



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

Background Paper Series



Background Paper 2005:1(3)

A profile of the Northern Cape province: Demographics, poverty, inequality and unemployment

*Elsenburg
August 2005*

PROVIDE

PROJECT

The Provincial Decision-making Enabling Project

Overview

The Provincial Decision-Making Enabling (PROVIDE) Project aims to facilitate policy design by supplying policymakers with provincial and national level quantitative policy information. The project entails the development of a series of databases (in the format of Social Accounting Matrices) for use in Computable General Equilibrium models.

The National and Provincial Departments of Agriculture are the stakeholders and funders of the PROVIDE Project. The research team is located at Elsenburg in the Western Cape.

PROVIDE Research Team

Project Leader:	Cecilia Punt
Senior Researchers:	Kalie Pauw Melt van Schoor
Young Professional:	Bonani Nyhodo
Technical Expert:	Scott McDonald
Associate Researchers:	Lindsay Chant Christine Valente

PROVIDE Contact Details



Private Bag X1
Elsenburg, 7607
South Africa



provide@elsenburg.com



+27-21-8085191



+27-21-8085210

For the original project proposal and a more detailed description of the project, please visit www.elsenburg.com/provide

A profile of the Northern Cape province: Demographics, poverty, inequality and unemployment¹

Abstract

This paper forms part of a series of papers that present profiles of South Africa's provinces, with a specific focus on key demographic statistics, poverty and inequality estimates, and estimates of unemployment. In this volume comparative statistics are presented for agricultural and non-agricultural households, as well as households from different racial groups, locations (metropolitan, urban and rural areas) and district municipalities of the Northern Cape. Most of the data presented are drawn from the Income and Expenditure Survey of 2000 and the Labour Force Survey of September 2000, while some comparative populations statistics are extracted from the National Census of 2001 (Statistics South Africa). The papers should be regarded as general guidelines to (agricultural) policymakers as to the current socio-economic situation in the Northern Cape, particularly with regards to poverty, inequality and unemployment.

¹ The main author of this paper is Kalie Pauw.

Table of Contents

1. Introduction	1
2. Demographics.....	2
2.1. Spatial distribution of households	2
2.2. Agricultural households.....	4
3. Poverty, inequality and unemployment.....	7
3.1. Poverty and agriculture.....	7
3.2. Inequality in the distribution of income.....	10
3.3. Employment levels and unemployment.....	15
4. Conclusions	18
5. References.....	19

List of Figures

Figure 1: District municipalities in the Northern Cape	3
Figure 2: Agricultural household shares by region and race	6
Figure 3: Poverty rates by population subgroups	9
Figure 4: Poverty rates by race and agricultural/non-agricultural population	10
Figure 5: Lorenz curves for the Northern Cape and South Africa.....	11
Figure 6: Racial representation in the workforce of the Northern Cape.....	16
Figure 7: Unemployment rates by population subgroups	17
Figure 8: Unemployment rates by race and agricultural/non-agricultural population	18

List of Tables

Table 1: Racial composition of the Northern Cape	2
Table 2: Population by district municipality and racial group.....	3
Table 3: Population by urban/rural areas and racial group.....	4
Table 4: Agricultural households by race (broad and strict definitions)	5
Table 5: Agricultural population by race (broad and strict definitions)	6
Table 6: Average household incomes in the Northern Cape	7
Table 7: Trends in income distribution – 1960 and 1980.....	11
Table 8: Gini decomposition by race and agriculture in the Northern Cape	13
Table 9: Theil decomposition – agricultural and non-agricultural households	14

1. Introduction

According to the National Census of 2001 the Northern Cape province is home to only 1.8% of South Africa's population. Measured by its total current income, the Northern Cape has the lowest total income of all provinces in South Africa. In *per capita* income terms, however, the province ranks third after Gauteng and the Western Cape (SSA, 2003a).² Despite these relative fortunes, the province is still marred by high poverty rates, inequalities in the distribution of income between various population subgroups, and unemployment. Poverty and unemployment in South Africa are often rural phenomena, and given that many of the rural inhabitants are linked to agricultural activities, the various Departments of Agriculture in South Africa have an important role to play in addressing the needs in rural areas. In this paper an overview of the demographics, poverty, inequality and unemployment in the Northern Cape is presented. A strong focus on agriculture and agricultural households is maintained throughout.

There are various sources of demographic data available in South Africa. In addition to the National Census of 2001 (SSA, 2003a), Statistics South Africa conducts a variety of regular surveys. Most suited to this type of study and fairly recent is the Income and Expenditure Survey of 2000 (IES 2000) (SSA, 2002a), which is a source of detailed income and expenditure statistics of households and household members. The twice-yearly Labour Force Survey (LFS) is an important source of employment and labour income data. In this paper we use the LFS September 2000 (LFS 2000:2) (SSA, 2002b) as this survey can be merged with the IES 2000. Although there are some concerns about the reliability of the IES and LFS datasets, whether merged or used separately, as well as the comparability of these with other datasets, one should attempt to work with it as it remains the most recent comprehensive source of household income, employment and expenditure information in South Africa. For a detailed description of the data, as well as data problems and data adjustments made to the version of the dataset used in this paper, refer to PROVIDE (2005a).

This paper is organised as follows. Section 2 presents a brief overview of the spatial distribution of households within the province, while also presenting some estimates of the number of people or households involved in agricultural activities. Section 3 focuses on poverty, inequality and unemployment in the province, while section 4 draws some general conclusions.

² These population figures and income estimates are based on the Census 2001. Statistics South Africa warns that the question simply asked about individual income without probing about informal income, income from profits, income in kind etc. As a result they believe this figure may be a misrepresentation of the true income. Comparative figures from the IES 2000 also ranks the Northern Cape last in terms of total provincial income and third as measured by *per capita* income.

2. Demographics

2.1. Spatial distribution of households

In 2000 the Northern Cape was home to 187,247 households and a total population of 865,321 people (IES/LFS 2000). These estimates are somewhat different from the Census 2001 estimates of 206,842 households and 822,726 people (see Table 1). The discrepancies can be explained by possible changes in population size and composition between 2000 and 2001, but also points at the outdated IES/LFS 2000 sampling weights.³ Compared to the Census 2001 data Coloured people were slightly over-represented while the other population groups were under-represented in the Northern Cape in the IES/LFS 2000.

Table 1: Racial composition of the Northern Cape

	<i>IES/LFS 2000</i>	<i>Population share</i>	<i>Census 2001</i>	<i>Population share</i>
African	295,237	34.1%	293,976	35.7%
Coloured	461,412	53.3%	424,389	51.6%
Asian/Indian	2,674	0.3%	2,321	0.3%
White	105,999	12.2%	102,040	12.4%
<i>Total</i>	<i>865,321</i>	<i>100.0%</i>	<i>822,726</i>	<i>100.0%</i>

Sources: IES/LFS 2000 and Census 2001.

