LIVING CONDITIONS AND BASIC NEEDS: EVIDENCE FROM AFRICAN COUNTRIES

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Abstract
We here use five rounds of Afrobarometer data covering more than 100,000 individuals over the 2004–2016 period to explore the link between individual self-reported measures of living conditions and access to four basic needs. We not only consider own access to these needs, but also various indices of their deprivation, satisfaction and inequality. We find some evidence of comparisons to those who are better off and to those who are worse off, in terms of access to basic needs, in the evaluation of current living conditions. Overall, however, subjective living conditions are mostly absolute in African countries. There is notable heterogeneity by level of development, with the effect of lack of access to basic needs being more pronounced in poorer countries. Equally, comparisons to the better off are associated with better living conditions in poorer countries, suggesting the existence of a tunnel effect: this latter disappears with economic development.

JEL Classification: I31, I32, D60
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1. INTRODUCTION

Many pages have been written on Africa, the conditions of poverty in which a considerable proportion of its inhabitants live and the low levels of human development in the majority of the continent’s countries over the years. However, Africa has also more recently been characterised as an extremely dynamic continent, making significant progress in many areas since the mid-1990s: from that date on it has either been the world’s fastest-growing continent or the second fastest after South Asia, and is expected to be the leader in inclusive growth, as stated by the African presidents in the Africa 2017 Forum. Over the same period the middle class has developed considerably, and the proportion of individuals living in poverty dropped notably from 56% in 1990 to 43% in 2012 according to World Bank figures (Beegle et al., 2016). In 2012, as compared to 1995, Beegle et al. (2016) note that adult literacy rates rose by four percentage points and the gender gap shrunk, newborns can expect to live six years longer, and the prevalence of chronic malnutrition among the under-fives is down six percentage points at 39%. These rapid changes are likely to have influenced individuals’ views of their current and expected future living conditions: in Africa the great majority of respondents in a number of Afrobarometer surveys are optimistic with respect to their future prospects (as already documented by Graham and Hoover, 2007, and others).

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This paper aims to add a different perspective to this literature. Our interest here lies in the understanding of the role of the sufficiency of basic needs in explaining current subjective self-assessed living conditions in Africa, using a number of waves of Afrobarometer surveys. In particular, we aim to establish the potential role of group membership and comparisons to others in the relationship of basic needs to living conditions, in a way that we will set out in detail below. For the measurement of basic needs, we take the individual contribution to the societal indices proposed in the income distribution literature to capture multidimensional poverty, relative deprivation and satisfaction.

There has been an upsurge of interest in subjective measures of well-being, as complements to the traditional income- or resource-based objective measures. For data reasons, this analysis has typically concentrated on OECD countries. However, more recent work has extended these analyses to developing countries. Some examples in this respect are Akay and Martinsson (2011), Bookwalter and Dalenberg (2010), Lentz (2017), the contributions in Clark and Senik (2014), and the chapters in the recent World Happiness Reports that describe the analysis of Gallup well-being data covering all of the countries in the world. We will here contribute to this literature using data that cover a majority of the countries in Africa, over a number of different years.

We find that more functioning failures in basic domains are associated with worse subjective evaluations of living conditions. Comparisons to others also matter, and in a way that is different to that in most OECD countries: comparisons to the worse off (in terms of basic needs) is associated with higher evaluations of living conditions, but so are comparisons to the better off. This is consistent with a tunnel effect, and is shown to hold in poorer but not richer African countries. We last infer a relationship with potential societal conflict, as revealed by a measure of individual polarisation, and suggest that this conflict has a more negative relationship with living conditions in poorer countries and for younger and rural respondents.

The remainder of the paper is organised as follows. Section 2 proposes a brief review of the indices of access to basic needs to which we appeal. Section 3 then describes the data we use, the measurement of subjective living conditions and the basic needs, and our regression results. Last, Section 4 concludes.

## 2. MEASURING BASIC NEEDS

We consider different measures of resources in a non-income framework. There are two reasons behind this choice: first, income is not measured in our data set; second, even if it were, given the characteristics of African economies, income may not be the best approximation of individual resources. We rely upon the information available in the survey on the lived experiences of the insufficiency of resources. In each round individuals are asked the following questions: “Over the past year, how often, if ever have you or your family gone without ______?” The interviewer asks this question for each of the four following basic necessities: “Enough food to eat,” “Enough clean water for home use,” “Medicines or medical treatment” and “Enough fuel to cook your food.”1 The possible answers to this question are:

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1 There is a fifth question regarding having a sufficient level of “A cash income.” We do not analyse this here as part of our functioning failures as it is likely very strongly correlated with the other four dimensions listed in the text.
0 = Never, 1 = Just once or twice, 2 = Several times, 3 = Many times, and 4 = Always. We first construct an indicator of functioning failures for each individual (i.e. their lack of access to basic needs) as the sum of the scores in the above four domains of a decent life. This indicator thus takes on values between 0, for individuals who are never deprived in any of the domains, and 16, for individuals who are always deprived in all domains. See Shenga (2010) for an alternative approach using the same dataset, recoding the responses so that 0 refers to Never or Just once or twice, and 1 to Several times, Many times or Always.

Let $\mathbb{N}$ denote the set of all positive integers and $\mathbb{R}$ the set of all real numbers. The distinct levels of functioning failures are collected in a vector $(q_1, \ldots, q_k)$, where $k \in \mathbb{N} \setminus \{1\}$. Let $\pi_i$ indicate the population share of individuals who have the same $q_j$ level of functioning failures. The distribution is $(\pi, q) \equiv (\pi_1, \ldots, \pi_k; q_1, \ldots, q_k)$. $q_i \neq q_j$ for all $i, j \in \{1, \ldots, k\}$. Let $\Omega$ be the space of all distributions. Define $\hat{q}$ as the illfare-ranked permutation of the vector $q$, so that $q_1 \leq q_2 \leq \ldots \leq q_k$. In the second step, we calculate well-being indices over these distributions, which we describe below.

The first measure we use in the analysis of individual resources is the traditional indicator of individual multidimensional poverty given by the number of functioning failures, $q_i$ (Alkire and Foster, 2011; Bossert et al., 2013). Here, the higher is the value of $q_i$, the more deprived is the individual. As noted above, in the Afrobarometer this variable ranges from zero, corresponding to the situation of no deprivation (no functioning failures), to 16, the maximum possible value referring to individuals who are always deprived in all dimensions.

