Background Paper Series

PROVIDE PROJECT

The Provincial Decision-making Enabling Project

Background Paper 2009:1(4)

A Profile of the Free State Province: Demographics, Poverty, Income, Inequality and Unemployment from 2000 till 2007

Elsenburg
February 2009

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 of the PROVIDE Project.

PROVIDE Contact Details

Private Bag X1
Elsenburg, 7607
South Africa

provide@elsenburg.com
+27-21-8085212
+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 Free State Province: Demographics, Poverty, Income, Inequality and Unemployment from 2000 till 2007[1]

Abstract

The Free State agricultural sector is a dynamic and livelihood sustainable sector. Approximately 4.2% of the Free State value added gross domestic product comes through agriculture and 2.3% of the population in the Free State is working in this sector. There is thus a need for macro-economic research in order to investigate potential and current challenges and opportunities.

This paper examines several of these challenges namely demographic compositions, unemployment, income distribution, poverty and inequality. It will provide results from the Labour Force Surveys from 2000 until 2007 with a more in-depth look into 2007. Population and labour force statistics provide the foundation for further analysis. This paper indicates that unemployment is being dominated by the African individuals and that employment in the Free State agricultural sector is on a decreasing trend. It shows further that income distribution is highly skewed which leads to high levels of poverty and inequality. Agricultural incomes are lowest across all races compared to non-agricultural incomes except for the White farmers/farm workers who earn more than their counterparts in other sectors. Poverty is extremely high for African workers in the Free State agricultural sector and although it decreased since 2000, it showed an increase in 2007. One of the principal concerns is that of inequality. It shows no improvement since 2000 with a high in-between race inequality and lower within race inequality in the Free State agricultural sector.

Throughout the report the Free State agricultural sector is compared to the non-agricultural sector, Free State overall and South Africa for a better understanding of the Free State agricultural sector's position. This report indicates that the Free State agricultural sector could benefit from intervention and support to correct the present state of decreasing employment, low income, and high poverty and inequality levels.

[1] The main authors of this paper are Elné Jacobs and Cecilia Punt, Western Cape Department of Agriculture, and Sepitle Frans Phaladi, Free State Department of Agriculture.

Table of Contents

List of Figures

List of Tables

1. Introduction

The Free State is home to about 2.9 million individuals and about 69 000 are working in the agricultural sector (Statistics South Africa, 2007a). Therefore 2.3% of the Free State population is working in the agricultural sector, but it contributed 4.2% through value added for the economy in 2006 (Statistics South Africa, 2007b). This shows that the agricultural sector is an important sector in the Free State and thorough analysis is needed to identify areas of need to better the sector.

This paper investigates the Free State agricultural sector by analysing the Labour Force Surveys conducted by Statistics South Africa. These surveys are conducted biannually, and since 2000 done in March and September. The focus of this paper is to analyse trends through years (2000 till 2007) and to take a deeper look at the 2007 data. Like all datasets, the Labour Force Surveys have some restrictions, and these are discussed in the next section together with the measurement issues confronted throughout the study.

Section 3 examines the population statistics of South Africa and the Free State, together with the labour force profiles for South Africa, the Free State and the Free State agricultural sector. Unemployment then will be discussed as well as employment statistics of the Free State agricultural sector. The premises of this section are demographic analyses. Section 4 analyses the income profiles of the agricultural sector. Poverty indices are next investigated, and the Foster-Greer-Thorbecke class of indices was used. This is explained in this section together with the results for the agricultural sector. Section 6 takes a closer look at inequality within the province by using the Gini, Theil and Lorenz curve analysis. Throughout the paper the results of the Free State agricultural households are compared with the Free State and South Africa data. Lastly conclusions are drawn from the provided information.

2. Measurement and challenges of dataset

2.1. Labour Force Survey

The Labour Force Surveys are conducted by Statistics South Africa biannually (March and September). For this paper, two datasets were used. Both datasets were obtained from Mr. Derek Yu from the University of Stellenbosch. This was done to have consistency between the two datasets. The first dataset is the 2007 March Labour Force Survey and it was used for more in-depth analysis such as location of work activity or analysis on district level. The second dataset is a merged dataset of all the Labour Force Surveys from 2000 until 2007. This was used for over-time analysis. This dataset only includes the working population (15 – 65 years), but does have the information regarding the rest of the household for household level analysis.

Adjustments were also made with the consumer price index (CPI) of wages for individuals as well as households to have reliable comparisons across time. The CPI adjusted wages to the basis year of 2000.

2.2. Extent of data

Respondents had to answer six sections in the most recent survey. The first section asks demographic information, section two about activities the past seven days, section three unemployment and non-economic activities, section four the main work activities the past seven days, section five about job creation and public works programmes and the last section (six) about agricultural activities. The surveys did change with time, but no major change occurs, and the demographic and employment sections remained relatively unchanged. In the Labour Force Survey of March 2007 there are 109 551 observations, whilst the Labour Force Survey from 2000 until 2007 contains between 23 000 and 70 000 observations depending on the period (period refers to when the survey was done, i.e. March 2000 or September 2005).

Weights were calculated by Statistics South Africa, and were used throughout the analysis to scale data from sample to population level[2]. It needs to be mentioned that the Indian population is the minority in South Africa and thus data for this sub-group might be problematic due to low observation numbers. Measurement errors do occur, and thus the reader must be careful when quoting figures for the Indian population.

In a number of cases, respondents did not provide any answers to certain questions. One of these problematic questions are that of income where respondents are averse to give their personal income information. If no answer was given for income, it was classified as a dot income (“.”). The statistical programme used for economic analysis (STATA) does not consider dot incomes as entries, and thus will disregard it when calculating mean or median income. But calculating household incomes, dot incomes are read as zero, thus a household with 2 individuals, one earning R100 and the other one did not respond, will have a household earning of R100. This means all household and per capita calculations are distorted and biased towards zero income. Poverty and inequality calculations are affected the most, due to calculation surrounding the rates (see respective sections for calculations of different rates). Poverty and inequality rates for certain subgroups might be exaggerated due to non response. This is especially troublesome when non response occur just within a specific subgroup. If the non response is according to the population composition the rates will be inflated accordingly, but if it is a skew distribution, all rates are inflated but one group more than the other.

These inflated rates are difficult to pinpoint, because non response is unpredictable. Non response can be any value, and there are different ways of dealing with this. One response is to

[2] See Metadata in Labour Force Survey reports. Available online at www.statssa.org.za

regard all non response as zero, another is to use hot deck imputation methods. Schoier (2008) states that this method uses respondents that fully completed the questionnaire to match with respondents that have missing values, and then impute their values into the non response values. This preserves the distribution of item values and there are different methods to obtain the 'donor value'. One way is to filter through certain variables (example race, sex etc.) for both donor and receiver, and when these variables match the rest of the donor information will be imputed into the receiver's missing values.

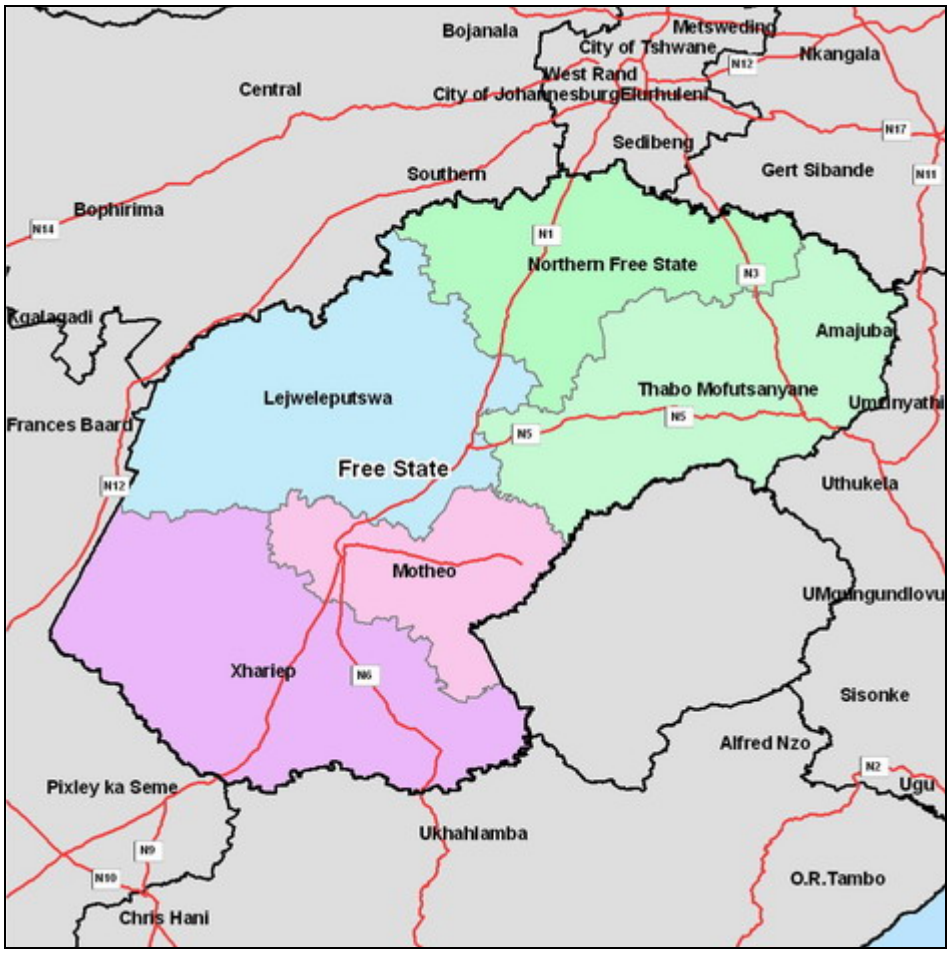
For South Africa in 2007, 62.68% of respondents did not provide information regarding income. If a sub sample of all respondents that are living in a household under the poverty line is taken, 83% did not provide income information. This becomes problematic especially in cases where the sample size is very small as the case with the White and Indian population. If only 17% (100% - 83%) of income information for those living under the poverty line is available, a small sample size will have negative impacts on poverty. For example, in the Free State there are 94 entries for White individuals living under the poverty line. On an average only 17% of that information is available, leaving only 16 entries. In reality, there are only 7 entries left which is too small to make any significant derivation. In the Free State, 2 352 entries were made in the African population group living under the poverty line. In reality 82% did not respond, leaving 412 entries. Although 412 entries is still a small sample size, a better analysis can be done. This trend of low White and Indian samples continues throughout all provinces, where the African and Coloured populations have a bigger sample size to do better analysis with.

For the purpose of this paper, non-response was disregarded in income profiles, but treated as a zero in household income calculations. In the poverty profiles, per adult equivalent household income is used and thus missing values are also treated as zero.

This paper focuses on the Free State agricultural households, but does compare certain statistics with the non-agricultural households in the Free State and South Africa. South Africa is a diverse country and therefore social parameters i.e. income, poverty and unemployment are often compared across population groups. Population groups are classified according to the classification system used by Statistics South Africa in the Labour Force Surveys. Demographic analysis was also done according to gender, industry, occupation or skills level.

District level analysis was also done as mentioned earlier, and for clarity the following figure presents the Free State and its districts. There are five districts within the Province namely Xhariep, Motheo, Lejweleputswa, Thabo Mofutsanyane and Northern Free State. Figure 1 reflects this:

Figure 1: Free State districts map



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

2.3. Challenges

2.3.1. Definitions of agricultural households

Agricultural households are defined as households whose main income (more than 50%) is derived from employment in the agricultural industry, or income from an occupation classified as a skilled agricultural worker, regardless the industry. In addition a household is also defined as an agricultural household if the household is involved in agricultural activities that entail the production of food crops and/or keeping of animals and that these activities provide the household with its main food source or income source. Households that rely on agricultural activities for food supply or (non-salary) income are classified as subsistence farmers for purposes of this report. Information about subsistence farming was derived from the questions in section six of the Labour Force Survey where respondents were asked to indicate the aim of their involvement in agricultural activities as one of the following: a) as main source of food for the household, b) as main source of income/earning a living, c) as extra source of income, d) as extra source of food for the household, or e) as a leisure activity of hobby. Since there is no

indication of the value of production by these households, households were classified as agricultural households if they selected either a) or b) in the questionnaire. Both datasets, i.e. the dataset for 2007 and the dataset for 2000 till 2007, contain information on employment in the agricultural industry, or income from an occupation classified as a skilled agricultural worker, regardless the industry. However information on subsistence farming as defined above, was only available in the dataset for 2007; hence workers involved in subsistence farming, but not employment in agriculture, are not included in the numbers presented in this report when looking at trends over the 2000 till 2007 period.

Non response was treated as stated in section 2.1, and thus not regarded in the definition of agricultural households. Only the labour force was considered (thus individuals between 15 and 65) for analysis to gain information about the current employees, but all members were included in household analysis.

2.3.2. Income Bands

Respondents were asked their respective incomes, and two different answers were accepted. Respondents could either state the specific value, or report it in income bands. These specific values and income bands were in Rand terms and either weekly, monthly or annual. It must be kept in mind that the earnings reported are from the main source of income (thus labour income), therefore social grants, remittances and in-kind transfers are not taken into account. In order to attain a value for the income bands, the interval regression method was used. This method consists of a generalised Tobit model where-after pseudo-maximum likelihood measures are estimated. The assumption is made that earnings follow a lognormal distribution. Interval-coded information is incorporated into the likelihood function to obtain the specific values for each income band. For more information, see Daniels and Rospabé (2005) and Von Fintel (2006).

3. Demographics

3.1. Population statistics

In order to do social analysis, racial compositions are needed on national, provincial and district level for the population. The population will also be looked at in terms of households as defined in section 2.2.1. Table 1 offers the number of people residing in South Africa and Free State by race, together with their shares of the population in 2007.

Table 1: Racial Composition of South Africa and Free State in 2007

Population Group	South Africa	Share	Free State	Share
	Number	%	Number	%
African	37,887,594	79.42	2,498,633	84.32
Coloured	4,223,511	8.85	134,672	4.54
Indian	1,168,672	2.45	7,759	0.26
White	4,348,366	9.11	315,361	10.64
Other	8,764	0.17	6,931	0.23
Total	47,706,907	100	2,963,355	

Source: Own calculation from Labour Force Survey 2007

It is shown that the African population group is the majority group in South Africa (79%) as well as in the Free State (84.32%). The total population of South Africa is 47.7 million, while the Free State has 2.96 million residents.

Investigating the racial composition of the six districts, the following information is obtained for 2007. Table 2 indicates that Motheo have the largest share (29.06%) of people in the Free State, followed by Thabo Mofutsanyane (26.09%) and Lejweloputswa district (25.03%). The Xhariep district is home to only 4.02 % of residents of the Free State.

Table 2: Racial Composition of Free State districts in 2007

District	Population Group					
	African	Coloured	Indian	White	Total	Share (%)
Xhariep	92,623	17,656	83	8,362	119,107	4.02
Share %	3.71	13.11	0.33	2.80		
Motheo	647,080	77,484	4,749	126,219	861,223	29.06
Share %	25.90	57.54	18.82	42.25		
Lejweloputswa	612,671	34,774		94,404	741,849	25.03
Share %	24.53	25.82	0.00	31.60		
Thabo Mofutsanyane	752,736	1,371	17,476	856	773,142	26.09
Share %	30.13	1.02	69.25	0.29		
Northern Free State	392,835	3,384	2,927	68,887	468,034	15.79
Share %	15.73	2.51	11.60	23.06		
Total	2,497,945	134,670	25,235	298,729	2,963,355	100.00

Source: Own calculation from Labour Force Survey 2007

The racial composition of the agricultural and non-agricultural households (as defined in section 2.2.1) in Free State in 2007 is given in Table 3. A household is defined in a specific population group according to the household head's race. The household head is classified as person number one that completes the questionnaire, thus it is not necessarily the household head that complete the questionnaire under the title 'person number one', but the assumption is made that the household head is more likely to complete the questionnaire first. Unfortunately mixed households are not acknowledged, and will be classified according to the household head's race.

