

# **Neighbourhood System of Innovation: South Africa as a regional pole for economic development in Africa**

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## **1. Introduction**

The innovation systems literature has provided a useful framework to analyse the linkages of firms and other organisations with both domestic and foreign actors. Although the concept of innovation systems was originally developed at the national level (Freeman, 1982; Nelson & Winter, 1982; Lundvall, 1985; Nelson, 1988, etc), the literature has expanded rapidly over the years. Since its origins innovation systems have been defined at different levels. National, regional, local, sectoral and technological systems of innovation now constituted alternative units of analysis to better understand the processes of creation, diffusion and use of knowledge. These different views, rather than conflicting, tend to complement each other and depend on the attributed boundaries to the system subject of analysis.

This paper proposes that the reciprocal interaction between regional economic poles within the developing regions can be studied by employing systems of innovation perspective. The application of the systems of innovation perspective serves as a window to explore the quality of interactions in economic, education, productive activities and institutions. The importance of the regional dimension in stimulating the innovation capability and competitiveness of firms and regions has been examined by many authors (Asheim et al., 2003; Cooke, 2003; Wolfe, 2003; Malmberg and Maskell, 2002). The regional dimension is acquiring more relevance as the interactions between actors within the region become more intense. In the context of Africa, for example, the emergence of South Africa as an economic outlier in the region has created new challenges both opportunities and dangers for the rest of Africa. This paper suggests that a systems' of innovation perspective might be useful to examine how South Africa, as a regional pole in Africa, interacts with the region by sharing knowledge, learning and capacity building.

The system of innovation perspective is likely to expose the type of connections and interactions that take place: active or passive (Viotti, 2001). If the interactions take place on the basis of static comparative advantage where the economies in the region transact what they already produce, then the relationship is likely to be non-dynamic and non-transformative (passive). If the interaction takes place with economic linkages where the interaction promotes learning, innovative productive exchange, facilitate value added manufactures and service exchanges, then the relationship is likely to be transformative and is more likely to include developmental features (active).

South Africa's economy, as a major player in sub-Saharan Africa, is often seen as a potential growth engine for the continent. South Africa's growth is believed to have a significant impact on the growth of other African countries, particularly its most immediate Southern African neighbours. Increasing trade partnerships, political collaboration, business linkages and mobility of people, point in this direction. However, the degree of penetration and the nature of the impact have not yet been largely examined in the literature, partly due perhaps to the complexity and wide range of factors that can be taken into consideration.

South Africa is not only the largest economy in Africa but also the most technologically advanced. The innovation system in South Africa has evolved extensively, especially since the mid 1990s. In a relatively short period of time, South Africa has managed to frame numerous policies and institutions to accelerate domestic innovation and technology development as well as improve the absorption of imported technologies. Unfortunately this is not the case for most African countries, where adequate systems of innovation are still at an early stage of development. Therefore, the impact of South Africa's innovation system in other African countries needs to be taken into consideration. Technologies cross national boundaries through many channels, ranging from traded products to information provided by foreign buyers and suppliers, mobility of skilled labour, informal contacts and different forms of investment abroad. Growing trade relationships and investment portfolio of South Africa in the rest of Africa could thus have an effect on the financial and technological linkages with its African partners.

In a similar fashion, South Africa's leadership role in African political partnerships and economics agreements could serve as a platform for collaboration in the establishment and harmonization of innovation systems. Nevertheless, despite the great support that South Africa has received from the international community (mainly from industrialised countries), the 'emerging power' of South Africa in an African context has raised voices of scepticism in the acceptance of its leadership in the continent. The extent of the impact during the last decades needs to be carefully measured according to South Africa's particular history. During the pre-1994 apartheid South Africa's economic and political presence in Africa (and the rest of the world) was limited by a period of sanctions. Therefore "real" impact can only be examined after the mid 1990's.

This chapter tackles with these issues, examining a variety of factors related to South African economic and innovation systems as well as their dynamics, detecting opportunities and major future threats for other African economies. In the view of increasing socio-economic interactions within developing regions, this issue requires particular attention in research studies.

## 2. South Africa and African economies

South Africa is going through a unique journey of socio-economic change that followed the key political developments taking place since the mid 1990s. The end of apartheid and the arrival of democracy in 1994 placed the country in the global economy without the constraints of sanctions and other barriers to trade. However, since then, the hunt for economic growth has come along the need to tackle fundamental issues such as wide economic divide between ethnic groups, endemic unemployment, soaring rates of prevalence of HIV/Aids and chronic poverty.

The coexistence of these two economic domains in South Africa – one fast expanding and one sluggish – has been named as the ‘first’ and ‘second’ economies. The ‘first economy’ represents the modern and growing economy of South Africa which, increasingly integrated in the global markets, produces the bulk of the national wealth. The ‘second economy’ includes the majority of poor rural and urban population; it is structurally disconnected from both the first and the global economies, and constrained by poverty and marginalisation (Mbeki, 2003<sup>1</sup>; Aliber et al, 2005).

The South African innovation system (as well as economy and society) are bifurcated. Despite being disarticulated, unequal and racially skewed, South Africa’s existing base on science, technology and innovation is the largest in Africa, and actively interacts with the rest of the continent.

### 2.1. *South Africa as the largest economy in Africa*

South Africa is at the forefront of African economies in many socio-economic aspects. Representing only 6.3% of the total population in the continent, its GDP constitutes 40% of the African total product (see Figure 1). South Africa and the rest of the Southern Africa region (named as SADC in reference to the trade agreement explained below)<sup>2</sup>, together with Nigeria (the second largest economy in Africa) comprised three quarters of the GDP in the continent in 2006. As shown in the figure 1 below, the share has increased over time in the case of South Africa and Nigeria’s individual contributions to the total product. Growing concentration of GDP in larger African economies and the resulting decline in participation from the rest of Africa<sup>3</sup> can be easily read as a sign of growing polarisation within the continent. In Southern Africa, South Africa holds over 70% of the regional GDP while the other 14 SADC nations share the balance.

