

Chapter 3

Key baseline statistics for poverty measurement

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Introduction

Statistical measurement of poverty, and ways of monitoring its alleviation, are relatively new fields of endeavour in South Africa. Prior to the first democratic elections in April 1994, nation-wide integrated statistics of this nature were not officially collected.¹

In 1994, however, under the new government representing all the people of the country, Statistics South Africa (Stats SA),² the national statistics agency, conducted its first nation-wide October household survey (OHS), including the former 'TBVC (Transkei-Bophuthatswana-Venda-Ciskei) states'. It covered a wide range of socio-economic issues related to poverty, including levels of education and employment status among individuals and access to services such as clean water and electricity among households. This initial survey was followed by similar surveys in 1995, 1996, 1997, 1998 and 1999.

One dimension of poverty, i.e. money-related poverty, was more thoroughly measured in 1995 compared with other years, when the annual OHS was linked to the five-yearly income and expenditure survey (IES). The same households were separately visited for the 1995 OHS and IES, with the IES visits taking place shortly after the OHS. The linkage of data from the two surveys allowed for the development of a large data base by means of which to compare household income and expenditure with living conditions and life circumstances.

The questionnaire for the 1996 population census included several socio-economic items similar to the OHSs. This allowed South Africa's new democracy to obtain its first set of baseline statistics on the life circumstances of all South Africans down to the level of small areas. During Census '96, under the motto 'count us in', 100 000 fieldworkers employed by Stats SA traversed the cities, towns, townships, informal settlements, villages, farms and remote rural communities of the country. Their task was to record the number of people in South Africa at the time, and to obtain a picture of what life was like in each part of the country, from small groupings of land of approximately 150 households called enumeration areas, upwards to provincial and national levels. In November 1996, shortly after enumeration, a post-enumeration survey (PES) was conducted in order to estimate and adjust for the extent of persons and/or households which are unavoidably missed in any census.³

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¹ The World Bank and the South African Labour and Development Research Unit (SALDRU) of the University of Cape Town undertook a national household-based poverty study in 1993, using the internationally applied World Bank methodology. In 1993, the first annual October household survey, conducted by the Central Statistical Service, took place, but it excluded the former 'TBVC' states.

² Prior to September 1999, Statistics South Africa was known as Central Statistical Service.

³ For a more detailed discussion of the census methodology, see: Statistics South Africa. (1998). *The people of South Africa: population census 1996. The count and how it was done*. Report No. 03-01-17 (1996) Pretoria: Statistics South Africa.

The annual October household surveys, and the IES, are cross-sectional in nature, giving a snapshot picture of the life circumstances and living conditions in South Africa at a given point in time. However, once they are all weighted to Census '96, comparisons of life circumstances across these surveys become possible, within sampling errors.

This report focuses on the findings from three of these sources, namely the 1995 OHS and its linked 1995 IES, as well as Census '96 adjusted by the PES, in relation to poverty. Moreover, the two surveys have been linked to the census in respect of expenditure, by means of imputations, allowing the expenditure detail of the former to be extended to the geographical detail of the latter.

This use of household surveys in conjunction with the population census allows us to obtain imputed poverty-related data. It also gives us a standard for subsequent poverty reports, against which to measure and monitor future change, as and when new policies are introduced to address this issue, and then implemented at community, local, district, provincial and national levels.

Definition of poverty

Poverty has been defined in a variety of ways both nationally and internationally. In this report, poverty is reviewed, in common with the United Nations development reports,⁴ in a broader perspective than merely the extent of low income or low expenditure in the country. It is seen here as 'the denial of opportunities and choices most basic to human development to lead a long, healthy, creative life and to enjoy a decent standard of living, freedom, dignity, self-esteem and respect from others.'⁵

While household expenditure, as described below, is taken as an important component of poverty in this report, a variety of other variables are related to this expenditure level, with regard to both individuals and households: for example, type of housing, access to clean water and sanitation, education and employment.⁶

Poverty estimates

The monthly household expenditure categories used here were not derived from Census '96. Instead, they were imputed onto geographical areas of Census '96 from the income and expenditure survey and its linked October household survey of 1995.

In the census questionnaire, individuals were asked to indicate their income (before tax) in terms of 14 income categories. These could be indicated on equivalent scales for a weekly, monthly or annual basis. Respondents were requested to include, in their reported total, income from remittances, pensions or from the sale of home-grown produce. This general type of questioning, unavoidable in a census, probably led to under-reporting of income.

⁴ United Nations Development Programme. (1998). *UNDP poverty report, 1998: overcoming human poverty*. New York: United Nations Development Programme.

⁵ *Ibid.* p.14.

⁶ Paccoud, T. (1998). *Poverty: its statistical dimension*. Luxembourg: Eurostat.

In the IES, however, far more detailed questions were asked on the amounts from different sources of income, as well as on expenditure covering an extremely wide range of products. More precise answers could thus be obtained.

A recent study undertaken by Alderman *et al.*⁷ pointed out that there was indeed a clear linear relationship between household income derived from both the 1995 OHS and Census '96, and expenditure, as measured in more detail by the IES.

- This correlation applied strongly at a national and provincial level of aggregation. But, at the lower geographical levels of disaggregation, for example at magisterial district level, it was less obvious.
- In general, the relationship between income and expenditure was less strong at the lower, poverty-related levels than it was at the higher levels.
- The relatively low correlation between income and expenditure applied particularly to the rural areas in the former homelands. These areas house some of the poorest households in the country.
- There were large differences, when using specified cut-off points, in the proportion of those who could be regarded as poor when income, rather than expenditure, categories were used.

Our main concern in this report is with these lower categories where the correlation is lowest. The Alderman *et al.* study⁸ found that expenditure proved to be a more reliable measure than income in estimating economic well-being. It also aggregated up closely to the R330 billion of private consumption at the time of Census '96, as estimated by the South African Reserve Bank when calculating the gross domestic product (GDP) from the point of view of expenditure.

It was thus decided to use monthly household expenditure quintiles, inflated from October 1995 to October 1996 estimates, rather than monthly household incomes (before tax), as poverty measures in this report. The following monthly expenditure categories were used:

R0–R600; R601–R1 000; R1 001–R1 800; R1 801–R3 500; and R3 501 or more.

The use of these expenditure categories may have some unexpected outcomes.

- For example, the province with the highest proportion of households in the lowest *expenditure* category is Free State (39% of households spent R600 or less per month on goods and services at the time of Census '96). By contrast, Eastern Cape had the highest proportion of households in the lowest *income* category (32% of households had an income of R200 or less per month).
- Payment in kind, for example giving food instead of money for some work done in Free State with its large commercial agricultural sector, may partly explain this lower-than-expected expenditure pattern in this province. So may the under-estimation of the value of cash remittances in Eastern Cape, where migrant labour is relatively common.

⁷ Alderman, H. *et al.* (2000). *Combining census and survey data to construct a poverty map of South Africa*, which appears as Chapter 2 in this volume.

⁸ *Ibid.* p.7.

Imputations of monthly household expenditure

Note. Calculation of imputed expenditure has not been adjusted to take into account root mean square errors (RMSE).

The basic methodology used in imputing monthly expenditure values for households in the census involved linking survey and census data sets by means of prediction models, based on regression analyses,⁹ as follows:

- Common questions regarding living conditions such as clean water and electricity, and life circumstances such as level of education and employment, were identified in both the 1995 OHS (linked to the IES) and Census '96.
- Regression analysis was used on the OHS/IES to establish which of the common variables best predicted the expenditure reported in the IES.
- These regression equations were then applied to those common variables found in the small geographical areas of Census '96, to yield imputed expenditures for these small areas.
- Then the expenditure-based categories of households, e.g. the lowest versus the highest quintile, could be compared regarding other life-style variables in Census '96.
- Although both the IES and OHS of 1995 were still weighted to the 1991 census, this did not substantially affect the outcome of the prediction model, since the variables were used to derive classes or categories for the imputations. The actual numbers or proportions subsequently reported derive from Census '96.
- For example, if a household was situated in a traditional rural area in Northern Province during the time of the 1996 census, and it did not have any running water or toilet facilities, an expenditure value for each household in this type of category was imputed. This imputation was taken across to the corresponding areas in Census '96, based on the 1995 IES, irrespective of the number of households in the category.

Comparisons with other countries

In certain other countries, for example those in Latin America,¹⁰ income- rather than expenditure-based estimates of poverty are used. When possible, these countries make use of 'poverty lines' representing the level of income required by a household to meet the basic needs of all its members. These lines are determined on the basis of the estimated costs of a basket of staple foods, in relation to the cost of non-food basic needs. There are certain advantages, as well as disadvantages, in using this type of measure of poverty.¹¹ On the one hand, it allows for international comparison, on the other, the

⁹ For a more detailed description of the methodology, see pp. 7-8 above.

¹⁰ Economic Commission for Latin America and the Caribbean (ECLAC) (1996). *Social panorama of Latin America*, p. 26.

¹¹ Townsend, P. (1993). *The international analysis of poverty*. London: Harvester Wheatsheaf.

concepts of basic food and non-food requirements tend to be subjective. At present this measure is not used as part of official South African statistics.¹²

Overall results of Census '96

The people of South Africa

On the night of 9-10 October 1996 there were 40,58 million people in South Africa. This total has been adjusted for undercount, using the PES. Table 1 indicates the size of the population in the country as a whole, and in each province, by gender. The percentages add up to 100 across the rows. For example in the Eastern Cape row, 46,1% (third column from the left) were males, and 53,9% (fifth column) were females, adding up to 100,0% (final column on the right).