The second group of measures aims to capture the feelings of deprivation and satisfaction that an individual experiences from comparisons to others. Yitzhaki (1979) was the first to introduce the measurement of income deprivation in the Economics literature. Rewritten in terms of functioning failures, the index of individual deprivation, a function $D_i : \Omega \rightarrow \mathbb{R}_+$, is given by:

$$D_i(\pi, q) = \sum_{j=1}^{i-1} (\bar{q}_i - \bar{q}_j) \pi_j$$

for all $(\pi, q) \in \Omega$. The deprivation from which individual $i$ suffers here is defined as the sum of all functioning failure differentials with respect to individuals who are less deprived in the society under consideration (i.e. who have fewer functioning failures). Analogously, we can measure the complement to deprivation, satisfaction $S_i : \Omega \rightarrow \mathbb{R}_+$, as:

$$S_i(\pi, q) = \sum_{j=i+1}^{k} (\bar{q}_j - \bar{q}_i) \pi_j$$

for all $(\pi, q) \in \Omega$. This reflects the sum of the functioning-failure differentials with respect to individuals who are more deprived than individual $i$.

The feelings of deprivation to those above may be mediated by a factor capturing group identification. Generalizing the index introduced above in expression (1), Bossert et al. (2007) propose that in the evaluation of deprivation individuals identify with those with the same level of deprivation, and with those who are worse off; they do not identify
only with the better off. This identification mediates deprivation: comparisons to those who are better off could matter less for individuals who have a larger identification group (i.e. for whom the percentage of the population that is better off is smaller).

The index of deprivation proposed by Bossert et al. (2007) in this framework is the product of the two terms related to deprivation discussed above. The first of these is the percentage of the population who are better off than i in terms of functioning failures (i.e. the percentage with fewer functioning failures). As this rises, individual i’s capacity to identify with other members of society falls – this is the lack of identification. The second term is the average of the differences between q_i and the functioning failures of all agents having fewer functioning failures than i. This element, which corresponds to the expression D_i in (1), captures the aggregate deprivation experienced by i with respect to those who are better off. Formally, the index is defined as:

\[ ED_i (\pi, q) = \left( \sum_{i=1}^{n} \pi_i \right) \left( \sum_{j=1}^{n} (q_i - \bar{q}_j) \pi_j \right) \]

for all \((\pi, q) \in \Omega\).

In a similar way, we can define an index of satisfaction obtained as the product of two terms. The first term is the percentage of the population that is worse off than i in terms of functioning failures (i.e. the percentage who have more functioning failures), this is the lack of identification in case of satisfaction. The second term is the average of the differences between q_i and the functioning failures of all agents having more functioning failures than i. This part, which corresponds to the expression S_i in (2), captures the aggregate satisfaction experienced by i with respect to those who are worse off. Formally, the index is defined as:

\[ ES_i (\pi, q) = \left( \sum_{l=i+1}^{n} \pi_l \right) \left( \sum_{j=i+1}^{n} (q_i - \bar{q}_j) \pi_j \right) \]

for all \((\pi, q) \in \Omega\).

The third type of measure we consider here aims to capture the individual sentiment due to the comparisons to others who do not share the exact level of functioning failure, without any further distinction. If we sum the two indices of deprivation and satisfaction at the individual level, we obtain the measure of individual alienation, \(A_i: \Omega \to \mathbb{R}_+\), defined as:

\[ A_i (\pi, q) = \sum_{j=1}^{n} \left| q_i - \bar{q}_j \right| \pi_j. \]

While deprivation and satisfaction are asymmetric measures based on comparisons only to those who are better off or worse off respectively, alienation is assumed to be experienced with respect to everybody. Davies (2016), interpreting the Gini coefficient, highlights that the individual sum of income differences with respect to everyone else, which corresponds to the alienation measure introduced above, \(A_i\), is the basis for an
individual inequality index. The (absolute) Gini coefficient can be interpreted as the average across the population of this index. Davies also shows that this personal inequality index can be further decomposed into two components corresponding to the relative deprivation and satisfaction measures introduced above, $D_i$ and $S_i$.

The sentiment of alienation can also be mediated by a factor that captures group identification, with the idea now that each difference weighs more if the level of functioning failure of the individual under analysis is more common. One of the motivations behind the introduction of this measure is to better capture societal conflict (see Esteban and Ray, 1999). For this reason, the larger the relative size of the group the louder their voice may be when it comes to protesting against others. The index of income polarisation is due to Esteban and Ray (1994). Polarisation considers the clustering of individuals in different parts of the distribution, particularly at the extremes. The individual measure of polarisation considered in the analysis is that of effective antagonism introduced by Esteban and Ray (1994), the function $EA_i : \Omega \to \mathbb{R}_{+}$, which, rewritten in terms of functioning failures, is:

$$EA_i (\pi, q) = \pi_i \sum_{j=1}^{k} |q_i - \bar{q}_j| \pi_j$$

for all $(\pi, q) \in \Omega$. This index has been shown to capture societal conflict (Esteban and Ray, 1999).

We will below apply all of these measures to data on functioning failures from five waves of the Afrobarometer to explore their relation with well-being, as measured by current self-assessed living conditions. For a related approach in other countries see Bellani and D’Ambrosio (2011) for EU countries, D’Ambrosio and Rodrigues (2008) for the city of São Paulo, and Western and Tomaszewski (2016) for Australia.

3. DATA, METHODS AND RESULTS

Our empirical analysis of the relationship between the measures of basic needs in the previous section and individuals’ subjective evaluations of their living conditions is carried out using data from the Afrobarometer. This is a pan-African survey on public attitudes towards democracy, governance, economic conditions and related issues (see www.afrobarometer.org). Six rounds of data are currently available, but due to the differences in questions and coding between the first and subsequent rounds, our analysis is based on Waves 2–6. The number of countries in the survey has increased over time, with the current survey representing 76% of the African population in 37 different survey countries. Our first analysis year is 2004, using the data from Wave 2, covering 16 countries. The other four years are 2005, 2008, 2011–2013 and 2016 (Waves 3–6), covering, respectively, 18, 20, 34 and 36 countries. The data set is cross-sectional, with the sample size per country per round ranging from 1200 to 2400. One person is interviewed per household. The sample details appear in Appendix Table A1.

Our dependent variable is self-assessed current living conditions, which we will denote for individual $i$ in year $t$, as $wb_{it}$. Respondents, who were aged 18 and over, were asked to answer the following question: “In general, how would you describe your own present
The possible answers were [1] Very Bad, [2] Fairly Bad, [3] Not Good or Bad, [4] Fairly Good and [5] Very Good.

Our regression analyses control for age, age-squared, gender, living in an urban or rural area, the highest level of education achieved (with three levels: at most primary, at most secondary and at least postsecondary) and labour force status (not in the labour force, unemployed and looking for a job, employed part-time and employed full-time). All regressions include region-wave dummies, although their associated coefficients are not reported for space reasons. As all individuals in the same country and year and with the same level of functioning failures will have the same levels of the basic needs variables \(q_i, S_i, D_i, \text{ etc.}\), all regressions are clustered at the country-year \(q_i\) level.²

In order to take into account potential heterogeneity, the analysis is first carried out for the entire population, and then separately by gender, age and area of residence. We will also split the entire group of Afrobarometer countries up into three groups by their level of economic development.