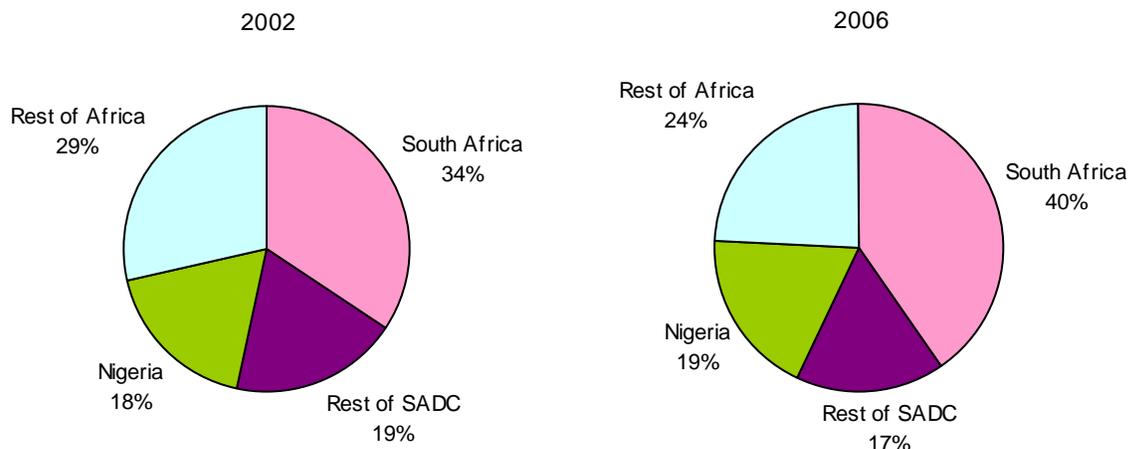
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<sup>1</sup> Address by President Thabo Mbeki to the National Council of Provinces.

<sup>2</sup> The Southern Africa Development Community (SADC); SADC Trade Protocol came into effect by the end of 2000. The overall objective was to effectively establish by 2012 a free trade area with a group of Southern African countries. SADC member states include: Angola, Botswana, Democratic Republic of Congo (DRC), Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.

<sup>3</sup> Comprising 37 countries, excluding SADC countries.

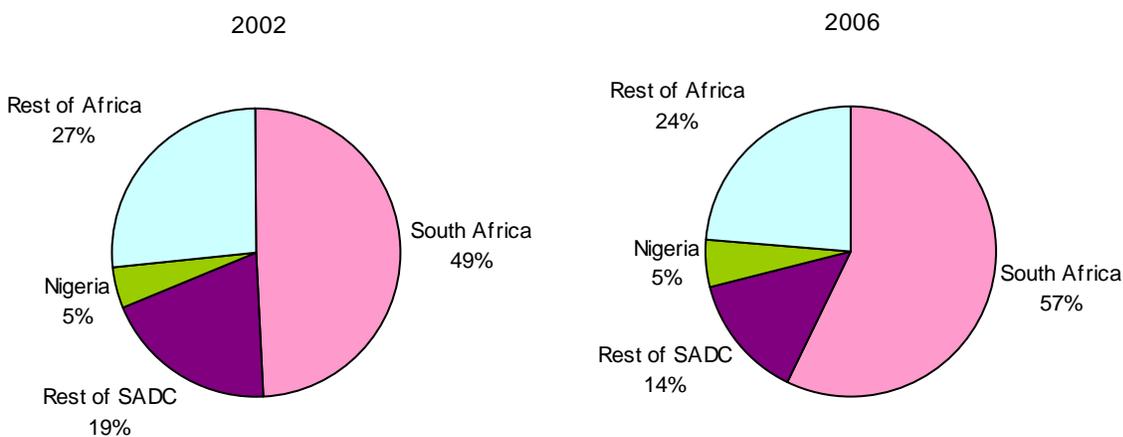
Figure 1: Share of African GDP (2002 and 2006)



Source: Calculated by authors from IMF World Economic Outlook (2008)

The growing share of South Africa in terms of economic wealth seems to be positively related to the improvement of industrial competitiveness, captured below by the outstanding performance in manufacturing value added in comparison to the rest of the continent- and also opposite to Nigeria, an oil-producer.

Figure 2: Share of African MVA



Source: Calculated by authors from World Development Indicators (2008)

In relation to exports, South Africa also takes a leading role in the continent, representing in 2006 about 30% of the African total exports – see table 1. The exports of goods and services have increased rapidly since South Africa’s opening to the global

scenery, accelerating since 2002. Not only total exports have expanded in absolute terms but, in relation to the rest of Africa, South Africa has increased the ‘technological content’ of its exports – it represented a 79% of Africa’s manufactured exports and 61% of technology intensive exports in 2006. However, a time perspective also indicates that South Africa’s technological advantage in the continent might be challenged in the longer run, since the rest of Africa is gradually increasing the sophistication of its exports – high-tech exports from the rest of Africa have increased from 20% to 39% of the African total during the period 2002-2006.

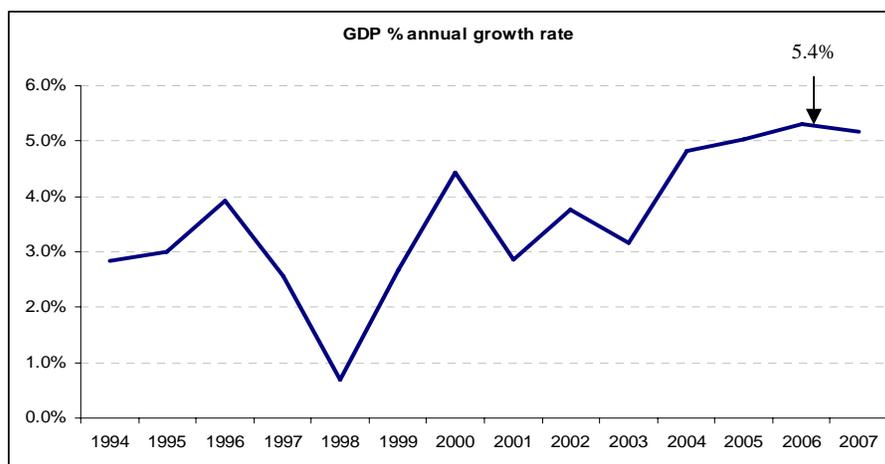
Table 1: Share of African exports

	<i>South Africa</i>		<i>Rest of Africa</i>	
	2002	2006	2002	2006
Exports of goods and services	32%	28%	68%	72%
Manufactured Exports	62%	79%	38%	21%
Commercial services exports	30%	47%	70%	53%
High-tech exports	80%	61%	20%	39%

Sources: Figures on exports of goods and services calculated from the World Development Indicators (2008), manufactured exports and high-tech exports calculated from COMTRADE database.

The overall path of South Africa’s economic growth is visible in the sustained high rates of GDP growth especially since 2001, almost reaching the government’s target of a 6% annual growth rate (AsgiSA, 2007)<sup>4</sup>.

