Emergent Black affluence and social mobility

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THE CHALLENGE OF GROWTH AND POVERTY: THE SOUTH AFRICAN ECONOMY SINCE DEMOCRACY

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ABSTRACT

This paper looks at social mobility in the context of a growing economy. The nature and extent of Black affluence in South Africa provides an indicator of the impact of efforts to eradicate the remnants of apartheid-era racial discrimination in the South African education system and labour market. Most studies examining social mobility and inequality in South Africa have looked at the bottom of the income distribution, investigating changes in the severity and also the racial incidence of poverty. This paper explores the same topic by studying the top of the income distribution. Focusing on the Black members of this group of affluent, this paper hopes to make some contribution towards an improved understanding of social mobility and inequality in South Africa

Firstly, we attempt to identify the features that distinguish the Black upwardly mobile from those parts of the Black population seemingly trapped in poverty, starting with a descriptive analysis of the affluent. Using the 2000 LFS/IES and the 1995 OHS/IES, the study examines the profile of the richest 15% of household in South Africa. In the second section of the paper logit and multinomial logit models are used to consider the impact of spatial features, household characteristics and the age, education and occupation of the household head on affluence. We also investigate how affluence predictors vary between different race groups. The third and last section is devoted to exploring the spending patterns of the Black affluent.

The analysis here confirms many of the traditional views of social mobility. The paper finds a strong association between geography, demographic profile and social mobility that is robust across population groups. The empirical evidence cited is consistent with convex returns to education and a substantial role for quality of education.

Also, we find that the Black affluent exhibit distinctive spending patterns. Compared to the affluent from other population groups, the Black affluent spend more on appliances and furniture and less on personal computers, telecommunications and domestic workers. This may be due to their relatively new status among the affluent.

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Introduction

It is vital to consider to what extent the new system has managed to effectively eradicate the remnants of apartheid-era racial discrimination in the South African education system and labour market. Most studies examining social mobility and inequality in South Africa have looked at the bottom of the income distribution, investigating changes in the severity and also the racial incidence of poverty.

This paper explores the same topic by studying the top of the income distribution. The opportunities offered in the new political dispensation have increased the number of the Black "insiders" and we thus expect that intraracial inequality will become an increasingly important contributor towards overall inequality in South Africa[1]. Focusing on the Black members of this group of affluent, this paper hopes to make some contribution towards an improved understanding of social mobility and inequality in South Africa. We will compare the predictors of low income with the predictors of affluence, asking whether the absence of characteristics associated with poverty necessarily increased the likelihood of affluence.[2]

This paper will be divided into three sections, looking at the characteristics of affluent, the determinants of affluence and the behaviour of the affluent respectively. In each section the focus is on identifying and analysing the differences between the Black affluent and the rest of affluent.

We use the 1995 October Household Survey/Income and Expenditure Survey (OHS/IES) and 2000 Labour Force Survey/Income and Expenditure Survey (LFS/IES)[3] for our analysis. In both these surveys, but especially the last survey, there is sufficient evidence of shoddy field work, sloppy data entry and coding and defective sampling frames to warrant concern about the reliability of the data set. We made a few adjustments to the 2000 data set (described in full in the Addendum), but many of the identified problems will survive this cleaning process and thus the data remains fit only for very rudimentary analysis. For instance we specifically avoided the identification of trends across the two surveys because it requires too heavy a dependence on the reliability of specific data points. Instead the emphasis will be on relationships that are relatively stable across the two time periods. We examined results carefully for distortions attributable to the peculiarities of the data and were also deliberately conservative in the conclusions we drew from our analysis.

The identification of the affluent is explored in the first section of the paper.

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[1] Van der Berg & Marincowitz (1999) concluded that "the next quarter of a century will probably see the continued advancement of the black elite and the gradual growth and consolidation of the black middle class".

[2] Working on the KwaZulu-Natal Income Dynamic Study, Keswell (2001) emphasised the problems with an aggregated analysis of socio-economics dynamics. He showed that social mobility is a very heterogenous process for Africans and Indian households and characterised by non-linearities.

[3] See Addendum A for a more detailed discussion of the 1995 OHS/IES and the 2000 LFS/IES and also the problems associated with these surveys.

1. Who are the affluent?

1.1 Identifying the affluent

Our efforts to identify the affluent will to a large extent be based on adaptations of the literature on the identification of the poor. The conventional approach to identifying the poor is to rank households according to a particular income or welfare indicator, and to then select a cut-off point to separate the poor from the non-poor (Hentschel and Lanjouw 1996: 1). Income or expenditure is usually chosen as the indicator of welfare (Glewwe 1998: 3) - although other indicators, such as education or nutrition, can also be used.

If affluence is interpreted as being defined solely in terms of income or expenditure, the identification of the affluent will be a simpler task than the identification of the poor. In the case of poverty, income or expenditure is merely a ready proxy for a multi-dimensional state of deprivation, including factors like security, nutrition and access to employment.

In studying poverty, it is often argued that expenditure will be a more reliable indication of life-cycle welfare than income, since the consumer's preference to smooth consumption is likely to render it is less volatile than income over the short term (Ravallion, 1992: 13). However, when studying affluence, income might be a preferable measure of welfare. We would expect income to be less volatile at the top end of the income distribution and one can assume that in most cases relatively affluent individuals will be more likely to accurately recall their monthly income than their monthly expenditure.

Based on Woolard and Leibbrandt's finding (2001: 53) that in the South African context even substantial adjustments for household structure are virtually inconsequential for the identification of poor households, we will use per capita household income as measure of welfare, making no corrections for household characteristics (e.g. adjusting for "per adult equivalent males").

In their comparison of different poverty measures, Woolard and Leibbrandt's (2001: 46) note that the exact point at which a poverty line is drawn will always be "somewhat arbitrary and often highly contentious" The same applies to our "line of affluence". However, there are two considerations that provide some guidance. Firstly, when selecting a line of affluence, it is vital that this group should include enough observations to enable statistical analysis – ideally also enough observations of the separate population groups to allow investigating the affluent members of different population groups in isolation. Conversely, if this line is too low and includes too many observations, the term "affluence" can lose its meaning.

Bearing these considerations in mind, the affluent is defined as the richest 15% of households - as measured by per capita income. The "line of affluence" is therefore drawn at a per capita income of R22 500 per year (1995 prices). In the 1995 OHS/IES (which is used as our primary data set), this group includes 4 456 observations, 913 of

whom are Black[4]. After taking household weights into account, the group represents 16.2% of the population.

A second line at the level of an annual income per capita of R36 000 is used to identify the very affluent. This group was defined so as to represent the top half of the affluent group. In the 1995 OHS/IES the very affluent includes 2277 households, 326 of whom were Black. This group represents 7.7% of the survey participants and 8.5% of the population after taking survey weights into account.

The remaining affluent households – those who are affluent, but not very affluent – will be referred to as the "merely affluent". The identification of two groups of affluent will also allow us to test the robustness of our results to the position of our line of affluence.

These lines of affluence are adjusted for inflation and then applied to the LFS/IES 2000 to identify the affluent and very affluent in this survey. Table 1.1 shows a 1995/2000 comparison of the breakdown of affluent households per population group. Even at these fairly modest lines of affluence, the number of very affluent Coloured households in 1995 and 2000, and affluent Indian households in 2000 is such it can be considered imprudent to make inferences from these samples.

Table 1.1: The breakdown of affluent households by population group

	1995		2000	
Population group	**Affluent**	**Very Affluent**	**Affluent**	**Very Affluent**
Black	913	326	1 066	351
Coloured	242	88	202	76
Indian	251	125	97	47
White	3 050	1 738	1 060	656
Total	**4 456**	**2 277**	**2 425**	**1 130**
Weighted proportion of population	**16.2%**	**8.5%**	**15.1%**	**7.9%**

Since our focus is on social mobility, it is useful to split the non-affluent into two groups: the middle-class and the poor. The poor will be defined as the poorest 40% of households, which implies using a R3 650 per capita annual income as a poverty line. Table 1.2 below summarises the income group definitions as described in this section and as it will be used throughout this paper.

Table 1.2: Income classifications

Per capita income (1995 prices)	**Percentage of population**	**Household classification**	
Less than R 3 650	40%	Poor	Non-affluent
Between R 3 650 and R 22 500	36%	Middle-class	

[4] Throughout the text here population group will refer to the population group membership of the household head. Also, when we refer to gender, age and education this will be the gender age and education of the household head.

Between R 22 501 and R 36 000	16%	Merely Affluent	Affluent
More than R 36 000	8%	Very Affluent	

1.2 Racial dimensions of affluence

Considering South Africa's political past, it is not surprising to find that there is a strong racial dimension to affluence. In 1995 71% of the countries affluent (79% of the very affluent) was White. Despite representing 70% of the population, Blacks only comprised 22% of the affluent (15% of the very affluent).

By 2000 the composition of the affluent had changed considerably. The White share of affluence had shrunk to 53% while the Black share of affluence rose to 36%. Table 1.4 below also shows that the percentage of Indians in the affluent group remained largely unchanged and the Coloured share of affluence had almost doubled.

