



## Measurements and determinants of multifaceted poverty in South Africa

Ada Jansen, Mariana Moses, Stanford Mujuta & Derek Yu

To cite this article: Ada Jansen, Mariana Moses, Stanford Mujuta & Derek Yu (2015) Measurements and determinants of multifaceted poverty in South Africa, *Development Southern Africa*, 32:2, 151-169, DOI: [10.1080/0376835X.2014.984377](https://doi.org/10.1080/0376835X.2014.984377)

To link to this article: <https://doi.org/10.1080/0376835X.2014.984377>



Published online: 28 Nov 2014.



Submit your article to this journal [↗](#)



Article views: 1666



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 12 View citing articles [↗](#)

# Measurements and determinants of multifaceted poverty in South Africa

Ada Jansen<sup>1</sup>, Mariana Moses<sup>2</sup>, Stanford Mujuta<sup>3</sup> & Derek Yu<sup>4</sup>

*Poverty, despite being a multifaceted concept, is commonly measured in either absolute or relative monetary terms. However, it can also be measured subjectively, as people form perceptions on their relative income, welfare and life satisfaction. This is the first study that uses the National Income Dynamics Study data to analyse poverty across various objective and subjective methods. The paper finds that while respondents' poverty status varies across methods, blacks remain the racial group most likely to be defined as poor by at least one method. The multivariate analysis reveals that the impact of some explanatory variables, such as experience of negative events, frequency of crime victimisation, health status and importance of religious activities, is mixed across methods.*

**Keywords:** poverty; absolute poverty; relative poverty; objective poverty; subjective poverty; subjective well-being; National Income Dynamics Study; South Africa

**JEL codes:** I32; O10

## 1. Introduction

Poverty is a diverse and dynamic concept, and although there is no universal definition it generally refers to deprivations suffered in monetary or non-monetary terms. Hence, poverty is a multi-dimensional concept. In monetary terms, poverty is associated with inadequate income to purchase essential items for survival, while non-monetary poverty can be linked to, amongst others, inadequate access to public services and private asset ownership, social isolation, low educational attainment, poor health, and vulnerability to crime (Chambers, 1988; World Bank, 2001).

Social exclusion refers to process of deprivation and marginalisation of certain population groups within society (Hickey & Du Toit, 2007:2). According to Tsakoglou and Papadopoulos (2000:1–3) and Silver (1995 as quoted by Sen 2000:1), people may be excluded from, inter alia, permanent employment, formal housing, good health, education, democratic participation, membership of social groups, and the dominant race. As a consequence, social exclusion can lead to economic and social impoverishment (Sen, 2000:5; Ravallion & Chen, 2009:4).

<sup>1</sup>Associate Professor, Department of Economics, Stellenbosch University, Private Bag X1, Matieland 7602, South Africa.

<sup>2</sup>Lecturer, Department of Economics, University of the Western Cape, Private Bag X17, Bellville 7535, South Africa.

<sup>3</sup>Lecturer, Department of Economics, University of the Western Cape, Private Bag X17, Bellville 7535, South Africa.

<sup>4</sup>Senior Lecturer, Department of Economics, University of the Western Cape, Private Bag X17, Bellville 7535, South Africa. Corresponding author: [dyu@uwc.ac.za](mailto:dyu@uwc.ac.za)

Given its multidimensional nature, there are various approaches to measuring poverty. Firstly, poverty can be measured objectively or subjectively. The former approach compares an objective indicator of well-being<sup>5</sup> with a monetary threshold (see Ravallion, 1992; Haughton & Khandker, 2009). This threshold (i.e. the objective poverty line) distinguishes the poor from the non-poor, and it is a scientifically determined minimum requirement to sustain life. Two approaches to determine this requirement involve the cost of basic needs and food energy intake (Ravallion, 1992:26–27; Haughton & Khandker, 2009:49–50). The former estimates the income required to purchase a basket of essential food and non-food items for survival, while the latter measures the income level at which a person's typical food energy intake is just sufficient to meet a predetermined food energy requirement (Ravallion, 1998:10; Bellu & Liberati, 2005).

Objective income poverty can be measured using either absolute or relative approaches. Absolute income poverty is based on an objective measurement of the minimum income required for survival (see the discussion on objective poverty above). For instance, for cross-country comparison, the World Bank's US\$1 per day absolute poverty line is commonly used (Ravallion & Chen, 2009:2). In the case of South Africa, Woolard & Leibbrandt (2006) proposed three absolute poverty lines at R211, R322 and R593 per capita per month in 2000 prices (or R436, R665 and R1225 in 2013 prices). In contrast, relative income poverty involves identifying the poorest segment of the population (e.g. poorest 20 or 40%) by means of a relative poverty line (Boltvinik, 2001; Govender et al., 2006; Woolard & Leibbrandt, 2006). An alternative method is to set a poverty line at a particular percentage (e.g. 50%) of the mean or median per-capita income or expenditure (Woolard & Leibbrandt, 2001:48).

In the case of subjective poverty, individuals make self-assessments on whether or not they feel poor (Ravallion, 1992, 1998). This measurement does not necessarily entail determining a poverty line. A 'relative' component is involved; that is, an individual's perception of his well-being or poverty status is informed by the perceived well-being of others (Statistics South Africa, 2012:8). In the event where a poverty line is indeed used, respondents are requested to specify the minimum income level (i.e. the subjective poverty line) for survival, which will differ amongst them. If the actual income of a respondent is below his/her specified minimum income level, he/she is classified as poor (Ravallion, 1992:33, 1998:21). Subjective poverty can also be measured without the use of a poverty line. For instance, an individual can make a cognitive judgement of their income relative to others. A more comprehensive method is to consider aspects (refer to Sen, 2000; Ravallion & Chen, 2009) influencing human well-being other than income to measure a person's subjective welfare (Diener et al., 2009).

Most of the South African studies on poverty adopted either the absolute or relative income approach. An array of datasets has been employed, ranging from the All Media Products Surveys (e.g. Van der Berg et al., 2005, 2007a, 2007b, 2008), Census (Leibbrandt et al., 2006; Yu, 2009a), October Household Surveys and Labour Force Surveys (Meth & Dias, 2004; Vermaak, 2005) to Income and Expenditure Surveys (Van der Berg & Louw, 2004; Hoogeveen & Özler, 2006; Özler, 2007; Pauw & Mncube, 2007; Bhorat & Van der Westhuizen, 2012) and National Income Dynamic Studies (NIDS) (Finn & Leibbrandt, 2013). The commonly used poverty lines in these

<sup>5</sup>Per-capita income and per-capita expenditure are the two commonly used variables.

studies are R250 and R322 per capita per month in 2000 prices as well as the international US\$1 or US\$2 per day. Their findings reflected that poverty increased until 2000, after which there was a continuous downward trend.