Figure 3: South African GDP annual growth rate (%)



Source: Statistics SA

<sup>4</sup> The Accelerated and Shared Growth Initiative for South Africa was launched by the government in 2005. For more details see <http://www.info.gov.za/asgisa/> (last accessed October 2008).

The sources of competitive advantage are also changing. Traditional growth drivers in the primary sector (i.e. mining, quarrying, agriculture, fishing, and forestry) have increasingly shifted towards the tertiary sector in recent years. In 2006 the primary sector only accounted for 9% of the GDP. The secondary sector – manufacturing, construction and utilities (electricity, gas and water) – has also gradually declined in the last decade, from 28% in 1995 to 21% in 2006, in part due to the growth in the tertiary sector. The 5.4% real annual growth of GDP in 2006 has been mainly driven by the tertiary sector, in particular the financial and business services industry (1.7 percentage point), which are major absorbers of ICTs.

South Africa has moved towards a knowledge-based economy, with a greater focus on technology, e-commerce and ICT services. The financial, insurance, real estate, business services, transport and communications sectors accounted for half of value added in 2006. According to the World Bank’s Knowledge Economy Index (KEI) <sup>5</sup> and ‘Knowledge Index’<sup>6</sup> – South Africa has much higher values for both the KI and the KEI than the average for Africa and other developing regions.

Table 2: Knowledge Economy Index (KEI), South Africa and other regions, 2007

	Economic Incentive Regime	Innovation	Education	ICT	KI	KEI
Western Europe	8.7	9.2	8.0	8.9	8.7	8.7
East Asia and the Pacific	5.7	8.5	5.3	7.0	6.9	6.6
World	5.2	8.0	4.4	6.5	6.3	6.0
<b>South Africa</b>	<b>5.8</b>	<b>6.9</b>	<b>5.0</b>	<b>5.4</b>	<b>5.8</b>	<b>5.8</b>
Middle East and North Africa	4.6	7.2	3.8	5.9	5.6	5.4
Latin America	4.7	5.9	4.3	5.3	5.2	5.1
Africa	2.8	4.3	1.5	2.6	2.8	2.8
South Asia	2.7	3.3	1.9	1.8	2.3	2.4

Source: World Bank database

<sup>5</sup> The World Bank has developed a method to assess a country’s transition towards a knowledge economy by constructing its Knowledge Economy Index (KEI), which is regarded as representing the overall level of development of a country or region in its movements towards the Global Knowledge Economy. This aggregate index consists of 830 variables in four dimensions: the economic incentive regime, innovation, education and ICT, and is currently calculated for 128 countries140 countries. It can be used for cross-country comparison and over-time comparison for all countries and provides a global ranking.

<sup>6</sup> KI Differs from the KEI only in the exclusion of the first data column on the ‘Economic Incentive Regime’.

## 2.2. Direction of intra-African trade flows

The continent's direction of trade is largely shaped by the colonial history, existing trade agreements and the nature of the products exported. Most African exports are directed to industrialised markets (65% in 2007). However, the trade pattern of Southern African countries seems to be considerably more oriented to the developing world, particularly towards Africa. In South Africa, European markets are the primary destination of exports and growing in magnitude (from 29% in 1998 to 34% in 2007)<sup>7</sup>. Europe is the largest source of investment for South Africa and accounts for over one third of South Africa's total foreign trade. United Kingdom, Germany and Netherlands are the third, fourth and fifth largest trading partners respectively. Europe concentrated 87% of the total direct investment in South Africa in 2007, with the UK as the largest foreign investor accounting for 70% of the FDI in South Africa<sup>8</sup>. This trade flows are reinforced by the historic Trade, Development and Co-operation Agreement, which was signed in 2000 and fully implemented in 2004, establishing a free trade agreement between South Africa and the European Union<sup>9</sup>.

Table 2: Direction of exports 2007\* (% of total exports)

	<i>Africa</i>	<i>SADC excl SA</i>	<i>South Africa</i>
<b>Industrial</b>	<b>65</b>	<b>52</b>	<b>61</b>
EU	33	21	34
USA	24	23	12
Japan	3	1	11
<b>Developing</b>	<b>35</b>	<b>48</b>	<b>39</b>
Africa	10	20	15
Angola	0.3	0.1	1.2
Mauritius	0.1	0.1	0.4
Mozambique	0.4	0.1	2.0
Tanzania	0.3	0.2	0.6
Zambia	0.5	0.6	2.2
Zimbabwe	0.5	0.5	1.9
Nigeria	0.6	0.0	1.1
Kenya	0.3	0.2	1.0
China	9.8	13.4	6.6
India	1.0	0.6	2.1
Brazil	3.1	2.1	0.8
Source: IMF. Direction of Trade database			
* Note: Values for 2006 or 2007, depending on availability.			

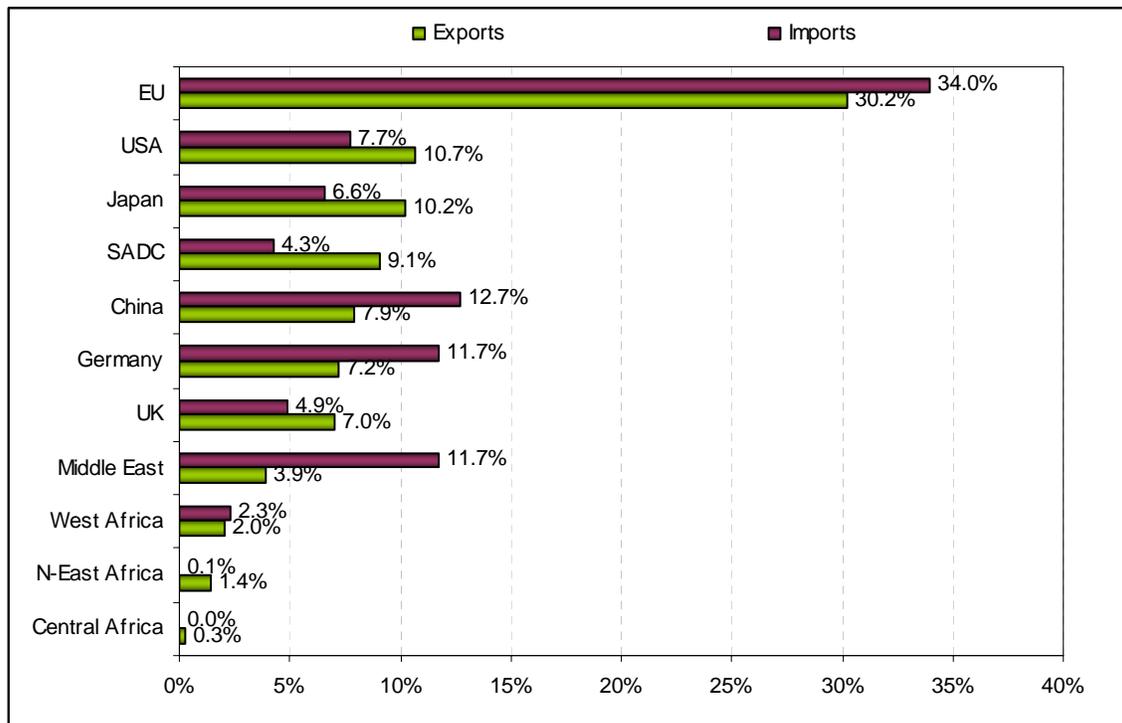
<sup>7</sup> According to calculations from figures obtained at IMF Direction of Trade database

