) and Rodrik who found that in Turkey high tariffs did not prevent exploitation of scale economies.
[15] Yeats (1997).

- South African manufacturing industry productivity growth has for a long time been increasingly slow relative to OECD countries and falling. [17]

- Export earnings of the South African manufacturing sector have increased more slowly than those of their competitors and the share of manufactured exports in the total is low relative to many other comparable economies, and static.

- Enhancing the export orientation of industry can promote the acquisition of more leading-edge technologies and enhance productivity growth with potential spillovers in marketing and information for the rest of the economy.

- The willingness of companies to invest in developing technologies capability, as with any investment, is conditioned by macroeconomic environment and competitive pressures on firms.

- Macroeconomic conditions can create a vicious or a virtuous circle. Fast growth both creates profits for investment and the need to use it well to economise on labour and capital, while slow growth reinforces stagnation.

- Competition on the domestic market, in a large number of manufacturing sectors in South Africa, is limited and distorted. Dominant companies are often linked to major conglomerates and therefore are not under competitive pressure in the domestic market, either from local firms or in many cases, from imports which would enforce ongoing technological change and investment in new capabilities. Indeed, technological links with foreign licensers often reinforces the position of dominant firms. The limited engagement in exports reduces the drive to innovate. At the same time, it is important to acknowledge that sudden exposure to import competition could undermine technological capabilities of existing firms.

in competitive behaviour, increased credibility of government policy and new institutions. In this regard, the role of South Africa could be very important, as an example, as the centre of industrial clusters and as a source of demand. But as argued in the following Box, this will require deep change in South Africa herself.

The adjustment problems before RSA industry can become a motor of export-led growth transmitting know-how to the whole region should therefore not be underestimated.

In SADC as a whole, scale economies are of substantial importance but small- and medium-scale firms make the major contribution to SADC productivity. The gains from trade come not from getting bigger firms, but from linking smaller firms better. There is much scope within the industrial sector for the benefits of various types of institutional arrangements that will help capture external economies in learning, export marketing and technology transfer. The political and administrative structures of regional integration cannot by themselves achieve this goal but they provide a framework in which business people, traders, farmers and others can operate. Small- and medium-sized firms probably need this help more than multinationals. Unfortunately these factors are impossible to quantify and the warning must be given that they are not included in the quantitative estimates that follow. The link sought to be made is that if there are measurable 'static' gains then this places firms in a position to exploit the wider gains discussed above.

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[16] World Bank, (1993)
[17] Joffee (1995).

7.3 Estimating the Total Benefits of the 'Intended' FTA

This section aims to provide an over-all assessment of the orders of magnitude of the total effects of the 'intended' FTA on economic welfare. These estimates start from the estimated impact effects of the 'intended' FTA on economic welfare reported in section 6, and rough orders of magnitude of the separate dynamic effects are added.

The orders of magnitude of the likely effects of the 'intended' FTA can only be very imperfectly quantified, and to the extent that it is possible, these are set out in Table 7.1.[18] It must be stressed that the numbers in this table are necessarily a mixture of economic judgement and formal calculation. They are intended to give orders of magnitude and are not in any sense precise forecasts. The model has been used to estimate the 'static' impact effects and these are supplemented by estimates of the effects of scale economies and of investment on growth.

It is estimated that the welfare effects could be as high as 1.0% of Final Demand, or a very similar % of GDP. This is about ten times the size of the impact effects. Even though it is suggested that scale economies are initially modest they can induce substantial effects on specialisation and eventually income. Some of the extra income earned will be spent on investment, and an estimate of this was built into the calculations. With all of these qualifications, a lower bound on the total benefit is likely to be at least 4 times the impact effects, or a total effect of 0.4% of Final Demand. This seems to be a fairly modest estimate but it is in line with studies of the impact of economic integration elsewhere.