The descriptive statistics for our main sample appear in Table 1, and Figure 1 shows the histogram of the dependent variable. The distribution of current living conditions is bimodal, with two peaks of unequal height at Fairly Bad (the mode) and Fairly Good; the mean on the 1–5 scale is 2.65. The majority of the sample are of working age, do not live in urban areas and have at most achieved a level of primary education. Approximately 64% of the sample are not working at the time of the survey, while 24% have a full-time job.

The general model we estimate takes the form:

\[
wb_{it} = \beta_1 M_{it} + \beta_2 X_{it} + \alpha_a \times \lambda_t + \varepsilon_{it}
\]

where \(M_{it}\) refers to one of the basic needs measures discussed in Section 2 above. For the indices where a comparison group has to be specified, we impose that this group consist of individuals living in the same country in the given year.³ \(X_{it}\) is a vector of individual control variables (age, gender, urban, education and labour force status), while \(\alpha_a\) and \(\lambda_t\) are respectively the region and wave fixed effects. ⁴ The results we present are based on

² Both living conditions and basic needs are self-reported by the same individual at the same point in time. This produces potential problems with common-method variance, whereby mood effects may similarly affect both the evaluation of living conditions and the respondent’s evaluation of how much they lack food, water etc. This would lead to upward bias in the correlation between the two variables. Self-reported income or consumption data are also likely affected by these biases. We unfortunately do not have any useful variables with which to instrument access to basic needs in this cross-section dataset, and therefore cannot be sure to estimate causal relationships. Note, however, that the measures of deprivation and satisfaction are less subject to this bias: the respondent’s own mood will not affect the basic needs responses that other members of her reference group give.

³ We do not know if this is the appropriate reference group: if it is not then all of our estimated comparison-group coefficients will be biased towards zero. We did try different versions of the reference group, introducing this by country-wave-gender, and then by country-wave-age (where the latter is a dummy for being over 40). These did not produce any appreciable difference in our results.

⁴ There are on average just under 20 regions per country, and by wave about 115 respondents per region.
linear estimations. The use of nonlinear models such as ordered probit or ordered logit does not change them. We standardise both the dependent variable and all of the objective measures of deprivation, so that the estimated coefficients are $\beta$'s, representing the relationship between a one-standard deviation change in the basic needs measure and the standard deviation of subjective living conditions.

Table 1. Descriptive statistics – whole sample

|                          | Observations | Mean | SD   | Min | Max |
|--------------------------|--------------|------|------|-----|-----|
| **Dependent variable**   |              |      |      |     |     |
| Current living conditions [1–5] | 172,140     | 2.65 | 1.18 | 1   | 5   |
| **Deprivation measures** |              |      |      |     |     |
| $q_i$                    | 172,140      | 4.22 | 3.76 | 0   | 16  |
| $D_i$                    | 172,140      | 1.78 | 2.11 | 0   | 15.05 |
| $S_i$                    | 172,140      | 1.78 | 1.52 | 0   | 10.47 |
| $A_i$                    | 172,140      | 3.56 | 1.57 | 0   | 15.05 |
| $EA_i$                   | 172,140      | 0.41 | 0.30 | 0   | 2.77 |
| $ED_i$                   | 172,140      | 1.12 | 1.52 | 0   | 10.52 |
| $ES_i$                   | 172,140      | 1.11 | 1.32 | 0   | 9.16 |
| **Socio-demographic variables** |        |      |      |     |     |
| Age                      | 172,140      | 37.57| 14.43| 19  | 89  |
| Gender                   | 172,140      | 0.50 | 0.50 | 0   | 1   |
| Urban                    | 172,140      | 0.39 | 0.49 | 0   | 1   |
| **Highest education level achieved** | | | | | |
| At most primary          | 172,140      | 0.52 | 0.50 | 0   | 1   |
| At most secondary        | 172,140      | 0.35 | 0.48 | 0   | 1   |
| At least postsecondary   | 172,140      | 0.13 | 0.34 | 0   | 1   |
| Labour force status      |              |      |      |     |     |
| Not in the labour force  | 172,140      | 0.36 | 0.48 | 0   | 1   |
| Unemployed (looking for a job) | 172,140 | 0.28 | 0.45 | 0   | 1   |
| Employed part-time       | 172,140      | 0.13 | 0.34 | 0   | 1   |
| Employed full-time       | 172,140      | 0.24 | 0.43 | 0   | 1   |

Figure 1. The distribution of current living conditions [Colour figure can be viewed at wileyonlinelibrary.com]
3.1 Main Results

The control variables attract the following estimated coefficients (see Appendix Table A1). As in the subjective well-being literature, the relationship between age and current living conditions is U-shaped, with the minimum level at around age 50. Women have a more positive evaluation of their current living conditions, while those living in urban areas report worse living conditions (but not significantly so). With respect to labour force status, we find a negative estimated coefficient for the unemployed who are looking for a job and the employed part-time, as compared to our reference category of individuals who are not in the labour force. Education is very strongly correlated with current living conditions, which is to be expected if it is acting as a proxy for income.5

Table 2 shows the estimated coefficients on our key basic needs variables (which also appear at the head of Appendix Table A1). There are five specifications, referring first to the number of functioning failures alone, and then adding deprivation and satisfaction introduced together, both unweighted and weighted. The last two specifications consider the role of unweighted and weighted alienation, in which, as opposed to deprivation and satisfaction, the differences to better and worse off individuals are treated symmetrically.

Functioning failures are associated with worse evaluation of current living standards, as expected: the more deprived in basic needs the individual is, the lower the evaluation of current life. The estimated relationship is large in size: a one-standard deviation rise in

Table 2. Living conditions and measures of basic needs – OLS results

| Current living conditions | (1)        | (2)        | (3)        | (4)        | (5)        |
|---------------------------|------------|------------|------------|------------|------------|
| No. functioning failures (q) | -0.247***  | -0.269***  | -0.269***  | -0.261***  | -0.226***  |
|                           | (0.005)    | (0.016)    | (0.014)    | (0.005)    | (0.005)    |
| Deprivation (D)           | 0.041***   |            |            |            |            |
|                           | (0.012)    |            |            |            |            |
| Satisfaction (S)          |            | 0.021***   |            |            |            |
|                           |            | (0.008)    |            |            |            |
| Weighted deprivation (ED) |            |            | 0.038***   |            |            |
|                           |            |            | (0.010)    |            |            |
| Weighted satisfaction (ES) |            |            |            | 0.019***   |            |
|                           |            |            |            | (0.007)    |            |
| Alienation (A)            |            |            |            |            | 0.026***   |
|                           |            |            |            |            | (0.005)    |
| Weighted alienation (EA)  |            |            |            |            | 0.043***   |
|                           |            |            |            |            | (0.005)    |
| Observations              | 172,140    | 172,140    | 172,140    | 172,140    | 172,140    |
| Adjusted R²               | 0.175      | 0.175      | 0.175      | 0.175      | 0.176      |

Notes: Clustered standard errors are in parentheses. The dependent variable and deprivation indices are standardised. The controls include gender, labour force status, living in an urban or rural area, education and region-wave dummies.

