DRAFT

Subjective well-being, reference groups and relative standing in post-apartheid South Africa

Marisa Coetzee
(University of Stellenbosch)
marisa.coetzee@gmail.com

ABSTRACT

Previous studies on the determinants of subjective well-being all concur on the importance of relative income, i.e. individuals' subjective well-being to a certain extent depend on how well they are doing in relation to their reference group. Using South African data from 1993, Kingdon and Knight (2006 & 2007) find that in apartheid South Africa, reference groups are mostly divided along racial lines, i.e. a person's relative income within his/her specific race group is significantly correlated with his/her subjective well-being. In this paper, we explore whether these reference groups have shifted in post-apartheid South Africa, using data from the 2008 National Income Dynamics Survey. We find that race-specific relative income is no longer significantly correlated with subjective well-being. However, we find that both individuals below and above the poverty line now regard perceived relative income as an important determinant of their subjective well-being. While society was greatly divided along racial lines prior to 1993, subsequent to 1994 greater racial integration took place and one would therefore expect the relevant comparison group to include individuals from all race groups. The findings from this paper support this proposition.

JEL codes: I31, I32

Keywords: Subjective well-being, poverty, South Africa

1. Introduction

A large and growing economic literature on subjective well-being or happiness,[1] as it is sometimes referred to, has evolved since the 1990's (Posel and Casale, 2010: 2). Although studies regarding subjective well-being in developed countries are numerous, corresponding literature regarding subjective well-being in developing countries is only in its infancy.

Within the South African context, Kingdon and Knight (2006 and 2007) have explored the determinants of subjective well-being during 1993, a period prior to the first democratic elections on 27 April 1994 and subsequent new political dispensation. They find that in 1993, subjective well-being was greatly divided along racial lines, a fact that is unsurprising given the country's history of racial segregation and oppression. Kingdon and Knight (2007) also find that relative income enters individuals' utility functions positively for individuals who are in the same residential cluster ("close neighbours") and negatively for more far-off individuals ("more distant others"). In addition, Kingdon and Knight (2006 and 2007) find that relative income (calculated as the relative standing within one's racial group) appears to affect the subjective well-being of individuals above the poverty line, while absolute income has a more important effect on the subjective well-being of individuals below the poverty line.

Since 1994 South Africa has been introduced back into the world economy and has experienced unprecedented economic growth and large-scale racial integration. However, with high and persistent levels of inequality and poverty (both of which have a lingering racial undertone) remaining part of the South African economic landscape (Leibbrandt *et al*, 2010: 13), a relevant question at this stage is whether the new political dispensation has caused any changes in the determinants of subjective well-being. In other words, do individuals still compare their income with others of the same race group? Also, if reference groups are no longer divided along racial lines, who is the relevant reference group?

The aim of this paper is to attempt to answer these questions using data from the National Income Dynamics Study in 2008, 14 years after the first democratic elections. In line with previous findings by Posel and Casale (2010), we find that relative standing has a significant effect on subjective well-being, more so than relative income by race group. In addition, we find evidence that households in closer proximity enter the individual's utility function positively while more far-off individuals enter the utility function negatively. This is in line with the findings by Kingdon and Knight (2007).

[1] These terms are used inter-changeably.

Our results seem to indicate that at least some racial integration has taken place in the 14 years subsequent to the end of apartheid, with reference groups shifting from being solely based on race.

2. Subjective Well-Being: the Literature

Given the large body of research on the determinants of subjective well-being, certain stylized facts have emerged throughout the years. These facts can broadly be summarised as follows:

- On average, richer individuals are more likely to report higher levels of subjective well-being. In addition, the causation has been shown to run from income to happiness (Frey and Stutzer, 2002: 411). However, this positive relationship between absolute income and subjective well-being only explains a small proportion of the differences in happiness among people (Frey and Stutzer, 2002: 409).
- In addition, this positive relationship is limited to cross-sectional, and not time-series data (Kingdon and Knight, 2006: 1201). This has led to the conclusion that increases in relative income have a much larger effect on subjective well-being than absolute income (Easterlin, 1995: 44 and 2001: 468).
- A large literature has developed around the so-called set-point theory, in terms of which individuals have a hereditary level of subjective well-being (determined by genetic heritage and inherent personality) to which they always return after periods of increased or decreased subjective well-being (Easterlin, 2006: 466). It is argued that this set-point cannot be changed and accordingly the estimation of subjective well-being functions (in other words the factors determining subjective well-being) are pointless. However, recent studies have shown that these set-points do change if the period over which data are collected is long enough (Heady, 2008: 226 and Easterlin, 2006: 467).

In South Africa, the determinants of subjective well-being have been explored by Kingdon and Knight (2006 and 2007) using data from the 1993 Southern African Labour and Development Research Unit (SALDRU) household survey. They find that, although absolute household income and subjective well-being are positively correlated, the effect of household income on the subjective well-being of the household is not very large. In addition, Kingdon and Knight (2006: 1219) find that absolute income seems to matter for individuals in households below the poverty line, while relative income matters for individuals in households above the poverty line. In their paper, relative income is calculated using the household's race group as reference and generating race-specific income quintiles. Kingdon and Knight conclude that pre-1994, subjective well-being in South Africa was divided along racial lines (Kingdon and Knight, 2006: 1220).