<sup>8</sup> According to calculations from figures obtained at South African Reserve Bank (Quarterly Bulletin, various issues).

<sup>9</sup> Though this agreement South Africa grants duty-free access to 86% of EU imports over a period of 12 years, while the EU liberalises 95% of South Africa's imports over a period of 10 years.

Figure 3 shows that while most of South African imports come from the EU, USA, China<sup>10</sup> and Japan, the SADC region and China strike by their large imbalances the trade flows with South Africa. China represents mostly a supplier of goods and services (12.7% of total imports versus 7.9% of exports) while the Southern Africa region is mainly a customer of South African goods (9.1% of exports versus 4.3% of imports). Trade with West Africa, East Africa and Central Africa is very small, with the exception of Nigeria, Tanzania and Congo within West Africa, East Africa and Central Africa respectively<sup>11</sup>.

Figure 3: South Africa direction of imports and exports 2007 (% of total)



Source: Department of Trade and Industry, South Africa

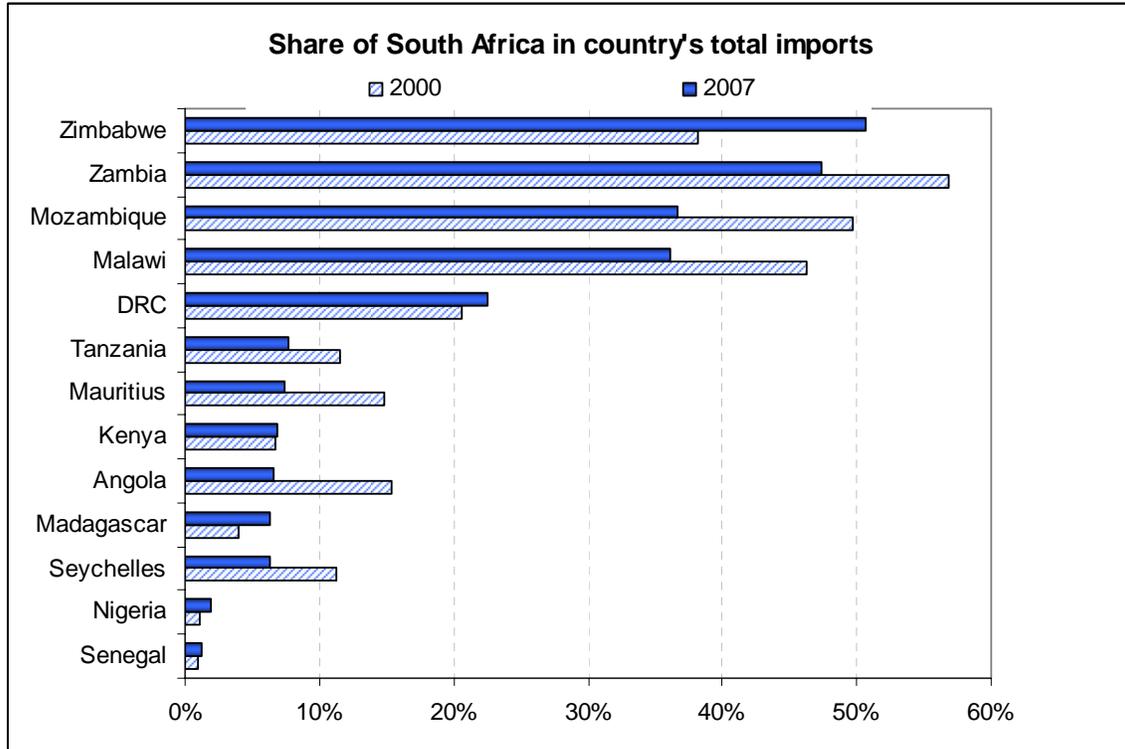
Despite the strong historical connection with industrialised countries (Europe in particular), South Africa's economy is certainly linked to that of the Southern African region. Figures 4 and 5 below show that for some countries such as Zimbabwe, Zambia and Mozambique, imports from South Africa represent nearly half of their total imports. Similarly for certain African countries the exports to South Africa represent a significant share of their total exports, such as Zimbabwe, Mozambique, Zambia and Malawi. This is largely due to the establishment of trade agreements and it is expected to grow through the continent-wide collaboration of NEPAD (the New Partnership for Africa's Development). The centre-piece of South Africa's foreign economic policy in Africa is the *Southern Africa Development Community* (SADC). SADC Trade Protocol was signed in

<sup>10</sup> Chinese imports have doubled in total value from 2003 to 2005.

<sup>11</sup> Note that Congo and Tanzania are also part of SADC.

