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REFORM AND OPPORTUNITY:
THE CHANGING ROLE AND PATTERNS OF TRADE IN SOUTH AFRICA AND SADC

A Synthesis of World Bank Research

Jeffrey D. Lewis

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Reform and Opportunity: The Changing Role and Patterns of Trade in South Africa and SADC

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Abstract

In this paper, we examine the changing role of trade in South Africa and SADC from different vantage points. We first review progress in liberalizing South Africa's trade regime, and conclude that, while signs of progress are clear, the levels and complexity of protection continue to pose barriers to the evolution of efficient trading patterns and a constraint to growth. We also find that trade liberalization has not led to "de-industrialization" of the South African economy: while import penetration has risen, exports have grown as well, so that the net impact from expanding trade is positive. But the net numbers remain small, and the limited employment creation is biased towards skilled workers, suggesting that the full potential from expanding trade has not been realized. We turn our focus next to the SADC region, and examine the fiscal implications of the proposed SADC FTA, highlighting both the administrative complexity of harmonizing tariff regimes among the diverse SADC economies, and the differential fiscal costs of the proposed arrangements for the participating economies. Finally, we look at the economic impact of alternative free trade areas (FTAs) for the region, using a multi-region simulation model. We find that these FTA initiatives are beneficial for the region, not only for participants, but even (in the case of the EU-South Africa FTA) for non-participants, since the rest of southern Africa benefits as well from the EU-South Africa agreement. But it is also clear that South Africa alone is not large enough to serve as the "growth pole" for the entire sub-region.

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The research reported here was supported by the World Bank as part of its continuing efforts to promote analytic work and dialogue on South African development issues. This paper is a synthesis of recent analytic work on the changing role of trade in South Africa, both domestically and within the broader regional (SADC) and global context. Primary acknowledgement must therefore be given to the authors of the original research (Lawrence Edwards, Sherman Robinson, Karen Thierfelder, and Yvonne Tsikata) who provided invaluable assistance in interpreting their original contributions and updating their analysis, as well as commenting on the consistency and coherence of the final document. Valuable comments and encouragement were also received from Rashad Cassim, Alan Gelb, Larry Hinkle, Philippe Le Houerou, Will Martin, Kennedy Mbekeani, Sudhir Shetty, and from participants in seminars at the World Bank and the TIPS Regional Symposium in Johannesburg, South Africa. Leonid Koryukin assisted in the revision of the data used in the paper. The views expressed do not necessarily reflect those of the World Bank or its members, and responsibility for any remaining errors and omissions remains mine alone.

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1. Introduction

During the 1990s, South Africa's "openness" has increased dramatically, and the role of international markets and linkages has played an important part in its growth and structural transition. While the process of trade liberalization dates from the early 1990s, the pace of South Africa's integration (or re-integration) into the world economy accelerated following the democratic transition in 1994. Accession to the WTO, negotiation of a free trade agreement with the EU, and discussions over a SADC free trade area collectively mark the growing contribution of trade to the prospects and prosperity of the economy.

Over the past few years, and in parallel with this trend in "openness", there has emerged a growing body of analysis on trade and trade-related issues in South Africa. The World Bank has contributed to these efforts, including a number of papers written by Bank researchers, and others prepared by consultants with financial support from the Bank.[1] The purpose of this paper is to draw together the major arguments and findings of this analysis, which together provide a broad perspective on the changing role of trade in the South African and SADC economy.

As this paper is compiled from research efforts already completed, its intent is not to break new analytic ground. It strives instead to weave together the different analytic strands embedded in this earlier work from two different angles. First, it looks at the changing role of trade policies in South Africa over the last decade, and the impact that these changes have had on trade, employment, and growth. Second, it examines the implications of the accelerating trend towards regional trade linkages, with special attention to the impact of the EU-South Africa trade agreement, as well as the proposed SADC free trade area.

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[1] This body of work includes three papers prepared as part of ESW on "Trade, Employment and Growth" [Edwards (2000a), "Trade and the Structure of South African Production, 1984-97"; Edwards (2000b), "Globalisation and the Skill Bias of Occupational Employment in South Africa"; and Lewis, Robinson, and Thierfelder (1999), "After the Negotiations: Assessing the Impact of Free Trade Agreements in Southern Africa"] and two other papers prepared separately [Tsikata (1999a), "Liberalization and Trade Performance in South Africa" and Tsikata (1999b), "Southern Africa: Trade, Liberalization and Implications for a Free Trade Area"].

2. Trade, Employment, and South African Economic Performance

In this section, we first summarize evidence on the scope of trade liberalization in the South African economy over the last decade, and then examine the impact of this liberalization on the structure of trade, employment and output in the economy.

Trade Policy Reform: A Scorecard[2]

Following the April 1994 elections, the new government inherited an economy that had experienced decline for nearly two decades and which was emerging from a three and a half year recession. Reversing this decline in an increasingly globalized economy has since been a key priority. Liberalizing the external trade regime has been one of the central and more visible elements of South Africa's drive to achieve accelerated economic growth and symbolic of its break with past economic policies. The process started piecemeal in 1990 under the previous regime and gathered momentum in 1995 with a formal offer to the World Trade Organization. Since then, South Africa has substantially liberalized the economy through reform of the import regime and deregulation of the agricultural sector.

South Africa's trade policy was historically guided by three interrelated strategies: import-substituting industrialization, the development of "strategic" industries (in coal, arms and oil) as international opprobrium and isolation increased, and the deliberate development of mineral-related exports through upstream mineral beneficiation. The last two strategies were supported by fiscal incentives and subsidized credit, in addition to trade policy. Exchange rate policy was conducted independently to support the anti-inflationary objectives of the Reserve Bank.

The resulting trade regime was characterized by numerous quantitative restrictions (QRs), a multitude of tariff lines, wide dispersion, and various forms of protection (formula, specific and *ad valorem* duties and surcharges). Numerous exemptions resulted in a tariff collection ratio that was a third of the statutory rate. In agriculture, QRs and specific duties and a maze of price controls, import and export permits and other regulations in many cases eliminated any foreign competition. Overall these polices resulted in a complex, highly discretionary regime with a significant anti-export bias.[3]

While there was some early recognition of the limitations of the trade policy in the early 1980s[4] and gradual reduction of quantitative restrictions, the overall tariff regime remained relatively unchanged. This was due to a number of reasons both external (financial sanctions, the 1985 debt standstill) and domestic (continued lobbying by industrialists and politically powerful farmers). Indeed, these factors helped maintain highly protectionist policies and the introduction of *new* supporting industrial policies (such as accelerated depreciation for approved export beneficiation projects).

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[2] This section is drawn primarily from Tsikata (1999a), with updated data and figures where available.

[3] Holden (1992) analyzes the historical trade policy regime. Belli et al. (1993) present a detailed description of the regime as of 1990.

[4] See Scheepers (1992).

Recognizing the limits of this approach, and as primary commodities continued to perform poorly internationally, the authorities in the early 1990s began moving towards a more outward-oriented industrialization strategy. These reforms were deepened in 1993 through a remarkable consultative process that reflected South Africa's unique political and economic inheritance. Through the National Economic Forum (NEF), a series of discussions began on the future direction of trade policy between the outgoing regime, key ANC policymakers, trade unionists and the business community.[5]

After South Africa became a signatory to the Marrakech Agreement of the GATT in 1994, the pace of trade liberalization quickened. The key aspects of the liberalization were contained in an Offer of phased tariff reductions-cum-harmonization within chapters made to the World Trade Organization. The details of the draft Offer were discussed extensively with industrialists and the labor unions through the National Economic Forum. In addition, debates were held with a Southern Africa Customs Union technical group and task groups of key domestic industries. These discussions influenced the final Offer presented to the World Trade Organization Secretariat. The new tariff program officially took effect in January 1995, and its early adoption by the new government signaled its strong commitment to trade reform.

Box 1: South African Tariff Changes at a Glance

	All rates 1990	All rates 1996	All rates 1999	Positive rates 1999
Number of tariff lines	12500	8250	7743	2463
Number of different rates (bands)	200	49	47	45
Min rate, %	0	0	0	1
Max rate, %	1389	61	55	55
Unweighted mean rate, %	27.5	9.5	7.1	16.5
Standard deviation, %	n.a.	n.a.	10.0	8.6
Coefficient of variation, %	159.8	134.0	140.3	52.2

Source: 1990 & 1996, Tsikata (1999a); 1999, TRAINS Database (2000).
Note: "Positive rates" includes only non-zero tariff lines; "all rates" includes positive rates, zero, and "not available" entries.

Initially, considerable progress was made in rationalizing the very complex tariff regime that prevailed in the early 1990s, and with lowering the overall level of nominal and effective protection (see Box 1). Between 1990-96, the average economy-wide tariff fell from 28 to 10 percent, while the average manufacturing tariff dropped was reduced from 30 to 16 percent (although this is approximately twice the level of the average manufacturing tariff in China at the time of WTO accession). The maximum tariff rate was cut to 61 percent (40 percent if "sensitive" industries are excluded), the number of tariff lines was cut by a third, and the number of separate tariff "bands" or rates cut from 200 to 49.

But despite this strong initial progress, the overall picture at present is less clear. As Box 1 suggests, since 1996 the pace of rationalization has slowed considerably, with only a small reduction in the number of tariff bands, a modest decline in the maximum tariff, and a small

[5] The NEF was a tripartite forum involving government, labor and organized business. Following the elections it was replaced by NEDLAC (National Economic Development and Labour Advisory Council).

Box 2: Tariff Structures in SADC Economies, 1999

	South Africa		Zambia		Zimbabwe			
	All rates	Positive rates	All rates	Positive rates	All rates	Positive rates	All rates	Positive rates
Number of tariff lines	7743	2463	6008	4842	22588	12890	5089	5010
Number of different rates	47	45	4	3	59	57	6	4
Min rate, %	0	1	0	5	0	0.1	0	2.5
Max rate, %	55	55	25	25	600	600	35	35
Unweighted mean rate, %	7.3	16.5	13.6	16.9	10.1	17.8	15.6	15.9
Standard deviation, %	10.0	8.6	9.3	7.2	16.5	18.5	14.3	14.3
Coefficient of variation, %	140.3	52.2	68.4	42.7	163.0	104.2	91.4	89.9

Source: TRAINS Database (2000).

increase in the tariff code dispersion, as measured by the coefficient of variation. Moreover, while South Africa has a low (average) tariff rate compared to other middle-income countries, this is in part attributable to the very large number of "0" rated items (around two-thirds of lines in 1999), which artificially lowers the average – the average tariff for those products with positive rates was around 17 percent, while the overall average (including zeroes) was only 7 percent. In addition, many middle-income countries have in place well-developed duty drawback or rebate systems that allow exporting firms to obtain inputs at world prices, and avoid the impact of higher average tariffs.

The complexity of South Africa's tariff structure is further evident through comparison with selected other SADC economies, as shown in Box 2. While the Zimbabwe tariff structure dwarfs even South Africa in terms of tariff lines and rates, the tariff schedules in both Zambia and Mozambique are much more streamlined, with fewer zero rates and tariff bands, lower maximum rates, and mean positive rates not markedly different than in South Africa.

Looking past average tariff levels, the structure of protection in South Africa remains problematic (see Box 3). The cascading pattern (high on consumer goods, moderate on intermediate goods, low on capital goods) typical of protection in many developing countries remains evident in South Africa, with the result that less progress has been made in rationalizing *effective* protection, as illustrated by the continued large range and dispersion at the more disaggegrated 4-digit ISIC level. *More importantly, while effective protection has fallen in the aggregate, it has not fallen by enough to reduce the overall anti-export bias once the role of falling export incentives is taken into account*. Including export incentives, the anti-export bias (based on nominal protection/incentive rates) was estimated in 1996 at 1.32 (1.45) for the economy (manufacturing). This was an increase over the 1993 estimates (1.19 and 1.27 respectively) and is primarily a result of the phasing out (as required by the WTO) of the General Export Incentive Scheme (GEIS).[6]

[6] The anti-export bias calculated solely on the basis of import protection showed declines for both manufacturing and the economy. These results highlight the importance of implementing other support programs for exporters to compensate for the loss of GEIS.

Box 3: Sectoral Structure of South African Tariffs, 1999
(Percent)

Sector	Trade-weighted average rate	Unweighted average rate	Minimum rate	Maximum rate
ALL	**3.9**	**7.3**	**0**	**55**
Mining	0.1	1.4	0	15
Agriculture	1.8	4.6	0	35
Manufacturing	4.4	7.5	0	55
Food, beverages & tobacco	4.2	11.8	0	55
Textiles, apparel & leather	10.4	18.4	0	50
Wood & wood products	8.1	10.3	0	30
Paper & paper products	7.0	7.3	0	22
Chemicals	4.2	5.5	0	40
Non-metallic minerals	6.6	7.4	0	30
Basic metals	4.1	4.5	0	15
Metal products & equipment	3.8	5.1	0	54
Other manufacturing	4.7	8.3	0	30

Source: TRAINS Database (2000)

More recent analysis of trade liberalization (Fedderke and Vaze, 2000) supports the thesis that the overall impact on the structure of protection has been mixed. After calculating average effective protection rates separately for the 1988-93 and 1994-98 periods, they conclude that *half* of South Africa's GDP is produced in sectors where effective protection *rose* between the two periods, while only 15 percent comes from sectors where protection has fallen. This suggests that although average tariffs have fallen (as shown in Box 1), they have tended to fall proportionately more on *inputs* into production, rather than output, leading to increases in effective protection.

The Impact on Trade Flows

Trade tariffs and trade liberalization are of course not policy *objectives*, but only *instruments* of policy. The relevant measure of the effectiveness of policies is whether they contribute to desired changes in trade flows, and in turn whether these contribute to the ultimate objectives of promoting sustainable growth. For South Africa, as a result of the emergence from recession in the early 1990s, the ongoing process of trade liberalization, and a sizable depreciation in 1996, the economy opened up significantly. Exports and imports as a share of GDP have returned to pre-1980 levels, though South Africa's trade ratio is still marginally lower than other non-oil middle-income countries.[7]

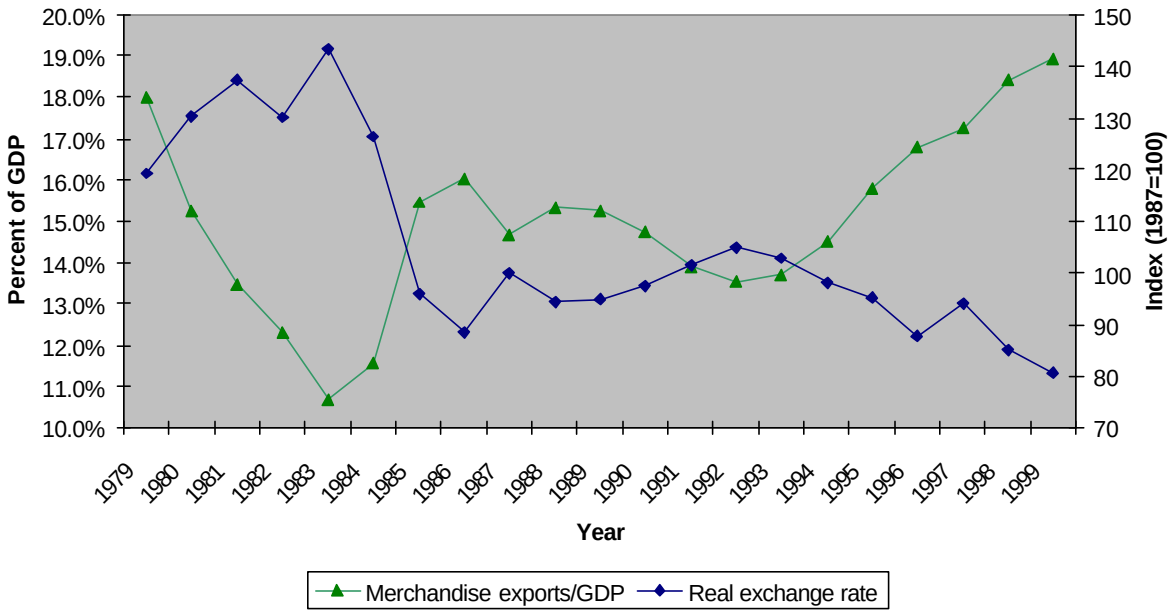
Moving beyond such general trends requires more focused statistical analysis, but in doing so, one is immediately confronted with the difficulty of disentangling the contribution of different factors. Three sets of factors have played a role in determining the volume, value, and

[7] South Africa's total trade (merchandise exports plus imports) to GDP ratio in 1996 was 40 percent, compared to 46 percent for non-oil middle-income countries.

patterns of manufacturing exports and imports in South Africa. First, the trade policy reforms described above work on relative prices, and change the incentive patterns in two ways: they reduce the incentives for import-substituting activity and encourage exports, and they increase the tradable/non-tradable exchange rate, in a sense substituting for a depreciation.