In a later paper, Kingdon and Knight (2007) explore the determinants of subjective well-being in South Africa in further detail. More specifically, they find that although relative education and relative employment levels matter for subjective well-being, relative income is still the most significant determinant of subjective well-being. Relative income to other households in the same neighbourhood cluster are positively associated with subjective well-being, while relative income to more far-off others (i.e. other households in the district) is negatively associated with subjective well-being (Kingdon and Knight, 2007: 77). Testing this hypothesis further, they come to the conclusion that the positive effect of others' income at the cluster level is altruistic – i.e. subjective well-being is raised if other households in the same neighbourhood are doing well, while subjective well-being is diminished if these households are not doing well. On the other hand, Kingdon and Knight (2007: 81) find a negative effect on subjective well-being for more distant households, i.e. households that are in the same district.

In April 1994, a year after the SALDRU survey was conducted, the first democratic elections in South Africa took place. Although significant advances have been made in increasing the level of racial integration within South Africa, Du Toit and Kotzè (2011) point out the fact that post-apartheid affirmative action may have had the opposite effect, entrenching the racial divide brought about by apartheid legislation.[2] However, they also highlight the fact that recent data from the World Values Survey (2006) seem to signal an increased racial tolerance and inter-personal trust (Du Toit and Kotzè, 2011: 131).

As indicated in the introduction, the question is therefore whether the new political dispensation had any effect on the way South Africans view their lives. In other words, has subjective well-being changed since 1993? The remainder of this paper is aimed at answering this question.

3. The Data

The data used in this analysis are from the first wave of the National Income Dynamics Study (NIDS). The survey, which was completed during 2008, incorporates data from some 7 305 households, containing 31 170 household members as well as data on 16 885 adults aged 14 years and older.[3]

The NIDS questionnaire is unique in that it contains questions which are aimed at gauging respondents' subjective well-being, optimism about the future, and relative income. The level of

[2] The authors refer to the "*re-racialization of society*" in South Africa (Du Toit and Kotzè, 2011: 85).

[3] It should be noted that the sample worked with here is limited to individuals who were included in the adult questionnaire, which was aimed at individuals aged 15 years and older. However, as a result of inaccurate birth dates, 43 individuals aged 14 years were accidentally included in the adult questionnaire and accordingly also in the sample used in the current study.

subjective well-being is recorded in the data by the inclusion of a variable measuring, on a scale from 1 to 10, the level of satisfaction with life experienced by each adult (with 1 signaling extreme dissatisfaction and 10 signaling extreme satisfaction). This differs from the SALDRU data discussed above where the question was posed to ascertain the household's subjective well-being. The response rate for this question is relatively high (13 792 responses). Although the mean level of subjective well-being for the entire sample is 5.5, marked differences in the subjective well-being between African's and Whites are observed in the data. While the mean subjective well-being for the African population in the sample is 5 (with a standard deviation of 2.4), the mean for the White sample is much higher at a subjective well-being level of 7 (with a standard deviation of 1.8). In addition, the distribution of subjective well-being for the White sample is much more skewed, indicating the higher levels of subjective well-being generally observed amongst White respondents. This suggests that the findings by Kingdon and Knight (2006) regarding the racial division of subjective well-being were still observable in 2008.

Following what Kingdon and Knight (2006: 1208), Table 1 sets out the cross-tabulation of the subjective well-being categories and actual income categories. In accordance with the methodology applied by these authors, the actual *per capita* household income is divided into 10 categories so that the percentage of the sample falling into each of these categories corresponds to the proportion of the sample in each of the subjective well-being categories. For example, since 6.81% of the sample indicated a subjective well-being level of 1, the 6.81% of the sample with the lowest absolute income are allocated to the first income category, and so on.

Table 1: Cross Tabulation of subjective well-being Category and Absolute Income Category