What about the dynamic gains from the CUmin? Two considerations arise here. First, the impact benefits of the CUmin are very much larger than for the 'intended' FTA. On that account, the dynamic benefits operate on a much larger initial gain. However, second, the increase in intra SADC trade under CUmin is very much lower and the sectors that benefit most are agriculture and mining, not in manufacturing where the dynamic gains from scale economies and clustering are usually thought to come. The traditional argument is that the lower impact gains from the 'intended' FTA will quickly be surpassed by the larger dynamic benefits. It is not easy to say which will win out in dynamic gains in the medium run, the 'intended' FTA or the CUmin. Given the likely unenforceable nature of the rules of origin, it is likely that the CUmin will prevail regardless of the design. In that case, attention should be turn to research that can throw light on the question and to find ways of realising dynamic benefits from the CUmin that will almost inevitably evolve. Application of the modest ratio between impact and full effects of four giving a total benefit of 2& of GDP for a CUmin seems reasonable given the increased specialisation in primary production that the CUmin would entail with a smaller manufacturing sector.

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[18] This exercise was carried out in Mandaza et al (1998) in the context of partial equilibrium estimates of the impact employment with rough adjustment for excluded income effects. Direct comparison with the CGE model here is not possible, first because the CGE model is constrained by the total wage bill in each economy, and second because macro economic balance is maintained in the calculations. The CGE model estimates of welfare effects would be greater than reported if allowance was made for unemployment in the labour market on the lines of the Lewis assumption of the partial equilibrium estimates. It turns out that, in % terms, the employment and welfare estimates with dynamic benefits added are very similar more by luck than by design.

Table 7.1 Orders of Magnitude of SADC Gains from the 'Intended' FTA

	Trade Creation	Welfare benefit	
Static	Increase in intra SADC trade 10%	**$mUS 1991-3 prices**	**%**
1 Direct impact effect from specialisation Trade creation dominates trade diversion and increases output		**150**	**0.11**
Dynamic			
2 Scale economies and productivity effect Even small-scale effects can bring big further specialisation gains, including better use of infrastructure.	Substantial increase in intra trade	**900**	**0.70**
3. Additional effect: reinvestment of initial gains Effect mainly in long run		**350**	**0.30**
Total Quantifiable Welfare Benefits 1991-93 prices and %		1,400	1.00

Explanatory Notes:

1 Direct impact effect from specialisation: With trade creation, resources will be transferred from lower productivity to higher productivity activities. This takes place without any change in the productivity of individual sectors. The resulting falls in overall costs leads to the welfare gain. In comparison with the earlier partial equilibrium estimate (Evans (1998a), the general equilibrium estimates here of the welfare benefits of the FTA in % terms are higher. This is because the partial equilibrium estimates excluded an income effect in the demand functions. In Mandaza et al (1998), a rough estimate was made of the missing income effects was made. Numerically, the estimated total effects are roughly the same in % terms. See footnote 18 below.

2. Scale economies and productivity effect. There are widespread opportunities for reaping scale economies outside traditional heavy industry. When combined with productivity effects from trade creation and increased inducements for networking, this effect is likely to be very large.

3. Re-investment of initial gains.[19] Roughly speaking, the method of Hansen and Neilson (1996) was applied. SADC economies have traditionally had low rates of investment and low rates of utilisation of existing investment. When some of the excess capacity is taken up, and when a substantial part of the gains from free trade are re-invested, faster growth can be expected. We offer an estimate here. These gains are particularly likely to be realised when wider measures affecting the investment environment, such as greater certainty, are implemented.

Note that in the original table reported in Mandaza ed al (1998), the estimated dynamic benefits were tied to employment benefits. In the partial equilibrium context, it was argued that the employment changes estimated were a proxy for welfare changes. Here, the additional dynamic benefits are calculated as a % of the directly estimated welfare benefits.

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[19] This calculation is based on the method employed by Hansen and Nielsen (1996).

7.4 Possible Convergence Benefits Within SADC on the Lines of SACU

Income inequalities between SACU economies have fallen much faster than in the rest of SADC. It has been observed that the impact effects on some of the least developed countries of SADC may initially be negative. But it is thought that in the long run the dynamic effects of networking and scale economies and other factors will turn the initial negative effects into positive ones. Recent studies of SACU provide support for this view.[20]

It can be seen from Table 5 that the current BLNS disparities compared to RSA are much less than for other-SADC compared with RSA. It is striking that over the last quarter century the dispersion of incomes within SACU has shrunk dramatically. As the data show, the richer BNLS countries have higher incomes than RSA and even Lesotho is well above the SADC average. [21] If the non-SACU SADC countries could secure the degree of convergence achieved by BLNS this would mean a massive increase in GDP.

