Guidelines to Regional Socio-economic Analysis

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Preface

In the interaction between the DBSA, and more specifically the Development Information Business Unit (DIBU) and its clients, the availability of regional socio-economic information has long been identified as a prerequisite for development planning. Merely providing the available data in an unbeneficiated form, however, would not achieve the objective of enabling users to conduct the kind of analysis needed for purposes of development planning. At the same time, it has also become evident that clients require a set of appropriate analytical tools to facilitate the quantitative manipulation of the data and assist them in interpreting the ensuing results.

A substantial component of DBSA's capacity-building programme is focused on local government. One of the elements of this programme is the enhancement of the development planning capacity of the metros, district councils and municipalities in the new local government dispensation in South Africa. Through focused analysis by all local authorities, backlogs and incremental needs can be addressed within the context of existing and future resources, thus contributing to sustained and accelerating development. The endeavour of this publication is to assist new and emerging local authorities by providing a set of instruments for the required level of regional analysis.

The document is not intended to be a detailed manual or theoretical textbook on the subject, but rather provides concise user guidelines, illustrated by practical examples and graphs.

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Chapter 1: Purpose of regional socio-economic analysis

Introduction

The need for socio-economic analysis, as derived from the development planner's viewpoint, is described in this chapter, along with the different possible approaches to the analytical process.

Analysis in the context of development planning

Analysis is a critical element of all planning processes. In terms of development planning, the range of disciplines analysed is reflected by the following definition of development planning: "A participatory process to integrate economic, sectoral, spatial, social, institutional, environmental and fiscal strategies in order to support the optimal allocation of scarce resources between sectors and geographical areas and across the population, in a manner that provides sustainable growth, equity and the empowerment of the poor and marginalized." The success of development planning therefore dependents on the quality of analysis of all the elements contributing to development. For this to be done successfully, and given the range of disciplines that has to be analysed, clear guidelines are imperative.

Analysis is conceptually part of the first activities undertaken when development planning processes are initiated, as the following diagram shows:
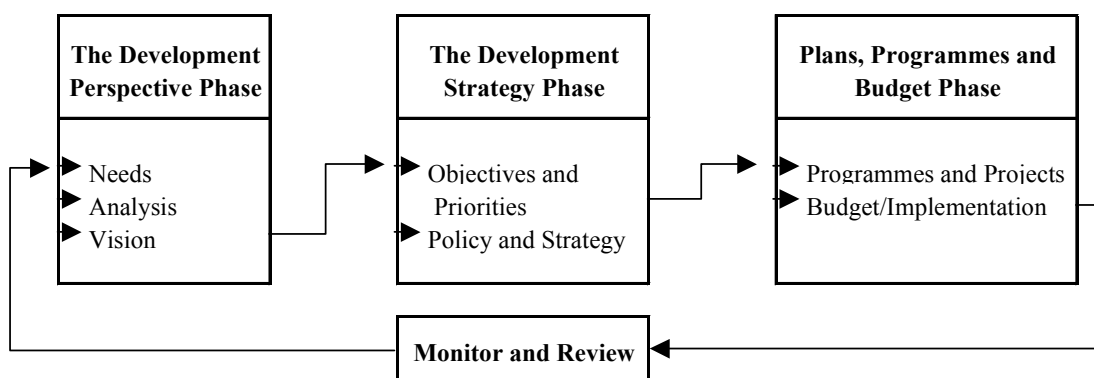
In the context of this document, regional analysis forms the central component of the development perspective phase of the development planning process. This phase is concerned with the analysis of the current situation, the identification of needs and key development issues and the formulation of a realistic vision for the development of the area under consideration. Based on the understandings reached during this first phase, the second and third phases can be initiated progressively.

The development perspective phase should at least incorporate:

❑ A profile which identifies development issues and needs articulated by stakeholders and interest groups, and which, in terms of historical trends, articulates the main economic, social, spatial, financial, institutional and environmental features of current development. The latter should be articulated by way of standardised indicators that allow for consistent interpretation.

❑ An analysis of all development dimensions in relation to international, national and provincial trends.

❑ An audit and assessment of existing and previous programmes for service delivery and development inside and outside of government.

❑ An analysis of strengths, weaknesses, opportunities and threats in all development dimensions, reflecting on past and future trends and underlying issues. These are the key development issues.

❑ A broad and medium term vision for development, based on the above analysis and reflecting the available resource base. This should incorporate current and emerging policy priorities and strategic approaches and be portrayed sectorally and spatially.

It is important to note that the development planning process is reiterative in the sense that problems experienced during the second and third phases often require additional analysis. Hence, the process of analysis is methodically repeated a number of times during the development planning process.

Definition and components of analysis

As part of the analysis process, development information on existing internal databases, supplemented by information obtained from external databases, is interpreted by applying specific quantitative techniques and specialised computer programs. This facilitates, among other things, the quantification of the needs of the inhabitants of an area, as well as policy formulation, strategy design, planning, programming and budgeting related to socio-economic restructuring.

The quantitative analysis process normally consists of one or more of the following approaches:

a)   A descriptive analysis in a regional context, comprising:

❑   The reconstruction of a region's past by analysing relevant information for various time scales;

❑   A replication and diagnosis of a region's current features by indicating principal regional imbalances, effects of past corrective action, development resources, potential and conditions. In describing a region's characteristics, it is important to indicate comparative cost advantages, potential, needs and economic structure and trends. Other requirements include:

▪   an indication of a region's future development path, based on varying sets of development assumptions, thus providing a prognosis of the region's development path.

▪   an impact analysis based on either of the following approaches:

–   an *ex ante* analysis involving the assessment of foreseeable and expected consequences of a change in one or more exogenous stimuli, such as public investment or policy changes, which will influence the elements characterising a region; or

–   an *ex* post assessment of the consequences of an intervention(s) effected in the past.

b)   A comparative analysis, consisting of:

❑   A macro-regional comparison of relevant development indicators that highlight inter-regional, intra-regional and macro-regional disparities. This kind of comparison provides inputs for identifying critical issues, while indicating the extent and context of these issues. Furthermore, it provides a view on the comparative potential of the region and sub-regions, could assist in reviewing or setting goals and objectives for a specific region or sub-region, and could enhance the optimum allocation of available resources;

❑   A macro-analysis, which is a vital framework for linking the different vertical or sectoral analyses and for highlighting the socio-economic inter-relationships in each region/sub-region; and

❑   The monitoring and evaluation, on the macro inter-regional and intra-regional level, of progress made in implementing programmes aimed at meeting the needs of the inhabitants of the region.

Conclusion

The rationale for socio-economic analysis on a regional level stems from the fact that a development perspective constitutes the initial step in the development programming approach. This approach entails a process and set of activities guiding decision making toward the optimal mobilisation and application of scarce resources in addressing development needs.

An explanation of the respective analytical techniques on a dimensional level, demonstrated by practical examples, follows in the ensuing chapters.

Chapter 2: Methodological framework for socio-economic analysis on a regional basis

Introduction

The objective of this chapter is to provide guidelines for the analysis of available information on a regional level, as well as for the interpretation of the results. Attention is primarily focused on four dimensions of information, namely demography, labour and employment, economic structure and performance, and infrastructure or access to services. Socio-economic information is obviously not confined to these dimensions and the user can extend the analysis to include additional dimensions of information.

Demography

The population of a region forms part of the ultimate objective of the development process, as well as being a subject in the process, since the people provide labour and entrepreneurship for production and also consume the output of production. To form a clear picture of socio-economic conditions in a region, it is vital to analyse the size, spatial distribution, composition and growth pattern of the population, along with changes in these magnitudes and possible future trends and tendencies.

The main **source of data** for this dimension of information is the Population Census, which is conducted on a five-yearly basis by Statistics South Africa (SSA). The census results provide information on the characteristics of the population in terms of size, gender and rural-urban divide. In addition, information on, among other things, access to services and the income level of households, is also included in the census results. This information is available on different regional levels, with the smallest denomination being the enumerator area (EA). South Africa is, for the purposes of the census, divided into ±96 000 EAs.

Information for intermittent years, as well as future projections, is obtained by employing demographic models. These calculations are based on assumptions about the influence of variables such as fertility, mortality, migration and the impact of HIV/Aids on the population.

Some of the most pertinent questions to ask regarding the population in a specific region are:

❏ What is the size of the population?

❏ What growth rate was experienced in recent years?

❏ What is the age and gender composition of the population?

❏ What is the level of poverty in the region?

❏ What is the educational level of the population?

❏ What is the health status of the population?

The **size** of the population and in particular the number of households are some of the most important determinants of the needs of the inhabitants. These needs are expressed in the demand for infrastructural and social services, including water, sanitation, electricity, housing and hospitals.

The **population growth rate** and future projections are of great importance for planning purposes. A negative or below-average growth rate is indicative of an out-migration of people − normally due to a lack of economic growth and the concomitant loss of job opportunities in the region. The reverse is true for an above-average growth rate.

The **age and gender composition** of a population can have a considerable impact on demographic and socio-economic conditions, both present and future.

A population *pyramid* graphically displays a population's age and gender composition by showing numbers or proportions of males and females in each age group; the *pyramid* provides a clear picture of a population's characteristics. The sum total of all the age-gender groups in the *pyramid* equals 100 per cent of the population. The composition of different populations can differ markedly from region to region. Gauteng and Northern Province are used as examples to illustrate the contrasting structures of their populations.

