



2000 Annual Forum

at Glenburn Lodge, Muldersdrift

**SPATIAL DEVELOPMENT
INITIATIVES AND
EMPLOYMENT CREATION:
WILL THEY WORK?**

CM Naude
Transportek CSIR

SK McCoskey
U.S. Naval Academy

SPATIAL DEVELOPMENT INITIATIVES AND EMPLOYMENT CREATION: WILL THEY WORK?

CM Naude * and SK McCoskey**

Abstract

The Spatial Development Initiative (SDI) programme has been in existence since 1995, with the primary aims of generating investment projects in key economic sectors in specific areas of the country thereby increasing employment in these sectors and areas. The key objective of the paper is to provide an assessment of the capacity of the SDIs to restructure the economy and enhance employment creation in South Africa. This will include the extent to which the SDI strategy conforms to economic theory on industrial location and economic development, as well as the extent to which the SDIs have been (and can be) successful in employment creation.

The paper includes an overview of the SDI programme, current trends in the South African economy and a review of the economic theory of economic development in a spatial context. Finally, the SDIs are assessed in terms of their success in creating employment opportunities.

The conclusions of the paper are as follows:

- The capital required by the potential projects of the SDIs are substantial when measured against their potential job creation (e.g. R381 000 per job on average). The issue in this regard is whether key projects should be prioritized in terms of their ability to create jobs in the near future;
- The bulk of the envisaged SDI projects are focused on the traditional sectors of the South African economy, i.e. Agriculture, Mining and Manufacturing. Globalization and the “New Economy” might dictate that this emphasis be revised to include sectors which are poised for growth, e.g. Tourism, Financial & Business Services and “hi-tech” manufacturing. The case for this would seem to be even stronger if the hierarchy of development is considered (see Meier, 1984), whereby economies become more dependent upon tertiary sectors and less dependent upon primary and secondary sectors for economic growth;
- Certainly in terms of the location of the SDI areas, it seems that the gradual widening of the SDIs to include more areas of the country has resulted in an alignment of SDIs with those areas which have experienced employment growth between 1980 and 1996. This should ensure that the SDIs are located in areas of economic growth and the core of the economy as opposed to the periphery.
- The extent to which government can *directly* influence the decision to invest could be limited because the final decision is a “firm-level” one. However, government could very well play a useful role *indirectly* in terms of influencing the structure of the firm’s decision through infrastructure provision, reduction of transportation costs and enhancement of education levels. For SDIs to be successful, the importance of the legal and institutional framework supporting investment will have to be favourable. An example would be the objective of creating 35,000 jobs in the agricultural and related sectors in the context of a land tax and the legal framework pertinent to employment.

* Transportek CSIR, PO Box 395, Pretoria, 0001

** U.S. Naval Academy, 121 Blake Road, Annapolis, MD 21402

INTRODUCTION

The Spatial Development Initiative (SDI) programme has been in existence since 1995, with the primary aims of generating investment projects in key economic sectors in specific areas of the country thereby increasing employment in these sectors and areas. The key objective of the paper is to provide an assessment of the capacity of the SDIs to restructure the economy and enhance employment creation in South Africa. This will include the extent to which the SDI strategy conforms to economic theory on industrial location and economic development, as well as the extent to which the SDIs have been (and can be) successful in employment creation.

The paper includes an overview of the SDI programme, current trends in the South African economy and a review of the economic theory of economic development in a spatial context. Finally, the SDIs are analyzed in terms of their potential for creating employment opportunities.

REVIEW OF THE SDI PROGRAMME

The SDI process began in 1995 and was the first attempt by the government (primarily the Department of Trade & Industry and the Department of Transport) to take economic policy into the implementation arena. It sought to identify key areas of the country which could be the focus for economic development in the post-apartheid era and promote investment in these areas. The areas would be identified on the strength of the core economic activities (along sectoral lines) which characterized the area and then strategies could be devised focused on these lead sectors. Anchor projects would then also be identified as being the key projects which could initiate and sustain the SDIs into the future. More often than not, the SDIs encompassed existing or proposed transport infrastructure and took the form of a development corridor. A key component would then be the active promotion by government of investment in the anchor projects in the SDIs by the private sector. The role of government would then be to identify projects and to facilitate involvement by interested parties.