Second, the experience of middle-income countries has shown that a competitive exchange rate and favorable world demand conditions are critical determinants of the export performance of manufactures. In South Africa, there has been debate over how strongly exports respond to exchange rate movements. In addition, it has been questioned whether a nominal depreciation leads to a real depreciation – or whether the gains from depreciation would tend to be dissipated in wage demands, ultimately leading to inflation. Finally, domestic and foreign demand conditions and (especially) the sanctions imposed between 1985 and about 1991 shaped the flows of imports and exports.

Figure 1: Merchandise Exports and the Real Exchange Rate, 1979-99

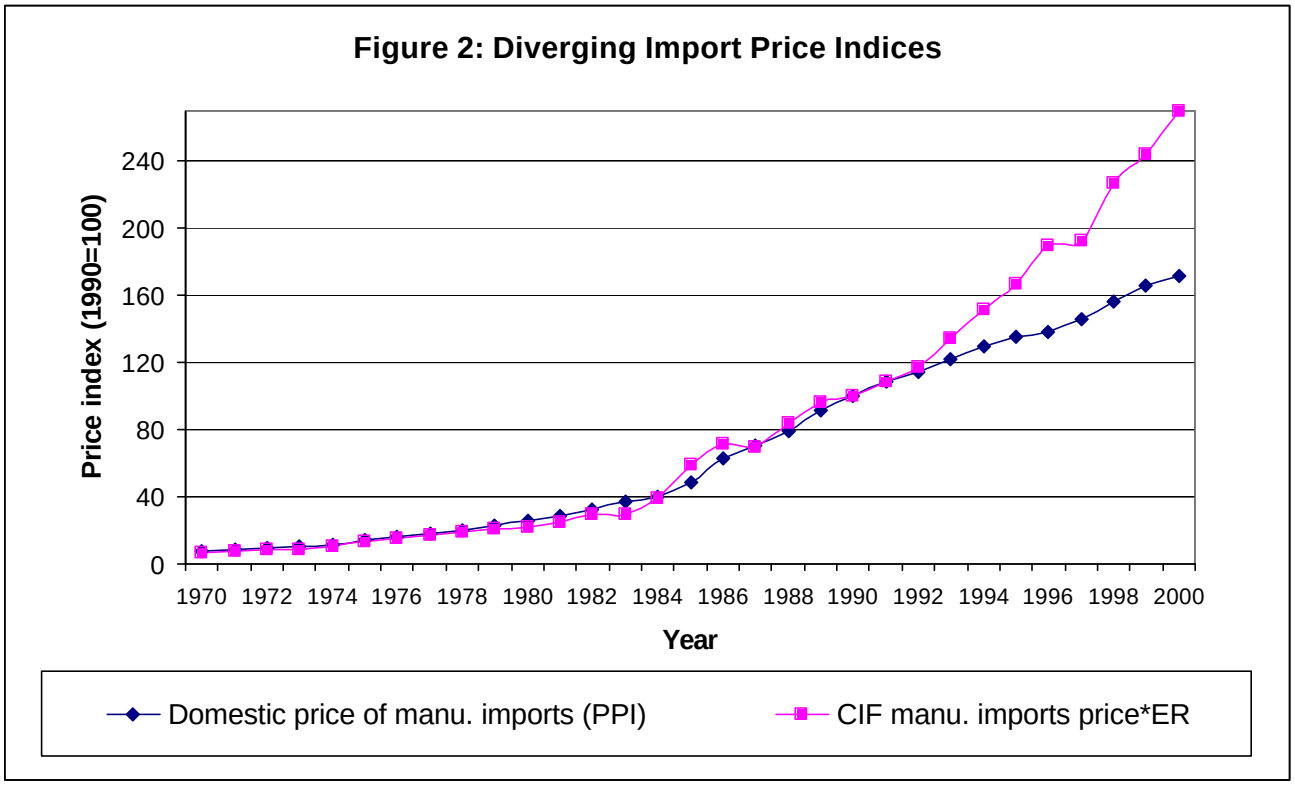


Tsikata (1999a) investigated export demand and supply econometrically to isolate and better define the impact of these different variables. Over the 1970-96 period, these results suggest that exports are highly sensitive to real exchange rates, world demand, and trade policy. The short-run exchange rate elasticity is 0.8, highlighting the importance of the real exchange rate in encouraging exports (see Figure 1 for a portrayal of the relationship between the exchange rate and total merchandise exports over the 1979-99 period). Tsikata found that a 1 percent reduction in tariffs results in an 0.86 percent long-run increase in manufactured exports. In other words, the anti-export bias introduced by protection declines when that protection is lowered. Further, given that South Africa imports a significant portion of its intermediate inputs, a lowering of import tariffs enhances competitiveness by reducing input costs. Foreign demand is also an important determinant of the demand for exports, entering with a long-run elasticity slightly over one. Sanctions had the expected dampening effect for the years 1986-1991, while

there is also a statistically significant post-sanctions export boom captured in a dummy over the 1991-96 period.

South Africa's exports of manufactures have risen both in absolute terms and as a share of gross output since the early 1990s, with growth more than doubling from an average annual real rate of 2.6 percent during 1990-94 period to 6.8 percent during 1994-98. Moreover, this escalation took place across a broad range of individual sectors, with nearly all two-digit sectors performing more strongly during the second period. The fastest growing important sectors—collectively the leaders of the export boom—were chemicals, metals (iron & steel, non-ferrous metals), metal products, and machinery. Motor vehicles and paper were also important contributors, while food, clothing, and footwear suffered absolute declines in exports.

Figure 2: Diverging Import Price Indices



Turning to imports, trade reform also has an impact on the incentives to import, most directly by affecting the prices that importers have to pay. Tariffs and sanctions imposed a significant tax on the price of imports, but trade liberalization in the post-sanctions era has lowered the price of imports significantly, notwithstanding the depreciation in the nominal exchange rate. This is shown in Figure 2, where the expected "landed" Rand cost of manufactured imports (calculated as the US dollar-based international manufactures unit value (MUV) price series times the average nominal Rand/$ exchange rate) is compared to the "actual" Rand cost of imports (using the imported manufactures component of the PPI). For the previous two decades (1970-90), the two price indices moved virtually in tandem. But beginning in 1990, they diverged quite sharply (by more than 25 percent by 1996), so that the "actual" Rand import price (the PPI) grew much more slowly than the "predicted" import price (based on the MUV and exchange rate trends), as tariff reductions and the elimination of sanctions over time

translated into slower import price growth, thereby helping to offset some of the price increases stemming from depreciation of the Rand.

Trade Flows and Structural Change[8]

While assessing the impact of changes in policies and the external environment on trade flows is useful, an alternative perspective emerges by examining the extent to which trade flows have contributed to the process of structural change in South Africa over a prolonged period, and how this contribution compares to international experience from other liberalizing economies.

Edwards (2000a) analyzes the contribution of demand-side factors to the output growth of the South African economy for the 1984-97 period, using the standard input-output growth accounting framework (see Box 4).[9] This input-output methodology is used to decompose the sources of sectoral and aggregate growth into contributions from domestic demand expansion, export expansion, import substitution and changes in intermediate input use. These contributions are then related to the changing trade regime in order to provide insight into the extent to which domestic trade policy has affected the structure of production.

Figure 3 presents the decomposition results for the economy as a whole, expressed as percentage absolute change in total gross output. As is apparent, the relative importance of the factors influencing growth varied considerably across the periods. The results for the growth periods 1984-88 and 1993-97 are fairly typical of results in other decomposition studies, while those for the recessionary period 1988-93 are more volatile. Domestic demand dominates changes in output growth. This is particularly evident between 1988-93 when declining real incomes depressed demand for final goods and accounted for 127 percent of the decline in total gross output. Between 1993-97, improved domestic demand has led the recovery, contributing 61 percent of the increase in total gross output. Much of this is due to growth in demand for manufactures.

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[8] This section is drawn from Edwards (2000a).

[9] Input-output tables for South Africa are available for 1984, 1988, 1993 and 1997. These enabled a structuring of the analysis to coincide with a period of rising protection, 1984-88, and an acceleration of liberalization from 1993. The 1993 and 1997 tables are updated versions of the 1988 table, which may distort the results as they relate to calculating the contribution of technology change. Although Statistics South Africa has recently published supply and use tables for 1993, differing methodologies underlying the construction of these tables limit comparisons with the previous tables. Deflating input-output tables is a data intensive exercise and requires deflators for both domestic and imported output. Appendix A in Edwards (2000a) deals with the approach utilized. Given available data the input-output tables were aggregated up to 29 industrial sectors defined according to the 4th edition Standard Industrial Classification system.

Box 4: Decomposing Changes in Gross Output

A coherent unified approach to dealing with changes in gross output are the input-output decompositions outlined in Chenery (1979) and Chenery, Robinson and Syrquin (1986). The methodology used explains changes in sectoral production in terms of four demand side factors: (1) domestic final demand expansion, (2) export expansion, (3) import substitution, and (4) technological change.

Following Chenery (1979), changes in gross output can be decomposed into final demand, trade and technology effects using the standard input-output identity:

$$X = A^dX + D^d + E \qquad (1)$$

where X is a vector of sectoral gross output, A^dX is a vector of domestically produced intermediate goods, A^d is the matrix of domestic inter-industry purchases per unit of sectoral gross output, vector D^d is the flow of domestic goods (household and government consumption, and capital expenditure) to final domestic demand and E is the vector of exports by sector. Using domestic content ratio matrices for intermediate goods (h) and domestic demand (f) the gross input-output identity can be expressed as

$$X = hAX + fD + E$$

where AX and D are vectors of domestic plus imported intermediate and final demand goods, respectively.

Through manipulations the change in gross output can be represented as

$$\begin{aligned} \Delta X &= R(f\Delta D) && \{row\ 1\} \\ &+ R(\Delta hA)X + R(\Delta fD) + R(\Delta E) && \{row\ 2\} \\ &+ R(h\Delta A)X && \{row\ 3\} \end{aligned} \qquad (2)$$

where $R = (I-hA)^{-1}$ captures the indirect and direct effects of changes in final consumption of domestic goods by government and households (ΔD) (row 1); the effect of international trade through changes in exports (ΔE) and import penetration in the supply of final goods (Δf) and intermediate goods (Δh) (row 2); and changes in input requirements of intermediate goods (ΔA) (row 3).

Through use of the Leontief inverse, both the direct and indirect effects of changes in demand, trade and input-output coefficients are captured. Moreover, by differentiating the impact of import penetration into changes in the domestic coefficient of final demand (Δf) and of intermediate goods (Δh), a more nuanced understanding of how changing import patterns are affecting (or being affected by) production changes is permitted.

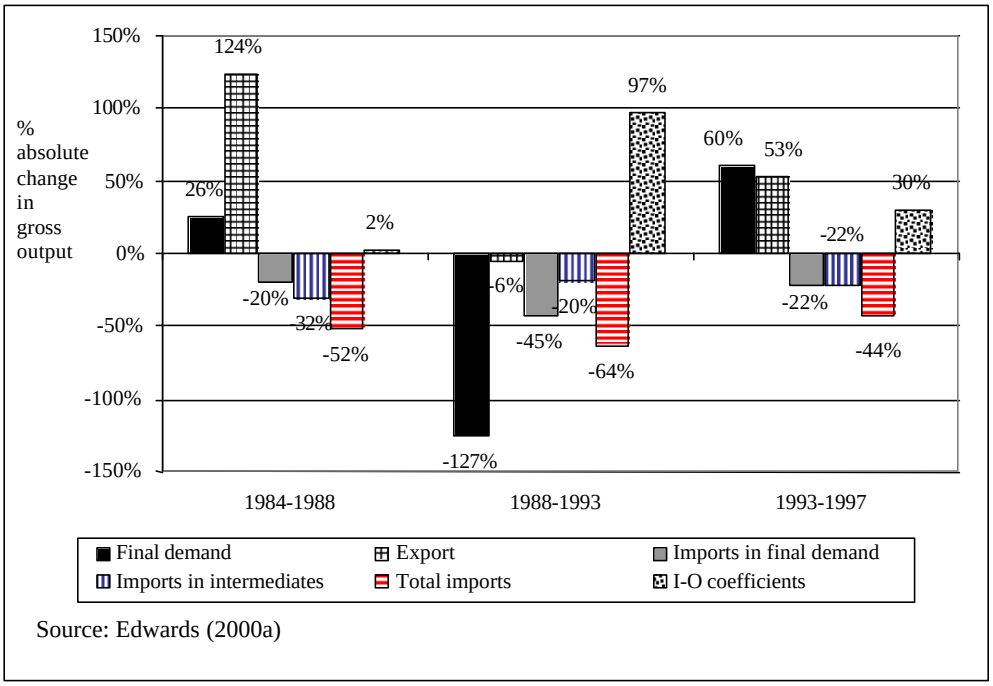
Source: Edwards (2000b).

Export growth also played a significant role and alleviated much of the impact of the depressed domestic demand between 1984-88. With declining domestic demand and increased unused capacity many firms utilized the export market as a "vent for surplus." As a result, exports accounted for 124 percent of the rise in total gross output between 1984-88, with manufactures and services contributing the major share. During the subsequent period an appreciating real exchange rate and the effect of tighter economic sanctions depressed manufacturing export growth.[10] Nevertheless, manufacturing exports continued to rise as final demand remained depressed.[11] The net decline in total exports between 1988-93 is almost entirely due to a decline in mining and service exports. Between 1993-97 export growth recovered, accounting for 54 percent of the rise in total gross output.

[10] As outlined in the previous section, Tsikata (1999a) finds both these variables significant in her econometric estimation of export demand and supply equations.

[11] For the sectoral results, see Edwards (2000a), Table 3.

Figure 3: Aggregate Gross Output Sources of Growth



Source: Edwards (2000a)

On the import side, South African firms were unable to retain domestic market share, with negative import substitution occurring within final demand and intermediate goods during all periods. Import penetration was strongest between 1988-93, accounting for 64 percent of the decline in gross output, while for the other sub-periods it accounted for between -43 and -52 percent of the rise in total gross output.

Although import penetration appears high, this does not imply that trade liberalization has been de-industrializing.[12] First, the negative effect of import penetration was not confined to the latter two periods of diminishing protection, but was also negative during 1984-88 when protection rose. Second, the relatively low import penetration since 1993 (during a period of re-investment in import-intensive machinery & equipment as output growth recovered), suggests that domestic production has remained relatively resilient in the face of trade liberalization.[13] For example, the decline in growth of total gross output through rising import penetration within manufacturing fell from close to 60 percent in 1988-93 to less than 20 percent in 1993-97. In the latter period, much of the negative contribution to gross output growth of imports occurred within the transport, storage and communication sectors. Third, output growth due to exports has kept pace with losses due to import penetration. In contrast to the 1988-93 period, net trade has positively affected growth since 1993, and accounted for 10 percent of the rise in total gross output between 1993-97. This is even more significant when considering that domestic demand recovered and suggests a rise in export orientation brought about through trade liberalization.