Income Category	Subjective Well-Being Category										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Total**
1	146	66	87	122	156	90	75	63	25	101	931
	14.6	9.5	7.03	6.57	6.16	5.02	4.63	4.87	5.58	8.4	6.81
	1.07	0.48	0.64	0.89	1.14	0.66	0.55	0.46	0.18	0.74	6.81
2	92	54	73	111	87	89	58	37	10	62	673
	9.2	7.77	5.9	5.98	3.44	4.97	3.58	2.86	2.23	5.15	4.92
	0.67	0.39	0.53	0.81	0.64	0.65	0.42	0.27	0.07	0.45	4.92
3	124	75	182	192	181	135	126	75	23	87	1,200
	12.4	10.79	14.7	10.34	7.15	7.53	7.78	5.8	5.13	7.23	8.77
	0.91	0.55	1.33	1.4	1.32	0.99	0.92	0.55	0.17	0.64	8.77
4	176	147	216	278	353	219	166	101	37	152	1,845
	17.6	21.15	17.45	14.98	13.94	12.22	10.25	7.81	8.26	12.64	13.49
	1.29	1.07	1.58	2.03	2.58	1.6	1.21	0.74	0.27	1.11	13.49
5	182	129	272	437	497	398	280	179	75	222	2,671
	18.2	18.56	21.97	23.55	19.63	22.21	17.29	13.84	16.74	18.45	19.53
	1.33	0.94	1.99	3.2	3.63	2.91	2.05	1.31	0.55	1.62	19.53
6	117	82	190	290	371	227	204	142	59	159	1,841
	11.7	11.8	15.35	15.63	14.65	12.67	12.6	10.98	13.17	13.22	13.46
	0.86	0.6	1.39	2.12	2.71	1.66	1.49	1.04	0.43	1.16	13.46
7	82	68	109	197	353	196	225	150	52	153	1,585
	8.2	9.78	8.8	10.61	13.94	10.94	13.9	11.6	11.61	12.72	11.59
	0.6	0.5	0.8	1.44	2.58	1.43	1.65	1.1	0.38	1.12	11.59
8	58	60	79	145	289	206	192	172	59	113	1,373
	5.8	8.63	6.38	7.81	11.41	11.5	11.86	13.3	13.17	9.39	10.04
	0.42	0.44	0.58	1.06	2.11	1.51	1.4	1.26	0.43	0.83	10.04
9	12	8	15	32	90	83	85	79	18	42	464
	1.2	1.15	1.21	1.72	3.55	4.63	5.25	6.11	4.02	3.49	3.39
	0.09	0.06	0.11	0.23	0.66	0.61	0.62	0.58	0.13	0.31	3.39
10	11	6	15	52	155	149	208	295	90	112	1,093
	1.1	0.86	1.21	2.8	6.12	8.31	12.85	22.82	20.09	9.31	7.99
	0.08	0.04	0.11	0.38	1.13	1.09	1.52	2.16	0.66	0.82	7.99
Total	1,000	695	1,238	1,856	2,532	1,792	1,619	1,293	448	1,203	13,676
	100	100	100	100	100	100	100	100	100	100	100
	7.31	5.08	9.05	13.57	18.51	13.1	11.84	9.45	3.28	8.8	100

Notes: In each cell, the frequency, row percentage and column percentage are provided.

It is clear from the table that the incidence level between these two variables is low. Only in the 1st, 3rd and 8th categories are the diagonal cell frequencies highest among the cells in the row. This is similar to the result from Kingdon and Knight's (2006: 1208) analysis.

In addition to the data on subjective well-being, NIDS also contains data on each adult's hopefulness about the future (measured on a scale from 1 to 4). This variable is included in the

subjective well-being function in an attempt to control for the existence of a set-point of subjective well-being. In other words, the inclusion of a measure of each individual's optimism about the future attempts to control for the unobserved characteristics which make some individuals more prone to higher levels of subjective well-being than others, irrespective of observable differences in characteristics and circumstances.

As for relative income, the dataset also includes various questions regarding individual's subjective position on the income distribution. More specifically, respondents were asked to indicate on a scale of 1 to 6 (with 1 being the lowest and 6 the highest), the household's perceived relative position in the national income distribution compared to others at the time of the survey. Elsewhere in the survey questionnaire, respondents were asked to indicate, on a scale of 1 to 5 (with 1 being the highest and 5 the lowest) the household's perceived relative position in the income distribution within the village or suburb where it resides in.

The inclusion of data on perceived relative income is unique to NIDS and can be used to control for the important role that relative income has been shown to play in estimating subjective well-being functions. Recent findings by Posel and Casale (2010) highlight the importance of perceived relative income as determinant of one's subjective well-being. Posel and Casale (2010) explore the perceived relative income data in NIDS to illustrate how perceived relative income has a much greater effect on subjective well-being than actual relative income. It is for this reason that the above-mentioned variables are included in the analysis.

A more detailed description of the variables included in the analysis is included as a table in Appendix A. There are essentially five types of variables included in the analysis.

- First, in order to make the results comparable with those of Kingdon and Knight (2007), a host of variables at the household level are included. These include household size, number of children below 16 years in the household, number of pensioners as well as province and location dummies. Other variables that are primarily indicative of the household's socio-economic status are also included (these include access to basic amenities and data on the type of residence in which the household resides).
- Second, variables controlling for individual characteristics including age, employment status, years of education, marital status, gender, race, hopefulness about the future and self-assessed health status[4] are also included. These have been included to control for

[4] It has in the past been shown that health has a significant effect on a person's subjective well-being (Posel and Casale, 2010: 9).

the fact that the question regarding perceived well-being was asked to individuals in NIDS, and not to the household as a whole (as was the case in the SALDRU survey).[5]

- Third, the analysis includes variables created to control for the actual relative standing of households in their residential cluster and district. These variables have been created in order to make the analysis comparable with that of Kingdon and Knight (2007) and focus on the unemployment rate, levels of education and income within the residential cluster and district.
- The fourth set of variables capture the household's actual relative within-race position in the income distribution.
- The last set of variables includes the perceived relative standing of the household within the national and local (village or suburb) income distribution.