Other recent studies considered the multidimensional nature of poverty (see Burger et al., 2004; Adams et al., 2013; Borat & Van der Westhuizen, 2013; Finn et al., 2013) by considering the non-monetary variables. Welfare indices were derived using alternative statistical techniques, ranging from principal components analysis, multiple correspondence analysis (MCA) and factor analysis to the fuzzy sets and the multidimensional poverty index (MPI) methods. The principal components analysis, MCA, factor analysis and fuzzy sets methods aim at combining variables (e.g. private assets, public services, educational attainment of household head) to derive an index.<sup>6</sup> Once the index is derived, a relative poverty line is used (e.g. an index value that distinguishes the poorest 40% of the households or population) to investigate the profile of the poor.

For the MPI method, a ‘dual cut-off’ approach is adopted to consider both the incidence and intensity of multidimensional poverty. The former reflects the proportion of the population that is multi-dimensionally poor using a particular cut-off point (e.g. a person is identified as poor if the weighted indicators in which he is deprived sum up to 40%), while the latter considers the average proportion of indicators in which poor people are deprived. The MPI is then calculated as the product of the incidence of poverty and average intensity across the poor (Alkire & Santos, 2010; Alkire & Foster, 2011; Finn et al., 2013). An advantage of this approach is that, by taking intensity of multidimensional poverty into consideration, if a poor individual becomes deprived in an additional dimension, MPI would definitely increase (Alkire & Santos, 2010:10).

Analyses on subjective well-being commenced in 1993 with the release of the Project for Statistics on Living Standards and Development. More recent surveys such as the 2008/09 Living Condition Survey (LCS) and the NIDS also make it possible to measure subjective poverty using monetary and non-monetary indicators. Only few South African studies adopt methods other than the absolute income and relative income approaches. Kingdon & Knight (2004) used the 1993 Project for Statistics on Living Standards and Development data, while the 2008 NIDS data were used by Posel & Casale (2011), Blaauw & Pretorius (2012) and Ebrahim et al. (2013).

Statistics South Africa (2012) used the 2008/09 LCS to examine poverty using different approaches, particularly a multi-dimensional subjective poverty approach. Respondents were asked to rate their households’ living standard within five categories (food consumption, housing, clothing, healthcare, and children’s schooling). This study included a comparative analysis of the various approaches, as well as a multivariate analysis across methods to identify the characteristics of the poor. Posel & Rogan (2013) also used LCS to compare objective poverty (using per-capita income and the absolute poverty line of Woolard & Leibbrandt [2006]) and subjective poverty (respondents were defined as poor if they perceived they were poor or very poor), and found that the objective poverty rate was higher.

---

<sup>6</sup>For detailed explanation on the statistical techniques involved to derive the welfare index in each approach, refer to Cheli & Lemmi (1995), Sahn & Stifel (2000), Vyas & Kumaranayake (2006), Asselin & Anh (2008) and Ezrari & Verme (2012).

Although both the LCS and NIDS asked various questions to examine poverty, the information on subjective well-being in NIDS is captured more comprehensively. Respondents were asked to report their level of life satisfaction, which encompasses a wider spectrum of well-being than the five categories specified in LCS. In addition, the existing studies that employed NIDS only used the life satisfaction approach (Method 5, to be discussed below).

This paper is the first study that uses the NIDS data to analyse poverty across various objective and subjective methods. In addition to measuring poverty using absolute and relative monetary approaches, we also consider life satisfaction, and other subjective poverty approaches (see the discussion on Methods 3 and 4 below) that have not yet been analysed with the NIDS datasets. The rest of the paper is structured as follows. Section 2 discusses the data and the methodology, whereas Section 3 presents the results of the descriptive and multivariate analyses. Section 4 concludes the paper.

## **2. Data and methodology**

This study uses the 2010/11 NIDS, a panel data study conducted by the Southern African Labour and Development Research Unit, University of Cape Town, South Africa. The survey is conducted every two years, and collects information on the livelihood of individuals and households over time. The NIDS 2010/11 comprises 6809 households reporting their income, expenditure, and non-monetary information. The questions on poverty status are from the adult (15 years or above) questionnaire, with 16 883 respondents in total.

The methodology involves five approaches to measure poverty: Method 1, absolute income poverty; Method 2, relative income poverty; Method 3, self-perceived relative income poverty; Method 4, self-perceived relative welfare; and Method 5, subjective well-being. Poverty analysis is conducted at individual level but not household level mainly due to the fact that information on most of the explanatory variables to be used in the forthcoming econometric analysis was collected at individual level in the NIDS adult questionnaire. For the remainder of the paper, person weight is used to conduct the empirical analysis, unless stated otherwise.

Method 1 uses the poverty line proposed by Woolard & Leibbrandt (2006), estimated at R665 per capita income per month<sup>7</sup> in 2013 prices. This represents the amount required to purchase essential food and non-food items to ensure survival. Method 2 distinguishes the poorest 40% of the population at a poverty line equivalent to R647 per capita per month (2013 prices).

In Method 3 the respondent provides a self-assessment of his/her income as compared with the income of people in the same area or village, and can choose from any of the following five options: Option 1, much above average income; Option 2, above average income; Option 3, average income; Option 4, below average income; and Option 5, much below average income. In Method 4 the respondent was asked to declare his/her welfare status relative to others in the country according to a six-step ladder question, with the first and sixth steps representing the poorest and the richest people, respectively. In Method 5 the respondent was asked to declare his/her level of

---

<sup>7</sup>In NIDS, household income includes wage, government grant, other government income, investment, remittances, implied rent and agricultural income (Argent, 2009). Household income is divided by household size to derive per-capita income.

life satisfaction according to a 10-point scale, with one point meaning 'very dissatisfied' and 10 points meaning 'very satisfied'.

With regard to Methods 3 to 5, it is assumed that if a respondent chose Option 4 or 5 in Method 3, steps one or two in Method 4, and between one and four points in Method 5, he/she is classified as poor.