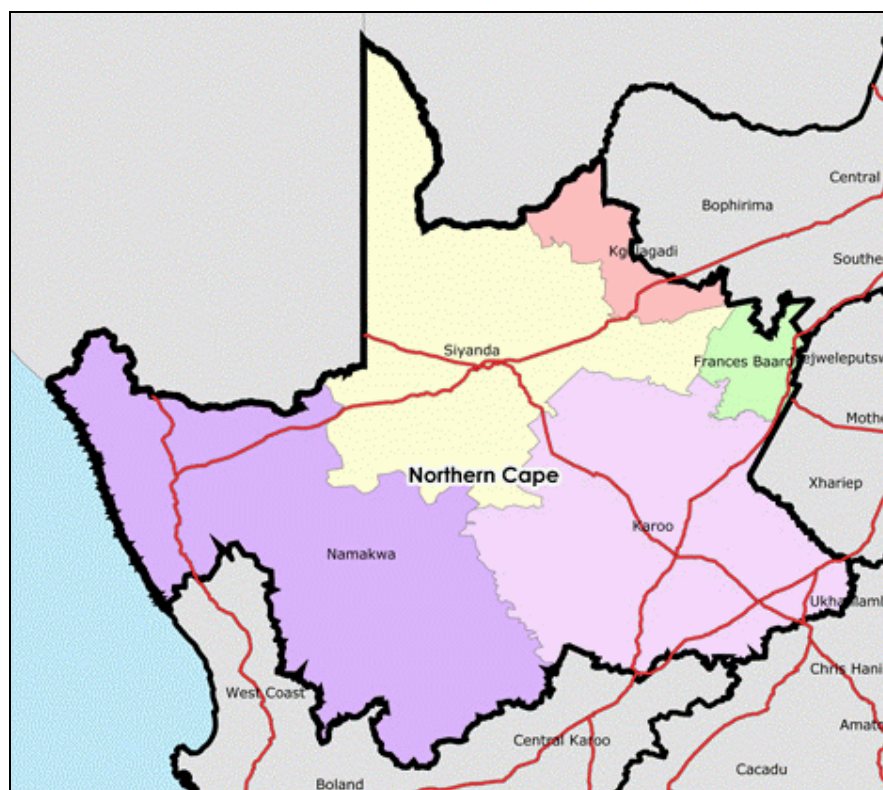
The Northern Cape is divided into five district municipalities (see Figure 1), namely Namakwa, Siyanda, Kgalagadi, Frances Baard and Karoo. Kgalagadi is one of only a few 'transfrontier' district municipalities in South Africa, i.e. it spans across a provincial boundary. None of the municipal districts in the Northern Cape have metropolitan status; hence all urban areas are either classified as small cities or towns.⁴ These district municipalities were recently demarcated as directed by the Local Government Municipal Structures Act (1998).⁵

³ The IES 2000 sampling weights were based on 1996 population estimates.

⁴ Officially the Demarcation Board declared Pretoria (Tshwane), Johannesburg, East Rand (Ekurhuleni), Durban (eThekweni), Cape Town and Port Elizabeth (Nelson Mandela) as metropolitan areas. However, in our definition of metropolitan areas we include the Vaal (Emfuleni), East London, Pietermaritzburg and Bloemfontein (which includes Botshabelo).

⁵ See PROVIDE (2005b) for a more detailed discussion of geographical distinctions between households based on former homelands areas, metropolitan areas, and nodal areas for rural development programmes, all of which can be linked to municipal districts.

Figure 1: District municipalities in the Northern Cape



Source: Demarcation Board (www.demarcation.org.za).

Table 2 shows the number of people in each district municipality by racial group. Frances Baard is the largest in terms of population size with more than one third (35.0%) of the population living here, mainly because two of the larger towns in the Northern Cape, Barkly West and Kimberly, fall under this municipality. This is followed by Siyanda (28.5%), Karoo (19.5%) and Kgalagadi (2.6%). More than half (53.3%) of the population are classified as Coloured. Just over one third (34.1%) are African, while 12.2% are White. There are very few Asian people in the Northern Cape (0.3%).

Table 2: Population by district municipality and racial group

	<i>African</i>	<i>Coloured</i>	<i>Asian</i>	<i>White</i>	<i>Total</i>	<i>Percentages</i>
Namakwa	8,192	97,933		18,144	124,269	14.4%
Siyanda	56,027	150,385		40,202	246,614	28.5%
Kgalagadi (tf)	18,338			4,198	22,536	2.6%
Frances Baard	173,472	95,207	2,674	31,731	303,084	35.0%
Karoo	39,209	117,887		11,723	168,819	19.5%
<i>Total</i>	<i>295,238</i>	<i>461,412</i>	<i>2,674</i>	<i>105,998</i>	<i>865,322</i>	
<i>Percentages</i>	<i>34.1%</i>	<i>53.3%</i>	<i>0.3%</i>	<i>12.2%</i>		<i>100.0%</i>

Source: IES/LFS 2000

Table 3 shows the number of people in urban and rural areas. The majority of the population (71.2%) live in urban areas. This is true for all the racial groups. The proportion is relatively high compared to the national average 63-37 urban-rural split.

Table 3: Population by urban/rural areas and racial group

	<i>African</i>	<i>Coloured</i>	<i>Asian</i>	<i>White</i>	<i>Total</i>	<i>Percentages</i>
Secondary/small towns	238,128	311,345	2,674	63,551	615,697	71.2%
Rural areas	57,109	150,067		42,448	249,624	28.8%
<i>Total</i>	<i>295,237</i>	<i>461,412</i>	<i>2,674</i>	<i>105,999</i>	<i>865,321</i>	

Source: IES/LFS 2000

2.2. Agricultural households

The IES 2000 is one of the only sources of information on home production for home consumption (HPHC) in South Africa, and reports specifically on the productive activities of small, non-commercial subsistence farmers. Respondents were asked to provide estimates of production levels (livestock and produce), as well as the value of goods consumed and sold (see PROVIDE, 2005a for a discussion). It is potentially an important information source to measure the contribution of informal agricultural activities to poor households' income. On the formal side, employment data, which is available in the IES/LFS 2000, can be used to link households to agriculture. Workers reported both the industry in which they were employed as well as their occupation code.

Statistics South Africa has no formal definition of agricultural households, and hence two definitions are used here, namely a broad definition and a strict definition. Both definitions use a combination of HPHC data and agricultural employment data. Under the broad definition any household that earns income from either formal employment in the agricultural industry or as a skilled agricultural worker, or from sales or consumption of home produce or livestock, is defined as an agricultural household.⁶ Under the strict definition a household has to earn at least 50% of its household-level income from formal and/or informal agricultural activities. A further way to 'qualify' as an agricultural household is when the value of consumption of own produce and livestock is at least 50% of total annual food expenditure.

Approximately 23,378 households (12.5%) in the Northern Cape are involved in HPHC, slightly less than the national average of 19.3%. This figure includes 5,383 African households, 9,376 Coloured households and 8,619 White households. In contrast to this about 41,569 households (22.2%) earn some share of their income from wages of household members working in agricultural-related industries. Just over half of these households

⁶ Note that consumption of own produce or livestock in economic terms can be regarded as an 'income' in the sense that the household 'buys' the goods from itself. If the household did not consume the goods it could have been sold in the market. This treatment of home-consumed production captures the notion of opportunity cost in economics.

(22,248) are Coloured, while 11,984 are African and 7,338 are White households. Income differences between these households suggest that the White households are typically the owners or managers of farms, with incomes averaging R190,909. African and Coloured households typically supply farm labour, with average household incomes of R11,625 and R13,049, respectively. When combining households in own production and agricultural employment, a total of 53,854 households (28.8%) in the Northern Cape can broadly be defined as agricultural households. Note that some of these households ‘qualify’ as agricultural households on both own production and employment accounts, which is why the figures do not add up. Under the strict definition 37,273 households (19.9%) are defined as agricultural households (see Table 4).