*p < 0.05, **p < 0.01, ***p < 0.001.

5 We assume that the answers to the living conditions and basic needs questions are comparable across individuals, as is usually assumed in the literature. We do not know of work that has explicitly addressed this issue (in the way that subjective well-being variables have been analysed). We do note that the living conditions variable is “well-behaved,” in that its correlations with the explanatory variables in Table A1 are as we would have predicted (regarding age, education and labour force status): this would not be the case were this variable not to be comparable across individuals.
the index in question is associated with a lower evaluation of current living conditions by around one quarter of a standard deviation (i.e. by around 0.3 points on the 1–5 scale, or around 10% of the scale range).

When relative comparisons are introduced in the form of deprivation and satisfaction, these both attract positive and significant coefficients (with the coefficient on deprivation being twice as large as that on satisfaction). While this result is to be expected for satisfaction, the positive effect of comparisons to the better off, as measured by $D_i$, is usually only found in volatile socio-economic environments, e.g. in the earlier stage of economic development, which can be argued to apply to many of the African countries in our sample. This positive effect of others' good fortune on the individual’s own evaluation of their life is known in the literature as the “tunnel effect” of Hirshman (1973): the presence of better off individuals (here those with fewer functioning failures) does not produce a sentiment of relative deprivation due to social comparisons, but rather a positive signal that the individual may improve their own situation with respect to access to basic needs in the future (see Senik, 2004, for a similar result for Russia during the 1990s, regarding subjective well-being and income, and Grosfeld and Senik, 2010, for the analysis of attitudes to inequality in a growing country, Poland).

Finding that both functioning failures and deprivation matter underlines the both absolute and relative nature of the evaluation of current standard of living, a point which has been found repeatedly in the poverty and subjective well-being literatures in richer countries. However, while we do find significant estimates for satisfaction and deprivation here, it should be underlined that these are small relative to the coefficient on the number of functioning failures: the link between basic needs and subjective evaluations in Africa is mostly absolute rather than relative. This conclusion is reinforced by the adjusted $R^2$ figures at the foot of each column. Introducing relative concerns into the analysis of subjective living conditions adds very little in terms of explanatory power. ⁶

The same result is found for the weighted versions of deprivation and satisfaction with the addition of the weights capturing lack of identification having very little effect on the size of the coefficients. This fact can again be interpreted as evidence of the absolute nature of the link here explored. We are not aware of any other work that has used the weighted versions of deprivation and satisfaction, and so cannot compare our results here to those using other data. Overall, the interpretation in terms of the tunnel effect continues to be a potential explanation. We will expand on this when we carry out the analysis separately for groups of countries at different stages of economic development in Table 3 below. Alienation in both its versions, in the last two columns of Table 2, attracts a positive and significant coefficient, indicating that the greater are the basic needs differences among individuals, the better the evaluation of current living conditions.

We now expand on the overall analysis in Table 2 by splitting the sample up into three equally sized groups based on country GDP per capita at 2016 prices (the results here are robust to experimenting with different numbers of groups). The descriptive statistics for the three country groups appear in Appendix Tables A2–A4. As countries develop, the average functioning–failures score falls, being, respectively, 3.12, 4.38 and 5.16 in groups

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⁶ The Adjusted $R^2$ figures in Table 2 are under 18%, so that the majority of the variance in living conditions remains unexplained.

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Table 3. Current living conditions and measures of basic needs – OLS results – groups of countries

| Panel A (richest third)          | (1)          | (2)          | (3)          | (4)          | (5)          |
|---------------------------------|--------------|--------------|--------------|--------------|--------------|
| No. functioning failures \( q_i \) | -0.284***    | -0.283***    | -0.261***    | -0.314***    | -0.239***    |
|                                  | (0.009)      | (0.033)      | (0.028)      | (0.011)      | (0.010)      |
| Deprivation \( D_i \)           | 0.031        | 0.031        | 0.048***     | 0.016        |              |
| Satisfaction \( S_i \)          |              |              |              |              |              |
| Weighted deprivation \( ED_i \) | 0.001        |              |              |              |              |
| Weighted satisfaction \( ES_i \) | 0.041**      |              |              |              |              |
| Alienation \( A_i \)            |              |              |              |              | 0.039***     |
|                                  |              |              |              |              | (0.010)      |
| Weighted alienation \( EA_i \)  |              |              |              |              | 0.063***     |
|                                  |              |              |              |              | (0.008)      |
| Observations                     | 56,617       | 56,617       | 56,617       | 56,617       | 56,617       |
| Adjusted R²                      | 0.169        | 0.169        | 0.169        | 0.169        | 0.172        |
| Panel B (middle third)           |              |              |              |              |              |
| No. functioning failures \( q_i \) | -0.242***    | -0.301***    | -0.280***    | -0.257***    | -0.232***    |
|                                  | (0.007)      | (0.026)      | (0.022)      | (0.008)      | (0.008)      |
| Deprivation \( D_i \)           | 0.074***     | 0.074***     | 0.014        |              |              |
| Satisfaction \( S_i \)          |              |              |              |              |              |
| Weighted deprivation \( ED_i \) |              |              |              | 0.052***     |              |
| Weighted satisfaction \( ES_i \) |              |              | 0.014        |              |              |
| Alienation \( A_i \)            |              |              |              | 0.033***     |              |
|                                  |              |              |              | (0.009)      |              |
| Weighted alienation \( EA_i \)  |              |              |              | 0.022**      |              |
|                                  |              |              |              | (0.009)      |              |
| Observations                     | 58,123       | 58,123       | 58,123       | 58,123       | 58,123       |
| Adjusted R²                      | 0.160        | 0.161        | 0.161        | 0.161        | 0.160        |
| Panel C (poorest third)          |              |              |              |              |              |
| No. functioning failures \( q_i \) | -0.223***    | -0.247***    | -0.245***    | -0.235***    | -0.219***    |
|                                  | (0.008)      | (0.027)      | (0.023)      | (0.009)      | (0.008)      |
| Deprivation \( D_i \)           | 0.056***     | 0.056***     | 0.029***     |              |              |
| Satisfaction \( S_i \)          |              |              |              |              |              |
| Weighted deprivation \( ED_i \) |              |              |              | 0.051***     |              |
| Weighted satisfaction \( ES_i \) |              |              | 0.029***     |              |              |
| Alienation \( A_i \)            |              |              |              | 0.035***     |              |
|                                  |              |              |              | (0.009)      |              |
| Weighted alienation \( EA_i \)  |              |              |              | 0.012        |              |
|                                  |              |              |              | (0.011)      |              |
| Observations                     | 57,400       | 57,400       | 57,400       | 57,400       | 57,400       |
| Adjusted R²                      | 0.152        | 0.153        | 0.153        | 0.153        | 0.152        |