Table 1.3: Population group breakdown of survey households (weighted)

Population group	1995	2000
Black	70.0%	77.4%
Coloured	8.3%	8.5%
Indian	2.6%	2.4%
White	19.2%	11.5%

Table 1.4: Proportion of the affluent belonging to each population group

Population group	1995		2000	
	Affluent	Very Affluent	Affluent	Very Affluent
Black	22%	15%	36%	24%
Coloured	3%	2%	7%	5%
Indian	4%	3%	4%	4%
White	71%	79%	53%	66%

Table 1.5 shows that even though we observe a rise in the proportions of households who are affluent for each population group, for the population as a whole the proportion of affluent households has decreased. Table 1.3 provides the missing piece of this puzzle: Blacks have increased their share of the total population relative to Whites. The size of the population shift as described in Table 1.3 seems implausibly large and possibly attributable to the problems with the two surveys.

Table 1.5: Proportion of each population group classified as affluent

Population group	1995		2000	
	Affluent	Very Affluent	Affluent	Very Affluent
Black	5.1%	1.9%	7.0%	2.4%
Coloured	6.7%	2.5%	12.3%	4.9%
Indian	21.9%	10.8%	23.9%	12.9%
White	59.9%	35.0%	69.2%	45.2%
Total	**16.2%**	**8.5%**	**15.1%**	**7.9%**

Table 1.6: Mean and standard deviations for household per capita income, age and educational attainment of household head per population group

Variable			Black	Coloured	Indian	White
Per capita income (1995 prices)	**1995**	**Mean**	41414	39159	48727	55794
		Std Dev	35767	28326	39063	63502
	2000	**Mean**	37833	38282	50299	62284
		Std Dev	20395	20743	45984	63285
Age of household head	**1995**	**Mean**	40.2	41.7	43.4	45.6
		Std Dev	11.3	12.0	12.9	14.1
	2000	**Mean**	39.2	41.7	44.5	47.2
		Std Dev	9.9	12.9	12.4	15.3
Years of educational attainment of household head	**1995**	**Mean**	10.9	11.7	12.1	12.5
		Std Dev	3.7	2.8	2.7	1.8
	2000	**Mean**	10.2	12.2	12.4	12.9
		Std Dev	4.3	2.4	2.7	2.1

1.3 Affluence and geography

Table 1.7 considers the relationship between affluence and geography. Gauteng and the Western Cape are the only provinces with a higher proportion of affluent residents than the national average in both 1995 and 2000. The Eastern Cape and Limpopo have the lowest proportion of affluent inhabitants. It is likely that the strong decline in the proportion of Gauteng residents who are affluent are due to problems with the surveys' sampling frame.

Table 1.7: Proportion of each province's population classified as affluent

Province	Percentage of households			
	1995		2000	
	Affluent	Very Affluent	Affluent	Very Affluent
Gauteng	34.1	19.3	20.9	11.1
Western Cape	23.0	13.0	25.0	14.6
Northern Cape	12.1	6.3	17.5	9.2

Kwazulu-Natal	11.9	6.0	11.1	5.9
Free State	11.2	5.2	17.0	6.5
Northwest	10.9	4.6	12.4	4.8
Mpumalanga	9.7	4.6	12.2	5.4
Limpopo	7.8	3.4	4.7	2.6
Eastern Cape	7.7	3.5	8.1	4.7
Total	**16.2**	**8.5**	**15.1**	**7.9**

Table 1.8 shows that affluence is more prevalent in urban areas. More than 20% of urban residents are affluent, while less than 5% of those in rural areas are affluent.

Table 1.8: Proportion of urban/rural dwellers classified as affluent

	Proportion who are affluent	
	1995	**2000**
Urban	25.53	20.95
Rural	4.35	4.65
Total	**16.2**	**15.1**

1.4 Affluence and household size

CROSS-TABULATIONS INDICATE THAT AFFLUENT HOUSEHOLDS GENERALLY HAVE SMALLER FAMILIES. ACCORDING TO TABLE 1.10, NON-AFFLUENT FAMILIES HAD 4.70 MEMBERS ON AVERAGE IN 1995, COMPARED TO AFFLUENT FAMILIES WHO HAD 2.73 MEMBERS ON AVERAGE.

Table 1.10: Household size for the affluent

	Number of members in household	
	1995	**2000**
Non-affluent	4.70	4.11

Affluent	2.73	2.37
Very Affluent	2.55	2.34
Total	**4.39**	**3.85**

Table 1.10 also suggests that there has been a move towards smaller families. The average household size declined from 4.39 households members in 1995 to 3.96 household members in 2000. The average non-affluent family now had 4.11 members - still substantially higher than the 2.37 average family size of affluent households. The decrease in household size has been slightly more pronounced for affluent households, who experienced a 14% reduction in household size compared to 11% for the non-affluent. Disaggregating the affluent households into different population groups suggests that the effect is mainly driven by the change in household size of affluent Blacks.

Table 1.11: Average household size for the affluent by population group

Population group	Average household size			
	1995		2000	
	Affluent	Very Affluent	Affluent	Very Affluent
Black	2.59	2.51	1.77	1.84
Coloured	3.04	2.52	3.01	2.78
Indian	3.51	3.39	3.22	2.75
White	2.73	2.53	2.63	2.44
Total	**2.73**	**2.55**	**2.37**	**2.34**

It is insightful to further disaggregate Black households by household size. For both affluent and very affluent Black households there was a large shift towards single-member households. This shift may be partly attributable to problems with the survey's sampling frame in 1995, which resulted in undercounting of Black single-member households.

Table 1.12: Black Affluent households, by household size

Household size	Percentage of households			
	1995		2000	
	Affluent	Very Affluent	Affluent	Very Affluent
1	38.3	40.2	64.7	57.7
2	18.3	18.9	13.0	16.7
3	15.4	14.4	10.0	12.4
4	14.2	13.5	6.9	8.7
5	6.9	6.3	4.1	3.6
6	3.5	4.0	0.7	0.9
7	1.7	2.2	0.4	0.0
8	1.0	0.4	0.2	0.0
9	0.5	0.2	0.0	0.0

10	0.1	0.0	0.0	0.0

1.5 Affluence and the gender of the household head

The negative relationship between female-headed households and predicted income is well-established in the literature on poverty determinants[5]. As the literature would predict, Table 1.13 shows that female-headed household were less common amongst affluent than non-affluent households[6]. However, the table also shows that the proportions of female-headed households were very similar for affluent and non-affluent households in 1995 and, surprisingly, by 2000 the very affluent had a higher proportion of female-headed households than the "merely" affluent. The Lowess graphs displays the same trend, but in more detail. The table and graphs appear to indicate that the negative statistical association between income and the probability of observing a female-headed household might only hold true for households below a certain income level.

Table 1.13: Proportion of female household heads in different income groups

	1995	**2000**
Non-affluent	0.343	0.420
Affluent	0.150	0.184
Very Affluent	0.146	0.191
Total	**0.312**	**0.384**

[5] See for instance Leibbrandt and Woolard (1999)

[6] Using Pearson's chi-squared test, the hypothesis that affluence is independent of the gender of the household head can be rejected in both periods at a level of confidence exceeding 99,9%

Figure 1.1 : Lowess graph: Proportion of households headed by females for different income groups (Black households in 1995)