Table 4: Agricultural households by race (broad and strict definitions)

	<i>Broad definition</i>		<i>Strict definition</i>		
	<i>Agricultural households (column percentages)</i>	<i>Non-agricultural households (column percentages)</i>	<i>Agricultural households (column percentages)</i>	<i>Non-agricultural households (column percentages)</i>	<i>Total (column percentages)</i>
African	15,358 (28.5%)	53,011 (39.7%)	10,838 (29.1%)	57,531 (38.4%)	68,369 (36.5%)
Coloured	27,467 (51.0%)	58,347 (43.7%)	19,133 (51.3%)	66,681 (44.5%)	85,814 (45.8%)
Asian		549 (0.4%)		549 (0.4%)	549 (0.3%)
White	11,028 (20.5%)	21,487 (16.1%)	7,302 (19.6%)	25,213 (16.8%)	32,515 (17.4%)
<i>Total</i>	53,854 (100.0%)	133,394 (100.0%)	37,273 (100.0%)	149,974 (100.0%)	187,247 (100.0%)
<i>Row percentages</i>	28.8%	71.2%	19.9%	80.1%	100.0%

Source: IES/LFS 2000

The average household size of agricultural households in the Northern Cape ranges from 3.0 (strict) to 3.4 (broad), which is slightly less than the provincial average of 3.5 members. This means that the provincial share of people living in agricultural households is actually less than the share of households defined as agricultural. Table 5 shows that between 148,797 and 242,105 people live in agricultural households, representing 17.2% and 28.0% of the provincial population respectively. About 68,600 people in the Northern Cape are classified as agricultural workers, loosely defined here as skilled agriculture workers and/or working in the agricultural industry, either in an informal or formal capacity, and reporting a positive wage or salary for the year 2000. This figure represents 25.6% of the Northern Cape’s workforce.

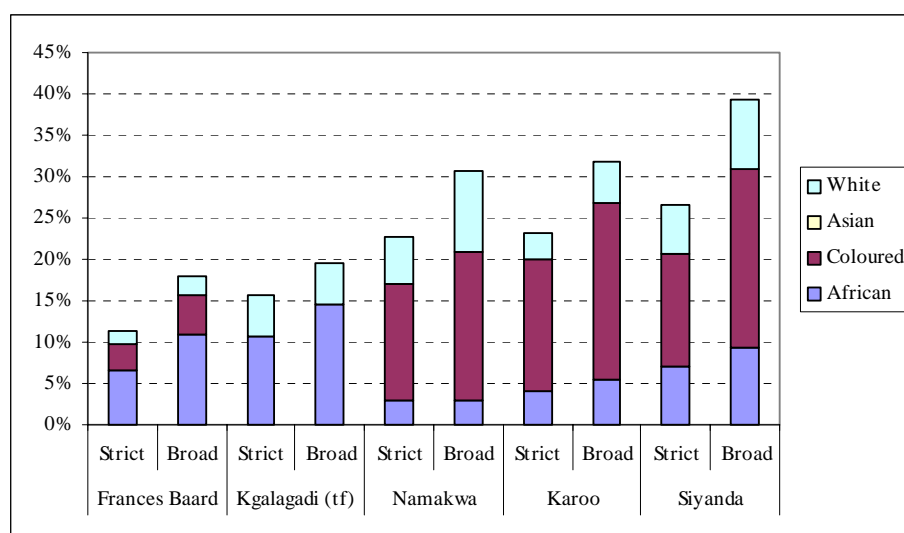
Table 5: Agricultural population by race (broad and strict definitions)

	<i>Population living in agricultural households (broad)</i>		<i>Population living in agricultural households (strict)</i>		<i>Population defined as agricultural workers</i>	
		<i>Percentages</i>		<i>Percentages</i>		<i>Percentages</i>
African	63,927	(26.4%)	40,047	(26.9%)	19,897	(29.0%)
Coloured	141,658	(58.5%)	84,193	(56.6%)	38,030	(55.4%)
Asian	-	(0.0%)	-	(0.0%)	-	(0.0%)
White	36,520	(15.1%)	24,557	(16.5%)	10,673	(15.6%)
<i>Total</i>	<i>242,105</i>	<i>(100.0%)</i>	<i>148,797</i>	<i>(100.0%)</i>	<i>68,600</i>	<i>(100.0%)</i>

Source: IES/LFS 2000.

Figure 2 shows, for each region, the proportion of households that are strictly or broadly defined as agricultural households. In this figure municipal districts are ranked from lowest to highest strict agricultural household share. The figure also provides a racial breakdown of agricultural households (compare Table 4). The majority of agricultural households in the Namakwa, Siyanda and Karoo regions are Coloured. Siyanda has the highest proportion of agricultural households (26.5% - 39.2%), followed by Namakwa (22.7% - 30.7%) and Karoo (23.2% - 31.9%). Kgalagadi (15.7% - 19.6%) and Frances Baard (11.4% - 18.1%) has relatively fewer agricultural households, made up mostly by African households.

Figure 2: Agricultural household shares by region and race



Source: IES/LFS 2000

3. Poverty, inequality and unemployment

In 2003 the Northern Cape contributed approximately 2.4% to the National GDP, although only 1.8% of the South African population live in this province (SSA, 2003a, 2003b).⁷ This implies that the *per capita* GDP in the Northern Cape is higher than the national average. According to the IES/LFS 2000 estimate the Northern Cape *per capita* income was R15,474 in 2000, slightly more than the national average of R12,411. Despite the province's relative fortunes, high levels of poverty and inequality persist as it they do in the rest of the country.

Table 6 shows the average household incomes (not *per capita*) by various subgroups in the Northern Cape. Although some of these averages are based on very few observations, which often lead to large standard errors, the table gives a general idea of how income is distributed between household groups in the province. The average household in the Northern Cape earned R58,500 in 2000 (not shown in the table). White agricultural households in general earn more than their non-agricultural counterparts, but the same is not true of African and Coloured agricultural households. In all the figures and tables that follow agricultural households are defined according to the strict definition. On average agricultural household reported an income of R71,069 compared to R55,377 for non-agricultural households. African agricultural households are worst off, earning on average only R11,424 per annum compared to R18,861 earned by Coloured households. White agricultural households earned substantially more (R296,390). Note that these figures are household-level income figures that are potentially made up of income earned by multiple household members. As such it is not necessarily a reflection of wages of agricultural and non-agricultural workers.