Notes: Clustered standard errors are in parentheses. The dependent variables and deprivation indices are standardised. The controls include gender, labour force status, living in an urban or rural area, education and region-wave dummies.

*p < 0.05, **p < 0.01, ***p < 0.001.

A, B and C (where the richest African countries are in group A and the countries with the lowest GDP per capita are in group C).

The regression results for the three country groups appear in the three panels of Table 3. In group A, the tunnel effect as captured by the coefficient on \( D_i \) disappears, while it persists for the less well-off countries in groups B and C. This is the only comparison that
matters for the countries in group B, since the estimated coefficient on satisfaction is positive and insignificant. On the contrary, the results for the less well off countries in group C are as in the overall sample in Table 2: a positive significant estimated coefficient on both deprivation and satisfaction. The results with respect to the weighted versions of the indices in column 3 are the same as those for the unweighted versions in column 2, highlighting that the comparisons are mainly absolute in nature (with the exception of the countries in group B, where identification reduces the size of the coefficient by 1/3).

As countries develop, not only does the average number of functioning failures fall, but also attitudes towards the distribution of basic needs change. Economic development switches the result of comparisons to the better off from having a positive informational effect on current living conditions to having no effect. We may then expect that with Africa’s continuing economic development over the coming years, deprivation will turn to having a negative and significant effect on the evaluation of the current living conditions: this is the standard result for deprivation and measures of subjective well-being in OECD countries (see Clark and D’Ambrosio, 2015, for a survey).

Continuing with the other well-being measures in the last two columns of Table 3, the coefficient on alienation is always positive and very similar in size among the three groups of countries. Weighted alienation has a positive and significant correlation in groups A and B, the most developed, with the size of the coefficient being three times larger in the former. The conflict element that is inherent in the weighted alienation measure drives this latter to insignificance in poorer countries.

One way of formalizing the different correlations by the level of country development is to carry out the analysis in column 2 of Table 2 separately for each country in the Afrobarometer sample. We can then correlate the estimated coefficients on the number of functioning failures, deprivation and satisfaction with the country’s development level (as measured by either average GDP per capita between 2005 and 2016 or by the country-level number of functioning failures). The results suggest that more developed countries (either with higher GDP per capita or fewer functioning failures) have somewhat lower estimated coefficients on functioning failures ($q_i$) and deprivation ($D_i$), but higher estimated coefficients on satisfaction ($S_i$).

The count of functioning failures, $q_i$, is a composite measure of four basic domains of a decent life: food, water, medical care and cooking fuel. In Table 4, we explore the effects of each domain separately on the evaluation of current living conditions. Since the results do not vary by country group we here show only the regression for the entire sample. We first introduce each domain one by one, and then consider all domains together. The type of deprivation that matters the most to individuals in terms of their living conditions is having enough food to eat, followed by medical care, cooking fuel and water. When all four dimensions are considered simultaneously in the last column, the same ranking results. All of the estimated coefficients on the different domains are significantly different from each other.

3.2 Heterogeneity by gender, age and urban/rural status
The results for interactions with gender, age and urban/rural status appear in Tables 5–7, respectively. Women, the older and those in urban areas have larger negative coefficients.
### Table 4. Living conditions and the four basic domains – OLS results

| Current living conditions | (1)   | (2)   | (3)   | (4)   | (5)   |
|---------------------------|-------|-------|-------|-------|-------|
| Food                      | -0.199*** (0.004) |       |       | -0.149*** (0.003) |       |
| Water                     | -0.091*** (0.004) |       |       | -0.012*** (0.005) |       |
| Medical care              | -0.153*** (0.004) |       |       | -0.080*** (0.003) |       |
| Cooking fuel              | -0.121*** (0.004) |       |       | -0.034*** (0.004) |       |
| Observations              | 172,140 | 172,140 | 172,140 | 172,140 | 172,140 |
| Adjusted R²               | 0.173   | 0.137   | 0.157   | 0.142   | 0.185   |

*Notes:* Clustered standard errors are in parentheses. The dependent variable and deprivation indices are standardised. The controls include gender, labour force status, living in an urban or rural area, education and region-wave dummies.

*p < 0.05, **p < 0.01, ***p < 0.001.*

### Table 5. Living conditions and measures of basic needs – OLS results – gender heterogeneity

| Current living conditions | (1)   | (2)   | (3)   | (4)   | (5)   |
|---------------------------|-------|-------|-------|-------|-------|
| $q_i$                     | -0.241*** (0.005) |       |       | -0.257*** (0.006) |       |
| $q_i \times$ Female       | -0.012** (0.005) |       |       | -0.008 (0.006) |       |
| $D_i$                     | 0.041*** (0.014) |       |       | 0.001 (0.012) |       |
| $D_i \times$ Female       | 0.001 (0.012) |       |       |       |       |
| $S_i$                     | 0.027*** (0.009) |       |       | 0.001 (0.012) |       |
| $S_i \times$ Female       | -0.012* (0.007) |       |       |       |       |
| $ED_i$                    |       | 0.037*** (0.011) |       |       |       |
| $ED_i \times$ Female      |       | 0.003 (0.010) |       |       |       |
| $ES_i$                    |       | 0.024*** (0.007) |       |       |       |
| $ES_i \times$ Female      |       | -0.011* (0.006) |       |       |       |
| $A_i$                     |       |       | 0.030*** (0.006) |       |       |
| $A_i \times$ Female       |       |       | -0.007 (0.006) |       |       |
| $EA_i$                    |       |       |       | 0.047*** (0.006) |       |
| $EA_i \times$ Female      |       |       |       | -0.009 (0.007) |       |
| Observations              | 172,140 | 172,140 | 172,140 | 172,140 | 172,140 |
| Adjusted R²               | 0.175   | 0.175   | 0.175   | 0.175   | 0.176   |

*Notes:* Clustered standard errors are in parentheses. The dependent variable and deprivation indices are standardised. The controls include gender, labour force status, living in an urban or rural area, education and region-wave dummies.

