Living Conditions and Well-Being: Evidence from African Countries

ANDREW E. CLARK
Paris School of Economics - CNRS
Andrew.Clark@ens.fr

CONCHITA D'AMBROSIO
Université du Luxembourg
conchita.dambrosio@uni.lu

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Aim of paper

We explore the link between self-assessed measures of living conditions in Africa and objective measures of individual well-being.

We use five rounds of Afrobarometer data covering more than 100,000 individuals over the 2004-2016 period.

Motivation

Africa has made significant progress in many areas since the mid-1990s:

- it has either been the world's fasted-growing continent or the second-fastest following South Asia, and is expected to be the leader in inclusive growth.

- the middle-class grew;

- the proportion of people living in poverty has dropped notably from 56% in 1990 to 43% in 2012 according to World Bank figures.

Motivation

- In 2012, as compared to 1995, adult literacy rates have risen by four percentage points;

- the gender gap is shrinking;

- newborns can expect to live six years longer;

- the prevalence of chronic malnutrition among under five-year-olds is down six percentage points to 39%.

Motivation

These rapid changes are very likely to have influenced the individual's views of present and future living conditions:

We know that in Africa the great majority of respondents in a number of Afrobarometer surveys are optimistic with respect to their future prospects (see Graham and Hoover, 2007, and others).

This paper aims to add a different perspective to this literature.

Motivation

Our interest here lies in the understanding of the role of objectively-measured individual well-being in explaining current self-assessed living conditions and expectations for the next year.

In particular, we aim to disentangle the role played in this relation by group membership and comparisons to others.

Measures of WB

The measures of well-being we adopt are the individual contribution to the societal indices proposed in the income-distribution literature to capture multidimensional poverty, relative deprivation and satisfaction in a non-income framework.

Income is not measured in our dataset; second, even if it were, given the characteristics of the African economy, income may not be the best approximation of individual well-being.

Measures of WB

We follow a two-step procedure.

We first construct, for each individual, an indicator of functioning failure as the sum of severe shortage over the past year in five basic domains of a decent life:

1) food,
2) water,
3) medical care,
4) cooking fuel,
5) cash.

Measures of WB

These variables are originally reported on five-point scales, with 0 = Never, 1 = Just once or twice, 2 = Several times, 3 = Many times, and 4 = Always.

We have recoded these replies so that:

0 = Never or Just once or twice;

1 = Several times, Many times or Always.

Measures of WB

Let N denote the set of all positive integers and $\mathbf{R}$ ($\mathbf{R}_+$) the set of all (all non-negative) real numbers. The distinct levels of functioning failures are collected in a vector $(q_1,...,q_k)$ where $k \in N \setminus \{1\}$. π_j indicates the population share of individuals who suffer the same q_j level of functioning failures. A distribution is $(\pi, q) \equiv (\pi_1,...,\pi_k; q_1,...,q_k)$, $q_i \neq q_j$ for all $i, j \in \{1,...,k\}$. Let Ω be the space of all distributions. $\overline{q}$ indicates the illfare-ranked permutation of the vector q, that is $\overline{q}_1 \leq \overline{q}_2 \leq ... \leq \overline{q}_k$. In the second step, we calculate well-being indices over these distributions, which we describe below.

Measures of WB:
the count of failures

The first measure we use in the analysis of individual well-being is the traditional indicator of individual multidimensional poverty given by the count of functioning failures, q_i (Alkire and Foster, 2011, Bossert *et al.*, 2013). Here, the higher the value of q_i, the more deprived is the individual. In our data, this variable ranges from zero, corresponding to the situation of no deprivation (no functioning failures), to five, the maximum possible value referring to individuals who are deprived in all dimensions.

Measures of WB: deprivation

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

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

for all $(\pi, q) \in \Omega$. The deprivation that individual i suffers here is defined as the sum of all functioning failure differentials with individuals who are less deprived in the society under analysis.

Measures of WB: satisfaction

In a similar way, it is possible to measure the complement to deprivation, satisfaction $S_i: \Omega \rightarrow \mathbb{R}_+$, given by:

$$S_i(\pi, q) = \sum_{j=i+1}^{k} (\bar{q}_j - \bar{q}_i)\pi_j \qquad (2)$$

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

Group identification

The feelings of deprivation to those above may be mediated by a factor capturing group identification.

Bossert *et al*. (2007) propose that in the evaluation of deprivation individuals identify with individuals with the same level of deprivation, and with those who are worse off;

Individuals do not identify only with the better-off.

Group identification

This identification mediates deprivation: comparisons to those who are better-off matter less for individuals who have a larger identification group.