- Among the people in South Africa counted on census night, 77% classified themselves as African, while 11% classified themselves as white, and 9% as coloured. The Indian/Asian population was smallest at 3%, and 1% did not specify their group, or else classified themselves in some other way, for example as Griquas.¹³
- More than half the population (54%) lived in urban areas at the time of the census, but this milieu varied by population group.
- Among the 31,1 million Africans who were in South Africa in October 1996, 13,5 million (43%) were living in urban areas.
- Among the 3,6 million coloureds, 3,0 million (83%) were living in urban areas.
- As many as 1,02 million of the Indian population of 1,05 million (97%) were living in urban areas.
- Among the white population group, 4,0 million (91%) of the total of 4,4 million people were urbanised.¹⁴

¹² At present Stats SA does not have data on the cost of a basket of food and other products in non-urban areas on which to base the calculation of poverty lines. But it has made significant advances towards achieving this in recent years. For example, in 1995, by means of the *income and expenditure survey*, it collected data on expenditure patterns by households on food items and other goods and services on a country-wide basis for the first time, including rural areas and small towns. This information was collected in preparing a consumer price index (CPI) for all parts of the country. But Stats SA has not as yet, due to financial restrictions, been able to collect prices from shops and other outlets in non-urban areas to calculate a rural CPI. Once Stats SA has collected information on prices from rural outlets, it will be possible to calculate poverty lines for households living under different circumstances in all parts of the country.

¹³ *Population group* describes the racial classification of a particular group of South African citizens. The previous government used this type of classification to divide the South African population into distinct groupings on which to base apartheid policies. It is important for Stats SA to continue to use this classification wherever possible, since it clearly indicates the effects of discrimination of the past, and permits monitoring of policies to alleviate discrimination. In the past, population group was based on a legal definition, but it is now based on self-perceptions and self-classification.

¹⁴ An *urban* area is classified as such if it has been legally proclaimed as being urban. These include small and larger towns, cities and metropolitan areas. All other areas are classified as *non-urban* or *rural*, including commercial farms, small settlements, rural villages, and other areas, which are further away from towns and cities. A *semi-urban* area is not part of a legally proclaimed urban area, but adjoins it. *Semi-urban* areas have been included with *non-urban* areas.

Table 1: The population of South Africa by province and gender

Province	Male		Female		Total	
	N*	%**	N*	%**	N*	%
Eastern Cape	2 908 056	46,1	3 394 469	53,9	6 302 525	100,0
Free State	1 298 348	49,3	1 335 156	50,7	2 633 504	100,0
Gauteng	3 750 845	51,0	3 597 578	49,0	7 348 423	100,0
KwaZulu-Natal	3 950 527	46,9	4 466 493	53,1	8 417 021	100,0
Mpumalanga	1 362 028	48,6	1 438 683	51,4	2 800 711	100,0
Northern Cape	412 681	49,1	427 639	50,9	840 321	100,0
Northern Province	2 253 072	45,7	2 676 296	54,3	4 929 368	100,0
North West	1 649 835	49,2	1 704 990	50,8	3 354 825	100,0
Western Cape	1 935 494	48,9	2 021 381	51,1	3 956 875	100,0
South Africa	19 520 887	48,1	21 062 685	51,9	40 583 573	100,0

* All numbers given in this report are adjusted by the PES and rounded to whole numbers.

The totals may therefore differ slightly.

** The percentages are rounded to the first decimal place, therefore they may not always add up to exactly 100.

The households of South Africa

On the night of 9-10 October 1996 there were 9,1 million households in South Africa, excluding institutions such as tourist hotels, prisons, boarding schools and homes for the aged. This total has been adjusted for undercount, using the PES, as indicated in Table 2. The percentages in this table add up to 100 down the columns. For example, column 3 shows that Eastern Cape had 9,9% of all urban households, while Free State had 8,4%.

- The province with most households overall (last column on the right) was Gauteng with 2,0 million, and then KwaZulu-Natal with 1,7 million.
- Although there were more people in KwaZulu-Natal compared to Gauteng, the average number of people per household in KwaZulu-Natal was larger than in Gauteng, thus giving fewer households in the former province compared to the latter.
- The province with fewest households, i.e. about 187 000, was Northern Cape.
- Table 2 also shows that 35% of all urban households in the country were found in Gauteng, with KwaZulu-Natal and Western Cape each containing 16% of all households in urban areas.
- Northern Province has the largest percentage of households living in non-urban areas (24%), followed by Eastern Cape and KwaZulu-Natal (each with 22%) of the total of non-urban households.

Table 2: South African households in urban and non-urban areas by province

Province	Urban		Non-urban		Total ***	
	N*	%**	N*	%**	N*	%**
Eastern Cape	538 220	9,9	794 114	21,9	1 332 334	14,7
Free State	453 044	8,4	171 968	4,7	625 013	6,9
Gauteng	1 898 158	35,0	66 013	1,8	1 964 161	21,7
KwaZulu-Natal	874 108	16,1	786 828	21,7	1 660 936	18,3
Mpumalanga	260 290	4,8	343 718	9,5	604 012	6,7
Northern Cape	127 508	2,3	59 460	1,6	186 968	2,1
Northern Province	124 734	2,3	857 710	23,6	982 444	10,8
North West	277 702	5,1	442 934	12,2	720 640	8,0
Western Cape	873 067	16,1	109 945	3,0	983 015	10,9
Total	5 426 874	100,0	3 632 697	100,0	9 059 570	100,0

* All numbers given in this report are adjusted by the PES and rounded to whole numbers.
The totals may therefore differ slightly.

** The percentages are rounded to the first decimal place, therefore they may not always add up to exactly 100.

*** Excluding institutions.

Poor households in South Africa

In this section, the distribution of the derived monthly household expenditure is discussed by gender, urban or non-urban place of residence and population group. This is followed by a description of the life circumstances and living conditions of individuals and households in each expenditure category. The focus is on those in the lowest expenditure categories.

Monthly household expenditure by gender of household head and province

Table 3 indicates household expenditure, as imputed for Census '96, from the 1995 IES, in each province and for the country as a whole, by gender of the household head. The table excludes institutions.

The percentages in the table add up to 100 across the rows. For example, in the first row of the first set of rows labelled Eastern Cape, the third column shows that there were 665 000 households headed by a male. The fourth column shows that 29,0% of these male-headed households had a monthly expenditure of R600 or less per month. The second row of the three columns referring to Eastern Cape shows that, among the 667 000 households headed by a female in this province, 37,8% had a monthly expenditure of R600 or less. The third Eastern Cape row shows that of the 1,3 million households in the province, 33,4% spent R600 or less per month, while 35,1% spent between R600 and R1 000 per month, etc.

For the purposes of this report, households with a total expenditure of R600 or less per month (the lowest quintile) are regarded as very poor, whereas households with expenditures of between R601 to R1 000 (the second lowest quintile) per month were regarded as poor.

Table 3: Monthly household expenditure by province and gender of household head

Province and gender of household head		Total*	R0 – R600	R601 – R1 000	R1 001 – R1 800	R1 801 – R3 500	R3 501 or more	Total**
		N	%	%	%	%	%	
Eastern Cape	Male	665 007	29,0	30,8	15,6	11,9	12,7	100,0
	Female	667 341	37,8	39,5	13,3	6,8	2,6	100,0
	Total	1 332 348	33,4	35,1	14,4	9,4	7,6	100,0
Free State	Male	411 122	34,5	22,8	15,8	12,2	14,7	100,0
	Female	213 890	47,8	25,1	16,6	7,7	2,9	100,0
	Total	625 011	39,0	23,6	16,1	10,7	10,7	100,0
Gauteng	Male	1 394 032	5,2	13,8	20,2	22,1	38,7	100,0
	Female	570 136	8,4	17,7	24,4	30,2	19,3	100,0
	Total	1 964 168	6,1	14,9	21,4	24,4	33,1	100,0
KwaZulu-Natal	Male	1 007 409	12,5	21,6	24,6	18,9	22,4	100,0
	Female	653 525	13,9	35,8	29,4	14,6	6,3	100,0
	Total	1 660 934	13,1	27,2	26,5	17,2	16,0	100,0
Mpumalanga	Male	388 397	13,4	21,4	28,6	20,8	15,7	100,0
	Female	215 613	12,9	28,3	40,2	15,4	3,2	100,0
	Total	604 010	13,2	23,9	32,7	18,9	11,3	100,0
Northern Cape	Male	132 288	23,3	22,0	21,1	14,3	19,3	100,0
	Female	54 696	18,0	30,1	30,4	15,9	5,5	100,0
	Total	186 984	21,7	24,4	23,8	14,8	15,3	100,0
Northern Province	Male	470 055	15,4	28,6	32,7	13,4	10,0	100,0
	Female	512 402	15,8	43,8	32,5	6,3	1,6	100,0
	Total	982 457	15,6	36,5	32,6	9,7	5,6	100,0
North West	Male	452 040	19,7	27,4	22,9	14,5	15,5	100,0
	Female	268 604	20,3	38,4	24,8	11,7	4,8	100,0
	Total	720 643	19,9	31,5	23,6	13,5	11,5	100,0
Western Cape	Male	710 424	4,8	10,8	20,2	27,4	36,8	100,0
	Female	272 591	5,2	13,1	28,4	34,6	18,6	100,0
	Total	983 015	4,9	11,4	22,5	29,4	31,7	100,0
Total	Male	5 630 774	14,4	20,5	22,0	18,7	24,4	100,0
	Female	3 428 797	19,9	31,9	25,4	15,4	7,5	100,0
	Total	9 059 571	16,5	24,8	23,3	17,4	18,0	100,0

* All totals exclude unspecified categories. Institutions are also excluded.