### 3. Descriptive statistics and empirical analysis

#### 3.1 Descriptive statistics

Table 1 provides a summary of the poverty headcount ratio by race and gender classification as well as area type of residence. The headcount ratios in all five methods fluctuate between 40 and 45%, with the ratio being the lowest in Method 2 (40%) and the highest in Method 5 (44.17%). As expected, the ratios are the highest for blacks in all five methods compared with other racial groups. The female poverty headcount ratios are significantly higher in the first two methods, compared with males; however, these ratios are fairly similar in the last three methods. The results suggest that females are more likely to be poor under the monetary approaches (Methods 1 and 2). Upon analysing the poor individuals identified in these two methods, it is found that only about 51% of the poor male adults come from households headed by females. In contrast, 72% of the poor female adults come from households headed by females (this proportion drops to 67 to 68% when looking at the poor females identified in the other three methods). Finally, the rural poverty headcount ratios are higher across all five methods, but the magnitude of the difference between the rural and urban ratios is greater for the first two methods.

The racial composition of the poor is summarised in Table 2. Blacks account for the highest racial share of the poor in all five approaches. With regard to the gender composition of the poor, the female share is more dominant in all five methods (in particular, in the first two methods it exceeds 60%). Finally, it is interesting that the rural share is more dominant in Methods 1, 2 and 5.

**Table 1: Poverty headcount ratio, by method**

	Method 1	Method 2	Method 3	Method 4	Method 5
All	0.4055	0.4000	0.4216	0.4352	0.4417
<b>Race</b>					
Black	0.4841	0.4778	0.4748	0.4903	0.5217
Coloured	0.2212	0.2064	0.3616	0.3449	0.2106
Indian	0.0854	0.0854	0.1243	0.1616	0.0760
White	0.0112	0.0112	0.1350	0.1524	0.0872
<b>Gender</b>					
Male	0.3486	0.3430	0.4148	0.4362	0.4397
Female	0.4539	0.4471	0.4273	0.4343	0.4434
<b>Area type</b>					
Urban	0.2759	0.2698	0.3796	0.3793	0.3578
Rural	0.5883	0.5818	0.4815	0.5168	0.5599

Source: Authors' own calculations using NIDS 2010/11 data.

**Table 2: Racial and gender composition of the poor, by method**

	Method 1	Method 2	Method 3	Method 4	Method 5
<b>Race (%)</b>					
Black	94.56	94.79	88.40	88.62	93.56
Coloured	4.67	4.43	7.61	6.92	4.09
Indian	0.49	0.50	0.70	0.88	0.41
White	0.27	0.28	3.29	3.58	1.95
Total	100.00	100.00	100.00	100.00	100.00
<b>Gender (%)</b>					
Male	39.56	39.53	45.31	46.07	45.78
Female	60.44	60.47	54.69	53.93	54.22
Total	100.00	100.00	100.00	100.00	100.00
<b>Area type (%)</b>					
Urban	39.83	39.57	52.94	51.70	47.36
Rural	60.17	60.43	47.06	48.30	52.64
Total	100.00	100.00	100.00	100.00	100.00

Source: Authors' own calculations using NIDS 2010/11 data.

Table 3 presents the percentage of those classified as poor in one method who are also defined as poor in another method. Of those classified as poor in Method 1, 98.45% are also defined as poor in Method 2. This result is expected, as the relative poverty line (R647) is set at a level very similar to the absolute poverty line (R665). As discussed before, other relative poverty lines could have been used. Table A1 in Appendix A presents the profile of the poor using four different relative poverty lines. Had these relative poverty lines been used, the correspondence of Methods 1 and 2 would have been lower.

In Methods 3 to 5, this proportion ranges between 56 and 59%. All respondents classified as poor in Method 2 are also defined as poor in Method 1, but this proportion is between 56 and 59% in the other three methods. With regard to the three subjective methods, 67% of those classified as poor in Method 3 are also defined as poor in Method 4, whereas this proportion is only 59% in Method 5. Furthermore, 58% of the poor in Method 4 are identified as poor in Method 5, while 59% of the poor according to Method 5 are distinguished as poor in Method 4. These results suggest that although the poverty headcount ratios are similar in all five methods (see Table 1), different people could be identified as poor.

Table 4 presents the number of times respondents are defined as poor. Overall, 73.94% are classified as poor in at least one method, whereas only 10.81% are poor according to

**Table 3: Percentage of poor in one method being defined as poor in another method**

	Method 1	Method 2	Method 3	Method 4	Method 5
Method 1	100.00	98.45	56.43	59.13	58.14
Method 2	100.00	100.00	56.45	59.15	58.29
Method 3	53.21	52.33	100.00	66.88	58.88
Method 4	54.17	53.35	64.76	100.00	58.27
Method 5	53.42	52.72	57.18	58.95	100.00

Source: Authors' own calculations using NIDS 2010/11 data.

**Table 4: Number of times a person is defined as poor according to race and gender**

	None	At least one method	At least two methods	At least three methods	At least four methods	All five methods
All (%)	26.07	73.94	57.77	40.88	22.52	10.81
<b>Race (%)</b>						
Black	16.54	83.47	67.43	49.35	27.40	13.36
Coloured	42.30	57.70	39.50	21.14	10.95	3.76
Indian	67.80	32.20	15.02	5.75	1.57	0.06
White	74.06	25.95	10.84	2.38	0.65	0.22
<b>Gender (%)</b>						
Male	27.63	72.38	54.66	37.45	19.70	9.67
Female	24.73	75.27	60.43	43.82	24.93	11.79
<b>Area type (%)</b>						
Urban	35.44	64.56	46.10	29.91	14.95	7.03
Rural	12.49	87.51	74.66	56.76	33.48	16.29

Source: Authors' own calculations using NIDS 2010/11 data.

all five methods. More than 80% of blacks are classified as poor in at least one method, whereas this proportion is only approximately 25% for whites. A total 13.36% of the blacks are classified as poor in all five methods, but this proportion is only 0.22% for whites. Finally, females and rural residents are more likely to be defined as poor in all five methods.

### 3.2 Multivariate analysis

In this section, a multivariate approach is used to examine the impact of various explanatory variables on the likelihood of being poor across the five methods. The selection of some of these variables is based on past local studies (e.g. Kingdon & Knight, 2004; Posel & Casale, 2011; Blaauw & Pretorius, 2012; Ebrahim et al., 2013; Posel & Rogan, 2013). We also include additional explanatory variables that have not been considered in local studies before, such as the experience of negative events<sup>8</sup> and whether the worker is permanently employed.

Table 5 describes these variables, including demographic factors such as age, marital status, race and gender; labour market status as defined under the narrow definition;<sup>9</sup> whether the respondent is the household head; and geographical variables such as province of residence and area type. Social and health characteristics include the incidence of crime, experience of negative events, health status, medical aid coverage, significance of religious activities and group membership (e.g. stokvel, sports group, study group, singing or music group, tribal authority). Private and public asset indices (index1 and

<sup>8</sup>This refers to Section G of the household questionnaire; for instance, death of a non-resident family member depended on for financial assistance, serious illness or injury of a household member, or major crop failure.