Figure 2.1: Gauteng population, 2000

Age	2000		
	Males	**Females**	**Total**
	(' 000)		
0- 4	491	479	**970**
5- 9	318	323	**641**
10-14	307	310	**617**
15-19	292	300	**592**
20-24	318	314	**632**
25-29	438	396	**834**
30-34	443	387	**830**
35-39	381	341	**722**
40-44	326	289	**615**
45-49	251	227	**478**
50-54	188	168	**356**
55-59	131	127	**258**
60-64	92	96	**188**
65-69	58	74	**132**
70-74	40	54	**94**
75-79	24	36	**60**
80+	20	38	**58**
Total	**4118**	**3959**	**8077**
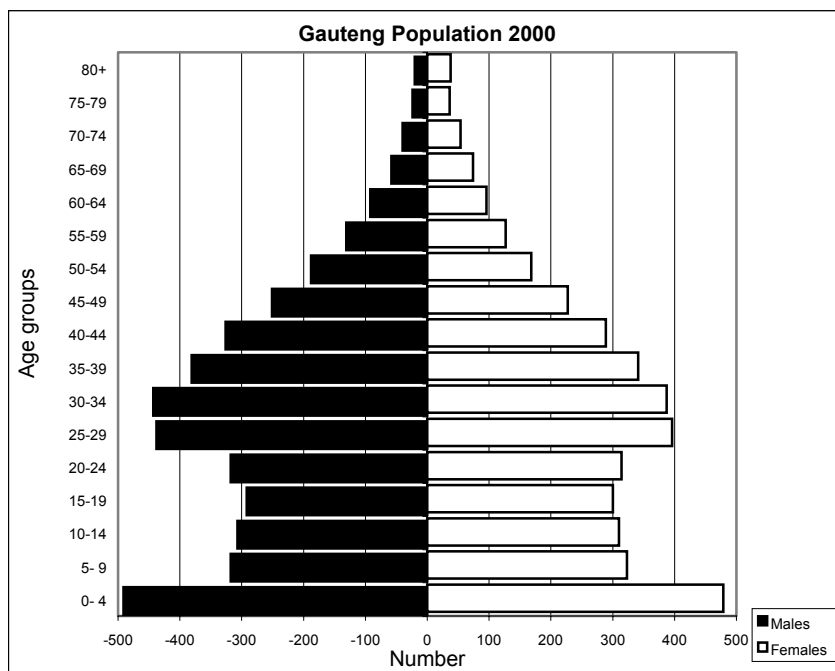
Figure 2.2: Northern Province population, 2000

Age	2000		
	Males	Females	Total
	(' 000)		
0- 4	428	422	850
5- 9	323	330	653
10-14	368	371	739
15-19	345	350	695
20-24	277	292	569
25-29	190	232	422
30-34	130	180	310
35-39	106	159	265
40-44	90	129	219
45-49	70	104	174
50-54	56	79	135
55-59	41	62	103
60-64	35	62	97
65-69	26	60	86
70-74	27	55	82
75-79	16	29	45
80+	16	35	51
Total	2544	2951	5495

Northern Province Population 2000
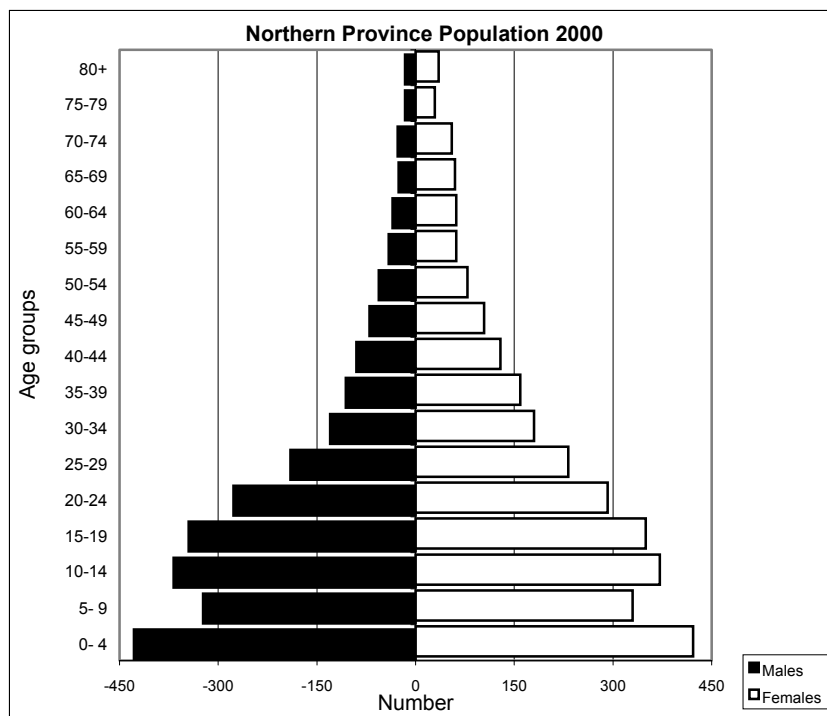
Some of the most significant observations that can be made are:

❑ Gauteng has relatively smaller numbers of people in the younger age groups, which is indicative of a **constrictive** (slow growth) profile; Northern Province, in contrast, has relatively large numbers of inhabitants in the younger age groups, suggesting an **expansive** (rapid growth) profile.

❑   There are more men in Gauteng in the economically active age group (15–65 years) than women, mainly due to the presence of migrant workers from other regions; in contrast, Northern Province has a higher female-male ratio in this age group, reflecting the absence of men. These men are ostensibly migrant workers present in other provinces.

❑   These two observations also have a direct bearing on the dependency ratio, meaning the number of persons supported by every economically active person. This ratio is obviously much higher in Northern Province than in Gauteng.

These demographic characteristics have a direct influence on the socio-economic conditions in an area and should be taken into account for future planning. The number of hospital beds, educational facilities, old-age homes, and so on, that should be provided for are all derived from the above-mentioned projections.

Household income is one of the most important determinants of welfare in a region. The ability to meet basic needs, such as for adequate food, clothing, shelter and basic amenities, is largely determined by the level of income earned by the households. Poverty is often defined as the lack of resources to meet these needs. An important indicator of poverty in a region is the number of households with an income below the Minimum Living Level (MLL). The MLL is annually determined by the Bureau of Market Research (UNISA). The MLL is calculated for different regions, racial groups, household sizes, and so forth, and reflects the minimum amount a household needs to earn to meet its basic needs.

The poverty gap, on the other hand, is a measure of the level of destitution of people. Unlike a head-count ratio, which enumerates the number of people below the poverty line, a poverty gap measures the extent to which an individual is below the poverty line. It therefore measures how much money is needed to bring each poor person's income up to the poverty line.

In interpreting these magnitudes, it should be borne in mind that a region's averages can conceal huge disparities. Depending on the skewness of the distribution of income, most regions will have groups of people in all income categories.

The skewness in the distribution of income becomes clear when the average annual income of the different population groups is compared. There are also marked differences in the average income between male and female-headed households, and between urban and rural households.

An **education** expands the range of options from which a person may choose, thus creating opportunities for a fulfilling life. Education and training satisfy the basic human need for knowledge and skills. It provides a means of meeting basic needs, provided that adequate employment opportunities exist, and helps sustain and accelerate overall development. The level of education of the population in a region influences its welfare through the indirect effects on health, fertility and life expectancy. Education helps to increase the value of other forms of social and physical investment.

Some of the prominent indicators regarding the educational and skills provision in a community are the literacy rate, the teacher-pupil ratio, the classroom-pupil ratio and the extent of training facilities in a specific area.

Infrastructure planning should be co-ordinated between the different state departments and local authorities. No local authority can do proper planning without taking the needs, including infrastructure needs, of the schools and training facilities in its area into consideration.

Although information on the **health** status of a region is not contained in the Population Census, it remains a vital dimension of the welfare of a community. The primary source of information in this regard is the Department of Health.

Improving the health status is a goal in itself, but it also has important general benefits. A poor health status reduces the ability of people to be productive, earn a proper income and escape the poverty cycle. The cost of preventing illness is far lower than the cost of curative treatment and absence from work.

Indicators of health status include life expectancy, infant mortality, immunisation and incidence of notifiable diseases. Another important determinant of health status in a region is the availability of health facilities, by which is meant not only their existence but also their

accessibility and service quality. The numbers of hospital beds, clinics, doctors, nurses, dentists and pharmacists per 1 000 people are important indicators of the availability of health facilities in an area.

The **Human Development Index** (HDI) is a composite, relative index which attempts to quantify the extent of human development of a community. It is based on measures of life expectancy, literacy and income. It is thus seen as a measure of people's ability to live a long and healthy life, to communicate, to participate in the life of the community and to have sufficient resources to make a decent living.

The HDI can assume a maximum value of 1, indicating a high level of human development, and a minimum value of 0.

The HDI is, however, only available on a provincial and national level. It may be interesting to note that, according to the World Development Report, figures for 1995 reveal that South Africa had an HDI of 0,717 compared to 0,344 for Angola, 0,678 for Botswana, 0,334 for Malawi, 0,281 for Mozambique, 0,644 for Namibia, 0,378 for Zambia and 0,507 for Zimbabwe.

The HDI for the nine provinces, as well as the national average, is illustrated in Table 2.1

Table 2.1: Human development index by province, 1996

Province	HDI
Western Cape	0.727
Northern Cape	0.648
Free State	0.650
Eastern Cape	0.603
KwaZulu-Natal	0.626
Mpumalanga	0.623
Northern Province	0.566
Gauteng	0.727
North West	0.615
Total South Africa	0.672

Demographic indicators

De facto population: Includes all persons physically present in a specific area on the reference date (the date of the census).

Population doubling time: The number of years required for a population of an area to double its present size, given the current rate of population growth.

Gender ratio: Number of males per 100 females.

Total fertility rate: Average number of children born to females in the age group 15–49.

Infant mortality rate: The number of deaths of infants under one year of age per 1 000 live births in a given year.

Teenage births: Percentage of live births to mothers younger than 20 years.

Life expectancy: The average number of years a person can expect to live at the time of birth.

Literacy rate: Percentage of population who are 13 years and older who have attained a Std 4 or higher qualification.

Children not attending school: Percentage of all children in the ages 6–14 years who do not attend school.

Official urbanisation: Percentage of persons living in towns with some form of local authority supplying services to the inhabitants of such towns.

Functional urbanisation: Percentage of people officially urbanised (see above definition) as well as peri-urban (concentrations of people who are dependent on urban areas for employment, shopping and other purposes) and semi-urban populations (concentrations of people in excess of 5 000 persons).

Enrolment rate: Due to various definitions for primary and secondary schools, it is advisable to use only the total enrolment rate (all pupils in primary and secondary schools as percentage of population in 5–19 years age group) for comparison purposes.

Pupil/teacher ratio: The number of pupils in a specific standard, school, etc. divided by the number of teachers.

Pupil/classroom ratio: The number of pupils divided by the number of classrooms available to them.

Labour and employment

In the analysis of the labour and employment situation in a region, it is necessary to focus attention on the size and spatial distribution of the **labour force**. Secondly, the characteristics of the **labour market** should be analysed. To this end, it is necessary to examine the **supply** of labour, which is derived from figures on the economically active population in a region. The **demand** for labour, on the other hand, is an indication of

employment opportunities, which are determined by the economic structure of an area along with level and growth in economic activity. Unemployment, and in a sense transfrontier commuting, provides an indication of the difference between supply and demand and implies that equilibrium in the labour market necessitates both expansion of economic activity and the curtailment of population growth.

A third issue that should be addressed is involvement in the **peripheral sector**, as not all potential workers are active in the labour market. Finally, the **quality of the labour force** needs to be analysed as it provides information on the employability of the workers. The quality of labour is reflected, among other things, by the educational profile of the economically active population, the availability of training facilities, and the health status of the region.