*p < 0.05, **p < 0.01, ***p < 0.001.*
on functioning failures.\textsuperscript{7} When relative considerations are included in the analysis, there are no differences between any of the groups regarding the estimated coefficient on (weighted) deprivation: the tunnel effect from comparisons to those who are better off seems to apply to all groups equally. Regarding satisfaction, there is no difference by age group, but comparisons to the worse off are more strongly correlated with living conditions for men and urban dwellers.\textsuperscript{8}

Last, the estimated coefficient on the weighted version of alienation indicates that those over age 40 and living in urban areas have more positive estimated coefficients on this variable. This latter finding is one of the most interesting results of this heterogeneity analysis which, following our interpretation of Table 3, shows that the conflict

\textsuperscript{7} We also considered interactions with postsecondary education. This produced a more negative estimated coefficient on functioning failures (as for women, older respondents and those in urban areas), but no other significant estimated coefficients.

\textsuperscript{8} Comparison to others were stronger in Clark and Senik (2014) for city dwellers (rather than those living in villages or the countryside) in their analysis of 18 European countries from Wave 3 (from 2006 to 2007) of the European Social Survey.
The polarisation index ($EA$) is associated with a less positive coefficient for younger rural respondents: it is this group that is seemingly more sensitive to conflict.

4. CONCLUSION

We have here used various indices that have been introduced in the literature on the measurement of inequality to explore the relationship between basic needs and individuals’ subjective evaluations of their current living conditions in five waves of Afrobarometer data. Our results show that a greater number of functioning failures in four basic domains of individual life are associated with worse subjective evaluations of living conditions (with food being the most important basic need in this sense). Our introduction of the gaps between the individuals’ own situations and that of their reference group (here everyone else in the country) reveals that individuals do compare to others. However, the details of this comparison depend on both the country level of development and the particular index: comparisons to those who are worse off (in terms of functioning failures) is associated with higher evaluations of living conditions, while comparisons to those who are better off is associated with higher evaluations in poorer countries, but not in richer

Table 7. Living conditions and measures of basic needs – OLS results – urban heterogeneity

| Current living conditions | (1)     | (2)     | (3)     | (4)     | (5)     |
|---------------------------|---------|---------|---------|---------|---------|
| $q_i$                     | -0.231*** (0.005) | -0.265*** (0.018) | -0.259*** (0.016) | -0.242*** (0.006) | -0.218*** (0.006) |
| $q_i \times \text{Urban}$ | -0.047*** (0.007) | -0.027* (0.016) | -0.028* (0.015) | -0.054*** (0.008) | -0.028*** (0.008) |
| $D_i$                     | 0.050*** (0.013) |                     |                     |                     |                     |
| $D_i \times \text{Urban}$ | -0.013 (0.015) |                     |                     |                     |                     |
| $S_i$                     | 0.015 (0.009) |                     |                     |                     |                     |
| $S_i \times \text{Urban}$ | 0.016* (0.009) |                     |                     |                     |                     |
| $ED_i$                    | 0.043*** (0.011) |                     |                     |                     |                     |
| $ED_i \times \text{Urban}$ | -0.015 (0.012) |                     |                     |                     |                     |
| $ES_i$                    | 0.015* (0.008) |                     |                     |                     |                     |
| $ES_i \times \text{Urban}$ | 0.011 (0.008) |                     |                     |                     |                     |
| $A_i$                     | 0.025*** (0.006) |                     |                     |                     |                     |
| $A_i \times \text{Urban}$ | 0.007 (0.008) |                     |                     |                     |                     |
| $EA_i$                    | 0.029*** (0.008) |                     |                     |                     |                     |
| $EA_i \times \text{Urban}$ | 0.021** (0.009) |                     |                     |                     |                     |

Notes: Clustered standard errors are in parentheses. The dependent variable and deprivation indices are standardised. The controls include gender, labour force status, living in an urban or rural area, education and region-wave dummies.

*p < 0.05, **p < 0.01, ***p < 0.001.
countries. This latter result is consistent with a tunnel effect that is more predominant for poorer respondents, whereby others’ good fortune is taken to be an indicator of the individual’s own future prospects. Our last results refer to the effect of societal conflict and polarisation, which is picked up by the weighted alienation coefficient. We find that this is less positive, so that (the potential for) conflict is associated with worse living conditions in poorer countries and, within countries, for younger and rural respondents.

Overall, our analysis here has shown that the type of work that has typically been carried out using life satisfaction and income information in OECD countries can usefully be transposed to Africa. The results of doing so are not exactly the same as those in the OECD, and neither would we expect them to be. In particular, gaps to those above you (deprivation, in our terminology) are commonly found to be associated with better evaluations of living conditions rather than the contrary, although this relationship fades away in richer African countries. In addition, our empirical application of weighted alienation measures has demonstrated a differential relationship across countries and groups that we have interpreted as revealing the potential role of conflict as a consequence of polarisation: it would be of interest to apply this analysis to countries in other parts of the World.

Our work here has used the subjective evaluation of living conditions as the dependent variable, rather than the more typical life satisfaction measure. A useful extension to our work here would be its replication with this measure, and we hope that it will appear in future rounds of the Afrobarometer.

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REFERENCES

AKAY, A. and MARTINSSON, P. (2011). Does relative income matter for the very poor? Evidence from rural Ethiopia. *Economics Letters*, 110: 213-215.

ALKIRE, S. and FOSTER, J. E. (2011). Counting and multidimensional poverty measurement. *Journal of Public Economics*, 95: 476-487.

BEEGLE, K., CHRISTIAENSEN, L., DABALEN, A. and GADDIS, I. (2016). Poverty in a Rising Africa. Washington, D.C.: The World Bank. https://doi.org/10.1596/978-1-4648-0723-7

BELLANI, L. and D’AMBROSIO, C. (2011). Deprivation, social exclusion and subjective well-being. *Social Indicators Research*, 104: 67–86.

BOOKWALTER, J. and DALENBERG, D. (2010). Relative to what or whom? The Importance of norms and relative standing to well-being in South Africa. *World Development*, 38: 345-355.

BOSSERT, W., D’AMBROSIO, C. and CHAKRAVARTY, S. R. (2013). Multidimensional poverty and material deprivation with discrete data. *Review of Income and Wealth*, 59: 29-43.

D’AMBROSIO, C. and PERAGINE, V. (2007). Deprivation and social exclusion. *Economica*, 74: 777-803.

BOYCE, C., WOOD, A., BANKS, J., CLARK, A. E. and BROWN, G. (2013). Money, well-being, and loss aversion: Does an income loss have a greater effect on well-being than an equivalent income gain? *Psychological Science*, 24: 2557-2562.