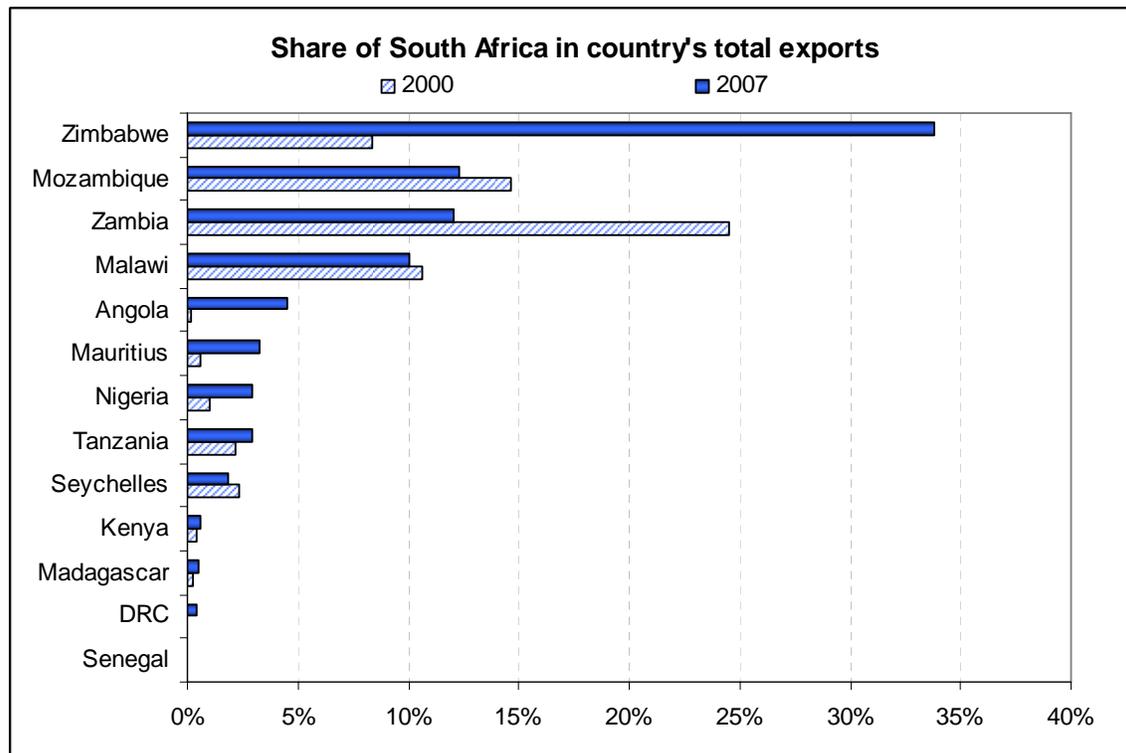
1996 but only came into effect by the end of 2000. The overall objective was to effectively establish by 2012 a free trade area with a group of Southern African countries<sup>12</sup>. Within the SADC, South Africa, Botswana, Lesotho, Namibia and Swaziland have organised themselves into the Southern African Customs Union (SACU). SACU shares a common tariff regime without any internal barriers. Trade between SADC countries has increased significantly almost tripling from 8 billion USD to approximately 21 billion USD between 2000 and 2007 (SADC, 2008).

Figure 4



<sup>12</sup> SADC member states include: Angola, Botswana, Democratic Republic of Congo (DRC), Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.

Figure 5



Source: IMF Direction of Trade database

As noted above, South Africa’s exports to the continent are not equivalent to South Africa’s imports from Africa – while South Africa exported over 15% of its goods and services to Africa in 2007, imports from Africa only accounted for 5% of the total<sup>13</sup>. The favourable balance for South Africa has been considered by some authors (Daniel, Naidoo and Naidu, 2003 and Bond and Kapuya 2006) as a prominent feature of South Africa’s trade and investment strategy, using Africa as an export market. Trade imbalance should not thus underestimate South African investments in the rest of Africa, most of them focused on infrastructural development. More details on the nature and implications of these investments are explained in the sections below.

### 3. Institutional linkages of South Africa in the region

Since the lifting of international sanctions South African trade policy has been characterized by rapid trade liberalization and outward orientation. Although the process of trade liberalization dates from the early 1990s, South Africa’s agenda for integration into the world economy accelerated following the democratic transition. The

<sup>13</sup> Calculated from IMF direction of trade database.

first democratically elected ANC government adopted several major trade policy changes since 1994 complementing the government's global economic strategy aiming to the extension of bilateral, regional and multilateral ties with economies around the world. Consequently, South Africa became a member of the WTO in January 1995<sup>14</sup>.

At a regional level, South Africa joined the *Southern African Development Community* (SADC) in 1994. The origin of SADC can be found in the *Southern African Development Co-ordination Conference* (SADCC), established in April 1980 by the governments of the nine Southern African countries: Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe. SADCC's initial intention was mainly to detach neighbouring countries from the apartheid system in South Africa as well as implement collaborative programmes with regional impact. The transformation of SADCC into a community took place in 1992 in Namibia where the new Treaty was signed. The ultimate objective of SADC is "to build a Region in which there will be a high degree of harmonisation and rationalisation to enable the pooling of resources to achieve collective self-reliance in order to improve the living standards of the people of the region"<sup>15</sup>. Following the institution of a full democratic government in South Africa, it became the eleventh member of the SADC group in 1994 followed by Mauritius admitted in 1995. The Democratic Republic of Congo and the Seychelles were admitted in 1997, and Madagascar joined SADC in 2005.

The *Southern African Customs Union* (SACU) was established in 1910 as a Customs Union Agreement between the then Union of South Africa and the High Commission Territories of Bechuanaland, Basutoland and Swaziland. With the independence of these territories, the agreement was updated and officially re-launched as SACU in 1970 as an agreement between South Africa, Botswana, Lesotho and Swaziland. Namibia joined after independence in 1990 as its fifth member. Its aim is to maintain the free interchange of goods between member countries. Within the SACU there are no import restrictions<sup>16</sup> and only very few exports are controlled among these countries. Following the democratisation of South Africa in SACU members renegotiated the agreement in order to democratise SACU and address the current needs of its members more effectively<sup>17</sup>.

Despite its policy tendency to eliminate regional trade barriers, South Africa is being accused by its neighbouring countries of offering too much support for domestic production "such as duty rebates on exports", which is killing off other economies in the region (Sunday Times, 2003). Suggestions have arisen to reduce South Africa's dominance in the marketplace by asymmetrically providing other economies a competitive advantage. This situation is aggravated by the recently signed South African

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<sup>14</sup> Since then South Africa has dismantled its toll barrier faster than any other signatory country.

<sup>15</sup> For further information see <http://www.sadc.int>

<sup>16</sup> Imports from outside SACU are subject to the same restrictions in all member countries.

<sup>17</sup> For more information see [www.dfa.gov.za/foreign/Multilateral/africa/sacu.htm](http://www.dfa.gov.za/foreign/Multilateral/africa/sacu.htm)

free trade agreement with Europe, reducing significantly the trade chances of other neighbour countries with South Africa, its largest potential regional market.

SACU members (dominated by South Africa for obvious historical reasons) started negotiations with the USA to establish a free trade area (FTA). However, after long disagreements in 2006 countries opted to pursue a trade investment cooperation agreement (TICA) instead. This mechanism establishes a working group to address issues in customs, trade facilitation, intellectual property, and other areas typically included in an FTA with the intention to achieving a successful FTA in the future.