[12] Fedderke and Vaze (2000) find that even though sectors that experienced an *increase* in protection had *less* import penetration, the converse is not universally true, so that there are a number of sectors that experienced declines in protection and no subsequent increase in imports.

[13] Net investment in machinery and equipment by the manufacturing sector rose 62 percent between 1993 and 1997.

A further factor influencing growth is technological change which is captured by changes in the input-output coefficients. A rise in input-output coefficients reflects a "deepening" of the economy and its linkages, or explained differently, as a rise in the intensity of intermediate goods used in the production of final goods. From Figure 3, it is evident that some mix of management strategies and technological innovations greatly increased inter-sector purchases during the latter two sub-periods. This shift is consistent with the restructuring of production techniques as firms have increasingly adopted the use IT and micro-electronic equipment in production (Bhorat and Hodge, 1999). This in turn has helped develop a growing service sector that focuses on the sale and maintenance of IT equipment. A contributing factor has been the internal re-organization of many firms and the contracting out of services such as catering, maintenance and cleaning services, as well as certain production activities. Finally, the rapid growth and integration into the economy of finance and other business services has further enhanced inter-sector linkages.

Given the highly variable (including negative) growth of total output during the periods under analysis, comparisons with other international decomposition studies which generally cover periods of sustained economic growth are more difficult. But it is still informative to compare South African performance with the extensive international comparative experience summarized in Chenery, Robinson and Syrquin (1986), particularly as most of the countries presented there shifted from an import substitution to an export promotion trade regime. They are therefore useful comparators regarding the effect of trade liberalization within South Africa.

Table 1: Sources of Growth in Manufacturing Output for Developing Economies
(Percentage change in manufacturing gross output)

Economy	Years	Growth rate	FD	EE	IS	I-O	
Colombia	1953-66	8.3	60.2	6.8	22.2	10.8	IS, Stop go, liberal becoming restrictive
	1966-70	7.4	75.7	4.7	4.2	15.3	IS, restrictive with reform after 1970, IS with EP in late 1960s
Mexico	1950-60	7	71.6	3.1	10.9	14.5	IS
	1960-70	8.6	86.1	4	10.9	-0.9	IS with rising protection
	1970-75	7.2	81.4	7.9	2.4	8.3	IS with rising QRs
Turkey	1953-63	6.4	80.9	2.4	9.1	7.6	IS with rising QRs
	1963-68	9.9	75.1	4.5	10.5	9.9	IS with QRs
	1968-73	9.6	76.2	10.4	-1.6	15	EP, liberalization
Yugoslavia	1962-66	16.6	73.7	24.8	-5	6.5	EP
	1966-72	9.1	72.1	37.6	-22.1	12.4	EP
Japan	1914-35	5.5	70	33.6	4.7	-8.4	EP
	1955-60	12.6	76.2	11.9	-3.3	15.2	IS with falling import controls
	1960-65	10.8	82.4	21.8	-0.4	-3.8	EP, tariff liberalization, export incentives
	1965-70	16.5	74.4	17.5	-1.5	9.6	EP, falling tariffs, becoming liberal trade regime
Korea	1955-63	10.4	57.4	11.5	42.2	-11.2	IS with high QRs
	1963-70	18.9	70	30.2	-0.6	0.4	IS becoming EP, export incentives introduced in late 1960s
	1970-73	23.8	39	61.7	-2.6	1.9	EP, export incentives
Taiwan	1956-61	11.2	34.7	27.5	25.5	12.3	IS, high QRs
	1961-66	16.6	49.1	44.6	1.6	4.7	EP, with increasing export incentives
	1966-71	21.1	34.8	57.1	3.8	4.3	EP moving into liberal
Israel	1958-65	13.6	57	26.5	11.7	4.8	IS, EP, rigid QRs gradually removed
	1965-72	11.3	75.8	50	-36.6	10.8	EP becoming liberal, no QRS
Norway	1953-61	5	65.1	36.5	-16.1	14.4	Liberal, low tariffs, QRs on agricultural goods
	1961-69	5.3	51	58.3	-19.4	10	Liberal, low tariffs, QRs on agricultural goods
South	1984-88	0.6	-184.0	194.6	-67.0	156.3	IS, surcharges, QRs
Africa	1988-93	-2.5	-44.1	32.5	-51.2	-37.2	EP, falling surcharges and QRs
	1984-93	-0.9	-108.0	101.8	-92.7	-1.1	
	1993-97	3.2	82.5	65.7	-44.0	-4.2	EP, trade liberalization, few QRs

Source: Chenery, Robinson, and Syrquin (1986) and Edwards (2000a) for South Africa.
Notes: EP stands for export promotion, IS for import substitution, QRs for quantitative restrictions, FD for final demand expansion, EE for export expansion and I-O for input-output coefficients.

Table 1 reproduces the sources of growth table in Chenery, Robinson and Syrquin (1986) and includes the results for South Africa. Values are presented as the percentage change in total manufacturing gross output. One common feature of manufacturing output growth is the predominance of domestic final demand. In 23 of the 28 cases domestic demand expansion accounted for over 50 percent of the change in manufacturing output. The growth pattern within South Africa is consistent with these results.

A second common feature is an initial large positive output effect of import substitution during early industrialization,[14] followed by both a loss in output growth due to import penetration and a rise in output growth due to exports as the country shifts away from an import substitution regime. South Africa is no exception and displays trade patterns between 1993-97 that are similar to Israel between 1965-72. In both countries, significant shifts towards more open trade regimes occurred during these periods. For most countries that suffered an output decline due to import penetration (that is, a negative contribution from import substitution), the *positive* impact of export expansion was larger, providing evidence to support the thesis that the *net* impact of trade liberalization is positive, and liberalization does not automatically result in the de-industrialization of the economy. This thesis is supported by Tsikata (1999a) who finds no evidence of dramatic cross-the-board declines in domestic market share and no clear pattern between the extent of tariff reduction (or initial tariff level) and the subsequent change in either output or employment.

Understanding Sectoral Trade Patterns[15]

While an international comparison of liberalization outcomes in South Africa suggests that its experience is consistent with that in other countries, there is one aspect of the sectoral pattern of trade expansion that has attracted substantial attention. There is some evidence to suggest that trade liberalization and increased trade with the rest of the world have induced a structural change in production towards capital intensive sectors. This shift is paradoxical as the high unemployment and abundance of unskilled labor in South Africa suggest that the economy should become less capital intensive as it adapts towards the relative labor abundance.

Part of the explanation for this unusual pattern of factor use is historical. One economic legacy of apartheid is a structure of production that is fundamentally inconsistent with the country's factor endowments, most notably in the phenomenon of high capital intensity in the presence of abundant labor. But a half dozen years after the democratic transition (and almost a decade after restructuring began) there is little evidence that this peculiar pattern is being eroded, and indeed, trends in trade and employment suggest the problem may be getting worse.

Tsikata (1999a) examines this question from the vantage point of export performance: while export growth has accelerated and diversified (as described earlier), does the pattern of

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[14] This has also been shown for South Africa, where import substitution accounted for a substantial portion of total manufacturing output growth between 1972-83 (Belli *et al*, 1993).

[15] This section is adapted from Tsikata (1999a).

growth reflect any movement towards trade in products in which South Africa would appear to have a comparative advantage? She classified exports of manufactures according to their dominant factor input: natural resources, unskilled labor, technology, or human capital. Natural resources were further disaggregated into agriculture and mineral resource-intensive.[16]

Table 2: Structure of Manufacturing Exports by Factor Intensity
(Percent of total exports)

	South Africa 1992	**South Africa 1999**	**China 1995**	**Indonesia 1994**	**Korea 1995**
Natural resource intensive	24.0	19.6	25.2	71.0	8.6
Unskilled labor intensive	8.9	6.8	40.5	20.5	36.0
Technology intensive	17.5	15.1	13.1	3.5	26.9
Human capital intensive	49.5	58.5	19.3	4.5	26.5
Total exports	100.0	100.0	100.0	100.0	100.0

The resulting classification of export structure by factor intensity is counter-intuitive, especially when compared to other countries (Table 2).[17] The results show that South Africa has a remarkably low (and declining) share of exports that use unskilled labor, and a relatively high share of exports using more skilled labor. All of the Asian economies (including a much wealthier Korea) have a higher proportion of unskilled labor-intensive exports. These results suggest that South Africa is not taking full advantage of its comparatively abundant labor supply.

These results also help explain why the manufacturing sector has not seen any major job creation despite the rapid growth in exports. The largest export expansion has occurred in relatively (human and physical) capital-intensive sub-sectors, and the unskilled labor-intensive category has performed poorly relative to most of the other sectors.

The longer term structural trends (Figure 4) are revealing. With the exception of the "blips" occurring during 1994-95 (which were perhaps associated with classification changes and the end of sanctions), the compositional changes are fairly steady. The pattern suggests a shift of comparative advantage as industrialization occurs: unskilled labor-intensive manufactures have fallen in relative importance, and both agriculture and mineral resource-intensive exports have also declined in importance. Trade policy has likely played an important role in these outcomes. Agricultural trade policy, for instance, long aimed at protecting and regulating the domestic market, embedding myriad regulations and an anti-export bias that discouraged production for export and steadily increased the importance of agriculture resource-intensive goods. With agricultural trade and market liberalization, these goods face increased competitive pressures responsible now for their declining shares.

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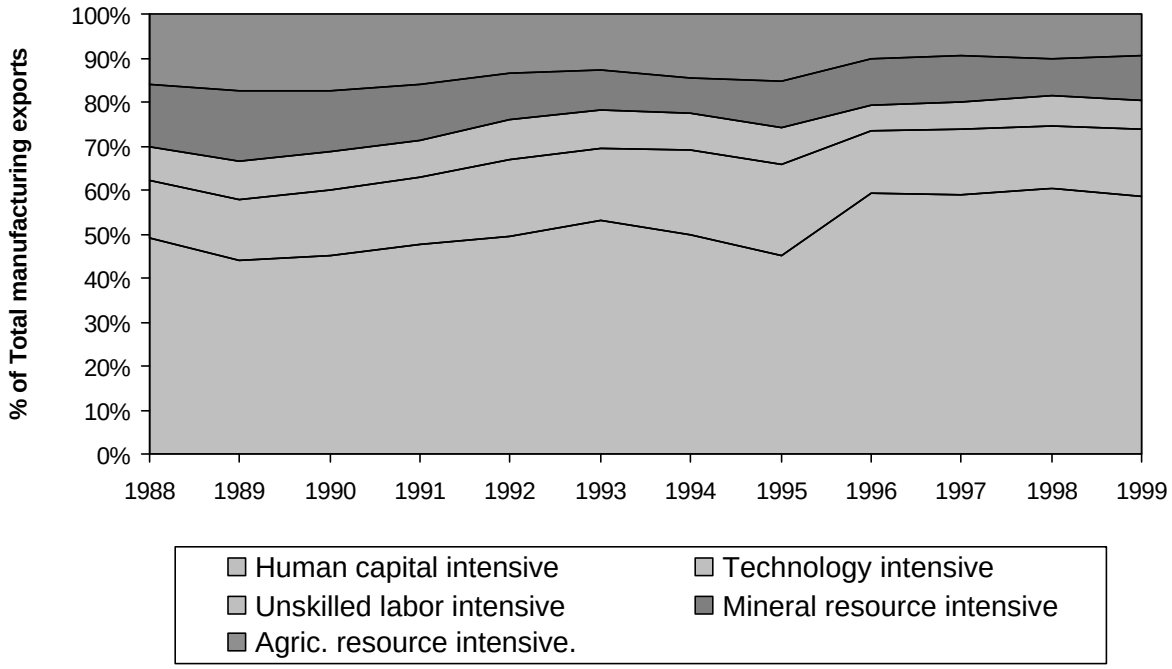
[16] This classification was developed by Krause (1988) and extended by Tyers and Phillips (1984).

[17] These results differ substantially from those in Tsikata (1999a) because of the availability of a more reliable data source of South African exports. Major changes in classification occurred from 1994 onwards, when the share of "unidentified" manufacturing exports (not classified in our figures) was reduced from around 40-50 percent of the total to virtually zero.

Figure 4: Structural Developments in South Africa's Manufacturing Exports, 1988-99



But at another level, the results are counter-intuitive. In an economy with abundant unskilled labor, one would not necessarily anticipate the share of unskilled labor intensive exports to be so low, and to decline steadily during a period when unemployment rates have risen (and the number of formal sector workers has declined in absolute terms). This may in fact reflect the alleged "inflexibility" of South African labor markets, characterized by rising real wages and increasing unemployment among lower skill groups over a longer period.

The performance of the human-capital intensive sectors is also very relevant – after increasing steadily (except for the blip) until around 1996, they have since stagnated as a share of total exports. This could reflect in part the growing shortage of skilled labor, a frequently identified constraint to growth in South Africa. As early as 1993, a survey of 200 manufacturing firms consistently ranked the "shortage of skilled technical and managerial labor" extremely high in an overview of constraints; more recently, a 1999 survey of executives from 325 large firms concluded that skills shortages were one of the most important constraints to higher growth, investment, and job creation.[18] Rapid growth of human-capital sectors could be jeopardized unless a sizable increase in skilled labor overcomes the growing skill shortage.[19]

[18] Levy (1996) and Chandra et al (2000).

[19] While it is possible that immigration of skilled workers from the rest of Africa or elsewhere can make some difference, it is unlikely to be sustainable economically or politically in the long-run, and the answer must lie in more comprehensive efforts to expand the skills base of South Africa's labor force.

Table 3: Occupational Employment by Sector

	Primary sector	Manufacturing	Capital intensive	Intermediate Capital	Labour intensive	Ultra L intensive	Social Overhead	Services	Total
1984									
Skilled	2.1%	9.6%	11.6%	8.0%	11.9%	5.9%	9.3%	15.1%	10.1%
Semi-skilled	22.4%	39.4%	33.5%	35.2%	38.3%	53.8%	58.7%	20.8%	28.5%
Unskilled	12.3%	30.1%	33.9%	31.4%	31.3%	21.7%	13.7%	25.3%	22.0%
Elementary	62.5%	16.2%	15.9%	21.1%	12.9%	15.0%	14.6%	36.8%	37.0%
Total	*1716600*	*1476756*	*349685*	*390896*	*448475*	*287700*	*566300*	*2968300*	*6727956*
1997									
Skilled	6.9%	20.2%	22.3%	18.3%	24.3%	14.3%	12.5%	23.7%	18.2%
Semi-skilled	26.9%	29.5%	30.4%	24.9%	29.0%	34.5%	57.9%	20.4%	26.6%
Unskilled	21.7%	23.6%	22.9%	25.3%	22.4%	24.0%	7.5%	21.8%	21.2%
Elementary	43.2%	21.0%	18.9%	27.4%	17.6%	20.6%	20.3%	31.2%	30.9%
Total	*1392811*	*1364529*	*307335*	*341229*	*422258*	*293707*	*424688*	*2869781*	*6051808*

Source: See Edwards (2000b), Table 4.

Trade and the Skill Composition of Employment[20]

Analysis in the previous section suggests that, in the case of South Africa, some industry has already moved on to the more skill-demanding technology and skill-intensive products in electronics, machinery, and chemicals. An overall rise in skill intensity of production is also shown in Table 3 which presents the changing structure of occupational employment by sector.

