The Mental Health of the Young in Africa

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Abstract

Growing evidence from around the world suggests the mental health of children and young adults is declining. We examine trends in mental health in Africa where there has been little prior work. We examine data from a number of surveys including Afrobarometers, the Gallup World Poll, the World Values Surveys, UNICEF's Multiple Cluster Indicator Surveys and Global Minds. We find little support for the proposition that the age structure of wellbeing in Africa has changed over the last decade, although the Global Minds surveys, conducted over the internet, do find mental health improves with age. One potential reason for this is the limited amount of internet access in Africa, especially for women. In countries like Burkina Faso and Guinea the majority of the population say they have *never* accessed the internet. In a new survey in rural Tanzania, where there is little or no internet access, mental health improves with age. The absence of the internet might help explain why the mental health of young Africans have been declining less than elsewhere other than for the internet savvy. However, there are dangers on the horizon as the sales of smartphones explode in Africa.

Key words: wellbeing; positive affect; negative affect; young people; Africa
JEL Codes: I31; J13

1. Introduction

African countries are the poorest in the world, with low rates of GDP per capita and high levels of poverty, and in most happiness surveys they rank at the bottom of the international rankings. In the most recent UN Human Development Index African countries filled the last ten places out of 193 (Appendix Table 1). In the 2024 World Happiness Report (Helliwell et al, 2024), 9 African countries were in the bottom ten out of 143 countries in their international rankings based on life satisfaction.[1] However, African countries rank higher on some wellbeing metrics. For instance, South Africa is 155th using life satisfaction but 77th using a broader wellbeing measure (Blanchflower and Bryson, 2023). It ranked 38th on 'anger' and 19th on being 'well-rested'. Somalia went from 145th on 'anger' to 78th on 'well-rested' despite the fact that it ranks bottom (193rd out of 193) in the 2022 HDI. It ranks 18th on 'smiling' and 10th on 'worry'. So, the choice of metric matters.

Alongside this literature ranking countries according to welfare measures, including wellbeing, there is a literature examining the relationship between age and wellbeing/illbeing. Until recently that literature depicted a U-shape in age in happiness and an accompanying hump shape in mental ill-health in over 600 published papers (Blanchflower, 2021; Blanchflower and Oswald, 2008; Blanchflower, Graham and Piper (2023). Peak unhappiness was around age fifty.

There are many studies for Africa that also report happiness and life satisfaction U-shapes in age with similar peaks in mid-life – this is the so-called midlife crisis. These include single-country studies such as in South Africa, Malawi, Nigeria, Egypt and Ghana.

- **South Africa**: Pretorius, Biyase and Fisher (2021), Alloush and Wu (2021), Akokuwebe, Likoko et al (2023), Kollamparambil (2020), Møller and Roberts (2019), Posel and Bruce-Brand (2020), Lloyd and Leibbrandt (2014), Botha and Booysen (2014), Botha, Wouters and Booysen (2018), Blaauw and Pretorius (2013), Bookwalter, Fitch-Fleischmann and Dalenberg (2011), Hinks and Gruen (2007), Ebrahim, Botha and Snowball (2013) and Sulemana, Doabil and Anarfo (2019).
- **Malawi**: (Davies and Hinks (2010), Ebshoy, Okulicz-Kozaryn and Valente (2024).
- **Egypt**: (Ansah, Dey, Adade and Agbadi (2022), and Addai, Opoku-Agyeman and Amanfu (2014).
- **Ghana**: Atta-Ankomah et al (2024), Abokyi, Strijker, Asiedu et al. (2021) and Ansah, Dey, Adade and Agbadi (2022).
- **Nigeria**: Peiró (2006).

There are also multi-country comparative studies that find U-shapes in age in a number of African countries. Several combined various countries together including from Africa, to find U-shapes in age in wellbeing. This includes papers using the World Values Surveys including Ball and Chernova (2008), Rözer, Rezer and Kraaykamp (2013), Salinas-Jiménez, Artés and Salinas-Jiménez (2013), Beja (2018) and Bittmann (2021). Olgiati and Calvo (2013) do the same using the Gallup World Poll. There are several studies that report separate results for African countries on both positive and negative affect.

[1] Afghanistan was 143rd with the following in order from 134th-142nd – Zambia; Eswatini; Malawi; Botswana; Zimbabwe; Congo; Sierra Leone, Lesotho; And Lebanon.

- Blanchflower and Oswald (2008) found a U-shape in 72 countries including in 8 African countries - Algeria, Egypt, Morocco, Nigeria, South Africa, Tanzania, Uganda, and Zimbabwe.

- Blanchflower (2021) found happiness U-shapes in 109 developing countries including 39 African countries. In these countries the age minimum for wellbeing was around age 50. The precise minima, in models with controls for education, labor force status and race and age<70, are in parentheses: Algeria (41), Benin (48), Botswana (49), Burkina Faso (39), Burundi (46), Cameroon (49), Cape Verde (51), Congo Brazzaville (58), Cote d'Ivoire (46), Egypt (41), eSwatini (52), Gabon (54), Gambia (47), Ghana (51), Kenya (56), Liberia (48), Libya (39), Madagascar (41), Malawi (50), Mali (45), Mauritius (39), Morocco (36), Mozambique (47), Namibia (45), Niger (46), Nigeria (41), São Tomé (50), Senegal (49), Somaliland (49), South Africa (51), Surinam (43), Swaziland (65), Tanzania (48), Togo (51), Tunisia (53), Uganda (48), Zambia (43), and Zimbabwe (55).

- Blanchflower and Graham (2022) used data from the Gallup World Poll 2015-2019 on stress to determine whether there were hump shapes in age and found them, without controls, in thirty African countries with the age at which the function hit a maximum in parentheses below - Algeria (53); Benin (49); Botswana (47); Cameroon (52); Congo (Kinshasa) (52); Egypt (48); Estonia (47); Ethiopia (67); Ghana (55); Guinea (59); Ivory Coast (48); Kenya (57); Lesotho (61); Liberia (54); Libya (37); Madagascar (49); Mauritania (52); Mauritius (43); Morocco (52); Mozambique (60); Namibia (63); Nigeria (44); SierrLeone (53); South Africa (50); South Sudan (63); Tanzania (69); Tunisia (48); Uganda (59); Yemen (59); Zambia (56).

- A recent study by Gurven et al (2024) looked at data in rural settings in 23 low-income countries including eleven in Africa - Burkina Faso, Cameroon, DRC, Ethiopia, Ghana, Malawi, Mozambique, Nigeria, Senegal, Uganda and Zambia - and found mixed evidence of a U-shape, but sample sizes were very small with a total of 6070 observations spread across all countries. They found U-shapes in 8 of the 23 countries including four in Africa – Burkina Faso, Cameroon, Ethiopia and Ghana.

There is a burgeoning literature in the years since around 2013 that suggests these U-shape well-being patterns and hump shape illbeing patterns in age have started to disappear around the world. The evidence is especially strong in English speaking countries, including the US, the UK, Canada and Australia and Northern Europe such as Germany, France, Norway, Sweden, Denmark and the Netherlands, that mental ill-health improves with age, and well-being tends to rise with age. The U-shape has gone. The disappearance of the U-shape was first observed in the United Kingdom and the United States (Blanchflower, Bryson and Xu, 2024). The disappearance coincided with the end of the Great Recession and the rapid rise in the use of the internet, and especially smart phones from around 2013.

Other studies point to a recent decline in the life satisfaction of school-age children in many European, Latin American and Asian countries (Marquez et al, 2024). There is also evidence of a correlation between mental ill-health of school children, adolescents and young adults and

intensity of smart phone usage. This has coincided with an increased diagnosis of mental health disorders among young people eg. Soriano et al, (2024) for Spain and Pitchforth et al (2019) for England, Scotland and Wales.

In the years since 2020 there is evidence from many countries that well-being now rises in age and ill-being declines in age. This was found recently in Latin American countries (Blanchflower and Bryson, 2024a) and in Eurasia and Oceania (Blanchflower and Bryson, 2024c). This pattern was also discovered in the Come-Here Surveys for 2020-2024 in France, Germany, Spain, Italy and Sweden (Blanchflower, Bryson, Lepinteur and Piper, 2024). The authors also found using data from the International Social Survey Programme on a sample of 18 countries that in 2010 unhappiness *declined* in age in 2011 but by 2021 it *increased* in age. Country-specific surveys have found similarly including in Australia (Botha et al., 2023), Canada (Garriquet, 2021), Norway (Krokstad et al., 2022), Iceland (Thorisdottir et al., 2021) and Scotland (Blanchflower, Bryson and Bell, 2024).

This change in the age profile of mental health has occurred because the well-being of the young has deteriorated in absolute terms, while the mental health of older age groups has remained relatively stable.

Deterioration in the mental health of the young seems to start in childhood and continues into adolescence. de Looze et al. (2020) found a deterioration in children's and adolescents' mental health in the Netherlands. Blanchflower and Bryson (2024a) reported a dramatic rise in feelings of being sad or hopeless almost every day for two weeks in the United States using data on high school students ages 14-18 from the Youth Risk Behavior Surveillance System Surveys for 1999-2021.[2] Chollet et al.'s (2024) analyses of the UK's Household Longitudinal Survey (UKHLS) show a dramatic decline in the happiness of school children aged 10-15 since 2009.