Within SACU the degree of income convergence over time is striking while for the rest of SADC income disparities between countries have barely altered in 20 years.

Table 7.2 BLNS and Other SADC Disparities Compared

	GDP per capita $US 1995 Purchasing Power Parity	Population millions	GDP $US million 1995 Purchasing Power Parity	GDP per capita as % of RSA
SACU				
Botswana	5580	1.5	8370	110
Lesotho	1780	2.0	3560	30
Namibia	6130	1.5	9195	120
RSA	5030	41.5	208745	100
Swaziland	2880	0.9	2592	50
Average or Total	4904	47.4	232462	
Other SADC				
Angola	1310	10.0	13100	20
Malawi	750	9.8	7350	10
Mauritius	13210	1.1	14531	26
Mozambique	810	16.2	13122	10
Tanzania	640	29.6	18944	10
Zambia	930	9.0	8370	10
Zimbabwe	2030	11.0	22330	40
Average or Total	1127	86.7	97747	

Source: World Development Report, 1997.

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[20] CREFSA (1996) reports the results of extensive research done in LSE and Oxford.
[21] Technically speaking the standard deviation of the log of incomes has halved in SACU since about 1970, a result similar to that in the EU. See CREFSA (1996).

It is obviously impossible to use these data to *prove* that the SACU convergence was caused by the deep integration with the South African economy, but this is the most obvious interpretation of the historical experience.

7.5 The Gains from the Free Trade Area in Perspective

A Free Trade Area should increase SADC GDP by 1%

The analysis above suggests that, from the perspective of a direct measure of resource endowments and comparative advantage, the resource re-allocation simulated by the model for the 'intended' FTA is broadly in line with comparative advantage and is therefore economically efficient. This reinforces the conclusion already reached that the 'intended' FTA is strongly trade-creating and therefore will have beneficial effects on income, employment and potentially growth. The findings reported in Table 4 also suggest a strong over-all employment and GDP effect of about 1.0%.

In this context, it is widely recognised that to be effective the Trade Protocol must tackle more than just tariff barriers. The ADB singles out non-tariff barriers as well as tariff barriers as crucial and stresses the problems of trade finance.

> 'Outside the SACU area, most countries have experienced a virtual collapse in the availability of finance for intra-regional trade through the domestic and international banking systems. This constraint has hindered the development of intra-regional trade and diversification into non-traditional exports.' [22]

Foreign exchange controls still inhibited trade at the time of the ADB study, and it stresses the crucial complementarity between trade and investment policy if deep integration is to proceed.

> 'Cross-border investment can play an essential role in counteracting trade imbalances in the region, transferring skills and technology and increasing extra-regional export capacity. The Southern African region suffers from an acute shortage of investment finance, and in particular finance for intra-regional cross-border investment.' [23]

South African foreign exchange controls are clearly an issue that needs to be addressed if there is to be a guarantee that capital account balances can match current account balances for SADC members. That is to say, if countries in the region are experiencing even temporary current account deficits as a result of liberalisation, this is unsustainable unless funds come in from somewhere to allow the excess of imports over exports to be funded. Hope exists that the RSA will become a major source of regional investment finance, particularly direct foreign investment which will help to finance the adjustment process and contribute towards deep economic integration. Others recognise the importance of extra-regional sources, particularly the EU. Whatever the source, concern has often been expressed over the amount of investment finance which is likely to be needed. In the case of direct foreign investment, the ADB report suggests:

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[22] ADB (1993, executive summary, p 11)
[23] ADB (1993, executive summary, p12)

'In general terms, the prospects are far from encouraging. In the first place, many of the uncertainties which have inhibited private sector investment in manufacturing are likely to continue over the short- to medium-term, in spite of recent steps taken across almost all SADC and PTA member countries to introduce or revise investment incentives for both domestic, and particularly foreign, private investors.'[24]

At the same time it is clearly necessary for all countries in the SADC region which wish to attract inward investors to offer more predictability of public policy. For example, a recent study by the European Round Table of Industrialists welcomes the new openness of Zimbabwe but it observes that:

'Parts of the bureaucracy have not yet changed their sympathies to accord with the new pronouncements on positive changes in investment conditions and, as a result, investors still find Zimbabwe a difficult country to penetrate'[25].