The first notable feature comes from comparing the "total" line between 1984 and 1997: aggregate employment dropped by 10 percent during the period. Even more noteworthy is that employment dropped for *every* type of activity except "ultra labor intensive," the smallest.

A closer look at the occupational structure of employment reveals the skill bias associated with the decline in employment.[21] Most of the reductions in employment have been achieved through the shedding of lower skilled labor, while increases in employment have been concentrated among high skilled labor (Table 3).[22] The share of elementary labor in total employment fell from 37 percent in 1984 to 31 percent in 1997, largely as result of reductions in the number of agricultural and mining and quarrying workers. As a share of primary sector employment, elementary employment fell from 63 percent in 1984 to 43 percent in 1997. In contrast, the share of high skilled employment (Professionals, technicians and managers) rose in all sectors, with very strong growth occurring within the manufacturing sector. As a share of total employment, high skilled labor rose from 10 percent to 18 percent between 1984-97. Semi-skilled and unskilled labor have maintained relatively constant shares over time.

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[20] This section is based on Edwards (2000b).

[21] See Bhorat (2000) for an analysis of the changing occupational structure of South African employment over the full 1970-1995 period.

[22] Skilled labor consists of professionals, technicians and managers. Semi-skilled labor consists of clerks, skilled agriculture and craft and related trades workers. Unskilled labor consists of service workers and plant and machine operators. Elementary labor consists of elementary occupations such as mining, construction and agricultural laborers, domestic servants, sweepers, street vendors, etc.

The coincidence of trade liberalization and the rising skill bias of employment has led to concerns that the two may be related (Bell and Cattaneo, 1997). This concern is not unique to South Africa, with a vast literature on developed countries trying to identify whether increased trade with low-wage, low-skilled developing countries has reduced employment and/or the relative wage of low skilled labor. The central theoretical underpinning of this debate is the argument that with the increased mobility of capital and greater diffusion of technology the *relative* abundance of skilled or unskilled labor have become central in determining comparative advantage. As a result, globalization has led to the shift of low-productivity activities to low-wage countries and skill-intensive sectors to high-productivity countries (Wood, 1994), which in turn has negatively affected relative wages and employment of the less skilled in developed countries. From the perspective of developing countries, increased international trade raises demand for less skilled workers and reduces income inequality. While evidence is mixed, the bulk of international research suggests that the impact, if any, of trade on employment is weak. Yet the public perception of the correlation between increased trade and the negative employment impacts from structural changes due to other factors such as domestic demand and technology make it a contentious debate (Lawrence, 1983).

The relevance and impact of the theory for middle-income countries such as South Africa may differ. Through trade liberalization, middle income countries like South Africa expose themselves to competition from low-wage countries such as India and China as well as from highly productive developed countries (Nattrass, 1998). Thus South Africa may find itself being squeezed from both ends of the skills spectrum, resulting in 'defensive innovation' and capital upgrading to compete against imports from developed and developing countries.

Box 5: Decomposing Changes in the Composition of Labor Demand

The gross output decomposition technique described in Box 4 can be extended to permit analysis of changes in gross output on labor demand, using an identity of the form:

$$\Delta N = n\Delta X + \Delta n X \qquad (3)$$

where ΔN is change in total employment and n is a vector of employment coefficients per unit gross output. Changes in total employment are attributable to changes in sector gross outputs at constant labor use ($n\Delta X$) and to changes in labor use per unit output ($\Delta n X$). Greenhalgh, Gregory and Zissimos (1998) extend this analysis and decompose N into a vector of total employment according to occupational category. As result n becomes an occupation by industry matrix denoting the input of each occupation group (i.e. high skill, intermediate skill and low skill) required to produced one unit of gross output in each industry sector.

By substituting equation (2) (from Box 4) into equation (3), the occupational employment impact of structural change, ΔN, can be expressed as:

$$\begin{aligned} \Delta N &= n\mathrm{R}(f\Delta \mathrm{D}) && \{row\ 1\} \\ &+ n\mathrm{R}(\Delta h\mathrm{A})\mathrm{X} + n\mathrm{R}(\Delta f\mathrm{D}) + n\mathrm{R}(\Delta \mathrm{E}) && \{row\ 2\} \\ &+ n\mathrm{R}(h\Delta \mathrm{A})\mathrm{X} + \Delta n\mathrm{X} && \{row\ 3\} \end{aligned} \qquad (4)$$

As with the gross output decomposition explanation, row 1 gives the occupational employment impact attributed to changes in final demand; row 2 the impact attributed to trade flows; and row 3 the impact attributed to "technological change". This approach interprets technological change as changes in labor embodied in intermediate goods purchased by firms as inputs, as well as changes in the labor coefficient of gross output (commonly regarded as a reflection of labor productivity).

Source: Edwards (2000b).

A useful approach to analyzing the impact of trade on the occupational structure of employment is the extension of the gross output decomposition methodology to include changes in labor demand by skill classification. Box 5 describes the methodology used by Edwards (2000b), using the same four input-output tables described earlier, and an "occupational employment by sector" matrix including nine different occupations for each input-output table.

Table 4: Occupational Impact of Economic Growth
(Percent of initial year total employment)

1984-88	**Final Demand**	**Exports**	**Import substitution**	**Net trade**	**Technology**	**Employment change**
Skilled	0.29%	0.33%	-0.12%	0.21%	1.37%	1.87%
Semi-skilled	-0.08%	0.76%	-0.44%	0.32%	-0.65%	-0.41%
Unskilled	0.33%	0.82%	-0.35%	0.47%	0.13%	0.94%
Elementary	3.78%	0.62%	0.36%	0.98%	-6.06%	-1.30%
Total	4.29%	2.60%	-0.57%	2.03%	-6.10%	0.22%
Employment change	288437	174986	-38337	136649	-410414	14673
Total direct effect	3.6%	1.46%	-0.24%	1.22%	-4.61%	
1988-93						
Skilled	-0.49%	-0.09%	-0.22%	-0.31%	2.38%	1.58%
Semi-skilled	-1.33%	-0.46%	-0.25%	-0.72%	-0.41%	-2.46%
Unskilled	-0.95%	-0.25%	-0.40%	-0.65%	0.78%	-0.82%
Elementary	-1.78%	-0.08%	-0.13%	-0.21%	-2.43%	-4.42%
Total	-4.63%	-0.87%	-1.04%	-1.91%	-0.32%	-6.86%
Employment change	-312271	-58950	-70054	-129004	-21303	-462579
Total direct effect	-2.54%	-1.11%	-0.10%	-1.21%	-3.11%	
1993-97						
Skilled	1.39%	0.75%	-0.74%	0.01%	1.70%	3.09%
Semi-skilled	1.91%	1.20%	-1.32%	-0.12%	-3.63%	-1.84%
Unskilled	1.77%	1.23%	-1.13%	0.10%	-5.18%	-3.31%
Elementary	4.97%	2.01%	-1.03%	0.98%	-9.66%	-3.72%
Total	10.23%	5.28%	-4.32%	0.96%	-14.82%	-3.63%
Employment change	642176	331899	-271463	60436	-930853	-228241
Total direct effect	7.20%	3.40%	-2.68%	0.72%	-11.56%	

Source: Edwards (2000b), Table 7.

Table 4 shows the total change in employment by occupation and the primary sources of change derived according to the decomposition methodology (see Box 5). Total employment changes are attributed to changes in final demand, exports, import penetration and technology. The impact of each factor on employment is expressed as a percentage of the level of total employment in the initial year. For comparative purposes the total *direct* effect (excluding the indirect linkages) is also included.

Looking first at the total impact, it is apparent that it is not trade flows, but final demand and technology that are the primary sources of change in employment.[23] From 1984-88, declines in employment were mostly driven by labor-displacing technological change (-6.1 percent). For

[23] This result is consistent with the input-output decomposition studies of Celasun (1983), Lawrence (1993), Gregory and Greenhalgh (1997) and Greenhalgh, Gregory and Zissimos (1998), as well as the input-output decompositions of output growth derived in the World Bank comparative study by Chenery, Robinson and Syrquin (1986).

the rest of the 1980s and early 1990s, negative growth in final demand arising from falling incomes dominated and accounted for two-thirds of the 6.9 percent decline in employment. With the recovery in GDP growth during 1993-97, final demand expansion boosted employment by 10.2 percent. However, this growth was still not sufficient to overcome technological change within all the sectors that reduced employment by 14.8 percent. The net effect was a reduction in employment of 3.6 percent (which accelerated even more rapidly during 1998-99).

While trade effects have not dominated, they have still played a significant role in influencing employment. Exports raised employment by 2.6 percent between 1984-88, and while export-generated employment was low between 1988-93, since then it has grown rapidly, raising total employment by a significant 5.3 percent between 1993-97.[24] While export generated employment appears favorable, the impact of *net* trade on employment is less so. Net trade (export generated employment less employment lost due to rising import penetration) raised employment by 2.0 percent between 1984-88, but by only a modest 1.0 percent between 1993-97. The primary cause is progressively rising losses in employment due to import penetration. Between 1993-97, a period of increasing trade liberalization, the losses in domestic share due to import penetration lowered employment by 4.3 percent.[25]

Although the employment impact of net trade is low, the results do not support the notion that trade liberalization or 'globalization' has resulted in excessive losses in employment. First, although import penetration has risen, the negative employment impact has been offset by rising exports. This is exactly what trade theory predicts will occur: a reduction of import protection reduces the anti-export bias, and enables resources to flow from poorly competitive sectors to sectors with a comparative advantage. Second, a number of unrelated changes in the economy since 1993 may have exaggerated the level of import penetration and thus the loss in employment estimated. For example, the recovery (albeit slow) in investment growth boosts imports relative to demand for domestic products and hence raises import penetration. The partial deregulation of the telecommunications industry and the emergence of the cellular phone industry in 1994 has raised imports of technology-intensive telecommunication equipment, although because these products were not initially domestically produced, their importation will not have displaced domestic production or "penetrated" domestic markets. Third, the low net trade effect for manufacturing is largely due to problems within the ultra-labor intensive sector, where very poor export growth combined with significant import penetration reduced total employment by 0.4 percent between 1993-97 (or manufacturing employment by 1.8 percent). However, poor export performance, declining output and rising import penetration between 1984-88 in sectors such as wearing apparel and leather products, despite rising protection,

[24] While not reported here, Edwards (2000b) also looks at the *sectoral* composition of total employment changes for these same sub-periods. Of particular interest for the 1993-97 period is the continued strong export growth within manufactures despite the recovery in final demand for manufactured products. This is in contrast to the 1984-93 period, where the export market was used to offset declining domestic demand, i.e. the 'vent-for-surplus' argument put forward by Fallon and Pereira de Silva (1994). Also evident are the relatively strong employment impacts of export growth within the capital and labor-intensive sectors, and (on the negative side) the very low levels of employment generated through ultra-labor intensive exports.

[25] The effect of import penetration is in fact more severe than is suggested by the aggregate results. The net trade effect is positive largely as result of the primary sector, which is characterized by strong exports and low import penetration. If the primary sector is excluded, net trade becomes negative. Also of concern is the poor performance of the manufacturing sector which only experienced a 0.01 % rise in employment due to net trade.

suggest that these sectors were already experiencing competitiveness problems. The poor performance of these sectors subsequent to 1993 may reflect inherent competitive problems that have been sharply exposed by declining tariff levels.

Turning to the occupational decomposition in Table 4, the total employment change is characterized by an increasing skill bias against low-skilled labor. Employment of high-skilled labor (professional and managerial occupations) rose in all periods, with very strong growth between 1993-97, where it raised total employment by 3.1 percent. Elementary employment, in contrast, has consistently fallen and has accounted for the bulk of the decline in employment experienced since 1988. Employment of semi-skilled and unskilled labor also performed poorly throughout the period, but the emergence of a skill bias is again evident in the deteriorating performance of the latter sector since 1993.

Once again the dominant source of employment changes is technology. [26] A feature of this technological change is the striking skill bias that reduced elementary employment by 6.1 percent between 1984-88 and a further 9.7 percent between 1993-97. The bulk of this loss has been through direct labor saving, with increased use of intermediates positively contributing towards elementary employment growth prior to 1993. Since 1993 declining use of intermediate goods with high elementary labor contents reinforced the reduction in elementary employment through direct labor saving.[27] The impact of technology on skilled employment is the opposite of that for elementary labor, with significant and positive contributions towards total employment in all sub-periods. This growth arose through both a rise in the skilled labor coefficient of production (perhaps reflecting the rapid rate of IT adoption and the use of skill intensive microelectronic equipment in production) as well as increased use of skilled labor in intermediate products (in part from the expansion of electronic banking and other IT and business services into the economy).

What can we conclude from these occupational employment decompositions? The results do not support the contention that trade liberalization is responsible for the significant losses in employment experienced since the late 1980s. Employment generated through exports has matched that lost due to imports and reflects a restructuring of the South African economy in the face of international competition and domestic policies. Nevertheless, what is worrying is that export-led employment growth has been insufficient to reduce unemployment. The capacity of trade to generate employment has further been reduced by a structural shift in net trade away from ultra-labor intensive sectors towards capital intensive sectors. We also find evidence of a

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[26] Using a different type of decomposition technique, Bhorat (2000) also concludes that the shift away from unskilled to semi-skilled and skilled employment can be attributed primarily to technological change *within* sectors, as rising capital intensity, computerization, and other factors increased the demand for skills (although his analysis assumes that wages and prices are unchanged, which of course was not the case for unskilled labor during this period). Shifting trade patterns also favored those with skills, as changing trade flows caused significant employment growth only for workers with a matric or higher education.

[27] Again, sectoral effects matter: the primary and service sectors account for most of the decline in elementary employment arising from technological change (3.4 and 6.4 percent, respectively). In the former, falling elementary employment arose from reductions in the number of domestic servants within the 'community services' sector, while in the latter, massive retrenchments of agricultural labor are primarily responsible. Uncertainty about future labor legislation and legislation regarding labor tenancy have resulted in farmers shedding large quantities of permanently-employed labor in favor of seasonal and day workers.

significant shift away from low-skilled elementary employment, a shift that the decomposition results attributes almost entirely to technological change. This skill bias is also showing up in manufacturing trade, particularly exports, and suggests that South African firms are gearing up their skills ratios in order to effectively compete in international markets.[28]

To be sure, these decomposition results can only tell us so much about the factors that underlie the skills bias. They rely on a methodology that attributes *all* of the change in the structure of employment to changes in *real demand*, assuming that all relative prices (among different products, between exports and imports, and among different types of labor) *remain unchanged over the entire period.* While this may be an acceptable first approximation for some variables, we know that is wildly inaccurate as far as the relative wage structure among labor types is concerned. During the 1970-99 period, real remuneration for unskilled and semi-skilled workers grew at an *average* annual growth rate of 3.5 percent, as compared to 0.3 percent growth for skilled labor, and a 0.3 percent decline for highly skilled labor (Arndt and Lewis, 2001). Therefore, much of the skill bias and low employment identified here as the result of some unspecified "technological change" was in fact more likely driven by the steadily rising relative price of low-skilled labor that encouraged firms to substitute skilled labor and capital for increasingly costly unskilled labor.

These findings have implications for the South African economy. First, the rise in skill intensity of production highlights the importance of improving the educational qualification of South African labor. World competitiveness comparisons usually place South Africa near the bottom in terms of the availability and qualifications of human resources. Shortages in skilled labor also suggest that immigration policy regarding high skilled labor should perhaps be re-evaluated. Second, further attention must be devoted to dealing with elementary skilled labor that is unemployed. The structural shifts in production identified above suggest that it is becoming increasingly difficult for elementary labor to find employment, which may in part occur as the result of policies that encourage low-skill intensive activities (such as export processing zones, low value added re-export assembly facilities, etc.). Third, the predominance of "technology" as a source of change in employment calls for re-examination of current labor market institutions and practices. International evidence suggest that flexibility of the labor market affects the manner in which external trade shocks translate into employment and wage responses.