** Due to rounding, percentages do not always add up to exactly 100.

The table shows that:

- Overall, 17% of households spent R600 or less per month at the time of Census '96, while 25% spent between R601 and R1 000. A further 23% of households spent between R1 001 and R1 800 per month, while 17% spent between R1 801 and R3 500, and 18% spent R3501 or more per month.¹⁵

¹⁵ These cut-off points can be compared with those shown in the report: Ministry of the Office of the President: Reconstruction and Development Programme (1995). *Key indicators of poverty in South Africa*. Pretoria: Office of the President.

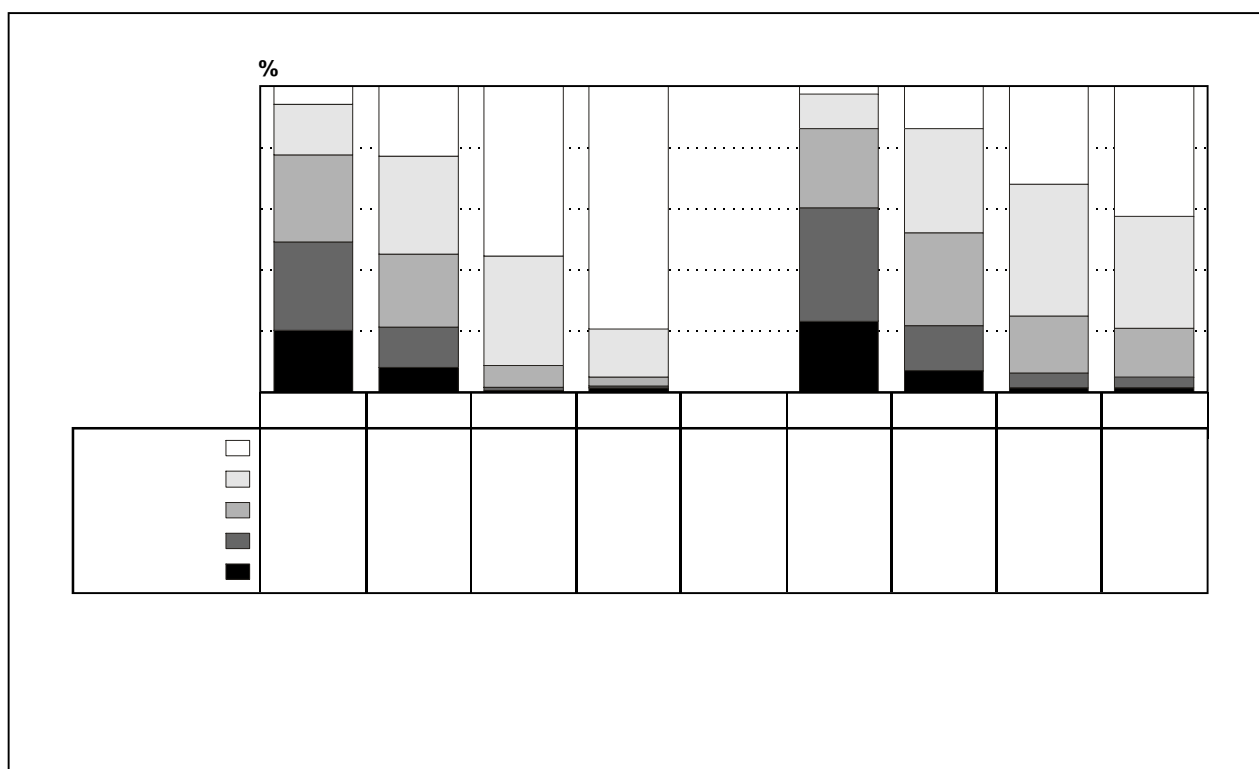


Figure 1: Monthly household expenditure by population group and gender of household head

- In general, female-headed households tended to spend less per month than male-headed ones. For example, throughout the country, 20% of female-headed households spent R600 or less per month at the time of Census '96, as against 14% of male-headed households.
- Household expenditure varied by province. Free State had the largest proportion of households in the lowest expenditure category of R600 or less per month (39%), followed by Eastern Cape (33%), Northern Cape (22%), North West (20%) and Northern Province (16%).
- Mpumalanga and KwaZulu-Natal had 13% in the lowest expenditure category, while Gauteng had 6% and Western Cape 5%.
- Male-headed households in Gauteng formed the highest proportion in the top expenditure category of R3 501 or more per month (39%) at the time of Census '96. This was followed by male-headed households in Western Cape (37%), then KwaZulu-Natal (22%), Northern Cape (19%), Mpumalanga and North West (16% each), Free State (15%), Eastern Cape (13%) and Northern Province (10%).

Monthly household expenditure by population group and gender of household head

Figure 1 indicates the monthly household expenditure distribution at the time of Census '96, by population group and gender of the household head. It clearly shows that African-headed households generally, and female-headed ones in particular, tended to spend less than the other households.

- For example, 23% of African female-headed households were found in the lowest expenditure category, as against 7% of coloured, 1% of Indian and 2% of white female-headed households.
- Among male-headed households, 20% of African, 8% of coloured, 1% of Indian and 1% of white male-headed households fell into this lowest expenditure category.
- On the other hand, the highest expenditure category contained 79% of white male-headed households, and 55% of Indian, 23% of coloured, and only 6% of African male-headed households.
- Among female-headed households, 43% of white households were in the highest expenditure category, as against 32% of Indian, 14% of coloured and 3% of African female-headed households.

Monthly household expenditure by urban/non-urban place of residence and by province

Table 4 indicates household expenditure, as imputed for Census '96, from the 1995 OHS and IES, in each province and for the country as a whole, by urban or non-urban place of residence.

In common with Table 3, the percentages in the table add up to 100 across the rows. For example, in the first row of the second set of rows labelled Free State, the third column shows that there were 454 000 households in urban areas. The fourth column shows that 29,5% of these urban households had a monthly expenditure of R600 or less per month, while the fifth column shows that 24,4% were spending between R601 and R1 000 per month, etc.

The table shows that:

- In general, households in non-urban areas tended to spend less money per month compared with those households in urban areas. For example, throughout the country, 25% of non-urban households spent R600 or less per month at the time of Census '96, as against 11% of urban households.
- In urban areas, 28% of households were in the top expenditure category, as against only 4% in non-urban areas.
- Household expenditure in urban and non-urban areas varied by province. For example, 64% of non-urban and 30% of urban households in Free State were in the lowest expenditure category, but in Western Cape, 15% of non-urban and 4% of urban households were in this category.
- As many as 34% of urban households in the Western Cape, and 33% of urban households in Gauteng were in the top expenditure category of R3 501 or more per month at the time of Census '96. Urban parts of KwaZulu-Natal had 29% of households in this top expenditure category, as against 25% in urban Northern Province, 24% in urban North West, 21% in urban Mpumalanga, 17% in urban Eastern and Northern Cape and 13% in urban parts of Free State.

Table 4: Monthly household expenditure in urban and non-urban areas in each province

Province and urban non-urban place of residence		Total*	R0 – R600	R601 – R1 000	R1 001 – R1 800	R1 801 – R3 500	R3 501 or more	Total**
		N	%	%	%	%	%	%
Eastern Cape	Urban	539 349	20,6	20,3	22,4	19,9	16,8	100,0
	Non-urban	794 513	42,2	45,2	9,0	2,2	1,4	100,0
	Total	1 333 862	33,5	35,1	14,4	9,4	7,6	100,0
Free State	Urban	453 719	29,5	24,4	19,9	13,3	12,8	100,0
	Non-urban	172 615	64,4	21,1	5,9	3,6	4,9	100,0
	Total	626 333	39,1	23,5	16,1	10,6	10,6	100,0
Gauteng	Urban	1 900 887	5,7	14,5	21,6	24,9	33,4	100,0
	Non-urban	66 711	22,8	25,9	15,7	11,0	24,6	100,0
	Total	1 967 598	6,3	14,9	21,4	24,4	33,1	100,0
KwaZulu-Natal	Urban	876 237	12,0	13,2	18,5	27,6	28,7	100,0
	Non-urban	789 068	14,7	42,5	35,3	5,7	1,9	100,0
	Total	1 665 304	13,3	27,1	26,4	17,2	16,0	100,0
Mpumalanga	Urban	260 623	11,4	17,8	24,9	24,9	21,0	100,0
	Non-urban	344 485	14,9	28,4	38,6	14,2	3,9	100,0
	Total	605 107	13,4	23,8	32,7	18,8	11,2	100,0
Northern Cape	Urban	127 913	11,9	24,3	29,4	17,9	16,6	100,0
	Non-urban	59 686	43,6	24,4	11,7	7,9	12,3	100,0
	Total	187 599	22,0	24,3	23,8	14,7	15,2	100,0
Northern Province	Urban	125 173	14,0	15,6	21,8	23,7	24,9	100,0
	Non-urban	859 285	16,0	39,5	34,1	7,6	2,8	100,0
	Total	984 458	15,8	36,4	32,5	9,7	5,6	100,0
North West	Urban	278 035	10,2	17,6	23,9	24,6	23,7	100,0
	Non-urban	443 617	26,1	40,1	23,3	6,5	3,9	100,0
	Total	721 652	20,0	31,4	23,6	13,5	11,5	100,0
Western Cape	Urban	875 076	3,9	9,1	21,5	31,8	33,8	100,0
	Non-urban	110 413	15,3	30,0	29,9	9,9	14,9	100,0
	Total	985 489	5,2	11,4	22,4	29,3	31,7	100,0
Total	Urban	5 437 011	10,7	15,4	21,5	24,7	27,6	100,0
	Non-urban	3 640 392	25,4	38,8	25,8	6,4	3,6	100,0
	Total	9 077 403	16,6	24,8	23,2	17,4	18,0	100,0

* All totals exclude unspecified categories. Institutions are also excluded.