Such issues have to be addressed urgently if additional finance and direct foreign investment is to be made which can help realise the dynamic benefits of deeper integration which, unlike the comparative static benefits estimated by the model, are very difficult to measure. Some of these issues are taken up in the next section.

8 CONCLUSIONS

Several conclusions emerge from the exploration of the impact effects on the 'intended' FTA and the CUmin..

- The impact effects of the 'intended' FTA on economic welfare are a modest 0.11% of Final Demand, or roughly 0.11% of GDP.

- With unenforcable rules of origin, the 'intended' FTA operates like a CUmin. A CUmin is likely to hve impact effects on economic welfare are over four times that estimated for the 'intended' FTA, or nearly 0.5% of GDP.

- The government revenue effects of the 'intended' FTA are important for several countries, but minor for South Africa. For the CUmin, the government revenue effects are substantial for over half of the SADC countries. This means that the expansion of the tax base is critical for the success of both the 'intended' FTA and a CUmin.

- For the most part, the exchange rate effects of the 'intended' FTA and a CUmin are small.

- In the case of the 'intended' FTA, a partial equilibrium model is a reasonably accurate predictor of sectoral employment effects, compared with a general equilibrium model. However, the accuracy of the partial equilibrium model declines markedly for the CUmin.

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[24] Vol.2, p283
[25] p.275

- The estimates of the changes in intra SADC trade are sensitive to the choice of Armington elasticities. However, the estimated welfare effects are not sensitive.

- Roughly speaking, the estimates of the impact and dynamic benefits of the 'intended' FTA are likely to be at least 0.4% of GDP and 2% for a CUmin.

- In policy terms, the recommendation is that SADC should proceed as fast as possible to an explicit CUmin, thus dispensing with unenforceable rules of origin. However, given the large disparities in the over all welfare effects between countries and the disparities between sectoral employment changes for the 'intended' FTA and for the CUmin, the political economy of adjustment is likely to be difficult to manage.

- Finally, an exciting research agenda should be developed for future with the CGE version of the model. This new agenda could include an exploration at a highly disaggregated level of issues such as SACU and SADC relations with the EU or even COMMESA, gender and poverty implications of the 'intended' FTA, food security implications. This research agenda will be greatly assisted by the current research project by Masters and Evans (1999) which is designed to put the SADC data base for compatibility with the Global Trade Analysis Project (GTAP).

APPENDIX 1: MATHEMATICAL FORMULATION

APPENDIX 2: HOW THE DATA SET WAS CONSTRUCTED

A2.1 The System of Classification

A special system of classification of the tradable sectors was created for the modelling purposes. It is based on the standard ISIC classification system (3 digits level). The main changes were the further disaggregation of the agricultural sector. Instead of 'Agriculture' (ISIC 111) the following sectors were created:

Maize (101)

Other grains (102)

Tobacco (103)

Sugar (104)

Beef (105)

Horticulture (106)

Cotton (107)

Tea and coffee (108)

Other agricultural products (109)

This requires in turn a reclassification of trade and tariff data as follows:

1. SACU trade with SADC countries and with the world and all the tariffs:

Aggregation from HS to SITC for weighting purposes, then aggregation from SITC to the new system.

2. Intra - SADC trade, SADC countries' trade with the world:

Aggregation from the SITC to the new classification system.

The final classification system produces 37 sectors for the tradable sectors of the economy.

A2.2 GDP by Main Economic Sector and Manufacturing Sub-sectors

GDP by main economic sector (agriculture, mining, manufacturing and total) for the years 1991 to 1993 was taken from various sources, particularly from Europa Publications (1993), World Bank (1995), IMF (various) and South African Reserve Bank (1997).