An overview of some of the different types of SDIs and their respective sectoral focus is provided below:

Industrial:	KwaZulu-Natal SDI Fish River SDI Richards Bay-Empangeni SDI Phalaborwa SDI
Agri-Tourism	Lubombo SDI Wild Coast SDI
Mixed sectors	Maputo Development Corridor West Coast Investment Initiative

Other initiatives are in the process of identifying projects, e.g. the Platinum SDI. In addition, various centres were identified for the location of Industrial Development Zones (IDZs) to support the SDIs, e.g. Saldhana, Durban and Richards Bay.

The SDIs referred to above have identified projects to the value of \$32,4 billion, creating 86000 jobs. A breakdown of some of the sectors, and their *direct* relative potential employment opportunities is contained in Table 1 below.

Table 1: SDI capital investment and anticipated employment creation per economic sector

Sector	Number of projects	Fixed capital (Rm)	Jobs (min)	Jobs (max)	Capital required per job (Rands) (max case)
Agriculture & agriprocessing	124	380.40	26,223	26,427	14,394
Fishing & marine products	10	5.14	495	3,460	1,486
Forestry	1	13.00	5,000	5,000	2,600
Automotive & transport	42	1,512.44	7,085	11,649	129,835
Chemicals, rubber & plastics	53	8,915.93	6,483	7,083	1,258,779
Clothing & textiles	29	30.54	2,553	2,553	11,961
Electronics	2	9.50	463	463	20,518
Energy	5	3,062.50	0	0	
Food & beverages	18	936.05	325	350	2,674,440
Furniture & wood products	23	456.66	3,030	12,000	38,055
Infrastructure	112	2,612.18	1,135	1,395	1,872,532
Leather & footwear	5	3.67	230	420	8,731
Machinery & electrical equipment	1	3.00	130	130	23,077
Metals & metal products	59	8,949.53	13,070	13,167	679,694
Mining & minerals processing	52	2,850.0	3,848	3,968	718,247
Nonmetals & non-metallic products	11	473.32	381	381	1,242,322
Other	5	31.37	0	0	
Printing, pulp & paper	2	280.00	1,200	1,200	233,333
Property development	36	121.50	1,459	1,609	75,514
Services	13	78.78	0	0	-
Tourism	165	1,728.00	3,311	3,575	483,354
Total	773	32,378.60	84,942	86,309	375,148

(Source: www.sdis.org.za)

The data in Table 1 depict the capital involved per sector for the various projects for the SDIs and estimates of the respective numbers of employment opportunities for the projects in the various sectors. The capital cost per job varies considerably across the sectors, e.g. R1,486 per job in the case of Fishing and Marine products, to R2,674,440 per job in the case of Food & Beverages, with an average of R375,148 overall. The figures might seem rather high on average, but do indicate the immense requirements of capital needed to create jobs in the South African context.

The opportunity cost of investment in projects in the SDIs is an important issue. The decision to invest by the private sector in the SDIs would hinge upon whether the returns are better in these (SDI-based) projects than in alternative (competing) investments both in South Africa and abroad, subject to criteria deemed critical to investors. Government would not automatically be involved in the projects, if at all.

REVIEW OF ECONOMIC THEORY

The part of economic theory most appropriate to analyzing economic activity (i.e. employment creation) on a regional or spatial basis is that of the “new economic geography”. This school of economic thought attempts to explain economic development in terms of “history and accident” (non-economic factors, e.g. political developments), the geographic location of industries relative to their suppliers and markets, advantages accruing from concentration of industries (e.g. increasing returns) which perpetuate industrial patterns over time long after the initial rationale for the location has diminished, identification of a core and periphery of an economy which may change over time.

History and accident

It is argued by Krugman (1991) that historical events and accident can result in certain activities taking place in particular areas for non-economic reasons at first. However in due course, some economic advantages accrue to industries or activities which perpetuate the activities in the areas long after original rationale has become of lesser importance or even irrelevant (e.g. the continued economic prominence of a large part of the original thirteen colonies of what is now the United States, including the area around the Great Lakes. This is perpetuated by advantages to industry accruing due to concentration of population (i.e. markets) and suppliers (Krugman, 1991).