Table 3: Racial Composition of agricultural households and non-agricultural households in the Free State 2007

Population Group	Agricultural		Non-agricultural		Total	
	Number	Share	Number	Share	Number	Share
African	54,452	82.31	724,255	82.69	778,707	82.66
Coloured	1,438	2.17	33,463	3.82	34,900	3.70
White			2,249	0.26	2,249	0.24
Indian	10,262	15.51	114,188	13.04	124,451	13.21
Total	66,152*	100	875,862	100	942,014	100.00

Source: Own calculation from Labour Force Survey 2007

*See Table 5 for detailed breakdown

The agriculture sector is dominated by African households, similar to the trend in the non-agriculture sector. Taking a closer look at the Free State district composition, the following table is obtained:

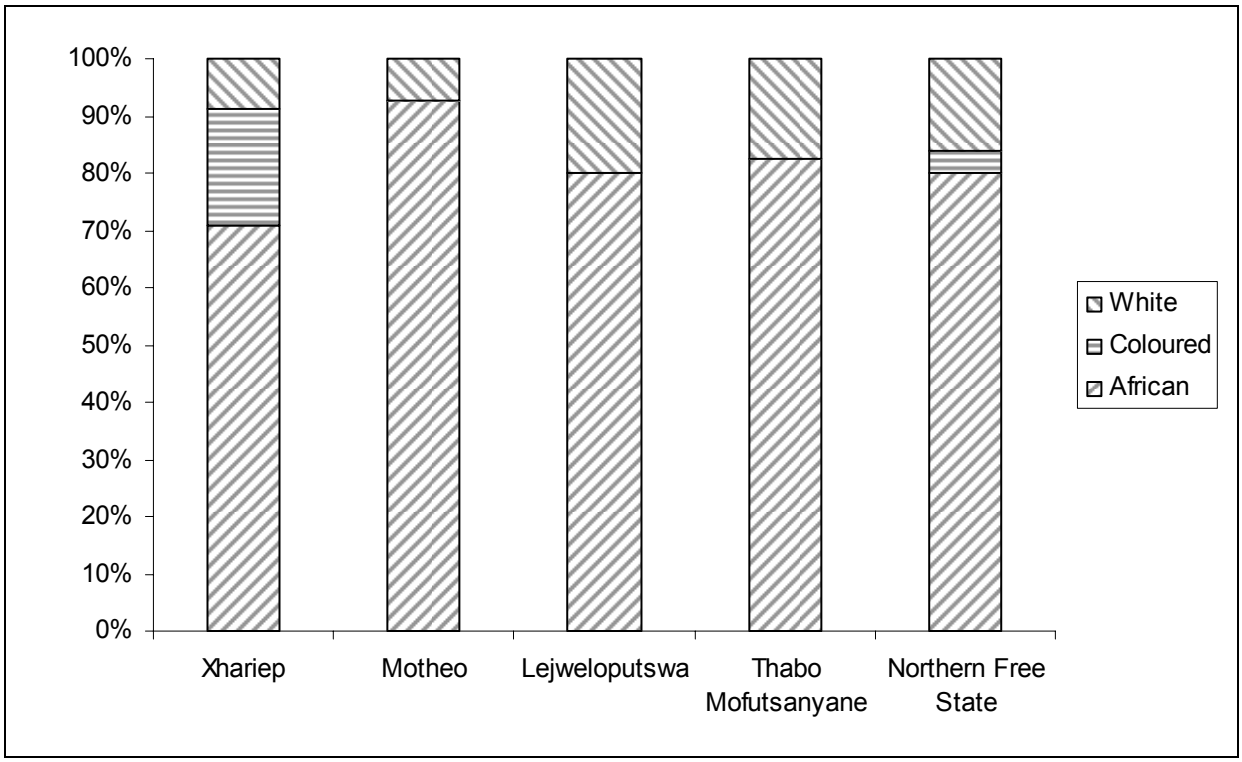
Table 4: Racial Composition of agricultural households in the Free State districts

	African	Coloured	White	Total	Share %
Xhariep	3,190	906	397	4,492	6.79
Share %	5.86	62.99	3.86		
Motheo	11,508	0	914	12,422	18.78
Share %	21.13	0.00	8.91		
Lejweloputswa	16,362	0	4,067	20,430	30.88
Share %	30.05	0.00	39.63		
Thabo Mofutsanyane	12,519	0	2,680	15,199	22.98
Share %	22.99	0.00	26.12		
Northern Free State	10,874	532	2,204	13,610	20.57
Share %	19.97	37.01	21.48		
Total	54,452	1,438	10,262	66,152	

Source: Own calculation from Labour Force Survey 2007

Table 4 indicates that there is around 66 000 households with agricultural workers, with the Lejweloputswa and Thabo Mofutsanyane districts having the biggest share and the Xhariep district having the smallest share. Compiling a stacked column chart for comparing race compositions, the results are as follows:

Figure 2: Agricultural households in the Free State districts



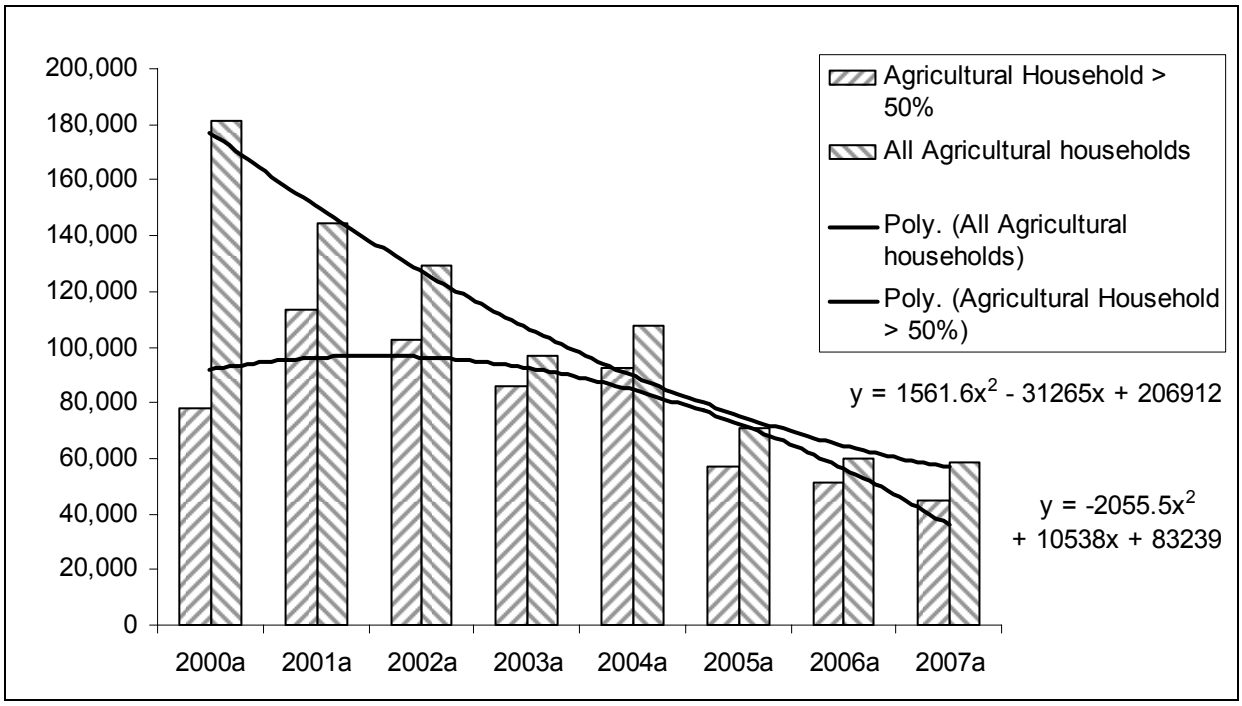
Source: Own calculation from Labour Force Survey 2007

Figure 2 clearly indicates that African households are dominant in across all the districts, while the Coloured households are only active in the Xhariep and Northern Free State districts. White households are visible in all the districts but have a minority share.

Looking at the change in agricultural households since 2000, Figure 3 indicates the change in both a) all households with a member / members working in agriculture and b) households whose agricultural income is more than 50% of household income. Both series are declining, with all households ending at 58, 606 households and the more than 50% income households ending at 45,117[3] households. It must be kept in mind that due to the dataset used for obtaining flow charts (thus over time), section 6 (access to agricultural land and main reason for it) was not present. Households that therefore have access to agricultural land and this land is the main source of non-salary income and/or food, are not counted in Figure 3.

[3] Comparing this to Table 5, it corresponds to the total of the first two columns.

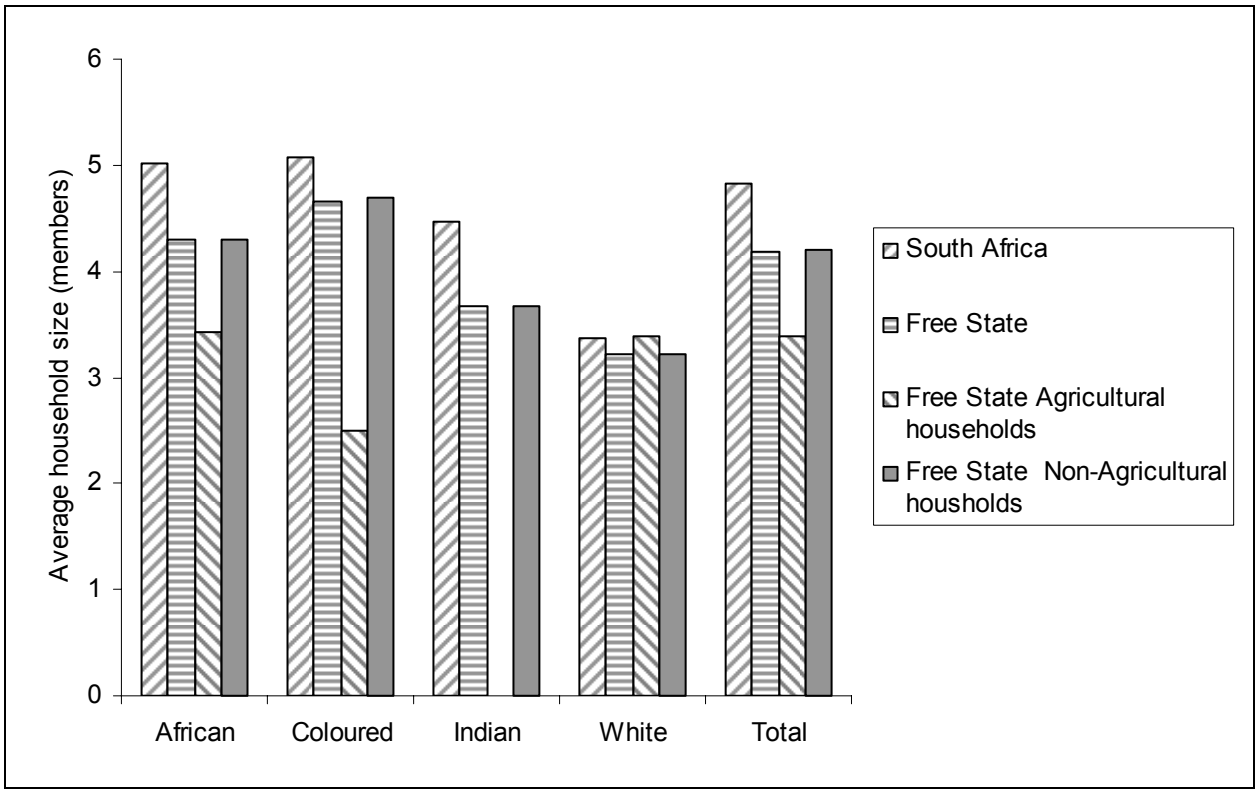
Figure 3: Agricultural households over time



Source: Own calculation from Labour Force Survey 2000-2007

The average household size by race is given in the next figure (Figure 4). It can be seen that the Free State's households are in general smaller than South Africa's. With regards to the agricultural households, household size is considerably smaller (3.4) than that of the average in South Africa and Free State (4.83 and 4.18). It is only the White agricultural households which are higher than the province as a whole. The household size for non-agricultural households corresponds to that of the province across all races.

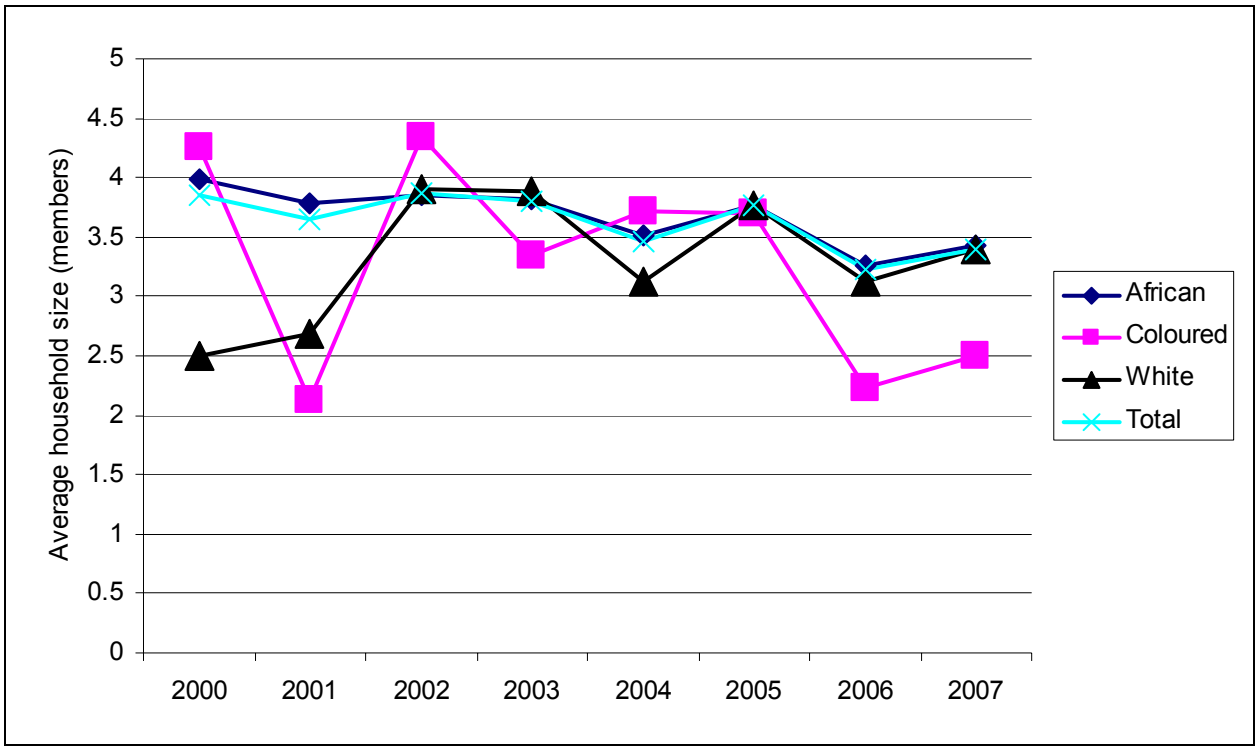
Figure 4: Household size by race for 2007



Source: Own calculation from Labour Force Survey 2000-2007

Taking a look at how the household sizes increased or decreased through time for the agricultural households, the following figure (Figure 5) was obtained. Figure 5 indicates that the African population's households are the biggest while the Coloured population have the least number of people within the household. The African population's size was on a slightly decreasing trend from 3.9 to 3.4 between 2000 and 2007. The other two population groups' household sizes varies year on year.

Figure 5: Household size from 2000 till 2007 for the agricultural households



Source: Own calculation from Labour Force Survey 2000-2007

Economic activities within the agricultural households are investigated next to identify whether the households obtain their income and/or food from employment or subsistence farming. Table 5 indicates the number and share of agricultural households in the Free State that obtain more than 50% of their income from agricultural activities, or whose main food source is from agricultural activities. These households have indicated their main source of income from agriculture, i.e. a) from employment in the agricultural sector or by agricultural occupation (column 1), b) from subsistence farming only (as defined in section 2.2.1) (column 4), or c) from a combination of a) and b) (columns 2 and 3). The African households have the largest share (87.77%) of employment in the agricultural sector, and this is consistent with the employment numbers stated earlier. There are 16 954 households in the Free State that depend solely on subsistence farming for main source of food (11 836 households) or non-salary income (5 118 households) and 87.51% are African households. 63.70% of agricultural households derive more than 50% of their household income from employment within the agricultural sector, while households involved with only subsistence farming comprise 25.63%. Only 10.67% of agricultural households engage in agricultural employment as well as subsistence farming to provide for the household. There are 3 062 households that depend on subsistence agriculture, but they also receive salary income from employment in agriculture and this salary income is more than 50% of the household income. While 3 995 households depend on subsistence agriculture, but their salary income from employment in agriculture is less than 50% of the household income.

Table 5: Economic activity for agricultural households by population group in 2007

	Only Employment and Occupation and >50% income		Subsistence farming and >50% income		Subsistence farming and <50% income		Subsistence farming only		Total	
Population group	**Number**	**Share**	**Number**	**Share**	**Number**	**Share**	**Number**	**Share**	**Number**	**Share**
African	36,988	87.77	1,145	37.38	1,483	37.13	14,837	87.51	54,452	82.31
Coloured	1,212	2.88	81	2.64			145	0.85	1,438	2.17
White	3,941	9.35	1,837	59.98	2,511	62.87	1,973	11.64	10,262	15.51
Total	42,141	100	3,062	100	3,995	100	16,954	100	66,152	100
Activity Share	63.70		4.63		6.04		25.63		100	

Source: Own calculation from Labour Force Survey 2007

3.2. South African and Free State labour force

Every citizen in a country can be classified as either economically active or economically inactive. If an individual is economically active, (s)he must be between the ages 15 and 65, and able and willing to work. (S)He is part of the labour force, whether employed or unemployed. The not economically active population is either not able or willing to work, or does not fall in the required age range. The labour force is divided between the employed and unemployed. In order to be classified as unemployed, there are two definitions, a broad (expanded) and narrow (official) definition. The broad definition states an individual is unemployed if (s)he: (a) did not work the past 7 days; (b) wants to work and is available to start within 2 weeks. The narrow (official) definition is the broad definition including (c) is actively searching for work the past 4 weeks (Statistics South Africa). The labour force can thus vary according to which definition of unemployment is used. Table 6 represents the number and share of people in 2007, according to the strict and broad definition in the labour force, for South Africa and the Free State respectively:

Table 6: South African and Free State labour force in 2007

	South Africa				Free State			
	Broad		**Strict**		**Broad**		**Strict**	
	Number	**Share**	**Number**	**Share**	**Number**	**Share**	**Number**	**Share**
African	15,825,035	77.44	12,671,070	74.81	1,059,873	83.0	879,494	81.17
Coloured	1,977,240	9.68	1,746,798	10.31	59,522	4.66	52,013	4.8
Indian	513,937	2.52	473,161	2.79	3,835	0.30	3,835	0.35
White	2,117,799	10.3	2,047,715	12.09	153,789	12.04	148,144	13.67
Total	20,434,011	100	16,938,744	100	1,277,019	100	1,083,486	100

Source: Own calculation from Labour Force Survey 2007

In 2007, there was 20.4 million (16.9 million) individuals in the South African labour force according to the broad (strict) definition. In the Free State there were 1.2 million (1 million), the largest share taken by the African population with 83% (81.17%). The largest contributor to the national labour force is the African population with 77.4% (74.81%). In both samples, the Indian population is the smallest (2.52% / 2.79% and 0.30% / 0.35% respectively).