This paper contributes to the literature by focusing on changes in subjective well-being and mental health in Africa.[3] We address two questions. First, is the change in the age profile of well-being, apparent in North America, Europe and English-speaking countries across the globe, also apparent in Africa? Second, what role – if any - is played by social media, particularly smartphone usage, in the mental health in Africa?

We examine well-being, variously measured in 53 African countries and try to determine if the U-shape in age in happiness still exists. It does. The evidence regarding change in the well-being of the young is somewhat contradictory, potentially reflecting differences in sampling methods and well-being metrics across surveys. The mental health of young Africans responding to internet-based surveys such as Global Minds is lower than that of older people. However, this is not evident in other surveys such as the Gallup World Poll or the Afrobarometers.

2. Well-being in Africa

[2] *Q13. During the past 12 months did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities? Yes/No*

[3] This is the second in a series of papers on international changes in youth well-being; the first examined Latin America – Blanchflower and Bryson (2024b) and the third (Blanchflower and Bryson, 2024c) focuses on Eurasia and Oceania.

2.1: How does Africa Differ from the West?

Countries in Africa differ in many ways from those in North America and Europe where much of the research on changes in young people's mental health has been undertaken.[4] These differences mean that the decline in mental ill-health among the young, found elsewhere, may not necessarily materialize in Africa.

The well-being literature identifies economic development and income equality as two key factors affecting how people feel. African countries tend to be at the bottom of the country rankings in terms of economic development and their rankings have changed little over time. Let us take the United Nations' Human Development Index (HDI), for example. Appendix Table 1 shows the rankings of fifty-three African countries according to the HDI in 2022 (column 1), together with four sub-components of the index, namely life expectancy, expected and median years of schooling, and Gross National Income (GNI) per capita in 2017 (US dollars, purchasing power adjusted). The HDI rank in 2015 is provided in column 7.

There is relatively little heterogeneity within the African grouping. The highest ranked African country on the HDI in 2022 is Libya at 92nd with a GNI of $19,752 versus $69,433 for the highest ranked country of Switzerland. The lowest ranked is Somalia at 193rd which is the lowest ranked country in the world. Three have GNI's of under $1000 a year – Burundi, CAR and South Sudan. There has also been very little change in rankings since 2015. Libya ranked 92nd in both 2015 and 2022; Mali ranked 188th in both. Egypt rose from 116th to 105th.

There is a considerable variation in population size (Appendix Table 2). With 232 million people, Nigeria has the largest population in Africa, but three other countries have a population in excees of 100 million – Congo Kinshasa, Egypt, and Ethiopia. Further, populations are growing rapidly, as compared with other countries. For example, between 2010 and 2024 US population rose by 11%. According to the U.S. Census Bureau International Database[5], population growth rates between 2010 and 2024 were very high in Africa. Many countries had population growth of over 40% and in Angola, Benin and Niger it was over 60%. Only Mauritius had less than 5% growth. These recent growth rates, coupled with relatively low life expectancy rate (Table 1, column 3) mean African countries tend to have a higher proportion of young people than is the case in other parts of the world.

Income inequality is especially high in Africa, militating against high levels of subjective well-being. The World Bank Database provides recent data for 2022 inequality for 53 African countries.[6] Inequality is higher in most African countries than it is in the US, which had a Gini coefficient of 41 (Appendix Table 2). It is highest in South Africa (63) but is also high in Angola (51); Zambia (52), Eswatini (55), and Namibia (59).

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[4] The African Development Bank provides useful facts on individual African countries https://www.afdb.org/en/countries. There are many details on life in South Africa from the OECD's Better Life Index, noting that South Africa is the only African member of the OECD https://www.oecdbetterlifeindex.org/countries/south-africa/

[5] https://www.census.gov/data-tools/demo/idb/#/dashboard?COUNTRY_YEAR=2024&COUNTRY_YR_ANIM=2024

[6] https://wdi.worldbank.org/table/1.3?_gl=1*fathonyc7r*_gcl_au*MTg5ODc3NDQ1Mi4xNzI3MDk1ODMx

Finally Appendix Table 2 also shows the most recent unemployment rates reported by the International Labour Organization (ILO). There is considerable variation across countries. Several countries have very low rates – Malawi has a rate of 0.9% and Chad has 1.1% and Benn 1.7%. But rates are over 20% in Botswana, Djibouti, Eswatini, Gabon, and South Africa. Cabo Verde has a rate of 65%. Many of these unemployed are young people in countries like South Africa, where the unemployment rate for ages 15-34 years is 45.5% ('*Unemployment in South Africa: a youth perspective*', Stats sa, Dept of Statistics, Republic of South Africa, May 17 2024, https://www.statssa.gov.za/?p=17266).

3. Data and Estimation

We examine the well-being of the young and how it has changed over time using six micro data files which include, or are confined to, respondents from Africa. These are the Gallup World Poll, 2005-2023; World Values Surveys 1981-2022; Afrobarometers; Global Minds, 2020-2024; UNICEF's Multiple Cluster Indicator Surveys (MICS) in 17 countries; the ERBRD's Life in Transition Surveys (LITS) from 2014-2015 and 2022-2023; plus three surveys from South Africa, Quality of Life Surveys 2009-2021, the National Income Dynamics Study, 2012-2017 and the 2021 International Social Survey Programme (ISSP), for South Africa. Details of each of these files are set out in Appendix A.

The main question we address is whether there has been a decline in youth mental health and whether that has removed the U-shape in happiness and the hump-shape in unhappiness in Latin America, as it has done in the US and elsewhere. The way we tackle that is to look at the relationship between age and well-being and illbeing in Africa using the above data files. But first it makes sense to look at overall changes in well-being over time and then look at changes for the young.

3.1. Gallup World Poll, 2005-2023

Successive rounds of the World Happiness Report have ranked countries, including those from Africa, using data from the Gallup World Poll. The most recent in 2024 ranked countries using data from the Cantril variable averaged over the period 2021-2023. These rankings, for all ages and for under-30s, originally reported by Helliwell et al (2024) – are presented in Appendix Table 3 columns 1 and 2 respectively. In a recent paper Counted et al (2024) used the 2020-2022 GWP files to rank African countries using 38 different negative and positive affect variables. Column 3 of Appendix Table 3 presents their rankings for Cantril's Ladder plus a ranking based on all 38 measures they use.

Blanchflower and Bryson (2024) found big differences in rankings, of countries and US states using the 2007-2017 GWP data files depending on which variables were used. For example, The Gambia ranked 205th on Cantril and 9th on smiling. Using the method we used in that paper, we simply took all the 38 rankings reported in the paper, summed them and re-ranked them. The Cantril ranking is reported in column 3 and the 'all 38' ranking – for those countries that report all – in column 4. The Gambia goes from 24th using Cantril, to 7th using the *all 38* ranking. So, care needs to be taken in determining the rankings. In both, Sierra Leone ranks last.

A recent IPSOS Global Happiness Report 2024 reported on changes in average happiness by country between 2013 and 2024 in their global happiness survey. South Africa, which was the

only African country, had a decline in happiness from 83% in 2013 to 69% in 2024. Across 30 countries in 2024 it ranked 21st.[7]

In column 1 of Table 1 we regress the Cantril variable in the GWP, 2020-2023, on a set of age dummies and find the coefficients decline in age. The effect is the same for the (1,0) dummy enjoy (column 2). Of note though is the change of sign of the female variable when moving from Cantril to Enjoy, as noted in earlier work on Latin America (Blanchflower and Bryson, 2024c). The final two columns take two negative affect variables, sadness and worry, and the age coefficients *increase* with age. The results from negative and positive affect are consistent and the young are the happiest group in these GWP African data.

In Appendix Table 4 we report time series changes in the Cantril score by country for those aged under-25. As can be seen countries are not sampled in every year. In the majority of cases the trend is upwards. There is not a lot of evidence of declining well-being of the young here.

Table 2 reports the results of regressing Cantril on a time trend in 46 African countries between 2013 and 2023 with the sample restricted to those aged under-25 in column 1 and 35-55 in column 2. It finds significant declines in Cantril for the under-25s in 16 countries – Algeria, Botswana, Comoros, Congo Kinshasa; Egypt, Eswatini, Ethiopia, Malawi, Mauritania, Morocco, Sierra Leone, Somalia, South Sudan, Tunisia, Zambia and Zimbabwe. However, in all but the cases of Egypt, Eswatini and Mauritania there was also a significant downward trend in the older age group. Furthermore, in 24 countries the young experienced a positive, significant increase in Cantril's Ladder, compared with 23 significant positives in the case of those aged 35-55.

We ran Cantril regressions on these African countries pooled for the period 2005-2016, with controls for age and its square, gender, education, year and country with the sample being restricted to those age 18-70. The age minima are found by differentiating with respect to age and solving – which means dividing the age coefficient by 2* the age squared coefficient, setting to zero and solving for age. We found the age minimum of 48 and then repeated for the years 2017 to 2023 and found the minimum had declined a little to 45.[8] We then repeated the exercise with the dependent variable scored 0 to 5 as the sum of five 1,0 dummies relating to yesterday on pain, sadness, stress, worry and anger. That showed a hump shape with a maximum of 63 in the first period and of 56 in the second.[9] So there are still U-shapes in age in happiness and hump shapes in unhappiness in the GWP data for Africa as a whole.