Importance of concentration in the location of industry

Concentration can explain the location of industry to a significant extent. This includes concentration of population in a number of relatively large urban areas with a high level of specialization of activities in these areas. This can be explained by some kind of increasing returns (Krugman, 1991), that is advantages derived from agglomeration effects of being in close proximity to suppliers, markets and even competitors. A concept extremely difficult to quantify in a robust manner.

A model of industry concentration can be put forward with the key determinants of increasing returns, transport cost and demand. The reasoning is that, in keeping with the

notion of scale economies, each manufacturer aims to serve national demand from one location. In order to minimize transport cost locational choice is driven by proximity of a large local demand. However, demand is maximized where the majority of manufacturers decide to locate. This makes for an element of perpetuity in the location of say manufacturing industry in an area. The key element of the model is that firms' locational choices are determined by the concentration of the industry. This can be shown in a simple quantitative manner in Table 2

Table 2: Manufacturing location decision matrix

Location of manufacturing employment	Cost element	Cost implications of location decision		
		East	Both	West
East only	Fixed	4	8	4
	Transportation	3	0	7
	Total	7	8	11
50/50 split	Fixed	4	8	4
	Transportation	5	0	5
	Total	9	8	9
West only	Fixed	4	8	4
	Transportation	7	0	3
	Total	11	8	7

(Source: Krugman, 1991)

Table 2 shows that there are two regions in the country, namely: East and West in which industry can locate. Cost is divided into fixed, transport and total cost elements. The options for the location of the manufacturing industry are three: east only, west only and a 50/50 split between the two. Similarly, the locational options for the individual firm are to select east, west or both regions.

If manufacturing employment is concentrated in East only, the least cost option for the firm is to locate in the East. This is because although fixed costs are the same regardless of whether East or West is chosen, transport costs are minimized if the firm locates in the region where industry is already concentrated. It does not make sense to locate plants in both regions because transport costs are zero but fixed costs are doubled what they would be. The decision matrix is the same in the case where manufacturing employment is concentrated in West only, the minimum cost option then lying in West region.

The core and the periphery

The work undertaken most recently by Krugman & Venables (1998) puts forward the notion of the existence of a *core* and a *periphery* in economic development and international trade, in the context of globalization. (The theory is also applicable in the case of regions within a country).

This model uses a world consisting of two regions, North and South, each producing two goods agricultural (characterized by constant returns to scale) and manufactured goods (characterized by increasing returns). The latter include intermediate goods used in the production process, as well as goods for final demand by consumers. Neither region has a comparative advantage in either of the goods. However, transport costs between the regions are initially extremely high. Each region will be self-sufficient and produce both goods for own consumption.

As transportation costs fall over time, trade between the regions takes place. If there are many different kinds of manufactures, two way trade in these occurs between the regions. If transport costs remain high, no specialization of activities occurs in the regions. As one region emerges with a stronger manufacturing base, so it will eventually attract more industries involved in intermediate activities (the production process – leading to backward linkages between industries). If one region produces more intermediate goods, better access to these goods will mean reduced costs of production of final goods (forward linkages). This will result in increased movement of manufacturing to that region. When transportation costs fall below a critical level, the global economy will organize itself into an industrialized *core* and deindustrialized *periphery*.

Meanwhile, demand for labour increases in the industrial region or core through the concentration and growth of industry, and a fall in the demand of labour in the *periphery*. Real wages then fall in the *periphery* and increase in the *core*. “Global economic integration leads to uneven development” (Krugman & Venables, 1998). If transport costs continue to fall, the advantage of being located closer to markets and suppliers begins to decline. The *periphery* then emerges with an advantage in the form of a lower wage rate, to the point where this outweighs the disadvantage of distance from markets and suppliers. Manufacturing activities then moves from the core to the periphery, enabling a convergence of wage rates and economic growth between the regions.

Changing core-periphery

Shifts in the core-periphery structure may not occur for a substantial length of time or may occur very rapidly and decisively when they do eventually occur. If there is a shift in population from one region to another (e.g. East to West) there comes a point (population reaches a critical mass) when it becomes sensible for manufacturers to locate in the West. This increased production in West implies in turn an increased level of migration from East to West, initiating further increases in production again.