Table 6: Average household incomes in the Northern Cape

	Agricultural households					Non-agricultural households				
	African	Coloured	Asian	White	Total	African	Coloured	Asian	White	Total
Namakwa	12,955	23,347		142,333	51,696	19,721	40,601		134,049	59,603
Siyanda	9,606	23,864		404,402	102,690	32,647	22,643		227,389	69,750
Kgalagadi (tf)	13,618			505,200	170,288	28,676			187,186	48,227
Frances Baard	12,425	15,242		242,218	46,133	30,728	56,730	187,983	158,670	57,111
Karoo	11,158	10,164		242,370	43,008	13,499	26,159		84,454	29,353
<i>Provincial average</i>	<i>11,424</i>	<i>18,861</i>		<i>296,390</i>	<i>71,069</i>	<i>27,887</i>	<i>35,937</i>	<i>187,983</i>	<i>166,629</i>	<i>55,377</i>
<i>National average</i>	<i>15,014</i>	<i>24,250</i>	<i>132,816</i>	<i>282,151</i>	<i>26,612</i>	<i>29,777</i>	<i>57,284</i>	<i>88,642</i>	<i>166,100</i>	<i>49,990</i>

3.1. Poverty and agriculture

Table 6 shows that Coloured and African agricultural households are generally worse off than their non-agricultural counterparts in terms of income levels. Agricultural households often

⁷ Other provinces' contribution to GDP: Western Cape (14.5%), Eastern Cape (8.1%), Free State (5.5%), KwaZulu-Natal (16.5%), North West (6.5%), Gauteng (33.0%), Mpumalanga (7.0%) and Limpopo (6.5%).

reside in rural areas and are far removed from more lucrative employment opportunities in urban areas. As a result the National Department of Agriculture places strong emphasis on rural poverty reduction. Various strategies are proposed in the official policy documentation (see Department of Agriculture, 1998). Central to these strategies are (1) an improvement in rural infrastructure, with the aim of giving rural or resource-poor farmers better access to markets, transport, water and electricity, and (2) employment opportunities within agriculture for the poor. The latter can be interpreted either as the creation of employment opportunities within the commercial farming sector by encouraging commercial farmers to increase employment levels or the creation of new business opportunities for small farmers through a process of land restitution.

Various absolute and relative poverty lines are used in South Africa. In recent years the 40th percentile cut-off point of adult equivalent per capita income has become quite a popular poverty line.⁸ This was equal to R5,057 per annum in 2000 (IES/LFS 2000). This relates to a poverty headcount ratio (defined as the proportion of the population living below the poverty line) for South Africa of 49.8% (IES/LFS 2000).⁹ The 20th percentile cut-off of adult equivalent income (R2,717 per annum) is sometimes used as the ‘ultra-poverty line’. About 28.2% of the South African population lives below this poverty line.

These same national poverty lines are used for the provincial analysis as this allows for comparisons of poverty across provinces. The Northern Cape poverty rate of 48.5% is marginally lower than the national average, while the ultra-poverty rate is 21.7%. Figure 3 compares poverty rates for various population subgroups (race, municipality, location and agricultural/non-agricultural households). The subgroups are ranked from lowest to highest poverty rates for easy comparison. The upper and lower bands on the graph represent the 95% confidence intervals.

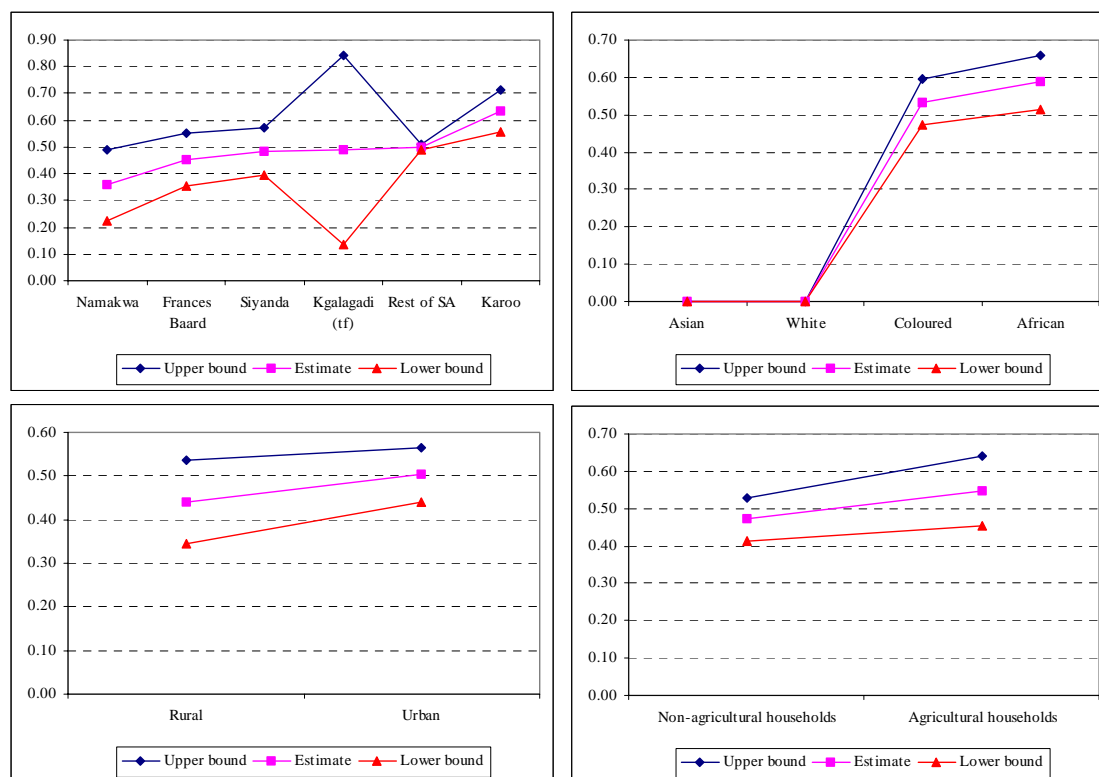
Namakwa (35.7%) has the lowest poverty rate in the Northern Cape. This is followed by Frances Baard (45.4%), Siyanda (48.4%) and Kgalagadi (48.9%), all of which have similar poverty rates just below the national average. The wide confidence interval around the poverty estimate for Kgalagadi is due to the limited number of sample observations for this region. The Karoo region stands out with a poverty rate of 63.5%, well above the average rates in the rest of the province.

⁸ The adult equivalent household size variable, E , is calculated as $E = (A + \alpha K)^\theta$, with A the number of adults per household and K the number of children under the age of 10. In this paper the parameters α and θ are set equal to 0.5 and 0.9 respectively (following May *et al.*, 1995 and others).

⁹ The poverty headcount ratio is usually calculated using the Foster-Greer-Thorbecke class of decomposable poverty measures (see PROVIDE, 2003 for a discussion). Poverty measures were also calculated to determine the depth and severity of poverty, but we do not report on these in this paper.

Poverty rates vary greatly between racial groups. There is virtually no poverty among White and Asian people. In sharp contrast 53.3% of Coloured and 58.7% of African people are classified as poor. It is interesting to note that the proportion of people living in poverty is lower in rural areas (44.0% compared to 50.3% in urban areas). Finally, a comparison of agricultural and non-agricultural households reveals that a larger proportion of agricultural households are poor (54.8% compared to 47.1%). This is interesting, especially given the average income levels reported in Table 6. Some interesting comparisons between poverty and unemployment rates are drawn later in the paper (see section 3.3).