4. The analysis: A Comparison between Pre- and Post- 1994 Subjective Well-Being in South Africa

4.1. Methodology

In accordance with previous studies on subjective well-being, an ordered probit model is used to estimate the subjective well-being function. To maximise the comparability of the results, the model follows that of Kingdon and Knight (2007) closely for the first specification (i.e. only household-level variables are included). However, as set out above, since the NIDS questionnaire aimed the subjective well-being question at individuals and not the household, it is also important to include individual-level variables.

The results from these two different specifications of the model are presented in Table 2.

The results in Table 2 are robust across the two model specifications. As far as the household-level coefficients are concerned, the mean household education level enters the subjective well-being function positively. Having access to a flush toilet has a positive effect on subjective well-being, while living in a rural or traditional dwelling enters the utility function negatively. As expected, the African dummy is negative and significant, picking up the large difference in the level of subjective well-being reported between Africans and Whites. In addition, viewing your neighbours as aggressive lowers subjective well-being. Unsurprisingly, and in line with previous results, both the asset index and *per capita* household income has a positive effect on subjective well-being.

[5] In order to make the results more comparable with the results from the Saldru survey, the regressions were also repeated on the sub-sample of individuals who were the primary respondents in the household questionnaire. However, this did not alter the main results significantly.

Table 2: Ordered probit models of subjective well-being

	Specification 1	Specification 2
Household-level variables		
hhsize	0.0066	-0.0000
children	0.0211	0.0306
pens	0.0269	-0.0047
m_hieduc	0.0189***	0.0001
minority	-0.0037	-0.0062
rural formal	0.0937	0.0968
urban formal	0.1092	0.1379
urban informal	-0.0365	0.0146
toilet	0.1577*	0.1484*
water	0.0185	0.0197
electricity	0.0234	0.0147
own_house	-0.0111	-0.0027
rural/traditional dwelling	-0.2288**	-0.2186**
informal dwelling	-0.0423	-0.0673
african	-0.1465*	-0.2119***
coloured	0.1616	0.1349
asian/indian	-0.0734	-0.0464
crime	-0.0472	-0.0303
neighb_help	0.0727	0.0757*
neighb_agg	-0.0923*	-0.0718
asset_index	0.0171***	0.0170***
lhhinc_pc	0.1076***	0.0958***
Individual-level variables		
age		-0.0159**
age2		0.0002***
male		-0.0158
hieduc		-0.0032
hieduc2		0.0008
living with partner		-0.0058
widowed		-0.0616
divorced		-0.1745*
never married		-0.0081
health rank 2		0.0040
health rank 3		-0.1906**
health rank 4		-0.2003**
health rank 5		-0.5138***
futurehope		0.0501
unemployed – discouraged		-0.1936**
unemployed – strict		-0.1575***
employed		-0.0090
member		0.1122***
Number of observations	10666	10449

Notes: Standard errors have been corrected for clustering at the level of the enumeration cluster. Base categories are indicated in Appendix A. Province and location dummies included but not reported. Hopeful about the future: rank 1 least hopeful and rank 6 most hopeful. Health status: rank 1 most healthy and rank 5 least healthy.

*** significance at 1% level, ** significance at 5% level, * significance at 10% level.

These household-level variables remain significant after the inclusion of the individual-level variables, with the exclusion of the mean household unemployment rate (most probably since an individual-level employment variable has now also been included).

As far as the individual-level variables are concerned, the probability of reporting the highest subjective well-being category initially decreases with age, but reaches a turning point at approximately 39 years. This is in line with the findings of Kingdon and Knight (2006: 1209).[6] Discouraged and strictly unemployed individuals unsurprisingly are less likely to report the highest subjective well-being category compared to individuals who are not economically active. However, there seems to be no difference between employed individuals and individuals who are not economically active (probably as a result of the fact that both of these states typically involve a choice by the individual while the other states do not).

The variable controlling for an individual's inherent life-satisfaction (hope for the future) does not have a significant effect on reported subjective well-being, except where inherent life-satisfaction is at the highest rank (where it has a significantly positive effect on the probability of reporting the highest subjective well-being level).

Married individuals are more likely to report the highest subjective well-being category than widowed individuals. Self-reported health status only appears to have a significant effect on reported subjective well-being at lower levels (rank 3-5); these individuals are less likely to report the highest subjective well-being category. There seems to be no significant difference between males and females.

Although not reported here, the marginal effects of both individual and household income on the probability of reporting the lowest and highest subjective well-being category were calculated. The marginal effect of the log if individual income on the probability of reporting subjective well-being category 1 is -0.01, and subjective well-being category 10 is 0.01. In other words, if monthly personal income were to increase by R10 000, the probability of reporting subjective well-being category 1 will decrease by 0.1 percentage points,[7] while the probability of reporting subjective well-being category 10 will increase by 0.1 percentage points.

[6] However, interestingly, this finding does not accord with the results from similar studies in the USA, where it has been found that subjective well-being increases from 18 years to 50 years and declines thereafter (Easterlin, 2006: 463).