“Transport networks and regional divergence” (Krugman, 1991)

The density of and access to transportation networks has also been identified as an element accounting for divergence between regions. Transportation networks have traditionally been more dense in the developed parts of the U.S., often resulting in reduced transport costs through better access (in the absence of excessive congestion). The theory holds that if transport costs are reduced between certain centers (economies of scale in transport), location of manufacturing is made more attractive due to advantages of access to markets. Investment in infrastructure can therefore be a key determinant in attracting industry and enhancing economic growth.

TRENDS IN THE KEY SECTORS OF THE SOUTH AFRICAN ECONOMY

Table 3: contains an overview of the changes in the South African economy from 1980 to 1998.

Table 3: Economic growth and structural change in South Africa, 1980 to 1998

Sectoral contribution	1980	1998	% change 1980-1998
Gross domestic product (GDP) (\$m)	80,544	133,461	2.85*
Agriculture value added (% of GDP)	6	4	(2)
Industry value added (% of GDP)	48	32	(16)
Manufacturing value added (% of GDP)	22	19	(3)
Services value added (% of GDP)	46	64	18

(Source: World Bank)

(* denotes annual average % change in GDP between 1980 and 1998)

Table 3 shows that the South African economy has become less reliant upon the traditional sectors of agriculture and manufacturing and more of a service-based economy, with a contribution of 64% from this activity in terms of value added. Of course, the key element in terms of this paper is the spatial economic changes in the South African economy. There have been a number of important developments in the fortunes of certain key sectors of the South African economy which have impacted upon the relative location of economic activities.

Table 4: Contribution to gross domestic product (GDP), 1991 & 1996

Province	% contribution to GDP (1991)	% contribution to GDP (1996)
Gauteng	37.2	36.5
Northern Province	3.7	4.2
Mpumalanga	8.6	7.2
KwaZulu-Natal	14.9	16.1
Eastern Cape	7.6	7.5
Free State	6.4	5.7
Northern Cape	2.1	2.3
Western Cape	13.8	15.6
North West	5.7	4.9

(Source: Development Bank of Southern Africa, 2000)

Table 4 sets out the changes between 1991 and 1996 of contribution to GDP of economic activity in the provinces. It is apparent that the traditional inland core areas of the economy, e.g. Gauteng and Free State have contributed a declining share of GDP, while the contribution of Northern Province, KwaZulu-Natal and Western Cape have increased. This could imply some level of change in the core of the economy from inland to areas with outlets to the sea to minimize transport costs in the latter two cases. In the case of Northern Province, growth could stem from the fact that since the deregulation of road freight in 1989, the level of road freight traffic has increased through the Beit Bridge border post, involving some level of activity along the corridor into Africa. Previously, this freight would have moved northwards via Botswana by rail.

Table 5: Average annual growth in gross geographic product (GGP)¹, 1980-1991 and 1991-1996 (%)

Province	Average annual real GGP growth 1980-1991 (%)	Average annual real GGP growth 1991-1996 (%)
Gauteng	0.3	0.9
Northern Province	6.6	4.2
Mpumalanga	4.4	-0.6
KwaZulu-Natal	1.7	2.6
Eastern Cape	1.7	1.5
Free State	-0.4	-0.5
Northern Cape	0.3	2.8
Western Cape	1.9	3.8
North West	1.2	-0.6

(Source: Development Bank of Southern Africa, 2000)

CORE AND PERIPHERY IN SOUTH AFRICA

Possible changes in the core and periphery are important components of spatial economic theory. Data on a provincial level have been used to examine whether any changes have occurred in terms of increasing returns, transport (infrastructure) costs and demand.

¹ Gross Geographic Product (GGP) is defined as the value of final goods & services produced in a geographic area in one year. It has been used wherever possible in the study as it conforms the closest to a value of economic activity on a geographical/spatial basis.