Measures of WB: weighted deprivation

Formally, the index is defined as:

$$ED_i(\pi, q) = \left(\sum_{l=1}^{i-1} \pi_l \right) \sum_{j=1}^{i-1} (\bar{q}_i - \bar{q}_j)\pi_j$$

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

In a similar way we can define weighted satisfaction

Measures of WB: alienation

The third type of measure we refer to aims to capture the individual sentiment due to comparisons to others who do not share the exact level of poverty, 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, the function $A_i: \Omega \to \mathbf{R}_+$, defined as:

$$A_i(\pi, q) = \sum_{j=1}^{k} |\bar{q}_i - \bar{q}_j| \pi_j.$$

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) highlights that the personal sum of income differences with respect to all other individuals, which corresponds to the alienation measure introduced above, A_i, provides 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 in the two components, corresponding to the relative deprivation and satisfaction measures introduced above, D_i and S_i.

DATA

The data come from waves 2 through 6 of the Afrobarometer.

This is a pan-African survey on public attitudes towards democracy, governance, economic conditions and related issues (see www.afrobarometer.org).

Cross-section data, 1200 to 2400 interviews per country.

DATA

The number of Afrobarometer countries covered has grown over time.

Wave 2 (2004):   16 countries.

Wave 3 (2005):   18 countries.

Wave 4 (2008):   20 countries.

Wave 5 (2011-2013): 34 countries.

Wave 6 (2016):   36 countries.

DATA

Dependent variable = **Self-Assessed Living Conditions**.

1) "*In general, how would you describe your own present living conditions?*" The possible answers were [1] Very Bad, [2] Fairly Bad, [3] Not Good or Bad, [4] Fairly Good and [5] Very Good.

2) "*Looking ahead, do you expect the following to be better or worse? Your living conditions in 12 months*" The possible answers here were [1] Much Worse, [2] Worse, [3] Same, [4] Better, and [5] Much Better.

DATA

Figure 1: Distribution of Present and Future Living Conditions
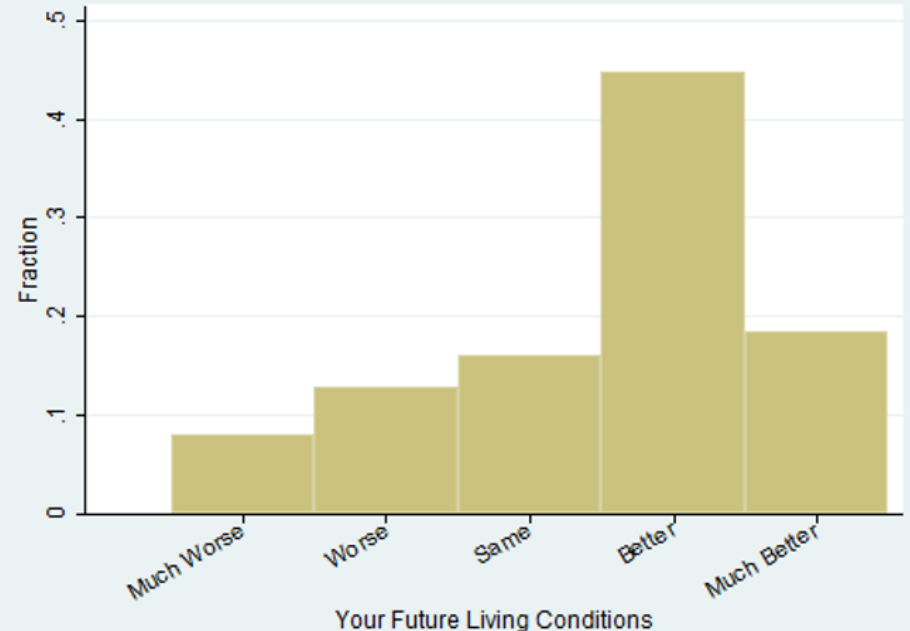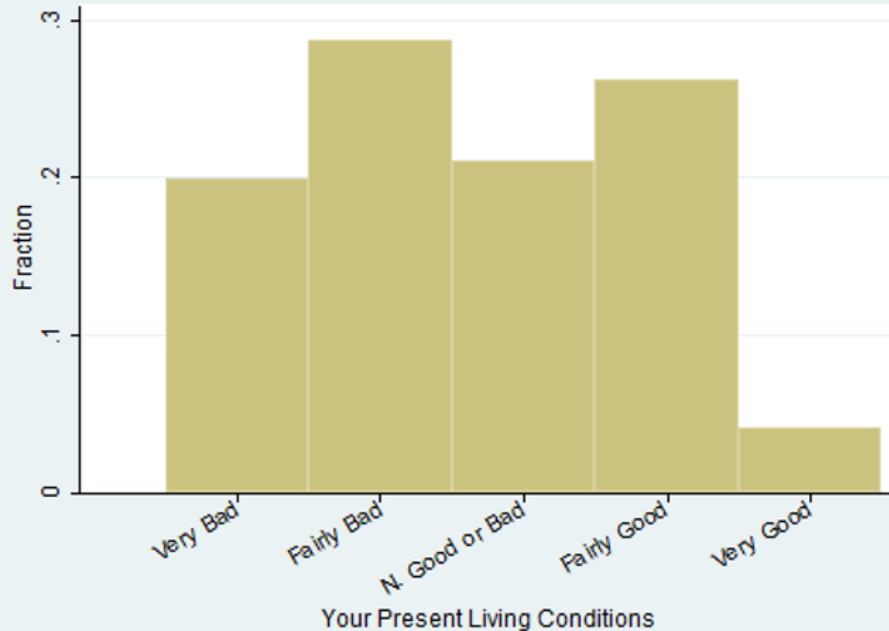
Current living conditions are distributed bi-modally;
There is optimism regarding the future