[7] Calculated as (ln10000)*(-0.01).

As for household income, the marginal effect of the log if *per capita* household income on the probability of reporting subjective well-being category 1 is -0.01, and subjective well-being category 10 is 0.02. Accordingly, if monthly *per capita* household income were to increase by R10 000, the probability of reporting subjective well-being category 1 will decrease by 0.2 percentage points, while the probability of reporting subjective well-being category 10 will increase by 0.1 percentage points. It is clear that neither of these two variables have a very large effect on very high or low subjective well-being.

So far, the results are broadly compatible with the findings by Kingdon and Knight (2006 and 2007) for pre-1994 South Africa. The next section explores whether this is still the case if the relative income of close and more distant others is considered.

4.2. Subjective Well-Being and spatial reference groups

Following the approach by Kingdon and Knight (2007), variables were created to control for the relative well-being of households, compared to other households within the same residential cluster (nearby others) and district (distant others). Variables controlling for mean employment, education and income were created at the district and cluster level, by taking the average level within the cluster or district, excluding that specific household.

The NIDS data includes 400 household clusters that are all in the same district and geographical area.[8] These clusters together comprise a district council (there are 53 district councils in the NIDS data). Within the district councils, households from different geographical areas are included. Although the households in the clusters are very homogenous in nature, the households in the district council are, accordingly, more varied. The district is therefore seen as a proxy for more distant others, while the cluster is seen as a proxy for closer others.

Table 3 below replicates the approach taken by Kingdon and Knight (2007: 78). Cluster and district average variables are included stepwise so that the effect of each of the variables can be ascertained separately and in combination with each other. These results are set out in Table 3.

Table 3 provides some evidence that cluster-level variables enter the individual's utility function positively,[9] while the district-level variables enter negatively.

[8] In other words, each district consists of a number of clusters which are all homogenous in whether they are in a rural, urban, informal rural or tribal authority area within the district.

[9] Again, as mentioned above, the regressions were repeated only on the sample of individuals who were the main respondents in the household questionnaire (to make the results more comparable with those using the SALDRU data

Table 3: Subjective well-being and relative income across spatial reference groups

	1	2	3	4	5	6	7
african	-0.2772***	-0.2670***	-0.2044***	-0.1977***	-0.2458***	-0.2310***	-0.2377***
coloured	0.0779	0.0828	0.1333	0.1315	0.0898	0.1021	0.1114
asian	0.0500	0.0428	0.0646	0.0774	0.0886	0.0850	0.0656
hhurate	0.1352	0.1306	0.1503	0.1424	0.1507	0.1411	0.1219
asset_index	0.0170***	0.0172***	0.0150***	0.0146***	0.0168***	0.0162***	0.0151***
lhhinc_pc	0.1025***	0.1017***	0.0950***	0.0978***	0.1035***	0.1000***	0.1018***
c_hhurate	0.6048**	0.4419					0.4576
d_hhurate		0.7728					0.0440
c_hhedyrs			0.0340**	0.0436***			0.0370**
d_hhedyrs				-0.0637*			0.0147
d_lnhhpci					-0.1845***	-0.1826***	-0.1925*
c_lnhhpci						0.0321	0.0093
N	10444	10444	10444	10444	10449	10444	10444

Notes: Reported results are coefficients from ordered probit regressions on subjective well-being categories. A full set of control variables are included, but not reported.

*** significance at 1% level, ** significance at 5% level, * significance at 10% level.

This accords with what was found by Kingdon and Knight (2007: 78). After finding that the cluster-level coefficients are more significant for smaller clusters, they conclude that the positive effect of the cluster-level variable is as a result of altruism towards others that are similar to one's own household. Given that the clusters in the NIDS data are all smaller than 200 households, it would appear that the positive effect of the cluster-level variables can in this instance also be attributed to altruistic feelings, while the district-level variables appear to confirm the usual finding that relative well-being has a significant effect on how well individuals think they are doing (i.e. their subjective well-being).

So far the results appear to indicate that not much has changed from the 1993 SALDRU data. However, in the next two sections, the hypothesis of a race-related reference group is explored in more detail.

4.3. Subjective well-being and race-specific relative income

In order to test whether race-specific reference groups are still relevant for subjective well-being, variables capturing the relative standing of individuals within their specific race group are included in the regression, as set out below in Table 4.

These variables include variables indicating the household's position in the race-specific income quintiles, i.e. where the household falls relative to its race group. In addition, another variable is created as the log of the race-specific district mean income, in other

where subjective well-being was measured at the household level). However, there were no significant differences from the results reported here.

words the mean *per capita* household income of all of the households of the same race within the household's district.