The term **labour force** refers to those people who are available for employment in a certain area. Figure 2.3 illustrates the different components of the labour force and the relationship between them.

Figure 2.3: Composition of the labour force
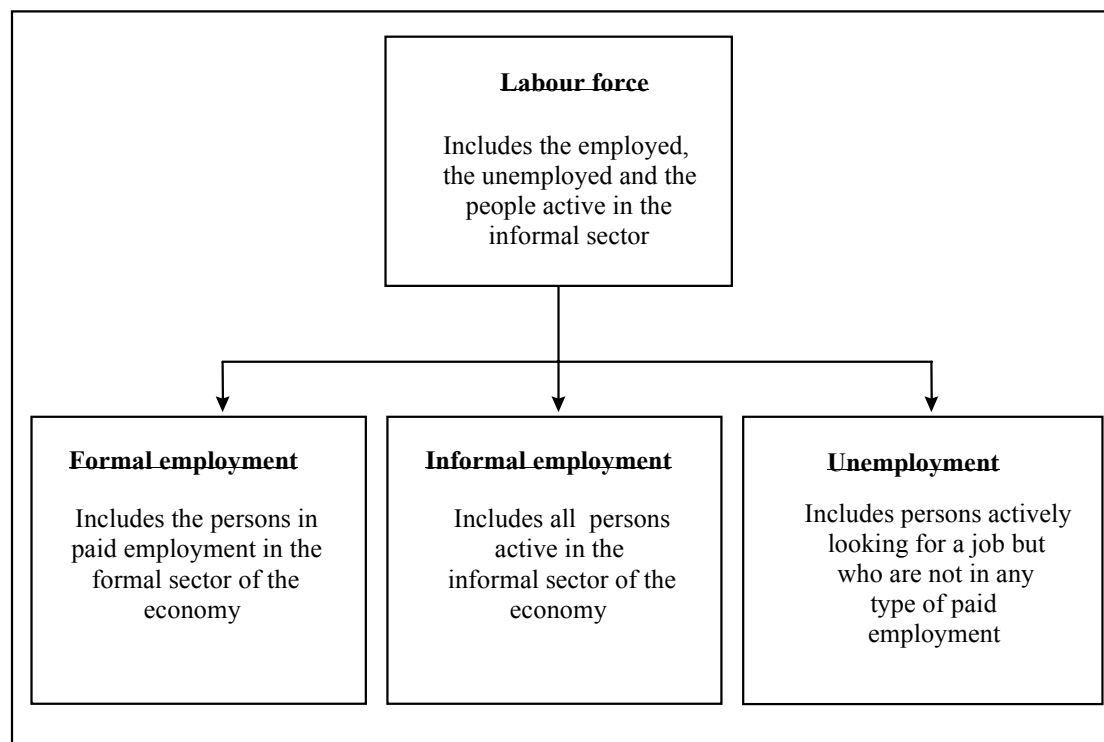
Formally employed refers to people who are selling their labour or who are self-employed in the formal sector of the economy, for pay or profit. *Informally employed* includes all people

who are active, for pay or profit, in the informal or unregistered sector of the economy. *Unemployed* are persons actively looking for a job, but who are not in any type of paid employment.

A discrepancy between the number of males and females in the age group 15 to 64 years in a certain region is an indication of the presence or absence of *migrant workers*. If there are fewer males than females, this can be ascribed to the out-migration of male workers as a result of a dearth of local employment opportunities. As, per definition, the families of these migrant workers remain in the region, one could reasonably assume that they would be eager to work closer to home should comparable employment opportunities exist in the vicinity. Thus, these migrant workers should be added or subtracted from the local labour force to obtain the potential labour force.

A region or province could thus be a net supplier of migrant workers, an example being the Northern Province, or a net absorber of migrant workers from other regions or provinces, as in the case of Gauteng. To calculate both the size of the migrant labour force and the spatial distribution of their areas of origin, **male absenteeism ratios** are utilised. In the process, it is firstly assumed that only males in the 15 to 64 year age group will migrate, meaning work on a contract basis in another area and return home at least once a year on average. This assumption is patently invalid as substantial numbers of females also migrate, but it is the only plausible way of establishing a minimum level of male migrant workers. Another assumption is that originally, the male:female composition of the population was 1:1. By contrasting the number of males in the said age group with the number of women, male absenteeism ratios are obtained.

The **peripheral sector** refers to the informal and subsistence agricultural sector. The size of this sector is difficult to establish with a reasonable degree of accuracy and can easily be under-estimated. One reason for this is that people involved in informal activity often classify themselves as unemployed. In addition, subsistence farmers can easily classify themselves either as part of the agricultural sector, or even as unemployed.

Obtaining the **participation rates**, involves calculating the labour force or the economically active population relative to potential labour force, (i.e. the population in the age group 15 to 64 years). These rates reflect the percentages of the said population that are actually

economically active. An increase in the participation rate can be the result of, for example, more women entering the labour market or the outflow of the potential economically active people of a region due to harsh economic conditions, which would 'artificially' increase the participation rate. A low participation rate in a region can be ascribed to the large number of male migrant workers moving out of the region or the proliferation of peripheral activities in the region.

As depicted in Table 2.2, the participation rates can vary from a low of 42,7% in the Northern Province to a high of 70,6% in Gauteng.

Table 2.2: Labour participation rate by province, 1996

Province	Population (15 - 64 years) ('000)	Labour force ('000)	Labour participation rate (%)
Western Cape	2 568	1 700	66.2
Northern Cape	512	307	60.0
Free State	1 665	1 019	61.2
Eastern Cape	3 408	1 549	45.5
KwaZulu-Natal	4 933	2 603	52.8
Mpumalanga	1 635	927	56.7
Northern Province	2 530	1 081	42.7
Gauteng	5 105	3 604	70.6
North West	2 035	1 189	58.4
Total South Africa	**24 391**	**13 979**	**57.3**

As a rather low percentage of the potential economically active population is actually economically active, it follows that these people will normally have to support several other persons apart from themselves. The number of persons each economically active person has to support is measured by the **dependency ratio**. This ratio not only includes the economically inactive part of the population, such as housewives and students, it also includes children and young people under 15, as well as older people over the age of 65. An increase in the participation rate can result in a decrease in the dependency ratio.

Three points should be kept in mind regarding the latter ratio. Firstly, whether the worker is actually employed or not is irrelevant to the determination of the dependency ratio, and where unemployment is rife, the situation may be much worse than suggested by these

figures. Secondly, however, many of the economically inactive people may be involved in activities such as subsistence agriculture. Although they might not necessarily be able to support other people, a certain proportion could well be able to support themselves and thus lessen the dependency burden. Thirdly, migrant workers often support their families, but such remittances have not been included in the calculation.

The dependency ratios for the different provinces are illustrated in Table 2.3.

Table 2.3: Labour dependency ratio by province, 1996

Province	Population ('000)	Labour force ('000)	Labour dependency ratio
Western Cape	3 957	1 700	1.3
Northern Cape	840	307	1.7
Free State	2 634	1 019	1.6
Eastern Cape	6 302	1 549	3.1
KwaZulu-Natal	8 417	2 603	2.2
Mpumalanga	2 801	927	2.0
Northern Province	4 929	1 081	3.6
Gauteng	7 348	3 604	1.0
North West	3 355	1 189	1.8
Total South Africa	**40 583**	**13 979**	**1.9**

The **demand** for **labour**, as depicted by the **employment** structure, distinguishes between employees on an industrial, occupational, educational, racial, gender and income level.[*] The relative importance of particular sectors in a certain region as employment creators, for example, is clearly reflected in these structural compositions. In certain regions, the primary sector, Agriculture and Mining, is the dominant provider of employment opportunities. Such a situation normally contributes to a high degree of vulnerability of the employment situation since these sectors are extremely sensitive to exogenous variables such as adverse climatic conditions, the world gold price and so forth. A higher degree of diversification of the employment structure is thus preferable.

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[*] It is important to note that Statistics SA publishes two series of employment data, i.e. the monthly surveys as well as the October Household survey. In the case of the former, only formal employment is covered. In the latter series, no distinction is made between formal and informal employment and the figures thus include both categories.

The **labour absorption capacity** serves to illustrate the growing ability or inability of the economy to provide employment opportunities to its growing labour force. A distinction is made between two concepts, namely average and marginal absorption capacity:

$$\text{Average absorption capacity} = \frac{\text{Employment opportunities}}{\text{Labour force}} \times 100$$

$$\text{Incremental/marginal absorption capacity} = \frac{\text{Average annual increase in employment opportunities}}{\text{Average annual increase in labour force}} \times 100$$

The latter ratio is thus an indication of the percentage of the net number of new entrants into the labour force who could find employment opportunities. It is normal custom to refer only to formal employment opportunities. In the October Household Survey, however, formal as well as informal employment opportunities are used in the calculation.

The variance in labour absorption capacity between the different provinces is illustrated in Table 2.4.

Table 2.4: Labour absorption capacity by province, 1996

Province	Labour force ('000)	Formal employment ('000)	Labour absorption capacity (%)
Western Cape	1 700	1 202	70.7
Northern Cape	307	186	60.6
Free State	1 019	613	60.2
Eastern Cape	1 549	631	40.7
KwaZulu-Natal	2 603	1 235	47.4
Mpumalanga	927	527	56.9
Northern Province	1 081	476	44.0
Gauteng	3 604	2 210	61.3
North West	1 189	638	53.7
Total South Africa	**13 979**	**7 718**	**55.2**

Unemployment has economic cost in the sense that it reduces output, wastes productive power and may even erode human capital. It also has social costs: the unemployed may eventually feel compelled to enter the world of crime to survive. These costs are the reason why low unemployment is typically a high-priority policy objective in most societies.

Two definitions of unemployment have been commonly utilised in South Africa – the broad and the narrow. The narrowly defined unemployed are jobless labour force participants who looked for work in the week or month prior to the survey visit. The broadly defined unemployed are the narrow unemployed plus those who wanted work but did not actively seek employment in the past week or month. The narrow unemployment rate excludes non-searching workers from both the numerator and the denominator. It is thus the ratio of narrowly unemployed persons to persons who either worked or looked for work in the past week. People who wanted work but did not actively look for work in the reference period are commonly referred to as the 'inactive' or non-searching unemployed. In 1998, Statistics SA adopted the narrow measure as the official definition of unemployment and it appears that thereafter, in published statistics, most rates – such as the unemployment rates for different racial groups – based on the narrow measure only. (Geeta Kingdon and John Knight, 1999).