DATA

Our regressions include a standard set of control variables, so that we compare similar individuals:

• Age and age-squared

• Gender

• Living in a urban or rural area

• Education (at most primary, at most secondary, and at least post-secondary)

• Labour-force status (unemployed - not looking for a job, unemployed - looking for a job, employed part-time, and employed full-time).

• Wave and country dummies

RESULTS

We estimate:

$$wb_{it} = \beta_1 M_{it} + \beta_2 X_{it} + \alpha_c + \lambda_t + \epsilon_{it}$$

where wb_{it} is a measure of living conditions, M_{it} is an objective well-being measure, X_{it} is the vector of individual control variables (age, gender, education etc.), and α_c and λ_t are the country and wave fixed effects.

RESULTS

We estimate linear regressions. RHS variables standardised. We find:

- U-shape between age and living conditions, with a minimum at around age 50.

- Women have more positive evaluations of current living conditions

- The unemployed and part-time workers have worse living conditions

- Education is very strongly correlated with both current and future living conditions, as expected if it proxies income.

RESULTS

Present Living Conditions	(1)	(2)	(3)	(4)
No. functioning failures (q_i)	-0.270***			
	(0.002)			
Deprivation (D_i)		-0.236***		
		(0.002)		
Satisfaction (S_i)			0.246***	
			(0.002)	
Alienation (A_i)				-0.076***
				(0.002)
Weighted deprivation (ED_i)				
Weighted satisfaction (ES_i)				
Observations	171619	171619	171619	171619
R2	0.149	0.133	0.141	0.145

RESULTS

- Functioning failures reduce the evaluation of current living standards, as do deprivation, while the correlation with satisfaction is instead positive.

- No evidence that losses matter more than gains (relative to others).

- The coefficient on alienation (which is the sum of deprivation and satisfaction) is negative. Greater gaps to all others reduces subjective well-being.

RESULTS

- Introducing satisfaction and deprivation together produces a larger estimate on the former: again, no loss aversion.

- Weighting satisfaction and deprivation makes no difference.

- Best fit (as shown by the R^2): the simple number of functioning failures (followed by satisfaction and deprivation together).

HETEROGENEITY

- The results are similar for men and women.
- Those over age 40 have larger coefficients in terms of absolute value for all of functioning failures, deprivation and satisfaction.
- Those living in an urban area are similar to those aged over 40.

HETEROGENEITY BY COUNTRY

We group countries based on the shape of their distribution of functioning failures.