3.3. Unemployment in South Africa and the Free State

In explaining the labour force, unemployment was defined. The next table (Table 7) and figure (Figure 6) represent the unemployment data (in numbers and percentage respectively) for South Africa and the Free State by population group.

Table 7: Unemployment numbers for South Africa and Free State by population group in 2007

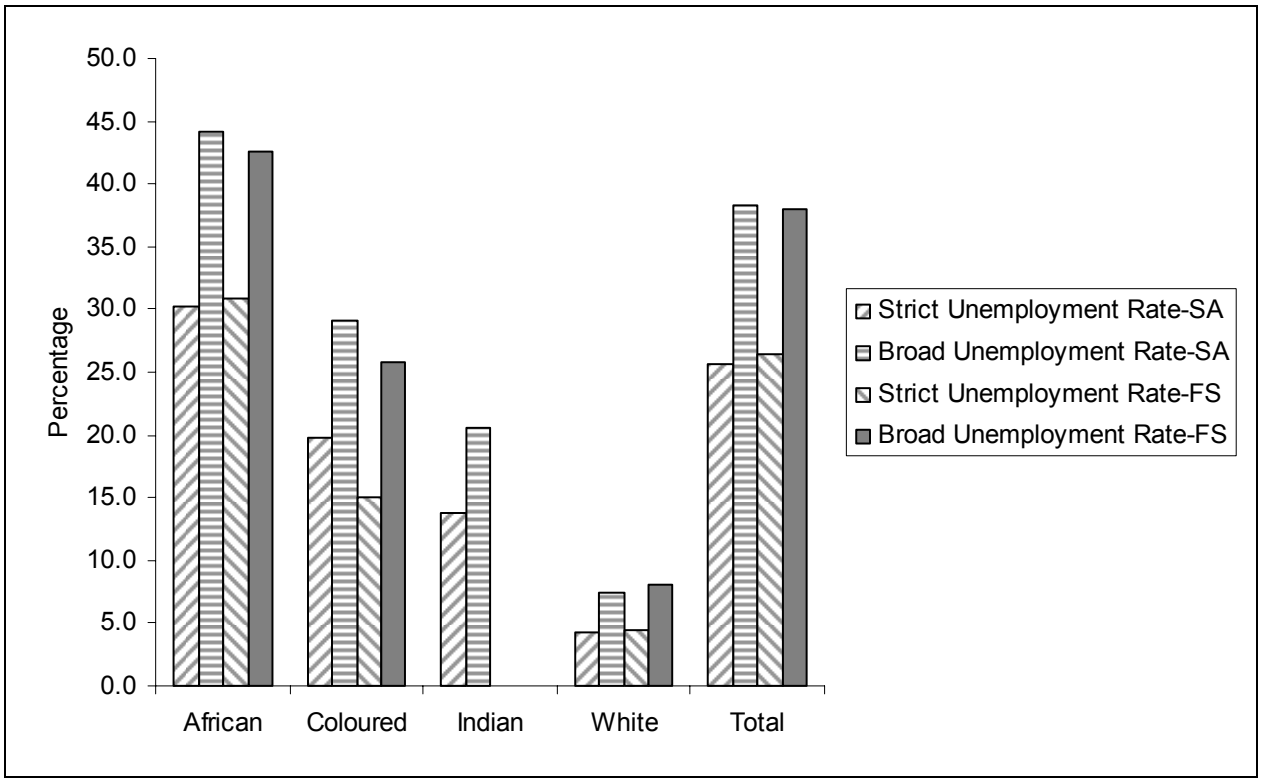
	South Africa		Free State	
	Broad	**Strict**	**Broad**	**Strict**
African	6,984,075	3,830,110	451,440	271,061
Coloured	576,177	345,735	15,345	7,836
Indian	105,855	65,079		
White	158,206	88,122	12,302	6,657
Total	7,830,004	4,330,958	484,778	286,358

Source: Own calculation from Labour Force Survey 2007

Table 7 indicates that the leading population group in terms of unemployment is the African population across all definitions and for both South Africa and Free State. The smallest unemployed group in the Free State is that of the White population followed by the Coloured subgroup across both definitions. There are no unemployed Indian persons recorded in the Free State.

There is a clear trend with Africans having the highest unemployment rate in South Africa and the Free State for both definitions (broad 44% and 42.5% respectively and for strict 30% and 30.82% respectively) (Figure 6). The Africans and Whites in the Free State have a higher unemployment rate than the average for South Africa according to the strict definition, while the Coloured population have lower unemployment rate compared to the national average. The White population in both South Africa (4.3% strict and 7.5% broad) and the Free State (4.49% strict and 8% broad) have significantly lower unemployment rates than the other population groups (excluding Indians) and the total. The total unemployment rate for the official (strict) definition for South Africa and Free State respectively are 25.53% and 26.4%.

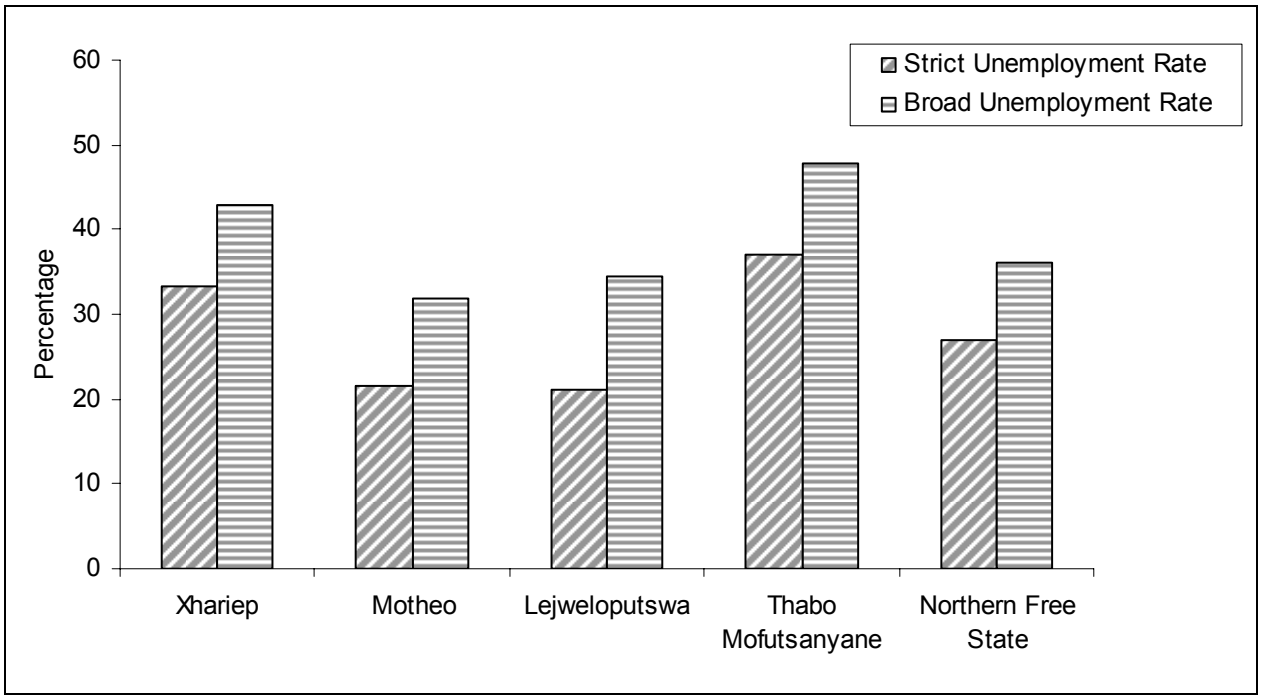
Figure 6: Unemployment rates for South Africa and Free State by population group



Source: Own calculation from Labour Force Survey 2007

Taking a closer look at the Free State, the following information regarding district level was obtained. In Figure 7, Thabo Mofutsanyane has the highest unemployment levels considering the broad and strict definitions (47.78% and 37.1% respectively). The lowest unemployment levels are in Motheo (31.9% and 21.62%). The broad and strict rates show a similar pattern of unemployment, with Thabo Mofutsanyane the highest, Xhariep second highest, followed by Northern Free State, Lejwelophutswa, and Motheo.

Figure 7: Unemployment rates for districts in the Free State



Source: Own calculation from Labour Force Survey 2007

3.4. Work-force and Employment in Free State agriculture

A work-force is defined as all individuals that are able to work, of working age and employed according to various dictionaries (www.thefreedictionary.com ; www.patana.ac.th ; www.allwords.com), although Wikipedia (www.wikipedia.org) excludes the management and only refer to manual labour. For the purpose of this report, the full definition (including management) will be used to avoid making sample sizes too small by excluding management data.

The agricultural work-force, thus those between 15 and 65, and as previously mentioned in the agricultural industry or occupation, is listed for both South Africa and the Free State for 2007 in the subsequent table:

Table 8: South African and Free State agricultural work-force

	South Africa		Free State	
	Number	**Share**	**Number**	**Share**
African	741,228	75.82	52,310	76.07
Coloured	143,172	14.65	1,371	1.99
Indian	5,458	0.56		
White	87,728	8.97	15,084	21.94
Total	977,586	100	68,765	100

Source: Own calculation from Labour Force Survey 2007

As can be seen in Table 8, the African population dominates the South African agricultural work-force as well as the Free State agricultural work-force. There are no Indians recorded in the Free State agricultural work-force and only 0.56% nationally. The White population's share in the agricultural work-force of both South Africa and the Free State is 8.97% and 21.94% respectively. Decomposing the agricultural work-force in the Free State to a district level by gender, the following is obtained:

Table 9: Agricultural work-force of the Free State districts by gender in 2007

	Male	Share	Female	Share	Total	Share
Xhariep	4,024	94.62	229	5.38	4,253	100.00
Motheo	5,747	82.43	1,224	17.57	6,971	100.00
Lejweloputswa	14,700	70.47	6,160	29.53	20,860	100.00
Thabo Mofutsanyane	12,870	61.38	8,096	38.62	20,966	100.00
Northern Free State	13,309	84.03	2,530	15.97	15,839	100.00
Total	50,650	73.52	18,240	26.48	68,890	100.00

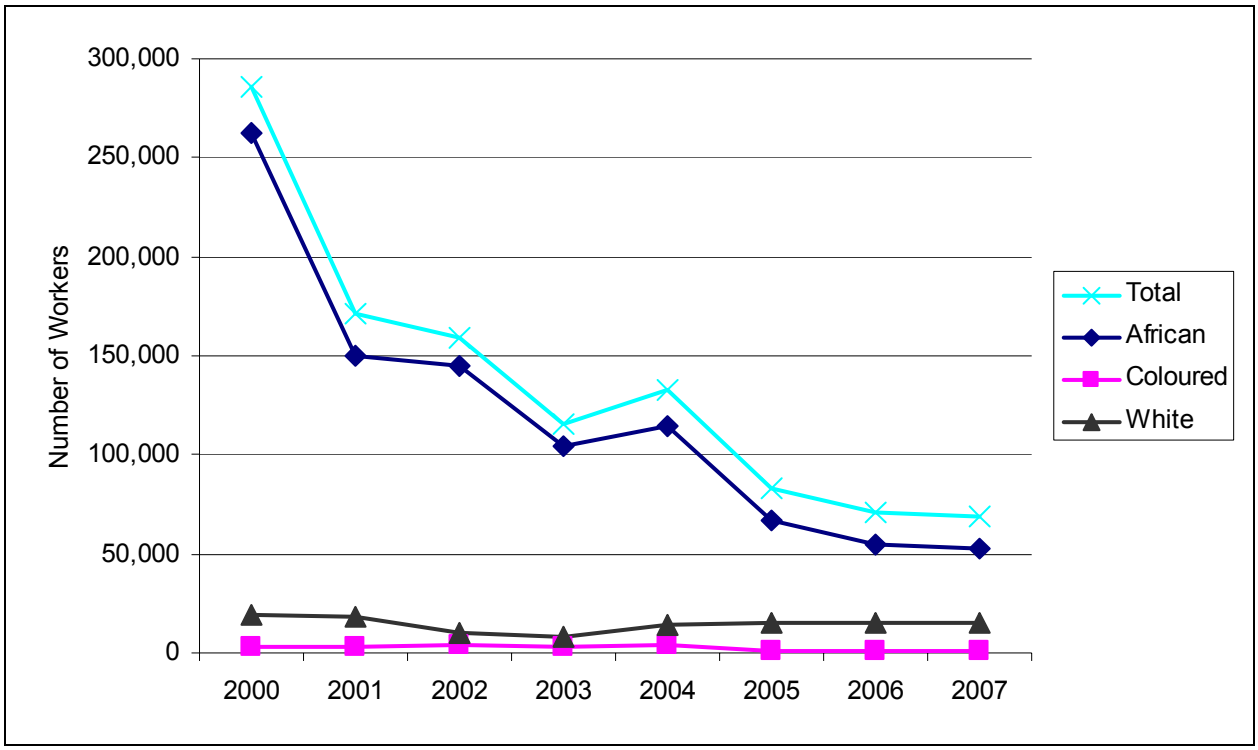
Source: Own calculation from Labour Force Survey 2007

Table 9 illustrates that the majority (73.53%) of the work-force is male, with the Thabo Mofutsanyane district the least gender unequal (61.38% males and 38.62% females). Xhariep is the most gender unequal with men comprising 94.62% of the work-force. Thabo Mofutsanyane also has the most workers (20 966 workers) and the Xhariep district the least (4 253 workers).

3.4.1. Employment over time

Employment for the agricultural sector has been in the limelight the past few years due to reports stating the steady decline within the sector. According to Statistics South Africa the definition of an agriculture worker is if (s)he claims that the main industry that (s)he works in is that of Agriculture, Fishery and Hunting, or if the main occupation is skilled agriculture regardless the industry. The industry Agriculture, Fishery and Hunting was evaluated, and workers of only agricultural activities were used in this report. The following figure was obtained from the data:

Figure 8: Agricultural employment in the Free State from 2000 to 2007



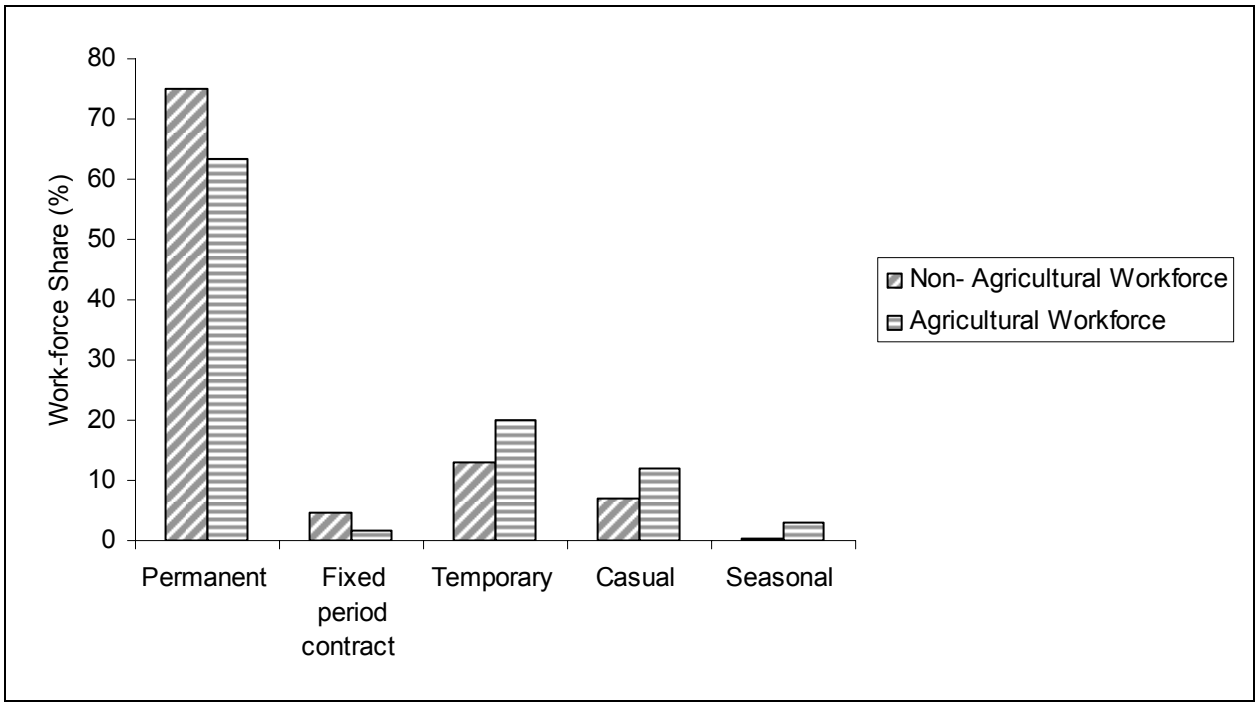
Source: Own calculation from Labour Force Survey 2000-2007

It can be observed in Figure 8 that there is a decreasing trend in total employment. The African workers leaving the sector are mostly responsible for this occurrence as their trend follows a similar path as the trend for total employment. African and total employment decrease significantly over time, for Africans from 262,537 to 52,310 workers and for total from 285,480 to 68,765 workers. The White and Coloured employment stays relatively constant over time. Further analysis needs to be done in order to investigate the reasons behind this declining trend.