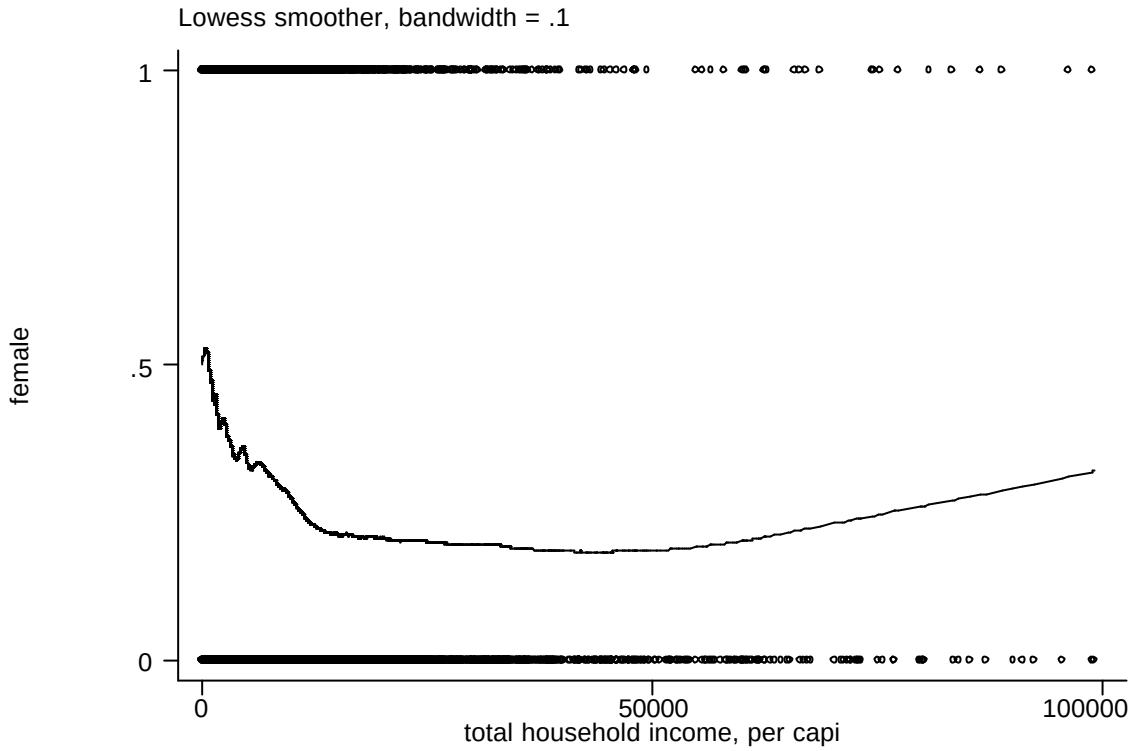
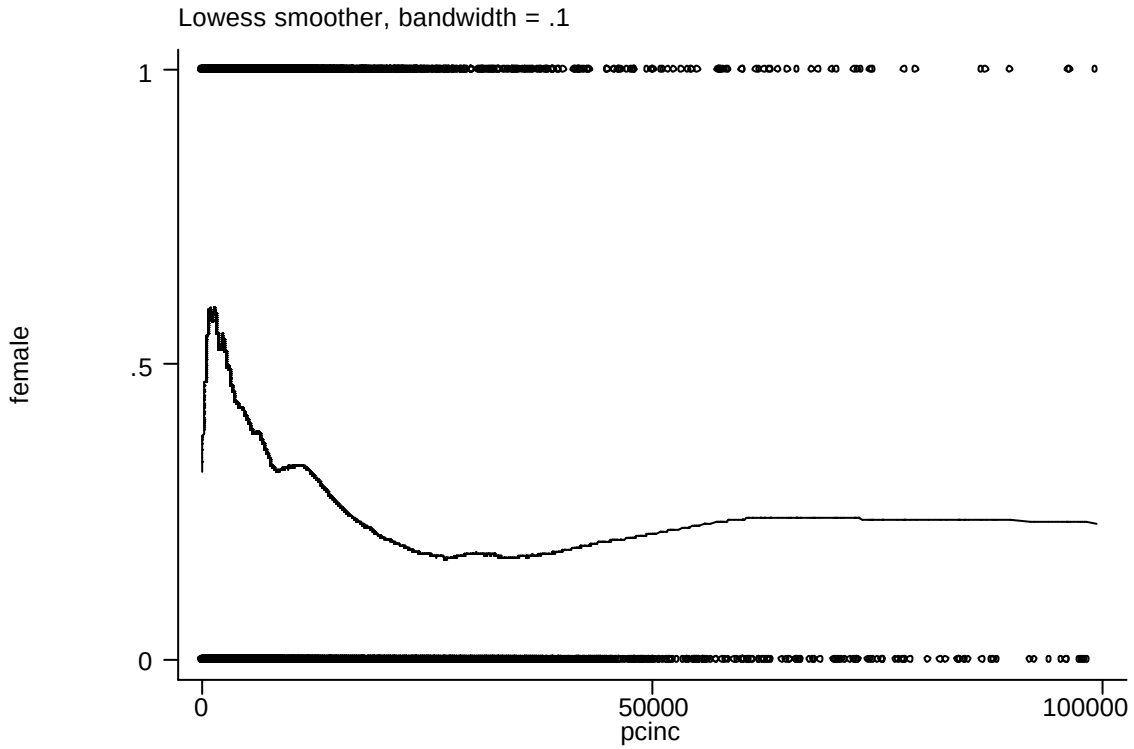


Figure 1.2: Lowess graph: Proportion of households headed by females for different income groups (Black households in 2000)



Further analysis is required to distinguish the separate effects and compare the relative weight of the different predictors of affluence. In section two the characteristics discussed

in section one are used as explanatory variables in a logistic regression modelling the likelihood of a household being affluent.

2. The Determinants of Affluence

Table 2.1 summarises the regression results for a logistic regression for affluence including the race, geography (provinces and rural-urban), household size and the gender, education and age of the household head.

The dummy variables representing the different population groups are all significant[7] (particularly for Whites), indicating that race is an important predictor of household affluence. Between 1995 and 2000 the magnitude of all three population group dummies increased, but their respective significance values all declined, which could be indicative of less uniform impact of race on the probability of being affluent.

Table 2.1: Logistic regression of affluence

	1995	1995	2000	2000
Observations	28,349	28,349	19,507	19,507
Pseudo R^2	0.512	0.5131	0.4767	0.4797
Constant	-6.59***	-6.49***	-6.40***	-6.37***
	(-18.4)	(-18.4)	(-13.0)	(-13.1)
Coloured	0.53***	0.54***	0.74***	0.73***
	(5.4)	(5.3)	(5.2)	(5.2)
Indian	1.04***	1.04***	1.20***	1.19***
	(8.9)	(8.6)	(6.6)	(6.3)
White	2.06***	0.40	2.42***	-3.18
	(30.1)	(0.4)	(20.7)	(-1.1)
Rural	-0.29***	-0.28***	-0.44***	-0.43***
	(-4.0)	(-3.8)	(-5.0)	(-4.7)
Western Cape	0.13	0.15	0.31**	0.33**
	(1.3)	(1.6)	(2.0)	(2.3)
Northern Cape	-0.30**	-0.28**	0.17	0.17
	(-2.4)	(-2.3)	(0.9)	(1.0)
Free State	-0.36***	-0.34***	0.40***	0.42***
	(-3.4)	(-3.2)	(2.8)	(3.0)
Kwazulu-Natal	0.24**	0.25***	-0.11	-0.10
	(2.5)	(2.6)	(-0.8)	(-0.8)
Northwest	0.22*	0.23**	0.51***	0.50***
	(1.9)	(2.0)	(3.8)	(3.7)

[7] Unless specified otherwise, this will refer to a 5% level of significance throughout this study.

Gauteng	0.76***	0.77***	0.19	0.21*
	(8.6)	(8.7)	(1.6)	(1.7)
Mpumalanga	-0.07	-0.06	0.56***	0.56***
	(-0.6)	(-0.5)	(3.4)	(3.4)
Limpopo	0.90***	0.88***	-0.15	-0.18
	(7.2)	(7.0)	(-1.0)	(-1.1)
Household size	-0.62***	-0.63***	-0.72***	-0.73***
	(-28.9)	(-28.8)	(-21.6)	(-21.6)
Female-headed household	-0.81***	-0.83***	-1.01***	-1.04***
	(-11.5)	(-11.8)	(-11.4)	(-11.8)
Age of household head	0.20***	0.20***	0.22***	0.23***
	(14.7)	(14.9)	(10.1)	(10.5)
Age of household head squared	-0.0021***	-0.0021***	-0.0022***	-0.0023***
	(-15.2)	(-15.4)	(-9.3)	(-9.7)
Education of household head	-0.07**	-0.15***	-0.20***	-0.27***
	(-2.0)	(-4.2)	(-5.4)	(-8.1)
Education of household head Squared	0.024***	0.030***	0.030***	0.035***
	(13.1)	(14.4)	(12.6)	(16.6)
White-Education interaction		0.41**		1.13**
		(2.2)		(2.2)
White-Education interaction Squared		-0.023***		-0.054**
		(-2.8)		(-2.5)

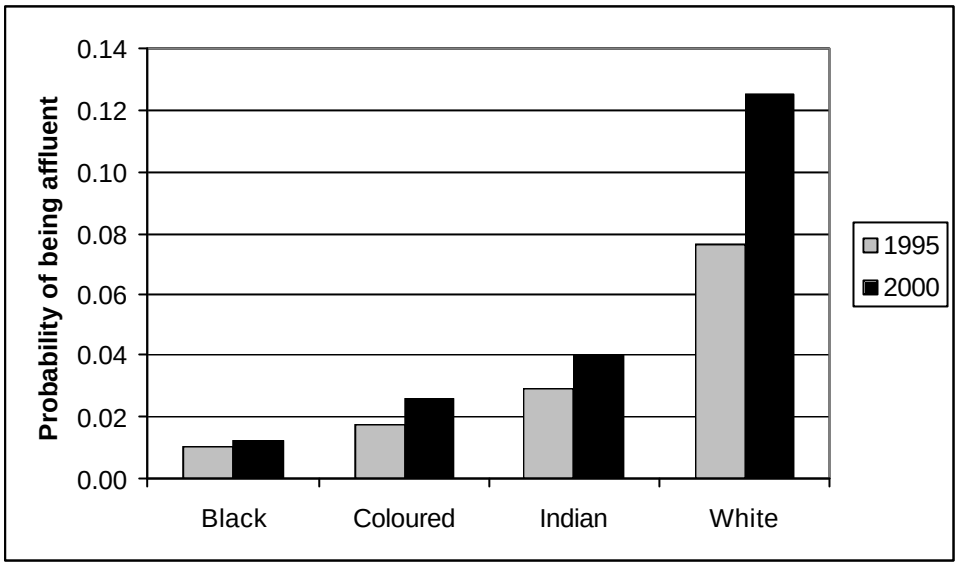
Note: The reference household is Black, urban and living in the Eastern Cape with a male household head.

Significant at 10% level, ** Significant at 5% level, * Significant at 1% level*

This change in the impact of race on affluence is illustrated in Figure 2.1, which varies the population group for the selected reference group.[8] As could be expected, being either a Coloured or an Indian household increases the probability of being affluent, *ceteris paribus*, and dramatically more so for being White rather than Black.