** Due to rounding, percentages do not add up to exactly 100.

Monthly household expenditure by population group and urban/non-urban place of residence

Table 5 indicates household expenditure for the country as a whole by population group and urban or non-urban place of residence. It excludes institutions.

Table 5: Monthly household expenditure by population group and urban/non-urban place of residence

Population group and place of residence		Total*	R0 – R600	R601 – R1 000	R1 001 – R1 800	R1 801 – R3 500	R3 501 or more	Total**
		N	%	%	%	%	%	%
African	Urban	3 190 514	16,6	23,8	28,5	23,1	8,1	100,0
	Non-urban	3 343 484	26,2	40,6	26,6	5,7	0,9	100,0
	Total	6 533 998	21,5	32,4	27,5	14,2	4,4	100,0
Coloured	Urban	604 948	3,6	8,8	25,1	38,2	24,3	100,0
	Non-urban	136 258	26,1	34,9	28,9	8,1	2,0	100,0
	Total	741 206	7,8	13,6	25,8	32,7	20,2	100,0
Indian	Urban	237 506	0,7	1,6	9,1	37,0	51,7	100,0
	Non-urban	6 133	5,3	7,6	19,1	39,1	28,9	100,0
	Total	243 639	0,8	1,7	9,3	37,0	51,1	100,0
White	Urban	1 348 836	1,4	1,3	5,9	20,4	71,1	100,0
	Non-urban	133 655	1,9	1,5	4,8	20,4	71,3	100,0
	Total	1 482 492	1,4	1,3	5,8	20,4	71,1	100,0
Total	Urban	5 381 805	10,6	15,5	21,6	24,7	27,6	100,0
	Non-urban	3 619 530	25,3	38,9	25,9	6,4	3,6	100,0
	Total	9 001 335	16,5	24,9	23,3	17,4	18,0	100,0

* All totals exclude unspecified categories. Institutions are also excluded.

** Due to rounding, percentages do not add up to exactly 100.

In common with Tables 3 and 4, the percentages in the table add up to 100 across the rows. It shows the following:

- Non-urban areas contain predominantly African households. There were as many as 3,3 million African households in non-urban areas at the time of Census '96, as against 136 000 coloured, 134 000 white and 6 000 Indian households in non-urban areas.
- In general, the African and coloured households in non-urban areas tended to spend far less than the Indian or white ones in the same type of area. For example, 26% of both African and coloured households in non-urban areas spent R600 or less per month at the time of Census '96, compared with 5% of Indian and 2% of white households in these areas.
- On the other hand, only 1% of African and 2% of coloured households in non-urban areas spent R3 501 or more per month, as against 29% of Indian and 71% of white households in these non-urban areas.
- Those living in urban areas tended to spend more money per month than those living in non-urban areas. For example, 28% of all households in urban areas spent R3 501 or more, as against only 4% in non-urban areas.

Monthly household expenditure by gender and urban/non-urban place of residence

Regarding monthly expenditure and their relation to living in an urban or non-urban milieu, Figure 2 shows that non-urban households tend to be noticeably poorer than urban ones. The relationship between gender and poverty, although clear, is less stark than the urban/non-urban divide.

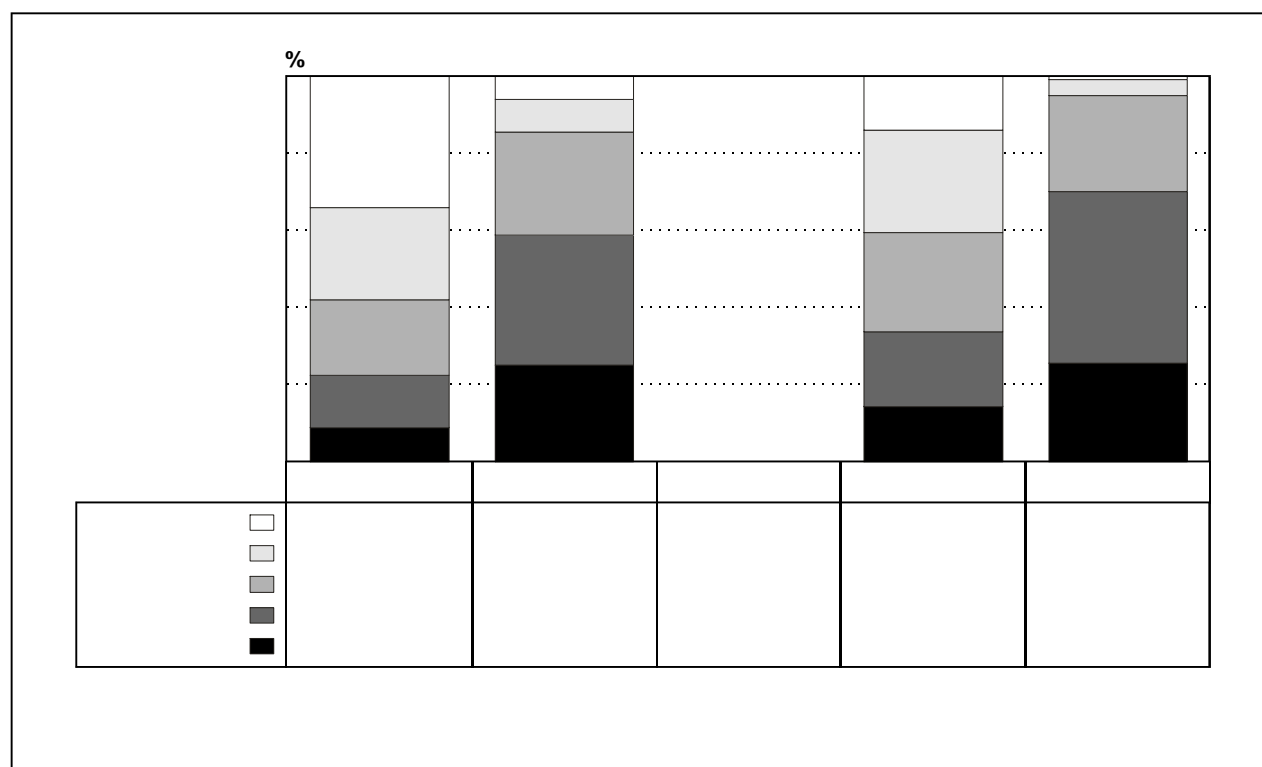


Figure 2: Monthly household expenditure by urban or non-urban place of residence and gender of household head

The figure shows that:

- Approximately a quarter of both male- (25%) and female-headed (26%) households in non-urban areas were found in the lowest expenditure category.
- In urban areas, however, only 9% of male-headed households were in the lowest expenditure category, as against 14% of female-headed households.
- In non-urban areas, only 6% of male-headed and 1% of female-headed households were in the highest expenditure category.
- In urban areas, however, 34% of male-headed, as against 14% of female-headed households were in the highest expenditure category.

Living conditions of the poor in South Africa

Poor living conditions were characteristic of a large number of the approximately nine million South African households found in the country on census night.

- Regarding type of dwelling, about one in every six (18%) households were living in traditional dwellings, and another one in every six (17%) were living in shacks.
- As many as 17% of households were living in one room or else were sharing a room with another household, while 15% were living in two rooms, and 14% in three. Altogether 46% of households were living in three or fewer rooms at the time of Census '96. These rooms include kitchens, but exclude bathrooms.
- As far as access to services is concerned, electricity for lighting was available to 58% of households, while 29% were still using candles, and 13% paraffin.
- For cooking, 23% of households were using wood, another 22% were using paraffin, and 3% were using coal.
- Fewer than half of South African households (45%) had a tap inside the dwelling.
- As many as 32% of households were using a pit latrine as a toilet, while 12% did not have any toilet facilities.

Poverty and living conditions

As we shall see below, households with low expenditures were less likely to have access to adequate housing or to infrastructure or services, compared to those with higher expenditures. But this pattern varied by urban or non-urban place of residence and also by population group. The vast majority of households with white or Indian heads had access to formal housing, as well as to services such as electricity and clean water. This applied even to those in the lowest expenditure categories. Among African-headed and coloured-headed households, however, access to formal housing, or to infrastructure, was directly related to expenditure category.

Poverty and type of dwelling

A larger proportion of African-headed households generally, and African households in the low expenditure categories in particular, tended to live in traditional or informal dwellings, compared with households headed by other population groups, as indicated in Table 6.

The percentages in Table 6 again add up to 100 across the rows. For example, in the first row of the first set of six rows labelled African, the third column shows that there were 1,375 million households in the monthly expenditure category of R600 or less. The fourth column shows that 29,9% of African households in this lowest expenditure category lived in formal housing, such as a brick house or a flat in a block of flats. The fifth column indicates that 36,9% of African households in this lowest expenditure category lived in traditional dwellings, while 29,3% lived in informal dwellings or shacks, and so on.