<sup>9</sup>Under the narrow definition, the adults are classified into four groups: inactive, employed, unemployed, and discouraged workseekers. The difference between the unemployed and the discouraged workseekers is that the former group of people have been actively seeking work in the past four weeks at the time of the survey, but this is not the case for the latter group (Statistics South Africa, 2008; Yu, 2009b:14).



**Table 5: Description of explanatory variables**

<b>Variable</b>	<b>Description</b>
wc	Province: Western Cape dummy (1 = yes, 0 = no)
ec	Province: Eastern Cape dummy (1 = yes, 0 = no)
nc	Province: Northern Cape dummy (1 = yes, 0 = no)
fs	Province: Free State dummy (1 = yes, 0 = no)
kzn	Province: Kwazulu-Natal dummy (1 = yes, 0 = no)
nw	Province: North West dummy (1 = yes, 0 = no)
gau	Province: Gauteng dummy (1 = yes, 0 = no)
mpu	Province: Mpumalanga dummy (1 = yes, 0 = no)
lim	Province: Limpopo dummy (1 = yes, 0 = no)
urban	Area type: urban dummy (1 = yes, 0 = no)
rural	Area type: rural dummy (1 = yes, 0 = no)
index1	Public asset index – derived from the following variables, using the MCA method: dwelling type, roof material, wall material, water, sanitation, fuel for cooking, fuel for lighting, refuse removal, street lighting
index2	Private asset index – derived from the following variables, using the MCA method: telephone, music player, television, satellite dish, VCR/DVD, computer, camera, stove, microwave oven, fridge/freezer, washing machine, sewing/knitting machine, lounge suite, motor vehicle, bicycle, boat, farming equipment
crime	Very common to be victims of crime dummy (1 = yes, 0 = no)
negative	Experience any negative events dummy (1 = yes, 0 = no)
head	Household head dummy (1 = yes, 0 = no)
black	Race: black dummy (1 = yes, 0 = no)
coloured	Race: coloured dummy (1 = yes, 0 = no)
indian	Race: Indian dummy (1 = yes, 0 = no)
white	Race: white dummy (1 = yes, 0 = no)
male	Gender: male dummy (1 = yes, 0 = no)
female	Gender: female dummy (1 = yes, 0 = no)
age	Age in years
age2	Age in years squared
married	Married or living with a partner dummy (1 = yes, 0 = no)
none	Education: no schooling dummy (1 = yes, 0 = no)
primary	Education: incomplete primary education dummy (1 = yes, 0 = no)
secondary	Education: incomplete secondary education dummy (1 = yes, 0 = no)
matric	Education: matric dummy (1 = yes, 0 = no)
certdip	Education: matric plus certificate or diploma dummy (1 = yes, 0 = no)
degree	Education: bachelor degree dummy (1 = yes, 0 = no)
inactive	Labour status: inactive dummy (1 = yes, 0 = no)
discouraged	Labour market status: discouraged workseekers (1 = yes, 0 = no)
unemployed	Labour market status: unemployed (under the narrowed definition) (1 = yes, 0 = no)
employer	Labour market status: self-employed (1 = yes, 0 = no)
nonperm	Labour market status: non-permanent employees (1 = yes, 0 = no)
perm	Labour market status: permanent employees (1 = yes, 0 = no)
h_excellent	Health status: excellent dummy (1 = yes, 0 = no)
h_vgood	Health status: very good dummy (1 = yes, 0 = no)

*(Table continued)*

**Table 5:** Continued

Variable	Description
h_good	Health status: good dummy (1 = yes, 0 = no)
h_fair	Health status: fair dummy (1 = yes, 0 = no)
h_poor	Health status: poor dummy (1 = yes, 0 = no)
medical	Covered by medical aid dummy (1 = yes, 0 = no)
r_important	Religion: regarding religion as important dummy (1 = yes, 0 = no)
r_vimportant	Religion: regarding religion as very important dummy (1 = yes, 0 = no)
member	Member of any group dummy (1 = yes, 0 = no)

index2 respectively) were constructed to include non-money metric measures such as household assets and services received, using the MCA technique. The mean and standard deviation for these explanatory variables are presented in [Table A2](#) in [Appendix A](#).

### 3.2.1 Probit regressions

Probit regressions are run across all five methods to determine the characteristics of those adults who are more likely to be defined as poor. In Methods 1 and 2, the marginal fixed effects of the provincial dummies show that Gauteng is the only province where respondents are significantly less likely to be poor, compared with Western Cape ([Table 6](#)). In contrast, respondents from other provinces are more likely to be poor, but the result is only significant in Eastern Cape, Northern Cape, Free State and Limpopo. These results are consistent with the findings of the local literature referred to in [Section 2](#).

In Method 3, adults from provinces other than the Western Cape are less likely to be poor when they compare themselves with people in the same neighbourhood (these results are significant for all provinces except the Eastern Cape). Furthermore, respondents in the Northern Cape, North West and Mpumalanga are significantly more likely to be poor in Method 4, whereas those residing in KwaZulu-Natal, Mpumalanga and Limpopo have a greater likelihood of not being satisfied with their lives in Method 5. These results are in contrast to the findings of [Blaauw & Pretorius \(2012\)](#), who found that people in Mpumalanga, the Northern Cape and Free State to have a smaller likelihood to be dissatisfied with their lives, compared with the Western Cape. One possible explanation for the contrast in findings is the inclusion of different explanatory variables; for instance, [Blaauw & Pretorius \(2012\)](#) included log per-capita income.

Urban residents are significantly less likely to be poor in Methods 1 and 2. However, when subjective methods are applied, they are significantly more likely to be poor or less satisfied with their lives. This supports the findings of [Gerdtham and Johannesson \(2001\)](#) as well as [Graham and Felton \(2006\)](#) as cited by [Ebrahim et al. \(2013:173\)](#). [Blaauw & Pretorius \(2012:191\)](#) also reported that the rural provinces (such as Mpumalanga and the Northern Cape) are associated with a higher level of well-being. It is also possible that even after rural residents migrate to urban areas, they remain unemployed, and hence they are more likely to be poor ([Burger et al., 2004](#)).