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[7] 1=Netherlands; 2=Mexico; 3=Indonesia; 4=India; 5=Brazil; 6=Thailand; 7=Ireland; 8=Malaysia; 9=New Zealand; 10=Great Britain; 11=Singapore; 12=Belgium; 13=Argentina; 14=United States; 15=Poland; 16=Australia; 17=France; 18=Canada; 19=Colombia; 20=Spain; 21=South Africa; 22=Chile; 23=Peru; 24=Sweden; 25=Germany; 26=Turkey; 27=Italy; 28=Japan; 29=South Korea; 30=Hungary. https://www.ipsos.com/en-us/global-happiness-2024#:~:text=People%20are%20feeling%20pretty%20happy,73%25%2C%20reported%20being%20happy.

[8] For the years 2005-2016 (n=280,138) the coefficient on age was -.0165 (t=24) and on age squared .00017 (t=8). In the second period the coefficients on age was -.0646 (t=25) and on age squared .0007 (t=22). Differentiate wrt age and solve gives minima of 48 and 45 respectively.

[9] In the first age had a coefficient of +.02421 (t=21) and age squared was -.000019 (t=13) and in the second age was +.0406 (t=268) and age squared was -.00036 (t=20). Differentiate wrt age and solve gives maxima of 63 and 56 respectively.

We repeat the exercise running Cantril regressions by country for those aged under-70 with controls for gender, education and year – but this time separately by country. We find a significant U-shape where the age term is significantly negative and the age squared term significantly positive with both t-values >1.6 in 31 countries - Algeria (37), Benin (38), Botswana (48), Burkina Faso (36), Cameroon (46), Congo Brazzaville (49), Egypt (39), Eswatini (53), Ethiopia (40), Gabon (49), Gambia (44), Guinea (34), Kenya (61), Liberia (42), Libya (39), Lesotho (57), Ivory Coast (42), Madagascar (41), Malawi (48), Mali (39), Morocco (44), Niger (49), Nigeria (39), Rwanda (45), Sierra Leone (39), South Africa (43), Tanzania (46), Togo (39), Uganda (45), Zambia (49), Zimbabwe (43). The age minimum is reported in parentheses. U-shapes were absent in eight - CAR, Chad, Congo Kinshasa, Ghana, Mauritania, Mozambique, Senegal and South Sudan and data was unavailable for Angola or Djibouti or Somalia. Consistent with the findings for Africa by Blanchflower (2021) for earlier periods there are still U-shapes in life satisfaction in the majority of African countries in the years 2016-2023 in the GWP.

3.2: World Values Surveys (WVS), 1981-2022

In Table 3 we estimate 10-step life satisfaction equations using the WVS (waves 4 through 7) to determine if there were changes in the relationship with age across 17 African countries. The reference category is under-25s. In each case life satisfaction declines significantly in age through to age 45-54, and this pattern does not change much over the four periods we run the estimates. There is no evidence here of a decline in the well-being of the young.

3.3: Afrobarometers 1991-2023

We estimated satisfaction with living standards equations for wave 1-6 (1999-2016) and 7-9 (2020-2023) in Table 4. The age structure looks similar in the two periods, with satisfaction declining in age in 1999-2016. Since COVID, the young remain most satisfied, and there is some evidence of lower satisfaction after age 45, although it's non-linear.

Table 5 reports on the significance of time trends for satisfaction with living standards in the period since 2011 for those aged under-25 and 35-55 (waves 5-9). In the first row we see the coefficients for all Africa pooled. Satisfaction with living standards has been falling for both the young and the middle-aged. When we look country-by-country we see significant declines among the young in eighteen countries - Angola; Botswana; Burkina Faso; Burundi; Cameroon; Eswatini; Ethiopia; Gabon; Gambia; Ghana; Guinea; Malawi; Namibia; Nigeria; Sierra Leone; South Africa; Sudan; Zambia. In almost every case there were also declines for the middle age group, which helps to explain why the U-share in age doesn't disappear.

3.4: UNICEF's Multiple Cluster Indicator Surveys (MICS), 2017-2022 in 17 countries

These surveys provide information on individuals under the age of fifty. Data is available on both happiness (Table 6) and life satisfaction (Table 7). Single years of data are only available with some variation across countries. Just as was noted above for the WVS and AB well-being declines in age in most countries. There are exceptions. Happiness in the Central African Republic rises in age. In Sao Tome there are no significant age effects in happiness. In Ghana life satisfaction rises in age, but declines in age in happiness, for which we have no explanation. But, in general, happiness and life satisfaction in these surveys declines in age through midlife.

3.5. EBRD's Life in Transition Surveys, of 2022/23 on Algeria, Morocco and Tunisia.

In Table 8 column 1 we report life satisfaction equations using wave 3 data from 2014-2015 on a group of countries, none of which are African. We then do the same on a broadly similar group of countries that now includes Albania, Morocco, Tunisia on wave 4 for 2022 and 2023. We present the coefficient for a dummy variable for those aged 18-24, so it captures their life satisfaction relative to the remainder aged 26-64. Only in the case of Montenegro and Turkey is the young age variable significantly negative.

3.6: South African National Income Dynamics Study, 2012-2017

A number of earlier studies have used data from the National Income Dynamics Study (NIDS) and found significant U-shapes in age in life satisfaction including Kollamparambil (2019, 2021). Table 9 uses these data for sweeps 1 (2012), Sweep 2 (2014/15) and sweep 3 (2017). There is evidence in the most recent data that those under the age of 18 are happiest. The age group 65-74 is significantly happier than the young ages 18-24, which was also the case in 2012.

3.7: International Social Survey Programme 2021 Survey

Table 10 reports on the relationship between three negative affect variables relating to being unhappy and depressed (column 1), not overcoming problems (column 2), and having lost confidence (column 3) in the last month. The signs, and significance, on the age variable are reported. Data are reported for South Africa and seventeen other countries outside Africa. In the case of South Africa, the age variable is insignificant apart from for being unhappy and depressed where the sign is positive, indicating that depression is declining in age. In the major advanced countries, with the exception of Italy, in this ISSP data file the age variable is everywhere significantly negative with the youngest facing the biggest mental health problems.

3.8: South African Quality of Life Survey 2009-2021

The results in Table 11 panel a) from the South African Quality of Life surveys are quite different from what has gone before. They show life satisfaction is lowest among those aged under 34, and that this has been the case since 2009 This is also the case with respect to life satisfaction (Table 11, panel b column 1), satisfaction with living standards (Panel B column 2) and satisfaction with national government (Panel B, column 4). Satisfaction with one's neighbourhood is different: this rises with age (Panel B, column 3).

The three South African surveys are hence somewhat contradictory. As background we should note that South Africa has extremely high inequality and youth unemployment rates are extremely high. According to the Quarterly Labour Force Survey for Q22024, published by Statistics South Africa the overall Neither in Employment, Education or Training (NEET) rate was 35.2% for youths ages 15-24, covering 10 million youngsters.[10]

3.9: Global Minds, 2020-2024

The data from GM are quite different and provide widespread evidence that well-being rises in age and ill-being – here measured as fear and anxiety, experience of pain and suicidal thoughts – declines in age.

[10] https://www.statssa.gov.za/publications/P0211/P02112ndQuarter2024.pdf

Table 12 illustrates. It is restricted to countries with at least 1000 observations. The MHQ score in the first column rises in age. For the three negative affect variables (Fear and anxiety, Experience of pain, and Suicidal thoughts) illbeing significantly declines in age. These GM surveys seem to be picking up internet savvy unhappy young people in a way that other surveys are not.

The decline in the mental health of the young in Africa in this survey may suggest that poor mental health is a bigger problem for the internet savvy. Global Minds decided to explore this issue further in Tanzania. where, in 2022, in the Afrobarometer 78% of females and 70% males had never used the internet (Appendix Table 5) and where according to the UN only 32% had internet access (see Appendix Table 6). The GM samples are primarily taken from the three major cities where the Internet is reasonable – Dares Salaam, Arusha and Dodoma.

In Tanzania GM have a full-time field team that collects both survey data and physiological data from those who are offline and may also be semi-literate. The rural sample is from villages and tribe settlements where most do not use the Internet and includes a selection of villages across the Manyara and Arusha regions. Suburban areas of Tanzania are different from suburban areas in the US. They are not wealthy and are actually villages which differ from rural areas only in that they have relatively easier public transport into the main city. Smartphone use is limited because the absence of electricity at home means people often have to travel to town to change their phone. GM provide respondents with a tablet on which to take the assessment with assistance. The assessment also has audio assistance for those who are not as comfortable reading. If they struggle one of the GM staff walks them through the assessment.

The goal is to sample sufficiently across all age and gender and income groups from each type of environment/ecosystem. The choice of villages is based on practicality rather than strict stratified sampling since it requires various permissions and relationship building with village elders.

In Table 13 we report the distributions for Tanzania using the GM Tanzanian data files, of MHQ mean scores by age group in the rural and suburban samples, and combined, and then from the Global Minds sample itself. In the first two columns MHQ declines in age and in the final column it rises with age. The three sets of MHQ regressions in Panel B confirm these patterns. MHQ declines in age in rural and suburban settings and rises with age among the internet connected. This is shown in the second part of the table where we run MHQ regressions.