Figure 3: Poverty rates by population subgroups

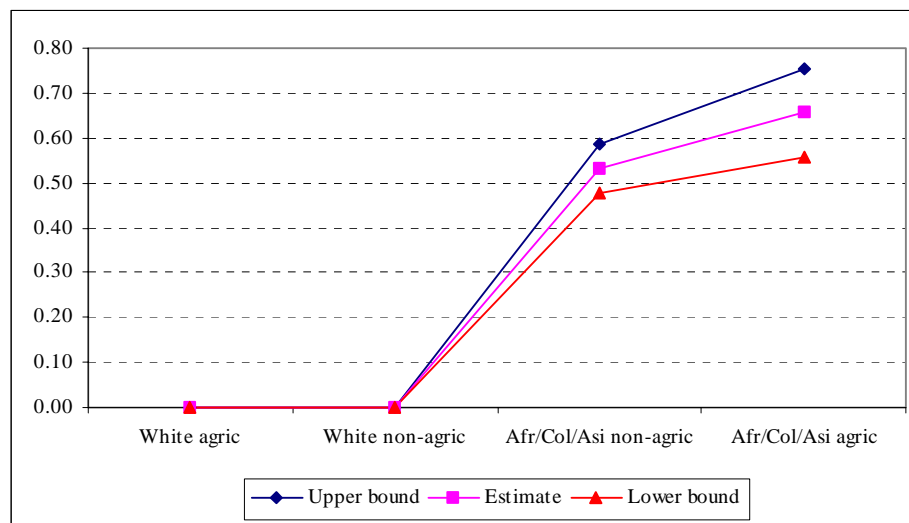


Source: IES/LFS 2000

Note: The poverty headcount ratios show the proportion of *people* living in poverty and not the proportion of *households*.

Section 3.2 explores the distribution of income in the Northern Cape. The inequality that exists in the Northern Cape, and particularly between racial groups within agriculture, is reflected in the poverty rates shown in Figure 4. Virtually none of the White agricultural population are poor compared to 65.6% of the Coloured/African agricultural population. This rate is also somewhat lower than the poverty rate for the Asian/Coloured/African non-agricultural population (53.2%), which in turn is well above the poverty rate of the White agricultural population. Virtually none of the White non-agricultural population is defined as poor.

Figure 4: Poverty rates by race and agricultural/non-agricultural population

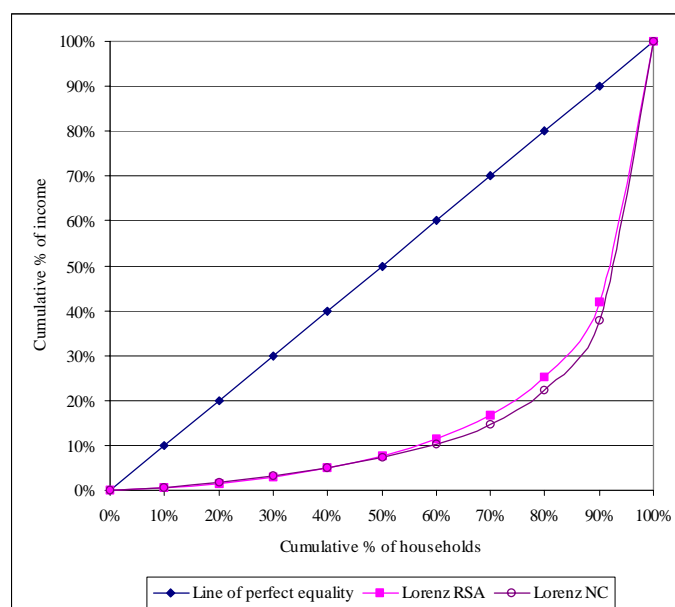


Source: IES/LFS 2000

3.2. Inequality in the distribution of income

Previously it was shown that the Northern Cape is one of the relatively well-off regions in South Africa. But how is the income distributed among the population? Various income distribution or inequality measures exist in the literature (see PROVIDE, 2003 for an overview). One approach to measuring inequality is using Lorenz curves. A Lorenz curve plots the cumulative share of households against the cumulative share of income that accrues to those households. In a society where income is perfectly distributed the Lorenz curve is a straight line. When the income distribution is unequal, the Lorenz curve will lie below the 'line of perfect equality'. Figure 5 shows that the Northern Cape Lorenz curve is always below the South African Lorenz curve, which suggests that income is distributed more unequally in this province than in the rest of the country.

Figure 5: Lorenz curves for the Northern Cape and South Africa



Source: IES/LFS 2000

The Gini coefficient is perhaps the best known inequality measure and can be derived from the Lorenz curve (see PROVIDE, 2003). Mathematically the Gini coefficient varies between zero and one, although in reality values usually range between 0.20 and 0.30 for countries with a low degree of inequality and between 0.50 and 0.70 for countries with highly unequal income distributions. Table 7 shows the Gini coefficients for various groups of countries. Clearly South Africa's Gini coefficient, estimated at about 0.69 (IES/LFS 2000), is very high.

Table 7: Trends in income distribution – 1960 and 1980

Group of Countries	Gini coefficient: 1960	Gini coefficient: 1980
All non-communist developing countries	0.544	0.602
Low-income countries	0.407	0.450
Middle-income, non-oil-exporting countries	0.603	0.569
Oil-exporting countries	0.575	0.612
Gini coefficient: South Africa (1995)*	0.64	
Gini coefficient: South Africa (2000)*	0.70	

Source: Adelman (1986) cited in Todaro (1997).

Note (*): Author's calculations based on IES 1995 and IES/LFS 2000. Unfortunately not much can be read into the apparent increase in inequality since the data sources are not necessarily comparable.

The Northern Cape's Gini coefficient is 0.73 (IES/LFS 2000), which is higher than the national Gini coefficient. A useful decomposition technique can be used to identify the sources of inequality. From the IES/LFS 2000 a number of household income sources can be identified, namely income from labour (*inclab*), gross operating surplus (*incgos*), and transfers from households (*inctrans*), corporations (*inccorp*) and government (*incgov*). Total household

income (*totinc*) is thus defined as $totinc = inclab + incgos + inctrans + inccorp + incgov$. McDonald *et al.* (1999) show how the Gini coefficient can be decomposed into elements measuring the inequality in the distribution of these income components. Consider the following equation:

$$G = \sum_{k=1}^K \left\{ \left[\frac{\text{cov}(y_k, F(y))}{\text{cov}(y_k, F(y_k))} \right] \left[\frac{2 \text{cov}(y_k, F(y_k))}{\mu_k} \right] \left[\frac{\mu_k}{\mu} \right] \right\} = \sum_{k=1}^K R_k G_k S_k$$

The index k represents the income sources. S_k is the share of the k^{th} income source in total income, G_k is the Gini coefficient measuring the inequality in the distribution of income component k and R_k is the Gini correlation of income from source k with total income (see Leibbrandt *et al.*, 2001). The larger the product of these three components, the greater the contribution of income source k to total inequality as measured by G . S_k and G_k are always positive and less than one, while R_k can fall anywhere in the range $[-1,1]$ since it shows how income from source k is correlated with total income.

Table 8 decomposes the Gini coefficient of the Northern Cape. It also gives decompositions for subgroups by race and agricultural households. A clear pattern that emerges for all the subgroups is a very high correlation between the overall Gini and the Gini within income component *inclab*. Furthermore, *inclab* typically accounts for between 69% and 79% of total income of the various sub-groups evaluated here. Consequently, it is not surprising to note that most of the inequality is driven by inequalities in the distribution of labour income. Also interesting to note is that *incgos* contributes a lot more to overall inequality among agricultural households than non-agricultural households. Income from gross operating surplus can be interpreted as returns to physical and human capital, and, in an agricultural context, the returns to land owned by the agricultural household.