[28] Whether increased trade flows have induced the adoption of unskilled labor saving technology, a view put forward by Wood (1994), or whether these changes reflect global skill-biased technological change, is uncertain and highlights an area of much needed research.

3. Assessing the Impact of Regional Trade Agreements for South Africa

The last decade has seen a proliferation of economic integration and regional trading arrangements in both the developed and developing world. While much attention focused on the high profile creation of groupings such as NAFTA and the adoption of the single currency by the EU, regional arrangements sprung up in virtually every part of the world as well. This has been especially true for South Africa, as the international tendency towards regional arrangements has coincided with its emergence from the isolation of the apartheid era, and re-integration into the world economy. Negotiation of a free trade agreement with the EU, discussion over a SADC free trade area, and participation in global forums involved in international debates over (for example) the next round of WTO-sponsored global trade negotiations all underscore the growing outward orientation of the South African economy. In this section, we turn from consideration of the impact of changing trade policies and trade structure on the South African economy, to a broader consideration of how South African involvement in different preferential regional arrangements affects the performance and prospects of South Africa and its SADC partners.

The Context: Why Global Trade Arrangements Matter for Developing Countries

Historically, developing countries have not participated actively in global trade negotiations sponsored by the GATT as few developing countries were GATT members. Instead, the OECD countries set the agenda on and ran the various rounds of GATT negotiations. Interests of the developing countries tended to be considered only after the major countries reached agreement on their issues.

UNCTAD became the institution that dealt with trade issues concerning developing countries. It provided a forum for the group of 77 to articulate their interests in international trade. However, UNCTAD did not (and cannot) provide an institutional framework for a bargaining bloc. While it supported preferential arrangements such as the Lomé Convention and aid flows, it had little influence on bargaining on the trade rules which took place in GATT.

The conclusion of the Uruguay Round Agreement in 1994 and subsequent creation of the World Trade Organization (WTO) provided an opportunity for developing countries to become more involved in trade negotiations. More developing countries are members of the WTO, compared to the GATT. Of the 134 members as of February 1999, 70 percent are developing countries, although there is no formal definition of a "developing country" used by the WTO. The United Nations (UN) classifies 48 countries as "least developed"; of these, 29 are members of the WTO, 6 have applied for membership and 3 are "observers."

As the events at the Seattle WTO meetings confirmed, moving forward into another round of global negotiations is likely to be contentious. For the developing countries that have often been left on the sidelines, it is crucial that they take advantage of the opportunity to push for their own interest. In particular, to be effective participants in the next WTO round, developing countries must have: (1) A capacity to analyze the economic consequences of different WTO scenarios; (2) Technical knowledge of international trade law; (3) An understanding of the political economy of the trading partners involved; (4) Diplomatic and negotiating skills to devise a bargaining strategy.

To pursue their objectives, such as better access to developed country markets for products such as textile and agriculture, developing countries must create alliances with respect to their main export and import commodities and the markets they approach for their exports. Successful negotiating blocs from the Uruguay Round, such as the Cairns group, can provide a model for developing countries. Furthermore, it is in the interest of the OECD countries to encourage such negotiating blocs which would concentrate the interests of several countries. The OECD countries would then deal with a single negotiating position rather than with numerous separate countries, making the negotiations much more efficient (for example, the EU has suggested that it would prefer to negotiate extensions to the current Lomé arrangements with country blocs, such as SADC, rather than individual countries).

Regional Integration and Trade Agreements: The SADC Context

In parallel with the rest of the world, there has recently been a proliferation of preferential trade and/or integration initiatives in Southern Africa. Negotiation of a European Union (EU)-South Africa free trade agreement (FTA) was successfully completed in early 1999, but only after more than two years of difficult and contentious discussions. While the agreement should yield real benefits to the South African economy, they will be slow to emerge: the phasing in of South African access to EU markets will occur over ten years, while the reduction of South African tariffs on EU products will come over twelve years. Moreover, the EU agreement has placed strains on initiatives now underway to form a free trade area within the Southern African Development Community (SADC), of which South Africa is a prominent member,[29] and raised questions regarding the continuing viability of the South African Customs Union (SACU) arrangement by which customs revenues are shared among South Africa and its smaller neighbors (Botswana, Lesotho, Namibia, and Swaziland).

But these are not the only initiatives. As Tsikata (1999b) points out, there are a multitude of other schemes under discussion, and the overlapping membership of many countries in Southern Africa raises questions over the consistency or even feasibility of satisfying the conflicting obligations, and raised tensions among the various institutions and their members (see Box 6). For example, in August 1996 SADC agreed to negotiate a trade protocol aimed at achieving free trade among its members; negotiations were completed (with some outstanding issues) and the formal process began in September 2000, when ten SADC members (all but Zambia, DR Congo, Angola, and Seychelles) signed an agreement that would liberalize 85 percent of intra-SADC trade by 2008. Both the CBI and COMESA also plan trade liberalization-cum-harmonization, with COMESA launching a free trade area among 9 of its 20 members in November 2000. The COMESA mandate would appear to have considerable overlap with the trade liberalization aspects of the SADC agenda. Indeed, while South Africa was invited to join COMESA in May 1994, it refused, leading a number of other countries to delay ratification of

[29] SADC was formed in 1992, as a successor to the Southern African Development Coordination Conference (SADCC) which had an anti-apartheid agenda that was increasingly outdated as South Africa emerged from its isolation. South Africa joined as a full SADC member in 1994. SADC includes Angola, Botswana, Democratic Republic of Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe. SADC takes a "sector coordination" approach to its agenda, with different member countries responsible for coordinating sector programs, based where possible on the relative strengths of each economy.

Box 6: Economic Cooperation in Southern Africa: An Alphabet Soup

At least four multilateral economic cooperation schemes were operating in Southern Africa as of 1999: the Southern Africa Customs Union (SACU), Southern African Development Community (SADC), the Common Market for Eastern and Southern Africa (COMESA) and the Cross-Border Initiative (CBI). In addition, there are a number of bilateral arrangements between countries in the sub-region. Below are described the main schemes (except for SADC, which is discussed in the text), highlighting the overlapping structure and objectives.

Southern African Customs Union (SACU). SACU was originally formed in 1910 with South Africa and the so-called BLS states (Botswana, Lesotho and Swaziland) and re-negotiated in 1969. Namibia joined formally in 1990 when it gained political independence, although previously, as an administered territory of South Africa, it was always a *de facto* member of the union. SACU is the oldest and most integrated grouping in the region. In addition to having a common external tariff, with the exception of Botswana, all the countries belong to a common monetary area. The economies are very closely linked, with the goods and labor markets relatively well integrated. Recently, the BNLS countries have been renegotiating the terms of the formula and the decision-making process for setting both trade policy and the distribution of collected import duties since 1994.

Common Market for Eastern and Southern Africa (COMESA)/Preferential Trade Area for Eastern and Southern Africa (PTA). PTA was founded in December 1981 under the auspices of the UN Economic Commission for Africa. By the early 1990s its membership had expanded significantly: Angola, Burundi, Comoros, Djibouti, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, Sudan, Swaziland, Uganda, Tanzania, Zambia and Zimbabwe. PTA's progress towards the elimination of import duties and non-tariff barriers amongst its members was exceedingly slow, leading to the establishment of COMESA in December 1994. COMESA added Madagascar and Mauritius to the PTA membership. In essence, all SADC members except Botswana and South Africa were initially also COMESA members. Subsequently, Lesotho, Mozambique, and Tanzania have withdrawn from COMESA, and SADC members may soon follow. COMESA's original objective was to establish a common market by 2000 and ultimately an economic union with cooperation in monetary and financial matters.

Cross-Border Initiative (CBI). The CBI emerged from the Maastricht Conference on Africa in 1993. It is sponsored by the African Development Bank, the European Union, the IMF and the World Bank as a mechanism to encourage continued trade liberalization, increased cross-border trade, investment and payments in Eastern and Southern Africa and the Indian Ocean. Specifically, countries are expected to converge towards a moderate external tariff and to reduce internal tariffs and non-tariff barriers significantly. Fourteen countries have thus far endorsed the Initiative, but a number of key countries have not yet ratified it. The original deadline for removing intra-CBI NTBs and tariffs (1996) has already passed. The countries are: Burundi, Comoros, Kenya, Madagascar, Malawi, Mauritius, Namibia, Rwanda, Seychelles, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe. The CBI's position is weakened by the fact that the biggest economy in the region (South Africa) is not part of the Initiative.

Bilateral Trade Arrangements. Several bilateral trading arrangements exist between South Africa and other SADC countries. Arrangements exist with Zimbabwe (confined to clothing and textiles), Malawi and Mozambique. Three free trade arrangements exist between Zimbabwe on the one hand and Botswana, Malawi and Namibia respectively.

Source: Adapted from Tsikata (1999b), Box 1.

the COMESA trade agenda and reducing its credibility. A September 1995 SADC meeting determined that dual membership was incompatible and that SADC states would have to resign from COMESA, a decision which contributed to the recent decision by Tanzania to withdraw from COMESA, and pressures in Malawi to follow suit. To date, the practical issue of how several countries (Mauritius, Malawi, and Zimbabwe, with Zambia soon to follow) can simultaneously implement a free trade area with both SADC and COMESA partners remains unresolved.

Table 5: Basic Indicators of SADC Economies, 1999

Country	Population (millions)	Area (000 sq km[1)]	GDP at market prices (current US$, m)	GNP per capita, PPP (current US$)	GNP per capita, Atlas (current US$)	Average[5] annual real GDP growth, % p.a. 1980-89	1990-94	1995-99
Angola	12.4	1247	5861	632	220	2.6[2]	-5.9	6.8
Botswana	1.6	567	5996	6032	3240	10.6	4.6	4.8
Congo, Dem. Rep.	49.8	2267	7752	..	130	1.8	-8.6	0.9
Lesotho	2.1	30	874	2058	550	3.6	4.4	3.9
Malawi	10.8	94	1820	581	190	1.7	1.0	7.3
Mauritius	1.2	2	4233	8652	3590	4.2	5.4	5.2
Mozambique	17.3	784	4169	797	230	0.1[2]	2.6	8.7
Namibia	1.7	823	3075	5369	1890	1.1[2]	4.3	2.8
Seychelles	0.1	0.45	545	10381	6540	2.1	4.8	2.4
South Africa	42.1	1221	131127	8318	3160	2.2	0.2	2.3
Swaziland	1.0	17	1223	4200	1360	6.7	3.8	2.9
Tanzania	32.9	884	8777	478	240	3.9[3]	2.7	3.7
Zambia	9.9	743	3325	686	320	1.4	0.2	1.3
Zimbabwe	11.9	387	5716	2470	520	5.1	2.1	3.1
SADC, total	**194.7**	**9067**	**184494**	**2406**[4]	**931**[4]	**3.4**	**1.5**	**4.0**
South Africa share of SADC	***21.6%***	***13.5%***	***71.1%***					

[1] 1997; [2] 1981-1989; [3] 1989; [4] Weighted by population; [5] Geometric average
Source: World Development Indicators and staff estimates.

Features of the SADC Economies[30]

Together, the fourteen member countries of SADC cover 9.1 million square kilometers (about the size of the U.S. or China or slightly more than Brazil), have a population of 195 million, and have a combined GDP of US$184 billion (see Table 5). But the SADC countries vary considerably in population and land area: the Democratic Republic of Congo is the largest country, with 50 million people spread over 2.3 million square kilometers, while the island nation of Seychelles covers only 450 square kilometers and has a population of 75,000. There are large economic disparities as well. The SADC average per capita income is US$931, but this covers a range from US$130 in the Democratic Republic of Congo to US$6,540 in Seychelles (a ratio of 1:50). Even with more accurate purchasing power parity GNP per capita[31] figures, the range (excluding DR Congo) is still large: US$478 to US$10,381 (a ratio of 1:22). And among the richer SADC countries in the group (Mauritius, South Africa, Namibia and Botswana), the per capita income numbers are also deceptive, as enormous inequality prevails *within* these countries.

[30] This section draws on Tsikata (1999b).

[31] PPP estimates of GNP per capita convert GNP to US dollars using purchasing power parity (PPP) instead of exchange rates as conversion factors. Because relative prices of goods and services not traded on international markets tend to vary significantly across countries, the relative purchasing power of currencies and welfare also differ significantly as measured by GNP per capita. Using the PPP conversion corrects for these differences and provides a better comparison of average income or consumption between countries. The *World Development Report* technical notes lay out the methodology.

Economically, South Africa dominates. It accounts for 71 percent of SADC GDP and about 22 percent of its population (Table 5). South Africa's importance also manifests itself in other ways – particularly in trade and transport. The economic structures of the SADC countries also reflect great heterogeneity. Countries with relatively larger endowments of skilled and semi-skilled labor (such as South Africa, Zambia and Zimbabwe) which followed import-substituting industrialization tend to have the largest manufacturing sectors. They also have negligible agricultural sectors, accounting for less than 10 percent of GDP in each country. Mining accounts for a high proportion of GDP in Angola, Botswana and Namibia. Malawi, Mozambique and Tanzania remain highly agricultural, which represents 33, 42 and 58 percent respectively of their GDP. Services accounts for more than half of GDP in 6 out of 11 countries for which statistics are available. Malawi and Zimbabwe are highly dependent on South African (and increasingly Mozambican) ports, and many countries in the sub-region depend on South Africa's railways, highways, airports, and other transit transport facilities to a significant degree.

The distribution of gains and losses from preferential trade arrangements between countries depends on the existing and expected trade patterns among the participants. During the 1990s, the absolute volume of intra-SADC trade has grown, and the share of intra-SADC trade in total trade has increased as well. This expansion is due in part to a post-apartheid "boom" effect and increased trade liberalization, as was discussed in the earlier section on determinants of South African trade flows. However, despite the trend, only a small proportion of exports from SADC countries are sold within the bloc (13 percent, compared to 18 percent initially in MERCOSUR, and 33 percent for the European Commission at its inception). Notwithstanding the serious difficulties with intra-regional African trade statistics, South Africa has also apparently replaced a major portion of imports that OECD countries previously supplied to SADC: in 1985, SADC imports from other SADC countries represented 3.1 percent of total imports, while by 1996, this had risen to 6.8 percent.[32]

The export structures of SADC countries have mixed implications for a RTA. On the one hand, their mostly concentrated export structure (and in the case of the poorer ones, similar structures), increases the possibility that the group's imports will have to be met by third countries. On the other hand, because of the economic diversity of SADC, potential complementarity in trade is higher for the group than other African regional groupings. SADC may be able to exploit the comparative advantage of its different economies to generate a welfare-improving gain from a free trade area. In particular, relatively more industrialized South Africa (and to a lesser extent, Zimbabwe and Mauritius) may be able to meet a sizeable portion of the import needs of SADC countries. However, this also raises concerns, as the dominance of South Africa is already perceived by some SADC members as indirectly retarding industrial growth in their countries. Whether a RTA results in overall gains will depend on whether it is complemented by a continued lowering of external tariffs by members to reduce the risk of trade diversion.

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[32] The analysis in this section is based on UN COMTRADE data, which has some major weaknesses: a number of SADC countries (notably Zambia and Tanzania) have not reported in over a decade; during the sanctions years from 1986-1992 South Africa did not report, rendering the aggregate data for SADC virtually meaningless for those years. However, for the five countries that do have complete information post-1992 (Malawi, Mauritius, Mozambique, South Africa and Zimbabwe), we can derive a clear picture and relevant insights.