We now turn to thinking about why there are these differences. Our main finding is that the age structure of wellbeing of the internet savvy is similar to that of many other countries surveyed in Global Minds. What stands out is that the spread of the internet is relatively low, and access to it is lower for women than men. This may then explain why the evidence suggests that happiness still declines in age in Africa, but change is likely coming.

4. Internet and cell phone usage

In the literature for developed countries, and especially those that are English-speaking, there is growing concern about the role of smart phones and internet screen time in declining mental health of the young (Udupa et al., 2023; Twenge, 2020; Twenge and Farley, 2021; Haidt 2024a, 2024b). In those countries we have seen evidence of declining youth well-being. The evidence of declining

well-being of the young is not so clearcut for Africa. We do see evidence though that wellbeing declines in age among the internet savvy from Global Minds and in the South African Quality of Life Surveys. This perhaps isn't surprising given the fact that much smaller proportions of people in Africa have access to the internet. We illustrate this in this section with data from the Afrobarometers, the UN and the UNICEF surveys.

Malephane (2022) examined data on cellphones and internet access using the prior sweep #8 of the Afrobarometer for 2019/21 across 35 countries and reported that fewer than half of African adults had access to the internet on their phones including 20% of Malawians and Nigerians and 16% of Ethiopians. However, access to the internet via mobiles had risen 7 percentage points from 2016/18. Across African countries 49% of ages 18-30 reported frequent use of the internet vs 41% for 31-45 years and 28% age 46-60. In addition, 53% of those age 18-30 had mobile with internet access versus 46% for those ages 31-45 and 34% for those ages 46-60.

Evidence was also reported by country on the proportion of residents with a mobile with internet access (Malephane , 2022, Figure 5). Across all countries the mean is 45% but it ranges from a low of 20% in Niger to 77% in Eswatini. Elsewhere coverage is as follows: Angola=35; Benin=38; Botswana=56; Burkina Faso=23; Cabo Verde=69; Cameroon=61; Cote D'ivoire=52; Eswatini=77; Ethiopia=16; Gabon=66; Gambia=62; Ghana=42; Guinea=32; Kenya=51; Lesotho=39; Liberia=42; Malawi=20; Mali=33; Mauritius=77; Morocco=75; Mozambique=29; Namibia=47; Niger=20; Nigeria=40; Senegal=60; Sierra Leone=31; South Africa=66; Sudan=45; Tanzania=22; Togo=47; Tunisia=57; Uganda=26; Zambia=37; Zimbabwe=50;

In 2000 the US had 43% usage with essentially none in Africa. By 2008 the US had reached 74% and four countries reached double digit usage – Egypt and Libya (both 18%); Mauritania and Morocco (both 33%) Mauritius 225 and Tunisia 28%. By 2022 97% of the US population had internet access. There is a good deal of variation by African country – the highest is Morocco and Mauritania at 90% - with others with between 70% and 77% - Algeria, Botswana, Egypt, Ghana, Libya, Mauritius, South Africa and Tunisia. As perhaps would be expected the poorest countries had very low coverage: ten had under 20% coverage Burundi, CAR, Chad, Comoros, Ethiopia, Gabon, Niger, South Sudan, Uganda and Yemen.

By 2022 all the English-speaking countries had coverage rates in the mid 90% range (Appendix Table 7), which was also the case in Finland, Germany, Netherlands, Spain, Sweden and South Korea. Russia is at 92% and China at 78% with India at 43%. Rates of between 85% and 90% were found in France, Greece and Italy and Japan. Rates in Latin America varied between 73% in Colombia and 75% in Peru and a high of 94% in Chile. It is notable that we do see more evidence in Latin America, of declining wellbeing of the young in a number of surveys, where internet coverage is higher than it is in Africa (Blanchflower and Bryson, 2024b)

We also have further, supporting evidence on internet usage from our UNICEF country files described above. We examined those countries with the largest sample sizes to determine what percent of men and women, age 18-49 had *ever* accessed the internet. The weighted responses were as follows.

1. Nigeria - 35% men, 20% women, 19%, ages 15-17; 29% and ages 18-24: 27% ages 25-34; 27% ages 35-44 23% and 17% ages 45-49 (n=53,329).

2. Sierra Leone - 18% men, and 7% women and ages 15-17; 6% ages 18-24: 15% ages 25-34; 11% ages 35-44 7% and 5% ages 45-49 (n=22,960).

3. Malawi - 19% males (n=6,492) and 7% females and ages 15-17; 5% ages 18-24: 12% ages 25-34; 7% ages 35-44 and 6% ages 45-49 (n=30,557).

4. Chad - 5% males (n=6,748) and 1% females and ages 15-17; 2% ages 18-24: 3% ages 25-34; 2% ages 35-44 and 1% ages 45-49 (n=53329). (n=29,109).

5. Discussion and Conclusion

There is growing evidence from around the world of declining well-being of young people, especially in English speaking countries and northern Europe. The evidence suggests that this started around 2013 and has continued since then and is spreading globally. The consequence of this is that the U-shape in age that existed in wellbeing data, and the hump shape in ill-being data has begun to disappear. This is happening but slowly in Africa.

The evidence across many datasets including the Gallup World Poll, Afrobarometers, the World Values Survey, UNICEF's Life in Transition Surveys and the World Bank's MIC surveys was suggestive that the young were especially happy. There is some contradictory evidence, including for South Africa in the Quality of Life Surveys, but such evidence is few and far between.

We did though find strong evidence in Africa that among those who were internet connected the young had especially *low* levels of wellbeing. We also found from an experiment in Tanzania that the young in Global Minds data that were internet connected had low levels of wellbeing. But in a survey of rural and suburban areas in Tanzania which had little or no internet connections, the pattern was not repeated and happiness rose with age.

In addition, there is a good deal of evidence that the mental health of school children globally has worsened. There is also evidence that some of this deterioration is associated with intensive use of social media. For instance, children who spent up to four hours of digital time a day are *more* satisfied with life than those with none (who are the reference category). But life satisfaction declines among school children in Latin America once they spend four or more hours a day on a digital device (Blanchflower and Bryson, 2024b). Spending time on a digital device per se, then, is not associated with negative affect.

Claims have been made that the timing of the declines we have observed in youth well-being closely track the spread of smartphones and the use of the internet. There is considerable dispute over whether this is causal (Odgers (2024, Haidt, 2024b). And yet it is hard to find anything else that fits the facts – that it started around 2013, applies disproportionately to the young in general and young women in particular and is global.

Very little work has been done in the less developed world on the extent to which this rising ill-being of the young is present and whether it is associated with the rising presence of smart phones

and use of the internet. Blanchflower and Bryson (2024b) examined new evidence for Latin America. As noted above there was evidence for this from the PISA surveys in eight Latin American countries. It was also found that it was present in Enbiare surveys for Mexico. It was also found in data collected from the internet in Global Minds. It was harder to find in the Latinobarometer and Gallup World Poll surveys.

In this paper we found little evidence of declining youth well-being other than among the internet-based sample of Global Minds. **Well-being in Africa only declines in age for those who were able to access the internet.** It was not found in the Gallup World Poll files or in Afrobarometer, UNICEF and EBRD surveys of well-being. It was found in Global Minds, except ina rurl subsample in TAnzanaia that had no internet access. We speculated on why this may be the case. Compelling evidence was found that the spread of smartphones and the internet in Africa was extremely limited. Many people reported *never* using the internet in their lives. This was especially the case in the poorer countries like South Sudan and Chad and less so in the richer countries like Mauritius.[11]

There is a good deal of evidence that the number of smart phone subscriptions in Africa is rising. There apparently are barriers to smartphone usage in Africa: In Sub-Saharan Africa 40% of the adult population are connected to internet services but another 44% live in areas covered by mobile broadband but do not yet use mobile internet services.[12] By 2022 smartphone adoption reached 50% in Sub-Sharan Africa.

According to the World Bank internet access to broadband internet rose from 26% in 2019 to 36% in 2022. The average broadband download speed in Africa grew from 2.68 megabits per second (Mbps) in 2019 to 8.18 Mbps in 2022, and the average price of 1 gigabyte (GB) decreased from 10.5 percent of the monthly Gross National Income (GNI) per capita in 2019 to 5 percent in 2021. They noted a particular surge in North Africa from 27% in 2019 to 55% in 2022. Country diagnoses are available from the World Bank here - https://www.worldbank.org/en/programs/all-africa-digital-transformation/country-diagnostics.[13]

The concern is that as access to the internet and to smartphones spread, African youth will inherit the problems observed elsewhere. To this point those young people with access to the internet appear similar to those young people from other countries who access the internet. Young women are less happy than young men. The lack of access to the internet appears to have kept those numbers down. Those without that access appear relatively happy and happiness in age still

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[11] From 'Connectivity to services: digital transformation in Africa', June 27 2023, World Bank https://www.worldbank.org/en/results/2023/06/27/from-connectivity-to-services-digital-transformation-in-africa#:~:text=Despite%20improvements%2C%20in%202022%2C%20only,services%20still%20lag%20other%20regions.