**Table 6: Probit regression on likelihood to be poor in each method**

	Marginal fixed effects				
	Method 1	Method 2	Method 3	Method 4	Method 5
ec	0.1006***	0.1015***	-0.0162	-0.0056	-0.0050
nc	0.1164***	0.1209***	-0.0764***	0.0459**	-0.0656***
fs	0.1311***	0.1299***	-0.1124***	-0.0756***	-0.0827***
kzn	0.0092	0.0061	-0.2135***	-0.1054	0.0392*
nw	0.0428*	0.0424	-0.0823***	0.0122***	-0.2139***
gau	-0.0551**	-0.0683***	-0.0459**	-0.0986***	-0.1294***
mpu	0.0038	0.0017	-0.0523**	0.0948***	0.2381***
lim	0.1241***	0.1211***	-0.1620***	-0.1221***	0.0510**
urban	-0.0358***	-0.0385***	0.0727***	0.0981***	0.0605***
index1	-0.0378***	-0.0352***	-0.0439***	-0.0502***	-0.0267***
index2	-0.1826***	-0.1816***	-0.1462***	-0.1185***	-0.0948***
crime	0.0190	0.0176*	-0.0191**	-0.0281***	0.0196**
negative	0.0089	0.0086	0.0424***	0.0242**	-0.0273***
head	-0.0074	-0.0052	0.0166	0.0016	-0.0171
coloured	-0.0645***	-0.0782***	0.0066	0.0005	-0.2253***
indian	-0.1738***	-0.1636***	0.0704	-0.0581	-0.3754***
white	-0.3032***	-0.2922***	-0.0169	-0.0674**	-0.2421***
male	-0.0240***	-0.0187*	-0.0135	0.0026	0.0057
age	0.0036**	0.0040***	0.0026*	0.0025*	0.0028**
age2	-0.0001***	-0.0001***	0.0000**	0.0000	0.0000**
married	-0.0232**	-0.0234**	-0.0580***	-0.0308***	-0.0144
primary	-0.0269	-0.0215	-0.0296*	0.0058	-0.0205
secondary	-0.0494***	-0.0424**	-0.0465***	-0.0252	-0.0214
matric	-0.1098***	-0.1012***	-0.1194***	-0.1203***	-0.0482***
certdip	-0.1792***	-0.1710***	-0.1495***	-0.1477***	-0.0173
degree	-0.2823***	-0.2634***	-0.1409***	-0.1228***	-0.0021
discouraged	0.0568***	0.0571***	0.0966***	0.051***	0.0486**
unemployed	0.0425***	0.0422***	0.1609***	0.0742***	0.0291*
employer	-0.1402***	-0.1388***	0.0130	-0.0057	0.0092
nonperm	-0.2333***	-0.2337***	0.0312**	-0.0094	-0.0189
perm	-0.3225***	-0.3224***	-0.0695***	-0.0430***	-0.0683***
h_excellent	0.0353	0.0305	-0.1723***	-0.1654***	-0.2602***
h_vgood	0.0317	0.0242	-0.2022***	-0.1265***	-0.1817***
h_good	0.0336	0.0238	-0.1026***	-0.1375***	-0.0761***
h_fair	0.0318	0.0258	-0.0786***	-0.0786***	-0.0686***
medical	-0.2529***	-0.2589***	-0.1681***	-0.1952***	-0.0740***
r_important	0.0180	0.0245	-0.0647***	-0.0571***	-0.1049***
r_vimportant	0.0400**	0.0504***	-0.0423***	-0.0710***	-0.1995***
member	-0.0509***	-0.0515***	-0.0236**	-0.0448***	-0.0564***
children	0.1178***	0.1191***	0.0067***	0.0149***	0.0052**
elderly	-0.0542***	-0.0594***	-0.0053	-0.0093	-0.0208***
sample size	16 883	16 883	15 786	15 898	16 849
Pseudo-R <sup>2</sup>	0.3039	0.3036	0.1151	0.1064	0.1478

*(Table continued)*

**Table 6:** Continued

	Marginal fixed effects				
	Method 1	Method 2	Method 3	Method 4	Method 5
Probability > chi-squared	0.0000	0.0000	0.0000	0.0000	0.0000

Notes: \*\*\*Significant at 1%; \*\*significant at 5%; \*significant at 10%. Reference variables: province: wc; race: black; education: none; labour status: inactive; health: poor; importance of religious activities: not important at all or unimportant.

Source: Authors' own calculations using NIDS 2010/11 data.

The marginal fixed effects of the index1 and index2 variables in all five methods have negative signs and are statistically significant, demonstrating that access to private and public assets and services is associated with a lower probability of being poor.

Individuals who are common victims of crime are more likely to be poor in Methods 1, 2 and 5. The finding in Method 5 is consistent with that of Posel & Casale (2011). However, the result is statistically insignificant in Method 1. In Methods 3 and 4, common victims of crime are less likely to be poor compared with the people in the same neighbourhood and nationally. It is possible that these respondents perceive themselves to be relatively better off and are therefore more common victims of crime.

The experience of negative events only has a significant impact in Methods 3, 4 and 5, and increases the likelihood of being poor in Methods 3 and 4. The sign of marginal fixed effects in Methods 1, 2 and 5 is contrary to expectation but is statistically insignificant in the first two methods.

Blacks are significantly more likely to be poor compared with other race groups in Methods 1, 2 and 5. The marginal fixed effects of the three race dummy variables are all statistically insignificant in Method 3. Also, only whites are significantly less likely to be poor compared with blacks in Method 4. Males are associated with a significantly lower likelihood to be poor only in Methods 1 and 2, and these results confirm the findings in Table 1.

The signs of the age and age-squared variables indicate that there is a concave relationship between age and the likelihood of poverty in the first two methods. The turning point occurs at approximately the age of 17 years. Respondents who are married or live together with their partners are less likely to be poor, but the result is insignificant in Method 5. The same results are observed for those who are more educated.

Respondents who are permanently employed are significantly less likely to be poor across all five methods, whereas self-employed and non-permanent employees are significantly less likely to be poor only in Methods 1 and 2. Discouraged workseekers and the unemployed as defined under the narrow definition are also significantly more likely to be poor across all five methods, compared with the reference group (inactive).