The number of unemployed people, as well as the unemployment rate for the different provinces, according to the narrow definition, is depicted in Table 2.5.

Table 2.5: Unemployment by province, 1996

Province	Labour force ('000)	Unemployment ('000)	Unemployment rate (%)
Western Cape	1 700	303	17.8
Northern Cape	307	87	28.3
Free State	1 019	303	29.7
Eastern Cape	1 549	750	48.4
KwaZulu-Natal	2 603	1 018	39.1
Mpumalanga	927	304	32.8
Northern Province	1 081	496	45.9
Gauteng	3 604	1 013	28.1
North West	1 189	449	37.8
Total South Africa	**13 979**	**4 723**	**33.8**

Labour information sources

The main **source of information** for analysing the characteristics of the labour force at lower geographical levels, such as local authority level, is the Population Census conducted by Statistics SA. The census results provide detailed information on the supply of labour but tend to fall short in terms of the demand for labour. This is mainly due to the fact that the

population census is based on a household level and thus provides information regarding the employee and not the employer. The census contains data on all people who performed work for pay, profit or family gain at the time of the census, without differentiating between formally employed, informally employed or those active in family businesses. This might result in distorted labour indicators. The October Household Survey does supply labour force data annually but only at a provincial level. A new Labour Force Survey conducted by Statistics SA could contribute to upgrading the quality and availability of labour data in South Africa.

Several sources on formal sector employment data are available from Statistics SA, the Department of Labour and other research institutions. The problem with this data, however, is that it is only available on a national level.

Labour and employment indicators

Economically active population: Includes the formally employed, the unemployed and those persons active in the informal/unregistered sector. The terms *supply of labour* and the *labour force* are used as synonyms for the economically active population.

Unemployment rate: Indicates the number of people unemployed as a percentage of the total economically active population (labour force).

Employment rate: Indicates the number of people employed as a percentage of the total economically active population (labour force).

Labour participation rate: Indicates the labour force (economically active population) as a percentage of the population in the age group 15–64 years

Female labour participation rate: Indicates the female labour force (female economically active population) as a percentage of the female population in the age group 15–64 years.

Male labour participation rate: Indicates the male labour force (male economically active population) as a percentage of the male population in the age group 15–64 years.

Labour dependency ratio: Indicates the total number of persons supported by every person in the labour force, excluding him or herself.

Labour youth dependency ratio: Indicates the total number of youths (0–14 years of age) supported by every person in the labour force, excluding him or herself.

Labour aged dependency ratio: Indicates the total number of aged persons (65+ year age group) supported by every person in the labour force, excluding him or herself.

Labour absorption capacity: The ability of the formal sector of the economy to absorb the supply of labour in the region.

The Development Bank of Southern Africa identified a number of **impact indicators** to access the consequences of the implementation of a project or programme on end-users, including both beneficiaries and those adversely affected by the project or programme under consideration. The objective of these indicators is, among other things, to measure the total economic benefits relative to the total economic cost, the number of direct and indirect job opportunities created per R1 million invested, the number of people receiving relevant generic and accredited vocational training, the influence on the environment, etc. The relative importance of different indicators depends on project-specific circumstances. In the appraisal stage, the viability and potential impact of a project is measured. During implementation, the process is monitored to ensure that all required steps are taken to attain the development objectives of the project. In the *ex-post* evaluation stage, selected projects

will be evaluated in terms of both the development objectives of the DBSA and strategic issues relevant to the functioning of the Bank.

Economic structure and performance

The performance of a region's economic system in terms of, factors such as production activity, can be measured by its gross geographic product (GGP). This is a measure of the value of final goods and services produced within the geographic boundaries of the region over a period of one year. The final output includes goods produced and services rendered within the area by residents and non-residents alike and does not distinguish between domestic and foreign contributions to GGP. It should, however, be stressed that GGP does not try to measure the value of total production in a region. GGP does not include intermediate goods and services, meaning goods and services that are used in the production of other goods and services. If these goods and services are included in the determination of the GGP, the total value of productive activity will be overstated since double counting will occur. The GGP thus only reflects the value added by each producer in the production chain.

It is imperative to note that, theoretically, the GGP can be measured through three different approaches, namely the Value added, Income, and Expenditure methods:

❑ **Value added method:**

  Total value of production minus value of intermediate inputs; and

❑ **Income method:**

  Sum of the income received by the owners of the factors of production (inputs) that are employed in the generation of final products, (such as salaries and wages, rent, interest and profit); and

❑ **Expenditure method:**

  Sum of the components of expenditure on final output, such as private consumption expenditure, government consumption expenditure, expenditure on capital goods (investment) and net exports (exports minus imports).

To obtain the sectoral composition of the GGP on a regional level, for instance the magisterial district, the first method is employed,

The GGP can be utilised not only to measure the size of economic production in the region, the sectoral or structural composition of the local economy or the growth rate of production. It also reflects the comparative advantages of the production structure, the vulnerability or diversification of the economy, the productivity of the labour force, the welfare of the local inhabitants, and so on. This section revolves around an analysis of the GGP and its variants in order to illustrate how the salient economic features of a region can be measured and illustrated.

The primary source of GGP data on the sub-national level is the sectoral surveys conducted periodically by Statistics SA. Unfortunately official data regarding GGP on a magisterial district basis is quite dated and, to obtain more recent estimates, the primary data is supplemented by information from secondary sources, for instance the levies of Regional Services Councils on turnover and employee remuneration.

It should be noted that GGP magnitudes and trends are a reflection of historical data and do not provide for future production potential.

The salient features regarding the GGP of a region, as mentioned in a previous paragraph, should always be viewed in comparison with, for instance the provincial and national situation and not be seen in isolation. This provides an indication of the relative size, structure and performance of the local economy.

The indicator generally used to measure the performance of an economy is the annual **growth in GGP**. The appropriate growth rate is the growth in the real GGP (GGP at constant prices). GGP figures of different years are computed in terms of prices of each year. If prices rise over time, the GGP will reflect those price increases. GGP figures for different years, measured in current prices, will exaggerate the actual change in the total production of goods and services. To eliminate the distorting influence of price changes, the GGP in current prices is "adjusted" by dividing the GGP figure for each year by a price index called the GGP deflator. This price index is a measure of the prices in one year relative to the prices

in a base year. In the absence of deflators on a sub-national level, the custom is to apply the national GGP deflator on a sub-national level.

To illustrate the difference between GGP at current prices (nominal GGP) and the GGP at constant prices (real GGP), the growth at provincial level for the period 1991 to 1996 is depicted in Table 2.6 and Figure 2.4. (See Chapter 3 for a technical explanation of the statistical calculation.)

Table 2.6: Average annual growth in GGP, 1991–1996 (%)

Province	Year	Nominal GGP (R million)	Real GGP (constant 1990 prices) (R million)	Average annual growth in GGP, 1991-1996 (%)
Western Cape	1991	38 572	33 760	
	1996	75 290	40 649	3.8
Northern Cape	1991	6 015	5 364	
	1996	11 100	6 169	2.8
Free State	1991	17 720	15 816	
	1996	27 696	15 461	-0.5
Eastern Cape	1991	20 799	18 166	
	1996	36 508	19 574	1.5
KwaZulu-Natal	1991	42 544	37 204	
	1996	77 909	42 401	2.6
Mpumalanga	1991	23 261	20 901	
	1996	34 683	20 261	-0.6
Northern Province	1991	10 322	9 217	
	1996	20 187	11 324	4.2
Gauteng	1991	103 676	90 419	
	1996	176 808	94 558	0.9
North West	1991	15 228	13 702	
	1996	23 875	13 297	-0.6
Total	**1991**	**278 137**	**244 549**	
	1996	**484 057**	**263 694**	**1.5**

Source: Development Information Business Unit, 2000

Figure 2.4: Average annual growth in GGP, 1991–1996 (%)
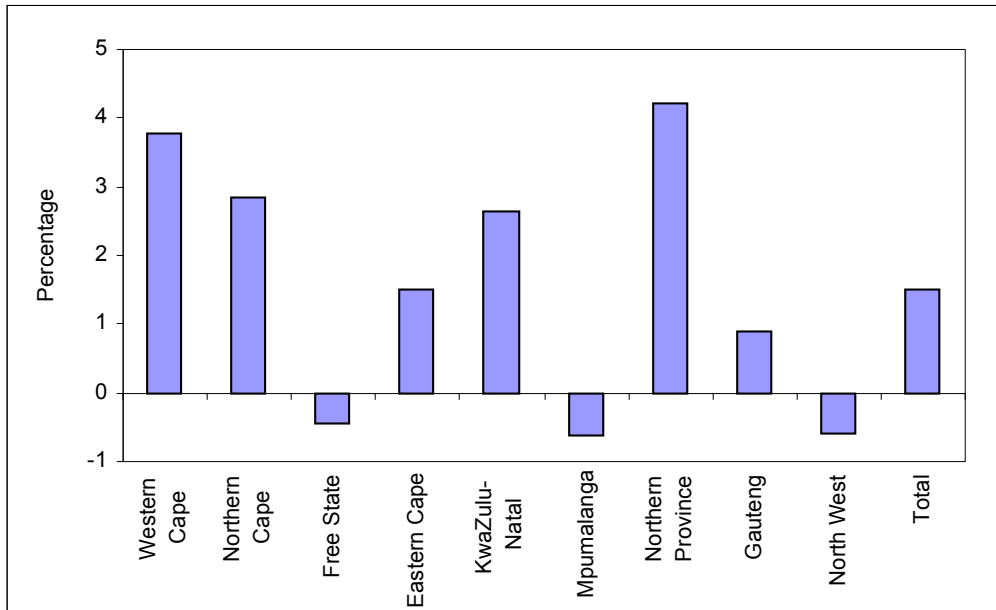
Source: Development Information Business Unit, 2000

The **sectoral composition of economic activity** in a region is a good indication of the level of diversification or concentration of a region's economy and can be measured by the so-called *tress index*. A tress index of zero represents a totally diversified economy. On the other hand, the higher the index (closer to 100), the more concentrated or vulnerable the region's economy to exogenous variables such as adverse climatic conditions, commodity price fluctuations, and so on. An increase in the tress index of a region reflects an increase in the dependence of the local economy on a single or a few economic activities and is an ostensibly negative trend. A recent trend in many regions is the increase in importance of the manufacturing sector, resulting in an increase in the tress index value or such regions. The diversity of the manufacturing sector, however, prevents an increase in the vulnerability of these economies.