Figure 2.1: Probability of being affluent by population group

[8] Since the reference group only determines the initial value from which the population group of the household head is varied, and is independent of the magnitudes of the coefficients, the reference groups throughout this study were chosen merely in order to obtain comparable initial values between survey years to aid graphical analysis.



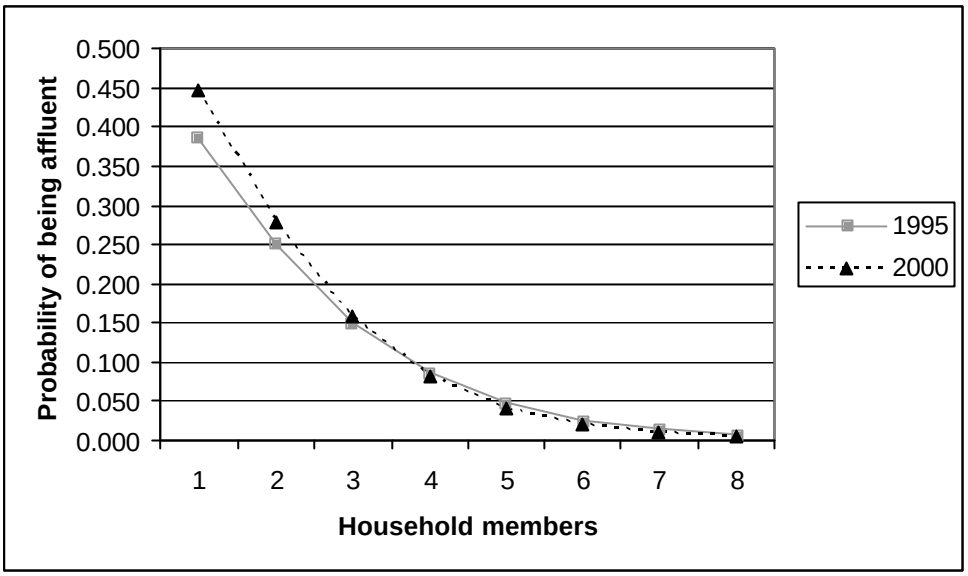
Note: Here the reference group is a five-member, rural household living in the Northern Cape with a 40-year old, male household head with a Grade 9 education

Looking at geography, the rural dummy's impact on the probability of affluence is negative as expected and significant for both years[9]. Of the provincial effects, only Free State and the Northwest dummies are significant for both years and the Free State dummy's coefficient changes it sign.

Household size is strongly significant for both years. Figure 2.2 suggests that the probability of being affluent decreases dramatically as the number of household members in the reference group increases.

Figure 2.2: Probability of being affluent by number of household members

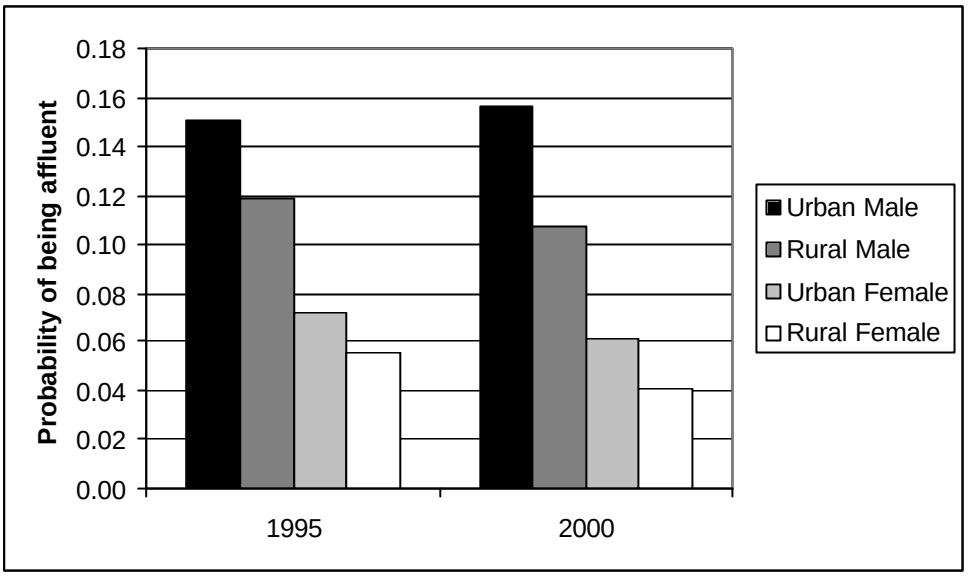
9 This does not necessarily imply that this matters for the degree of affluence attained by the household, and later in this section it is shown that this is often not the case. The same holds for female-headed household and household size.



Note: Here the reference household is living in an urban area in the Western Cape with a Black 30-year old, male household head with a matric education

The gender of the household head was also highly significant in both years. Figure 2.3 illustrates the effect of having a female, rather than a male household head and living in a rural rather than in an urban area for both surveys. The figure shows that having a female-headed household is relatively more "costly" in terms of the probability of being affluent, than living in a rural area.

Figure 2.3: Probability of being affluent by gender of household head and area of residence

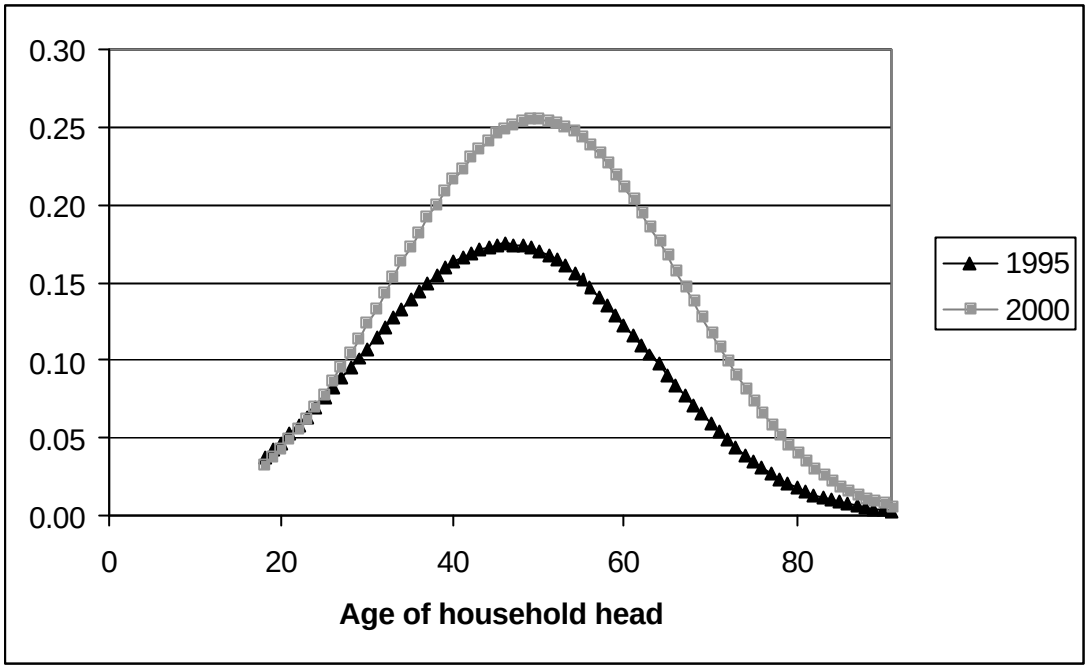


Note: Here the reference group is a three member household living in the Western Cape with a Black 30-year old, male household head with a matric education

In both years the age and age-squared variables (allowing for a non-linear effect for age) is significant for the probability of being affluent. Age can here be interpreted as a proxy for years of experience. As both theory (e.g. Mincerian earnings functions) and empirical studies (e.g Bhorat and Leibbrandt (2001: 125)) would suggest, the coefficient of the age variable is positive and the coefficient for the age squared variable is negative.

Having an older (and hence a more experienced) household head increases the probability of being affluent at a decreasing rate until it reaches its turning point in the late forties (46 in 1995, 50 in 2000). After this point, an older household head is related to a decreasing probability of being affluent. This effect is illustrated in Figure 2.4 below.