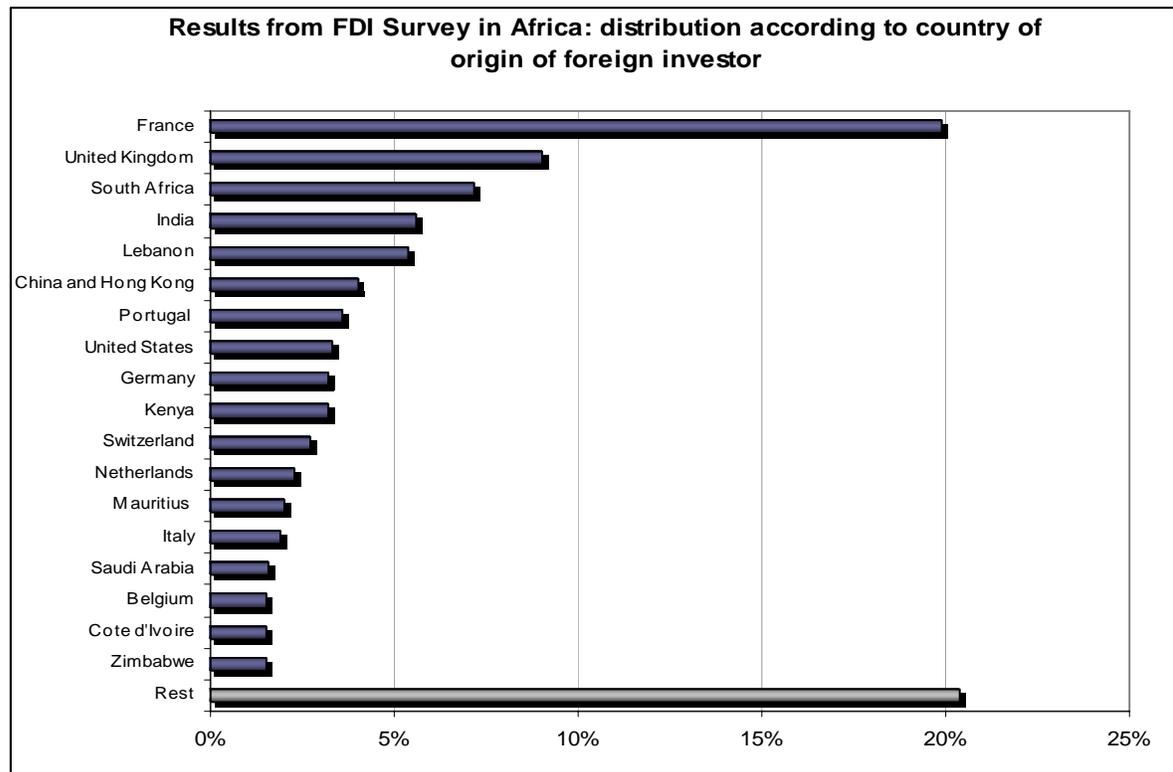
#### **4. South African investments Africa**

African countries in general have a close historical connection with Europe. However, the ties among developing countries are growing at a rapid pace. An in-depth UNIDO survey on foreign direct investment (2005) conducted in 15 African economies<sup>18</sup> shows that the proportion of investors in 2005 from industrialised countries and developing origin were close to even with 54 per cent industrialised and 46 per cent developing origin (UNIDO 2005). This study shows that, European investors tend to be established transnational companies (TNCs) dating pre-1980, whereas investors from developing countries are later arrivals, dating mostly from post-2000. In UNIDO's last two surveys (2003 and 2005) results show that European Union companies are the major investors in the surveyed African countries followed by African companies, as the second most important group of investors in sub-Saharan Africa (comprising nearly 20% total FDI). South Africa is by far the largest investor within this latter group, occupying the third position in the overall rank, following France and the United Kingdom.

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<sup>18</sup> The study for 2005 included: Burkina Faso, Cameroon, Côte d'Ivoire, Ethiopia, Ghana, Guinea, Kenya, Madagascar, Malawi, Mali, Mozambique, Nigeria, Senegal, Uganda and United Republic of Tanzania.

Figure 6:



Source: UNIDO Africa Foreign Investor Survey 2005

South African companies are thus major investors in Africa. Although the UNIDO study pictures South African investors as late arrivals, the activity of South African corporations in Africa dates back to the 1960s. Their presence has been historically focused on infrastructure development and resource based activities, such as mining. For example the rail transport and port system of Mozambique were largely developed by South Africa with the intention to connect workers and mineral exports. However, the definite 'push' of South Africa to penetrate into African markets was related to its transition to democracy and regain of international respectability (Daniel, Naidoo and Naidu, 2003). Therefore, the amount and variety of investments has increased substantially since 1994, with the dismantling of apartheid and the subsequent growing outward expansion of South African business activity into the rest of Africa.

According to UNIDO (2005) and Daniel et al (2005), joint ventures are increasingly the preferred form of corporate investment. Banking services, telecommunications and broadcasting, retails trade, tourism and utilities (power and water) are pointed by these studies as the predominant sectors. It is in the services sector where the larger profit margins are located<sup>19</sup>. Therefore, in a similar fashion than the rest of foreign investors,

<sup>19</sup> UNIDO (2005) results show that it would appear that when operating in sub-Saharan Africa, foreign investors preferred joint ventures, which had average book values greater than that of wholly-owned.

South African corporations have developed mergers and joint ventures in key sectors expanding their business prospects in the region.

According to information extracted from the Corporate Mapping data set compiled by Daniel et al (2005), South African investments in Africa include: aviation and airport services; banking and financial services; construction; energy; manufacturing; media and broadcasting; mining; retail trade; research and development; telecommunications; transport; tourism and leisure and utilities (power and water). Mining has seen some of the largest investments including Anglo Gold's merger with Ashanti Goldfields, Randgold's investments in West Africa, while Mvelaphanda Holdings enters the DRC (Naidu and Lutchman, 2004). In the banking and financial services Stanbic, Absa and Alexander Forges have a large presence across Africa. The state owned Industrial Development Corporation (IDC) and CSIR are respectively financing and conducting projects in about 20 African countries. In the telecommunications sector Vodacom and MTN and Eskom enterprises are rapidly expanding in West and East Africa. In the retail trade two corporations take the lead, Shoprite with 100 stores in 15 African countries and Massmart with over 300 outlets in SACU states.