3.4.2. Employment status

The Labour Force Survey asks various work-related questions to employed respondents, one being that of the terms of employment. Respondents had to classify whether their job was permanent, a fixed period contract, temporary, casual or seasonal. The following results in Figure 9 were obtained for 2007 while Figure 10 indicates the period 2000-2007:

Figure 9: Work status for Free State work-force in 2007

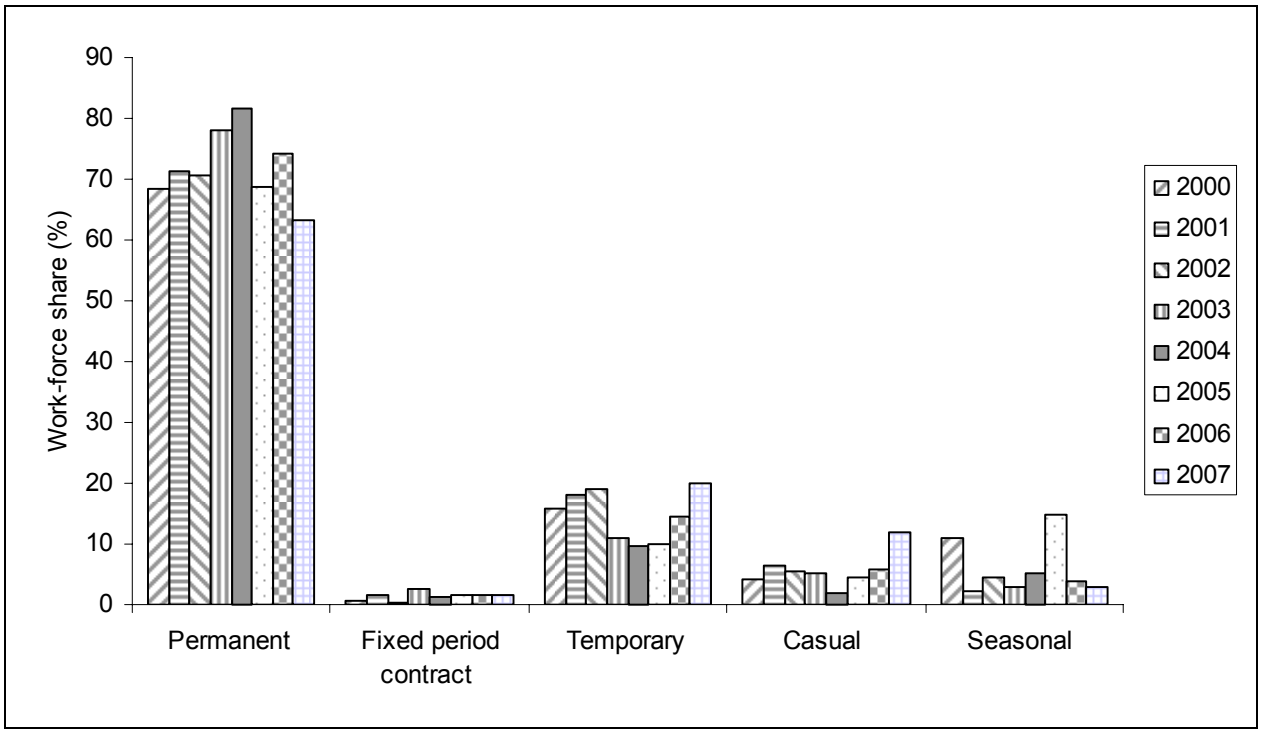


Source: Own calculation from Labour Force Survey 2007

The figure 10 above depicts that Free State has high number of a permanent (63.19%) and temporary (20.1%) agricultural workers, compared to non-agricultural permanent workers (74.87%) and temporary (13.05%) work force. The seasonal element is almost unique within the agricultural work-force (3.04 %), as the non-agricultural work-force has almost no (0.3%) seasonal employees. The fixed period contract workers in the agricultural work-force are the minority.

Figure 10 presents the work status data from 2000 till 2007 for the agricultural work-force:

Figure 10: Work status over time



Source: Own calculation from Labour Force Survey 2000-2007

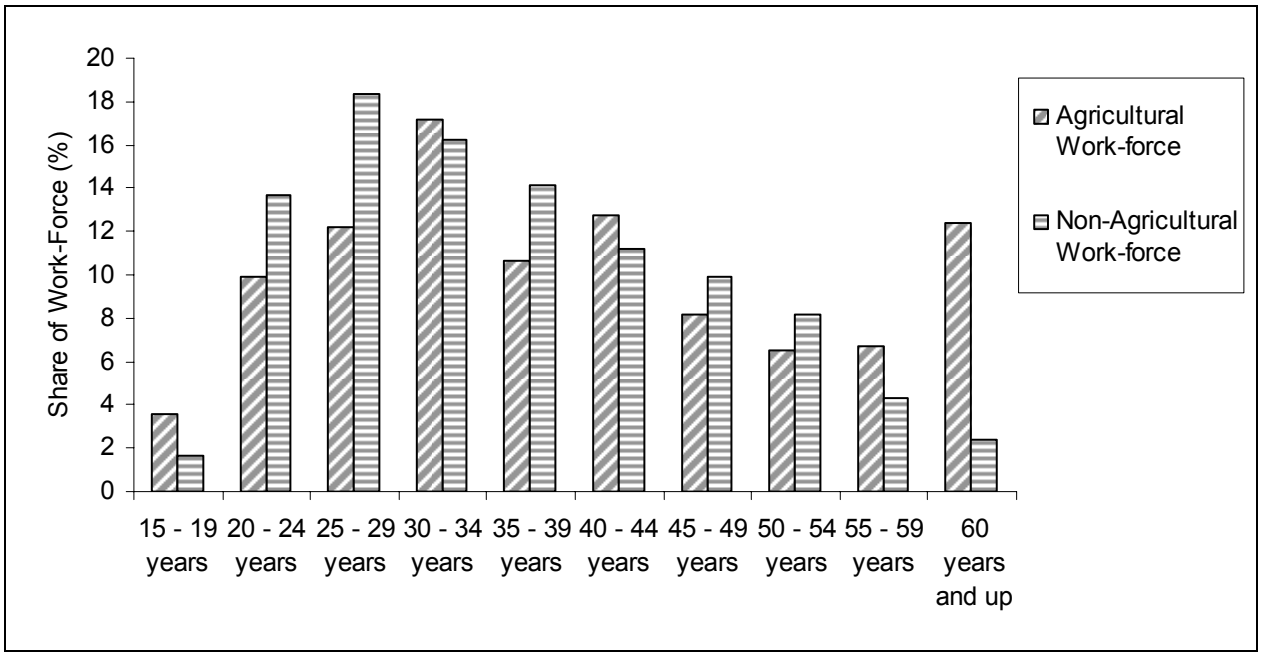
This figure indicates a slight increase followed by a decrease in the share of permanent labour, while the share of fixed period contract employees remained relatively constant. There has been an increase in the share of temporary employment and casual employment since 2004. The share of seasonal workers differ year on year.

3.5. Characteristics of the Free State agricultural work-force

3.5.1. Age structure

Comparing the agricultural work-force with the non-agricultural work-force (thus those in other industries), Figure 11 was obtained.

Figure 11: Age structure of agricultural and non-agricultural work-force in the Free State



Source: Own calculation from Labour Force Survey 2007

The largest share of the non-agricultural work-force is between the ages 25-29 years (18.39%), while the largest age group for the agricultural work-force (17.17%) are between the ages 30-34 years. The agricultural sector is also characterised by an older work-force (60 years and up) compared to the non-agricultural work-force (12.39% compared to 2.36%).

3.5.2. Location and occupation

The agricultural workers also indicated where the location is of their work. As expected, the majority (80.29%) work on a farm. The second most common place where agricultural activities take place is inside a formal business (factory or shop) and the least common is on at a service outlet (0.54%). Table 10 present the full results, including the number and share.

Table 10: Location of Free State agricultural work-force

	Number	Share %
In the owner's home/On the owner's farm	55,312	80.29
In someone else's home / Private household	1,679	2.44
Inside a formal business premises such as factory or shop	7,512	10.9
At a service outlet such as a shop, school, post office etc.	370	0.54
On a footpath, street, street corner, open space or field	2,317	3.36
No fixed location	992	1.44
Unspecified	708	1.03
Total	68,890	100

Source: Own calculation from Labour Force Survey 2007

The occupation of agricultural workers, as classified by Statistics South Africa, is expressed in Table 11. As can be seen through Table 11, the elementary occupation dominates (47.18%), while service workers and shop and sales workers are the minority (0.49%). It can be seen that only 26.89% of workers in the agricultural sector in the Free State are classified as skilled agricultural workers.

Table 11: Occupation of Free State agricultural work-force

	Number	Share %
Legislators, senior officials and managers	4,580	6.66
Clerks	2,276	3.31
Service workers and shop and market sales worker	340	0.49
Skilled agricultural and fishery worker	18,492	26.89
Craft and related trade workers	370	0.54
Plant and machinery operators and assemblers	10,263	14.92
Elementary occupations	32,444	47.18
Total	68,765	100

Source: Own calculation from Labour Force Survey 2007

3.5.3. Skills level

The occupation of workers is an indicator of the skills level of the individual. Workers working in a legislative, senior official, manager or professional occupation are classified as skilled workers by Statistics South Africa. Semi-skilled workers are technical and associated professionals, clerks, and service and sales workers. The rest, skilled agricultural and fishery workers, craft workers, plant and machine operators and assemblers, elementary occupation and domestic workers, are classified as unskilled labour.

The subsequent figures were obtained for the skills level in 2007 of every population group in the non-agricultural sector:

Figure 12: Skills level of the Free State non-agricultural work-force in 2007

Source: Own calculation from Labour Force Survey 2007

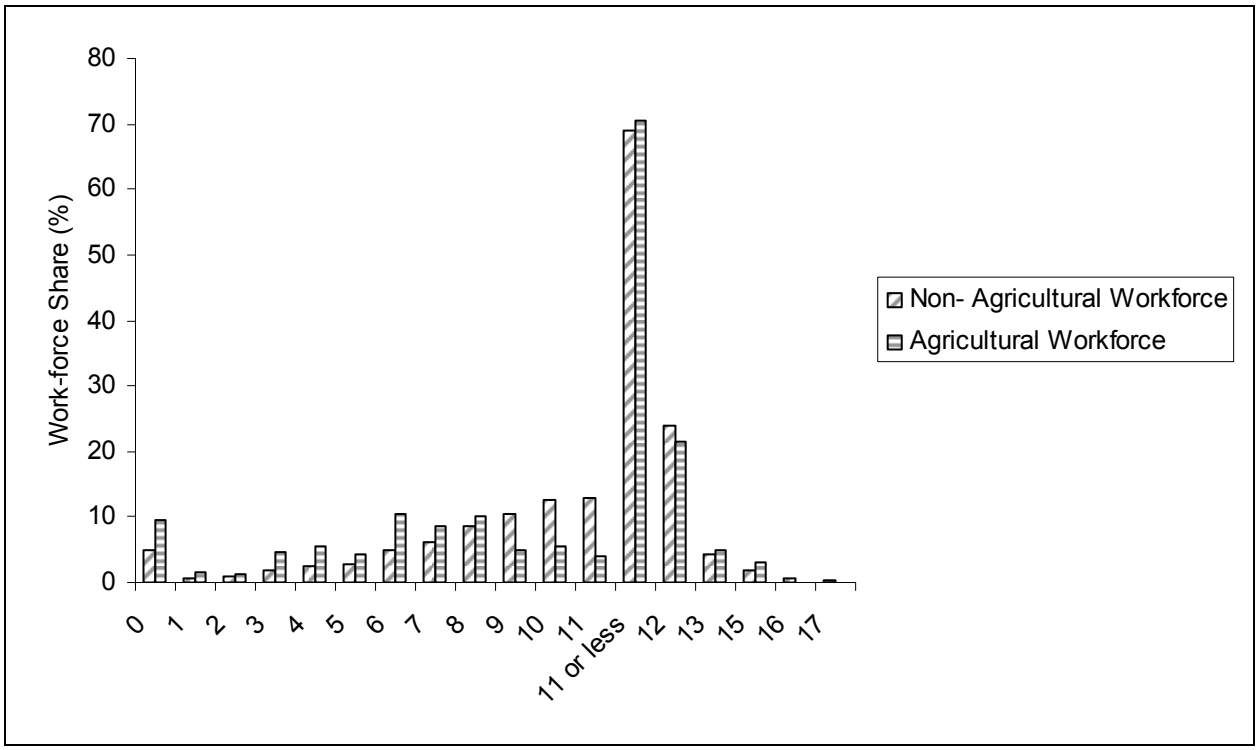
Figure 12 represents the share of every population group for the non-agricultural sector in 2007 within each of three identified skill levels. There is a clear distinction between African and White workers, with the majority (80.47%) of White workers being skilled or semiskilled workers and the minority (33.64%) of the African workers being skilled or semiskilled workers. Looking at the skill levels of agricultural workers in Figure 13, the same pattern can be observed. Almost none of the African workers are skilled (2.6%), while 21.4% of White agricultural workers are skilled. The whole sector is also more dominated by unskilled labour, compared to the non-agricultural sector.

Figure 13: Skills level of the Free State agricultural work-force

Source: Own calculation from Labour Force Survey 2007

Examining the education level of agricultural workers and non-agricultural workers, the following bar graph (Figure 14) contains the information:

Figure 14: Highest education received for agricultural and non-agricultural workers

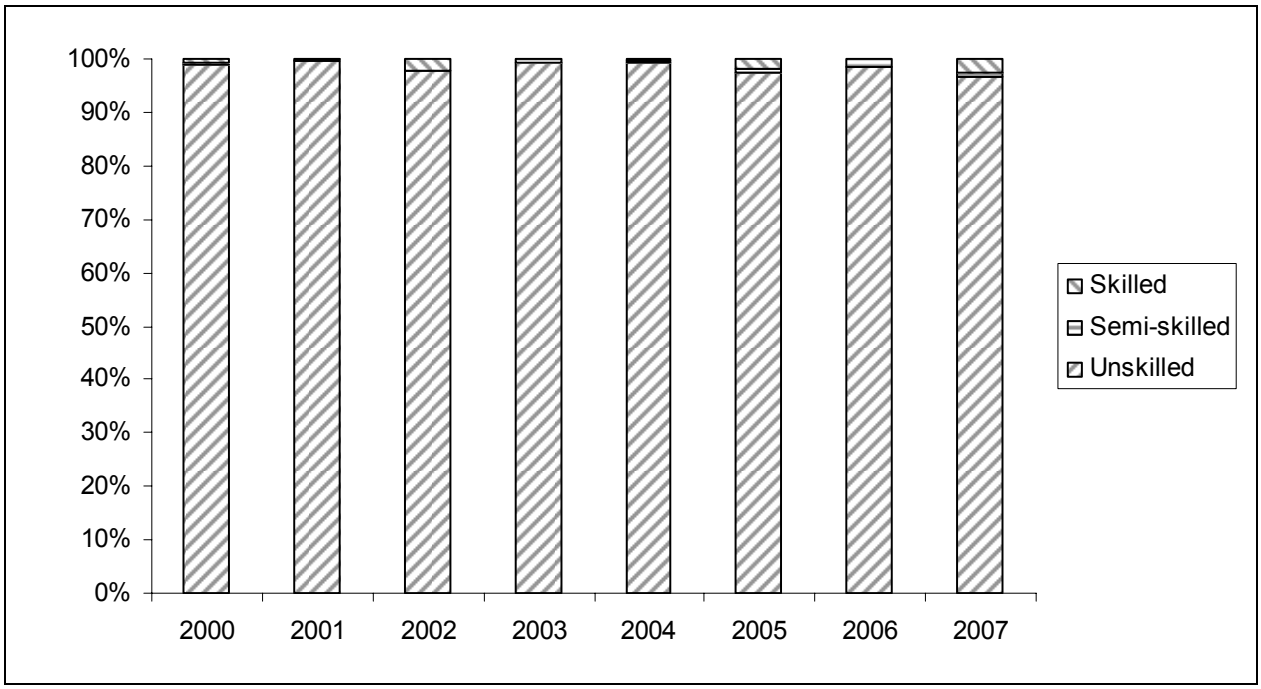


Source: Own calculation from Labour Force Survey 2007

The graph clearly shows that the majority of agricultural workers do not have a matric qualification (70.46%), although they received high school education. Only a small portion received education for 12 years or more (29.54%). The non-agricultural work-force has a higher share of matriculant workers (24.04%), but the Agricultural work-force has more workers with post-matric education (8.03% compared to 6.95% of non-agricultural work-force).