These results suggest that inequalities within agricultural households are driven primarily by inequalities in the distribution of wages. Addressing the inequality problem should focus on redistributing wage income to low-income agricultural workers. However, the Gini for *incgos* is also very high, which suggests that inequalities in the ownership of capital stock and land also drives agricultural household income inequality. It is clear from previous tables in this discussion that the inequality here is driven by inequality between White agricultural farm owners and landless African/Coloured agricultural households that supply labour services. Land reform programmes may therefore be very successful at improving incomes of poor agricultural households.¹⁰

¹⁰ It is not entirely clear whether respondents reported *incgos* and *inclab* correctly. Simkins (2003) notes large changes in the levels of *incgos* and *inclab* between IES 1995 and IES 2000 (*incgos* fell significantly, while *inclab* increased), an indication that *incgos* is possibly underreported due to confusion that may

Table 8: Gini decomposition by race and agriculture in the Northern Cape

	All households							
	<i>Rk</i>	<i>Gk</i>	<i>Sk</i>	<i>RkGkSk</i>				
<i>inclab</i>	0.96	0.78	0.74	0.55				
<i>incgos</i>	0.92	0.99	0.07	0.07				
<i>inctrans</i>	0.24	0.89	0.02	0.00				
<i>inccorp</i>	0.92	0.99	0.10	0.09				
<i>incgov</i>	0.20	0.77	0.07	0.01				
				0.73				
	African/Coloured/Asian households				White households			
	<i>Rk</i>	<i>Gk</i>	<i>Sk</i>	<i>RkGkSk</i>	<i>Rk</i>	<i>Gk</i>	<i>Sk</i>	<i>RkGkSk</i>
<i>inclab</i>	0.94	0.74	0.79	0.55	0.92	0.52	0.69	0.33
<i>incgos</i>	0.71	0.98	0.02	0.02	0.84	0.96	0.11	0.09
<i>inctrans</i>	0.28	0.88	0.04	0.01	0.11	0.96	0.01	0.00
<i>inccorp</i>	0.67	0.98	0.02	0.02	0.83	0.97	0.16	0.13
<i>incgov</i>	0.19	0.74	0.12	0.02	-0.33	0.88	0.02	-0.01
				0.61				0.55
	Agricultural households				Non-agricultural households			
	<i>Rk</i>	<i>Gk</i>	<i>Sk</i>	<i>RkGkSk</i>	<i>Rk</i>	<i>Gk</i>	<i>Sk</i>	<i>RkGkSk</i>
<i>inclab</i>	0.99	0.77	0.70	0.53	0.96	0.77	0.75	0.56
<i>incgos</i>	0.97	0.97	0.26	0.25	0.66	0.98	0.01	0.01
<i>inctrans</i>	0.42	0.91	0.01	0.00	0.23	0.89	0.03	0.01
<i>inccorp</i>	0.83	0.99	0.01	0.01	0.93	0.99	0.13	0.12
<i>incgov</i>	0.23	0.84	0.02	0.00	0.19	0.75	0.08	0.01
				0.79				0.70

Source: Author's calculations, IES/LFS 2000

The Gini coefficients suggest that inequality among agricultural households (0.79, with a confidence interval of [0.75, 0.83]) is higher than inequality among non-agricultural households (0.70, with a confidence interval of [0.69, 0.72]). These confidence intervals also do not overlap, which strengthens the belief that inequality is higher among non-agricultural households. An alternative measure of inequality, the Theil index, is very different from other inequality measures. It is derived from the notion of entropy in information theory (see PROVIDE, 2003). The Theil inequality measure for agricultural households is 1.60 [1.25, 1.83] compared to 1.18 [1.06, 1.31] for non-agricultural households. These confidence intervals overlap, but the results still suggest that inequality is higher among non-agricultural households.

These findings raise some interesting questions. Cleary income inequality among agricultural households is a concern. Land restitution has been placed at the top of the government's agenda to correct inequalities in South Africa. Although similar economic empowerment processes are in place in non-agricultural sectors, the process of agricultural land restitution has been highly politicised. The question is will more equality among

exist among respondents as to whether income earned from self-employment in agriculture should be reported as income from labour or income from GOS.

agricultural households necessarily impact on the overall inequality in the Northern Cape? This question can be answered by decomposing the Theil inequality measure into a measure of inequality within a population subgroup and a measure of inequality between population subgroups. The Theil inequality measure (T) for the Northern Cape population as a whole is 0.81. This figure can be decomposed as follows (see Leibbrandt *et al.*, 2001):

$$T = T_B + \sum_{i=1}^n q_i T_i$$

The component T_B is the between-group contribution and is calculated in the same way as T but assumes that all incomes within a group are equal. T_i is the Theil inequality measure within the i^{th} group, while q_i is the weight attached to each within-group inequality measure. The weight can either be the proportion of income accruing to the i^{th} group or the proportion of the population falling within that group. Table 9 shows the results of a Theil decomposition using income and population weights with agricultural- and non-agricultural households as subgroups.¹¹ The between-group component contributes only 0.01 (1.0%) to overall inequality. Inequality among agricultural households contributes 0.39 (29.9%) or 0.27 (21.6%) to overall inequality, while non-agricultural households contribute 0.89 (69.0%) or 0.98 (77.3%) to overall inequality in the Northern Cape, depending on the weights used. These results suggest that a correction of inequalities within agriculture will certainly reduce inequality in the province as a whole, but despite having a lower inequality most of the inequality is driven by inequalities among non-agricultural households.

Table 9: Theil decomposition – agricultural and non-agricultural households

	q_i	T_i	$\sum_{i=1}^n q_i T_i$	T_B	$T = T_B + \sum_{i=1}^n q_i T_i$
Income weights					
Agricultural households	0.24	1.60	0.39		
Non-agricultural households	0.76	1.18	0.89		
Sum			1.28	0.01	1.29
Population weights					
Agricultural households	0.17	1.60	0.27		
Non-agricultural households	0.83	1.18	0.98		
Sum			1.25	0.01	1.26

Source: Author's calculations, IES/LFS 2000

Note: The different decomposition techniques do not necessarily lead to the same overall Theil index.

¹¹ The income weight for agricultural households is the total income to agricultural households expressed as a share of total income of all households in the province. The population weight for agricultural households is expressed as the share of the population living in agricultural households (see Table 2 and Table 5).