Table 6: Access to housing by monthly household expenditure and population group of household head

Population group and monthly expenditure		Total*	Formal	Traditional	Informal	Room/flatlet	Other	Total**
		N	%	%	%	%	%	%
African	R0 – R600	1 375 813	29,9	36,9	29,3	2,9	0,9	100,0
	R601 – R1 000	2 099 595	37,0	37,1	24,0	1,6	0,3	100,0
	R1 001 – R1 800	1 782 329	60,1	16,7	21,7	1,3	0,2	100,0
	R1 801 – R3 500	920 556	86,4	2,9	9,6	0,9	0,2	100,0
	R3 501 or more	285 756	96,8	0,7	1,5	0,7	0,2	100,0
	Total	6 464 049	51,5	24,9	21,5	1,7	0,4	100,0
Coloured	R0 – R600	56 060	69,5	5,8	18,5	3,4	2,8	100,0
	R601 – R1 000	100 017	74,2	4,2	17,7	2,8	1,1	100,0
	R1 001 – R1 800	189 457	85,3	1,9	10,5	1,8	0,5	100,0
	R1 801 – R3 500	241 148	94,1	0,8	3,6	1,3	0,2	100,0
	R3 501 or more	148 646	97,9	0,6	0,6	0,7	0,2	100,0
	Total	735 327	88,0	1,9	7,8	1,6	0,6	100,0
Indian	R0 – R600	1 480	66,2	9,9	10,6	10,7	2,5	100,0
	R601 – R1 000	4 198	77,2	6,1	7,6	7,9	1,3	100,0
	R1 001 – R1 800	22 549	89,7	1,4	3,4	5,0	0,4	100,0
	R1 801 – R3 500	89 827	97,5	0,4	0,6	1,4	0,1	100,0
	R3 501 or more	124 112	99,4	0,2	0,1	0,3	0,1	100,0
	Total	242 167	97,2	0,5	0,8	1,3	0,1	100,0
White	R0 – R600	15 967	85,7	2,0	1,0	8,5	2,8	100,0
	R601 – R1 000	19 337	83,2	1,1	1,1	11,7	2,9	100,0
	R1 001 – R1 800	84 585	93,8	0,6	0,4	3,9	1,1	100,0
	R1 801 – R3 500	300 003	97,5	0,6	0,2	1,3	0,5	100,0
	R3 501 or more	1 050 189	98,6	0,7	0,1	0,4	0,1	100,0
	Total	1 470 080	97,8	0,7	0,1	1,0	0,3	100,0
Total	R0 – R600	1 449 320	32,1	35,3	28,6	3,0	1,0	100,0
	R601 – R1 000	2 223 147	39,1	35,2	23,5	1,7	0,4	100,0
	R1 001 – R1 800	2 078 920	64,1	14,5	19,6	1,5	0,3	100,0
	R1 801 – R3 500	1 551 534	90,4	2,0	6,3	1,1	0,2	100,0
	R3 501 or more	1 608 703	98,3	0,7	0,4	0,5	0,1	100,0
	Total	8 911 623	63,4	18,4	16,2	1,5	0,4	100,0

* All totals exclude unspecified categories. Institutions are also excluded.

** Due to rounding, percentages do not add up to exactly 100.

The table shows that:

- Across all population groups, as shown at the bottom of the table, amongst those households spending R600 or less per month, 32% were living in formal housing. This proportion rose to 98% amongst those households spending R3501 or more per month.
- Within each expenditure category, African households were less likely to have access to formal housing, compared with the other population groups. For example, in the expenditure category R601–R1 000, 37% of African households lived in formal dwellings, as against 74% of coloured, 77% of Indian and 83% of white households in this expenditure category.
- Among African households, those in the two lowest expenditure groups tended to live in traditional dwellings (37% in both the lowest and the second lowest categories) or informal (29% in the lowest and 24% in the second lowest categories). As expenditure increased, the higher the expenditure, the higher the proportion of households living in formal dwellings.

Poverty and access to infrastructure and services

Table 7 indicates the extent of access which households had to various types of infrastructure and services, for example, electricity for lighting, a tap inside the dwelling or a telephone inside the dwelling or a cellular telephone.

This table is read differently from the previous tables. Each percentage stands on its own as a percentage for that particular variable. For example, regarding energy source for lighting, 14,8% of those with monthly expenditures of R600 or less had electricity for lighting. The remainder, i.e. 85%, not shown in the table, used candles, paraffin, gas or other energy sources.

The table shows the following:

- Fewer than half of the households in the country (44%) had a tap inside the dwelling, and only half of the households (50%) had a flush or chemical toilet.
- Telephones in the dwelling, or cellular telephones, were generally rather uncommon. Overall, only 29% of households had access to this service.
- Access to infrastructure or services varied by monthly household income. For example, 16% of those in the lowest expenditure category had access to electricity for lighting, compared with 99% in the highest category.
- Access also varied by population group. For example, 17% of African households in the second lowest expenditure category had a flush or chemical toilet, as against 39% of coloured, 79% of Indian and 95% of white households in the same expenditure category.

Differences in access to services in urban and non-urban areas

Urban or non-urban place of residence was also related to whether or not a household had access to services. For example, Figure 3 gives the situation among African and coloured households with regard to access to electricity for lighting. It excludes Indian and white households, since almost all (99%) had access to this facility.

Table 7: Access to facilities by monthly household expenditure and population group of household head

Population group and expenditure category		Total*	Electricity (lighting)	Tap inside dwelling	Flush/chem. toilet	Telephone in dwelling	Refuse removal 1 x week
		N	%**	%**	%**	%**	%**
African	R0 – R 600	1 405 346	14,8	10,8	13,1	1,2	21,5
	R601 – R1 000	2 116 381	22,6	13,1	17,3	2,2	23,4
	R1 001 – R1 800	1 796 910	57,0	27,6	37,8	6,2	40,3
	R1 801 – R3 500	927 509	90,6	62,8	77,4	36,2	71,6
	R3 501 or more	287 852	96,9	82,8	92,1	80,3	84,9
	Total	6 533 998	43,3	26,7	33,9	11,3	37,2
Coloured	R0 – R 600	57 611	25,2	18,5	20,9	2,7	30,5
	R601 – R1 000	100 904	50,1	31,0	39,0	3,8	49,9
	R1 001 – R1 800	190 971	86,5	66,8	81,9	13,2	79,4
	R1 801 – R3 500	242 308	97,8	90,1	96,7	64,4	94,9
	R3 501 or more	149 411	99,5	97,2	99,3	90,5	97,6
	Total	741 206	83,1	71,9	79,7	43,4	80,3
Indian	R0 – R 600	1 878	60,4	56,3	59,4	26,5	60,5
	R601 – R1 000	4 260	83,2	78,7	79,1	20,0	80,5
	R1 001 – R1 800	22 776	94,7	92,0	91,2	31,2	90,1
	R1 801 – R3 500	90 242	99,1	97,9	98,1	67,6	96,1
	R3 501 or more	124 483	99,8	98,9	99,7	94,8	97,7
	Total	243 639	98,5	97,2	97,6	76,9	95,8
White	R0 – R 600	20 841	80,8	77,3	81,9	62,8	73,7
	R601 – R1 000	19 674	93,6	90,3	94,8	34,1	86,4
	R1 001 – R1 800	85 494	96,2	94,8	97,6	67,9	90,5
	R1 801 – R3 500	301 919	97,9	96,0	99,0	81,1	90,4
	R3 501 or more	1 054 563	99,3	96,5	99,8	93,8	90,9
	Total	1 482 492	98,5	96,0	99,2	88,5	90,4
Total*	R0 – R600	1 485 677	16,2	12,1	14,4	2,1	22,6
	R601 – R1 000	2 241 218	24,6	14,7	19,1	2,5	25,3
	R1 001 – R1 800	2 096 151	61,7	34,6	44,8	9,7	46,5
	R1 801 – R3 500	1 561 978	93,6	75,5	85,8	51,1	80,3
	R3 501 or more	1 616 310	98,9	94,3	98,4	91,2	90,9
	Total	9 001 335	57,2	43,8	50,1	28,5	51,1

* All totals exclude unspecified categories. Institutions are also excluded. Since the number of unspecified responses varied for the different type of facilities, the totals reported here may vary slightly for each facility.

** Each percentage stands on its own. For example 57,2% of households (column three last line) had electricity for lighting, the remainder of 42,8% (not shown in the table) used other sources, for example candles or paraffin.