Looking at the skills level trend through years 2000 till 2007, the subsequent figures illustrate each population group's skills:

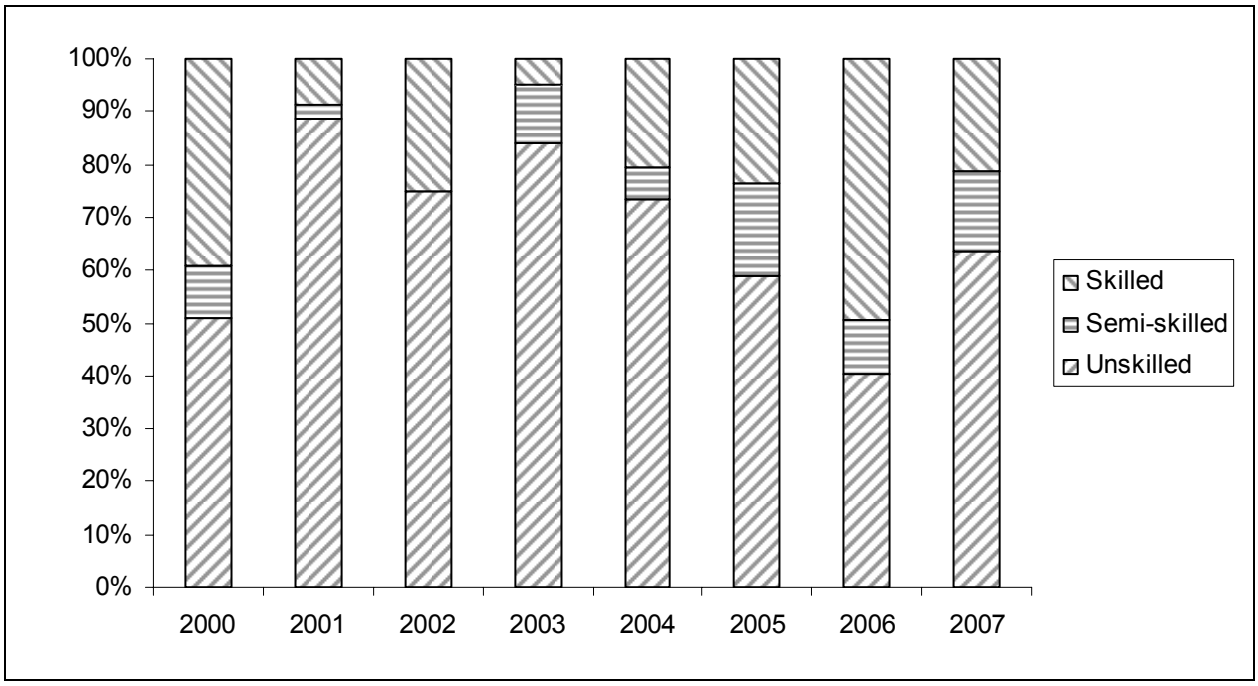
Figure 15: Skills level for Africans in the agricultural work-force



Source: Own calculation from Labour Force Survey 2000-2007

The skills level of the African population group has not changed significantly since 2000 (Figure 15). The majority of workers are unskilled, with only 2.6% of African recorded as skilled employees in 2007. This is a major source of concern, indicating that the African agricultural workers remain mostly unskilled.

Figure 16: Skills level of the White agricultural work-force



Source: Own calculation from Labour Force Survey 2000-2007

In Figure 16 the White work-force has a dramatically different composition of skills than the African work-force. It differs from year to year, but the share of skilled workers decreased with time (39.25% to 21.26%), while the unskilled increased (50.91% to 63.65%).

There is a definite skills gap between race groups in the Free State agricultural sector, with the Whites as the only notable skilled group. According to the National Scarce Skills list of 2007 (Department of Labour), farm managers are rated as one of the most scarce skills in South Africa, while agricultural technicians, plant operators, crop farm workers and livestock farm workers also appear on the list. This indicates that there is definitely a need for skilled agricultural workers.

4. Income

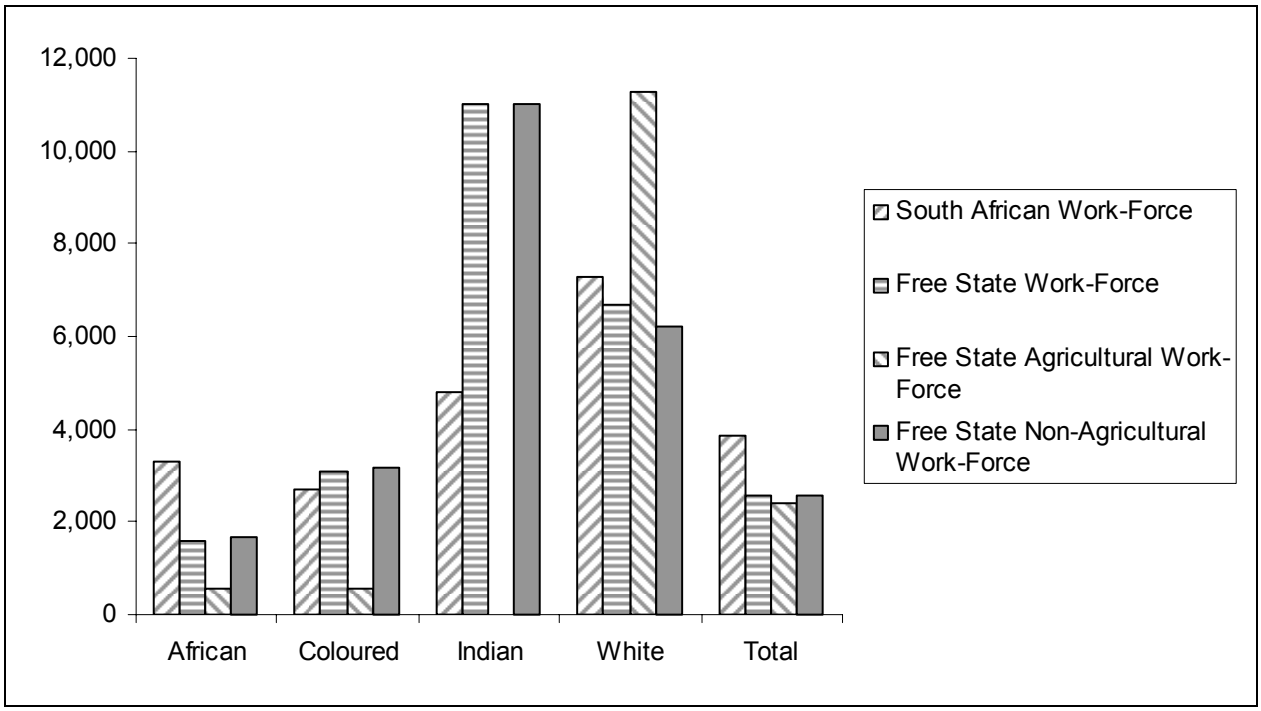
4.1. South Africa and Free State

Respondents were asked about their income, and as explained previously, it was reported in either actual values or income bands. A value was dictated to each band by using the Interval Regression method as indicated in 2.3.2. Three different reporting measures were used to seek variation and to verify for consistency. The first figure reports the results for the earnings for the working individual. The second figure represents the per capita household earnings while the last figure embodies the median incomes for working individuals. The first and second figures' income is an average and all three were adjusted for the consumer price index (CPI) making it

real incomes. Therefore all values are in 2000 prices to have consistency when comparing from 2000 to 2007.

The subsequent figures represent the results of the analysis in 2007. It must be remembered that earnings used were total salary of main job, therefore excluding any remittances, social grants or payments in kind. Home consumption from home production is also excluded. Comparisons are made between the South African, Free State, Free State agricultural and Free State non-agricultural work-forces.

Figure 17: Real mean monthly income from main source by race for 2007

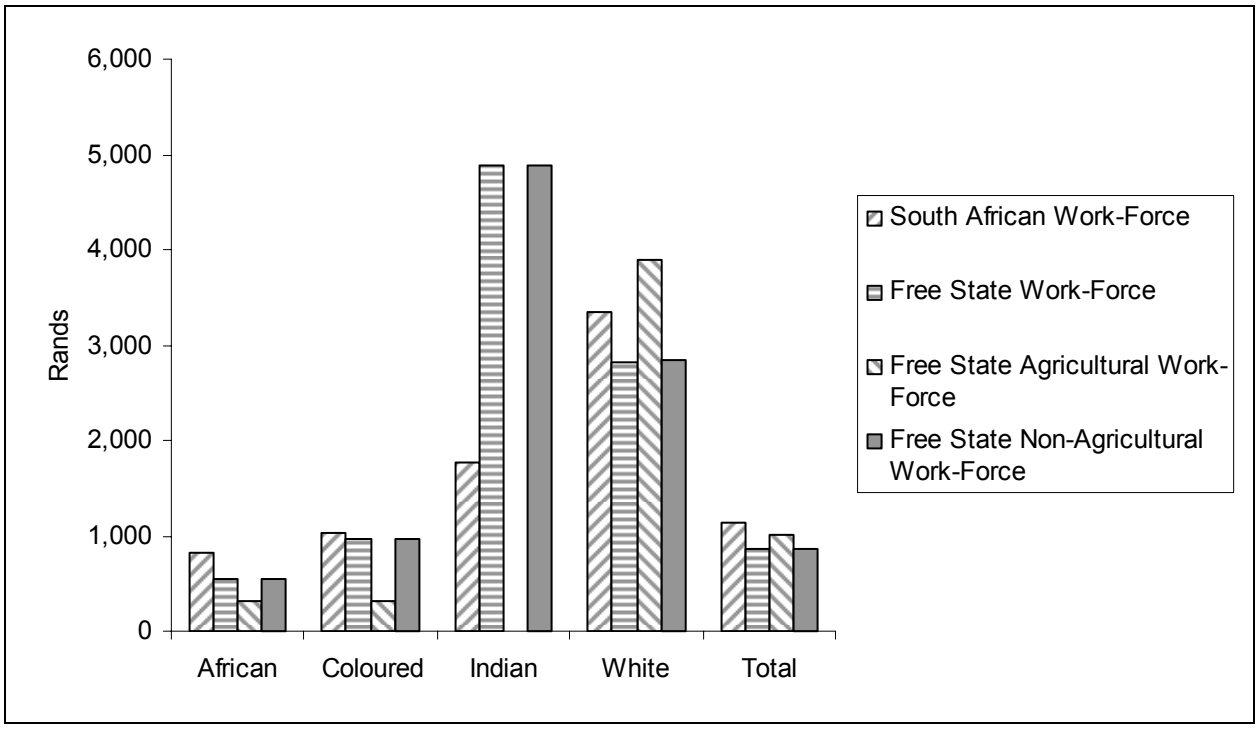


Source: Own calculation from Labour Force Survey 2007

The Free State mean monthly income in Figure 17 is lower than that of South Africa in total and for Africans and Whites, but higher than South Africa for Indians and Coloureds. The results for the Indian population are driven by a high non-agricultural income. African and Coloured individuals working in the agricultural sector of the Free State receive a lower income, than those in the other categories reported. The White agricultural mean income is higher than the other mean incomes, suggesting that on average a White individual in the agricultural household in the Free State is doing financially better than his/her peers. Generally, the non-agricultural income is similar to the mean income for the province and the country.

Looking at the mean real household income per capita for 2007, a similar pattern as the individual income is found. Household earnings are thus divided by household size, disregarding other income sources.

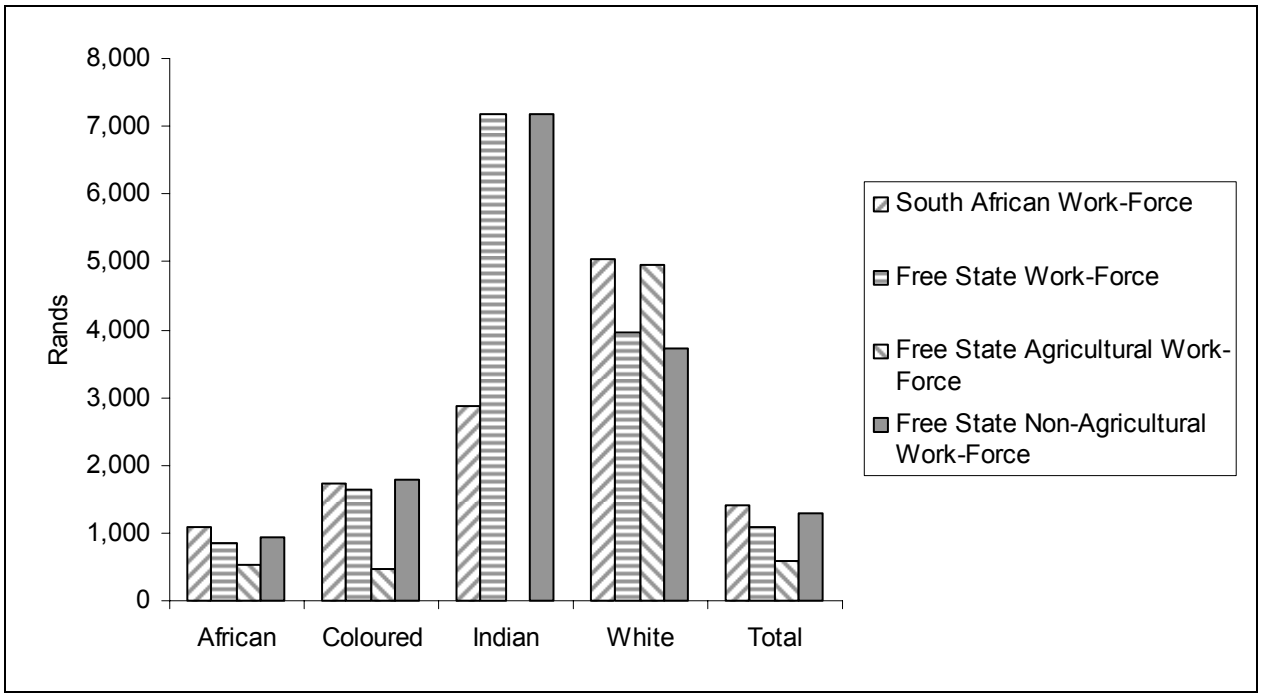
Figure 18: Mean monthly real household income per capita by race for 2007



Source: Own calculation from Labour Force Survey 2007

In Figure 18 again the agriculture sector's mean household income per capita is lower for Africans and Coloureds, but higher for Whites and on aggregate (the reported total) compared to the other reported categories. The non-agriculture Free State and South African household incomes display the same patterns as the individual incomes, with Indians and Whites earning the most on average and Africans and Coloureds earning the least.

Figure 19: Monthly median income for individuals by race for 2007



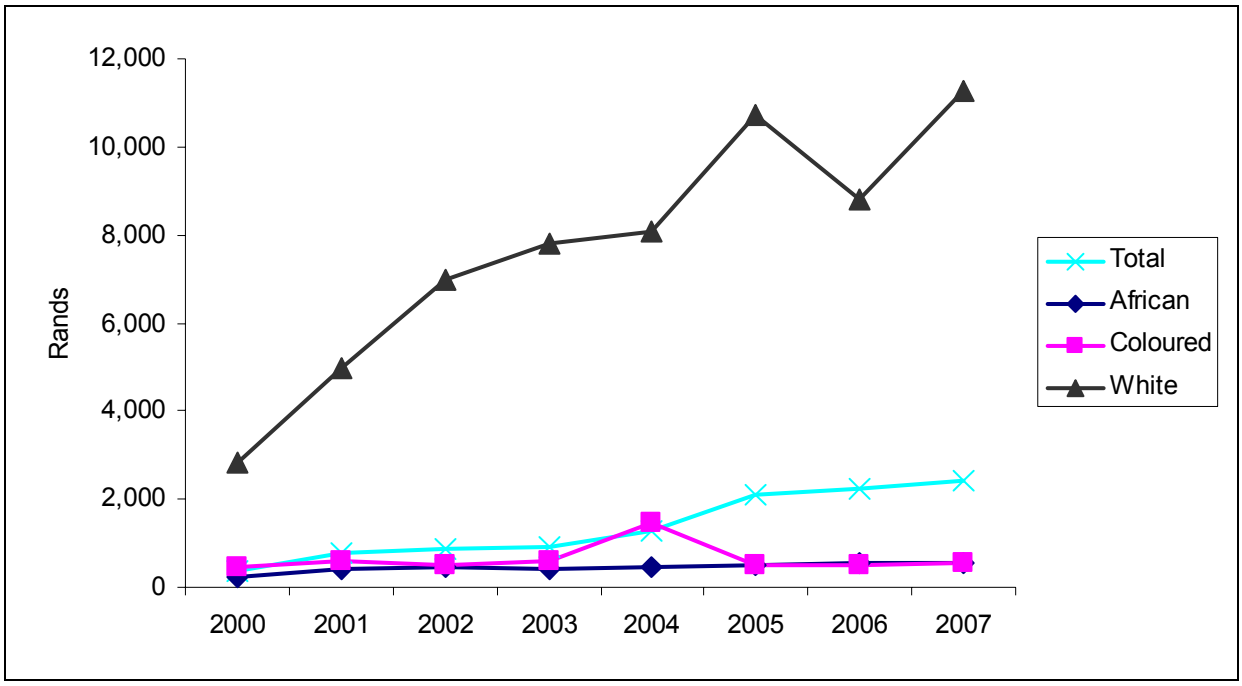
Source: Own calculation from Labour Force Survey 2007

The median incomes are illustrated above in Figure 19 to correct for any measurement error with regards to mean incomes. The mean can be influenced by outliers, and in a country like South Africa with the high inequality, median better reflects the true nature of profiles. Median represents the 50th percentile, meaning 50% of the individuals receive equal or less than the mentioned income. Hence this figure shows a lower income across all population groups. The pattern remains the same, with Whites earning the highest agricultural income and Indians earning a high non-agricultural income. Across all the races, except for Indians, incomes in the Free State are lower to that of South Africa, while the workers in the agricultural sector is earning a significant lower median income except amongst the White population.