3.3. Employment levels and unemployment

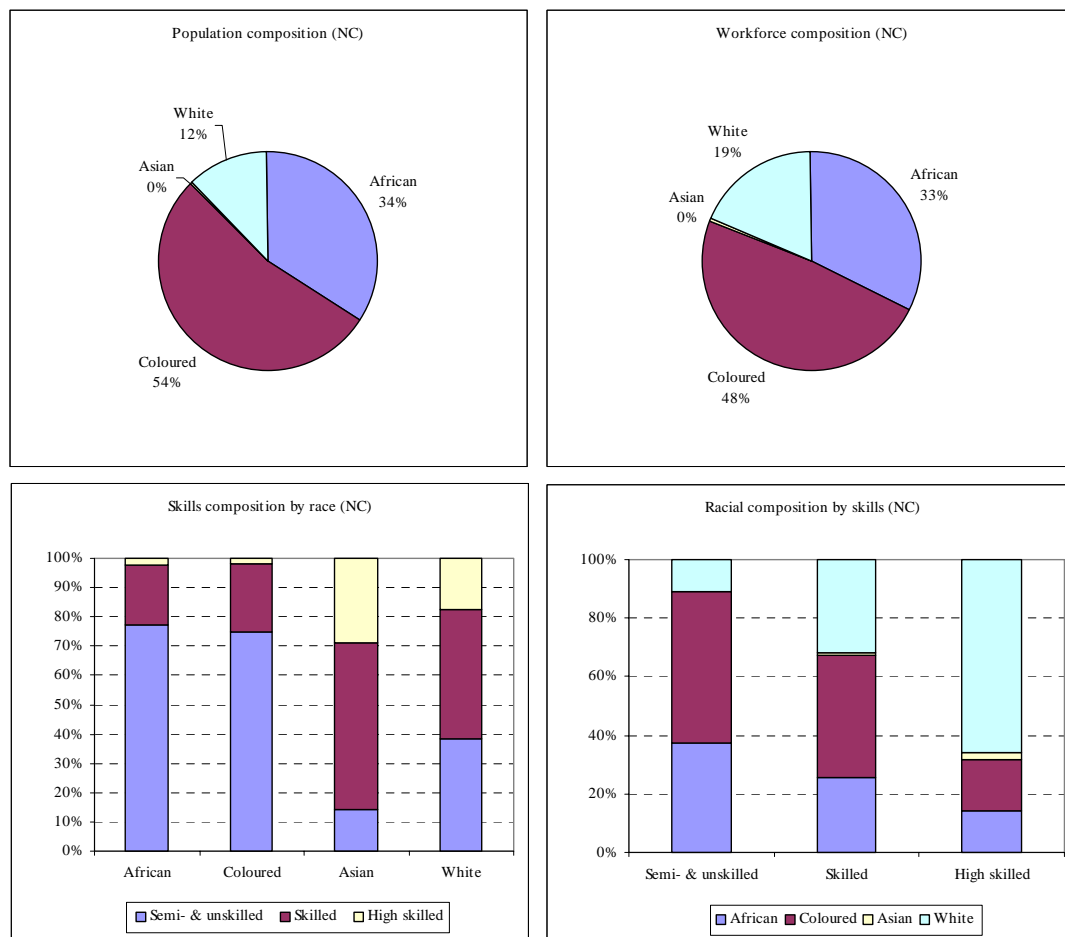
There are approximately 268,141 workers in the Northern Cape (IES/LFS 2000).¹² Statistics South Africa distinguishes between eleven main occupation groups in their surveys. These include (1) legislators, senior officials and managers; (2) professionals; (3) technical and associate professionals; (4) clerks; (5) service workers and shop and market sales workers; (6) skilled agricultural and fishery workers; (7) craft and related trades workers; (8) plant and machine operators and assemblers; (9) elementary occupations; (10) domestic workers; and (11) not adequately or elsewhere defined, unspecified.

For simplification purposes the occupation groups are aggregated into various skill groups, namely high skilled (1 – 2), skilled (3 – 5), and semi- and unskilled (6 – 10).¹³ Figure 6 explores the racial composition of the workforce by race and skill and compares these figures with the provincial racial composition. Although the overall racial distribution of the workforce is similar to the racial composition of the province, this is certainly not true for each skill group. African and Coloured workers are typically found in the lower-skilled occupation groups, while White workers are more concentrated around the higher-skilled occupations. Since there are very few Asian workers in the Northern Cape no conclusions can be drawn about their skills distribution. Clearly much still needs to be done in the Northern Cape to bring the racial composition of the workforce more in line with the provincial-level population composition at all skills levels.

¹² ‘Workers’ are defined here as those people that report a positive wage for 2000. People who were unemployed at the time of the survey but who have earned some income during the previous year will therefore be captured here as workers. In the unemployment figures reported later the *current* status of workers is reported, irrespective of income earned. Employment figures reported here are therefore higher than the official employment figures.

¹³ Unspecified workers (code 11) are not included in a specific skill category since the highly dispersed average wage data suggests that these factors may in reality be distributed across the range of skill categories.

Figure 6: Racial representation in the workforce of the Northern Cape



Source: IES/LFS 2000

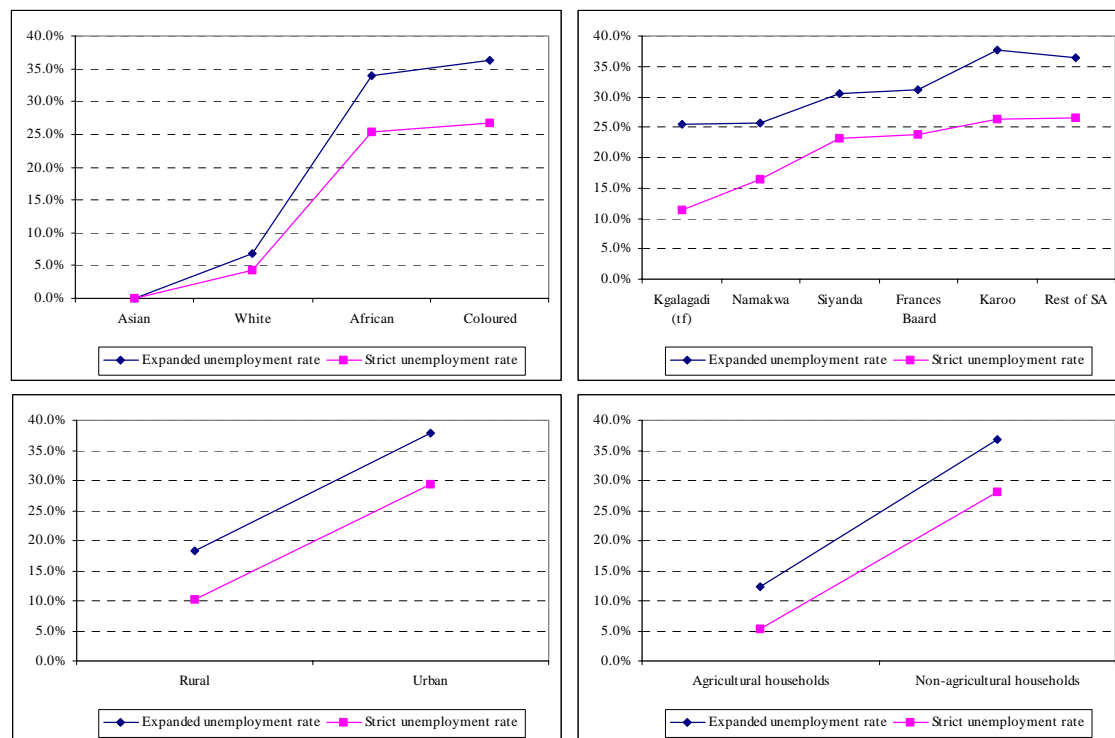
Statistics South Africa uses the following definition of unemployment as its strict (official) definition. The unemployed are those people within the economically active population who: (a) did not work during the seven days prior to the interview, (b) want to work and are available to start work within a week of the interview, and (c) have taken active steps to look for work or to start some form of self-employment in the four weeks prior to the interview. The expanded unemployment rate excludes criterion (c). The Northern Cape has a population of about 865,322 people of which approximately 332,806 people are employed (see footnote 12). Under the strict (expanded) definition about 257,442 (491,159) people are not economically active, which implies that 75,364 (116,722) people are unemployed. This translates to an unemployment rate of 22.6% (31.2%), which is slightly lower than the national rate of 26.4% (36.3%) for 2000.¹⁴

¹⁴ The official (expanded) LFS March and September 2003 (SSA, 2004) unemployment figures are 31.2% and 28.2% for South Africa respectively.