All GDP information was reported at current prices and in local currency. The applicable $ exchange rate by country was then applied for conversion into GDP at $ prices

GDP by manufacturing sub-sector was taken from the UNIDO (1996,7) Industrial Development Corporation of South Africa (1995).

GDP by manufacturing sub-sector was reported for the following years:

Country	Years
Angola	n.a.
Botswana	1992 - 1994
Lesotho	n.a.

Malawi	1987 - 1989
Mauritius	1991 - 1993
Mozambique	n.a.
Namibia	n.a.
South Africa	1991 - 1993
Swaziland	n.a.
Tanzania	1986 - 1988
Zambia	1989 - 1991
Zimbabwe	1991 - 1993

Although sub-sector GDP was not in all cases available for the specific years as required, it is not a matter of great concern as these GDP levels are only used as distribution structures for the macro aggregates as specified for the manufacturing sector as a whole. If no GDP was available for a manufacturing sub-sector, an applicable manufacturing sub-sectors gross output distribution was applied to derive at a sectoral GDP structure for the manufacturing industry concerned based on total manufacturing GDP as described above.

In the case of Angola, Lesotho, Mozambique, Namibia and Swaziland no GDP was available in the publication of UNIDO. However, for Mozambique and Swaziland Gross Output was published for the manufacturing sub-sectors and thus applied for sectoral distribution of GDP. For Lesotho, the manufacturing sub-sector production information was applied for the sectoral GDP distribution as no sectoral GDP data could be found. For Namibia the same sector distribution of GDP as for Lesotho was applied, whilst in the case of Angola the employment distribution by manufacturing sub-sector (see section A2.4 below) was applied to determine the sub-sectoral GDP.

GDP for the main sectors (agriculture, mining and manufacturing) was available for the years 1991 to 1993. The GDP (value added) by manufacturing sub-sector was not available for the already mentioned years in a number of cases. However, the latest available three years sub-sector structures (GDP or gross output) were applied to derive at an average GDP structure for the manufacturing sub-sectors based on the total manufacturing GDP.

A2.3 Gross Output by Manufactoring Sub-Sector

The data sources for gross output manufacturing sub-sectors were the UNIDO (1996, 1997) and Industrial Development Corporation of South Africa (1995).

With the exception of Angola and Namibia all other countries reported manufacturing sub-sector gross output for the following years:

Country	Years
Angola	n.a.
Botswana	1992 + 1993

Lesotho	1983 - 1985
Malawi	1987 - 1989
Mauritius	1991 - 1993
Mozambique	1986, 1987 + 1991
Namibia	n.a.
South Africa	1991 - 1993
Swaziland	1988 - 1990
Tanzania	1986 - 1988
Zambia	1989 - 1991
Zimbabwe	1991 - 1993

Although gross output was not available in all cases for the specific years as required, a first approximation was made by using the distribution shares from available production structures. By applying comparable gross output/GDP ratios on the already determined GDP levels for the manufacturing sub-sectors for the affected countries, a calculated gross output level could be determined. As no gross output data for manufacturing sub-sectors could be found for Namibia, Lesotho's sectoral distribution was again applied. In the case of Angola, the manufacturing sub-sector employment distribution was used to allocate sectoral gross output data. As gross output (production) data was only available for the manufacturing sectors, a conversion had to be made to derive at gross output levels for both agriculture and mining. In the case of Botswana, Malawi, Mauritius and South Africa the applicable gross output / GDP ratios from the input-output tables were applied to derive at gross output levels for agriculture and mining. For the remainder of SADC, the South African ratio was applied for these two sectors.

All gross output information was reported at current prices and in local currency. The applicable $ exchange rate by country was then applied for conversion into gross output at $ prices.

A2.4 Employment by Main Sector and Manufacturing Sub-Sector

Employment by main economic sector (agriculture, mining, manufacturing and total) was found in the International Labour Organisation (1996, 1997), the Word Bank (1995) and the Central Statistical Services, Republic of South Africa (1995).