4.2. Free State agricultural work-force

Taking a closer look at the agricultural work-force in the Free State over time, the subsequent figures were obtained:

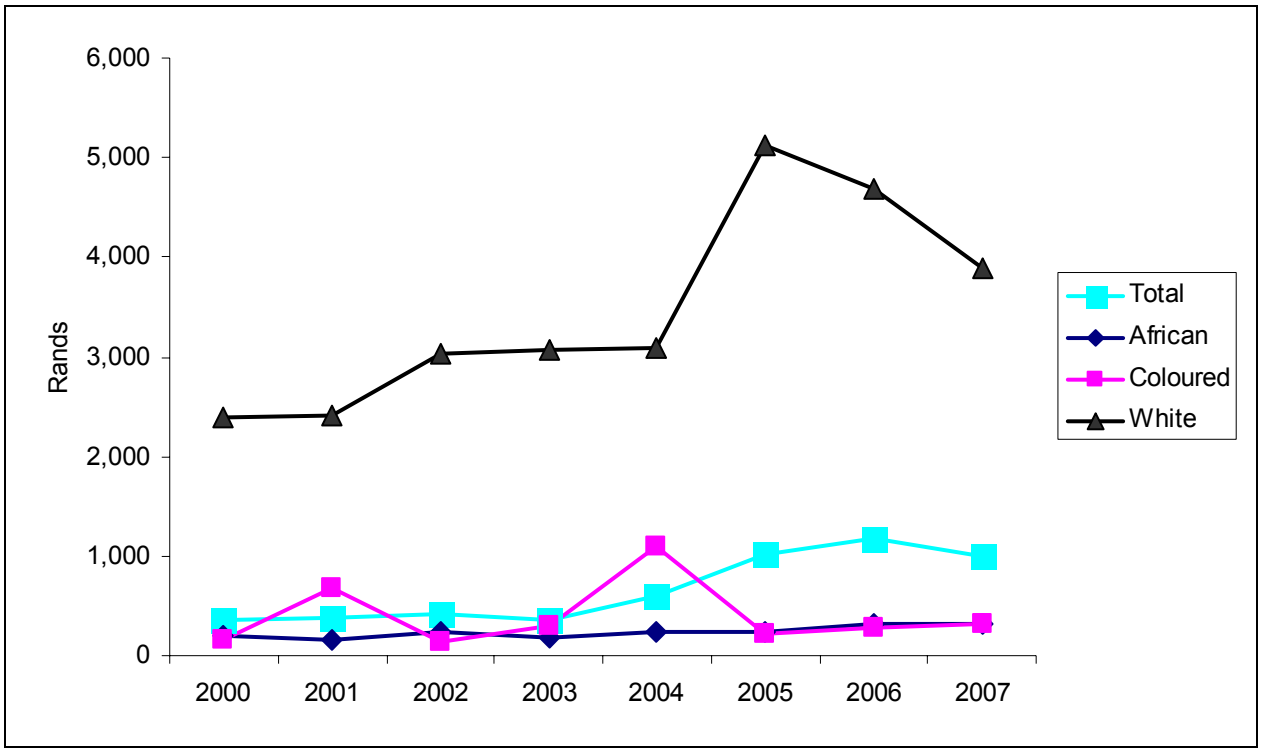
Figure 20: Real monthly mean income for individuals working in agriculture from 2000



Source: Own calculation from Labour Force Survey 2000-2007

Above figure (Figure 20) clearly indicates the huge difference between the White population's mean income compared to that of the Coloured and African population. The Coloured and African population's average income remains stable and alike over time, whereas the White's income increases over time. The total income also increases from R385 to R2416.

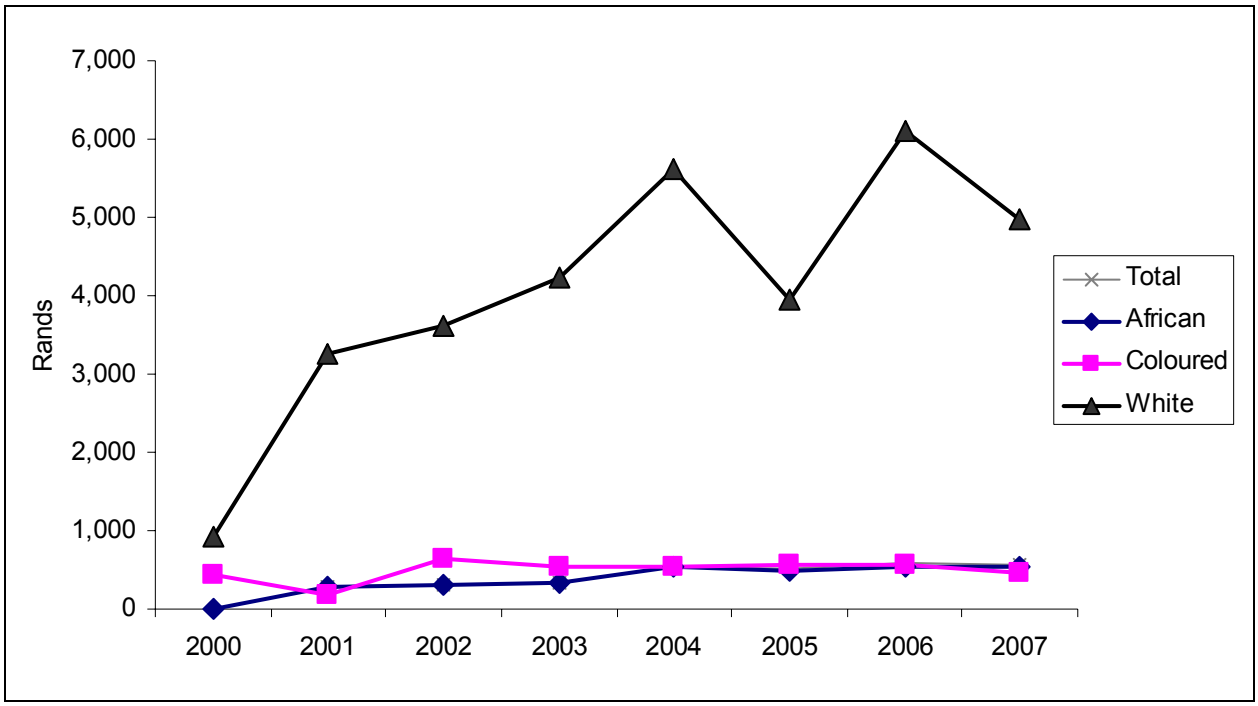
Figure 21: Real mean household income per capita for all agricultural households since 2000



Source: Own calculation from Labour Force Survey 2000-2007

The household earnings are presented above (Figure 21) for all agricultural households, thus all households that have a member / members in the agricultural sector. The figure shows a similar trend than the individual earnings profile except for the movements of the Coloured per capita household income. Their income increased in 2001 and 2004, but this can be due to data irregularities from the small sample of Coloured agricultural workers. The White per capita household income is also on a decreasing trend since 2005.

Figure 22: Monthly median incomes of individuals in agriculture since 2000



Source: Own calculation from Labour Force Survey 2000-2007

The trend stays the same within the median income (Figure 22) as for mean income, showing a wide disparity between White's incomes and the Coloured and African population. The conclusion from above three figures is that there is a clear difference between the income of the White population and that of the Africans and Coloureds.

4.2.1. Beneficiaries from agricultural activities

Considering the number of beneficiaries of the agricultural workers, the following table and figure were obtained. Beneficiaries were defined as the number of people in a household with an agricultural employee amongst them. But there are two different reporting measures. The first measures all beneficiaries, thus all individuals that get affected by agricultural activities, meaning a household with four members, all employed, will be beneficiaries if only one works in the agricultural sector. The second reporting measure is that of beneficiaries living in agricultural households where agricultural income is more than 50% of household income, thus as reported in Section 2.2.1.

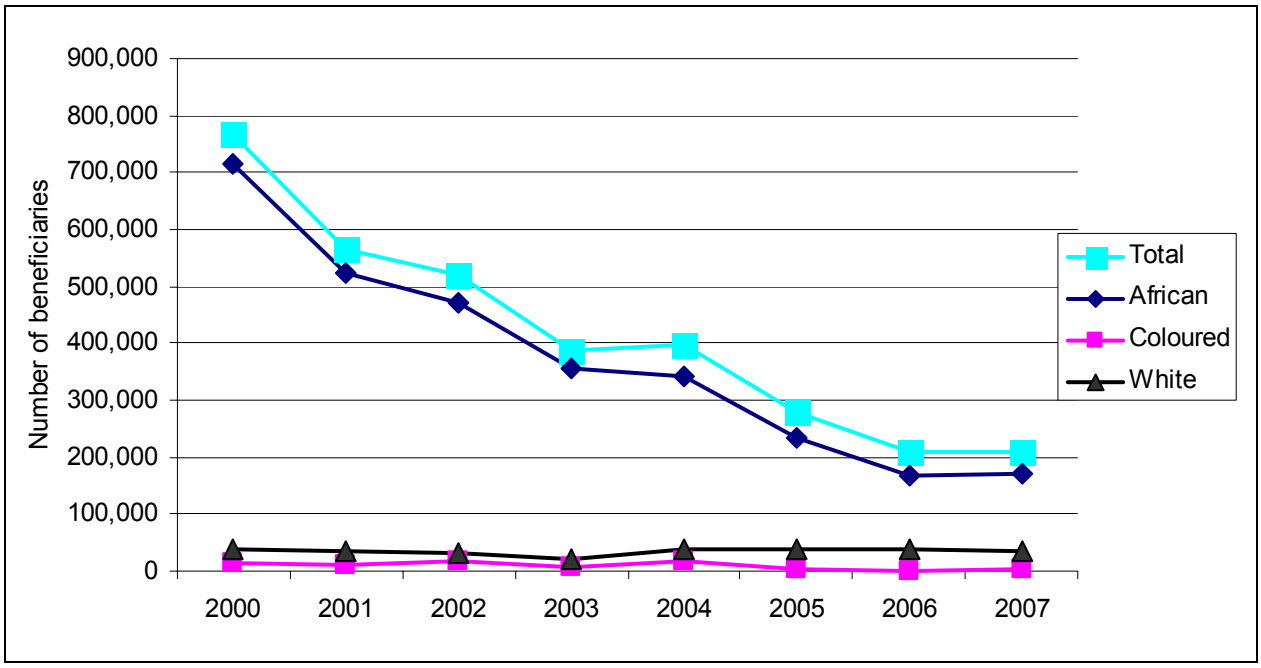
Table 12: Number of beneficiaries in 2007

	All		**More than 50%**	
	Number	**Share %**	**Number**	**Share %**
African	169,412	81.09	130,449	84.97
Coloured	3,629	1.74	3,209	2.09
White	35,889	17.18	19,860	12.94
Total	208,930	100	153,518	100

Source: Own calculation from Labour Force Survey 2007

Table 12 indicates that the African population have the highest number of beneficiaries in the Free State agricultural sector, dominating by 81.09% and 84.97% respectively. Investigating the trend over years in Figure 23, the total number of beneficiaries and the number of African beneficiaries follows a similar decreasing trend. The African beneficiaries decrease over time from 714 583 to 169 412 beneficiaries. The total beneficiaries significantly declined from 766 884 to 208 930, whilst the Coloured and White beneficiaries also declined but more gradually.

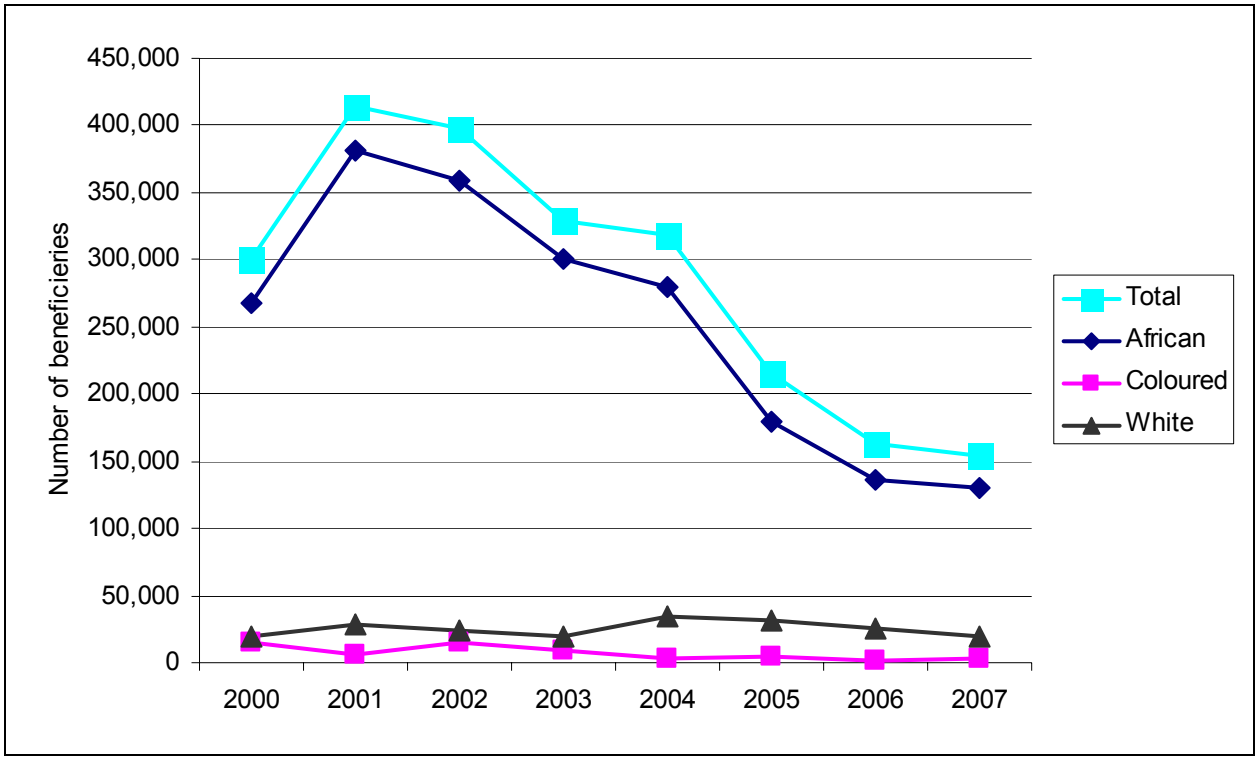
Figure 23: Number of all beneficiaries from 2000 till 2007



Source: Own calculation from Labour Force Survey 2000-2007

Taking incomes from other industries into consideration, Figure 24 indicates the number of beneficiaries in households that obtain more than half of their household income from agricultural activities. The trend over time follows the same path as for all beneficiaries, declining over time (from 300 363 to 153 518 in total). The only significant difference is that in Figure 23 the total and African households decreased over time, whereas in Figure 24 they increase until 2001 and then decrease significantly till 2007. Again the African households have the most beneficiaries (130 449 in 2007).

Figure 24: Number of beneficiaries in agricultural households with more than 50% income share



Source: Own calculation from Labour Force Survey 2000-2007

In general, the total number of beneficiaries, in both reporting measures, declined from 2001 and is now at the lowest point for all races.

5. Poverty indices of Free State agriculture

5.1. Theory

Poverty, as defined by the *Concise Oxford Dictionary,* "is the state of lacking adequate means to live comfortably and the want of things or needs indispensable to life (Govender, Kambaran, Patchett, Ruddle, Torr and Van Zyl 2007:118). A welfare indictor, usually either income or expenditure, is used to rank individuals or households.

Chambers (1988) claims that there are five dimensions of poverty namely:

1. 'Poverty proper' where a lack of adequate income or assets for generation of income are identified;

2. Physical weakness as a result of under-nutrition, disability or sickness;

3. Isolation, physical or social, because of location, access to goods and services;

4. Vulnerability to become more poor and risk to crisis;

5. Powerlessness within the existing economic, political, cultural and social sphere.

The first step regarding poverty analysis is to decide on a poverty (living) indicator to use, example income or expenditure, and which poverty dimension will be analysed. Next is to decide on a poverty line which separates the poor and non-poor. Woolard and Leibbrandt (1999:8) state that the point where the line is drawn is usually arbitrary. This can mean that one individual might be classified as poor; while another earning R1 more is qualified as not poor. But a poverty line needs to be drawn to analyse the nature of poverty.

Analysis of the poor usually entails measures of poverty. One of the most common measures to use is the Foster-Greer-Thorbecke class of poverty. The measure can be written as

$$P_\alpha = \frac{1}{n}\sum_{i=1}^{q}\left[\frac{z - y_1}{z}\right]^\alpha \qquad \text{for } \alpha \geq 0 \qquad (5)$$

Where *z* represents the poverty line, y_1 is the living indicator (i.e. income or expenditure) and *α* symbolizes the aversion to poverty parameter. By adjusting *α*, different classes of poverty can be identified. The headcount ratio, which gives the number of people living under the poverty line, is represented by α=0. Adjusting the value to 1, a poverty gap index is achieved, which indicates the depth of poverty; thus the average inequality amongst the poor. The last index is α=2, which illustrates the severity of poverty. This option gives the most poor a higher value (weight), and therefore the severity of the poverty gap can be observed. All three measures are expressed in percentage terms, hence α=0 will offer the percentage number of people living under the poverty line, α=1 will provide the inequality for those living under the poverty line, thus between the most poor and the least poor in percentage terms where 1 is equal to perfect inequality and 0 perfect equality. The last measure, α=2, can be analysed the same as the previous measure, but the poorest weights more.