Table 6: Trends in the core and periphery of South Africa

Province	GDP growth, 1991-1996 (%)	Urbanization level (%)	Real GDP per capita (1996)	Population growth (%), 1985-1994	Road infrastructure spending per capita (1996 Rands)
Western Cape	3.8	88.9	10,273	1.97	117.86
North. Cape	2.8	70.1	7,341	0.89	183.76
Free State	-0.5	68.6	5,871	1.72	136.84
Eastern Cape	1.5	36.6	3,106	2.96	63.15
KZN	2.6	43.1	5,037	2.91	50.13
Mpumalanga	-0.6	39.1	7,234	2.67	116.16
N Province	4.2	11.0	2,297	3.97	66.63
Gauteng	0.9	97.0	12,868	2.18	20.71
Nwest	-0.6	34.9	3,964	3.2	107.79

(Source: DBSA, 2000; Statistics South Africa, 1999)

GDP growth and GDP per capita

As shown in Table 6, it becomes apparent that the more developed provinces such as Gauteng, have had relatively low rates of GDP growth in the period 1991-1996 (0.9% per annum), while provinces such as Northern Province, KwaZulu-Natal and the Western Cape display higher rates of growth (4.2%, 2.6% and 3.8% respectively). This could indicate significant changes in the core and periphery in South Africa in terms of GDP growth and per capita growth in the case of Gauteng versus other provinces. The data on real GDP per capita varies widely across provinces, from R2,297 in Northern Province to R12,868 in Gauteng. Again, there could be some evidence of change in overall GDP growth and per capita GDP, with the provinces with lower real GDP per capita (e.g. Northern Province, Eastern Cape, KwaZulu-Natal) attaining higher rates of growth than the traditional industrial heartland of Gauteng where real per capita GDP is substantially higher.

Demand

On the demand-side, it is not overwhelmingly clear that the provinces with a higher level of urbanization have managed to sustain high rates of GDP growth. While the Western Cape and the Northern Cape have urbanization levels of over 70% and have attained real GDP growth rates of over 2.5%, there are provinces which go counter to this pattern, e.g. Gauteng with an urbanization level of 97% and growth of 0.9%, versus Mpumalanga (urbanization of 39.1% and growth of -0.6%) and North West (34.9% urbanized and growth of -0.6%)

Population growth rates have not been appreciably lower in more developed provinces with lower rates of GDP growth. KwaZulu-Natal and the Northern Province exhibit relatively high rates of population growth (3.97%, 2.91% and 2.96% respectively) and relatively high rates of GDP growth (4.2%, 2.6% and 1.5%). Meanwhile, the Northern

Cape and the Western Cape have attained lower rates of population growth (0.89% and 1.96%) and higher rates of GGP growth (2.8% and 3.8%)²

Investment in transport infrastructure

Per capita expenditure on road infrastructure has been used as an indicator of infrastructure investment in each province. This data include construction and maintenance expenditure on provincial and national roads in each province. A complicating factor is that the provincial dispensation has changed from 4 provinces to 9 since the democratic elections in 1994, making any comparison over time difficult. Also, expenditure allocations to transport infrastructure are often made on the basis of network length which is a function of geographic area. Nevertheless, the data indicate that in some cases road infrastructure spending per capita has been extremely low (e.g. Gauteng – R20.71) with a corresponding low rate of GGP growth. In other cases, per capita infrastructure spending has been high (e.g. Western Cape – R117.86 & Northern Cape – R183.76) with relatively high rates of GGP growth. In other cases, infrastructure spending has been moderately high (e.g. Free State – R136.84 and North West – R107.79) and GGP growth negative.

Transport cost

Inland transport costs have been high relatively high in South Africa which could explain the shift from inland location of industry to provinces with good access to port infrastructure for import/export purposes, e.g. KwaZulu-Natal and Western Cape. The Moving South Africa project of the Department of Transport found that inland road transport costs in South Africa were as much as 30% higher than the equivalent haulage rates in the United States, when measured as % of overall costs.

Historical pattern of investment

An important part of South Africa's economic past was the "decentralization" strategy adopted by government pre-1994 to develop the homeland areas and ensure that industry had direct access to labour without labour having to relocate. This strategy consisted of various incentives, e.g. provision of infrastructure, subsidization of labour costs. Since the withdrawal of these incentives by government, there has been extensive disinvestments from these areas.