Tariff Harmonization and Fiscal Implications of the SADC FTA[33]

As the earlier discussions suggest, there is no shortage of proposed preferential trade and/or integration proposals within Southern Africa, or throughout the rest of the world either. But in many instances, these schemes exhibit tremendous difficulty in moving past the initial announcements of intent that often emerge from a summit among heads of state, to the actual design and implementation of a practical and implementable agreement. This in turn reflects the reality that there are numerous difficult issues to be addressed in designing such a scheme.

Some of the most critical issues revolve around the need for agreement over tariff harmonization, both internally (within the preferential group) and externally. *Internally,* while "free trade" is often the preferred option, it is not the only one (particularly given the fiscal considerations discussed below), and even if "free trade" is chosen, there are usually contentious issues regarding transition (how long a phase in period? same phasing for all participants?) and coverage (what "sensitive" sectors/industries should be excluded? what timetable should be adopted for including these sectors?). *Externally,* the basic choice is whether the group will choose to adopt a common external tariff schedule, thereby simplifying customs administration (since it then does not matter what country the goods are first imported into) but requiring agreement on what the common schedule should be, or to retain different external national tariff schedules, which avoids the need to agree on a common schedule, but requires instead definition and effective regulation of complex "rules of origin" protocols to avoid arbitrage and administrative smuggling.

Further complicating the difficult decisions over internal and external harmonization are the fiscal effects associated with elimination (or substantial reduction) of tariffs within the preferential trade area, and the possible adoption of a different (common) tariff for goods imported from outside the region. In developing countries for which trade-related taxes are a major source of government revenue, the fiscal aftereffects of major tariff reforms are potentially quite large, and may often dominate the negotiation process, requiring either special treatments and exemptions, or alternatively the consideration of explicit compensation formula for more equitably sharing the fiscal burden (in the case of tariff reductions) or benefits (in the case of revenue from a common external tariff).

One pre-requisite to carrying out this type of analysis is a database that includes the tariff schedules for each country, at a comparable level of (dis)aggregation and for the same period. As part of earlier work on trade reform in African economies, the World Bank has compiled and processed tariff data from a number of countries, including data on 10 SADC members – SACU (comprised of South Africa and BLNS), Malawi, Mauritius, Tanzania, Zambia, and Zimbabwe (see Box 7).

Using this data, we evaluate the possible impact of the proposed SADC free trade area from the vantage point of tariff harmonization and the fiscal effects. We begin by looking at the pragmatic implications of tariff harmonization within the SADC region by asking the question: how different are the tariff schedules among member countries, and how much variation is there in the role of tariff revenues within the revenue structure of each country?

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[33] This section is based on Tsikata (1999b).

Box 7: Comparative SADC Tariff Data

The data used in the study were collected directly from the Customs Authorities in Malawi, Mauritius, SACU, Tanzania, Zambia and Zimbabwe. It was not possible to get adequate trade data from Angola, the Republic of Congo or Mozambique, nor was it possible to get accurate information on trade between the members of SACU (South Africa, Namibia, Lesotho, Botswana and Swaziland). These countries are treated as a block that has a common external regime.

The data are administrative data that consist of individual import and export transactions rather than aggregates. Using this level of detail is the only way to capture the full complexity of the trade regime, particularly the nature of the exemptions and the revenue losses due to exemptions and other special trade arrangements. However, use of raw administrative data involves certain processing difficulties. Apart from the size of the files, which range up to several gigabytes in the case of SACU, coding and transcription errors have to be filtered out or corrected. In addition, there are certain reporting differences between countries. For instance, South Africa records imports on FOB basis and charges *ad valorem* tariffs on a FOB basis, whereas the other countries follow the standard international practice of using a CIF base for import tariffs. Another set of difficulties stems from the fact that tariff rates are changed, often frequently. In SACU, this is a particularly awkward problem because there are literally hundreds of rate changes every year. The idea of a tariff "regime" then becomes a bit of a moving target, and the revenue loss attributable to (say) exemptions may depends on the actual day of import.

Another problem is that the Harmonized System (HS) codes were revised in 1992 and again in 1996. A number of countries made the switch in an incomplete manner. Frequently 1992 HS codes persist in the official 1996 tariff codes, although the countries are supposed to have adopted the new system. In addition, sometimes both 1992 and 1996 codes are recorded for the same type of good in the transactions data, probably because some customs officials or particular customs entry posts lag the official changeover. These problems complicate the assessment of the divergence of classification systems and rates across countries, and makes it difficult to assess the impact of exemptions on revenue. There are numerous transactions which have an HS code that does not appear in the official tariff schedule leaving open the question of what tariff would have been charged had the import not been exempt. Our general approach has been to convert 1992 codes, when they occur, to their 1996 equivalents and to make the divergence and revenue loss calculations on the basis of the adjusted 1996 set. The recorded HS codes that do not match either the 1992 or the 1996 systems are probably coding errors for a few transactions, and these transactions (less than 0.5 percent of the total in most countries) have been suppressed.

Source: Tsikata (1999b), Annex 1 for a full description of the data and analytic tools.

One straightforward comparison of the different tariff structures is to look at the distribution of tariff schedule entries (or "lines") across different rate bands. Using the comparative data on SADC tariff structures (Box 7), Table 6 provides a comparison of the available schedules. Due to trade liberalization, the level and dispersion of tariffs has fallen significantly in almost all SADC countries. The changes are particularly notable in South Africa and Zambia; the two exceptions to the liberalizing trend are Angola and the Democratic Republic of Congo (for which we have no complete data).

Despite the progress, significant disparity still exists among SADC members. Based on trade-weighted averages, there are two country groups: the "reformers" (including Zambia, Mozambique, Malawi and SACU) that have significantly reformed, and the "laggards" (Mauritius, Tanzania and Zimbabwe) still enjoying relatively high protection, two to three times larger than the first group. Zambia has the most liberal regime of our sample: it has consolidated its rate structure, resulting in very little dispersion and discretion in tariffs. By contrast, South Africa, while having low trade-weighted and simple mean tariffs, still has a large number of rate bands, split positions and resulting high dispersion that renders the system non-transparent. The dispersion and discretion in South Africa's regime may help explain why there is a widespread perception that it has not liberalized its trade regime fall in the second group.

Table 6: Structure and Distribution of MFN Trade-Weighted Tariffs in SADC, 1996

(per cent of tariff lines in range)

Tariff Range	Malawi	Mauritius	SACU	Tanzania	Zambia	Zimbabwe
0 - 10	61.6	..	40.3	22.3	26.1	6.9
11 – 20	0.3	..	17.1	19.6	33.5	33.6
21 – 30	4.5	..	7.9	38.0	28.3	26.2
31 – 50	33.5	..	2.1	20.1	11.8	13.1
> 50	0.0	..	0.8	0.0	0.0	0.5
Specific duties	0.0	0.0	27.8	0.1	0.2	5.9
Number of bands	10	7	50	9	8	28
Memo item: *Mean Nominal Tariff*						
Unweighted	22.0	31.1	9.1	24.2	7.2	26.9
Weighted	13.8	22.4	6.9	21.4	10.8	24.7
Dispersion 1 (SD)	14.1	27.2	12.1	12.3	9.5	11.5
Dispersion 2 (CV)	0.69	0.87	1.34	0.47	0.9	0.54
Collection Ratio	10.3	14.2	4.6	12.1	8.0	11.1

Source: Staff calculations based on country customs data.
Notes: Angola: Mean nominal unweighted tariff 17.5%, trade-weighted mean is 24.2%, collection ratio is 6.3%.

Table 7: Trade-weighted Average Tariffs and Collection Ratios by Sector

(Percent)

	Malawi	Mauritius	SACU	Tanzania	Zambia	Zimbabwe
All	13.8	22.4	6.9	21.4	10.8	24.7
	10.3	14.2	4.6	12.1	8.0	11.1
Consumer Goods, Primary	4.8	4.1	1.1	29.3	11.1	4.6
	4.3	3.9	0.7	20.2	10.7	2.0
Consumer Goods, Manufactured	18.3	18.7	14.8	21.8	15.8	46.1
	13.6	11.6	11.1	14.9	13.0	13.2
Intermediate Goods, Primary	4.1	10.0	1.1	23.9	5.2	9.2
	3.8	8.0	0.2	8.3	3.3	3.6
Intermed. Goods, Manufactured	11.4	24.7	6.2	24.0	10.0	17.3
	8.2	14.3	4.6	14.8	8.1	9.4
Capital Goods	13.4	17.6	2.9	17.9	10.2	20.2
	7.6	9.6	2.6	6.4	5.4	5.9
Memo item:						
Textiles and garments	31.1	8.5	26.2	31.0	23.0	30.7
	27.6	5.4	16.3	24.8	18.1	15.6
Motor vehicles	23.7	77.3	60.7	20.3	24.4	84.8
	14.4	37.1	20.1	4.5	13.1	22.0
Petroleum and power	17.9	32.8	0.04	6.6	7.5	31.8
	17.9	32.5	0.04	4.8	7.3	31.1
Other	11.4	1.8	38.4	5.9	16.5	12.9
	9.4	0.4	1.0	1.1	15.4	3.3

Source: Tsikata (1999b), Table 15.
Notes: The first number in each row is the trade-weighted mean tariff. The second number (below it) is the collection ratio.

Table 7 presents the trade-weighted average tariffs and the collection ratios (defined as actual collections/import value) by economic sector for each of the countries. The difference between the first and second entries represents the importance of exemptions in each sector: for example, for Malawi, the average economywide weighted tariff is 13.8 percent, while the average collection ratio is only 10.3 percent, suggesting that around one-quarter of the potential tariff revenues are lost to exemptions. Even at this aggregate level, these results show how much "distance" or "dispersion" there is among tariff schedules, in both the nominal structures as well as the collection ratios. The last few lines in the table illustrate some of the differences in treatment of key "sensitive" sectors: textiles, motor vehicles, petroleum. For example, average motor vehicle tariffs range from 20-85 percent; while collection ratios range from 5-37 percent.

Table 8: Trade and Duty Flows within SADC
(Percent)

	SADC imports / total imports	Imports from South Africa / SADC imports	Import duty from SADC / total import duties	Import duty from South Africa / SADC duties (share)	Import duties / total revenues
Malawi	47.4	67.2	37.1	34.1 (91.9)	16.3
Mauritius	17.2	92.8	16.9	16.6 (98.2)	28.7
Mozambique	39.8	..	..	..	
South Africa	2.5	7.9[a/]	0.7	--	3.6
Tanzania	7.7	70.8	8.6	5.9 (68.6)	26.1
Zambia	48.0	74.8	48.0	39.6 (82.5)	11.7
Zimbabwe	48.7	87.0	55.5	46.9 (84.5)	17.8

Source: Tsikata (1999b).

Another comparative feature that will shape the impact of harmonization is the relative importance of intra-SADC trade tax revenues to the fiscal story, and from which countries these revenues are obtained. Table 8 summarizes these data for our SADC sample. Import duties are a widely varying proportion of total revenues (last column), ranging from only 3.6 percent in South Africa to over 25 percent in Mauritius and Tanzania. Obviously, arrangements that erode the duties collected in these countries will be of greater concern than in South Africa; it is interesting, therefore, that these two countries have the lowest dependence on SADC-based imports (and duties) of any country (except South Africa). Malawi, Zambia, and Zimbabwe, on the other hand, obtain around half of their imports from other SADC countries, and these imports generate from 37 to 55 percent of total duty revenues.

We can use this data base to analyze the fiscal implications of different hypothetical tariff harmonization paths, using a partial equilibrium trade projections model. The methodology is simple: the potential revenue loss for any SADC member can be calculated as the sum of two effects. First, the (direct) revenue loss as a zero duty is applied to imports from countries in the free trade area; second, the (indirect) revenue loss arising from displacement of third country imports by countries in the free trade area.[34]

[34] See Yeats (1998) for a more complete explanation of this class of model.

Box 8: Features of Tariff Harmonization Scenarios

FTA: Free-Trade Area. We assume that SADC members remove all import duties among themselves, but retain their individual commercial policies i.e. all national tariffs apply to other (non-SADC) members. The pattern of exemptions is assumed to remain the same.

FTA10: Modified Free Trade Area. A maximum tariff of 10% is imposed on all applied intra-SADC tariffs exceeding 10%. Applied intra-SADC tariffs less than 10% are left unchanged. Countries maintain existing national tariffs on non-SADC members. Exemptions are unchanged.

Zambia HET: The "Zambia" scenario. All member countries have their existing tariffs replaced by a harmonized external tariff (HET) regime similar to Zambia's current simple and low tariff regime. We assume that intra-SADC trade is also taxed according to the same regime. Exemptions are unchanged.

Box 8 describes the scenarios undertaken with the projections model. They include a "pure" FTA, a "modified" FTA in which intra-SADC tariffs are compressed (to a maximum of 10 percent), and a "Zambia" scenario, in which all countries adopt the Zambia tariff structure. Table 9 summarizes the fiscal implications of the different scenarios for each country.

Table 9: Revenue Implications of Tariff Harmonization Scenarios

	Percent change in customs revenues			Percent change in total revenues		
Country	FTA	FTA10	Zambia HET	FTA	FTA10	Zambia HET
Malawi	-43.1	-14.7	17.7	-7.0	-2.4	2.9
Mauritius	-18.9	-12.2	-21.9	-5.4	-3.5	-6.3
South Africa	-2.9	-1.5	71.3	-0.1	-0.1	2.6
Tanzania	-8.9	-4.7	-34.6	-2.3	-1.2	-9.0
Zambia	-53.5	-20.4	-0.3	-6.2	-2.4	0.0
Zimbabwe	-61.8	-34.2	-34.0	-11.0	-6.1	-6.1

Source: Tsikata (1999b), Tables 22-23.

Looking first at the full FTA scenario ("FTA" columns), given the high reliance on intra-SADC imports by some countries, the move to a free trade area is extremely costly in a fiscal sense. Countries suffering the biggest duty losses are those which import the most from SADC and have high tariffs on other SADC countries (see Table 8), especially namely Zimbabwe (-62 percent, Zambia (-54 percent) and Malawi (-43 percent). On the other hand, South Africa, which depends relatively little on SADC as a source of imports (only 2.5 percent of its imports come from SADC) faces very small fiscal losses under the free trade scenario, with only a -0.1 percent decline in total revenues, and Tanzania experiences a relatively small decline of 2.3 percent in its overall tax revenues. By contrast, Zambia, Mauritius and Malawi experience overall tax revenue declines of about 5, 6 and 7 respectively, while the duty decline translates into an 11 percent loss in overall tax revenue for Zimbabwe.

The modified FTA scenario ("FTA10") portrays one possible response to the large and probably unacceptable revenue losses associated with the full FTA. In this scenario, we assume that the intra-SADC tariff structures are "flattened", but not eliminated: any intra-SADC tariff rate above 10 percent is reduced to 10 percent, while all tariffs lower are left unchanged. This scenario results in substantially lower fiscal losses for all countries. In particular, Zimbabwe's

duty revenue losses fall from 62 to 34 percent, while Zambia's losses are more than halved from 54 to 20 percent. The overall declines in government tax revenue are correspondingly lower, and may be more palatable. Zimbabwe still suffers the most, as its overall tax revenue falls by 6.1 percent because of the modified free trade arrangement. It should be noted that any "modified" scenario that moves away from the administrative simplicity of "no-tariff" flows of goods across SADC internal borders will eliminate some of the efficiency gains possible under a full FTA.