5.2. Poverty indicators from Labour Force Surveys

The living indicator used in the analysis of the Labour Force Survey data is that of per capita household earnings. These earnings were adjusted with consumer price index to achieve real earnings (in 2000 prices) over the years. The data was adjusted for per adult equivalent as proposed by die OECD equivalence scale where household size is equivalent to:

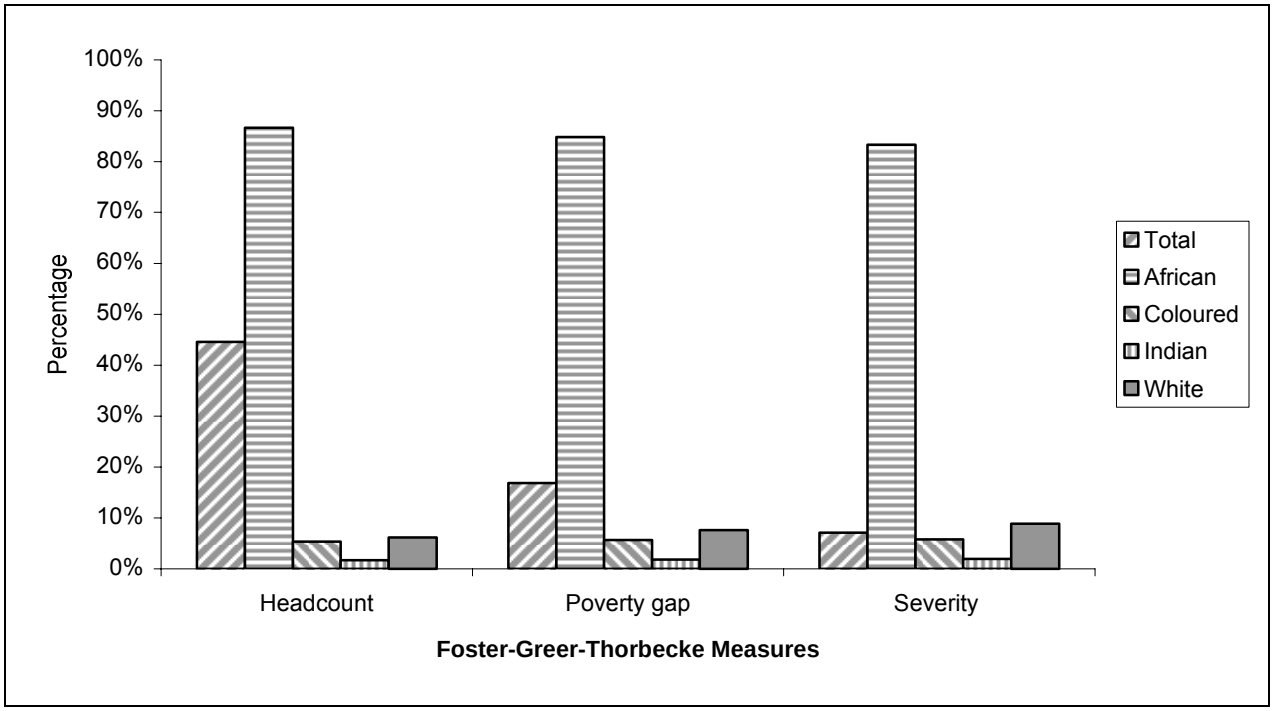
$$E = 1+0.5(A) + 0.3(K) \qquad (6)$$

Where a value of 1 is assigned to the first household member, 0.5 to additional adult members (*A)* and 0.3 to each child under the age of 15 (*K)*.

A poverty line of R 322 per adult equivalent per household per month in 2000 basis year terms was used; this poverty line was decided on by the South African Government as the 'official' poverty line. The advantage is that a 'national' poverty line was decided on, but to its disadvantage it cannot be compared with international standards.

The Foster-Greer-Thorbecke class of poverty indices were used, and the following figures illustrate the results obtained in 2007. The total rate for respectively South Africa, Free State and the agricultural households in the Free State is given together with each population group's share towards the total.

Figure 25: Poverty rate for South Africa and shares of population groups

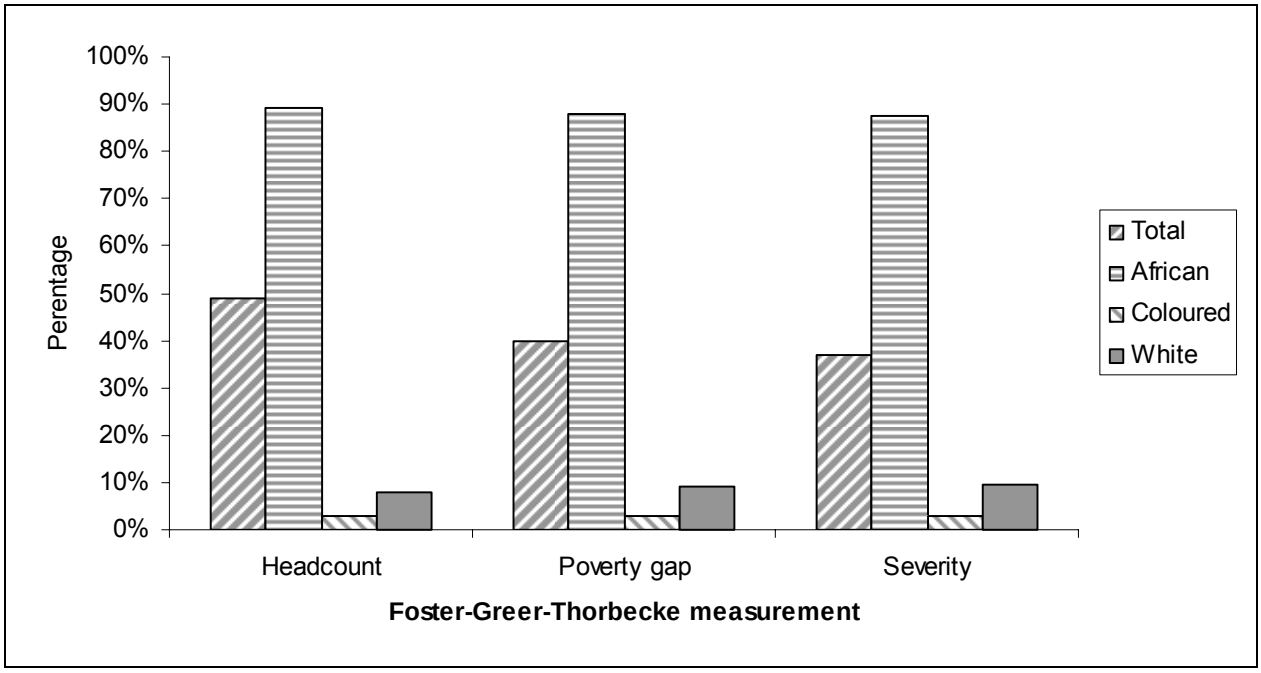


Source: Own calculation from Labour Force Survey 2007

In Figure 25 the total headcount ratio, poverty gap ratio and severity rate of individuals in South Africa are 44.57%, 16.88% and 7.15%. The African population has the highest share in the total for all classes of poverty (86.63%, 84.81% and 83.3%) and the Indians the lowest (1.7%, 1.8% and 1.9%). Thus 86.63% of the poor population is African and 1.7% is Indian according to the headcount ratio. This translates into 21 million people in households earning less than R322 per month per adult equivalent (44.57% of 47 million) with 18 million that are African and 361 164 of the Indian population group. The poverty gap of 16.88% gives an indication of the average inequality between those living below the poverty line, while the severity index of 7.15% gives and indicates the severity of poverty by given a greater weight to the most poor.

Looking at the Free State in Figure 26, a similar trend can be identified. The African population are dominating the poverty measures whilst the total poverty rates for the different measures in the Free State are respectively 49.06%, 40.02% and 37.12%. This corresponds to just over 1.4 million people that are living below the poverty line according to headcount ratio. 90% of the individuals captured by the headcount ratio are Africans. There is no record of Indians living below the poverty line.

Figure 26: Poverty rate of the Free State and shares of population groups



Source: Own calculation from Labour Force Survey 2007

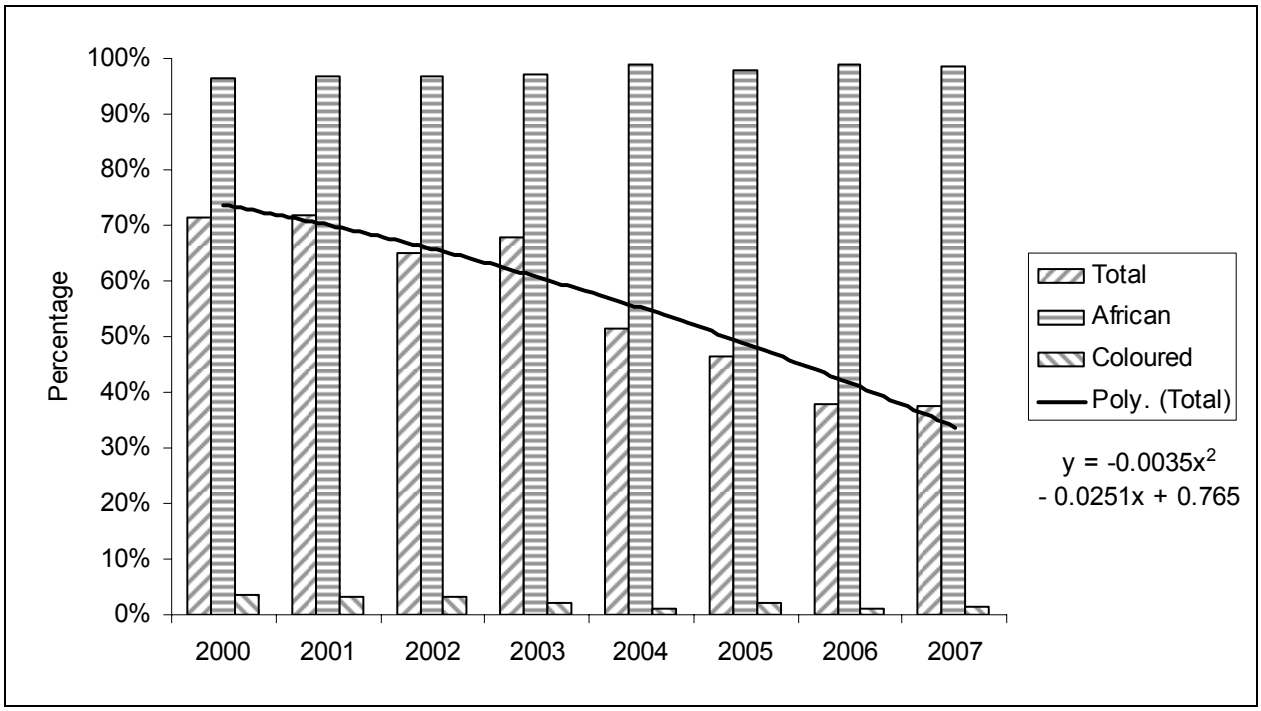
The Free State agricultural households (more than 50% of income from agricultural activities) were also analysed, and the results in Figure 27 show a similar pattern as that of the rest of the Free State. No White and Indian households were captured by the poverty measures and the total poverty rates are 37.59%, 13.43% and 7.07% for respective measures. This translates into around 24 866 agricultural households that are living below the poverty line. The highest share of these is the African population with a 98% (24 369 individuals) share in headcount ratio. It must be kept in mind that poverty profiles can be lower due to the sub sample used. The sub sample only takes households which earn between 50 and 100 percent of their income from agricultural activities. Thus all households with zero to 50 percent incomes form agriculture are not regarded, excluding the households of lower income agricultural workers that contribute less than 50% to the household income.

Figure 27: Poverty rate for the Free State agricultural households and shares of population groups

Source: Own calculation from Labour Force Survey 2007

Investigating the trend over years (2000 till 2007) of the Free State agricultural households, the subsequent figures were obtained:

Figure 28: Poverty headcount by year for Free State agricultural households

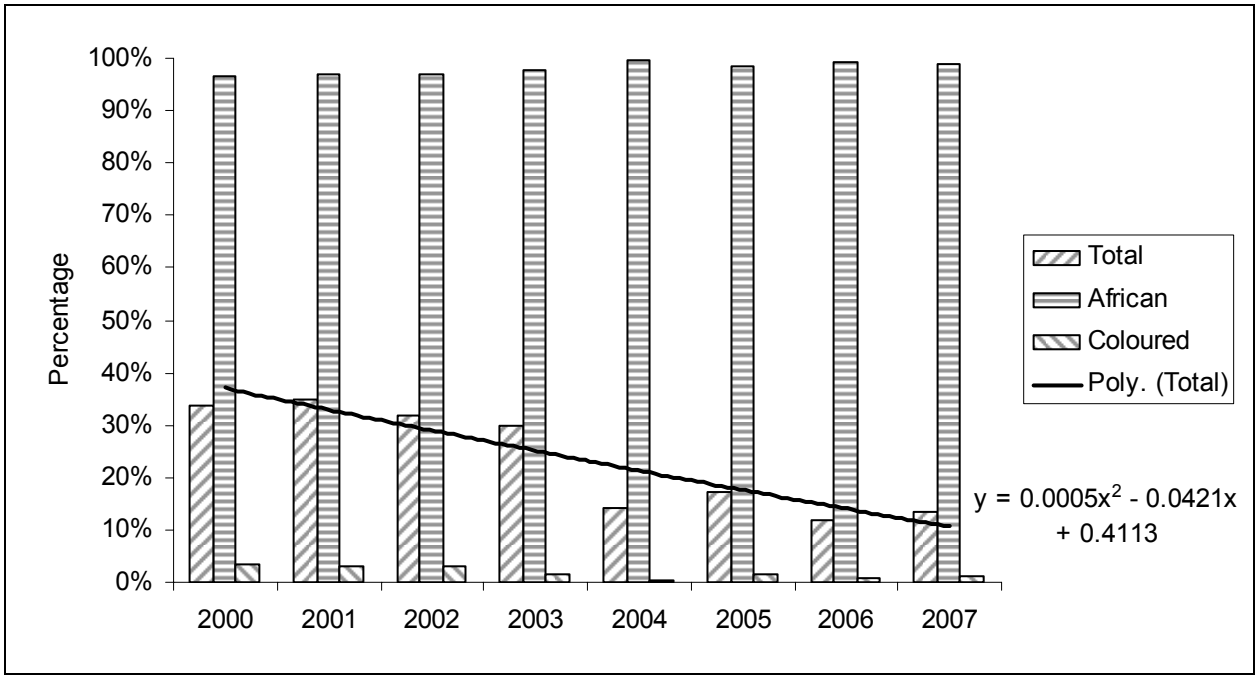


Source: Own calculation from Labour Force Survey 2000-2007

Above figure (Figure 28) indicates the headcount ratio of agricultural households in the Free State and the share of African and Coloured households towards the total headcount ratio. It is clear that African households contribute the most to overall poverty dominating each year. There is also a decrease in total poverty, as the trend line indicates, ranging from a poverty of 71.34% to 37.59% over time. However, the headcount ratio moved sideways in 2007, indicating that there was no decline in the number of households living below the poverty line from 2006 to 2007.

The next figure (Figure 29) indicates the poverty gap ratio:

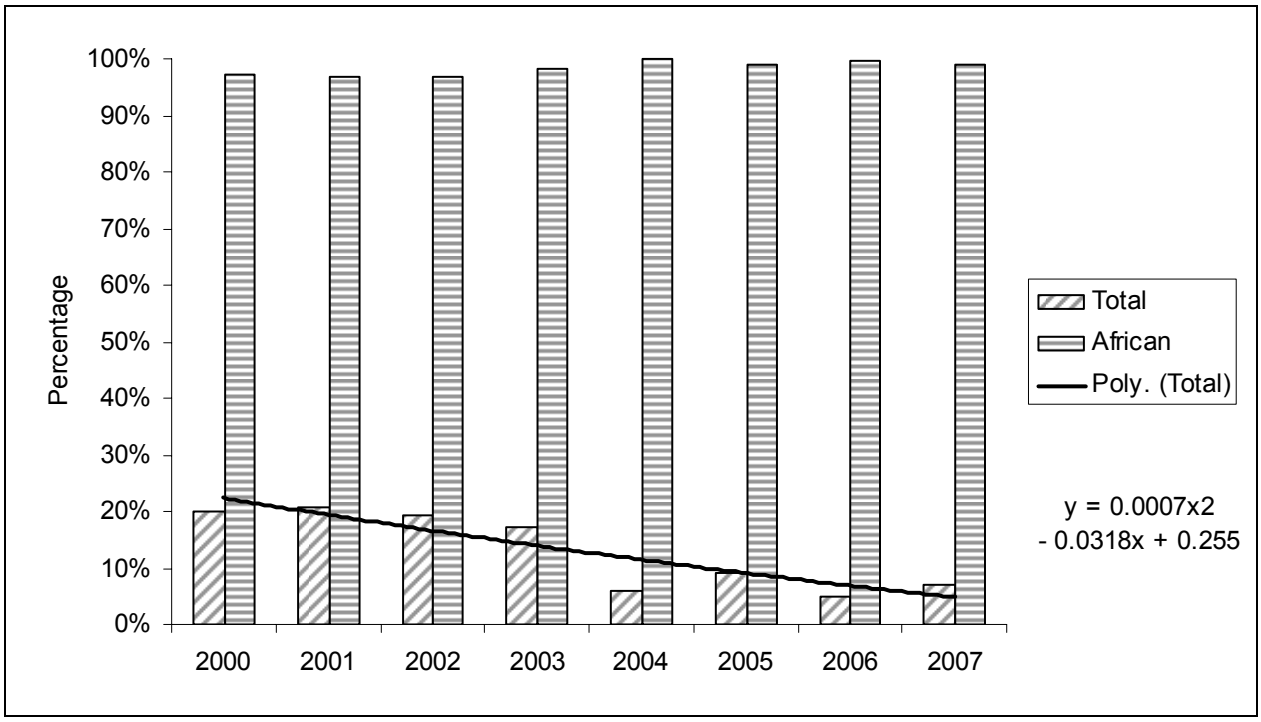
Figure 29: Poverty gap by year for Free State agricultural households



Source: Own calculation from Labour Force Survey 2000-2007

The poverty gap ratios over time indicate that African households have the highest inequality amongst the poor in the province with the highest share in the poverty gap measurement. The total poverty gap decreased over time from 33.79% in 2000 to 11.85% in 2006, but increased to 13.43% in 2007. This indicates break in the decreasing trend of inequality within the households living below the poverty line. The Coloured and African households living below R322 per month per adult equivalent have thus become more equal resulting in less extreme poverty. The gap between the extremely poor and those living just below the poverty line has decreased till 2006, but is starting to increase again.

Figure 30: The severity of poverty by year for Free State agricultural households



Source: Own calculation from Labour Force Survey 2000-2007

Again, a similar trend can be seen in Figure 30 as the previous figure with shares and decreases. Total severity of poverty has decreased since 2000 till 2006, but shows an increase in 2007. African households are the dominant population group in this poverty measure. The low poverty gap and severity of poverty in the Free State agricultural households can be connected with inequality in the next section. It will be stated that within group inequality is relatively low compared to between group inequalities. The inequality of poverty (poverty gap) and the severity of poverty will be lower, because all poor individuals are on a relative similar scale. But it must be highlighted that poverty reduction on all measures did occur up to 2006 within the Free State agricultural households, but there has been an increase in poverty according to the poverty measures in 2007.