However, **employment** data for the mentioned sectors was only reported for the following countries:

Botswana	Malawi	Mauritius
Mozambique	South Africa	Swaziland
Zambia	Zimbabwe	

Countries reporting **labour force** statistics were:

Angola	Lesotho
Namibia	Tanzania

Employment data by manufacturing sub-sector was taken from the UNIDO (1996) and the Industrial Development Corporation of South Africa (1995).

With the exception of Namibia all other countries reported manufacturing sub-sector employment for the following years:

Country	Years
Angola	1991 - 1993
Botswana	1991 - 1993
Lesotho	1992 + 1993
Malawi	1989 - 1990
Mauritius	1991 - 1993
Mozambique	1992 - 1994
Namibia	n.a.
South Africa	1991 - 1993
Swaziland	1988 - 1990
Tanzania	1986 - 1988
Zambia	1990 + 1994
Zimbabwe	1991 - 1993

Employment data was not in all cases available for the specific years as required. However, for a first approximation this is of less importance as these employment levels are only used as distribution structures. By applying aggregate employment levels to these sectoral structures, the manufacturing sector employment distribution for the required years was determined. For Namibia the same sector distribution as for Lesotho was applied. Although total (and agriculture & mining) employment data for Zambia could only be found for 1989, the labour force for 1989 and also for the period 1991 to 1993 was available. By applying the 1989 employment / labour force ratio to the labour force for 1991 to 1993 it was possible to derive at a first approximation of employment figures for both agriculture and the mining sector whereas the manufacturing sub-sector employment was found in the UNIDO data bank. In the cases where employment data for the manufacturing sub-sectors was not available for the period 1991 to 1993, the sectoral distribution for the latest available three years was applied to derive at an average employment structure for the manufacturing sub-sectors based on manufacturing totals.

A2.5 SADC Trade Data

The sources of trade data were as follows:

SACU trade with SADC countries and with the world:
Customs and Excise, Republic of South Africa (1991-3)
Intra - SADC trade, SADC countries' trade with the world:

International Trade Statistics Branch, UN Statistics Section via International Trade Division, Statistics Canada

BLNS countries trade with extra - SACU and intra - SACU:

BLNS countries' sources and the Europa Publications (1993)

For the BLNS countries, United Nations data about SACU trade with SADC and the world was replaced with data from Customs and Excise, Republic of South Africa, due to the higher reliability of the latter. For this purpose the trade had to be reclassified from HS to SITC system first.

Intra-SACU trade data was not originally available. The following describes the way this data was derived from SACU trade data and BLNS sources trade data (take note that this is a simplified explanation - without technicalities). The method used for extracting the intra SACU trade flows is based on the observation that SACU exports and imports to and from all the countries outside SACU are available from Customs and Excise, Republic of South Africa data. Also available are the BLNS country exports and imports to and from SACU (intra - SACU) and outside of SACU (extra - SACU). Information from the Europa Publications (1993) was applied to determine BLNS imports from RSA as well as BLNS exports to RSA. The accounting relations for each product underlying the derivation of intra SACU trade is based on the first approximation that there is no trade between BLNS countries themselves, which means that all intra SACU trade for these countries refers to the RSA. It therefore follows that:

BLNS trade to and from the world

= BLNS trade to and from extra SACU + BLNS trade to and from intra SACU

RSA trade to and from the world

= SACU trade to and from the world - the sum of BLNS trade to and from extra SACU

BLNS trade to and from RSA

= BLNS to and from intra SACU.

BLNS to and from SACU also

= BLNS trade to and from intra SACU

RSA trade to and from SACU

=RSA trade to and from all the BLNS countries

BLNS to and from a country

 = SACU trade to and from the country multiplied by BLNS trade to extra SACU as a percentage of SACU trade to and from the ROW when data are available; otherwise the percentage is calculated from the total export/import ratios.

To link to tariffs, SACU duties are applicable to all BLNS and SA imports. Other countries' duties stay the same (splitting intra SACU trade affects only import-weighted averages for these countries - and also simple averages, but these were taken on traded products (lines) only).