EMPLOYMENT CHANGES SDI VERSUS NON SDI 1980-1996

This section examines changes in employment in the various sectors of the economy using a nine sector classification over the period 1980 to 1996. The analysis was undertaken using magisterial district level data for South Africa to enable the comparison of SDI areas versus non-SDI areas in the years preceding the establishment of the SDI programme so that fundamental strengths in the respective regions can be identified in the run-up to the initiation of the SDIs. Two periods of analysis were included, namely: 1980-1991 and 1991-1996.

² Education levels and investment in human capital and R&D have been excluded from the analysis but could provide useful material for further study on the demand side.

The sectoral classification used in the study conforms to the Standard Industrial Classification (SIC) codes system. The economic activities relating to each of the major economic sectors is contained in Table 7.

Table 7: Grouping of economic activities into major economic sectors in terms of SIC definitions	
Agriculture, forestry & fishing	Crop farming, livestock production, horticulture, hunting, game services, forestry, fish farming & production of organic fertilizer
Mining & quarrying	Mining and quarrying & incidental activities, excluding surveying
Manufacturing	Processing, production & manufacture of motor vehicles & parts, machinery, fabricated metal, iron & steel, glass, plastic, rubber, pottery, chemicals, printing & publishing, paper, pulp & wood products, furniture, leather goods, clothing, textiles, tobacco & beverages
Electricity & water	Supply of electricity, gas, steam, hot water, production & distribution of electricity, manufacture of gas, collection, treatment & distribution of water
Construction	Site preparation, building installation, renting of construction & demolition equipment
Trade, catering & accommodation	Retail trade in motor vehicles & parts, agricultural products, livestock sales, beverages & tobacco, household goods, waste & scrap, retail sales of petrol, hotels, restaurants & pubs
Transport & communications	Land transport, rail transport, pipelines, water transport, air transport, posts & telecommunications, couriers & activities related to transport
Financial, real estate & business services	Financial activities & consulting, real estate, equipment rental, computer activities & consulting, data processing, research & development, legal, accounting, advertising & insurance
Community, social & personal services	Provincial & local government, education, health, social services, refuse & sanitation disposal, recreational & cultural activity, radio, television, entertainment

(Source: Statistics South Africa)

(All other % change in percentage points)
(Figures in parentheses denote decline)

Table 8: % annual avge change 1980-1991											
		Agriculture	Mining	Manufacturing	Electricity	Construction	Commerce	Transport	Financing	Services	Total
SDI		-0.006	0.009	0.071	0.037	0.050	0.066	0.030	0.159	0.076	0.059
Non-SDI		-0.017	-0.015	-0.025	-0.026	-0.009	-0.027	-0.055	-0.011	-0.006	-0.018
Total		-0.014	-0.010	0.002	-0.006	0.005	-0.001	-0.029	0.044	0.015	0.003

(Source: Statistics South Africa)

Table 9: % annual avge change 1991-1996											
		Agriculture	Mining	Manufacturing	Electricity	Construction	Commerce	Transport	Financing	Services	Total
SDI		-0.010	-0.025	-0.035	0.035	0.035	0.011	0.018	0.026	-0.038	-0.012
Non-SDI		0.010	-0.017	0.017	0.060	0.055	0.052	0.063	0.084	-0.009	0.020
Total		0.006	-0.019	-0.001	0.051	0.050	0.038	0.046	0.056	-0.018	0.010

(Source: Statistics South Africa)

Table 8 shows that between 1980 and 1991, employment in the areas *now* known as SDIs grew by 0.059% per annum on average, versus a contraction in employment in the non-SDI areas of 0.018% per annum. In the SDI areas, the agriculture sector was the only one to lose jobs during this time, (-0.006% per annum). The other sectors did increase in employment, notably Financial Services (0.159% p.a.), Manufacturing (0.071% p.a.), Commerce (0.066%p.a.) and Construction (0.05% p.a.). In the non-SDI areas, all sectors shed jobs between 1980 and 1991, e.g. Transport (-0.055% p.a.), Commerce (-0.027% p.a.) and Manufacturing (-0.025% p.a.).