[12] 'The Mobile Economy. Sub-Saharan Africa, 2022" GSMA Intelligence https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-economy/wp-content/uploads/2022/10/The-Mobile-Economy-Sub-Saharan-Africa-2022.pdf

[13] The Pew Foundation examined what social media sites were being used in three African countries – Kenya, South Africa, and Nigeria and found they respondents there were twice as likely likely to use What's App than in the USA but with broadly similar rates on Facebook, Instagram and twitter. https://www.pewresearch.org/short-reads/2024/03/22/whatsapp-and-facebook-dominate-the-social-media-landscape-in-middle-income-nations/

appears U-shaped with the young especially happy. Africa is the number one market in the world for smart phones. There may well be devastating consequence on the mental health of the young when cyberbullying and body shaming arrive.

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Table 1. Positive and negative affect GWP Africa, 2020-2023.

	Cantril	Enjoy	Sad	Worry
25-34	-.2560 (12.53)	-.0123 (3.43)	.0302 (8.77)	.0637 (17.30)
35-44	-.4262 (18.22)	-.0267 (6.47)	.0556 (14.07)	.0944 (22.39)
45-54	-.4783 (16.99)	-.0396 (7.96)	.0761 (16.01)	.1137 (22.43)
55-64	-.4891 (13.99)	-.0506 (8.22)	.0992 (16.89)	.1350 (21.53)
Female	.0583 (3.60)	-.0221 (7.73)	.0316 (11.56)	.0062 (2.13)
Cons	4.4190	.4912	.2522	.3920
Adjusted R^2	.0645	.0547	.0309	.0437
N	111,048	111,842	112,333	112,413

also include full set of country and year dummies

Table 2. Time trends in Cantril's Ladder for those age<25 and 35-55 from 2013-2023 /41 – coefficients and t-values

	Age <25	Age 35-55
Africa	+.0516 (20.83)	.0380 (16.37)
Algeria	-.1236 (7.03)	-.0439 (2.93)
Angola	-.1941 (1.29)	+.3181 (1.46)
Benin	+.1331 (8.71)	+.1029 (7.39)
Botswana	-.0412 (2.44)	-.0906 (6.25)
Burkina Faso	+.1658 (12.15)	+.1313 (9.28)
Burundi	+.2264 (4.03)	+.1721 (3.32)
Cameroon	+.0487 (3.63)	+.0537 (3.56)
CAR	+.7783 (3.67)	+1.0327 (5.05)
Chad	+.1270 (8.94)	+.1178 (7.23)
Comoros	-.0732 (1.66)	-.1075 (2.63)
Congo Brazzaville	+.1533 (7.93)	+.0940 (5.69)
Congo Kinshasa	-.0937 (8.06)	-.0797 (5.93)
Egypt	-.0447 (3.13)	-.0150 (1.43)
Eswatini	-.2666 (5.81)	-.0644 (1.29)
Ethiopia	-.0295 (2.40)	-.0643 (5.27)
Gabon	+.1254 (8.80)	+.0982 (8.31)
Gambia	-.0388 (1.18)	+.0187 (0.58)
Ghana	+.0304 (2.24)	-.0003 (0.02)
Guinea	+.1688 (12.58)	+.1683 (11.52)
Ivory Coast	+.1768 (12.01)	+.1315 (9.57)
Kenya	+.0628 (4.58)	-.0218 (1.35)
Lesotho	-.0253 (0.56)	-.0662 (1.76)
Liberia	+.1336 (5.75)	+.0684 (2.89)
Libya	+.0639 (3.94)	+.0639 (3.94)
Madagascar	+.0555 (4.26)	+.0315 (2.71)
Malawi	-.0797 (4.92)	-.1163 (6.70)
Mali	+.0566 (3.51)	+.0256 (2.09)
Mauritania	-.0262 (1.92)	-.0035 (0.27)
Mauritius	-.0182 (1.05)	.0230 (1.65)
Morocco	-.0408 (2.68)	-.0628 (4.99)

Mozambique	+.1078 (4.35)	+.0659 (2.11)
Namibia	+.0187 (0.97)	.1073 (5.12)
Niger	+.1346 (9.41)	+.0743 (4.72)
Nigeria	-.0169 (1.06)	.0067 (0.43)
Rwanda	+.0797 (2.75)	-.1147 (5.82)
Senegal	+.1267 (10.35)	+.0659 (5.29)
Sierra Leone	-.1518 (9.19)	-.1630 (10.30)
Somalia	-.4200 (4.36)	-.6325 (6.73)
South Africa	+.1214 (8.74)	+.1019 (8.52)
South Sudan	-.5447 (7.41)	-.4188 (5.19)
Tanzania	+.0815 (5.28)	-.0012 (0.00)
Togo	+.1058 (6.83)	+.1439 (9.29)
Tunisia	-.0666 (4.91)	-.0462 (4.02)
Uganda	+.0802 (5.70)	+.0341 (2.20)
Zambia	-.1259 (8.46)	-.1197 (7.81)
Zimbabwe	-.0890 (6.19)	-.1210 (9.33)

Source: GWP

Table 3. World Values Surveys of life satisfaction, 1999-2022

	1999-2004	2005-2009	2010-2014	2017-2022
25-34	-.1852 (2.68)	-.1674 (3.15)	-.2475 (4.94)	-.2167 (2.88)
35-44	-.1875 (2.46)	-.1928 (3.26)	-.3341 (5.90)	-.3167 (3.86)
45-54	-.3390 (3.83)	-.3309 (4.84)	-.3094 (4.71)	-.3669 (4.04)
55-64	-.0696 (0.61)	-.2465 (3.06)	-.2999 (3.93)	-.1210 (1.15)
65-74	.1073 (0.77)	-.2222 (2.11)	-.5055 (4.91)	-.0034 (0.03)
75-84	.0847 (0.35)	-.0756 (0.42)	-.5633 (2.92)	.3851 (1.51)
85+	-.2481 (0.34)	-.0907 (0.23)	-.4449 (0.76)	-.9230 (1.23)
Female	.2056 (4.01)	.0491 (1.26)	.1150 (3.09)	.0092 (0.18)
_cons	5.6280	5.0992	6.5370	5.9485
Adjusted R^2	.1017	.0910	.0474	.0491
N	12,342	15,975	15,958	9,724

Wave 4 – Egypt, Jordan, Nigeria, South Africa, Tanzania, Uganda and Zimbabwe.
Wave 5 - Burkina Faso, Egypt, Ethiopia, Ghana, Jordan, Mali, Rwanda, South Africa and Zambia.
Wave 6 - Egypt, Ghana, Jordan, Lebanon, Nigeria, Rwanda, South Africa, Tunisia, Zimbabwe and Yemen.
Wave 7 - Egypt, Ethiopia, Jordan, Kenya, Lebanon, Nigeria, Tunisia and Zimbabwe.

Table 4. Afrobarometer – satisfaction with standard of living

	1999-2016	2020, 2022 and 2023
25-34	-.1832 (22.37)	-.1817 (19.54)
35-44	-.2617 (29.25)	-.2690 (26.83)
45-54	-.3078 (30.46)	-.3121 (27.73)
55-64	-.3220 (26.51)	-.2703 (20.57)
65-74	-.3300 (20.98)	-.2643 (15.63)
75-84	-.3660 (14.70)	-.3276 (12.00)
85+	-.4604 (8.66)	-.2659 (4.68)

Female	-.0168 (2.87)	-.0182 (2.79)
_cons	3.5528	2.7084
Adjusted R^2	.0537	.0565
N	158,050	146,886

Equations also include country and wave dummies

Table 5. Time trends in Satisfaction with Standard of Living, Afrobarometers 2011-2021 for Young and Middle-Aged

	Age <25	Age 35-55
Africa	-.0315 (7.93)	-.0321 (10.95)
Algeria	-.1090 (1.19)	-.0569 (0.82)
Angola	-.0934 (4.05)	.0023 (0.11)
Benin	-.0311 (1.20)	.0024 (0.14)
Botswana	-.0799 (2.58)	-.1384 (6.46)
Burkina Faso	-.0972 (3.77)	-.0490 (2.86)
Burundi	-.2672 (2.44)	-.0751 (1.04)
Cabo Verde	+.0062 (0.34)	.0163 (1.13)
Cameroon	-.0421 (2.11)	-.0604 (2.99)
Côte d'Ivoire	+.1666 (7.27)	+.1378 (7.37)
Egypt	1.1190 (12.14)	+1.1318 (17.24)
Eswatini	-.4888 (9.65)	-.4257 (11.01)
Ethiopia	-.1541 (2.06)	-.3374 (5.57)
Gabon	-.1186 (3.58)	+.0148 (0.59)
Gambia	-.5396 (10.63)	-.6020 (13.25)
Ghana	-.0837 (4.14)	-.0317 (2.24)
Guinea	-.1298 (4.49)	-.0934 (5.10)
Kenya	+.1226 (7.16)	+.0625 (4.77)
Lesotho	-.0097 (0.34)	+.0033 (0.16)
Liberia	-.0224 (0.71)	-.0187 (0.88)
Madagascar	-.0355 (1.59)	-.0421 (2.97)
Malawi	-.1396 (7.41)	-.1465 (9.14)
Mali	-.0056 (0.19)	+.0391 (2.25)
Mauritius	-.0281 (1.05)	-.0181 (1.26)
Morocco	+.0118 (0.53)	+.0363 (2.51)
Mozambique	+.0213 (1.25)	-.0557 (3.23)
Namibia	-.1074 (4.39)	-.1865 (8.90)
Niger	-.0296 (1.13)	-.0788 (5.25)
Nigeria	-.1611 (8.43)	-.2122 (13.08)
Sao Tome	+.0124 (0.48)	+.0078 (0.34)
Senegal	+.0915 (4.10)	+.1098 (6.73)
Sierra Leone	-.0634 (2.19)	-.0743 (4.12)
South Africa	-.0403 (1.88)	-.0614 (3.90)
Sudan	-.0853 (3.74)	-.1739 (8.67)
Swaziland	+.1148 (1.28)	+.3696 (4.57)
Tanzania	+.1448 (8.15)	+.1116 (10.17)
Togo	+.0309 (1.35)	+.0547 (3.01)
Tunisia	+.0421 (1.37)	-.0417 (2.55)
Uganda	+.0476 (2.72)	+.0450 (3.13)
Zambia	-.1694 (7.62)	-.1058 (5.19)
Zimbabwe	-.1063 (4.92)	-.1316 (9.24)