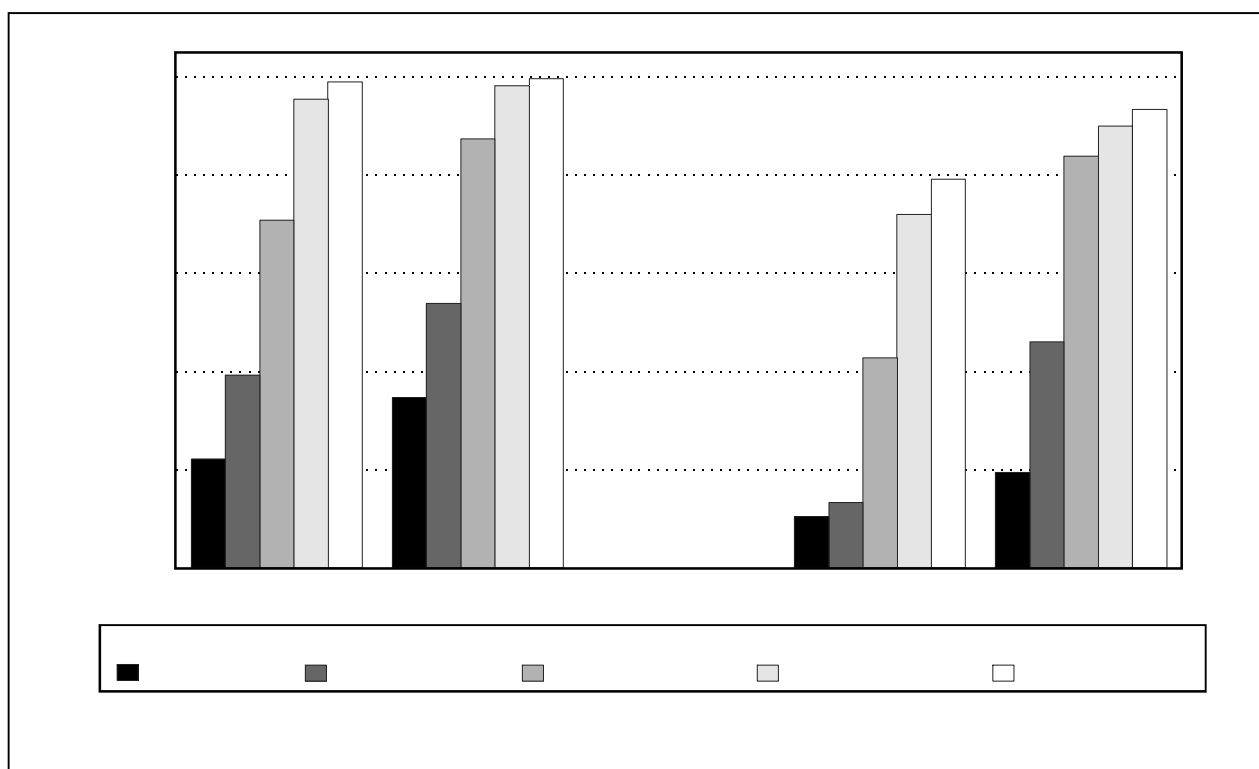


Figure 3: Percentage of African and coloured households with electricity for lighting in urban and non-urban areas, by expenditure quintile

The figure shows the following:

- In both urban and non-urban areas, as expenditure increased, so did access to electricity used for lighting purposes. But there were clear urban/non-urban and population group differences.
- In urban areas, 22% of African and 35% of coloured households in the lowest expenditure category had access to electricity for lighting, as against 10% of African and 19% of coloured households in non-urban areas.
- Almost all African (99%) and coloured (>99%) households in the highest expenditure category in urban areas had access to electricity for lighting, as against proportionately fewer households in this expenditure category in non-urban areas (79% of African and 93% of coloured households).

Integration

In general, the lower the expenditure, the less the access to adequate housing, infrastructure and services. However, other variables such as population group and urban or non-urban place of residence, had a clear influence on access to housing or other facilities. Overall, while gender of household head did have some impact on access to housing or services, this was less noticeable than the impact of population group or place of residence.

Life circumstances of the poor in South Africa

From households, we now turn to individuals and their life circumstances, and how they are affected by poverty. Here we refer specifically to access to opportunities assisting in escaping the ravages of poverty, such as education, employment, health care, HIV/Aids prevention and contraception. While the census does not provide measures for all these variables, level of education, average household size, the proportion of children in the household under the age of five years, and the unemployment rate (expanded definition) are indeed available.

Level of education and expenditure among the employed, by population group

Table 8 shows that, in general, there is a direct relationship between expenditure category and level of education. The higher the monthly expenditure is among employed individuals, the higher the level of education. But this pattern varies by population group.

The percentages in Table 8 also add up to 100 across the rows. The table shows that:

- Amongst the employed with no education, 27% were spending R600 or less per month, and a further 32% were spending between R601 and R1 000 per month, but amongst those with a tertiary education, only 2% were in the lowest, and 3% in the second lowest category.
- African employed people had less to spend per month than coloured, Indian or white employed people. For example, 7% of employed Africans were in the highest expenditure category, as against 23% of coloured, 57% of Indian and 80% of white employed people.
- African (27%) and coloured (28%) employed people with no education had less per month to spend than employed Indian (3%) or white (4%) people with no education.

Table 8: Monthly expenditure among the employed aged 20 years or more by population group and level of education

Population group and level of education		Total*	R0 – R600	R601 – R1 000	R1 001 – R1 800	R1 801 – R3 500	R3 501 or more	Total**
		N	%	%	%	%	%	%
African	None	557 680	27,3	32,7	28,9	9,8	1,4	100,0
	Some primary	566 301	27,8	31,5	28,3	10,7	1,6	100,0
	Complete primary	263 597	19,1	28,0	32,7	17,1	3,1	100,0
	Some secondary	947 350	13,8	22,5	31,7	24,5	7,5	100,0
	Matric	310 588	8,3	15,2	26,6	32,7	17,3	100,0
	Higher	187 754	5,6	8,6	18,1	36,8	30,9	100,0
	Total	2 833 270	18,6	25,1	29,1	19,9	7,3	100,0
Coloured	None	46 298	27,6	30,6	26,7	11,7	3,3	100,0
	Some primary	84 230	15,9	25,9	32,6	19,9	5,7	100,0
	Complete primary	45 371	7,6	15,7	31,5	32,2	13,0	100,0
	Some secondary	200 281	3,3	7,3	22,4	39,4	27,6	100,0
	Matric	52 206	1,5	3,9	14,6	39,7	40,3	100,0
	Higher	31 665	0,9	2,1	7,9	33,9	55,3	100,0
	Total	460 051	8,1	13,1	23,7	32,0	23,1	100,0
Indian	None	3 188	2,8	4,3	13,3	40,4	39,2	100,0
	Some primary	6 657	1,5	2,9	11,1	41,6	42,9	100,0
	Complete primary	5 671	0,8	1,7	8,9	39,6	49,0	100,0
	Some secondary	71 828	0,4	0,9	6,9	36,9	54,9	100,0
	Matric	47 783	0,4	0,8	6,7	33,4	58,8	100,0
	Higher	24 202	0,3	1,1	4,9	24,5	69,2	100,0
	Total	159 330	0,5	1,1	6,9	34,4	57,2	100,0
White	None	6 321	4,3	3,0	5,5	20,2	67,1	100,0
	Some primary	2 573	6,8	6,1	8,5	18,9	59,7	100,0
	Complete primary	1 936	3,8	5,2	7,3	19,3	64,5	100,0
	Some secondary	240 029	0,9	0,9	3,4	16,2	78,6	100,0
	Matric	347 128	1,0	0,9	3,6	15,2	79,4	100,0
	Higher	308 962	0,8	0,5	2,9	12,5	83,3	100,0
	Total	906 949	0,9	0,8	3,4	14,6	80,3	100,0
Total*	None	613 487	26,9	32,1	28,4	10,2	2,4	100,0
	Some primary	659 761	25,9	30,4	28,6	12,3	2,8	100,0
	Complete primary	316 576	17,1	25,6	32,0	19,6	5,7	100,0
	Some secondary	1 459 488	9,6	15,8	24,5	25,8	24,3	100,0
	Matric	757 705	4,0	6,9	14,0	25,2	49,9	100,0
	Higher	552 582	2,4	3,4	8,5	22,5	63,3	100,0
	Total	4 359 599	13,2	17,9	22,4	20,6	26,0	100,0

* All totals exclude unspecified categories. Institutions are also excluded.

** Due to rounding, percentages do not add up to exactly 100.

Monthly expenditure by occupation and gender among the employed

Figure 4 gives the differences in monthly expenditure by broad occupational category (management, professional and technical; clerical and sales; artisan and skilled blue collar; operators and semi-skilled; and elementary or unskilled workers) among the employed.