Table 3: Major South African corporates in Africa by sector

Sector	SA Corporation	Locations in the rest of Africa	
<b>Aviation and airport services</b>	Airports Company of South Africa	9 countries	
<b>Airlines</b>	South African Airways (SAA)	Two joint ventures 49% stake in Air Tanzania 30% stake in Nigeria's national carrier Eagle Airline SAA flies to 20 African destinations	
<b>Banking and financial services</b>	<b>Private enterprises</b>	Stanbic	9 countries
		ABSA	4 countries
		Stanlib (Standard Bank / Liberty Bank joint venture)	9 countries
		First Rand plus subsidiary Rand Merchant Bank	3 countries
		Nedbank	7 countries
		Investec Ltd	4 countries
	<b>State-owned enterprises</b>	Metropolitan Life	5 countries
		DBSA	7 countries
		IDC	20 countries
<b>Construction</b>	Murray & Roberts	Permanent offices in 3 countries and 13 contracts	
	Group 5	Contracts in 13 countries	
	Concor	Contracts in 9 countries	
<b>Energy</b>	Sasol	Contracts in 4 countries. The planned merger of its liquid fuels with the marketing and distribution business of Malaysia's Petronas will lead to operations in 14 sub-Saharan countries	
<b>Manufacturing</b>	Nampak	10 countries	
	Sappi	3 countries	
	SABMiller	13 beer breweries in 10 countries 35 sorghum breweries in 5 countries	
	Illovo Sugar	5 countries	
	Tongaat Hulett	3 countries	
	Barloworld	7 southern Africa countries	
	AECI subsidiaries AEL and Dulux	Registered AEL companies in 7 countries Manufacturing Dulux products in 5 countries	
<b>Media and broadcasting</b>	Multichoice	TV and subscriber services 21 countries	
<b>Mining</b>	De Beers	3 countries	
	Anglogold	8 countries through merger with Ashanti Goldfields	
	Goldfields	Operations in 1 country and exploration in 3	
	Randgold Resources	3 countries	
<b>Retail</b>	Shoprite	100 outlets in 15 countries Contributed R2.0 billion to SA net exports by sourcing products from SA.	
	Massmart (Makro, Game, Dion, Cash & Carry, Builders Warehouse)	Over 300 outlets in SACU states. Game opening in Uganda in 2004	
	Metcash	3 countries	
	Wooltru / Woolworths	52 stores in 19 countries	
	Steers Holdings (Steers, Debonairs, FishAways, Church's Chicken, Pouyoukas Foods)	Franchises in 22 countries	
	Pepkor Holdings (Pep Stores, Ackermans)	6 countries	

		Ellerine Holdings Limited (Ellerines, Town Talk Furnishers, Furn City, Rainbow Loans, CPI, Foreign, Wetherlys, Osiers, Roodefum)	94 stores in 5 countries
		JD Group (Abra, Barnetts, BoConcept, Bradlows, Electric Express, HI-FI Corporation, Joshua Doore, Morkels, Price and Pride, Russells)	28 stores in 4 countries
<b>Research &amp; Development</b>		V&A Waterfront	Contacts in 3 countries for feasibility studies of waterfronts (Mauritius, Gabon, Nigeria)
<b>Telecommunications</b>		MTN/M-Cell	Cellular/fixed line contracts in 5 countries (Uganda 50%, Rwanda 31%, Nigeria 94%, Cameroon 100% and Swaziland – joint venture). Bidding for a 60% stake in Kenya's second cellphone operator, Kencell, against MSI Cellular. Kencell's rival, Safaricom, has UK group Vodafone as its shareholder. Vodafone is a significant shareholder in Vodacom.
		Vodacom	Cellular contracts in 5 countries but only functional in Lesotho, DRC 51%, Tanzania 65% and Mozambique. Operations in Mozambique resumed in late 2003 after a year-long delay. Zambian licence remains non-operational for the second year. Has also made a bid for a 50% share in local Nigerian operator Econet Wireless to enable it to compete with MTN. Issue stalled by court action.
		Transtel (A division of Transnet)	Runs telecommunication network with SA multinationals in Africa (includes banks, retail stores, local telecoms and some civil and security networks)
		Eskom Enterprises Telecommunications	1 fixed line/cellular contract
<b>Transport</b>		Transnet (9 divisions with African involvement including Spoornet Joint Ventures and its subsidiary Comazar, Transwerk and Transtel)	20 country contracts
		Unitrans	7 countries
<b>Tourism and Leisure</b>		Protea Hotels	Resorts in 9 countries
		Southern Sun	Resorts in 6 countries
		Sun International	Resorts in 4 countries
		Imperial Car Rental	110 locations in 8 southern African countries
<b>Utilities</b>	<b>Power</b>	Eskom Enterprises	3 management contracts, 1 joint venture and 28 country contracts
	<b>Water</b>	Umgeni Water	3 country contracts
<b>Information Technology</b>		Arivia.com (state-owned)	Offices in Nigeria, Ghana and Botswana 1 joint venture with Seven Seas Technologies in Kenya Contracts in Namibia, Malawi Zambia and Uganda
		Mustek (Mecer brand)	Authorised dealerships in 8 African countries

Source: Extracted from Naidoo and Lutchman et al (2004) – table originally constructed from information in the Corporate Mapping Database.

## Skills development and technical training

Foreign investment is expected to bring skills and enhance productivity of the recipient country by incorporating new inputs and technologies into production and training activities. UNIDO survey (2005) found that South African investors spent the most on employee training in the African countries of the sample. According to this study, six of the top ten spenders on training in Africa are South African companies. The group that is second in terms of average spending on training is Sub-Saharan Africa. The results for that survey can be taken as an indication that African investors entering other African markets as investors put the highest priority on human capital development, reflecting their long term commitment to the region (UNIDO, 2005).

As an example, according to *Business Report* (2005) PetroSA, South Africa's national oil company, recently concluded a capacity building agreement for the development of technical staff in Sudan, sending South African technicians to Sudan and Sudan sending personnel to South Africa "for training to enhance their technical know-how". The joint venture was described as commercially beneficial for Sudan "while obtaining the critical skills they need to develop their oil industry further" (Business Report, 2005).

In line with this case, the last UNIDO survey reported that large South African and Sub-Saharan African services investing firms had the highest percentage of graduates. Their joint ventures tend to employ a much higher proportion of graduates than the wholly foreign owned firms (UNIDO, 2005). This study also shows that South African investors are within the group that spends the most on training, pays the highest wages and has the most linkages to local market agents. "Some of these are very large, rapidly expanding services companies, particularly in financial services and telecommunications sectors that in terms of sheer size, investment levels and growth, have dominated the scene very quickly" (UNIDO, 2005).