All trade data are valued at cif prices (cost, insurance and freight). The data was compiled so that country exports and imports matched. Where there was a discrepancy, the import data were taken as correct. To eliminate the seasonalities the trade data was taken over 3 years (1991/1992/1993). Republic of South Africa data is available up to 1997, but the reliable intra - SADC data of the United Nations was available only up to 1993. This was the reason for working on 1991/1992/1993 trade. All the trade data is expressed in $USm with the average annual exchange rates

The differences between the reported source and origin of the same trade flow were reconciled by the International Trade Division of Statistics Canada. These adjustments were possible because the trade flows were measured cif and were made to UN data in sequential order. Thus the results of one procedure becoming the input for the next (see Statistics Canada (1980-1995). Generally, because of their greater reliability, import figures are treated as benchmarks, while adjustments are made to export figures. However, when import data was unavailable, exports were used to adjust import figures.

A further set of adjustments were required due to problems arising from unclassified items, incorrect classification of mining exports and identified exports greater than domestic production,.

A2.8 SADC Tariff Data

The sources of tariff data were as follows.

SACU: Customs and Excise, Republic of South Africa (1991-3).
The simple averages for all goods (traded and non-traded) on the new classification system were calculated for 1995 on the basis of nominal tariffs actually used taken directly from the tariff data from SACU and SADC countries.

The simple averages for traded goods were calculated taking into account only tariff lines from a particular country of origin for the new classification where there were imports recorded in the relevant subsectors. This is the reason for differences in the average tariffs for different countries of origin the same country of destination and the same sector.

The import weighted averages tariffs (total import for 1991, 1992 and 1993 or their average weighting, which is the same) were calculated based on imports from a each country of origin for each country of destination of the new classification. This accounts for the differences in these tariffs for the same country of destination and the same sector.

A2.9 The Armington Elasticities

The short-run elasticities for the RSA vs. ROW were estimated empirically by Naude (1997). The RSA elasticities were use as a basis from which the other countries' elasticities were then approximated, based on the different production structures.. It was assumed that the relative size of the Armington elasticities was be positively related to the relative production size of a commodity (sector) within a country as well as relative to that the RSA. The SADC vs. SADC elasticities were determined by adding 0.2 to the SADC vs. ROW

elasticities. Since the elasticities were very roughly determined, the sensitivity analysis discussed in section 4 was carried.

ACRONYMS AND ABBREVIATIONS USED

FTA	Free Trade Area
ROW	ROW
RTMSA	Regional Trade Model of Southern Africa
SACU	Southern African Customs Union
SADC	Southern African Development Community

SADC COUNTRIES INCLUDED

Angola

Malawi

Mauritius

Mozambique

Tanzania

Zambia

Zimbabwe

SACU COUNTRIES

Botswana

Lesotho

Namibia

South Africa

Swaziland

REFERENCES

African Development Bank (ADB), 1993, **Economic Integration in Southern Africa**, Vols. 1-4

Barro, R. and J.Lee, 1996,'International measures of schooling years and quality' **American Economic Review**, vol.86 No.2, pp. 218-223.

Binswanger, H., Deininger, K., Feder, G., 1995, 'Power, distortions, revolt and reform in agricultural land relations', in J. Behrman and T.N. Srinivasan (eds**), Handbook of Development Economics** Vol. IIIB

Chipeta, C. 1997, 'An overview of the trade issues in Southern Africa', SAPES, Harare.

Central Statistical Services, Republic of South Africa (1995) **South African Labour Statistics**

CREFSA (Centre for Research into Economics & Finance in South Africa), 1996, 'Convergence and integration in Southern Africa', **Quarterly Review**, July, (London School of Economics)

Customs and Excise, Republic of South Africa, 1991–1993, **Monthly Abstracts of Trade Statistics**

Dervis, K., de Melo, J. and Robinson, S., 1982, **General Equilibrium Models for Development Policy**, Cambridge: Cambridge University Press

Evans, H.D., 1972, **A General Equilibrium Analysis of Protection: The Effects of Protection in Australia**, Contributions to Economic Analysis, 76, Amsterdam: North Holland Publishing Co, p 216. (Revised and extended doctoral dissertation)