Figure 2.4: Probability of being affluent, by age of household head

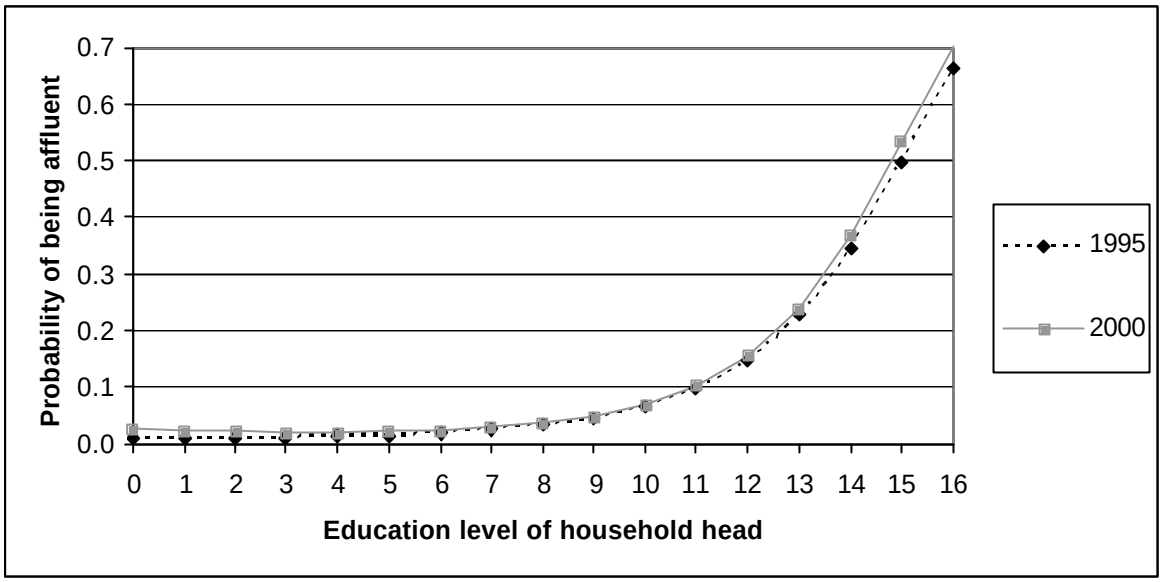


Note: Here the reference group is a three member household living in the Western Cape with a Black 30-year old, male household head with a matric education

The household head's years of education and years of education-squared are both also included as explanatory variables. For both surveys, the education-squared terms are positive, indicating that the relationship between years of education and the likelihood of being affluent is convex. This is in line with Keswell's finding (2001:16) that "having more education does not seem to make much difference unless the education obtained is substantial (beyond 10 years)".

Surprisingly, the education terms are significantly negative for both surveys. The combined effect of these two variables is that the probability of being affluent declines with additional years of education at low levels of educational attainment. Figure 2.5 illustrates the expected probabilities of being affluent, where the level of educational attainment is varied for the specified reference group. Having a household head with a tertiary education rather than secondary or primary education can also be seen to radically improve the probability of being affluent. The turning points are at low levels of educational attainment: before Grade 2 in 1995 and just after Grade 3 in 2000.

Figure 2.5: Probability of being affluent by level of educational attainment



Note: The reference household is a Black, three member household living in rural KwaZulu-Natal with a 30 year old, male household head.

There are at least two different explanations for the negative education coefficient at low education levels. Firstly, the negative coefficient for years of education could simply be due to misspecification of the functional form. Fitting a logistic model to a process where the true underlying effect of additional education on being affluent is negligible at very low levels of educational attainment and thereafter it starts to increases at an exponential rate, the specification used in the logistic model can yield a negative coefficient for years of education.

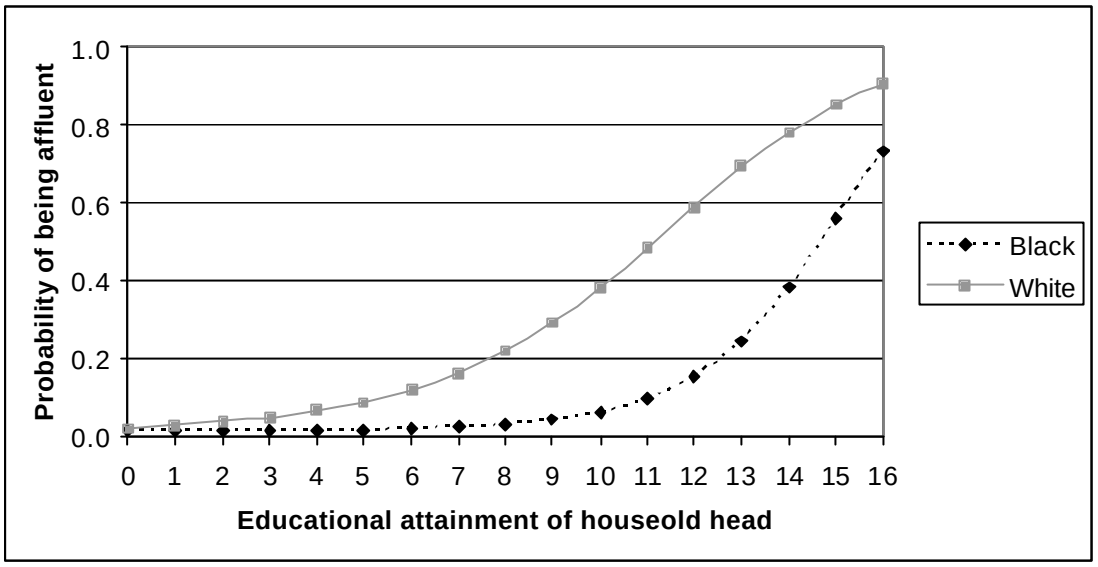
Another possible explanation is that no educational attainment might reflect the lack of access to education, whereas a low level of educational attainment shows an access to education, but also reflects a self-selection which is indicative of some personal characteristics (such as a lack of resolve). This might imply that those with low levels of educational attainment are indeed less likely to possess the qualities often required in order to become affluent than those with no education at all. Since there are no observations for which the household head only obtained either Grade 1 or Grade 2 (those levels of education for which the regression predicts negative returns) in 1995, it is impossible to distinguish between the two afore-mentioned explanations. Re-estimating the regression with a separate dummy variable for every different year of education shows that the probability of being affluent is insignificantly lower when the household head has a Grade 1 education and significantly lower when having a Grade 2 education rather than having no education. There is no significant difference between a household head with no education and a Grade 3 education. This result implies that the second explanation is more likely to be the reason for the negative coefficient for the years of education variable.

In the regression education is treated as a homogeneous product. However, the quality of education is likely to have an effect on the household's earning potential. Following Kingdon and Knight (2002) and Chamberlain and Van der Berg (2002), we use an interaction effect between White and education as a proxy for the quality of education.

The coefficients of the White-education interaction and the square of this interaction are significant. Accounting for variation in education quality results in a marginal increase in

the explanatory power of the model.[10] Also, the White population group dummies become insignificant when including the White-education interaction variables.[11] This suggests that the superior quality of education that Whites received under apartheid could be the most important remaining avenue whereby Whites are advantaged relative to other race groups in the labour market. Figures 2.6 and 2.7 plot the different probabilities of being affluent by educational attainment for Whites and Blacks in 1995 and 2000 respectively.

Figure 2.6: Probability of being affluent, by population group and educational attainment (1995)

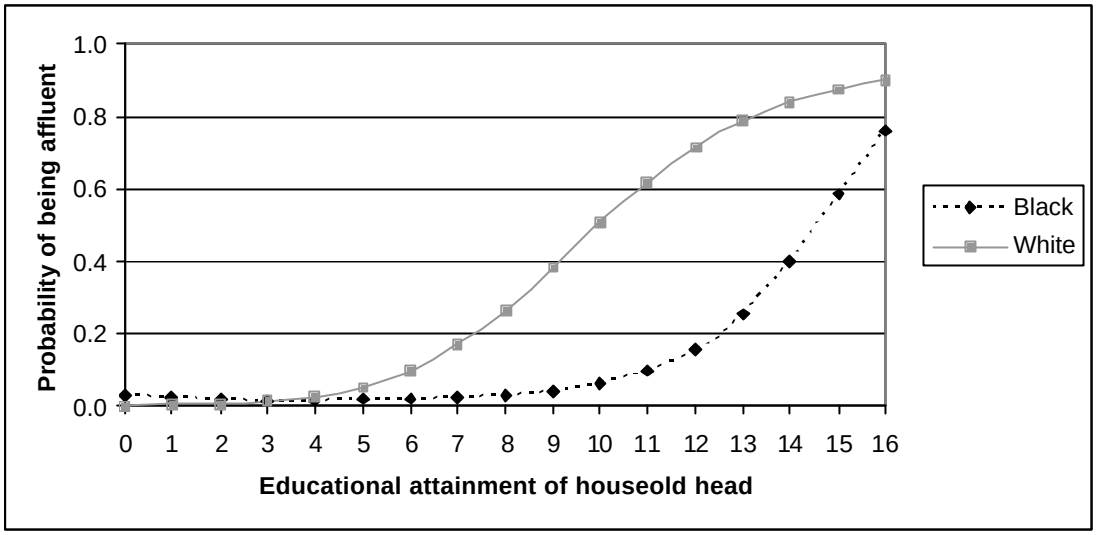


Note: The reference group is a three member, urban household living in the Eastern Cape with a 40 year old, male household head.

[10] There is a marginal increase in both the R^2 and the number of observations that are correctly classified as being affluent or non-affluent at a probability cut-off value of 50% (not shown in Table 2.1).

11 It is interesting to note that the same effect is not present for other race groups. When including interaction variables for education and the Indian and Coloured population groups respectively, the interaction variables were not significant in any cases apart from the Coloured education interaction variable in the 2000 regression. However, in this case, the negative Coloured dummy variable remained significant after the inclusion of the interaction effect.

igure 2.7: Probability of being affluent, by population group and educational attainment (2000)



Note: The reference group is a three member, urban household living in the Eastern Cape with a 40 year old, male household head

The Black education curves look similar to those in Figure 2.5, but the returns to education for Whites are now concave for both years and higher for all levels of education in 1995. An unusual shift took place in the education curve for Whites in 2000. At very low levels of education (less than four years of completed education) the White tail now falls below that of the Black population group. Since only two of the 1 584 White observations have less than four years of education in 2000, this part of the curve should be disregarded.