Finally, the Zambian HET scenario ("Zambia HET") looks at the impact of SADC adopting a harmonized external tariff (applied to each HS chapter) governing all trade flows: trade with SADC, with COMESA, and with other external partners. The Zambian structure was chosen as the standard because (as noted earlier), it represents the most liberalized and simplified schedule among the SADC members, with low average tariffs, few bands, and minimal dispersion. It represents a hypothetical situation in which SADC members chose to focus more on liberalization (along Zambian lines) and harmonization (to eliminate concerns over rules of origin). The fiscal implications are strikingly different from the free trade scenario. In the "Zambia HET" scenario, Mauritius and Tanzania (which experienced relatively small revenue losses under the free trade scenario) end up with larger revenue losses, reflecting the fact that for them, this scenario significantly lowers their tariffs on a large portion of their trade. There is no revenue loss for Zambia under these circumstances, and Zimbabwe revenue losses turn out to be unchanged compared to the modified FTA. South Africa experiences a sizable revenue gain (although tariff revenues are only 4 percent of total revenues), reflecting the impact of a Zambian-style structure with lower rates but broader coverage.

To conclude, the analysis shows that fiscal considerations are likely to be important in any form of SADC preferential trade arrangement. While the partial equilibrium approach used above only captures some of the factors that ultimately determine the revenue impact of any trade liberalization or harmonization, and the scenarios are to some extent arbitrary and not realistic, carrying out analysis and simulations based on the fully disaggregated tariff schedules does provide an important reference point to the difficulties associated with negotiating and implementing such arrangements. Moreover, the results make clear that any regional trade arrangement will involve differential benefits and losses among the individual countries, suggesting that re-distributive issues must be addressed up-front in order for the arrangement to be viable. This in turn requires political will. Serious unemployment and income distribution problems already exist within some of the SADC countries, which can further erode political commitment to a regional arrangement.

Measuring the Gains from Regional Trade Agreements[35]

In the previous section, we looked at the implications of different regional preferential trading arrangements for South Africa and the rest of SADC primarily from the vantage point of *tariff harmonization* and the *fiscal impacts.* While there was a model of trade flows underlying the alternative fiscal scenarios, it was quite simplified and captured only the partial equilibrium impact of changing trade flows on revenues. In this section, we describe a more comprehensive analysis, and provide a preliminary empirical assessment of the impact on South Africa and the rest of southern Africa of the various regional integration and liberalization arrangements recently agreed to or currently under consideration. The questions we address include:

(1) What is the impact of the EU-South Africa Free Trade Agreement (FTA) on trade welfare, and economic structure in South Africa and the rest of southern Africa?

(2) What are the gains to the rest of southern Africa of joining the EU- South Africa FTA and on what terms?

(3) Can South Africa serve as a growth pole for the region?

(4) How does a FTA with the EU, South Africa and the rest of southern Africa compare to the gains from global tariff reduction?

We approach these questions using a multi-country, computable general equilibrium (CGE) model to analyze the impact of trade liberalization on countries, sectors, and factors (see Box 9). We use the model to simulate a series of alternative scenarios, starting with the impact on the EU and South Africa of the recently signed FTA between those two countries. Then we consider the effects of expanding this agreement to include the rest of southern Africa, either by entering a parallel FTA with South Africa or by including all three countries in the FTA. Finally, we assess the effects of additional multi-lateral liberalization, either in conjunction with an FTA among the EU, South Africa, and the rest of southern Africa or independent of any regional agreements in the area.

It should be stressed that our empirical results should not be interpreted as "predicting" or "forecasting" what the different alternatives will bring. As will be evident, our representation of the different possible arrangements will be quite crude. For example, in the EU-South Africa free trade scenario, we assume all tariffs between the two economies are immediately set to zero, rather than phased in over time and with some exclusions; we also make no attempt to capture the other dynamic effects that should be associated with such an agreement, such as increased investment flows, changing production technologies, or skill upgrading. We focus instead on understanding the impact on trade, production, and resource allocation which might occur if different changes in tariff structures were imposed.

[35] This section is drawn from Lewis, Robinson, and Thierfelder (1999).

Box 9: Features of the Southern Africa CGE Model

The southern Africa model is from a class of trade-focused multi-country computable general equilibrium (CGE) models designed to analyze the impact of trade liberalization. The southern Africa model focuses on trade relations between developed and developing countries and on the impact of trade liberalization and integration on economic growth and welfare. The model includes eight regions: three in Africa (South Africa, rest of southern Africa, and rest of sub-Saharan Africa), and five others (European Union, High-Income Asia, Low-Income Asia, North America, and Rest of World). For each region, the model includes seventeen sectors (six primary, six industry, and five services) and five factors of production (capital, land, natural resources, and two labor categories). Each regional economy has a separate CGE model which determines: sectoral supply, demand, exports, imports, and market-clearing prices; factor supply, demand, and market-clearing wages; and the equilibrium real exchange rate, given a specified balance of trade. The regions are linked by trade flows. World prices for all goods are determined endogenously, equilibrating sectoral export supply and import demand on world markets. Domestically produced and traded goods are specified as imperfect substitutes, which provides for a realistic continuum of "tradability" and two-way intra-sectoral trade, rather than assuming that all goods are either perfect substitutes in world markets or are not traded at all.

The southern Africa CGE model, like other multi-country CGE models, has a medium to long-run focus. We report the results of comparative static experiments in which we "shock" the model by changing some exogenous variables and then compute the changed equilibrium solution. We do not explicitly consider how long it might take the economy to reach the new equilibrium, or what other adjustments (such as investment changes, technology transfer, productivity shifts, etc) might occur as well. The model's time horizon has to be viewed as "long enough" for full adjustment to occur, given the shock. While useful for understanding the pushes and pulls the economies will face under the creation of an FTA, this approach has obvious shortcomings. In particular, it does not consider the costs of adjustment, such as transitional unemployment, that might occur while moving to the final equilibrium.

Given the medium to long-run focus of the analysis, the model incorporates a simple macro closure that does not account for any short-run adjustment mechanisms (such as Keynesian multipliers). In each regional model, aggregate real investment and government consumption are assumed to be fixed proportions of aggregate GDP. The trade balance in each region is also assumed fixed (with the real exchange rate adjusting to equilibrate aggregate exports and imports), so domestic savings are assumed to adjust to achieve macro equilibrium.

Our southern Africa simulation model is constructed around an eight-region, seventeen-sector, five-factor, social accounting matrix (SAM) estimated for 1995. Our SAM is aggregated from the full GTAP (Global Trade Analysis Project) 1995 data set (version 4).

Source: Lewis, Robinson, and Thierfelder (1999) for model description, and Hertel (1997) for GTAP data description.

Endowments, Trade and Tariffs in the Southern Africa CGE Model

In the tariff harmonization scenarios in the earlier section, we saw how the simulation results were affected by the pattern and magnitude of trade flows and tariff structure in each economy. This will also be true in our use of the CGE model, so we begin with a brief description of the primary features of the model. Table 10 presents data on factor endowments, intensities, and costs for the regions included in the model, and indicates the enormous differences in size, role of trade, factor endowments and factor cost among these regions. Within Africa, the economic prominence of South Africa is evident: It accounts for 43 percent of the GDP in the continent (an aggregate of rest of southern Africa, South Africa and rest of sub-Saharan Africa), and its GDP is almost nine times that of the rest of southern Africa. However, South Africa (and Africa in general) is small compared to other major trade partners for the region: GDP for the EU is over 50 times larger than that of South Africa.

Table 10: Factor Endowment, Income Shares, Factor Intensity, and Trade Dependencies in the Southern Africa Model

	EU	High-income Asia	Low-income Asia	North America	Rest of southern Africa	Rest of sub-Saharan Africa	South Africa	Rest of World
GDP and Trade Flows (billion U.S. $):								
Exports	927.1	744.8	503.8	645.1	12.2	40.0	30.0	638.6
Imports	853.4	639.6	492.8	707.8	11.5	36.4	31.8	768.4
GDP	8215.3	6290.1	1799.3	8018.0	18.6	163.5	139.2	3733.4
Trade Dependence (percent):								
Export/GDP	11.2	11.8	28.3	8.0	66.0	24.7	21.7	17.0
Import/GDP	10.3	10.2	27.7	8.8	62.2	22.4	23.1	20.5
Factor Share in Region Value Added (percent):								
Land	0.3	0.8	7.0	0.5	3.9	3.3	0.6	2.1
Resources	0.4	0.4	2.4	0.7	6.3	6.7	0.8	2.6
Labor	66.8	57.4	42.6	62.5	47.4	51.6	60.7	50.0
Capital	32.6	41.4	48.0	36.3	42.4	38.5	37.8	45.3
Factor Proportions:								
Unskilled/total labor (percent)	61.6	62.7	79.4	60.6	79.8	83.1	67.4	69.3

Source: Southern Africa model database derived from GTAP data.

Table 11: Sectoral Export and Import Shares in World Trade

	EU	High-income Asia	Low-income Asia	North America	Rest of southern Africa	Rest of sub-Saharan Africa	South Africa	Rest of World	Total
Shares in World Exports:									
Primary Products	10.2	6.7	15.0	30.8	1.7	7.0	1.3	27.3	100.0
Energy & Mining	7.2	2.6	11.1	5.6	1.5	7.3	2.7	62.1	100.0
Food Processing	30.5	8.2	17.7	18.1	0.6	1.4	1.0	22.5	100.0
Textiles & Apparel	18.7	16.1	41.7	5.0	0.5	0.2	0.3	17.4	100.0
Other Manufacturing	28.8	28.7	11.3	17.9	0.1	0.2	0.7	12.4	100.0
Services	30.0	13.9	12.4	25.6	0.3	0.8	0.8	16.2	100.0
Total	26.2	21.0	14.2	18.2	0.3	1.1	0.8	18.0	100.0
Shares in World Imports:									
Primary Products	32.2	24.6	13.7	10.0	0.3	0.9	0.6	17.7	100.0
Energy & Mining	34.6	31.3	8.9	18.3	0.1	0.1	1.1	5.7	100.0
Food Processing	21.0	25.4	9.1	13.2	0.6	2.3	0.9	27.5	100.0
Textiles & Apparel	26.7	15.4	11.4	24.2	0.3	0.9	0.5	20.7	100.0
Other Manufacturing	21.1	16.0	17.3	22.1	0.3	1.2	1.0	21.1	100.0
Services	26.7	17.7	8.7	16.5	0.3	0.9	0.8	28.3	100.0
Total	24.1	18.1	13.9	20.0	0.3	1.0	0.9	21.7	100.0

Source: Lewis, Robinson, and Thierfelder (1999), Tables 1-2.

The three African regions we identify in the model all have high trade dependencies, with exports and imports representing over 20 percent of GDP, with the rest of southern Africa having the highest dependency with trade shares that exceed 60 percent. Low-income Asia also has high trade dependencies. In contrast, the much larger OECD countries (EU, High-income Asia, and North America) depend on trade for only around 10 percent of GDP. The African countries in our model all have higher shares of unskilled labor in the labor force, compared to the EU and other OECD countries (High-income Asia and North America).

International trade theory generally identifies two different types of international trade. Trade among developed industrial countries with similar endowments and technology is largely "intra-industry," with high exports and imports within sectors, whereas trade between high and low-income economies (with very different factor endowments and technological processes) is largely inter-industry, with more sectoral specialization.[36] With a tremendous range in factor endowments and income levels between southern African economies and other economies in the model, particularly the EU, there is ample scope for Heckscher-Ohlin forces (based on different factor endowments and comparative advantage theory) to influence trade (and one should also recall the tremendous variation in endowments and trade structures among the "rest of southern Africa" economies as well).

Table 11 presents the share of each region's exports and imports in total world trade (from the base data used in the model).[37] Consistent with their low GDP levels, the African regions in our model represent relatively small shares of world trade. For example, the rest of southern Africa accounts for only 0.3 percent of total world exports. Its highest export shares are in primary products (1.7 percent of total world exports) and energy and mining (1.5 percent of total world exports). Similarly, South Africa accounts for 0.8 percent of total exports, with its highest export shares in energy and mining (2.7 percent), primary products (1.3 percent), and food processing (1.0 percent). In general, South Africa has a larger share of total exports than does the rest of southern Africa, with the exception being primary products (1.7 percent for the rest of southern Africa versus 1.3 percent for South Africa) and textiles and apparel (0.5 percent for the rest of southern Africa versus 0.3 percent for South Africa). In contrast, the EU accounts for 26 percent of total exports in the model, with a dominant role in food processing (31 percent), services (30 percent), and other manufacturing (29 percent).

Trade shares are consistent with intuition about international comparative advantage. For example, 40 percent of total exports from the EU are in capital goods, 17 percent are in intermediates, and 25 percent are in services. There is evidence of two-way trade as capital goods also account for 32 percent of total imports. Other important import sectors are energy

[36] "Intra-industry" in this context refers to the two-way trade between industries which produce commodities that are similar in input requirements and highly substitutable in use, such as similar televisions manufactured by different producers.

[37] For presentation purposes, we aggregate the seventeen sectors in the model into the six sectors in this table. Aggregation of individual economies into regions for use in the model involved netting out trade among the combined economies, so that these data will not match data from other statistical sources on world trade volumes. Overall, trade among the African regions in the model accounts for only 2.2 percent of total trade.

and minerals (10 percent of total imports) and textiles and apparel (9 percent of total imports). This pattern is reversed for the rest of southern Africa — capital goods account for only 3 percent of total exports, services account for 16 percent while 30 percent is accounted for by energy and minerals and 11 percent by textiles and apparel. Primary products are also important export sectors for the rest of southern Africa, accounting for 17 percent of total exports. Basic intermediates and capital goods are important imports, representing for 17 percent and 36 percent of total imports, respectively. South Africa lies between these two extremes. Like the EU, intermediate goods account for 29 percent of total exports. Like natural-resource-rich rest of southern Africa, energy and minerals are also important exports and account for 23 percent of the total. Also like the rest of southern Africa, South Africa has a high import share of capital goods (43 percent).

The rest of southern Africa has the highest trade dependence, exporting 66 percent of GDP. Seven out of the seventeen sectors export more than 25 percent of production and three sectors export more than 60 percent of production, the highest being apparel which exports 82 percent. Two-way trade is substantial in that sector, as it also imports 45 percent of demand. Sectors with high import dependence are capital goods (60 percent of absorption), wood and paper (38 percent) and intermediates (36 percent). South Africa also has high trade dependence compared to developed countries such as the EU. Like the rest of southern Africa, this trade dependence is quite strong in certain sectors, with significant two-way trade. For example, it exports 38 percent of the grain it produces, and imports 45 percent of what it consumes; it exports 83 percent of the energy and minerals it produces, and imports 64 percent of demand.

Table 12: Average Tariffs and Export Shares

	Average tariffs against…			*Export shares to…*		
	South Africa	Rest of southern Africa	EU	South Africa	Rest of southern Africa	EU
South Africa	-	9.0	4.4	-	8.3	32.3
Rest of southern Africa	5.8	-	7.0	3.5	-	40.0
EU	4.7	19.2	-	1.5	0.4	-

Source: Lewis, Robinson, and Thierfelder (1999).

The simulations we will carry out involve various combinations of tariff liberalization among South Africa, rest of southern Africa, and the EU. The model results will be shaped to a large extent by the pattern of tariff protection and trade flows among these three regions. Table 12 provides a quick perspective on these relations: on the tariff side, South African tariffs against the rest of southern Africa are nearly double those against the EU, whereas for the rest of southern Africa, tariffs against South Africa and the EU are more closer. The EU levies much larger tariffs against the rest of southern Africa than against South Africa (the largest contribution in the 19 percent is from fruits and vegetables and food processing, which face tariffs and/or NTBs of 65-70 percent). In terms of export shares, South Africa and rest of southern Africa depend on EU markets for 32-40 percent of total exports, where as both regions combined represent only 2 percent of EU exports. The imbalance in intra-SADC trade is also apparent, as South Africa exports 8.3 percent of its exports to the rest of southern Africa, whereas the exports from rest of southern Africa to South Africa represent only 3.5 percent of the total.