Evans, H.D. (1996 and 1997) 'Study of the Impact of the Removal of Tariffs for the Free Trade Area of the Southern African Development Community SADC', **Occasional Paper No 5**, Commonwealth Secretariat, December. Based on a report prepared for the SADC Industry and Trade Co-ordination Division SITCD, with the assistance of the Commonwealth Secretariat, 1996

1998a   Options for Regional Integration in Southern Africa, Background paper prepared for the September Forum 1998 of TIPS, Johannesburg. (CGE model based on extension of new data set, comparing FTA, minimal Customs Union, and Free Trade)

1998b   **The Regional Trade Model of Southern Africa: New Data and Results**, Report to the Industrial Development Corporation of South Africa and the Department of Trade and Industry, Government of South Africa, with M-J Cortijo, Final Report, May.

Evans, H.D., 1999a, 'Regional Integration and Industrialization in Southern; ch 15 in M. Tribe et al**, Industrial Development and Policy in Africa: Issues of De-industrialisation and Development Strategy**, Edward Elgar, forthcoming; also **IDS Working Paper 88**

Evans, H.D., 1999b, 'Options for Regional Integration in Southern Africa' revised version of Evans (1998a), **IDS Working Paper,** forthcoming

Europa Publications Limited, 1993, **The Europa World Yearbook.**

Hansen, J.D. and Nielsen, J.U., 1996, **An Economic Analysis of the EU**, second edition, London: McGraw-Hill.

Heri, S.T., 1997, 'Success stories in the export market of agricultural commodities, Horticultural Promotion Council Zimbabwe', paper presented to 'Uruguay Round Agreements - Implications for the Southern Africa Development Community Region', Workshop organised by the FAO and Southern Africa Development Community, Harare

Industrial Development Corporation of South Africa , 1995, **Sectoral Data Series**

International Labour Organisation, 1996 and 1997, **Yearbook of Labour Statistics**

Joffe, A., Kaplan, D., Kaplinsky, Lewis, D.,1995**, Improving Manufacturing Performance in South Africa**, IDRC, UCT Press

Kaplinsky, R., 1990**, The Economies of Small Scale: Appropriate Technology in a Changing World**, Washington: IT Publications

Kemp, M. and Wan, H., 1976, 'An elementary proposition concerning the formation of Customs Unions', **Journal of International Economics.**

International Monetary Fund, **International Financial Statistics** (various publications)

Mandaza, I., Holmes, P. and Evans, H.D., 1998, ′The Costs of non-integration in SADC', Draft report prepared for the SADC Secretariat, March

Masters, W. A. and H. D. Evans, 1998,'Post-Research Dissemination of the EAGER/Trade Project on Global Trade Analysis for Southern Africa', A Research Proposal. October.

Mayer M. and Thomas, R, 1997**, Trade Integration In The Southern African Development Community: Prospects And Problems**, forthcoming

Naude, W.A., 1997, 'Empirical estimation of elasticities in the IDC's General Equilibrium Model (IDCGEM)', Industrial Development Corporation of South Africa**, Research Paper Series** TS2/97, April

Pack, H., 1989, ′Trade and Industrialisation', Ch. 9 in H. Chenery and T.N. Srinivasan (eds), **Handbook of Development Economics** Vol. 1, Amsterdam: North-Holland

Rodrik, D., 1992, 'Closing the productivity gap: does trade liberalisation really help?' in Helleiner (ed.) Trade Policy Industrialisation and Development, Oxford: Clarendon Press

SADC, 1996, **Trade Protocol**, SADC.

Schmitz, H., 1997, Collective efficiency and increasing returns, **IDS Working Paper**, forthcoming

South African Reserve Bank, 1997, **Quarterly Bulletin**, March.

Statistics Canada, 1980 – 1995, **World Trade Database.**

Wood, A., and Ridao-Cano C., 1996, 'Skills, trade and international inequality', IDS Working Paper 47

World Bank, various, **World Development Reports**, Washington.

World Bank, 1995, **World Tables.**

UNIDO, 1996 and 1997, **International Yearbook of Industrial Statistics.**

Yeats, A., 1997, 'Does MERCOSUR's Trade Performance Raise Concerns about the Effects of Regional Trade Arrangements?' World Bank International Economics Department International Trade Division February WP 1729