It may be possible to obtain a more accurate indication of the underlying affluence process by distinguishing not just between the affluent and the non-affluent, but between the very affluent, the merely affluent, the middle-class and the poor (as defined in section 2). To enable this comparison a multinomial logit is estimated with the merely affluent as the reference group. The results are summarised in Table 2.2 below.

Table 2.2: Multinomial logit regression of affluence

	1995			2000		
Observations	28,349			19,507		
Pseudo R^2	0.3816			0.3769		
Merely Affluent vs.	**Poor**	**Middle-class**	**Very Affluent**	**Poor**	**Middle-class**	**Very Affluent**
Constant	6.01***	4.93***	-3.81***	7.35***	5.57***	-1.68**
	(13.8)	(12.3)	(-6.7)	(13.2)	(10.5)	(-1.9)
Coloured	-0.83***	-0.34***	0.37**	-1.40***	-0.54***	0.21
	(-6.4)	(-2.9)	(2.1)	(-8.3)	(-3.7)	(0.9)
Indian	-1.98***	-0.59***	0.90***	-2.79***	-0.77***	0.63**

	(-9.5)	(-4.3)	(5.0)	(-8.4)	(-3.8)	(2.2)
White	-0.02	0.72	1.18	3.16	6.56*	5.30*
	(-0.0)	(0.5)	(0.7)	(0.7)	(1.9)	(1.7)
Rural	1.14***	0.39***	0.59***	0.78***	0.14	-0.42***
	(12.1)	(4.4)	(5.3)	(7.5)	(1.5)	(-2.9)
Western Cape	-0.87***	0.08	0.34***	-1.38***	-0.23	-0.20
	(-6.8)	(0.8)	(2.6)	(-7.4)	(-1.4)	(-1.0)
Northern Cape	0.31*	0.36**	0.08	-0.27	-0.21	-0.23
	(1.9)	(2.5)	(0.5)	(-1.1)	(-1.0)	(-0.8)
Free State	0.34***	0.32***	-0.07	-0.80***	-0.70***	-0.87***
	(2.6)	(2.6)	(-0.4)	(-4.6)	(-4.2)	(-3.8)
Kwazulu-Natal	-1.11***	-0.04	0.26*	-0.59***	0.08	-0.34
	(-9.1)	(-0.4)	(1.8)	(-3.5)	(0.5)	(-1.6)
Northwest	-0.66***	-0.14	0.11	-1.38***	-0.48***	-0.44**
	(-4.7)	(-1.1)	(0.7)	(-8.0)	(-2.9)	(-2.0)
Gauteng	-1.95***	-0.41***	0.55***	-1.31***	-0.16	-0.32*
	(-15.6)	(-4.0)	(4.4)	(-8.2)	(-1.1)	(-1.7)
Mpumalanga	-0.74***	0.15	0.00	-1.48***	-0.45**	-0.19
	(-4.9)	(1.1)	(0.0)	(-7.5)	(-2.4)	(-0.7)
Limpopo	-1.67***	-0.69***	0.22	-0.14	0.25	0.06
	(-10.9)	(-4.8)	(1.3)	(-0.7)	(1.3)	(0.2)
Household size	0.81***	0.44***	-0.38***	1.00***	0.53***	-0.35***
	(32.1)	(18.8)	(-11.4)	(26.1)	(14.8)	(-6.3)
Female-headed household	1.27***	0.69***	-0.22**	1.63***	0.88***	-0.16
	(14.3)	(8.4)	(-2.0)	(15.8)	(9.0)	(-1.1)
Age of household head	-0.20***	-0.14***	0.13***	-0.27***	-0.19***	0.05
	(-12.3)	(-9.4)	(6.5)	(-11.7)	(-8.5)	(1.4)
Age of household head squared	0.002***	0.002***	-0.001***	0.003***	0.002***	-0.001
	(12.1)	(10.1)	(-6.6)	(10.4)	(8.1)	(-1.4)
Education of household head	0.21***	0.16***	-0.05	0.22***	0.21***	-0.21**
	(5.1)	(4.1)	(-0.8)	(5.8)	(5.7)	(-2.6)
Education of household head squared	-0.045***	-0.025***	0.011***	-0.041***	-0.024***	0.025***
	(-17.8)	(-10.8)	(3.0)	(-15.7)	(-10.3)	(6.0)
White-Education interaction	-0.59*	-0.53**	-0.07	-1.44*	-1.57***	-0.57
	(-1.9)	(-2.2)	(-0.3)	(-1.7)	(-2.6)	(-1.1)
White-Education interaction squared	0.019	0.028***	0.005	0.068*	0.071***	0.018

	(1.1)	(2.8)	(0.4)	(1.8)	(2.8)	(0.9)

Note: The reference household is Black, urban, merely affluent and living in the Eastern Cape with a male household head.

Significant at 10% level, ** Significant at 5% level, * Significant at 1% level*

In examining Table 2.2, it is helpful to keep in mind that the first two columns refer to the probabilities of being poor rather than merely affluent and middle-class rather than merely affluent and the third column refers to the probability of being very affluent rather than merely affluent. A positive coefficient in the first two columns is therefore an indication that the household is likely to fall in the lower income bracket, whereas the same is indicated by a negative coefficient in the third column.

The race dummies behave as would be expected. The coefficients of the Coloured and Indian dummies are both negative in the first two columns and positive in the last, implying that being Coloured and Indian rather than Black increases the likelihood that the household would belong to the upper income categories. Note that the White dummies are insignificant due to the inclusion of the White-education interaction effects.

The rural dummy's coefficients are positive in the first two columns (and significant, except for the middle-class-merely-affluent comparison in 2000), which would suggest that rural residence is associated with a decrease in the probability of belonging to the merely affluent rather than the poor and the middle-class. The third column coefficient is not stable across the time periods: it is positive in 1995 and negative in 2000, but significant in both periods. This unexpected behaviour may be due to the rural dummy's correlation with the provincial dummies.

The only provincial dummy coefficients that are significant and have the same sign in both 1995 and 2000 are the dummies comparing the effect of living in Western Cape, Northwest, Mpumalanga and Gauteng with the likelihood of being poor rather than merely affluent. These coefficients are all negative, suggesting that a move from the Eastern Cape to any of these provinces should *ceteris paribus* increase a household's chances of being merely affluent rather than poor. The first two columns' Free State dummies are significant in both 1995 and 2000, but the strangely enough the coefficients change from being positive in 1995 to being negative in 2000.

The gender of the household head and the number of household members are significant in most cases and the coefficients behave as would be expected. The probability of being merely affluent rather than poor or middle-class decreases with the number of household members and similarly the probability of being merely affluent rather than very affluent decreases with the age of the household head and increases with the number of household members. A female-headed household is associated with a lower probability of being merely affluent rather than poor and a higher probability of being merely affluent rather than very affluent. It is interesting to note that the t-values of these coefficients generally decrease as we move toward the upper-end of the income scale. The effect of having a female household head on the probability of being very affluent rather than affluent is barely significant in 1995 (a p-value of 0,047) and insignificant in 2000. Having a female household head is therefore costly for a household in terms of the likelihood of belonging to the merely affluent rather than the poor or middle-class, but it appears to have little additional cost on the household's upward mobility once the household is already affluent.

According to the multinomial logit, the age of the household head has a non-linear impact on membership of the specified income groups. Having an older household head increases the probability of being merely affluent, rather than being poor or middle-class, until the household head reaches his or her late forties or early fifties where after the age squared terms begins to dominate and the probability thus starts declining with age. A similar pattern is observed for the probability of being very rather than merely affluent. The impact of the age of the household head (implying also his or her experience level) ? as measured by the magnitude and t-values of the coefficients of the age variables ? becomes muted as we move towards the upper-end of the income scale. In 2000 the age of the household head has no significant impact on the whether a household will be merely affluent or very affluent.

Table 2.2. also shows that years of educational attainment yields convex returns in terms of the probability of being affluent rather than poor or middle-class, or being very affluent rather than merely affluent. Although the inclusion of the White-education interaction variables cause the White population group dummy variables to be insignificant for all of the income group comparisons, these interaction variables are only significant at the threshold between the middle-class and the merely affluent. The superior quality of education that Whites have access to therefore appears to be important in ensuring that these households are merely affluent rather than middle-class, but it is unimportant in determining which households are merely affluent and which are very affluent. It is also not a significant predictor of being merely affluent rather than poor or being poor rather than middle-class (results not shown in table).

To focus more narrowly on the income dynamics within the Black population, we estimate a logistic regression for the Black households. Based on the earlier observation that single-member households were seemingly an increasingly important phenomenon among Blacks, a single household dummy variable is added to the regressors we used in the original full sample logit model (Table 2.1). The results of this logistic regression are presented in Table 2.3.