The impact of the health status dummy variables shows peculiar results in Methods 1 and 2, as respondents with better health are more likely to be poor. However, this result is statistically insignificant. In the other three methods, the marginal fixed effects have the expected negative sign and are significant, which implies that respondents with

better health are less likely to be poor and dissatisfied with their lives. The latter finding is also observed in Posel & Casale (2011) as well as in Ebrahim et al. (2013). Respondents with medical aid coverage are significantly less likely to be poor in all five methods.<sup>10</sup>

The positive marginal fixed effects in the first two methods suggest that people who regard religious activities as very important are more likely to be poor. In contrast, respondents who view religion as important are significantly less likely to feel poor in Methods 3 to 5. These results suggest that people value social interaction from religious activities. Those who are members of a group (refer to footnote 7) are significantly less likely to be poor or dissatisfied with their lives. This result may be attributed to improved remittance income due to group memberships (e.g. stokvels, food clubs) as well as social cohesion (see the earlier discussion on the impact of social exclusion on poverty).

### 3.2.2 Ordered probit regressions

The three subjective methods (Methods 3, 4 and 5) are based on rank-order questions that allow the respondents to reveal their perceived poverty status. To supplement the probit regressions, an ordered probit regression analysis is conducted for these three methods. To facilitate a comparable interpretation across methods, the categories for Method 4 and 5 have been re-coded, so that the higher-ranked categories are associated with increased poverty. For example, in Method 4 the first step now represents the richest people while the sixth step represents the poorest people. Similar, in Method 5 one point now means 'very satisfied', whereas 10 points represents 'very dissatisfied'.

The results are presented in Table 7. Compared with the results in Table 6, the findings in Table 7 are generally similar in sign and significance, except for a few explanatory variables. For example, in Method 5 index1 is now statistically insignificant and has the opposite sign. In terms of race, the dummy variables for coloureds and Indians are now significant in Method 3, whereas the coloured dummy is now also significant in Method 4. Moreover, the male dummy is now significant in Method 3. Finally, the membership of group is now insignificant in Method 3.

## 4. Conclusion

This paper analysed poverty in South Africa from a multifaceted perspective by applying five different methods, using the NIDS 2010/11 data. Descriptive statistics revealed that people who were defined as poor according to one method might not necessarily be classified as poor in other methods. Nonetheless, blacks remain the race group associated with the greatest likelihood of being poor, with approximately 84% classified as poor in at least one method.

The multivariate analysis showed that access to private assets, permanent employment, medical aid coverage and membership of a group have a significantly negative impact on the likelihood of being poor across all methods. In contrast, variables such as frequency of crime victimisation, experience of negative events, health status and importance of religious activities have mixed results across the methods.

<sup>10</sup>The bivariate analysis indicates a weak imperfect multicollinearity between medical aid membership and the health status variables.

**Table 7: Ordered probit regression on Methods 3 to 5**

	Coefficient		
	Method 3	Method 4 (re-coding categories)	Method 5 (re-coding categories)
ec	0.1431***	-0.0546	0.1644***
nc	-0.1106***	0.0569	-0.1230***
fs	-0.0378	-0.1971***	-0.1079**
kzn	-0.4099***	-0.3197***	0.0952**
nw	-0.0338	-0.0747	-0.5441***
gau	0.0889***	-0.2412***	-0.1138***
mpu	-0.1298***	0.0727	0.4323***
lim	-0.2562***	-0.3298***	0.2041***
urban	0.2360***	0.1836***	0.0828***
index1	-0.1772***	-0.1278***	0.0080
index2	-0.2076***	-0.2711***	-0.2323***
crime	-0.0669***	-0.0376**	0.0405**
negative	0.1218***	0.0380*	-0.0344*
head	0.0612***	0.0088	-0.0360*
coloured	0.1180***	-0.0961***	-0.5187***
indian	0.3002***	-0.1309	-0.9714***
white	0.0897	-0.2115***	-0.5711***
male	-0.0363**	0.0105	-0.0223
age	0.0005	0.0078***	0.0067***
age2	-0.0000	-0.0001***	-0.0001***
married	-0.1166***	-0.0752***	-0.0324
primary	-0.0592*	-0.0072	-0.0233
secondary	-0.1242***	-0.0772***	-0.0303
matric	-0.2816***	-0.2947***	-0.0760**
certdip	-0.3050***	-0.3043***	-0.0587
degree	-0.2868***	-0.3309***	-0.0694
discouraged	0.2713***	0.0554	0.1118***
unemployed	0.3870***	0.2040***	0.0610**
employer	0.0385	0.0097	0.0478
nonperm	0.1212***	-0.0437	-0.0296
perm	-0.0922***	-0.1099***	-0.1191***
h_excellent	-0.4508***	-0.4418***	-0.6072***
h_vgood	-0.4874***	-0.3543***	-0.4144***
h_good	-0.2740***	-0.3492***	-0.2010***
h_fair	-0.1732***	-0.2235***	-0.2716***
medical	-0.2310***	-0.3855***	-0.1085***
r_important	-0.1295***	-0.1290***	-0.2234***
r_vimportant	-0.0456	-0.1290***	-0.4201***
member	-0.0191	-0.1550***	-0.1798***
children	0.0143***	0.0278***	0.0142***
elderly	-0.0146	0.0030	-0.0572*
sample size	15 786	15 898	16 849

*(Table continued)*

**Table 7:** Continued

	Coefficient		
	Method 3	Method 4 (re-coding categories)	Method 5 (re-coding categories)
Pseudo-R <sup>2</sup>	0.0550	0.0695	0.0542
Probability > chi-squared	0.0000	0.0000	0.0000

*Notes:* \*\*\*significant at 1%; \*\*significant at 5%; \*significant at 10%. Reference variables: province: wc; race: black; education: none; labour status: inactive; health: poor; importance of religious activities: not important at all or unimportant.

*Source:* Authors' own calculations using NIDS 2010/11 data.

This study has emphasised the importance of using both objective and subjective approaches in measuring poverty. Nonetheless, even though it is important to study subjective poverty and welfare as well as their relation to income-based poverty, subjective indicators might not be as useful as the objective, monetary indicators for practical policy and targeting purposes. For instance, it could be problematic to target public welfare programmes to people who subjectively define themselves as poor, only because they perceive they are the poorest people in the population or they declare they are dissatisfied with their lives. Hence, it seems the objective, monetary indicators such as per-capita income and per-capita expenditure might still play a relatively bigger role when it comes to the identification of the poor and the welfare programmes aiming at alleviating poverty in South Africa.