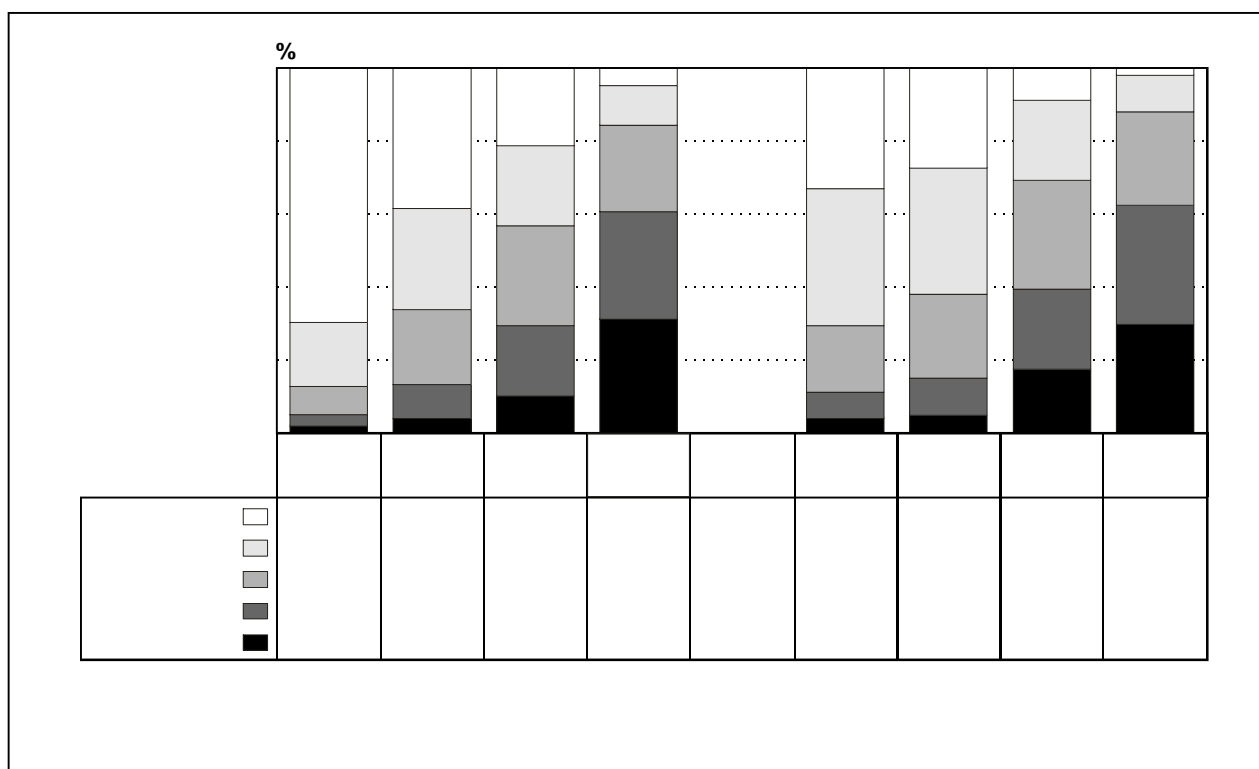


Figure 4: Monthly household expenditure by occupation and gender of household head

- It clearly shows that those in managerial and professional positions, particularly males, had the highest monthly expenditure. For example, 70% of male managers, professionals and technicians were in the top expenditure category, compared with only 33% of female managers, professionals and technicians.
- There is an increase in the proportion of people in the lowest expenditure category as we move from management and professional occupations towards more elementary ones. For example, 4% of males and 5% of females employed in clerical and sales occupations spend R600 or less per month. This proportion increases to 10% of male and 18% of female workers in skilled or semi-skilled occupations, and it increases even further to 31% of male and 30% of female elementary workers.
- Among those employed in elementary occupations, for example tea-making and street-sweeping, the difference in proportions of men and women in each category of monthly expenditure is relatively small. For example, 31% of men and 30% of women are in the lowest monthly expenditure category, while 29% of males and 33% of females are in the second lowest category. In the highest monthly expenditure category, however, there are proportionately more men (5%) than women (2%).

Stats SA development indices

Stats SA has evolved two development indices based on Census '96, namely the *Household infrastructure index* and the *Household circumstances index*, to describe the extent of development of different areas in South Africa. The indices given here compare provinces to each other, based on national data. They can, in fact, be applied at any appropriate level. For example, they can be used to compare development across district councils or local authorities or magisterial districts in the country. Within a particular magisterial district, these indices can be used to compare the extent of development of its different components, such as a suburb or a township. The confidentialised data set to do these calculations, based on less aggregated geographical levels, is available from Stats SA.

The two Stats SA development indices are based on the statistical technique of factor analysis which determined that there were two principal components, when this technique was applied to items (a) to (k) listed below. The items comprise a theoretically plausible list of relevant indicators available from the census, namely:

- (a) living in formal housing (brick dwellings, flats, townhouses, backyard rooms etc.);
- (b) access to electricity for lighting from a public authority or supply company;
- (c) tap water inside the dwelling;
- (d) a flush or a chemical toilet;
- (e) a telephone in the dwelling or a cellular telephone;
- (f) refuse removal at least once a week by a local or district authority;
- (g) level of education of the head of household;
- (h) average monthly household expenditure;
- (i) unemployment rate (expanded definition);
- (j) average household size; and
- (k) the proportion of children in the household under the age of five years.

The indices ultimately also take the number of households in each area into account.

Provincial differences

The report now compares the provinces and the extent of their development, using the 11 variables that constitute the two indices. Table 9 indicates the percentages or other scores obtained in each province on each of these variables. In the shaded columns of the table, the scoring was reversed for calculating the indices.

Each percentage in the table stands on its own.

- For example, column (a) shows that in Eastern Cape, 46,9% of households lived in formal dwellings.
- Column (c) shows that, in North West, 29,5% of households had a tap inside the dwelling.

The table shows large differences between provinces.

- In particular, Gauteng, Western Cape and Northern Cape have relatively high scores on most variables.
- Eastern Cape, Northern Province and North West have relatively low scores.

Table 9: Scores obtained in each province for each variable constituting the two Stats SA development indices

Province	Formal dwelling	Elec. light	Tap in dwelling	Flush/chem. toilet	Tel. in dwell. or cell.	Refuse 1 x week	Edu-cation hhld head	Mean monthly expend.	Un-employment rate	Average hhld size	Child < 5 years
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
	%	%	%	%	%	%	Years	Rand	%	N	%
Eastern Cape	46,9	31,2	24,4	30,6	15,6	33,8	5,1	1 403	48,5	4,3	12,0
Free State	62,5	56,8	40,2	45,1	22,9	60,4	5,5	1 543	30,0	3,8	9,5
Gauteng	73,8	79,4	66,9	82,9	45,3	81,4	7,1	3 594	28,2	3,3	8,9
KwaZulu-Natal	55,3	53,2	39,2	41,7	26,9	41,9	5,4	2 138	39,1	4,5	11,5
Mpumalanga	64,9	56,3	36,5	37,8	18,2	37,7	5,0	1 899	32,9	4,2	11,6
Northern Cape	80,1	68,8	49,7	59,5	30,8	67,4	5,1	2 023	28,5	4,0	10,6
Northern Prov.	62,0	36,2	17,3	13,1	7,4	11,2	4,6	1 418	46,0	4,6	13,1
North West	69,5	43,7	29,5	32,0	16,8	34,3	5,1	1 820	37,9	4,2	11,2
Western Cape	81,3	84,9	75,3	85,8	55,2	82,2	7,0	3 324	17,9	3,7	9,6

Calculating the Stats SA development indices

Once the percentages and other scores for each of the 11 variables had been calculated for each province, these were subjected to a factor analysis, with rotation, to determine the principal components. This statistical technique reduces a large set of variables to a smaller set of components by grouping together those variables which co-vary or which are correlated.¹⁶

This analysis indicated that the variables grouped into two principal components, which explained 74% of the variance, as shown in Table 10. The first component, i.e. the Stats SA *household infrastructure index*, explained 57% and the second, i.e. the Stats SA *household circumstances index*, explained a further 17% of the variance.

¹⁶Pietersen, J. and G. Damianov, (1988). *Guideto practical statistics*. Pretoria: Human Sciences Research Council.

Table 10: Loadings obtained by each variable on each component constituting the two Stats SA development indices (after rotation)

Variables	Household infrastructure index	Household circumstances index
(a) living in formal housing	0,65	-0,01
(b) access to electricity for lighting	0,78	0,07
(c) tap water inside the dwelling	0,83	0,12
(d) a flush or a chemical toilet	0,84	0,19
(e) a telephone in dwelling or cellular 'phone	0,77	0,05
(f) refuse removal at least once a week	0,74	0,19
(g) level of education of household head	0,60	0,25
(h) monthly household expenditure	0,84	-0,08
(i) unemployment rate (expanded definition)	0,39	0,45
(j) average household size	-0,02	0,90
(k) children under the age of five years	0,05	0,80

Index 1, the *Household infrastructure index* was constituted by the following variables:

- (a) living in formal housing;
- (b) access to electricity for lighting;
- (c) tap water inside the dwelling;
- (d) a flush or a chemical toilet;
- (e) a telephone in dwelling or cellular telephone;
- (f) refuse removal at least once a week;
- (g) level of education of household head; and
- (h) monthly household expenditure.

Since all the variables used for the first index obtained a relatively high loading on the first factor, each was given a weight of one.

Index 2, the *Household circumstances index* was constituted by the following variables:

- (i) unemployment rate (expanded definition);
- (j) average household size; and
- (k) children under the age of five years.

Since the three variables used for the second index obtained relatively high loadings on this second factor, each was given a weight of one.

The Stats SA household infrastructure index

On each index, the variables constituting it were arranged from highest to lowest scores or percentages, to establish cut-off points, and to divide each variable into three new categories (for the

shaded variables in the tables that follow, the procedure was reversed). This is a convenient and robust procedure to create an additive index from variables with different ranges (e.g. average household size versus number of children under five years).

Table 11, which indicates these cut-off points for the *Household infrastructure index*, is read as follows: in column (a) indicating the percentage of households in each province living in formal dwellings, the lowest score was 46,9%, while the highest was 81,3%. The cut-off points for grouping provinces in the lowest third on this variable was 58,3% and for the middle third, 69,8%.

- A province that contained between 46,9% and 58,3% of its households living in formal dwellings was placed in the lowest category.
- A province with between 58,4% and 69,8% of its households living in formal dwellings was placed in the middle category.
- A province with between 69,9% and 81,3% of its households living in formal dwellings was placed in the highest category.

Table 11: Cut-off points for calculating the Stats SA household infrastructure index

Scoring	Formal dwell.	Elec. light	Tap in dwell.	Flush/chem. toilet	Tel. in dwell. or cell.	Refuse 1 x week	Monthly expend.	Education hh head
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	%	%	%	%	%	%	Rand	Years
Lowest score	46,9	31,2	17,3	13,1	7,4	11,2	1 403	3,63
Upper limit: bottom third	58,3	49,1	36,6	37,4	23,4	34,8	2 133	4,75
Upper limit: middle third	69,8	67,0	56,0	61,6	39,3	58,5	2 863	5,78
Highest score	81,3	84,9	75,3	85,8	55,2	82,2	3 593	6,99

Table 12 indicates the scores divided into three categories for each of the variables constituting the *Stats SA household infrastructure index*.