Table 4: The Effect of race-specific relative income on subjective well-being

	1	2	3	4
african	-0.2310***	-0.1640	-0.1547	-0.1662
coloured	0.1021	0.1494	0.1544	0.1461
asian	0.0850	0.1027	0.1271	0.1084
hhurate	0.1411	0.1418	0.1531	0.1434
asset_index	0.0162***	0.0160***	0.0166***	0.0161***
lhhinc_pc	0.1000***	0.0990***	0.1112***	0.1036**
c_lnhhpci	0.0321	0.0267		0.0261
d_lnhhpci	-0.1826***	-0.2043***	-0.2068***	-0.2016***
lrdm_inc		0.0469	0.0497	0.0448
rpctile 2			-0.0903	-0.0862
rpctile 3			0.0537	0.0609
rpctile 4			-0.0327	-0.0238
rpctile 5			-0.0458	-0.0254
N	10444	10444	10444	10444

Notes: Reported results are coefficients from ordered probit regressions on subjective well-being categories. A full set of control variables are included, but not reported.

*** significance at 1% level, ** significance at 5% level, * significance at 10% level.

It is evident from Table 4 that none of these race-specific variables have any significant effect on the subjective well-being of individuals.

In addition to the above estimations, we also divide the sample according to whether a household falls below or above the poverty line, in order to ascertain if this classification influences the effect of race-specific relative income on subjective well-being.

The poverty line chosen is at R515 *per capita* household income per month (2008 prices). This line was selected from the literature and has previously been applied to the NIDS data (see Leibbrandt *et al*, 2010: 46).

Table 5 below reports the results from an ordered probit on the subjective well-being variable including all of the control variables discussed in the sub-section above, in addition to the log of the district mean income[10] for the sample above and below the poverty line.

[10] Household income was chosen instead of personal income because of a large number of non-random missing values for personal income. In addition, this approach makes the results more comparable to those of Kingdon and Knight (2006).

Table 5: The effect of relative income on subjective well-being above and below the poverty line

	Below R515 poverty line	Above R515 poverty line
african	-0.0348	-0.1305
coloured	0.3465	0.1603
asian	0.2439	0.0975
asset_index	0.0101	0.0249***
lhhinc_pc	0.0573	0.1449***
c_lnhhpci	0.0458	0.0300
d_lnhhpci	-0.2327**	-0.1761**
lrdm_inc	-0.0093	0.0585
N	6590	3854

Notes: Reported results are coefficients from ordered probit regressions on subjective well-being categories. A full set of control variables are included, but not reported.

*** significance at 1% level, ** significance at 5% level, * significance at 10% level.

The results are similar to those in Table 4 above – the race-specific variables have no effect on the subjective well-being of individuals below or above the poverty line. These results differ from those reported by Kingdon and Knight (2007 81). This might be explained by the fact that, post-1994, with the abolishment of apartheid and the Group Areas Act, integration between races has increased. One would therefore expect relative income to no longer only be determined along racial lines (i.e. the reference group with which individuals compare themselves has potentially changed).

The race-specific quintile dummies created by Kingdon and Knight (2006) might therefore no longer be relevant. In addition, the low correlation between actual relative income rank and perceived relative income rank discussed above seem to indicate that the dummies included by Kingdon and Knight (2006) are potentially a poor proxy for where individuals rank themselves in the income distribution.

4.4. The effect of perceived relative income

If the relevant reference group is no longer racially divided, the question is what measure individuals use to gauge their well-being? We test the effect of perceptions of individual's relative standing on their subjective well-being levels in Tables 6 and 7 below.

Table 6: The effect of Perceived Relative Income on subjective well-being by Poverty Status

	Specification 1	**Specification 2**
african	-0.2779***	-0.2644***
coloured	0.1879*	0.2016**
indian/asian	-0.0084	-0.0263
asset index	0.0134***	0.0111**
log of pc hh income	0.0751***	0.0564***
Relative household income to others in your village/suburb		
above average inc in village/suburb	-0.3836***	-0.3622**
average inc in village/suburb	-0.6439***	-0.5962***
below average inc in village/suburb	-1.0957***	-0.9829***
much below average inc in village/suburb	-1.3052***	-1.1155***
Relative household income to others in SA		
ladder rung 2 in SA		0.3885***
ladder rung 3 in SA		0.5003***
ladder rung 4 in SA		0.6155***
ladder rung 5 in SA		0.8839***
ladder rung 6 in SA		1.0199**
N	9865	9831

Notes: A full set of control variables are included, but not reported.

*** significance at 1% level, ** significance at 5% level, * significance at 10% level.

In these regressions, include individual's perception of where their household ranks in terms of the national income and the income distribution within their village or suburb. These subjective relative income measures are a better indication of individual's perceived relative income for two reasons. First, the dummies are not race-specific and second, the dummies take into account the fact that individuals actual relative position on the income distribution often differs substantially with their perceived relative position.

It would appear that both perceived relative income on a national and local level enter the individual's utility function negatively.

The results from Table 7 seem to also indicate that individuals' perceived relative income affects reported subjective well-being both for individuals in households below and above the poverty line. The fact that the perceived relative income dummies are now significant could be an indication that the relevant comparison is no longer intra-racial but inter-racial.

Contrary to what was found by Kingdon and Knight (2006 and 2007) for 1994, perceived relative income did affect subjective well-being in 2008, even for individuals below the poverty

line. In addition, in 2008, absolute income affected the subjective well-being of both for individuals below and above the poverty line.