The variance in the sectoral composition among the provincial economies as well as the different tress statistics is illustrated in Table 2.7 and Figure 2.5. (See Chapter 3 for a technical explanation of the statistical calculation of a tress index.)

Table 2.7: Percentage contribution of economic sectors to provincial GGP and tress indices, 1996

Province	Agriculture	Mining	Manufacturing	Energy	Construction	Commerce	Transport	Finance	Services	Total	Tress Indices
Western Cape	6.8	0.2	23.3	2.9	3.2	20.6	8.2	17.0	17.7	100	46.2
Northern Cape	8.7	28.0	4.5	3.3	1.8	14.2	11.0	9.7	18.8	100	43.3
Free State	10.7	19.6	15.0	5.3	2.8	11.5	6.7	9.8	18.8	100	31.5
Eastern Cape	3.6	0.1	25.8	1.7	3.3	16.3	9.6	12.3	27.3	100	53.9
KwaZulu-Natal	5.4	1.6	31.7	2.1	3.1	16.7	10.9	12.2	16.4	100	49.4
Mpumalanga	7.7	23.4	20.8	20.3	2.0	7.1	3.8	5.0	9.8	100	42.6
Northern Province	13.2	19.8	6.1	7.9	2.7	11.7	3.8	6.6	28.3	100	42.5
Gauteng	0.9	4.8	26.6	2.2	3.0	17.7	7.4	16.7	20.5	100	49.8
North West	8.6	35.5	12.8	1.3	3.1	9.9	2.9	9.0	16.8	100	49.8
Total	**4.8**	**8.1**	**23.7**	**4.0**	**3.0**	**16.1**	**7.7**	**13.5**	**19.2**	**100**	**39.3**

Source: Development Information Business Unit, 2000

Figure 2.5: GGP tress indices by province, 1980 and 1996
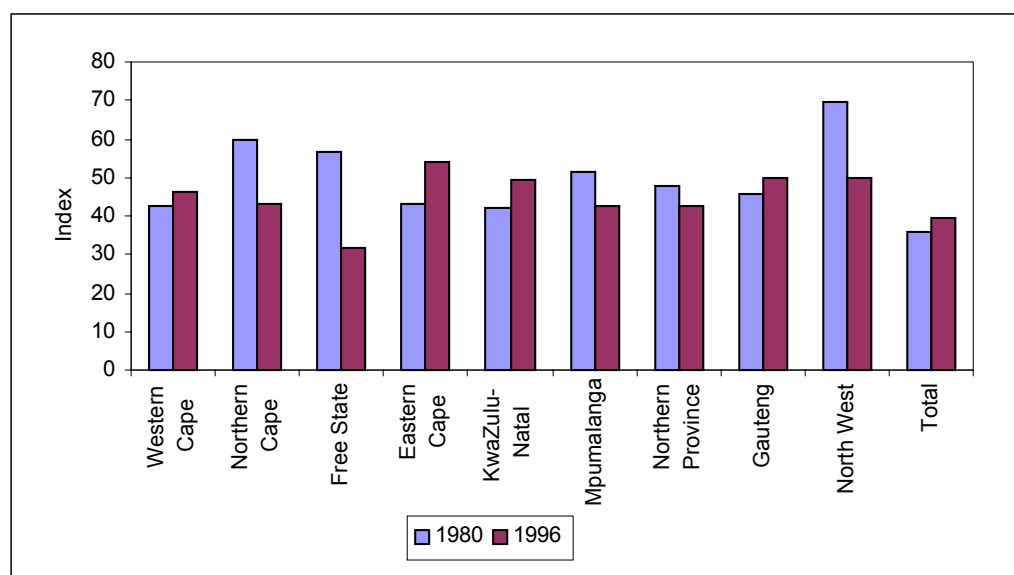
Source: Development Information Business Unit, 2000

The **comparative advantage** (CA) of a region indicates relatively more competitive production function for a product or service in that specific economy than in the aggregate economy. This economy therefore produces the product or renders the service more efficiently. An indication of the CA of an economy is its *location quotient*. A region's economy, for instance, has a location quotient larger (smaller) than one or a comparative advantage (disadvantage) in a particular sector when the share of that sector in the specific economy is greater (less) than the share of the same sector in the aggregate economy. The sectors with values higher than one should, however, not be regarded as the only sectors worth developing as latent potential in other sectors has not been addressed by this technique.

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The GGP location quotients for the different provinces are reflected in Table 2.8. (See Chapter 3 for a technical explanation of the statistical calculation of a location quotient.)

**Table 2.8:** GGP location quotients by province, 1996

Province	Agriculture, forestry and fishing	Mining	Manufac-turing	Electricity, gas and water	Construc-tion	Commerce and accommo-dation	Transport and communi-cation	Finance and real estate	Services
Western Cape	**1.4**	0.0	1.0	0.7	**1.1**	**1.3**	**1.1**	**1.3**	0.9
Northern Cape	**1.8**	**3.5**	0.2	0.8	0.6	0.9	**1.4**	0.7	1.0
Free State	**2.2**	**2.4**	0.6	**1.3**	0.9	0.7	0.9	0.7	1.0
Eastern Cape	0.7	0.0	**1.1**	0.4	**1.1**	1.0	**1.3**	0.9	**1.4**
KwaZulu-Natal	**1.1**	0.2	**1.3**	0.5	**1.1**	1.0	**1.4**	0.9	0.9
Mpumalanga	**1.6**	**2.9**	0.9	**5.1**	0.7	0.4	0.5	0.4	0.5
Northern Province	**2.7**	**2.5**	0.3	**2.0**	0.9	0.7	0.5	0.5	**1.5**
Gauteng	0.2	0.6	**1.1**	0.6	1.0	**1.1**	1.0	**1.2**	**1.1**
North West	**1.8**	**4.4**	0.5	0.3	**1.1**	0.6	0.4	0.7	0.9

Source: Development Information Business Unit, 2000

The **GGP per worker** can serve as an indication of **labour productivity**. The inverse of GGP per worker (i.e. employment per R1 million GGP) could be interpreted as an indicator of the relative labour intensity of the production processes involved. A decline in the latter ratio can primarily be ascribed to factors such as mechanisation and automation, which may be detrimental to the labour absorption capacity of an economy. An analysis of the recent trends in the two determinants of the abovementioned ratios reveals a disturbing phenomenon, namely that growth in productivity can be ascribed to a negative growth rate in employment. Economic growth was thus not accompanied by concomitant growth in employment and therefore the ever-growing unemployment problem.

The growth in the GGP and employment for the nine provinces is depicted in Figure 2.6.

**Figure 2.6:** Average annual growth in production and employment
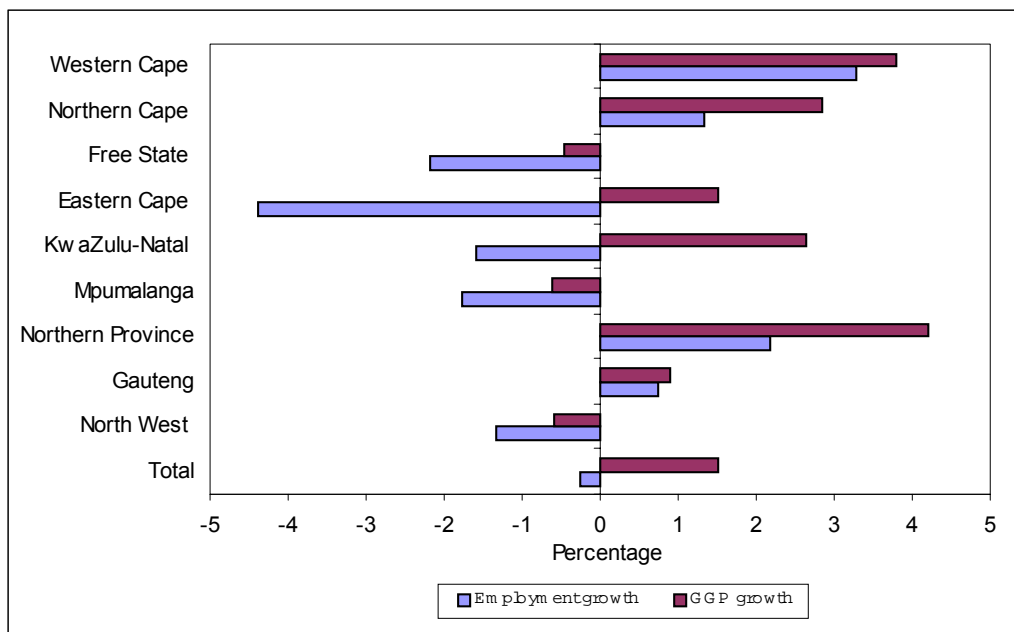
Source: Development Information Business Unit, 2000

GGP per capita can serve as an indicator of economic welfare in a region, although it does not provide for the degree of skewness in the distribution of income. (See previous paragraph on demographic indicators). A decrease in this ratio implies that population growth exceeded GGP growth.

Personal income is the income accruing to the inhabitants of a region. A **personal income/GGP ratio** exceeding 100% thus reflects a situation where the inhabitants of a region earn more than the total value of final production (income) produced within the boundaries of the region, and *visa versa*. Some regions, due to their heavy reliance on for instance the mining sector, experience relatively large outflows of income in the form of migrant workers' remittances and company profits. Mpumalanga and Northern Cape are examples of this situation. On the other hand, Eastern Cape and the Northern Province experience large inflows of income due to the presence of migrant workers earning their income in other provinces such as Gauteng.

Figure 2.7 illustrates the abovementioned ratio in the nine provinces.