Table 2.3: Logistic regression of affluence for Black population

	1995	2000
Observations	18,522	15,379
Pseudo R^2	0.3697	0.3860
Constant	-6.58***	-11.33***
	(-11.3)	(-14.9)
Rural	-0.68***	-0.38***
	(-6.8)	(-3.5)
Western Cape	0.29	0.29
	(1.3)	(1.1)
Northern Cape	-1.05**	0.37
	(-2.1)	(1.1)
Free State	-0.23	0.92***
	(-1.4)	(5.7)
Kwazulu-Natal	0.19	-0.13
	(1.3)	(-0.7)
Northwest	0.42***	0.71***
	(2.9)	(4.0)
Gauteng	0.33**	0.44***
	(2.4)	(2.7)
Mpumalanga	-0.64**	0.79***
	(-2.5)	(4.1)
Limpopo	0.95***	-0.07
	(6.2)	(-0.4)
Household size	-0.56***	-0.59***
	(-12.7)	(-10.0)
Single member households	0.53***	1.25***
	(3.7)	(7.8)
Female-headed household	-0.92***	-1.21***
	(-8.6)	(-10.6)
Age of household head	0.1758***	0.3843***
	(7.1)	(11.8)
Age of household head squared	-0.0017***	-0.0039***
	(-6.3)	(-10.6)
Education of household head	-0.14***	-0.31***
	(-3.3)	(-8.0)
Education of household head squared	0.0297***	0.0407***
	(12.2)	(15.8)

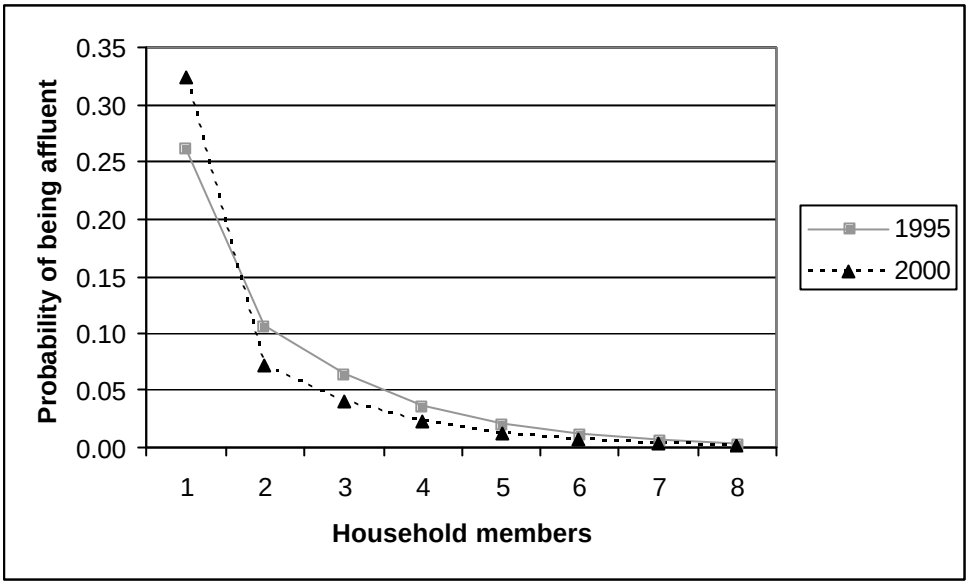
Note: The reference household is urban, living in the Eastern Cape with a male household head.

Significant at 10% level, ** Significant at 5% level, * Significant at 1% level*

The results are in line with that of the full sample logistic regression. The Northwest and Gauteng dummies are the only provincial dummies that have coefficients that are significant and retain the same sign in both periods. Both dummies have positive coefficients. The rural dummy is significant and with the expected sign.

The single member household dummy variable is negative and significant. This indicates that even after correcting for the cost of an additional household member, being a single-member household significantly increases the probability of being affluent. Figure 2.8 plots the expected probability of being affluent for different household sizes for the reference household. This observation is in line with the research of McElroy (1985), Ermisch & DiSalvo (1997), Card & Lemieux (1997) and locally also Klasen & Woolard (2000: 11-14) and Keller (2002:22) that find that vulnerable individuals (e.g. the unemployed) are less likely to leave their current household to set up their own households. One could argue that this provides evidence that single-member households will be a self-selected group with a higher proportion of members who are employed and affluent than multi-member households.

Figure 2.8: Probability of being affluent, by household size



Note: the reference household is a Black household living in rural KwaZulu-Natal, with a 45-year old household head with a Grade 10 education

Table 2.1 and Figure 2.2 both showed that for the population as a whole, the cost of having an additional household member seems to have increased between 1995 and 2000. Table 2.3 and Figure 2.8 refine this observation (at least for the Black population group) by showing that the cost of an additional household member is similar between the two years, but that the advantage of being a single-member household rose.

The coefficients for the female-headed household dummy and the age of the household head are similar to that for the full sample regression. The age of the household head raises the probability of being affluent at a decreasing rate. After an age of approximately 50 the probability of being affluent starts to decrease with age. Returns to education are convex beyond Grade 3 in 1995 and Grade 4 in 2000.

To allow some variation in the relationships between explanatory variables and income, we also estimate a multinomial logit for the Black population group using the same four income categories as in the full sample multinomial logit, with the merely affluent again used as the reference group.

Figure 2.4: Multinomial logit regression of affluence for Black population

	1995			**2000**		
Observations	18 522			15 379		
Pseudo R^2	0.3034			0.3392		
Merely Affluent vs.	**Poor**	**Middle-class**	**Very Affluent**	**Poor**	**Middle-class**	**Very Affluent**
Constant	6.58***	4.62***	-4.73***	13.11***	10.29***	-1.41
	(9.3)	(6.7)	(-4.5)	(14.5)	(11.7)	(-1.0)
Rural	1.49***	0.70***	0.46***	0.77***	0.12	-0.54***
	(11.7)	(5.7)	(2.6)	(6.1)	(1.0)	(-2.8)

Western Cape	-0.88***	-0.02	0.35	-0.96***	0.11	0.47
	(-3.4)	(-0.1)	(0.9)	(-2.8)	(0.3)	(1.0)
Northern Cape	0.90*	0.78	-32.04***	-0.59	-0.06	0.59
	(1.7)	(1.5)	(-58.4)	(-1.3)	(-0.2)	(1.1)
Free State	0.33*	0.23	0.00	-1.15***	-1.09***	-0.78**
	(1.7)	(1.2)	(-0.0)	(-5.5)	(-5.4)	(-2.4)
Kwazulu-Natal	-0.92***	0.13	0.36	-0.44*	0.17	-0.25
	(-5.1)	(0.8)	(1.4)	(-1.9)	(0.7)	(-0.7)
Northwest	-0.77***	-0.27	0.14	-1.43***	-0.52**	0.07
	(-4.3)	(-1.6)	(0.5)	(-6.2)	(-2.4)	(0.2)
Gauteng	-1.59***	-0.03	0.23	-1.63***	-0.42**	-0.58**
	(-9.0)	(-0.2)	(0.9)	(-7.7)	(-2.1)	(-2.0)
Mpumalanga	-0.19	0.76***	-0.23	-1.66***	-0.59***	-0.01
	(-0.6)	(2.6)	(-0.4)	(-6.9)	(-2.6)	(-0.0)
Limpopo	-1.60***	-0.64***	0.32	-0.25	0.13	-0.03
	(-8.2)	(-3.4)	(1.2)	(-1.0)	(0.6)	(-0.1)
Household size	0.70***	0.44***	-0.21**	0.73***	0.40***	-0.35***
	(13.6)	(8.7)	(-2.4)	(10.8)	(6.0)	(-3.0)
Single member households	-2.30***	-0.22	0.18	-2.60***	-1.13***	-0.31
	(-12.3)	(-1.3)	(0.7)	(-13.3)	(-6.3)	(-1.0)
Female-headed household	1.41***	0.88***	0.15	1.86***	1.11***	0.06
	(10.5)	(6.8)	(0.8)	(13.9)	(8.8)	(0.3)
Age of household head	-0.19***	-0.12***	0.11***	-0.44***	-0.35***	0.02
	(-6.4)	(-4.1)	(2.6)	(-11.1)	(-9.1)	(0.4)
Age of household head squared	0.0018***	0.0013***	-0.0009**	0.0042***	0.0036***	-0.0001
	(5.5)	(3.9)	(-2.0)	(9.6)	(8.3)	(-0.1)
Education of household head	0.23***	0.17***	0.06	0.26***	0.23***	-0.20**
	(4.7)	(3.5)	(0.8)	(6.0)	(5.7)	(-2.2)
Education of household head squared	-0.0466***	-0.0255***	0.0048	-0.0476***	-0.0286***	0.0253***
	(-15.9)	(-9.4)	(1.0)	(-15.5)	(-10.3)	(5.2)

Note: The reference household is urban, merely affluent and living in the Eastern Cape with a male household head.

Significant at 10% level, ** Significant at 5% level, * Significant at 1% level*

Again, the results are very similar to those obtained for the population as a whole. In both 1995 and 2000 a Black household with a female head is less likely to be merely affluent

rather than poor or non-affluent, but the gender of the household head has no significant effect on whether a household is merely or very affluent (cf. the full sample multinomial logit regression, where having a female household head mattered only marginally for the probability of merely affluent versus very affluent in 1995 and did not matter in 2000.)

The importance of having fewer household members (as measured by either the level of significance to magnitude of the coefficient) remains a significant determinant for all the income group comparisons, but declines as we move up the income scale. The positive coefficients of the single-member household dummy variable in the first two columns indicate that having a single-member household increases the probability of being merely affluent rather than middle-class (although this effect is insignificant for 1995). The variable is also makes a significant contribution towards the likelihood of escaping poverty and entering the middle-class (results not shown in Table 2.4). However, when considering the probability of being merely affluent rather than very affluent, being a single-member household does not have any impact over and above that associated with the cost of increased household size.