Share of functioning failures per group of countries
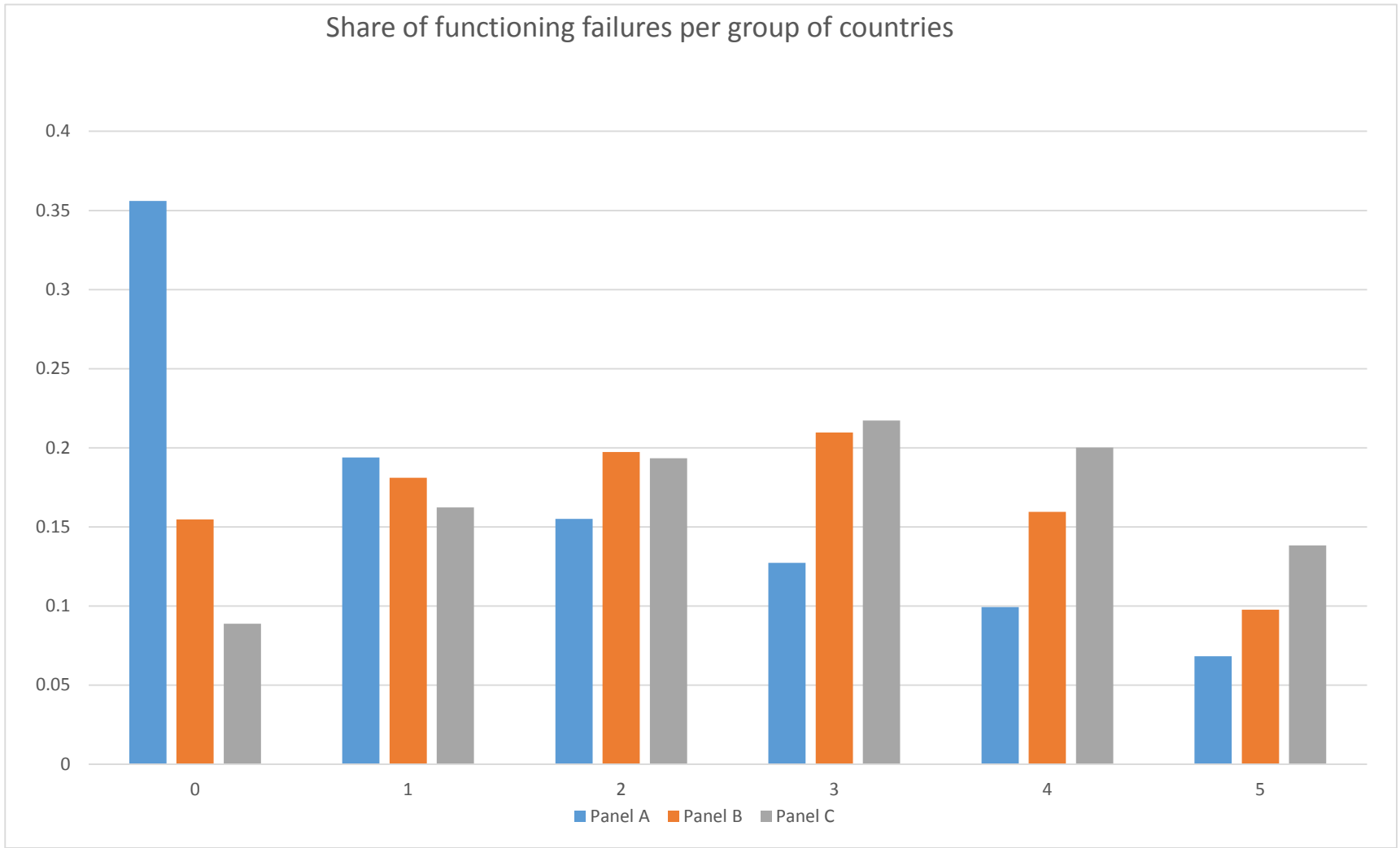
HETEROGENEITY BY COUNTRY

- Group A: right-skewed. Mozambique, Botswana, Egypt, Ghana, Kenya, Mauritius, Morocco, Namibia, Nigeria, Sao Tome & Principe, South Africa, Sudan, Tanzania, Tunisia, Uganda, Algeria, Swaziland and Cape Verde.

- Group B: symmetric. Zambia, Liberia, Mali, Sierra Leone, Zimbabwe and Madagascar.

- Group C: left-skewed. Burundi, Cameroon, Gabon, Togo, Guinea, Lesotho, Senegal, Benin, Burkina Faso, Cote d'Ivoire, Malawi and Niger.

RESULTS

- Group A are like the whole sample.
- Group B. Here deprivation matters a little more than does satisfaction, and alienation attracts a positive (albeit small) coefficient.
- In Group C, the deprivation coefficient is one quarter larger than the satisfaction coefficient in column 3, and alienation is resolutely positive.

RESULTS

- Economic development from group C to A reduces the number of functioning failures from 2.7, 2.4 to 1.6.

- This produces a greater relative weight on satisfaction relative to deprivation, and a less positive coefficient on alienation (which is the individual-level building block of the Gini coefficient).

RESULTS

- Development switches the relative importance of satisfaction and deprivation in the evaluation of standard of living, increasing the importance of the former and reducing that of the latter. One way of interpreting this is that development reduces loss-aversion.

- And inequality switches towards being a bad.

RESULTS

- We can formalise this by running our analysis separately for each country (instead of making up the country groups above).

- And then seeing how the estimated coefficients are related to the number of functioning failures and GDP per capita.

RESULTS

- In higher GDP per capita (fewer functioning failure) countries:
- Satisfaction matters more (and deprivation less)
- And the number of functioning failures matters more in richer countries (in line with a social-norm story).

WHICH FUNCTIONING FAILURES?

- FF index is made up of five elements: food, water, medical care, cooking fuel and cash.
- Which matters most in the evaluation of living conditions?
- We ran separate regressions with each one in turn, and then all five together, to evaluate their relative importance.

WHICH FUNCTIONING FAILURES?

- The story is always the same.
- Food is the most important, followed by Cash and then Medical Care.
- Water and Fuel are less important, although all have large estimated coefficients.

WHICH FUNCTIONING FAILURES?

- When we separate countries up by level of development, we find similar rankings.
- But with Cash being more important than Food in more developed countries, while the order is reversed in poorer countries.