Figure 5: Export Expansion Under Different FTA Scenarios

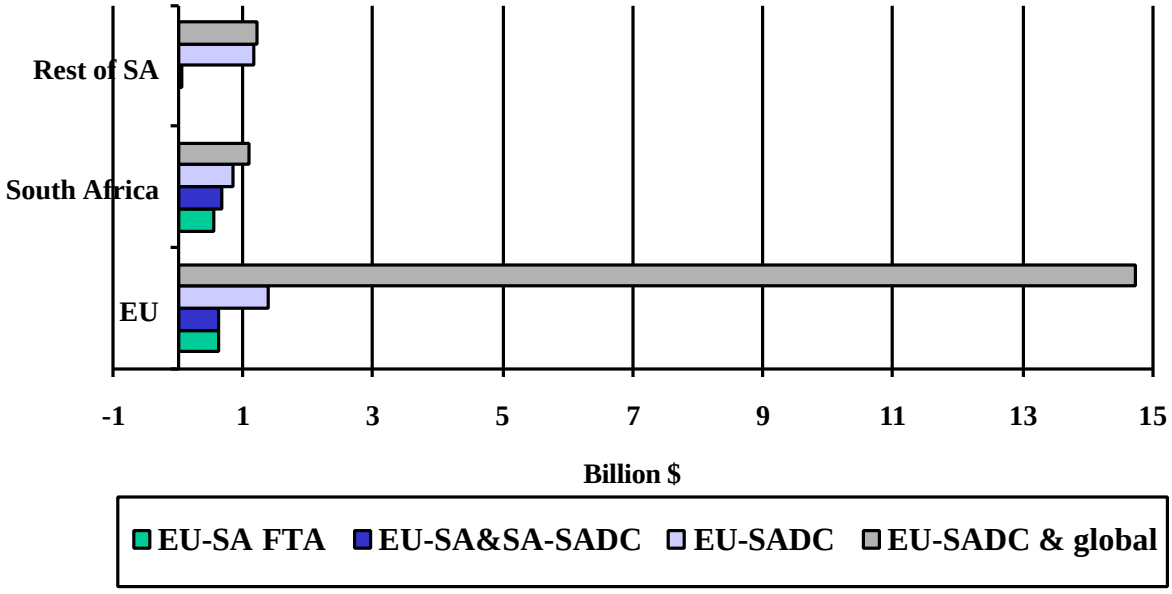
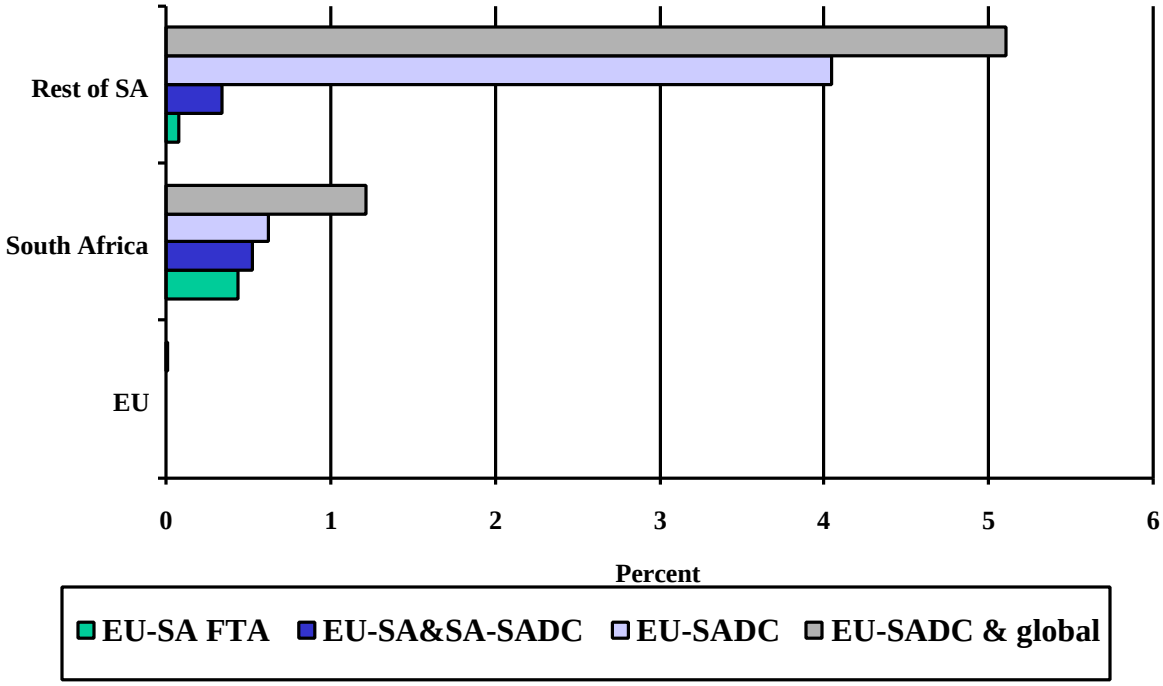


Figure 6: GDP Growth Under Different FTA Scenarios



The Economic Impact of Alternative FTA Scenarios

We present a series of scenarios in which trade becomes more liberalized. We begin with a FTA scenario between the EU and South Africa, in which we eliminate *all* bilateral tariffs and non-tariff barriers. We then consider membership options for the rest of southern Africa — either through a parallel FTA with South Africa (similar to a SADC FTA), where South Africa is the hub in a hub-and-spoke model, or as an equal partner in a trilateral FTA with the EU as well. Finally, we compare the benefits of expanding the trilateral FTA with a global tariff reduction versus global tariff reduction alone. We briefly describe the key outcomes below, focusing on the results as they pertain to our key regions: South Africa, rest of southern Africa, and the EU. Figures 5 and 6 summarize the aggregate results from the scenarios, reporting the impact on exports and GDP growth for each of these three regions.[38]

EU-South Africa FTA

We find that a FTA between the EU and South Africa has a much bigger impact on South Africa than on the EU. South African real GDP increases by 0.44 percent and real absorption increases by 0.31 percent, whereas there are only negligible changes for the EU. These lopsided gains reflect differences in both trade dependence and the bilateral tariff structure. South Africa is heavily dependent on EU export markets, with 32 percent of total exports going to the EU. The dependence is especially strong for commodities such as livestock (75 percent), fruits and vegetables (59 percent), other agriculture (49 percent), and food processing (44 percent). In contrast, only 1.5 percent of EU exports go to South Africa, with the largest share at 2.0 percent in the energy and mineral sector. The EU also has high tariffs against certain products from South Africa. For example, the tariff on food processing is 38 percent and on fruit & vegetables it is 16 percent. While South Africa also has high tariffs on grains, food processing, and apparel from the EU (15-17 percent), the tariffs against all other goods are less than 8 percent.

For the EU and South Africa, there is no trade diversion, as trade with the FTA partner and with other countries both increase; there is only relative trade creation as trade with FTA partners increases by more than trade with other countries. While total exports from South Africa to the EU increase by 5.3 percent, there are large gains in formerly protected sectors. For example, exports of fruit and vegetables increase by 19.5 percent and food processing by 46.2 percent. Exports from the EU to South Africa increase by 4.3 percent with the biggest gains in grains (23.4 percent), food processing (19.8 percent), and apparel (11.9 percent).

We find that the rest of southern Africa also benefits from the bilateral FTA between EU and South Africa, although the gains are slight. Its real GDP and real absorption increase by 0.1 percent. Its exports to the EU increase by .01 percent and its exports to South Africa increase by 0.1 percent.

Southern Africa FTAs

We consider two options for southern Africa when liberalizing trade in the region: establish an FTA with South Africa, parallel to the EU-South Africa FTA, or liberalize with the

[38] The full paper (Lewis, Robinson, and Thierfelder, 1999) contains tables with much more detail on other economic variables, the sectoral outcomes, and on the other regions in the model, but we do not reproduce those here.

EU, forming a trilateral FTA. Our results suggest that the EU is more important than South Africa for trade and growth in the rest of southern Africa — it gains far more from a trilateral FTA, as its real GDP and real absorption increase by 4.1 percent and 4.3 percent respectively. In contrast, its real GDP increases only by 0.33 percent when it forms an FTA with South Africa alone; its real absorption actually declines by 0.1 percent. There are also dramatic differences in labor market effects. With a southern Africa-South Africa FTA, employment increases by 0.7 percent for skilled labor and by 0.9 percent for unskilled labor. In contrast, a trilateral FTA expands employment by 5.7 percent for skilled labor and 11.3 percent for unskilled labor. Interestingly, there are greater spillover effects for South Africa in terms of real GDP and real absorption growth under a trilateral FTA than as the hub for the other countries.

As is the case in the bilateral FTA between South Africa and the EU, the rest of southern Africa is heavily dependent on the EU as an export market. Indeed, the rest of southern Africa is even more dependent on the EU than is South Africa, with 40 percent of its total exports going to the EU. The dependence is quite strong for certain sectors such as food processing (78 percent), apparel (74.2 percent), fruit and vegetables (71.8 percent), and forestry and fishery (60.7 percent). In contrast, only 3.5 percent of total exports from the rest of southern Africa go to South Africa, with heavy dependence in wood and paper (51 percent) and grain (35 percent). South Africa depends more on the rest of southern Africa for its export sales, with 8.3 percent of total exports going to the rest of southern Africa. The rest of southern Africa also faces high tariffs in the EU, with a trade-weighted average tariff of 19 percent. Tariffs are particularly high in fruit and vegetables (71 percent) and food processing (64 percent). In either type of FTA — hub-and-spoke with South Africa the hub, or trilateral FTA — there is no absolute trade diversion for member countries; trade expands to all regions, with trade to FTA partners increasing relatively more.

Global Tariff Reductions

Next, we consider the importance of a regional FTA versus global tariff reduction. We simulate a global tariff reduction of fifty percent in conjunction with the trilateral FTA between the EU, South Africa, and the rest of southern Africa. Expanding the FTA to include 50 percent global tariff reduction to non-member countries yields the highest gains for all FTA countries, with the biggest gains to the rest of southern Africa and South Africa. But the relative sizes of the FTA versus global liberalization effects varies: for the rest of southern Africa, the biggest gain comes for the trilateral FTA (GDP expansion of 4.0 percent), while adding the global reduction increases GDP growth by only a quarter (to 5.1 percent). But for South Africa, the incremental growth impact of the global liberalization is equal to the trilateral FTA (0.6 percent on top of 0.6 percent). Basically, the rest of southern Africa is so dependent on trade with the EU that the 100 percent tariff reduction from the FTA exceeds gains it could get when all countries (including the EU) reduce tariffs by fifty percent. A trilateral FTA also expands exports for South Africa and the rest of southern Africa more than global tariff reduction, reflecting the importance of the EU, and hence the 100 percent reduction in its tariffs under the FTA. Expanding the FTA to include 50 percent global tariff reduction to non-member countries yields the highest gains for all FTA countries, with the biggest gains to the rest of southern Africa and South Africa.

To summarize, our empirical results lead to a number of conclusions: (1) trade creation dominates trade diversion for the region under all FTA arrangements; (2) the rest of southern Africa benefits from an FTA between the EU and South Africa — the recently signed bilateral

agreement is not a "beggar thy neighbor" policy; (3) the rest of southern Africa gains more from zero-tariff access to EU markets than from a partial (50 percent) reduction in global tariffs; and (4) the South African economy is not large enough to serve as a growth pole for the region. Access to EU markets provides substantially bigger gains for the rest of southern Africa than does access to South Africa.

4. Conclusions and Policy Directions

In this paper, we have examined the changing role of trade in South Africa from different vantage points. The empirical analysis points to a number of policy directions that provide an agenda for South African trade policy:

- With evidence suggesting that the trade liberalization is incomplete, and that the pace has slowed in recent years, consideration should be given to embarking on *a phased program of tariff reforms* that would continue the progress made during the early liberalization period.

- Such a program should include not only efforts to *bring down average rates* (given that South Africa does not compare all that favorably with its competitors) but also to *reduce the number of different rates* from its current high level (nearly 50) to no more than a half dozen (as promised in its WTO offer).

- Despite the improvements achieved during the 1990s, South Africa's tariff structure remains complex and confusing, with constant efforts to target (by introducing ever more detailed classifications or "splits") and fine tune (more than 2000 changes annually in some recent years). *Introduction of a simplified tariff structure* would not only bring immediate benefits in terms of simplifying administrative requirements, but also ease the implementation of the SADC free trade area, which will require a degree of tariff harmonization and coordination among participating members.

- Trade policy alone is not sufficient to produce big gains. Liberalization is most successful in a dynamic and growing economic environment that *promotes* the movement of resources out of low-productivity, inefficient uses. There is a crucial need to match liberalization initiatives with corresponding progress in *competition policy*, since otherwise the benefits of lower prices for traded goods will not necessarily pass through to domestic users.

- While it appears that the *net* impact of trade liberalization on output and employment has been modestly positive, it also seems clear that trade expansion has had minimal aggregate impact on South Africa's unskilled labor unemployment, as it has primarily favored groups with more skills. This may in part relate to the absence of *supporting trade programs (such as export processing zones, duty drawback and rebate schemes) that would encourage more labor-intensive activities*. Of course, such initiatives would need to be complemented by labor market and other initiatives to reduce barriers to job creation and encourage export activities (e.g. encouraging flexibility in labor regulations in export processing zones, providing targeted fiscal incentives for new export enterprises).

- Maintaining *credible and consistent macroeconomic policies* is also an important corollary to trade policy, as the evidence clearly supports the existence of a positive link between a competitive exchange rate and stronger export performance.

In the second part of the paper, we turned our focus to the SADC region, and particularly the possible impact of various preferential trading arrangements on South Africa and the rest of SADC. A number of links to policy emerged from this analysis as well:

- From an economic vantage point, the ongoing trend towards preferential trade agreements (both within and beyond Africa) generates clear gains to South Africa and the other SADC economies, and *efforts to promote and accelerate integration initiatives should be continued.*

- But analysis suggests there are also *clear limits to the gains that can be achieved from increased trade*. In particular, while promotion of a SADC free trade area will yield benefits to all participants, SADC's small size relative to the global economy and the trade imbalances among its members (South Africa's sizable bilateral trade surpluses with others) will likely limit the medium-term scope for trade expansion. South Africa gains more from the free trade agreement with the EU then it will from a SADC free trade area; for the rest of SADC, the gains from greater access to the EU are proportionately even larger.

- Because of these limits, it may well be true that the larger benefits to SADC members will come from SADC integration initiatives that look beyond narrow tariff policy to include as well efforts to facilitate trade by *addressing the full range of non-tariff barriers that hinder trade* and make it more costly. But there must also be recognition of the constraints on "policy capacity" that exist in many SADC member governments, to insure that focus is not spread thinly across too many initiatives, and prevent any of them from being successful.

- There is also a clear need to focus on the challenges poised by the ongoing *implementation of the SADC free trade protocol*. As our analysis indicates, the administrative demands stemming from harmonization or even reconciliation of hugely disparate tariff schedules is enormous, and progress in this key area will be crucial to making the agreement a success.

- The *existence of overlapping regional (SADC and COMESA) as well as bilateral trade agreements must be dealt with* at both the political and administrative levels. As long as numerous SADC members remain involved in conflicting regional arrangements or liberalization commitments, actual progress may be limited.

- With no immediate plans for the adoption of a SADC-wide common external tariff (which would in any event bring its own challenges), emphasis must be directed towards the *design and implementation of transparent and enforceable rules of origin* that do not act as a further barrier to trade flows within the region.

- The *differential fiscal impact on participating SADC members* also calls for further analysis, and more open discussion of possible compensatory (a la SACU) or other mechanisms to ameliorate the impact on those SADC members that are most dependent on tariff revenues.

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