## References

- Adams, C, Gallant, R, Jansen, A & Yu, D, 2013. Public assets and service delivery – Is it really a success? Proceedings of the Economic Society of South Africa (ESSA) Conference, 25–27 September, Bloemfontein.
- Alkire, S & Foster, J, 2011. Counting and multidimensional poverty measurement. *Journal of Public Economics* 95(7–8), 476–87.
- Alkire, S & Santos, ME, 2010. Acute multidimensional poverty: A new index for developing countries. OPHI Working Paper No. 38, Oxford Poverty and Human Development Institute, University of Oxford, Oxford.
- Argent, J, 2009. Household income: Report on NIDS Wave 1. Technical Paper No. 3, Southern African Labour and Development Research Unit, Cape Town.
- Asselin, L-M & Anh, VT, 2008. Multidimensional poverty and multiple correspondence analysis. [http://www.aed.auf.org/IMG/pdf/Louis-Marie\\_Asselin.pdf](http://www.aed.auf.org/IMG/pdf/Louis-Marie_Asselin.pdf) Accessed 21 July 2013.
- Bellu, LG & Liberati, P, 2005. Impact of Policies on Poverty: Absolute Poverty lines. Food and Agriculture Organization of the United Nations, Rome.
- Bhorat, H & Van der Westhuizen, C, 2012. Poverty, inequality and the nature of economic growth in South Africa. DPRU Working Paper 12/151, Development Policy Research Unit, Cape Town.
- Bhorat, H & Van der Westhuizen, C, 2013. Non-monetary dimensions of well-being in South Africa, 1993–2003: A post-apartheid dividend? *Development Southern Africa* 30(3), 295–314.
- Blaauw, D & Pretorius, A, 2012. The determinants of subjective well-being in South Africa – An exploratory enquiry. *Journal of Economic and Financial Sciences* 6(1), 179–94.

- Boltvinik, J, 2001. Poverty Measurement Methods – An Overview. United Nations Development Programme (UNDP), New York. [http://www.flacso.or.cr/fileadmin/documentos/FLACSO/CLPoverty\\_Measurement\\_Methods.pdf](http://www.flacso.or.cr/fileadmin/documentos/FLACSO/CLPoverty_Measurement_Methods.pdf) Accessed 13 January 2014.
- Burger, R, Van der Berg, S, Van der Walt, S & Yu, D, 2004. Geography as destiny: Considering the spatial dimensions of poverty and deprivation in South Africa. Proceedings of the DPRU/TIPS (Development Policy Research Unit/Trade and Industrial Policy Strategies) Conference, 13–15 October, Somerset West.
- Chambers, R, 1988. Poverty in India: Concepts, measurement and reality. IDS Working Paper, Institute of Development Studies, Brighton.
- Cheli, B & Lemmi, A, 1995. A totally fuzzy and relative approach to the multidimensional analysis of poverty. *Economic Notes* 24(1), 115–34.
- Diener, E, Diener, M & Diener, C, 2009. Factors predicting subjective well-being of nations. *Social Indicators Research Series* 38, 43–70.
- Ebrahim, A, Botha, F & Snowball, J, 2013. Determinants of life satisfaction among race groups in South Africa. *Development Southern Africa* 30(2), 168–85.
- Ezzrari, A & Verme, P, 2012. A Multiple correspondence analysis approach to the measurement of multidimensional poverty in Morocco, 2001–2007. Policy Research Working Paper 6087, The World Bank, Washington, DC.
- Finn, A & Leibbrandt, M, 2013. The dynamics of poverty in the first three waves of NIDS. NIDS Discussion Paper 2013/1 and SALDRU Working Paper Series Number 119, Southern African Labour and Development Research Unit, Cape Town.
- Finn, A, Leibbrandt, M & Woolard, I, 2013. What happened to multidimensional poverty in South Africa between 1993 and 2010? SALDRU Working Paper Series Number 99, Southern African Labour and Development Research Unit, Cape Town.
- Govender, P, Kambaran, N, Patchett, N, Ruddle, A, Torr, G & Van Zyl, N, 2006. Poverty and Inequality in South African and the World. Actuarial Society of South Africa, Cape Town.
- Houghton, J & Khandker, SR, 2009. Handbook on Poverty and Inequality. The World Bank, Washington, DC.
- Hickey, S & Du Toit, A, 2007. Adverse incorporation, social exclusion and chronic poverty. CPRC Working Paper 81, Chronic Poverty Research Centre, Manchester.
- Hoogeveen, JG & Özler, B, 2006. Poverty and inequality in post-apartheid South Africa: 1995–2000. In Borhat, H & Kanbur, R (Ed.), *Poverty and Policy in Post-apartheid South Africa*. Human Sciences Research Council, Cape Town, pp. 59–94.
- Kingdon, GG & Knight, J, 2004. Subjective well-being poverty versus income poverty and capabilities poverty? GPRG Working Paper Series 003, ESRC Global Poverty Research Group, Oxford.
- Leibbrandt, M, Poswell, L, Naidoo, P & Welch, M, 2006. Measuring recent changes in South African inequality and poverty using 1996 and 2001 census data. In Borhat, H & Kanbur, R (Ed.), *Poverty and Policies in Post-Apartheid South Africa*. Human Sciences Research Council, Cape Town, pp. 95–142.
- Meth, C & Dias, R, 2004. Increases in poverty in South Africa, 1999–2002. *Development Southern Africa* 21(1), 59–85.
- Özler, B, 2007. Not separate, not equal, poverty and inequality in post-apartheid South Africa. *Economic Development and Cultural Change* 55(3), 487–529.
- Pauw, K & Mncube, L, 2007. The impact of growth and redistribution on poverty and inequality in South Africa. DPRU Working Paper 07/126, Development Policy Research Unit, Cape Town.
- Posel, D & Casale, D, 2011. Relative standing and subjective well-being in South Africa: The role of perceptions, expectations and income mobility. *Social Indicators Research* 104(2), 195–223.
- Posel, D & Rogan, M, 2013. Measured as poor versus feeling poor: Comparing objective and subjective poverty rates in South Africa. Proceedings of the Economic Society of South Africa (ESSA) Conference, 25–27 September, Bloemfontein.
- Ravallion, M, 1992. Poverty comparisons: A guide to concepts and methods. Living Standards Measurement Study Working Paper No. 88, The World Bank, Washington, DC.