The picture is reversed in some respects if employment in the SDI and non-SDI areas is examined between 1991 and 1996 (see Table 9), with the SDI programme initiated from 1996. SDI areas shed employment opportunities (-0.012% p.a.), while those of non-SDI show employment creation of 0.02% p.a. The sectors in the SDI areas to reduce employment were those of Agriculture (-0.010% p.a.), Mining (-0.025% p.a.) and Manufacturing (-0.035% p.a.). Construction and Electricity & Water services grew in terms of employment, each by 0.035%. In the period leading up to the initiation of SDIs, the non-SDI areas experienced contractions in employment in Mining (-0.017% p.a.) and Services (-0.009% p.a.), while the traditional stalwarts of the South African economy such as Agriculture (0.010% p.a.) and Manufacturing (0.017% p.a.) grew in employment terms substantially slower than the others, Financial Services (0.084% p.a.), Transport (0.063% p.a.), Commerce (0.052% p.a.) and Construction (0.055% p.a.). This indicates a significant adjustment in the structure of the South African economy brought on by the New or Information/Service orientated economy.

PROSPECTS FOR SDI EMPLOYMENT CREATION

Selection of key sectors

The selection of sectors for projects in the SDIs is important. The SDI programme has identified projects leading to employment creation in Agriculture, Forestry & Fishing (approximately 34,683 jobs or 40% of total) and Mining (3,968 jobs). Both of these sectors have experienced substantial job losses and contractions in South Africa (see Tables 7 & 8). The Manufacturing sector has also been identified as a source of new employment opportunities (40,106 new jobs or 47% of the total) but this sector has also been contracting over time. The investment require to reverse this trend would presumably be substantial.

Selection of geographic areas

In terms of the new spatial economy, the selection of geographic areas for the SDIs is extremely important. Should the areas include the economic core of the country or should the SDIs include the periphery areas of the economy. An analysis was undertaken to determine whether the SDIs have been located in areas in which employment has grown between 1980 and 1996 and in which sectors of the economy. The objective was to determine which sectors of the economy have contributed to economic growth between 1980-1996 so that analysis could be undertaken of whether the SDIs could be optimally located to capitalize on underlying economic strengths.

Rigidity of real wages

In the South African context, the ability of real wages to fall, thereby increasing employment in line with the theory of the New Economic Geography, is a critical issue. If real wages in South Africa are rigid, the capacity for industry to relocate over time, shifting the core and the periphery, is limited.

Econometric analysis

A regression was undertaken involving pooled cross-section/time-series employment data per magisterial district for the years 1980, 1991 and 1996. Total employment across magisterial districts for 1996 was used as the dependent variable. A dummy variable for the location of SDIs in magisterial districts was included in the analysis³. That is, if the magisterial district was included in an SDI, it was assigned a value of 1. If the magisterial district fell outside an SDI area it was assigned a value of 0. Other independent variables were the % growth in employment of each of the sectors of the economy using the 9 sector industrial classification between 1980 and 1996. The form of the model is set out below:

$$\text{Emp96} = f(\Delta \text{Emp}_i)$$

Where

Emp96: is total employment in each magisterial district in 1996

ΔEmp_i is the % change in employment in sector i in each magisterial district for each of the three observations.

The nine sector classification was used and included the following sectors:

Agriculture, Commerce, Construction, Electricity, Financial, Manufacturing, Mining, Services, Transport.

The model also included a dummy variable to denote the inclusion of the magisterial district in the SDI programme. The structural form of the model was as follows:

$$\text{Emp96} = \mathbf{b}_0 + \mathbf{b}_1 \text{Agric} + -\mathbf{b}_2 \text{Comm} + \mathbf{b}_3 \text{Const} + \mathbf{b}_4 \text{Elect} + \mathbf{b}_5 \text{Fin} + \mathbf{b}_6 \text{Manu} + \mathbf{b}_7 \text{Min} + \mathbf{b}_8 \text{Servs} + \mathbf{b}_9 \text{Trpt} + \text{DUMSDI} + \epsilon$$

The results of the analysis are contained in Table 10.

³ North West province was excluded from the analysis due to extensive changes in the demarcation of magisterial districts in the province, which made comparison across time periods impossible.