Table 6. 5-step Happiness, UNICEF MCIS surveys

	Algeria	CAR	Chad	Comoros	Congo	Eswatini
	2018-2019	2021	2019	2022	2017-2018	2021-2022
15-17	-.0249 (1.31)	.0002 (0.01)	.1084 (6.22)	.1757 (4.72)	.1514 (7.01)	.2686 (5.41)
25-34	-.0672 (5.03)	.0228 (0.50)	-.1227 (8.53)	-.0382 (1.26)	-.1267 (7.53)	-.1242 (3.01)
35-44	-.2135 (15.59)	.0283 (0.24)	-.1746 (10.87)	-.1283 (4.02)	-.2113 (11.33)	-.2421 (5.50)
45-49	-.2219 (12.71)	.9547 (1.95)	-.1662 (7.07)	-.1586 (3.50)	-.2437 (8.57)	-.2615 (3.82)
Female	n/a	.2110 (6.96)	-.0970 (7.52)	n/a	.1013 (6.49)	-.1203 (3.83)
Constant	3.8655	3.0713	3.7349	3.3705	3.2556	3.6328
Adj R2	.0101	.0055	.013	.0106	.014	.033
N	35,085	9,771	29,462	6,930	27,840	3,935
	Gambia	Ghana	Guinea-Bissau	Lesotho	Malawi	Nigeria
	2018	2017-2018	2018-2019	2018	2019-2020	2021
15-17	.1770 (7.87)	.2092 (8.50)	-.0016 (0.02)	.1513 (7.87)	.1535 (6.89)	.0783 (5.64)
25-34	-.0608 (3.34)	-.0773 (3.73)	-.1598 (3.09)	-.0901 (3.96)	-.1684 (9.14)	-.0726 (6.222)
35-44	-.1287 (6.45)	-.1792 (8.30)	-.3150 (5.52)	-.1258 (5.11)	-.2929 (14.77)	-.0930 (12.07)
45-49	-.1651 (5.25)	-.1990 (7.06)	-.3565 (4.12)	-.1745 (5.04)	-.3425 (11.64)	-.2053 (11.47)
Female	.0787 (4.89)	-.0648 (3.79)	1.3982 (28.25	-.0245 (1.33)	.1999 (11.84)	.3701 (40.13)
Constant	4.0364	4.1627	5.6874	4.2056	3.7719	3.8611
Adj R2	.0120	.0153	.0574	.0144	.02020	.0311
N	18,144	19,697	13,731	8,588	31,298	56,084
	Sao Tome	Sierra Leone	Togo	Yemen	Zimbabwe	
	2019	2017	2017	2022	2019	
15-17	-.0011 (0.04)	.1656 (7.87)	.0997 (2.67)	.0330 (1.20)	.2452 (8.68)	
25-34	.0119 (0.30)	-.0874 (5.31)	-.1051 (3.56)	-.1325 (6.10)	-.1394 (6.04)	
35-44	.1208 (1.21)	-.1318 (7.43)	-.1995 (6.38)	-.1851 (7.78)	-.3096 (12.01)	
45-49	.5086 (1.27)	-.2091 (8.02)	-.3037 (6.98	-.1978 (5.47)	-.3470 (10.20)	
Female	-.1288 (4.06)	.0598 (4.36)	.1163 (4.59)	n/a	-.0419 (2.25)	
Constant	3.9107	3.9649	3.6106	5.9873	.0336	
Adj R2	0.0066	.0111	.0132	.0071	4.0134	
N	2,775	25,272	9,609	11,074	14,301	

Coefficients and t-values with 18-24 excluded category. Women only in Algeria, Comoros and Yemen

Table 7. 10-step Life satisfaction from UNICEF's MICS surveys in 17 countries, 2017-2022

	Algeria	CAR	Chad	Comoros	Congo	Eswatini
	2018-2019	2021	2019	2022	2017-2018	2021-2022
15-17	-.0104 (0.22)	-.0171 (0.29)	.1628 (3.80)	-.0017 (0.02)	.1872 (4.48)	.6459 (5.82)
25-34	-.1806 (5.51)	-.0006 (0.01)	-.0764 (2.16)	-.0136 (0.21)	-.2097 (6.45)	-.1111 (1.20)
35-44	-.4305 (12.81)	.1979 (0.78)	-.1366 (3.45)	-.0806 (1.16)	-.3000 (8.31)	-.3624 (3.68)
45-49	-.3683 (8.59)	1.8464 (1.76)	-.0377 (0.65)	-.0788 (0.80)	-.3746 (6.81)	-.4238 (2.77)
Female	n/a	-.1002 (1.54)	.7925 (24.95)	n/a	.5403 (17.89)	.5057 (7.19)
Constant	6.2135	5.37	5.1085	4.8632	4.8203	5.0945
Adj R2	.006	.0002	.022	-.0003	.018	.0183
N	35,028	9,756	29,455	6,924	27,833	3,940
	Gambia	Ghana	Guinea-Bissau	Lesotho	Malawi	Nigeria
	2018	2017-2018	2018-2019	2018	2019-2020	2021
15-17	-.2894 (5.06)	.4017 (6.84)	-.0016 (2.20)	.6673 (6.87)	.5265 (9.30)	.0989 (3.08)
25-34	-.3992 (7.06)	.1775 (3.59)	-.1597 (3.09)	-.4426 (5.68)	-.4600 (9.85)	-.0637 (2.36)
35-44	-.5364 (8.92)	.1948 (3.78)	-.3150 (5.52)	-.6708 (8.00)	-.5775 (11.47)	-.0518 (1.83)
45-49	-.4522 (5.25)	.3765 (5.59)	-.3565 (4.12)	-.6913 (5.94)	-.6982 (9.34)	-.0637 (1.68)
Female	-.1031 (2.52)	.5525 (13.54)	1.3982 (28.25)	.6854 (10.86)	.5226 (12.19)	.9842 (46.17)
Constant	6.2511	5.0815	5.6874	5.6	5.2895	5.29
Adj R2	.005	.0115	.0574	.0344	.0195	.0368
N	18,072	19,672	13,731	9,317	31,195	56,079
	Sao Tome	Sierra Leone	Togo	Yemen	Zimbabwe	
	2019	2017	2017	2022	2019	
15-17	.1898 (1.80)	.1593 (3.24)	.0041 (0.04)	.0083 (0.12)	.9355 (12.90)	
25-34	.1760 (1.18)	-.0542 (1.41)	-.1034 (1.30)	-.2562 (4.68)	-.5591 (9.44)	
35-44	.5452 (1.58)	-.1179 (2.84)	-.1517 (1.80)	-.4724 (7.88)	-.6630 (10.77)	
45-49	2.5199 (1.82)	-.1439 (2.36)	-.3347 (2.84)	-.3857 (4.23)	-.5249 (5.90)	
Female	.3826 (3.50)	-.1602 (5.00)	.7666 (11.20)	n/a	.4292 (8.97)	
Constant	5.8917	5.741	4.9688	5.979	5.1473	
Adj R2	.0044	.0022	.0133	.0071	.0431	
N	2,762	25,273	9,612	11,096	14,299	

Coefficients and t-values with 18-24 excluded category. Women only in Algeria, Comoros and Yemen

Table 8. Age 18-24 coefficient for life satisfaction from the EBRD's Life in Transition Surveys