© 2019 UNU-WIDER. South African Journal of Economics published by John Wiley & Sons Ltd on behalf of Economic Society of South Africa.
CLARK, A. E. and D’AMBROSIO, C. (2015). Attitudes to income inequality: Experimental and survey evidence. In A. Atkinson and F. Bourguignon (eds), Handbook of Income Distribution Volume 2A. Amsterdam: Elsevier, 1147-1208.

_______ and SENIK, C. (2010). Who compares to whom? The anatomy of income comparisons in Europe. *Economic Journal*, 120: 573-594.

_______ and SENIK C. (EDS). (2014). Happiness and Economic Growth: Lessons from Developing Countries. Oxford: Oxford University Press.

D’AMBROSIO, C. and FRICK, J. (2012). Individual well-being in a dynamic perspective. *Economica*, 79: 284-302.

_______ and RODRIGUES, R. I. (2008). Deprivation in the São Paulo Districts: Evidence from 2000. *World Development*, 36: 1094-1112.

DAVIES, J. B. (2016). The Gini Coefficient and Personal Inequality Measurement. University of Western Ontario, mimeo.

ESTEBAN, J. and RAY, D. (1994). On the measurement of polarization. *Econometrica*, 62: 819-852.

_______ and RAY, D. (1999). Conflict and distribution. *Journal of Economic Theory*, 87: 379-415.

FOSTER, J. E. (2009). A class of chronic poverty measures. In T. Addison, D. Hulme and R. Kanbur (eds), Poverty Dynamics: Interdisciplinary Perspectives. Oxford: Oxford University Press, 59–76.

GRAHAM, C. and HOOVER, M. (2007). Optimism and Poverty in Africa: Adaptation or a Means to Survival? Afrobarometer Working Paper No. 76.

GROSFELD, I. and SENIK, C. (2010). The emerging aversion to inequality. Evidence from Poland 1992–2005. *Economics of Transition*, 18: 1-26.

HIRSHMAN, A. O. (1973). The changing tolerance for income inequality in the course of economic development. *Quarterly Journal of Economics*, 87: 544-566.

LENTZ, E. (2017). Keeping up with the neighbors? Reference groups in Ghana. *Economic Development and Cultural Change*, 66: 91-112.

SENIK, C. (2004). When information dominates comparison: Learning from Russian subjective panel data. *Journal of Public Economics*, 88: 2099-2123.

SHENGA, C. (2010). Economic Conditions, Living Conditions and Poverty in Mozambique. Afrobarometer Briefing Paper No. 87.

WESTERN, M. and TOMASZEWSKI, W. (2016). Subjective wellbeing, objective wellbeing and inequality in Australia. *PLoS ONE*, 11: e0163345.

YITZHAKI, S. (1979). Relative deprivation and the Gini coefficient. *Quarterly Journal of Economics*, 93: 321-324.
## APPENDIX

### Table A1. Living conditions and measures of basic needs – OLS results

| Current living conditions | (1)           | (2)           | (3)           | (4)           | (5)           |
|----------------------------|---------------|---------------|---------------|---------------|---------------|
| No. functioning failures ($q_i$) | $-0.247^{***}$ | $-0.269^{***}$ | $-0.269^{***}$ | $-0.261^{***}$ | $-0.226^{***}$ |
| (0.005)                    | (0.016)       | (0.014)       | (0.005)       | (0.005)       |
| Deprivation ($D_i$)        | 0.041***      |               |               |               |               |
| (0.012)                    |               |               |               |               |
| Satisfaction ($S_i$)       | 0.021***      |               |               |               |               |
| (0.008)                    |               |               |               |               |
| Weighted deprivation ($ED_i$) | 0.038***     |               |               |               |               |
| (0.010)                    |               |               |               |               |
| Weighted satisfaction ($ES_i$) | 0.019***     |               |               |               |               |
| (0.007)                    |               |               |               |               |
| Alienation ($A_i$)         | 0.026***      |               |               |               |               |
| (0.005)                    |               |               |               |               |
| Weighted alienation ($EA_i$) | 0.043***     |               |               |               |               |
| (0.005)                    |               |               |               |               |
| Age                        | $-0.017^{***}$ | $-0.017^{***}$ | $-0.017^{***}$ | $-0.017^{***}$ | $-0.017^{***}$ |
| (0.001)                    | (0.001)       | (0.001)       | (0.001)       | (0.001)       |
| Age$^2$/100                | 0.016***      | 0.016***      | 0.016***      | 0.016***      | 0.016***      |
| (0.005)                    | (0.005)       | (0.005)       | (0.005)       | (0.005)       |
| Female                     | 0.017***      | 0.017***      | 0.017***      | 0.017***      | 0.017***      |
| (0.005)                    | (0.005)       | (0.005)       | (0.005)       | (0.005)       |
| Unemployed (looking for a job) | $-0.124^{***}$ | $-0.124^{***}$ | $-0.124^{***}$ | $-0.124^{***}$ | $-0.123^{***}$ |
| (0.008)                    | (0.008)       | (0.008)       | (0.008)       | (0.008)       |
| Employed part-time         | $-0.029^{***}$ | $-0.029^{***}$ | $-0.029^{***}$ | $-0.029^{***}$ | $-0.027^{***}$ |
| (0.010)                    | (0.010)       | (0.010)       | (0.010)       | (0.009)       |
| Employed full-time         | 0.030***      | 0.030***      | 0.030***      | 0.030***      | 0.029***      |
| (0.008)                    | (0.008)       | (0.008)       | (0.008)       | (0.008)       |
| Urban                      | $-0.004$       | $-0.007$       | $-0.007$       | $-0.006$       | $-0.005$       |
| (0.007)                    | (0.007)       | (0.007)       | (0.007)       | (0.007)       |
| At most secondary education | 0.057***      | 0.057***      | 0.057***      | 0.057***      | 0.057***      |
| (0.007)                    | (0.007)       | (0.007)       | (0.007)       | (0.007)       |
| At least post-secondary education | 0.199***      | 0.198***      | 0.198***      | 0.198***      | 0.194***      |
| (0.010)                    | (0.010)       | (0.010)       | (0.010)       | (0.010)       |
| Observations               | 172,140        | 172,140        | 172,140        | 172,140        | 172,140        |
| Adjusted R$^2$             | 0.175          | 0.175          | 0.175          | 0.175          | 0.176          |