Figure 2.7: Personal income as % of GGP, 1996
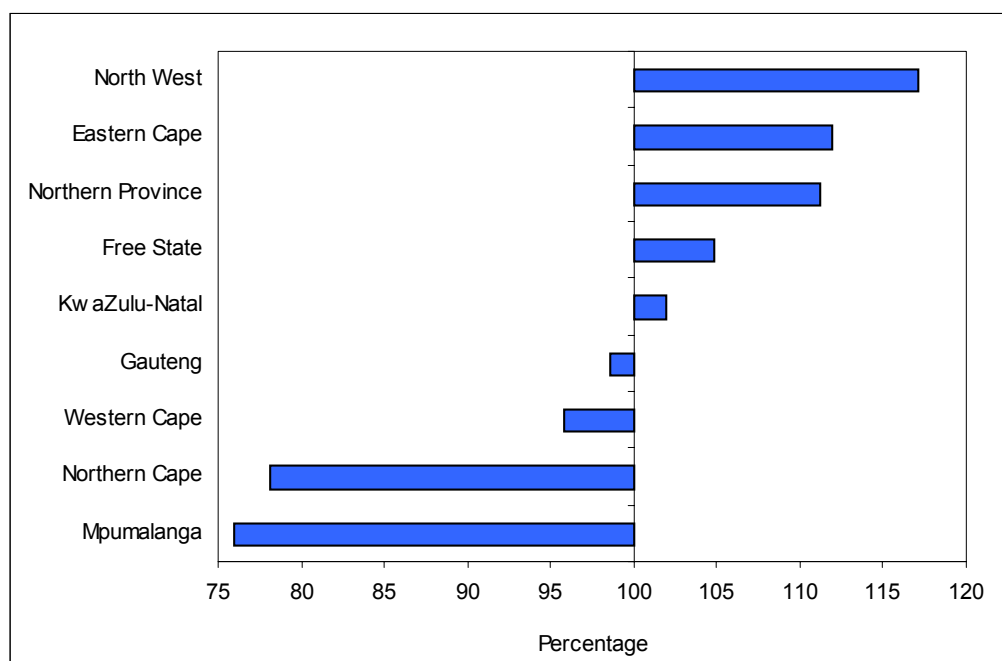
Source: Development Information Business Unit, 2000

Infrastructure

The provision of infrastructural services such as water, sanitation, transport, electricity and telecommunications represents a precondition for improved economic growth, welfare, quality of life and productivity of people. By providing well-planned and managed infrastructure, economic opportunities are created. Conversely, the non-provision or reduction of services has a detrimental impact on the efficiency of a region's economy. Infrastructure thus plays a dual role in the economic system, namely an improvement in economic activity and an improvement in living conditions.

❑ Infrastructure represents an important element of economic activity. Producers require infrastructure. The availability of infrastructural services raises the productivity of users by, for example, reducing the time and effort needed to obtain water, or commute to work. The ability of a region to compete is also largely determined by the availability of adequate and reliable infrastructure. Infrastructure investment, on its own, does not guarantee sustained increases in economic growth: Other infrastructure investment factors such as design, location, timeliness, quality, quantity and reliability can also have an impact on economic production.

❑ The provision of infrastructural services can also play an important role in the direct improvement of the welfare of households in a specific region. Criteria in determining welfare include, among others, access to at least minimal infrastructure services. These services have different effects on improving the quality of life. Access to clean water and sanitation can reduce mortality; access to transport provides access to markets; access to employment opportunities and social services such as health and education; increases in earnings potential and socio-economic aspirations; access to communication networks can result in an improved level of education and literacy rate. By contrast, the non-provision of services can detract from economic quality of life since much time has to be devoted to activities such as collecting fuel wood or water – time that could otherwise be spent on income-earning activities.

The provision of infrastructural services does not, however, necessarily lead to the eradication of poverty. In designing infrastructure, cognisance must also be taken of the social and environmental effects, as well as the financial capability of the households.

This section focuses on four infrastructural services: the provision of electricity, water, sanitation and telephones. The provision level is usually expressed in terms of the number of households who have access to the particular service. Backlogs in the provision are thus determined by the number of households who do not have access to the required level of service. Depending on the identified level to be attained, the size of backlogs can thus vary substantially.

Water

Four service levels are distinguished:

❑ Below basic: Water carrier, tanker, borehole, rainwater, tank, well, dam, river, stream, spring and other;

❑ Basic: Public tap;

❑ Intermediate: Piped water on site; and

□ Full: Piped water in the dwelling.

Figure 2.8 illustrates the differences in access to water between provinces if access is defined as access to piped water in a dwelling, piped water on site or in a yard, and public tap.

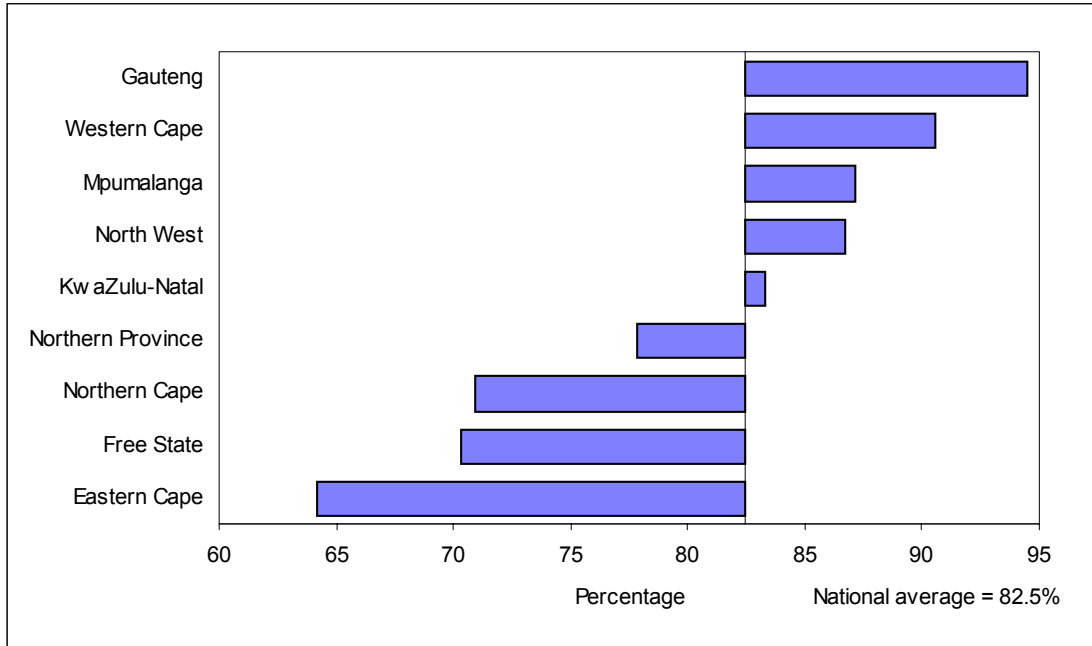**Figure 2.8:** Percentage of households with access to water, 1996
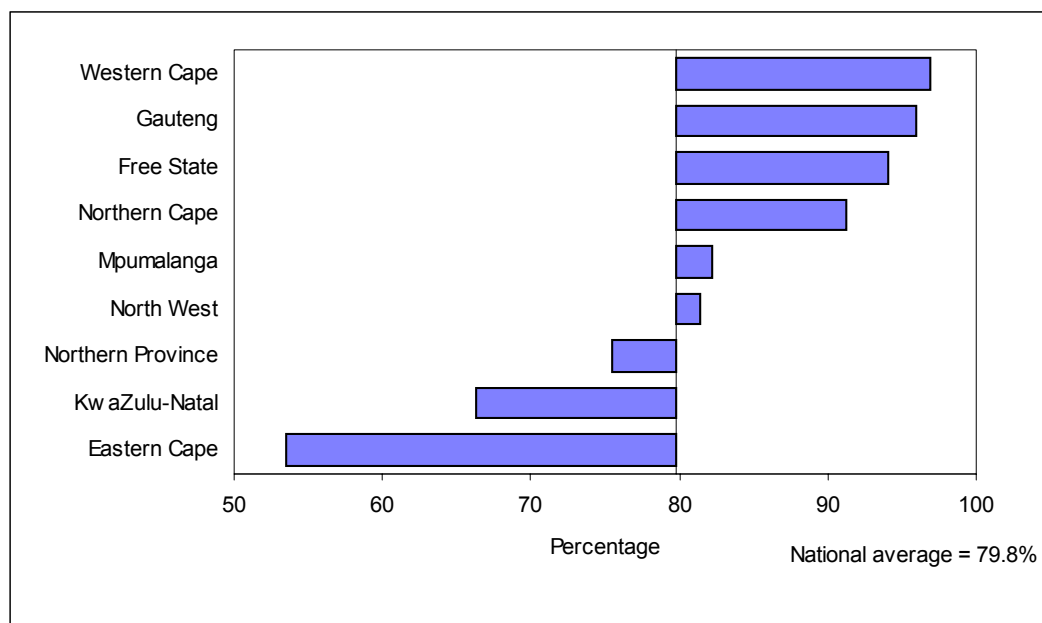
Sanitation

Three different levels of access are identified:

□ Below basic: Bucket, other;

□ Basic: Pit latrine;

□ Intermediate/full: Flush toilet or chemical toilet.

Figure 2.9 illustrates the differences in access to sanitation between provinces if access is defined as access to a flush toilet, chemical toilet or a pit latrine.

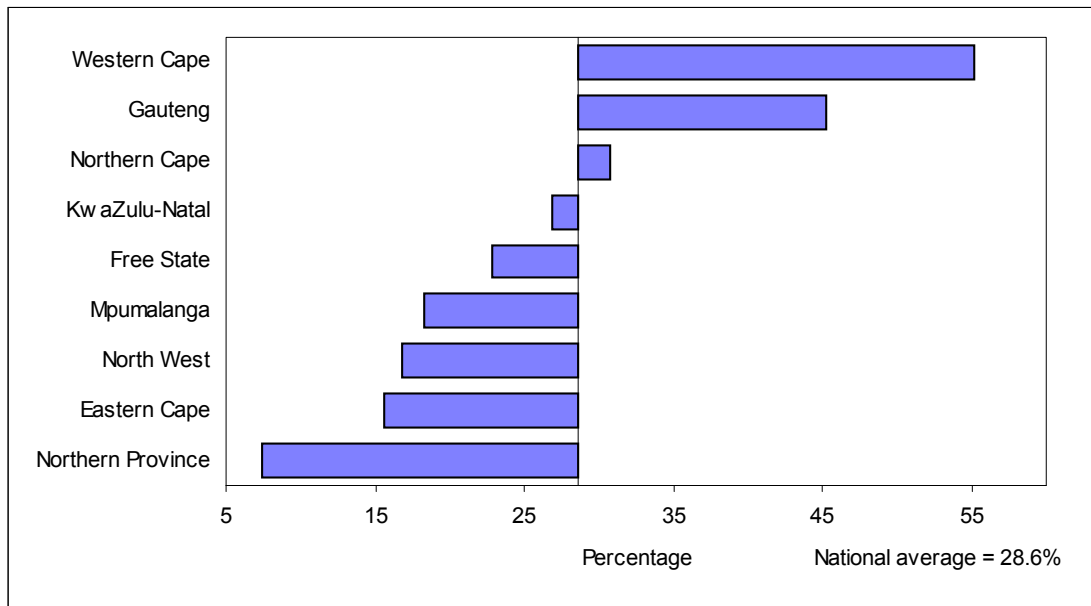**Figure 2.9:** Percentage of households with access to sanitation, 1996

Gauteng							
Western Cape							
Mpumalanga							
North West							
KwaZulu-Natal							
Northern Province							
Northern Cape							
Free State							
Eastern Cape							

Percentage   National average = 82.5%

Telephones

Three different levels of access are identified:

❑ Below basic: No access to, location not within the proximity of the dwelling, unspecified;

❑ Basic: Telephone at neighbour, public phone, or location not within the proximity of the dwelling, telephone on hostel premises; and

❑ Intermediate/full: Telephone in a dwelling or cellular phone.