Table 7: Perceived relative income and subjective well-being above and below the poverty line

	Below the R515 poverty line	**Above the R515 poverty line**
african	-0.2844	-0.2320**
coloured	0.2779	0.1906
asian	-0.0167	-0.1120
hhurate	0.1887*	-0.0184
asset_index	0.0044	0.0195***
lhhinc_pc	0.0417	0.0583
Relative household income to others in your village/suburb		
above average inc in village/suburb	-0.3908**	-0.2218
average inc in village/suburb	-0.6059***	-0.4515**
below average inc in village/suburb	-1.0086***	-0.8163***
much below average inc in village/suburb	-1.1815***	-0.8138***
Relative household income to others in SA		
ladder rung 2 in SA	0.3954***	0.3513***
ladder rung 3 in SA	0.4421***	0.5936***
ladder rung 4 in SA	0.6082***	0.7008***
ladder rung 5 in SA	0.6672***	1.1244***
ladder rung 6 in SA	-0.5229	1.9269***
N	6197	3631

Notes: A full set of control variables are included, but not reported.

*** significance at 1% level, ** significance at 5% level, * significance at 10% level.

5. Conclusions

This paper set out to evaluate the shifts in subjective well-being which have occurred since the country's first democratic elections in 1994. For this purpose, 2008 data from NIDS were applied using the methodology in Kingdon and Knight (2006 and 2007), where the authors studied 1993 data.

A comparison between these two sets of results reveal that while certain conclusions made by Kingdon and Knight (2006 and 2007) still held true in 2008 there were some changes in the determinants of subjective well-being subsequent to 1994.

The differences in the level of subjective well-being between races (specifically the African and White race groups) have not changed since 1994, and large differences between these groups remain in 2008. However, some changes to the reference group with which individuals compare themselves have occurred since 1994.

More specifically, it would appear that both individuals below and above the poverty line now regard perceived relative income as an important determinant of their subjective well-being, and not race-specific relative income, as was found prior to 1994. This may be explained by the political changes which have taken place in South Africa since 1994.

While society was greatly divided along racial lines prior to 1993, subsequent to 1994 greater racial integration took place and one would therefore expect the relevant comparison group to include individuals from all race groups. The results support this proposition. This leads to the conclusion that, post-1994 it is inter-racial comparisons and not intra-racial comparisons which matter in the determination of subjective well-being.

.

References

Du Toit, P. and Kotzé, H. 2011. *Liberal Democracy and Peace in South Africa – The Pursuit of Freedom as Dignity.* Palgrave, Macmillan.

Heady, B. 2008. Life Goals Matter to Happiness: A Revision of Set-Point Theory. *Social Indicators Research,* 86: 213-231.

Easterlin, RA. 1995. Will raising the Income of all increase the Happiness of all? *Journal of Economic Behaviour and Organization,* (27): 35-47.

Easterlin, R.A. 2001. Income and Happiness: Towards a Unified Theory. *The Economic Journal,* (11): 463-482.

Easterlin, R.A. 2006. Life cycle Happiness and its Sources – Intersections of Psychology, Economics, and Demography. *Journal of Economic Psychology*, (27): 463-482.

Frey, B.S, and Stutzer, A. 2002. What can Economists Learn from Happiness Research? *Journal of Economic Literature*, (XL): 402-435.

Kingdon, G.G. and Knight, J. 2006. Subjective Well-Being Poverty *vs.* Income Poverty and Capabilities Poverty? *Journal of Development Studies*, 42(7): 1199-1224.

Kingdon, G.G. and Knight, J. 2007. Community, comparisons and subjective well-being in a divided society. *Journal of Economic Behavior and Organization*, 64: 69-90.

Posel, D and Casale, D. 2010. Relative Standing and Subjective Well-Being in South Africa: The Role of Perceptions, Expectations and Income Mobility. *Social Indicators Research*, Electronic publication, DOI: 10.1007/s11205-010-9740-2).

Leibbrandt, M., Woolard, I., Finn, A. and Argent, J. 2010. Trends in South African Income Distribution and Poverty since the Fall of Apartheid. *OECD Social, Employment and Migration Working Papers*, No. 101.

Appendix A – Description of variables used

Variable name	Description	Mean (standard deviation)
Household-level variables		
hhsize	Household size	4.89 (3.11)
children	Number of children younger than 16 years per household	1.745 (1.84)
pens	Number of pensioners older than 65 years per household	0.28 (0.54)
minority	Household is a racial minority in its cluster = 1 if yes	0.05 (0.22)
rural formal (omitted category)	Household lives in rural formal area = 1 if yes	0.11 (0.31)
tribal authority area	Household lives in tribal authority area = 1 if yes	0.39 (0.49)
urban formal	Household lives in urban formal area = 1 if yes	0.43 (0.50)
urban informal	Household lives in urban informal area = 1 if yes	0.07 (0.25)
toilet	Household has access to flush toilet = 1 if yes	0.50 (0.50)
water	Household has access to running water = 1 if yes	0.86 (0.34)
electricity	Household has access to electricity = 1 if yes	0.78 (0.41)
own_house	Household lives in house owned by someone in the household = 1 if yes	0.79 (0.41)
formal dwelling (omitted category)	Household lives in formal dwelling = 1 if yes	0.73 (0.44)
rural/traditional dwelling	Household lives in rural/traditional dwelling = 1 if yes	0.18 (0.38)
informal dwelling	Household lives in informal dwelling = 1 if yes	0.09 (0.28)
white (omitted category)	White individual	0.06 (0.24)
african	African individual	0.78 (0.41)
coloured	Coloured individual	0.15 (0.35)
asian/indian	Asian/Indian individual	0.01 (0.12)
hhurate	Mean household unemployment rate	0.17 (0.26)
crime	Crime in neighbourhood is common or very common = 1 if yes	0.46 (0.48)
neighb_help	It is common or very common that neighbours	0.63