The next section investigates the spending patterns of the Black affluent compared to the rest of the affluent group.

3. The behaviour of the affluent

The expenditure data from the two surveys enable analysis of the differences in the spending patterns of the affluent by population group. In this section tables detail the proportions of income spent on specific consumer goods for Blacks, Whites, Indians and Coloureds. In the text, the focus will be on comparing the expenditure proportions of Blacks and Whites because frequently averages for Coloured and Indian affluent households are based on too few available observations to be representative.

Table 3.1 shows that the Black affluent's expenditure on furniture as proportion of their income was more than three times that of affluent Whites. The fact that the proportion of expenditure on furniture was very similar between the two periods for the White affluent, whereas the other population groups spent a higher but decreasing share, is consistent with the idea of an established White affluent class that has already completed much of its asset accumulation, whilst the other population groups are still in a process of acquiring assets. A similar pattern is observed in Table 3.2 illustrating the proportion of expenditure spent on appliances.

Table 3.1 Proportion of expenditure on furniture by population group

Population group	1995	2000
Black	3.13%	2.05%
Coloured	1.53%	1.05%
Indian	1.52%	1.01%
White	0.83%	0.81%

Table 3.2: Proportion of expenditure on appliances by population group

Population group	1995	2000
Black	1.02%	0.86%
Coloured	1.05%	0.87%
Indian	0.90%	0.36%
White	0.68%	0.58%

The acquisition of assets is likely to divert expenditure away from consumption, and presumably particularly consumption on luxury goods and services. The cross-tabulations from the surveys support this conjecture. According to Tables 33 and 3.4 the Black affluent spend a much smaller proportion on personal computers and telecommunications than the White affluent.

Table 3.3: Proportion of expenditure on personal computers by population group

Population group	1995	2000
Black	0.12%	0.57%
Coloured	0.19%	0.87%
Indian	0.64%	1.21%
White	0.40%	0.97%

Table 3.4: Proportion of expenditure on telecommunication by population group

Population group	1995	2000
Black	1.7%	1.6%
Coloured	2.2%	2.0%
Indian	2.8%	3.1%
White	2.8%	2.6%

Table 3.5 presents the share of affluent and very affluent households who incurred expenses on domestic workers[12] by population group. Expenditure on domestic help was considerably more prevalent among the White affluent than among the Black affluent. In 1995 59% of the White affluent (62% in 2000) paid for domestic help, while only 22% (13% in 2000) of affluent Black households employed domestic workers.[13]

Table 3.5: Employment of domestic workers by the affluent, by population group

[12] The 2000 IES provides no data on the number of domestic workers or the hours worked, but both the 2000 IES and the 1995 LFS has information on the expenditure on domestic workers. This variable is then used as an indication of whether a household employ domestic help.

13 It is interesting to note that the average hourly wage paid by Coloured (R7.70) and Black affluent households (R8.30) were higher than that paid by White (R6.10) or Indian households (R6.30) in this group:

Population group	Proportion of affluent households who employ one or more domestic workers			
	1995		2000	
	Affluent	Very Affluent	Affluent	Very Affluent
Black	22%	29%	13%	22%
Coloured	29%	37%	24%	24%
Indian	48%	56%	48%	45%
White	59%	61%	62%	68%

Looking at race-based differences in the affluent's expenditure on housing and cars provide further evidence in support of the hypothesis that the Black affluent was lagging behind the White affluent in terms of asset accumulation.

Table 3.6 shows that just over 70% of White, Coloured and Indian affluent households are homeowners[14], but only around 30% of the Black affluent own their homes.

14 To compare the occurrence of home ownership amongst the affluent, we define home owners those households who own their dwellings, whether fully paid or not, but exclude informal or traditional dwellings, caravans and tents.

Table 3.6: Affluent home owners by population group (2000)

Population group	Proportion of home owners	Proportion of those that are fully paid
Black	31%	44%
Coloured	71%	25%
Indian	72%	39%
White	73%	41%

Although only 58% of the affluent owned a home in 2000, 82% of the affluent already owned a private vehicle in 1995 (compared to 15% of the non-affluent). According to Table 3.7 affluent White households were more likely to own a vehicle than affluent Black households.

Table 3.7: Proportion of affluent households that own a private vehicle (1995), by population group

Population group	Affluent	Very Affluent
Black	41%	54%
Coloured	73%	81%
Indian	92%	98%
White	94%	95%

Table 3.8 compares the proportion of affluent and very households who had access to private vehicles[15] between 1995 and 2000. It is surprising to find that the percentage of the affluent households who had access to a private vehicle dropped from 81% to 71% between 1995 and 2000. This decline is observable for the affluent of every population group, but is most marked for the Black affluent. Over the same period this proportion increased from 54% to 61% for very affluent Black households.

Table 3.8: Proportion of affluent households that incurred running costs to private vehicle, by population group

	1995		2000	
Population group	**Affluent**	**Very Affluent**	**Affluent**	**Very Affluent**
Black	41%	54%	35%	61%
Coloured	73%	81%	71%	71%
Indian	92%	98%	91%	90%
White	94%	95%	93%	96%

[15] The 2000 IES did not explicitly ask whether households owned a car, but did enquire as to running costs incurred to a private vehicle. The same question was asked in the 1995 questionnaire, which allows a comparison between running costs and vehicle ownership to gauge whether we can use the former as a proxy for the latter with a fair amount of accuracy. Since running costs include petrol use, none of the 1995 respondents answered that hey own a car, but did not incur any running costs. In addition, 87.3% of those households who incurred running costs, owned their own cars, whereas the remaining 12.7% used a company or hired car.

Conclusion

The analysis of the upper part of the income distribution confirms many of the traditional views of social mobility in South Africa which has mostly been acquired through analysing the lower part of the income distribution. The paper finds a robust association between the affluence and the gender and age of the household head and urban-rural residence. These relationships appear to be robust across population groups. Our results are also consistent with convex returns to education and a substantial role for the quality of education.

Furthermore, we find that the Black affluent exhibit distinctive spending patterns. Compared to the affluent from other population groups, the Black affluent were spending more on appliances and furniture and less on personal computers, telecommunications and domestic workers. This could be attributed to their relatively new status among the affluent.

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Addendum A: 1995 OHS/IES and the 2000 LFS/IES[16]

A. Concerns relating to field work, data entry and coding

There are several problems in the Income and Expenditure survey (IES) 2000 relating to the individual observations. There are 308 cases where the survey either gives a missing value for the household's food expenditure or reports zero expenditure. The survey also shows a strong increase in the proportion of households that paid no income tax (from 49% in 1995 to 77% in 2000) which does not seem plausible. On there income side there are also problems with some of categories: the sharp decline in occupational perquisites, share of income attributable to the household as a whole and other specified and unspecified income may point towards a deterioration in the quality of field work in 2000. The definitions and categories in the survey were designed so that income and expenditure should add up to the same total, but there are worrying discrepancies between income and expenditure totals in 2000 survey.

There are also some simple addition mistakes in the 2000 survey: some of the recreation and entertainment as well as housing subtotals were miscalculated and grain was added twice in total expenditure. There are 2000 cases where the components of income did not add up to total income.

In both 2000 and 1995 there are problems with the matching of individuals and households between the IES and the related LFS, which could be attributed to field work, coding or data entry mistakes. When trying to merge the 2000 IES and LFS, 103 732 cases match successfully, but there are 1 639 cases unique to the LFS dataset and 421 cases unique to the IES. Of the matched cases, there are 268 cases for which the race variable from the two datasets does not match, 839 for which gender does not match, and 1 263 cases for which age does not match (only 178 of these cases had an age difference of one year, which one can probably safely ignore). There are 2087 cases where one or more of these variables (race, gender, age) do not match between the two datasets. Altogether 8984 individuals are members of households for which one or more of these variables do not match across the two datasets, leaving only 96 808 individuals in households where there are no matching problems of some sort (91.5% of 105 792 cases in the two datasets, or 92.9% of the 104 153 cases in the IES person dataset).

B. Concerns relating to sampling

There is also evidence of overnumeration of the White population in 1995 and underenumeration of the White population in 2000. The 1995 sampling frame also undercounted single African households in 1995 and this was corrected in 2000.

The sampling and weighting problems in the surveys result in discrepancies between the demographic and income data given by external data sources and the weighted totals of the IES. The national accounts say that real household income per capita rose 7% from 1995 to 2000, while comparisons between the IES 1995 and 2000 indicate that income per capita had fallen. Also, the 1995 IES overestimates the population and the 2000 IES underestimates the population.

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[16] This summary of the problems in the IES is based partly on personal communication with Laura Poswell from the DPRU, Charles Simkins from WITS University and Ingrid Woolard from the HSRC.

Remedies to fix problem:

The 2000 IES contains considerably more inconsistencies and implausible results than the 1995 survey, thus we attempted to clean the data in the following way: by omitting all observations where

i) the discrepancy between income and expenditure was greater than 30%,

ii) the survey reported that the household had zero expenditure on food or the food expenditure value was missing,

iii) the age, gender or race of the household head did not match when the LFS was merged with the IES

Using these criteria, 25% of the sample was classified as unreliable and eliminated. Unreliable observations appeared to be distributed randomly.

All income totals were adjusted upwards by 17% to give a closer match with National Accounts data.