Figure 2.10 illustrates the differences in access to telephones between provinces if access is defined as access to a telephone in the dwelling or a cellular phone.

Figure 2.10: Percentage of households with access to telephones, 1996

| Province | |
Western Cape	
Gauteng	
Northern Cape	
KwaZulu-Natal	
Free State	
Mpumalanga	
North West	
Eastern Cape	
Northern Province	

Percentage   National average = 28.6%

Electricity

Three different service levels are distinguished:

❑   Below basic: Gas, paraffin, candles and other;

❑   Basic: Electricity from other sources; and

❑   Intermediate/full: Electricity directly supplied by an authority.

Figure 2.11 illustrates the differences in access to electricity between provinces if access is defined as households that utilise electricity supplied directly by an authority for lighting purposes.

The primary **source of information** on the provision of the abovementioned services, in an enumerator area, is the Population Census conducted by Statistics SA.

Figure 2.11: Percentage of households with access to electricity, 1996
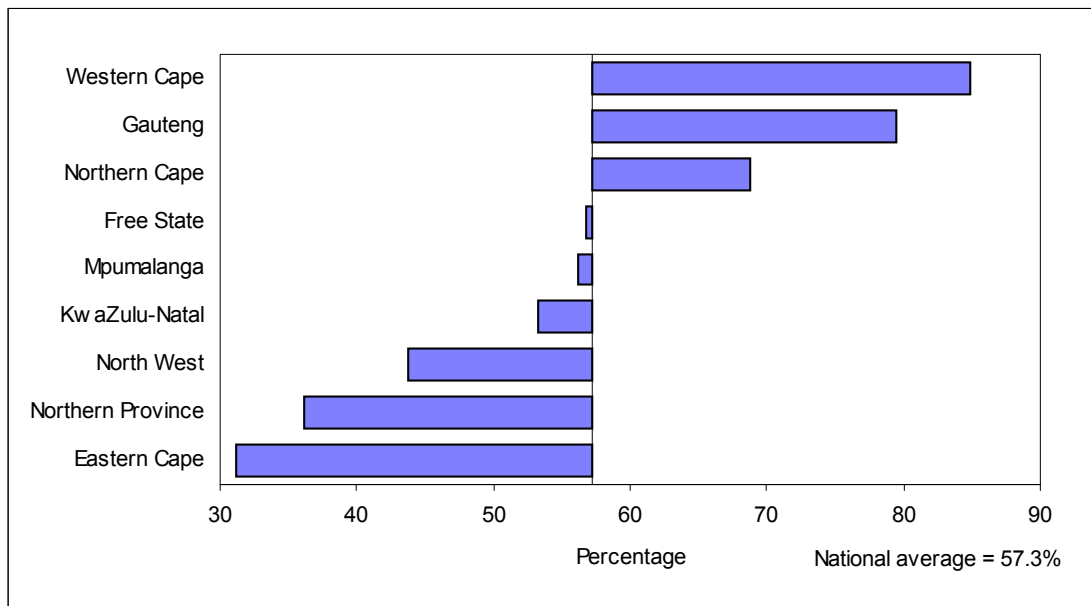
Chapter 3: Analytical techniques

The purpose of this chapter is to provide the user with a concise list of the most commonly used analytical tools and graphical presentations. The application of these techniques is illustrated by numerical examples.

Growth rate

Annual growth rate

When a complete set of data is available on an annual basis, the growth can be calculated for each successive year, for example: 1991–92, 1992–93, 1993–94, etc.

The formula for calculation is:

((Value in year (x+1) – value in year x) / value in year)) x 100

Example:

Year	Value	Formula	Growth rate
1990	3 050		
1991	3 460	(3 460/3 050–1) x 100	13.44
1992	3 289	(3 289/3 460–1) x 100	–4.94

Average annual growth rate

If values are only available for specific years, without intermittent values such as, population census values, the relevant formula is:

((Value of succeeding year / value of first year)$^{(1/\text{number of years})}$ –1) x 100

Example:

Year	Value	Formula	Growth rate
1985	5 416		
1991	9 308	$((9\ 308/5\ 416)^{(1/6)} - 1)$ x 100	9.45
1996	11 458	$((11\ 458/9\ 308)^{(1/5)} - 1)$ x 100	4.24

Index

An index of values is calculated to obtain a convenient set of values indicating the value in a specific year relative to a reference year. The choice of a reference or base year is important since this year must be representative of a "normal" year, meaning a year with no exceptionally high or low values.

The formula for calculation is: (Value of year / value of base year) x 100

Example (with 1995 as base year):

Year	Value	Formula	Index
1994	3 768	(3 768/4 769) x 100	79.01
1995	4 769	(4 769/4 769) x 100	100.00
1996	5 132	(5 132/4 769) x 100	107.61
1997	6 820	(6 820/4 769) x 100	143.01

Composite index

A composite index indicates a combined trend in two or more variables. The variables can be weighted according to the relative importance of the variable or it can be assumed that all variables are of equal importance and therefore carry equal weighting.

Example:

| Year | Access to services | | | | | | Composite index |
| | Water | | Sanitation | | Electricity | | |
	Value	Weight	Value	Weight	Value	Weight	
1995	100	0.5	100	0.3	100	0.2	100.0
1996	110	0.5	112	0.3	120	0.2	112.6*
1997	115	0.5	120	0.3	130	0.2	119.5
1998	120	0.5	130	0.3	140	0.2	127.0

The sum total of the weight allocated to the variables should be equal to one.

* (110 x 0.5) + (112 x 0.3) + (120 x 0.2) = 112.6

Note: In the example above it is assumed that access to water carries a larger weighting (of greater importance than access to sanitation and electricity).

Location quotient

A comparative advantage (CA) indicates a relatively more competitive production function for a product or service in a specific economy than in the aggregate economy. This economy therefore produces the product or renders the service more efficiently. An indication of the CA of an economy is its location quotient. A location quotient provides an indication of the comparative advantage of an economy in terms of its production and employment. An economy has a location quotient larger (smaller) than one, or a comparative advantage (disadvantage) in a particular sector when the share of that sector in the specific economy is greater (less) than the share of the same sector in the aggregate economy.

The sectors with values higher should, however, not be regarded as the only sectors worth developing as latent potential in other sectors has not been addressed by this technique.

The formula for calculation is: (Percentage contribution of a sector to GGP or total employment in a specific economy/percentage contribution of the same sector to the aggregate economy).

Example:

Sector	GGP (R million)		Percentage		Location quotients
	KwaZulu-Natal	Total	KwaZulu-Natal	Total	KwaZulu-Natal
Agriculture	4 172	23 458	5.4	4.8	1.1*
Mining	1 256	39 122	1.6	8.1	0.2
Manufacturing	24 680	114 916	31.7	23.7	1.3
Energy	1 607	19 135	2.1	4.0	0.5
Construction	2 435	14 315	3.1	3.0	1.1
Commerce	12 997	77 752	16.7	16.1	1.0
Transport	8 494	37 154	10.9	7.7	1.4
Finance	9 510	65 371	12.2	13.5	0.9
Services	12 758	92 834	16.4	19.2	0.9
Total	**77 909**	**484 057**	**100**	**100**	**1.0**

* (4 172/77 909) / (23 458/484 057) or 5.4/4.8

Tress index

The level of diversification or concentration of a region's economy is measured by a tress index. A tress index of zero represents a totally diversified economy. On the other hand, the higher the index (closer to 100), the more concentrated or vulnerable the region's economy to exogenous variables, such as adverse climatic conditions, commodity price fluctuations, etc.

The steps for calculating a GGP tress index are as follows:

i.   Calculate each sector's contribution to the GGP.

ii.   Rank the sectors according to contribution.

iii.   Multiply each sector by its appropriate weighting, the largest sector's weighting being

        nine (assuming nine sectors in the economy) and the smallest being zero.

iv.   Calculate the sum total of the weighted values of the sectors.

v.   To obtain an index value (0 to 100), subtract 500 from the total and divide by four.

        This is true if there are nine sectors. The value to be subtracted (in this case 500) is

        the lowest potential total weighted value. The denominator is calculated by dividing

        the difference between the highest and lowest potential total weighted values by 100.

Example:

Sectors	Percentage contribution (a)	Weight (b)	Weighted value (a)x(b)
Services	35.84	9	322.6
Agriculture	21.58	8	172.6
Manufacturing	17.40	7	121.8
Construction	7.80	6	46.8
Commerce	6.42	5	32.1
Finance	5.14	4	20.6
Mining	3.50	3	10.5
Transport	2.32	2	4.6
Energy	0.00	1	0.0
Total	**100.0**		**731.6**
Tress index			57.9*

* (731.6 – 500)/4

Growth performance index

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A growth performance index provides an indication of the growth in a certain sector in a particular economy relative to the growth attained in the same sector in the aggregate economy. An index larger (less) than 100 indicates a leading (lagging) sector. The same applies to the growth recorded in a specific sub-economy relative to the aggregate economy.

For example:

Growth performance index of sector/region X for the period 1980 to 1991 =

$$\left[\frac{\dfrac{Value\ X_{91}}{Value\ X_{80}}}{\dfrac{Aggregate\ Value_{91}}{Aggregate\ Value_{80}}} \right] \times 100$$

Example:

| Sector | Real GGP (R million) | | | | Growth performance indices |
| | Northern Cape | | Total | | |
	1991	1996	1991	1996	1991-96
Agriculture	599	620	13 638	15 133	93.3*
Mining	1 469	1 812	23 511	22 773	127.3
Manufacturing	307	280	60 183	64 581	85.1
Energy	185	244	11 015	12 942	112.2
Construction	108	107	8 203	7 506	107.8
Commerce	691	832	36 547	41 167	106.9
Transport	554	695	17 975	21 109	106.8
Finance	438	515	28 494	31 217	107.4
Services	1 013	1 065	44 983	47 266	100.1
Total	5 364	6 169	244 549	263 694	106.7

* (620/599)/(15 133/13 638) x 100

Deflating

Values at current prices are the product of the physical volumes multiplied the prices that prevailed in each year. Changes in these prices can thus have a serious impact in these values. To eliminate the impact of price changes, the real or actual trend in production is obtained. This exercise is called deflating. Deflating a time-series implies that the nominal (current price) values are converted to a real (constant price) time-series, so the effect of price increases is removed. Deflating a current price time-series with the aid of a price index or

deflator means that a constant price time-series is produced, in order words, the values are expressed in terms of the prices in the base year.