Variable name	Description	Mean (standard deviation)
	help each other out = 1 if yes	(0.48)
neighb_aggresive	It is common or very common that neighbours are aggressive =1 if yes	0.24 (0.43)
asset_index	Asset index = (8*car) + (1*phone) + (0.2*radio) + (5*fridge) + (1*bicycle) + (0.5* electronic stove) + (1*gas stove) + (3*tv)	7.75 (5.75)
lhhinc_pc	Log of household per capita income	6.05 (1.20)
Individual-level variables		
age	Age	40.47 (17.09)
age2	Age squared	1929.63 (1596.64)
male	Male = 1 if yes	0.39 (0.49)
hieduc	Highest level of education in years	7.80 (4.40)
hieduc2	Highest level of education in years squared	80.19 (59.91)
married (omitted category)	Married = 1 if yes	0.32 (0.47)
living with partner	Living with partner = 1 if yes	0.10 (0.30)
widowed	Widowed = 1 if yes	0.09 (0.30)
divorced	Divorced = 1 if yes	0.03 (0.17)
never married	Never married = 1 if yes	0.46 (0.49)
health rank 1 (omitted category)	Self perceived health status excellent	0.27 (0.44)
health rank 2	Self perceived health status very good	0.24 (0.43)
health rank 3	Self perceived health status good	0.24 (0.43)
health rank 4	Self perceived health status fair	0.15 (0.35)
health rank 5	Self perceived health status poor	0.09 (0.28)
futurehope	Respondent feels hopeful about the future most of the time/always	0.25 (0.43)
not economically active (omitted category)	Respondent is not economically active = 1 if yes	0.07 (0.25)
unemployed – discouraged	Respondent is unemployed and has not looked for work within last 7 days = 1 if yes	0.13 (0.34)
unemployed – strict	Respondent is unemployed but has looked for	0.42

Variable name	Description	Mean (standard deviation)
	work in the last 7 days = 1 if yes	(0.49)
member	Respondent is member of at least one organisation/group	0.36 (0.48)
	Cluster and district level variables	
c_hhurate	Mean household unemployment rate per cluster*	0.17 (0.10)
d_hhurate	Mean household unemployment rate per district*	0.18 (0.06)
c_hhedyrs	Mean years of education per household in the cluster*	7.78 (2.13)
d_hhedyrs	Mean years of education per household in the district*	7.79 (1.24)
c_lnhhpci	Mean cluster log *per capita* household income*	6.46 (0.86)
d_lnhhpci	Mean district log *per capita* household income*	6.74 (0.65)
	Race-specific relative income	
lrdm_inc	Log of the race-specific district mean income (mean *per capita* household income of all of the households of the same race within the household's district)	6.58 (0.72)
rpctile 1	Own-race income quintile 1	
rpctile 2	Own-race income quintile 2	0.20 (0.40)
rpctile 3	Own-race income quintile 3	0.21 (0.41)
rpctile 4	Own-race income quintile 4	0.19 (0.39)
rpctile 5	Own-race income quintile 5	0.19 (0.40)
	Perceived relative standing variables	
relinc_village rank 1	Perceived relative income within the suburb/village – much above average	0.03 (0.15)
relinc_village rank 2	Perceived relative income within the suburb/village – above average	0.07 (0.25)
relinc_village rank 3	Perceived relative income within the suburb/village – average	0.39 (0.49)
relinc_village rank 4	Perceived relative income within the suburb/village – below average	0.33 (0.47)
relinc_village rank 5	Perceived relative income within the suburb/village – much below average	0.19 (0.39)
relinc_sa rank 1	Perceived relative income within South Africa – bottom rank	0.16 (0.37)
relinc_sa rank 2	Perceived relative income within South Africa – second rank	0.38 (0.49)
relinc_sa rank 3	Perceived relative income within South Africa –	0.33

Variable name	Description	Mean (standard deviation)
	third rank	(0.47)
relinc_sa rank 4	Perceived relative income within South Africa – fourth rank	0.10 (0.31)
relinc_sa rank 5	Perceived relative income within South Africa – fifth rank	0.02 (0.14)
relinc_sa rank 6	Perceived relative income within South Africa – top rank	0.00 (0.07)

*****Mean cluster and district level variables were created without taking into account the household's own contribution to the average.