	Wave 3 (2014-2015)		Wave 4 (2022 and 2023)	
All	.1827 (10.44)	39,218	.1010 (4.80)	36,624
Algeria			-.1224 (1.20)	853
Morocco			.2230 (2.02)	922
Tunisia			.0080 (0.05)	853
Albania	-.1878 (2.06)	1270	.3562 (2.16)	748
Armenia	.8020 (5.82)	1043	.1646 (0.83)	714
Azerbaijan	.4862 (6.52)	1251	.1518 (1.23)	907
Belarus	.2690 (2.38)	1194	.0890 (0.89)	853
Bosnia & Herzegovina	.1359 (1.52)	1265	.0015 (0.01)	702
Bulgaria	.3100 (3.19)	1028	.3004 (1.78)	653
Croatia	.3509 (3.31)	1177	.1785 (1.42)	668
Czechia	.2081 (1.97)	1140	.1729 (1.41)	879
Cyprus	.0438 (0.30)	958		
Estonia	.3935 (3.06)	908	.1552 (1.11)	687
Georgia	.2054 (1.57)	1080	.2515 (1.68)	724
Germany	-.1934 (2.65)	1343	-.1006 (0.68)	783
Greece	.5964 (5.48)	1119	.2506 (1.67)	812
Hungary	.1290 (0.88)	985	.2654 (1.73)	711
Italy	-.1026 (0.82)	1133		
Jordan			.0647 (0.53)	904
Kazakhstan	.2190 (2.49)	1314	.1897 (1.90)	933
Kosovo	.1130 (1.39)	1466	.0772 (0.74)	834
Kyrgyzstan	.1828 (2.39)	1427	-.0324 (0.38)	860
Latvia	.1826 (1.66)	959	.2282 (1.69)	580
Lebanon			.0918 (0.64)	834
Lithuania	.4872 (4.53)	1014	-.1779 (1.47)	598
Macedonia	.1534 (1.44)	1093		
Moldova	.1880 (1.76)	1147	.6589 (4.31)	651
Mongolia	.2288 (2.25)	1254	-.1100 (0.62)	793
Montenegro	-.0211 (0.24)	1185	-.2499 (2.11)	785
North Macedonia			.2473 (1.50)	706
Poland	.1902 (1.59)	1138	.1190 (0.71)	728
Romania	.3414 (2.75)	1022	.1811 (1.07)	710
Russia	.3952 (3.87)	1235	.4435 (3.91)	854
Serbia	.0583 (0.49)	1096	.0059 (0.05)	761
Slovak Republic	.1834 (1.84)	1101	.1903 (1.13)	704
Slovenia	.3201 (2.88)	976	.1345 (1.10)	659
Tajikistan	.0445 (0.67)	1282	-.0285 (0.39)	892
Turkey	-.1722 (1.88)	1446	-.3061 (2.65)	973
Ukraine	.0914 (0.69)	1172		
Uzbekistan	-.0810 (130)	1311	-.1197 (1.69)	912
West Bank & Gaza			-.0696 (0.69)	905

Equations include gender and year dummy. T-statistics in parentheses.

Table 9. South African National Income Dynamics Study (NIDS), wave 5, 2017, wave 4 2014-2015, wave 3 2012 Life satisfaction

	All ages		
	2017	2014-2015	2012
14-17	.2572 (3.79)	.2160 (3.40)	.1292 (1.87)
25-34	-.0394 (0.82)	-.2046 (4.45)	-.1066 (1.97)
35-44	-.0862 (1.59)	-.1623 (3.14)	.0773 (1.31)
45-54	.0553 (0.97)	-.1607 (2.96)	.0628 (1.02)
55-64	.0781 (1.28)	-.0782 (1.32)	.1284 (1.91)
65-74	.2318 (3.17)	-.0075 (0.10)	.3047 (3.71)
75-84	.1235 (1.22)	.0928 (0.93)	-.0251 (0.22)
85+	-.4381 (2.32)	-.3276 (1.82)	-.2062 (0.97)
Female	-.0246 (0.75)	.0041 (0.13)	-.0453 (1.26)
Adj R^2	.0016	.0020	.0015
N	23,769	22,689	18,678

Table 10. ISSP on depression, not being able to overcome problems and losing confidence. Direction and significance of age variable

	Depression	Problems	Confidence
South Africa	+	0	0
Australia	-	-	-
Austria	-	-	-
China	-	-	-
Denmark	-	-	-
Finland	-	-	-
France	-	-	-
Germany	-	-	-
Iceland	-	-	-
Israel	-	-	-
Italy	0	0	0
Japan	-	-	-
Netherlands	-	-	-
New Zealand	-	-	-
Norway	-	-	-
Switzerland	-	-	-
USA	-	-	-

Notes: 0 means age coefficient insignificant; -means age coefficient significantly negative, + means age coefficient significantly positive (t-statistic >1.6).
Question. Over the past 4 weeks have you felt unhappy and depressed/ lost confidence/not overcome problems - 1=never, 2=seldom, 3=sometimes, 4=often, 5=very often

Table 11. South African Quality of Life Surveys life satisfaction

a) 2009-2021

	2009	2011	2013-2014	2014-2015	2017-2018	2020-2021
25-34	-.0753 (1.65)	-.0902 (3.32)	-.0484 (2.65)	-.0293 (1.49)	-.0696 (3.25)	-.0462 (1.46)
35-44	.0721 (1.50)	-.0242 (0.84)	.0199 (1.04)	.0161 (0.79)	.0375 (1.72)	.0738 (2.33)
45-54	-.0211 (0.39)	-.0391 (1.28)	.0408 (1.96)	.0773 (3.46)	.0592 (2.51)	.1675 (4.92)
55-64	.1291 (2.08)	.0411 (1.22)	.1683 (7.26)	.1024 (4.08)	.0786 (2.98)	.3590 (1.05)
65-74	.3873 (5.23)	.1791 (4.42)	.2767 (9.55)	.2386 (7.62)	.2138 (6.87)	.5155 (12.35)
75-84	.4742 (4.06)	.2152 (3.76)	.3434 (7.87)	.2145 (4.68)	.2308 (5.03)	.5563 (1.19)
85+	.6678 (2.14)	.0095 (0.08)	.2750 (2.91)	.2402 (2.67)	.1219 (1.31)	N/a
Female	-.1522 (4.88)	-.0448 (2.52)	-.0019 (0.16)	.0196 (1.57)	-.0082 (0.66)	.0100 (0.55)
Adj R^2	.0008	.0045	.0096	.0043	.0063	.0296
N	6,567	15,946	27,486	30,002	24,889	13,616

Note: 2020-2021 max age is 80. Excluded age 18-24.

How satisfied are you with your life as a whole these days - very dissatisfied, dissatisfied, neither, satisfied, very satisfied?

b) 2023/24

	Life	Living standards	Neighborhood	National Govt
25-34	-.0770 (2.56)	-.1196 (3.71)	.0255 (0.82)	-.0572 (1.72)
35-44	-.0034 (0.12)	-.0083 (0.26)	.1624 (5.28)	-.0683 (2.08)
45-54	.1502 (4.70)	.0845 (2.47)	.2425 (7.35)	-.0371 (1.06)
55-64	.3019 (8.85)	.2344 (6.42)	.3597 (10.22)	.0173 (0.46)
65-74	.4103 (10.44)	.4461 (10.60)	.4755 (11.73)	.0805 (1.86)
75-80	.4962 (9.49)	.5730 (10.23)	.5648 (10.46)	.1168 (2.03)
Female	-.0523 (3.03)	-.0844 (4.57)	-.0831 (4.66)	.0109 (0.57)
Constant	3.4139	3.2550	3.3821	2.3172
Adj R^2	.0276	.0279	.0139	.0016
N	13795	13795	13795	13795

How satisfied are you with your life AS A WHOLE these days?
How satisfied are you with your standard of living?
How satisfied are you with the area or neighbourhood where you live now?
How satisfied are you with the performance of the National Government?
Where very dissatisfied=1; dissatisfied=2; neither=3; satisfied=4 and very satisfied=5

Table 12. Global Minds in Africa

	MHQ	Fear and anxiety	Experience of pain	Suicidal thoughts
25-34	-.560 (1.56)	.2097 (15.49)	-.0991 (23.01)	-.2872 (23.01)
35-44	13.730 (40.37)	-.2343 (18.23)	-.4031 (60.28)	-.7144 (60.28)
45-54	25.739 (70.78)	-.5950 (43.28)	-.6222 (68.75)	-.8714 (68.75)
55-64	36.063 (89.31)	-.8554 (56.04)	-.7503 (67.90)	-.9556 (67.90)
Female	-16.326 (71.21)	.6526 (75.29)	.8082 (27.85)	.2225 (27.85)
Constant	62.013	5.3919	4.2858	2.5407
Adjusted R^2	.0807	.0507	.0466	.0506
N	320,018	320,015	320,014	320,014

Also includes year and country dummies.

Table 13. MHQ scores in Tanzania

a) MHQ means

	Rural	Suburbs	GM
18-24	108	106	71
25-34	94	113	83
35-44	105	109	97
45-54	88	107	105
55-64	104	116	105
65-74	94	89	113
75-84	78	77	99
85+	72	89	137
N	1357	1073	5928

b) MHQ Regression

	Rural	Suburban	Global Minds
25-34	-14.737 (3.00)	8.288 (1.24)	12.596 (4.99)
35-44	-3.932 (0.78)	3.197 (0.48)	27.377 (9.23)
45-54	-20.733 (3.85)	1.107 (0.15)	34.993 (8.52)
55-64	-4.918 (0.81)	10.333 (1.29)	33.813 (6.40)
65-74	-14.545 (2.01)	-16.607 (1.88)	40.252 (5.73)
75-84	-30.766 (3.11)	-28.411 (2.46)	22.019 (1.42)
85+	-36.910 (1.95)	-16.485 (0.65)	68.515 (1.32)
Female	-4.914 (1.49)	-6.209 (1.55)	-19.682 (10.33)
Constant	110.966	108.906	78.176
Adjusted R^2	.0152	.0135	.0400
N	1,356	1,073	5,928

Source: Global Minds

Appendix A. Details of data files used and questions.