6. Inequality within the Province

6.1. Theory

Inequality is regularly measured with regards to income, and represents the distribution of income in a population or population sub-group. The poverty gap described in Section 6 is an example of such an inequality measure within a sub-group, in this case between the poor populations. There are various ways to measure income inequality, although most common is to provide summary statistics of the income distribution (Govender et al. 2007:127). Therefore the share of poorest 10% to the total population's income can be measured. Another measure is that of the Lorenz curve and Gini coefficient. The Lorenz curve plots the cumulative percentage

of households against the cumulative percentage of incomes, creating a cumulative density function. The Gini coefficient ranges from 0 to 1, with 1 being perfectly unequal and 0 perfectly equal. The Gini coefficient is derived from the Lorenz curve. The area between the Lorenz curve and the hypothetical perfect equality line divided by the area underneath the line reflects the Gini coefficient. Another measure is the Theil index which was developed by the econometrician Henri Theil, which can be written as follows:

$$T_T = \frac{1}{n}\sum_{i=1}^{N}\left(\frac{x_i}{\ddot{x}} * \ln\frac{x_i}{\ddot{x}}\right) \quad (7)$$

With x_i the income of the *ith* person, *N* the number of people and $\ddot{x} = \frac{1}{n}\sum_{i=1}^{N} x_1$ the mean income. The first part in the brackets can be seen as the individual's share of aggregate income, and the second part is the individual's income relative to the mean. The Theil index is equal to 0 if there is no income inequality (thus 50:50 distribution), equal to 0.5 if the distribution is 74:26, equal to 1 if it is distributed 82:18, equal to 2 if the distribution is 92:8, and 4 if it is distributed 98:2 (Wikipedia). Thus the higher the Theil, the skewer the income distribution.

6.2. Inequality measures from Labour Force Surveys

Analysing the data for 2007, the following table represents the Gini and Theil inequality measurements by race for South Africa, the Free State and the Free State agricultural households. Per capita household earnings are used as reference throughout this section:

Table 13 : Gini and Theil measures of inequality for 2007

	South Africa		Free State		Free State agriculture	
	Gini	**Theil**	**Gini**	**Theil**	**Gini**	**Theil**
African	0.79	3.19	0.60	0.67	0.46	0.37
Coloured	0.55	0.56	0.55	0.55	0.24	0.10
Indian	0.57	0.6	0.17	0.07		
White	0.47	0.4	0.49	0.41	0.59	0.65
Total	0.75	2.25	0.66	0.85	0.77	1.52

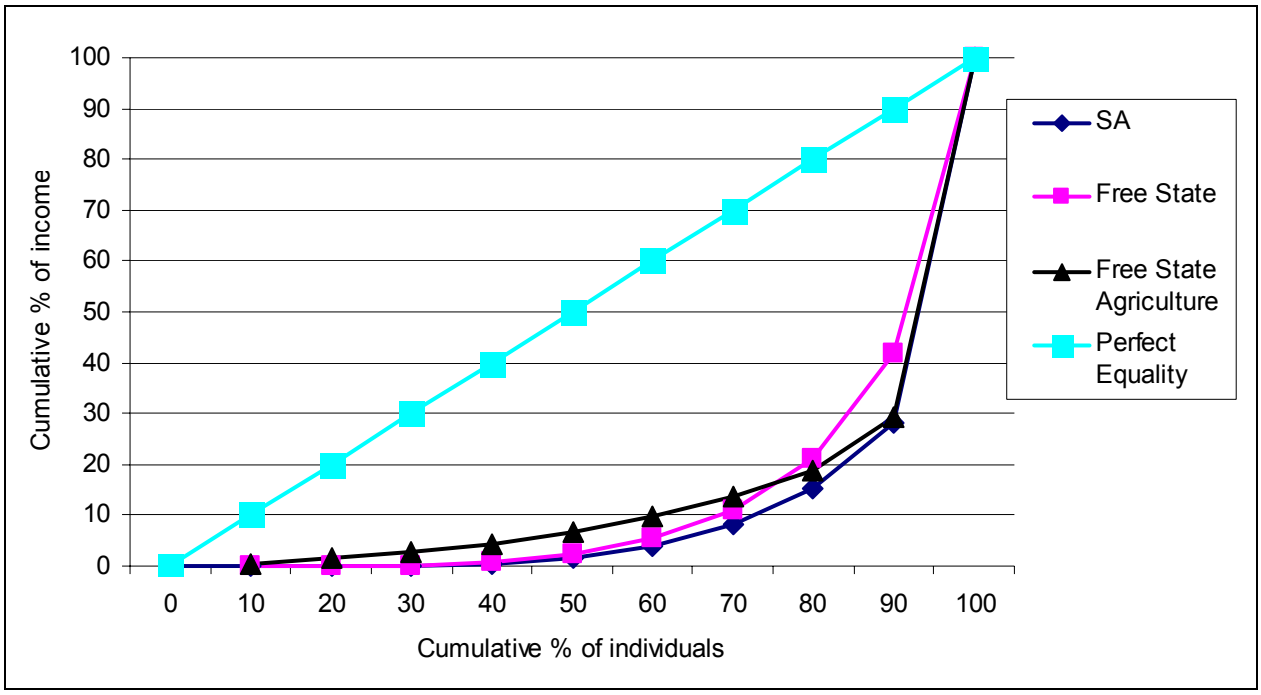
Source: Own calculation from Labour Force Survey 2007

In Table 13, the African population with a Gini of 0.79 and Theil of 3.19 have the highest inequality in South Africa. The lowest is the White subgroup with 0.47 and 0.4 respectively, and the average for South Africa is 0.75 and 2.25. In the Free State, the Africans dominate again, but in agriculture the income inequality for the Whites is the highest. What is interesting to note is the low inequality within race in the Free State agriculture households, but the total inequality is very high. This indicates that between races inequality is high. The Free State average is also relatively high, signifying that there is high inequality within the province.

Looking at the Lorenz curve in Figure 31, it can be seen that inequality in the Free State appears to be below the national average (line is closer to the perfect equality line), but there is

no clear conclusion to be drawn from the results for the Free State and Free State agricultural sector.

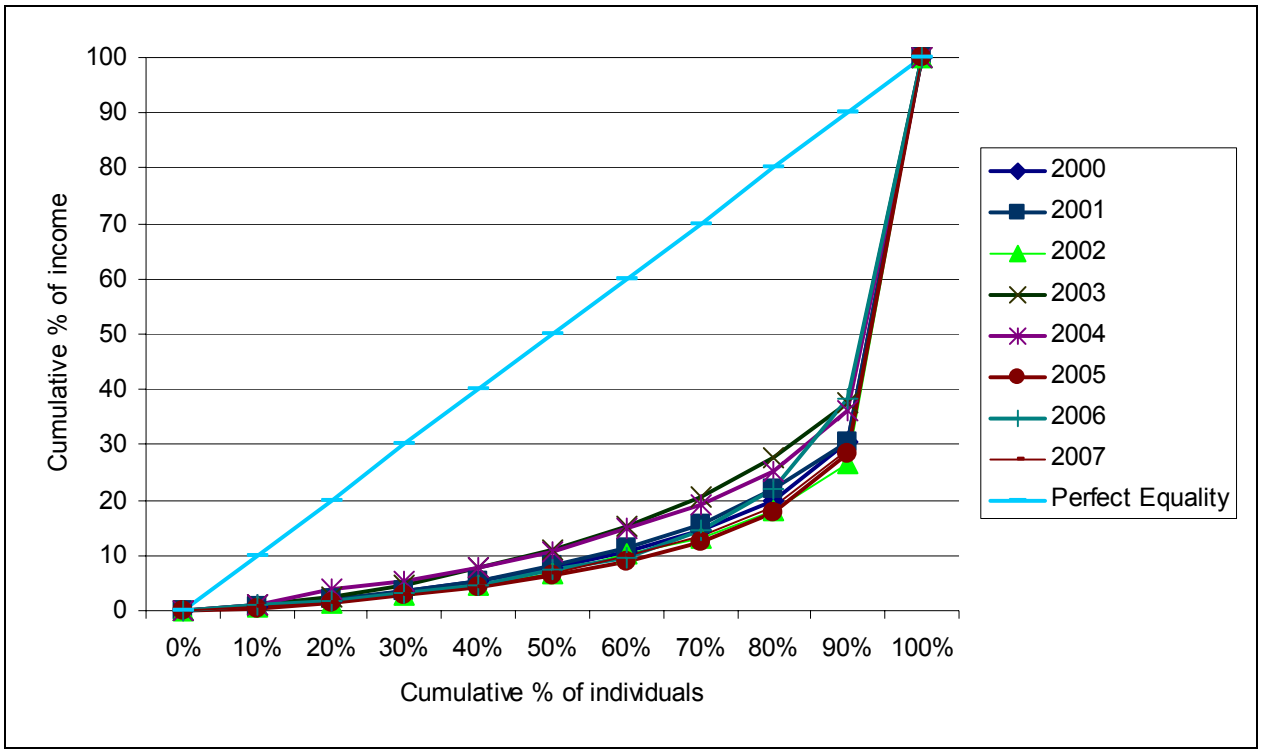
Figure 31: Lorenz curve for individuals in South Africa, Free State and Free State agricultural households in 2007



Source: Own calculation from Labour Force Survey 2007

The following 2 figures represent the Lorenz curve and Gini coefficients for the Free State agricultural households from 2000 till 2007. It can be observed in Figure 32 that 2002 appears to be the year with the highest inequality and 2003 the year with the lowest inequality. There is therefore no clear trend over the years.

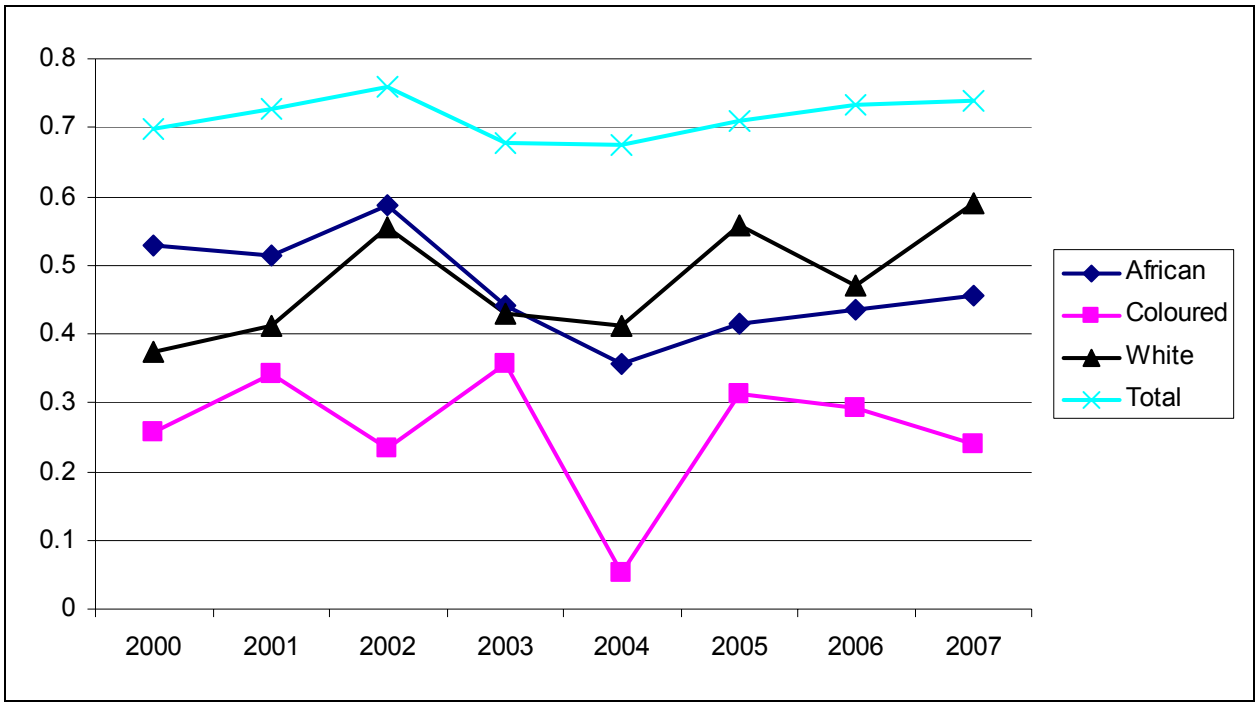
Figure 32: Lorenz curve for Free State agricultural households by year



Source: Own calculation from Labour Force Survey 2000-2007

The Gini coefficient in Figure 33 also shows a slight upward pattern for the total (from 0.69 to 0.73). The Whites' Gini coefficient increased from 0.37 to 0.58 while the Africans' Gini decreased from 0.52 to 0.45. The Gini of all the races varied through time, but up and down movements counteract each other which create a smoother trend in the total inequality. This is corresponding to above figure of the Lorenz curves where there is no significant change in inequality.

Figure 33: Gini coefficient for Free State agricultural households by year



Source: Own calculation from Labour Force Survey 2000-2007

Inequality within the Free State agricultural work-force since 2000 has not decreased which indicates that there is still a large gap between the rich and poor within the sector.

7. Conclusion

The Free State agricultural sector is a vital player in the economy of the Free State and therefore this paper analysed the trends associated with the sector with regards to demographics, poverty, income and inequality. The Labour Force Survey provided the necessary data to compute the required results, ranging from the year 2000 till 2007. The paper indicated that the African population is dominant in this sector, as well as in South Africa. The total number of individuals in respective economic segments, i.e. South Africa, Free State and Free State agriculture are also provided together with statistics such as age structures and employment figures.

The skills level of the agricultural sector is worrisome, and the impact of low skill levels reflects in the income profiles. Incomes are lower across the board except for that of the White population. Unemployment rates are being driven by the high unemployment within the African population in both South Africa and the Free State. This reflects in the high share of the Africans in the total poverty rate throughout the country. Share of total poverty levels are extremely high amongst the Africans in the Free State agricultural sector, reflecting the need for poverty alleviation. Poverty levels have been decreasing from 2000 till 2006 when using the

poverty line of R322 per capita per adult equivalent as measure, but there has been an increase in 2007.

Income inequality paints a rather grim picture indicating that inequality has not decreased over the past seven years for the agricultural sector. The sector is also characterised by between-race inequality and within-race inequality.

This report provides an in-depth look at the agricultural sector of the Free State. Policy decisions and redistribution policies of provincial level need to take these data into account to promote the economic growth of the Free State and also to enhance the living standard of the people of the Free State.

8. References

Chambers, R. (1988). Poverty in India: Concepts, Research and Reality. Discussion Paper 241. Institute of Development Studies, University of Sussex.

Daniels, R. and Rospabé, S. (2005). Estimating an Earnings Function from Coarsened Data by an Interval Censored Regression Procedure. *Development Policy Research Unit Working Paper 05/91.*

Demarcation Board (2008). Available online at www.demarcation.org.za.

Department of Labour (2008). National Scarce Skills List 2007. Available online at: www.labour.gov.za.

Govender, P; Kambaran, N; Patchett, N; Ruddle, A; Torr, G; Van Zyl, N. (2007). Poverty and Inequality in South Africa and the World. South African Actuarial Journal. Vol.7 pp.117-160.

Provide (2005). A profile of the Western Cape Province: Demographics, poverty, Inequality and unemployment. Background Paper 2005:1(1). Department of Agriculture: Western Cape.

Schoier, G. (2008). On partial nonresponse situations: the hot deck imputation method. Retrieved 17 July 2008 from: www.stat.fi/isi99 /proceedings/arkisto/varasto/scho0502.

Statistics South Africa (2000). Labour Force Survey, March 2000. Pretoria, Statistics South Africa.

Statistics South Africa (2001). Labour Force Survey, March 2001. Pretoria, Statistics South Africa.

Statistics South Africa (2002). Labour Force Survey, March 2002. Pretoria, Statistics South Africa.

Statistics South Africa (2003). Labour Force Survey, March 2003. Pretoria, Statistics South Africa.

Statistics South Africa (2004). Labour Force Survey, March 2004. Pretoria, Statistics South Africa.

Statistics South Africa (2005). Labour Force Survey, March 2005. Pretoria, Statistics South Africa.

Statistics South Africa (2006). Labour Force Survey, March 2006. Pretoria, Statistics South Africa.

Statistics South Africa (2007a). Labour Force Survey, March 2007. Pretoria, Statistics South Africa.

Statistics South Africa (2007b). Gross Domestic Product, Third Quarter 2007. Statistical Release P0441. Pretoria, Statistics South Africa.

Von Fintel, D. (2006). Earnings bracket obstacles in household surveys-How sharp are the tools in the shed? Stellenbosch Economic Working Paper: 08/06.

Wikipedia (2008). Onlive available at www.wikipedia.org.

Woolard, I. and Leibrandt, M. (1999). Measuring Poverty in South Africa. Development Policy Research Unit. Working Paper No.99/33.

Work-force definition. Online available at www.thefreedictionary.com ; www.patana.ac.th ; www.allwords.com.

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 (One volume for each of the nine provinces)	August 2005
BP2006: 1	The Economic Contribution of Home Production for Home Consumption in South African Agriculture	November 2006
BP2009: 1, Vol. 1 – 9	Provincial Profiles 2000 - 2007: Demographics, poverty, inequality and unemployment (One volume for each of the nine provinces)	February 2009

Other PROVIDE Publications

Technical Paper Series
Working Paper Series
Research Reports