Table 12: Scores obtained by each province on the Stats SA household infrastructure index

Province	Formal dwell.	Elec. light	Tap in dwell.	Flush/chem. toilet	Refuse 1 x week	Tel./cell	Ed. hh head	Monthly expend.	Interim score	Rank
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)		
	%	%	%	%	%	%	Years	Rands		
Eastern Cape	3	3	3	3	3	3	3	3	24	9,0
Free State	2	2	2	2	1	3	2	3	17	4,5
Gauteng	1	1	1	1	1	1	1	1	8	1,5
KwaZulu-Natal	3	2	2	2	2	2	2	2	17	4,5
Mpumalanga	2	2	3	2	2	3	3	3	20	6,0
Northern Cape	1	1	2	2	1	2	2	3	14	3,0
Northern Prov.	2	3	3	3	3	3	3	3	23	7,5
North West	2	3	3	3	3	3	3	3	23	7,5
Western Cape	1	1	1	1	1	1	1	1	8	1,5

For each variable, a score of 1 indicates a high level of development, while a score of 2 indicates an average and a score of 3 a low level of development. For example, reading across the columns, Eastern Cape obtained a score of 3 for all variables, indicating a low level of development across the board, and a total score of 24. It is ranked in position nine, and so it is the province that needs most overall attention for development. On the other hand, Western Cape had scores of 1 on all variables, and a total score of 8. It is ranked in position one together with Gauteng, so these two provinces require the least overall attention for infra-structural development.

The state of infra-structural development of each province, as indicated above, is a useful measure of relative development, but excludes the number of households in each province. For policy decisions such as the amount of money to be allocated for a specific public works programme in a province, the population of households should be taken into account.

The total number of households in each province is shown in the fourth column of Table 13. There were indeed wide variations regarding number of households, which were taken into account in the following stage of the Stats SA development indices.

Firstly, the total score across the eight trichotomised items was divided by eight, to eliminate the effect of the number of items (there are presently fewer in the other index). Then the square root of the number of households in each province was calculated to yield a multiplier with a suitable range, also shown in Table 13. The product of these two amounts was calculated.

The province with the lowest such score after taking number of households into account was Northern Cape, followed by Western Cape, Gauteng, Free State, Mpumalanga, North West, KwaZulu-Natal, Northern Province and Eastern Cape.

For comparisons, one may take the minimum possible score in the least populous province as the baseline, and give it a value of 100. The provinces could then be compared to this base, as indicated in the second last column of Table 13.

Table 13: Scores obtained by each province on the Stats SA household infrastructure index after taking number of households into account

Province	Interim score	Interim score divided by the number of items	Number of households	Square root of number of households	Index	Rank
			1 000			
Eastern Cape	24	3,0	1 332	1 154,3	458	9
Free State	17	2,1	626	790,8	222	4
Gauteng	8	1,0	1 964	1 401,5	185	3
KwaZulu-Natal	17	2,1	1 661	1 288,8	362	7
Mpumalanga	20	2,5	604	777,2	257	5
Northern Cape	14	1,8	187	432,4	100	1
Northern Prov.	23	2,9	982	991,2	433	8
North West	23	2,9	721	848,9	323	6
Western Cape	8	1,0	983	991,5	131	2

After taking the number of households into account as part of the index:

- The province with the highest index, and therefore needing the most infra-structural development in relation to its population size, is Eastern Cape.
- This is followed by Northern Province, KwaZulu-Natal, North West, Mpumalanga, Free State, Gauteng, Western Cape and Northern Cape.

Here is an illustration of how the index could be used to allocate money to the provinces for a public works programme such as labour-intensive road building, or a general infrastructure development programme. The index shows that, for every R100 that Northern Cape gets, Eastern Cape should get R458, Northern Province should get R433, KwaZulu-Natal should get R362, etc.

The reader will have noticed that, if number of households is not taken into account, a somewhat different ranking order results. The index and ranking should be chosen appropriately according to need. In apportioning a total amount of money (the original stimulus to this calculation), it is obviously desirable to take the number of households into account.

The Stats SA household circumstances index

The above procedure was repeated to calculate the Stats SA household circumstances index. Table 14 indicates the outcome.

Table 14: Scores obtained by each province on the Stats SA household circumstances index after taking number of households into account

Province	Unemployment rate	Average hh size	Child < 5 years	Interim score	Interim score divided by the number of items	Square root of number of hhlds	Index	Rank
	(i)	(j)	(k)					
	%	%	%					
Eastern Cape	3	3	3	9	6,0	1 154,3	400	9
Free State	2	2	1	5	1,7	790,8	152	3
Gauteng	2	1	1	4	1,3	1 401,5	216	6
KwaZulu-Natal	3	3	2	8	2,7	1 288,8	397	8
Mpumalanga	2	3	2	7	2,3	777,2	210	5
Northern Cape	2	2	2	6	2,0	432,4	100	1
Northern Prov.	3	3	3	9	3,0	991,2	344	7
North West	2	2	2	6	2,0	848,9	196	4
Western Cape	1	1	1	3	1,0	991,5	115	2

The table shows that:

- Eastern Cape requires the most attention in terms of development to improve the life circumstances of the households.
- KwaZulu-Natal, with its large population and thus its large number of households, as well as its large average household size and high unemployment rate, requires the second most attention.
- This ranking is followed by Northern Province, which requires the third highest amount of development assistance to improve life circumstances.

- Gauteng, with its large number of households, and large numbers of people moving to the area in search of work, comes next regarding development involving change in life circumstances, while Mpumalanga, North West, Free State and Western Cape require less assistance in this regard.
- As an example, let us assume that the Department of Labour wishes to allocate money to the provinces for skills training. The index shows that for every R100 that is allocated to Northern Cape, Western Cape should get R115, while Free State should get R152, Gauteng R216, etc.

Comparing the indices

The final indices and the rank order of the provinces in comparison with Northern Cape differ slightly on the two indices, as indicated in Table 15. Eastern Cape ranks highest on both the Household infrastructure and the Circumstances index, (in most need of development assistance). On the Infrastructure index it is followed by Northern Province and KwaZulu-Natal, while on the Household circumstances index KwaZulu-Natal is ranked second highest, followed by Northern Province.

The indices may therefore serve as baselines for different monitoring roles. The first index is directly related to improving the quality of life of people by ensuring that their basic needs, for example access to clean water, sanitation and basic education, are met. On the other hand, the second is related to giving people more empowerment, for example, through job creation and population development programmes.

Table 15: Comparing the scores and rankings on Stats SA household infrastructure and household circumstances indices

Province	Stats SA household infrastructure index		Stats SA household circumstances index	
	Index	Rank	Index	Rank
Eastern Cape	458	9	400	9
Free State	222	4	152	3
Gauteng	185	3	216	6
KwaZulu-Natal	362	7	397	8
Mpumalanga	257	5	210	5
Northern Cape	100	1	100	1
Northern Prov.	433	8	344	7
North West	323	6	196	4
Western Cape	131	2	115	2

These indices may have different audiences.

- For example, in the government sector, the first index with its focus on service provision may be more useful to planners in the Departments of Housing, Water Affairs and Public Works.
- The second index, with its focus on empowerment, may be more useful to the Departments of Labour, Health and Welfare.

Comparison with other indices

Within government, various departments have developed indices for the allocation of funds for capital and operational expenditure at provincial and local government level.^{17,18,19} These indices tend to be more limited in scope, focusing specifically on funding allocations. In addition, fewer demographic and socio-economic variables are taken into account.

For example, the Financial and Fiscal Commission's calculations on which to base financial allocations to provinces include the following variables: total population, the percentage of the population that is rural, the estimated population growth rate and the percentage of children aged 5 to 17 years.

The Department of Constitutional Development makes 'equitable shares allocations' to local authorities. These include, among other funds to be phased in over time, a basic services (S), and an institutional capacity-building (I) grant. The S grant supports the ability of municipalities to supply services to the poor. The approach is to estimate the number of poor households, defined as those earning less than R800 (1998 Rand values) a month, and to allocate an operating subsidy to each municipality for each poor household (in 1998 the amount per poor household was R86 per month).

The two Stats SA development indices could indeed be used in conjunction with the fund-allocating formulas of the Financial and Fiscal Commission, or the Department of Constitutional Development as instruments to monitor change in the life circumstances of poor households over time, as funding becomes utilised, and development programmes implemented.

The Stats SA indices may have many wider uses. They can be used to plan services within funding allocations, and to act as baseline information against which to monitor change, as and when new policies are introduced and put into operation. These can be measured at various geographical levels during annual inter-censal surveys. The task in hand in relation to poverty alleviation should determine the type of index to be used.

¹⁷Financial and Fiscal Commission. (1977) *Local government in a system of intergovernmental fiscal relations. A discussion document*. Midrand: Financial and Fiscal Commission.

¹⁸De Bruyn, J., D. McIntyre, N. Mthethwa, K. Naidoo, L. Ntenga, P. Pillay, and C. Pantusewitz, (1988). *Public expenditure on basic social services in South Africa*. Midrand: Financial and Fiscal Commission.

¹⁹Personal communication with Ms W Fanoe of the Department of Constitutional Development.