In Figure 7 the unemployment rates (official and expanded) are compared for different population subgroups. None of the Asian people are reported as being unemployed. The unemployment rate rises slightly for White people, and then rises rapidly for African and Coloured people. A comparison of the municipal areas shows that Kgalagadi has the lowest strict unemployment rate, but a much higher expanded rate. This is indicative of many discouraged jobseekers in this region. Both the strict and expanded unemployment rates increase systematically for the rest of the regions. The strict unemployment rate is lower than the national average for all areas in the Northern Cape. As far as the expanded unemployment rate is concerned only the Karoo region has a higher unemployment rate than the national average.

Unemployment is also significantly higher in urban areas – an interesting result when compared to South Africa as a whole, where rural unemployment (40.6%) outweighs urban unemployment (33.7%). Finally, unemployment is also lower among agricultural households than non-agricultural households.

Figure 7: Unemployment rates by population subgroups

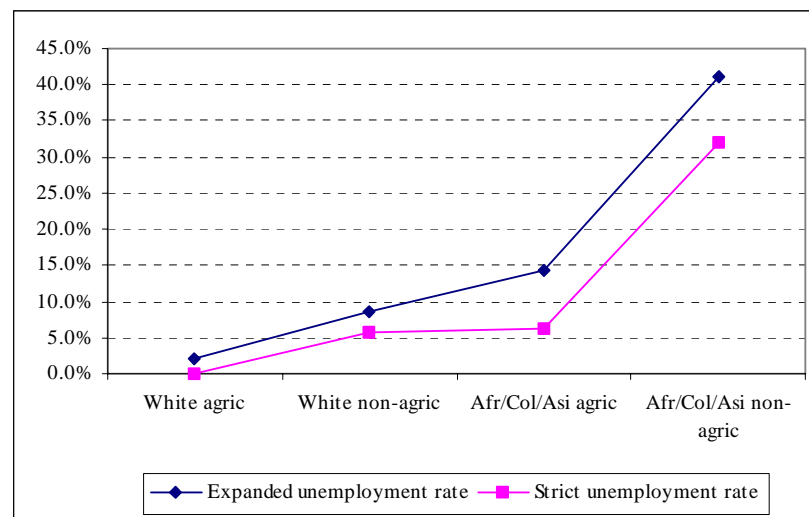


Source: IES/LFS 2000

A comparison of unemployment rates by race (Asian/Coloured/African and White) and agricultural/non-agricultural households shows that unemployment levels in agriculture are driven mainly by unemployment among Coloured/African workers. The unemployment rate

for Coloured/African agricultural workers is also lower than the unemployment rate for Asian/Coloured/African non-agricultural workers. In fact, most of the unemployment in the Northern Cape appears to be driven by unemployment among African/Coloured/Asian non-agricultural workers. An interesting comparison can be made between Figure 8 and Figure 4. The latter shows that poverty is highest among Coloured/African agricultural households, yet unemployment is lower. One possible explanation for this is inaccurate accounting by agricultural households of the value of goods and services (such as food, clothing and housing) received in kind from employers, which leads to an overestimation of poverty rates. However, this does not take away the fact that agricultural wages are often very low compared to non-agricultural wages. This may explain higher employment levels among agricultural households, but often these people can be classified as the ‘working poor’.

Figure 8: Unemployment rates by race and agricultural/non-agricultural population



Source: IES/LFS 2000

4. Conclusions

The Northern Cape province has the smallest population in South Africa, but is the largest in size. Despite its vast land area over 70% of its households live in urban areas, which is made up of small towns and secondary cities. The urban-rural split is roughly the same as the non-agricultural-agricultural split (broad definition). In terms of the strict definition about one in five households are defined as agricultural households. This is much higher than the national average of about 10.8%. Generally speaking there is not a very large gap between the proportions of households that are strictly and broadly defined as agricultural households,

which suggests that most households are formally involved in agriculture as a main income source.

White agricultural household incomes are typically very high in the Northern Cape, even higher than White non-agricultural incomes. In contrast Coloured and African agricultural households earn very low incomes and face higher poverty rates than their non-agricultural counterparts. However, unemployment rates among Coloured and African agricultural households are very low, even when compared to unemployment rates among White non-agricultural households. As far as the different district municipalities are concerned poverty and unemployment rates are not very different across regions, although the Karoo region is generally the worst off.

As far as inequalities are concerned the preceding discussion suggests that much of the overall inequality is driven by inequalities between racial groups. Although inequality among agricultural households is very high, it is not an important driver of overall inequality. However, it is clear that low wages, leading to huge inequalities in the distribution of labour income, as well as limited ownership of land explains why inequality among agricultural households can be drawn along racial lines.

5. References

- Department of Agriculture (1998). *Agricultural Policy in South Africa. A Discussion Document*, Pretoria.
- Leibbrandt, M., Woolard, I. and Bhorat, H. (2001). "Understanding contemporary household inequality in South Africa." In *Fighting Poverty. Labour Markets and Inequality in South Africa*, edited by Bhorat, H., Leibbrandt, M., Maziya, M., Van der Berg, S. and Woolard, I. Cape Town: UCT Press.
- May, J., Carter, M.R. and Posel, D. (1995). "The composition and persistence of poverty in rural South Africa: an entitlements approach," *Land and Agricultural Policy Centre Policy Paper No. 15*.
- McDonald, S., Piesse, J. and Van Zyl, J. (1999). "Exploring Income Distribution and Poverty in South Africa," *South African Journal of Economics*, 68(3): 423-454.
- PROVIDE (2003). "Measures of Poverty and Inequality. A Reference Paper," *PROVIDE Technical Paper Series*, 2003:4. PROVIDE Project, Elsenburg. Available online at www.elsenburg.com/provide.
- PROVIDE (2005a). "Creating an IES-LFS 2000 Database in Stata," *PROVIDE Technical Paper Series*, 2005:1. PROVIDE Project, Elsenburg. Available online at www.elsenburg.com/provide.
- PROVIDE (2005b). "Forming Representative Household Groups in a SAM," *PROVIDE Technical Paper Series*, 2005:2. PROVIDE Project, Elsenburg. Available online at www.elsenburg.com/provide.
- Simkins, C. (2003). "A Critical Assessment of the 1995 and 2000 Income and Expenditure Surveys as Sources of Information on Incomes," *Mimeo*.
- SSA (2002a). *Income and Expenditure Survey 2000*, Pretoria: Statistics South Africa.
- SSA (2002b). *Labour Force Survey September 2000*, Pretoria: Statistics South Africa.

- SSA (2003a). *Census 2001*, Pretoria: Statistics South Africa.
- SSA (2003b). *Gross Domestic Product, Statistical Release P0441*, 25 November 2003, Pretoria: Statistics South Africa.
- SSA (2004). *Labour Force Survey, September 2003*, Pretoria: Statistics South Africa.
- Todaro, M.P. (1997). *Economic Development*, 6th Edition. Longman: London.

Background Papers in this Series

Number	Title	Date
BP2003: 1	Multivariate Statistical Techniques	September 2003
BP2003: 2	Household Expenditure Patterns in South Africa – 1995	September 2003
BP2003: 3	Demographics of South African Households – 1995	September 2003
BP2003: 4	Social Accounting Matrices	September 2003
BP2003: 5	Functional forms used in CGE models: Modelling production and commodity flows	September 2003
BP2005: 1, Vol. 1 – 9	Provincial Profiles: Demographics, poverty, inequality and unemployment (*)	August 2005

Note (*): One volume for each of the nine provinces. Also see Working Paper 2005:3.

Other PROVIDE Publications

Technical Paper Series

Working Paper Series

Research Reports