*Note: The estimated coefficients on the region-wave dummies are not shown.*

*p < 0.05, **p < 0.01, ***p < 0.001.*
### Table A2. Descriptive statistics – group A

| Dependent variable                      | Observations | Mean | SD  | Min | Max |
|----------------------------------------|--------------|------|-----|-----|-----|
| Current living conditions [1-5]        | 56,617       | 2.87 | 1.14| 1   | 5   |
| **Deprivation measures**               |              |      |     |     |     |
| \(q_i\)                               | 56,617       | 3.12 | 3.51| 0   | 16  |
| \(D_i\)                               | 56,617       | 1.56 | 2.15| 0   | 15.05|
| \(S_i\)                               | 56,617       | 1.56 | 1.30| 0   | 9.05|
| \(A_i\)                               | 56,617       | 3.13 | 1.73| 0   | 15.05|
| \(EA_i\)                              | 56,617       | 0.50 | 0.36| 0   | 2.24|
| \(ED_i\)                              | 56,617       | 1.00 | 1.45| 0   | 9.24|
| \(ES_i\)                              | 56,617       | 0.87 | 1.06| 0   | 8.65|
| **Socio-demographics**                 |              |      |     |     |     |
| Age                                    | 56,617       | 37.49| 14.77|19  | 89  |
| Gender                                 | 56,617       | 0.50 | 0.50| 0   | 1   |
| Urban                                  | 56,617       | 0.52 | 0.50| 0   | 1   |
| **Highest education level achieved**   |              |      |     |     |     |
| Primary                                | 56,617       | 0.38 | 0.48| 0   | 1   |
| Secondary                              | 56,617       | 0.42 | 0.49| 0   | 1   |
| Post-secondary                         | 56,617       | 0.20 | 0.40| 0   | 1   |
| **Labour force status**                |              |      |     |     |     |
| Not in the labour force                | 56,617       | 0.30 | 0.46| 0   | 1   |
| Employed (looking for a job)           | 56,617       | 0.28 | 0.45| 0   | 1   |
| Employed part-time                     | 56,617       | 0.12 | 0.33| 0   | 1   |
| Employed full-time                     | 56,617       | 0.29 | 0.46| 0   | 1   |

*Note:* The countries in group A are: Algeria, Botswana, Cape Verde, Egypt, Gabon, Mauritius, Morocco, Namibia, Nigeria, South Africa, Sudan, Swaziland and Tunisia.

### Table A3. Descriptive statistics – group B

| Dependent variable                      | Observations | Mean | SD  | Min | Max |
|----------------------------------------|--------------|------|-----|-----|-----|
| Current living conditions [1-5]        | 58,123       | 2.48 | 1.16| 1   | 5   |
| **Deprivation measures**               |              |      |     |     |     |
| \(q_i\)                               | 58,123       | 4.38 | 3.66| 0   | 16  |
| \(D_i\)                               | 58,123       | 1.81 | 2.06| 0   | 14.48|
| \(S_i\)                               | 58,123       | 1.81 | 1.53| 0   | 9.57|
| \(A_i\)                               | 58,123       | 3.61 | 1.46| 0.99| 14.48|
| \(EA_i\)                              | 58,123       | 0.43 | 0.28| 0.01| 1.64|
| \(ED_i\)                              | 58,123       | 1.13 | 1.51| 0   | 10.52|
| \(ES_i\)                              | 58,123       | 1.13 | 1.34| 0   | 9.16|
| **Socio-demographics**                 |              |      |     |     |     |
| Age                                    | 58,123       | 38.17| 14.65|19  | 89  |
| Gender                                 | 58,123       | 0.50 | 0.50| 0   | 1   |
| Urban                                  | 58,123       | 0.38 | 0.48| 0   | 1   |
| **Highest education level achieved**   |              |      |     |     |     |
| Primary                                | 58,123       | 0.61 | 0.49| 0   | 1   |
| Secondary                              | 58,123       | 0.29 | 0.45| 0   | 1   |
| Post-secondary                         | 58,123       | 0.10 | 0.30| 0   | 1   |
| **Labour force status**                |              |      |     |     |     |
| Not in the labour force                | 58,123       | 0.37 | 0.48| 0   | 1   |
| Employed (looking for a job)           | 58,123       | 0.29 | 0.45| 0   | 1   |
| Employed part-time                     | 58,123       | 0.13 | 0.33| 0   | 1   |
| Employed full-time                     | 58,123       | 0.21 | 0.41| 0   | 1   |

*Note:* The countries in group B are: Benin, Cameroon, Cote d’Ivoire, Ghana, Kenya, Lesotho, Mali, Sao Tome and Principe, Senegal, Tanzania and Zambia.
| Table A4. Descriptive statistics – group C |
|-------------------------------------------|
| **Dependent variable**                   | Observations | Mean | SD    | Min | Max |
| Current living conditions [1-5]          | 57,400        | 2.63 | 1.18  | 1   | 5   |
| **Deprivation measures**                 |              |     |       |     |     |
| $q_i$                                     | 57,400        | 5.16 | 3.84  | 0   | 16  |
| $D_i$                                     | 57,400        | 1.96 | 2.11  | 0   | 13.54 |
| $S_i$                                     | 57,400        | 1.96 | 1.68  | 0   | 10.47 |
| $A_i$                                     | 57,400        | 3.93 | 1.42  | 1.25| 13.54 |
| $EA_i$                                    | 57,400        | 0.39 | 0.24  | 0.00| 2.26 |
| $ED_i$                                    | 57,400        | 1.23 | 1.60  | 0   | 9.39 |
| $ES_i$                                    | 57,400        | 1.30 | 1.50  | 0   | 9.08 |
| **Socio-demographics**                   |              |     |       |     |     |
| Age                                       | 57,400        | 37.00| 13.76 | 19  | 89  |
| Gender                                    | 57,400        | 0.50 | 0.50  | 0   | 1   |
| Urban                                     | 57,400        | 0.28 | 0.45  | 0   | 1   |
| **Highest education level achieved**     |              |     |       |     |     |
| Primary                                   | 57,400        | 0.61 | 0.49  | 0   | 1   |
| Secondary                                 | 57,400        | 0.31 | 0.46  | 0   | 1   |
| Postsecondary                             | 57,400        | 0.09 | 0.28  | 0   | 1   |
| Labour force status                       |              |     |       |     |     |
| Not in the labour force                   | 57,400        | 0.45 | 0.50  | 0   | 1   |
| Unemployed (looking for a job)            | 57,400        | 0.27 | 0.44  | 0   | 1   |
| Employed part-time                        | 57,400        | 0.11 | 0.31  | 0   | 1   |
| Employed full-time                        | 57,400        | 0.17 | 0.38  | 0   | 1   |

Note: The countries in group C are: Burkina Faso, Burundi, Guinea, Liberia, Madagascar, Malawi, Mozambique, Niger, Sierra Leone, Togo, Uganda and Zimbabwe.