However, these views are not shared by all and the good intentions of South Africa's investments have been question of debate raising sensitivities around South Africa's economic dominance on the continent. In a recent article by Bond and Kapuya (2005) South African corporations have been described as "new imperialists" in an African context. In 2004 the then Public Enterprises Minister Jeff Radebe was quoted South African Press Agency stating "there are strong perceptions that many South African companies working elsewhere in Africa come across as arrogant, disrespectful, aloof and careless in their attitude towards local business communities, work seekers and even governments".

In the specific case of the retail sector, South African corporation are seen to be dismantling local producers. In 2004 Zambian President Levy Mwanawasa criticised South African supermarket chains in the country for shunning locally produced fruit

which he said was abundant in the southern African country<sup>20</sup> (Independent Online, 2004). A similar case is presented by Bond and Kapuya in Zimbabwe, where retail groups such as Shoprite, Pick 'n Pay and Massmart (Makro) opened shops during the 1990s under the Economic Structural Adjustment Programme (ESAP) in Zimbabwe, importing mass-produced consumer goods from their own South African supplier networks (Bond and Kapuya, 2005) replacing local products. In these cases, the effect on the production capabilities and skills of the local produces has been undermined, leading to substitution of local production rather than enhancement of productivity.

## 5. Migration of skills

Given the severe lack of skills and huge problems with unemployment, mobility of skills represents a pressing concern in Africa. The migration of persons across boundaries in search of better opportunities or as a result of war, conflict and political instability has risen substantially over the years (Williams and Carr, 2006), and Africa is clearly not an exception. Also, as the services of qualified and skilled people are in increasing demand, there is a larger incentive to consider better prospects in richer economies outside their national borders. The preoccupation for migration between African states is recognised by the African Union in its *Strategic Framework for a policy on migration in Africa* (AU, 2003).

In a Southern African context, the increasing attempt to facilitate free movement of goods between SADC countries has led to considerations on the establishment of a common protocol since 1994. After several rounds of discussions and objections (mainly from South Africa, Botswana and Namibia)<sup>21</sup>, a *Draft Protocol on the Facilitation of Movement of Persons* was approved in 2005 and signed by six member states. However for the protocol to be effective it requires nine members to sign. Compared to the volume of unskilled and forced migration, the international movement of skilled people is still relatively small (Findlay 1995), however its impact in the productive sphere and development of technological capabilities is very significant.

In South Africa, the problem of shortage of skills has generally been associated to the extensive emigration of skilled people abroad during the apartheid time. For the rest of African countries (particularly SADC countries), fears arose with the end of apartheid (Saasa 1996), opening opportunities for qualified workers in the 'emerging power'. Skills migration to South Africa from all other SADC states jumped significantly just before the 1994 election (Crush and Williams, 2002)<sup>22</sup>. This lost of skills had significant negative

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<sup>20</sup> Referring particularly to Shoprite Checkers but aiming other retail outlets to stop importing products from South Africa.

<sup>21</sup> The most 'active' economies in SADC.

<sup>22</sup> Some 200 medical doctors reportedly left Zimbabwe for Botswana and South Africa in 1992 alone (Saasa 1996).

impact on struggling African economies and a positive impact in South Africa, further exacerbating chronic regional inequalities (Crush and Williams, 2002).

The *SADC Protocol on Education and Training* was adopted in 1997 and requires member states to encourage mobility of students and researchers. Given the good reputation of South African Universities across the continent, in 2005 SADC students comprise about 8% of South Africa's full time tertiary enrolments (Waller, 2006). The impact of "brain circulation" within SADC has been examined by Adepoju (2004) and the Southern African Migration Project (SAMP)<sup>23</sup>. Given increasing polarization and unequal distribution of African wealth, uncertain economic conditions in several countries sends skilled professionals to those growing economies in SADC such as Botswana, Namibia and South Africa. The majority of skilled African professionals tend to go to South Africa, skilled professionals work mostly in South Africa's tertiary institutions, medical establishments and the private sector (Waller, 2006).

The Southern African Migration Project (SAMP) has recently conducted a *Potential Skills Base Survey*<sup>24</sup> in Southern Africa. Some of these results note that while South African students look predominantly to Europe as a destination, students from Lesotho, Swaziland, Zimbabwe and Namibia preferred Southern Africa. This would be good news for South Africa, given its level of technical and skilled professional is still far from the desired figure- particularly in the fields of science and technology- for economic development and a healthy system of innovation (Blankley, ...). However, results of this study also show that the likelihood of retaining these graduates is very low, as nearly 80% had considered emigration upon graduation.

In this case again, the overall impact of migration of skills is unclear. The final effect depends on whether the positive effects of achieving an education or a better salary as a qualified professional in South Africa would eventually bring some benefits back to the African countries of origin.

## 6. Conclusions

This chapter has presented some existing evidence on the nature of economic, political and social interactions of South Africa with the rest of Africa particularly with its most immediate neighbours of Southern Africa. The geographic proximity and historical links of South Africa and the SADC members has evolved into the formalisation of trade agreements, political collaboration and migration of people.

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<sup>23</sup> For more information see <http://www.queensu.ca/samp/>

<sup>24</sup> A sample of 10, 000 final-year students was conducted in tertiary training institutions across the SADC countries, including universities, technikons, teacher-training colleges and nursing-training colleges.

South African presence and interaction with the rest of Africa is clearly growing. In the business sphere, South African corporations see Africa as a growing market opportunity; perhaps due to unreachable entry barriers brought by rapid competition in other areas of the world. There are opposite views on the expansion of South African business in Africa. Some defend the benefits of South African investments in infrastructure and positive impact in African FDI as well as skills development. Whereas opponents hold that South Africa's role on the continent is simply pursuing national interests and promote market access for its corporates with little concern for its neighbours and the continent.

South Africa brings opportunities to the innovation systems of other African countries in terms of new products and technologies, investment in strategic sectors, and skills – providing an alternative of achieving adequate education and training perhaps not available in other African countries. At the same time, South African business replace local production and show a large trade imbalance with their African counterparts, attracting a significant part their natural resources as well as their limited skilled professionals. The opportunities and challenges for Africa are there. The direction of the impact might lie in the ability of African states to (1) reinforce African collaboration rather than competition, enhancing the opportunities and reducing the threats, (2) developing mechanisms to bring back the benefits to individual local economies and (3) level up the distribution of political power across the continent.

A more detailed application of the innovation systems approach, would allow the detection of the overall quality and effect of these linkages, in order to detect areas of weakness and strengths. The lessons extracted can help improve discussions on effective African integrations, using an innovation systems perspective.

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