Formula: Value at constant prices = (Value at current prices/price index) x 100

Example:

Year	GDP at current prices (Nominal GDP) (R million)	Deflator	GDP at constant 1995 prices (Real GDP) (R millions)
1985	117 343	26.1	448 739*
1986	137 263	30.6	448 782
1987	160 652	35.2	455 810
1988	190 918	40.4	473 121
1989	227 546	46.9	484 728
1990	263 151	54.7	481 077
1991	303 407	63.8	475 697
1992	343 554	73.9	465 159
1993	390 842	82.9	471 670
1994	440 147	90.6	485 783
1995	500 354	100.0	500 354
1996	565 978	108.7	520 785
1997	625 418	117.2	533 673
1998	670 383	124.7	537 662
1999	723 247	131.8	548 846**

*   (117 343/26.1) x 100 = 448 739

** (723 247/131.8) x 100 = 548 846

Graphical presentations

The purpose of a graphical presentation is to provide the user with a vivid "picture" of a situation or trend. A few examples of graphical presentations are:

Pie chart: This technique is generally used to provide a picture of a composition, for instance the sectoral composition of the GGP or the relative sizes of the economies of the provinces.

Example:

Gross geographic product at factor cost and current prices by kind of economic activity per province, 1996 (R million)

Province	GGP
Western Cape	75 290
Northern Cape	11 100
Free State	27 696
Eastern Cape	36 508
KwaZulu-Natal	77 909
Mpumalanga	34 683
Northern Province	20 187
Gauteng	176 808
North West	23 875
Total	**484 057**

Composition of GDP, 1996
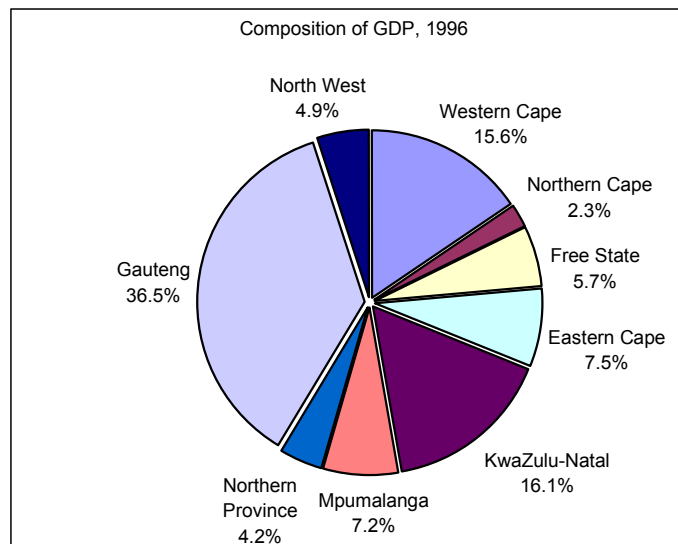
Bar chart: A bar chart is commonly used to illustrate either comparative statistics or movement in a variable.

Examples:

Nominal GGP, 1996

Real GDP, 1990-1996
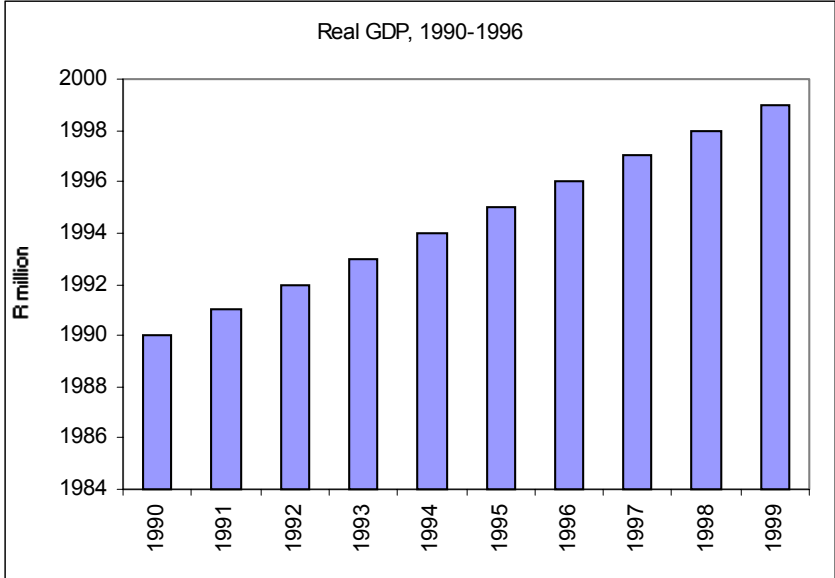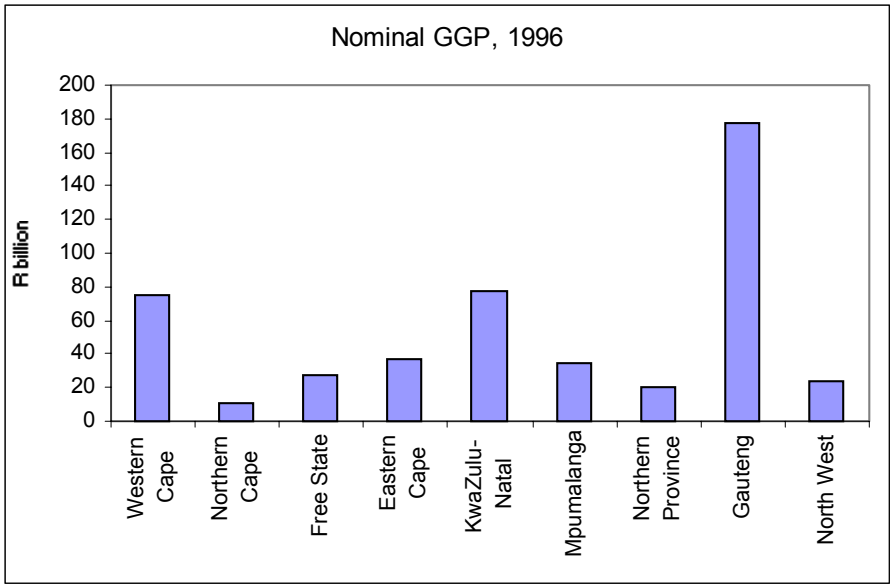
A variation in the use of bar charts is to rank variables according to value.

Example:

Average annual growth in employment, 1991-1996
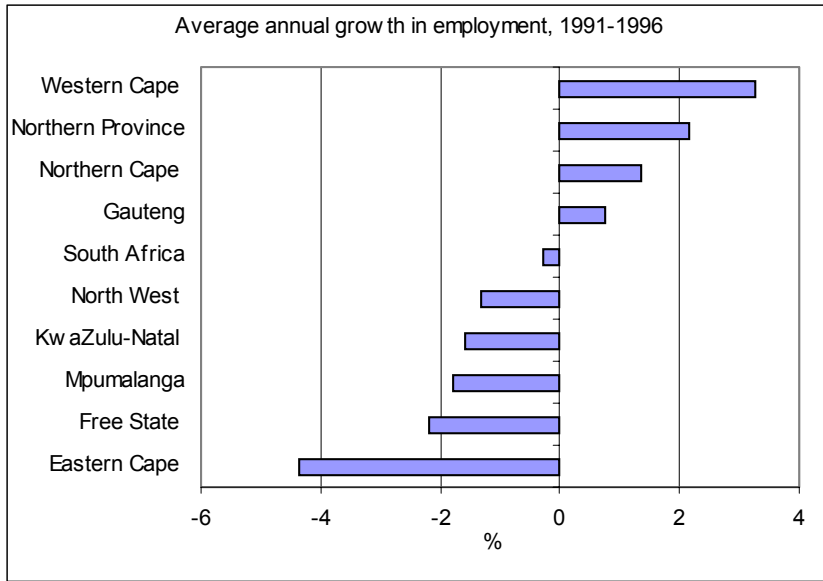
Development diamond: A development diamond provides a comparative illustration of a situation regarding more than two variables simultaneously. In the example above the province of Gauteng is compared to the national average regarding four variables: manufacturing as a percentage of GGP, average annual growth in GGP, GGP per worker and GGP per capita.

Variable	Gauteng	South Africa
Manufacturing as % of GGP	26.6	23.7
GGP per capita	25.7	13.0
Average annual growth in GGP	9.0	15.2
GGP per worker	42.3	33.8
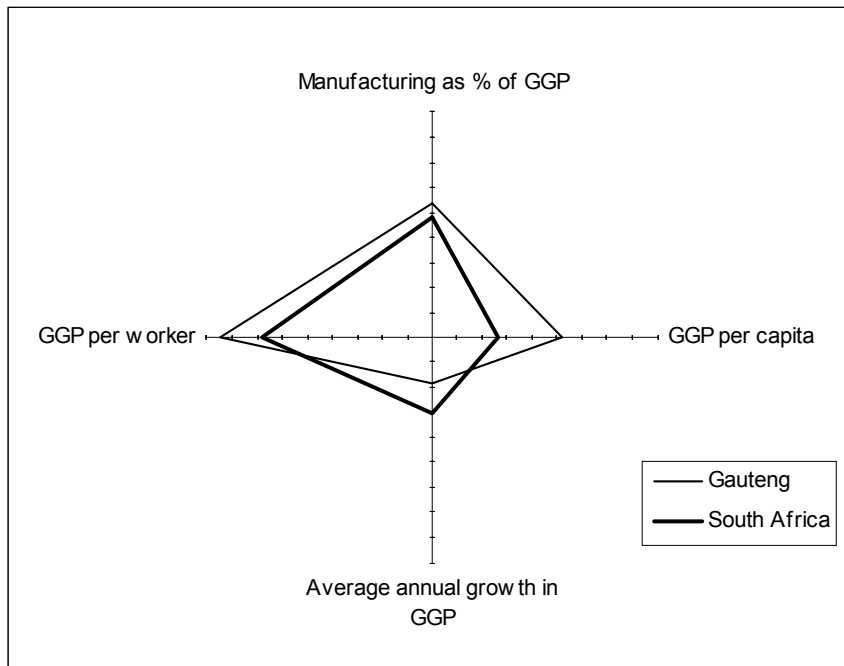
Note: Access to formulas contained in this chapter can be obtained on the following website: http//www.dbsa.org/publications/regional analysis.xls

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