- Ravallion, M, 1998. Poverty lines in theory and practice. Living Standards Measurement Study Working Paper No. 133, The World Bank, Washington, DC.
- Ravallion, M & Chen, S, 2009. Weakly relative poverty. Policy Research Working Paper No. 4844, The World Bank, Washington, DC.
- Sahn, DE & Stifel, DC, 2000. Poverty comparisons over time and across countries in Africa. *World Development* 28(12), 2123–55.
- Sen, A, 2000. Social exclusion: Concept, application, and scrutiny. Social Development Papers No. 1, Asian Development Bank, Manila.
- Statistics South Africa, 2008. Guide to Quarterly Labour Force Survey. [http://www.statssa.gov.za/qlfs/docs/Quarterly\\_Labour\\_Force\\_Survey\\_Guide.pdf](http://www.statssa.gov.za/qlfs/docs/Quarterly_Labour_Force_Survey_Guide.pdf) Accessed 8 July 2014.
- Statistics South Africa, 2012. Subjective Poverty in South Africa: Findings of the Living Conditions Survey 2008/2009. Statistics South Africa, Pretoria.
- Tsakoglou, P & Papadopoulos, F, 2000. Poverty, Material Deprivation, Multi-dimensional Disadvantage During Four Life-stages: Evidence from the ECHP. <http://www.aueb.gr/Users/tsakoglou/multi-dimensional.pdf> Accessed 28 April 2014.
- Van der Berg, S & Louw, M, 2004. Changing patterns of South African income distribution: Towards time series estimates of distribution and poverty. *South African Journal of Economics* 72(3), 546–72.
- Van der Berg, S, Burger, R, Burger, R, Louw, M & Yu, D, 2005. Trends in poverty and inequality since the political transition. Stellenbosch Economic Working Papers 1/2005, Stellenbosch University, Stellenbosch.
- Van der Berg, S, Burger, R, Burger, RP, Louw, M & Yu, D, 2007a. A series of national accounts-consistent estimates of poverty and inequality in South Africa. Stellenbosch Economic Working Papers 09/07, Stellenbosch University, Stellenbosch.
- Van der Berg, S, Louw, M & Du Toit, L, 2007b. Poverty Trends Since the Transition: What We Know. Stellenbosch University, Stellenbosch.
- Van der Berg, S, Louw, M & Yu, D, 2008. Post-transition poverty trends based on an alternative data source. *South African Journal of Economics* 76(1), 58–76.
- Vermaak, C, 2005. Trends in income distribution, inequality and poverty in South Africa, 1995 to 2003. Proceedings of the Economic Society of South Africa Conference, 7–9 September, Durban.
- Vyas, S & Kumaranayake, L, 2006. Constructing socio-economic status indices: How to use principal components analysis. *Health Policy Plan* 21(6), 459–68.
- Woolard, I & Leibbrandt, M, 2001. Measuring poverty in South Africa. In Bhorat, H, Leibbrandt, M, Maziya, M, Van der Berg, S & Woolard, I (Eds), *Fighting Poverty: Labour Markets and Inequality in South Africa*. UCT Press, Lansdowne, pp. 41–72.
- Woolard, I & Leibbrandt, M, 2006. Towards a Poverty Line for South Africa: Background Note. Southern Africa Labour and Development Research Unit, Cape Town.
- World Bank, 2001. World Development Report 2000/2001: Attacking Poverty. The World Bank, Washington, DC.
- Yu, D, 2009a. The comparability of Census 1996, Census 2001 and Community Survey 2007. Stellenbosch Economic Working Papers 21/09, Stellenbosch University, Stellenbosch.
- Yu, D, 2009b. The comparability of Labour Force Survey (LFS) and Quarterly Labour Force Survey (QLFS). Stellenbosch Economic Working Papers 08/09, Stellenbosch University, Stellenbosch.

## Appendix A

**Table A1: Profile of the poor by race, gender and area type of residence, using various relative income poverty lines**

	Race					Gender		Area type	
	All	Black	Coloured	Indian	White	Male	Female	Urban	Rural
[A]	0.2000	0.2448	0.0752	0.0006	0.0000	0.1633	0.2320	0.1125	0.3222
[B]	0.3992	0.4778	0.2064	0.0854	0.0112	0.3430	0.4471	0.2698	0.5818
[C]	0.2716	0.3287	0.1163	0.0285	0.0062	0.2221	0.3137	0.1650	0.4220
[D]	0.6953	0.7984	0.5695	0.2721	0.0789	0.6514	0.7328	0.5781	0.8608

*Note:* [A], poorest 20% (R344 per month, 2013 prices); [B], poorest 40% (R647 per month, 2013 prices); [C], one-half of median per capita income (R439 per month, 2013 prices); [D], one-half of mean per capita income (R1 751 per month, 2013 prices).

**Table A2: Descriptive statistics of explanatory variables**

Variable	Mean	Standard deviation	Minimum	Maximum
wc	0.0993	0.2991	0	1
ec	0.1220	0.3273	0	1
nc	0.0634	0.2436	0	1
fs	0.0554	0.2287	0	1
kzn	0.2990	0.4578	0	1
nw	0.0878	0.2831	0	1
gau	0.0965	0.2953	0	1
mpu	0.0740	0.2617	0	1
lim	0.1025	0.3034	0	1
urban	0.4359	0.4959	0	1
rural	0.5641	0.4959	0	1
index1	-0.2902	1.0580	-2.8824	1.0793
index2	-0.2146	0.8766	-1.5767	2.7996
crime	0.4431	0.4968	0	1
negative	0.2375	0.4255	0	1
head	0.3579	0.4794	0	1
black	0.8358	0.3705	0	1
coloured	0.1257	0.3316	0	1
indian	0.0104	0.1016	0	1
white	0.0280	0.1650	0	1
male	0.4135	0.4925	0	1
female	0.5865	0.4925	0	1
age	36.9851	17.8249	15	104
age2	1 685.6040	1 589.5720	225	10 816
married	0.3141	0.4642	0	1
none	0.1349	0.3417	0	1
primary	0.1552	0.3621	0	1
secondary	0.4830	0.4997	0	1
matric	0.1764	0.3812	0	1
certdip	0.0388	0.1931	0	1
degree	0.0117	0.1074	0	1
inactive	0.5709	0.4950	0	1
discouraged	0.0497	0.2173	0	1
unemployed	0.0917	0.2887	0	1
employer	0.0341	0.1815	0	1
nonperm	0.1405	0.3475	0	1
perm	0.1143	0.3182	0	1
h_excellent	0.3803	0.4855	0	1
h_vgood	0.2956	0.4563	0	1
h_good	0.2045	0.4034	0	1
h_fair	0.0801	0.2714	0	1
h_poor	0.0394	0.1947	0	1
medical	0.0828	0.2756	0	1
r_important	0.4165	0.4930	0	1

*(Table continued)*

**Table A2:** Continued

<b>Variable</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Minimum</b>	<b>Maximum</b>
r_vimportant	0.4815	0.4997	0	1
member	0.3225	0.4674	0	1
children	0.1967	1.9762	0	20
elderly	0.4737	0.6869	0	3

*Source:* Authors' own calculations using NIDS 2010/11 data.