Table 10: Results of regression analysis

Dependent variable: Emp96				
Variable	Coefficient	Std Error	t-statistic	Prob.
Agric	0.226	0.090	2.507	0.013
Comm	0.837	0.174	4.813	0.000
Const	-0.007	0.116	-0.062	0.951
Elect	0.016	0.062	0.257	0.798
Fin	-0.218	0.110	-1.984	0.048
Manu	-0.429	0.085	-5.022	0.000
Min	0.013	0.053	0.251	0.802
Servs	0.285	0.142	2.007	0.046
Trpt	0.221	0.112	1.982	0.049
DUMSDI	0.341	0.146	2.331	0.020
C	9.45	0.154	61.208	0.000
R-squared: 0.291				
Adj R-squared: 0.267				

The results indicate the employment in South Africa as per 1996 and the selection of SDI areas are positively related (0.341). The results are, moreover, statistically significant (t-value of 2.331). This has important implications for the SDI programme and its potential capability for employment creation. If the SDIs are to generate employment on the back of existing employment growth and profit from agglomeration effects of various industries, they must be positioned in the areas of highest economic activity. The regression results seem to indicate that the SDIs and employment may be linked but there could also be an element of coincidence given that the programme has gradually been extended over time.

Employment in 1996 seems to have been derived from various sectors of the economy to varying degrees. The commercial & retail sector seems to have been the strongest “driver” of employment (0.837) and is a significant result (t-statistic of 4.183). A number of other sectors seem to have had a lesser influence, but still positive, namely: agriculture, transport and services (all above 0.2). The results for manufacturing and mining provide cause for concern in that they indicate that manufacturing employment has declined in the period (-0.429) but is significant (t-value of -5.022), while that of mining is positive (0.013) but is not a significant result (t-value of 0.251)

CONCLUSIONS

A fundamental gap in the analysis has been the lack of data on the overall success of the SDIs in creating employment post-1996. However, it must be acknowledged that most of them were initiated recently, i.e. after 1996. The objectives of this paper have been to examine the economic sectors on which the bulk of the SDI focus has fallen, the performance of the sectors involved and the geographic location of the SDIs to take

advantage of changes in the economy. In terms of the objectives, the following points can be made:

- The capital required by the potential projects of the SDIs is substantial when measured against their potential job creation (e.g. R381 000 per job on average). The issue in this regard is whether key projects should be prioritized in terms of their ability to create jobs in the near future;
- The bulk of the envisaged SDI projects are focused on the traditional sectors of the South African economy, i.e. Agriculture, Mining and Manufacturing. Globalisation and the “New Economy” might dictate that this emphasis be revised to include sectors which are poised for growth, e.g Tourism, Financial & Business Services and “hi-tech” manufacturing. The case for this would seem to be even stronger if the hierarchy of development is considered (see Meier, 1984), whereby economies become more dependent upon tertiary sectors and less dependent upon primary and secondary sectors for economic growth;
- Certainly in terms of the location of the SDI areas, it seems that the gradual widening of the SDIs to include more areas of the country has resulted in an alignment of SDIs with those areas which have experienced employment growth between 1980 and 1996. This should ensure that the SDIs are located in areas of economic growth and the core of the economy as opposed to the periphery.
- The extent to which government can *directly* influence the decision to invest could be limited because the final decision is a “firm-level” one. However, government could very well play a useful role *indirectly* in terms of influencing the structure of the firm’s decision through infrastructure provision, reduction of transportation costs and enhancement of education levels. For SDIs to be successful, the importance of the legal and institutional framework supporting investment will have to be favourable. An example would be the objective of creating 35,000 jobs in the agricultural and related sectors in the context of a land tax and the legal framework pertinent to employment.

REFERENCES

Development Bank of Southern Africa. 2000. *Inter-Provincial Comparative Report of the Provinces of South Africa*. Midrand.

Development Bank of Southern Africa. 1998. *Provincial Development Profiles*. Midrand.

Krugman P. 1991. *Geography and trade*. MIT Press. Cambridge, Massachusetts.

Krugman, P. and Venables A.J. 1998. "Globalization and the Inequality of Nations". In *Structural Change, Industrial Location and Competitiveness*, Oxley, J.E. & Yeung, B. Edward Elgar. Cheltenham.

Meier G. 1984. *Leading issues in economic development*. Oxford University Press.

Statistics South Africa. 1996. *Results of the 1996 Population Census*. Pretoria.