1) Gallup World Poll, 2005-2023

The Gallup World Poll (GWP) is a survey that has been conducted in over 160 countries since 2005, including 36 African countries.[14] In countries where a telephone survey is used Gallup purchases telephone samples from sample providers and uses random-digit dialing (RDD) to produce nationally representative lists of telephone numbers as a sampling frame. However, in the developing world, including Africa, Gallup uses face-to-face interviewing in randomly selected households which takes about one hour. Samples are probability based and intended to be nationally representative of the civilian non-institutionalized population aged 15 and older.[15] Achieved sample sizes are usually around 1,000 observations per year in each country. This means that sample sizes by country for young people are small. In 2023 sample sizes by African country under the age of 25 averaged only 313 respondents.

Our major focus is on Cantril's Ladder which is an 11-step well-being metric based on responses to the following question:

Q1. "*Please imagine a, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?*"

We also examine aspects of well-being 'yesterday' using dummy variables capturing positive and negative affect along dimensions such as enjoyment, stress and sadness.

2) World Values Surveys, 1981-2022

The World Values Survey (WVS) has been running since 1981. Today it covers 120 countries. The survey is conducted periodically, with the last wave (#7) conducted between 2018 and 2022, but mainly in 2018.[16] It aims for minimum sample sizes of 1,200 per country. Sampling is based on probability sampling, usually stratified, to produce samples that are nationally representative of the adult population aged 18 years or more residing in private households. The survey is usually conducted face-to-face. We analyze the 10-step life satisfaction data available for African countries from 1981 to 2022. The question is

Q2. All things considered, how satisfied are you with your life as a whole these days? Using this card on which 1 means you are "completely dissatisfied" and 10 means you are "completely satisfied" where would you put your satisfaction with your life as a whole? (Code one number): Completely dissatisfied1 1 2 3 4 5 6 7 8 9 10 Completely satisfied.

Samples sizes in the latest wave #7 are also small averaging 255 respondents under the age of 25. Data is available for seventeen countries – Burkina Faso, Egypt, Ethiopia, Ghana, Jordan, Kenya,

[14] Algeria; Benin; Botswana; Burkina Faso; Cameroon; Chad; Congo Kinshasa; Congo Brazzaville; Egypt; Eswatini; Ethiopia; Gabon; Ghana; Guinea; Ivory Coast; Kenya; Lebanon; Lesotho; Liberia; Libya; Madagascar; Malawi; Mali; Mauritania; Morocco; Mozambique; Niger; Nigeria; Senegal; Sierra Leone; South Africa; Tanzania; The Gambia; Togo; Uganda; Zambia and Zimbabwe

[15] For more on Gallup's sampling methodology see https://www.gallup.com/178667/gallup-world-poll-work.aspx

[16] Data and documentation can be found here: https://www.worldvaluessurvey.org/WVSContents.jsp

Lebanon, Mali, Nigeria, Rwanda, South Africa, Tanzania, Tunisia, Uganda, Yemen, Zambia, Zimbabwe.

3) Afrobarometers in 41 countries, 1999-2023

There have been 9 sweeps Wave 1 (1999-2001); Wave 2 (2004); Wave 3 (2005); Wave 4 (2008); Wave 5 (2011-2013); Wave 6 (2016); Wave 7 (2019); Wave 8 (2022) and Wave 9 (2023).[17] Data are available on forty African countries.[18] Unfortunately, the data don't contain any questions on happiness or life satisfaction. They contain a measure relating to satisfaction with living standards. The question is as follows.

Q3. In general, how would you describe: your own present living conditions? 1=Very bad, 2=Fairly bad, 3=Neither good nor bad, 4=Fairly good, 5=Very good, 8=Refused,

This has been widely used in the development literature for measuring well-being in Africa. It was used by Sulemana et al. (2019) for a study of well-being in Sub-Saharan Africa. They justified its use arguing that "*the question taps into the individual's evaluations of their life we used this construct as a suitable measure of subjective well-being*." The authors argued that "many other studies have constructed well-being measures in the same way," which turns out to be correct. Deutsch et al. (2016) used this variable from the 2008 Afro Barometer as did Pokimica et al. (2012) and Sulemana (2015b) in their studies of well-being in Ghana. Sulemana (2015a) in a study of the impact of crime on well-being in Africa used data from the 4th sweep of the Afro Barometer for 2008. Sulemana et al. (2017) used this measure with the Afro Barometer data in their study of the relationship between corruption and well-being in Africa. It has recently been used by Djemaï, Clark and D'Ambrosio (2024) in a study in Africa using the Afrobarometers of distance to roads and well-being. Clark and D'Ambrosio (2019) used Afrobarometer data from 2004-2016 on standards of living in a pooled African sample and find that "*as in the subjective well-being literature, the relationship between age and current living conditions is U-shaped with the minimum level around age 50*" (p.98).

4) UNICEF's Multiple Cluster Indicator Surveys (MICS), 2017-2022 in 17 countries[19]

UNICEF has undertaken surveys across numerous less developed countries. Since its inception in the mid-1990s, the Multiple Indicator Cluster Surveys programme, known as MICS, has become the largest source of statistically sound and internationally comparable data on children and women worldwide. In countries as diverse as Bangladesh, Thailand, Fiji, Qatar, Côte d'Ivoire, Turkmenistan and Argentina, trained fieldwork teams conduct face-to-face interviews with household members on a variety of topics – focusing mainly on those issues that directly affect the lives of children and women. These surveys sample people in the age range 18-49 and some only sample females.

[17] https://www.afrobarometer.org/data/merged-data/

[18] Angola; Benin; Botswana; Burkina Faso; Cabo Verde; Cameroon; Congo-Brazzaville; Côte d'Ivoire; Eswatini; Ethiopia; Gabon; Gambia; Ghana; Guinea; Kenya; Lesotho; Liberia; Madagascar; Malawi; Mali; Mauritania; Mauritius; Morocco; Mozambique; Namibia; Niger; Nigeria; São Tomé and Príncipe; Senegal; Seychelles; Sierra Leone; South Africa; Sudan; Tanzania; Togo; Tunisia; Uganda; Zambia and Zimbabwe.

[19] https://mics.unicef.org/about-mics

The seventeen African countries for which there are surveys with life satisfaction questions are as follows, with year in parentheses – Algeria (2018-2019), Central African Republic (2018-2019), Chad (2019), Comoros (2022), Congo DR (2017-2018), Eswatini (2021), Ghana (2017-2018), Guinea-Bissau (2018-2019), Lesotho (2018), Malawi (2019-2020), Nigeria (2021), Sao Tome and Principe (2019), Sierra Leone (2017), The Gambia, Togo (2017), Yemen (2022) and Zimbabwe (2019). Data on all seventeen are available for life satisfaction and happiness. Data for women only are present in Algeria and Comoros.

Q3. I would like to ask you some simple questions on happiness and satisfaction. First, taking all things together, would you say you are very happy, somewhat happy, neither happy nor unhappy, somewhat unhappy or very unhappy?

Q4. Now, look at this ladder with steps numbered from 0 at the bottom to 10 at the top. Suppose we say that the top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder do you feel you stand at this time? Probe if necessary: Which step comes closest to the way you feel?

5) European Bank of Reconstruction and Developments Life in Transition Surveys, of 2022/23 on Algeria, Morocco and Tunisia.

Every few years, the EBRD conducts the Life in Transition Survey (LITS) – a major survey of households and individuals in the economies where it invests – in collaboration with the World Bank, in order to inform its operations. Four such surveys have been carried out so far: in 2006, 2010, 2016 and 2022-23. The Life in Transition Survey IV surveyed over 37,000 households in 33 economies in the EBRD regions and four comparators. This survey, with approximately 1000 observations per country contains data on three African countries Algeria, Morocco and Tunisia.[20] We also examine Survey III over 51,000 households in 33 economies. It is available for download here https://www.ebrd.com/what-we-do/economic-research-and-data/data/lits.html

6) South African National Income Dynamics Study, 2012-2017

The National Income Dynamics Study (NIDS) is the first national panel study in South Africa. NIDS is initiated and funded by the Department of Planning, Monitoring and Evaluation of the Government of South Africa. The survey project implementer is the Southern Africa Labour and Development Research Unit (SALDRU) at the University of Cape Town. We make use of wave 5, 2017, wave 4, 2014-2015 and wave 3 2012. See http://www.nids.uct.ac.za/nids-data/documentation/questionnaires/wave-5. The question used is:

Q4. Using a scale of 1 to 10 where1 means "Very dissatisfied" and 10 means "Very satisfied", how do you feel about your life as a whole right now?

Kollamparambil (2019, 2021) used the surveys to look at income inequality and happiness and the non-income effect of land ownership and tenure on well-being.

[20]The other countries are Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czechia, Estonia, Georgia, Germany, Greece, Hungary, Jordan, Kazakhstan, Kosovo, Kyrgyz Republic, Latvia, Lebanon, Lithuania, Moldova, Mongolia, Montenegro, North Macedonia, Poland, Romania, Russia, Serbia, Slovak Republic, Slovenia, Tajikistan, Türkiye, Uzbekistan, West Bank & Gaza.

7) International Social Survey Programme 2021 Survey

The International Social Survey Programme (ISSP) is a multi-country, individual-level survey that has been running annually since 1985. The data are publicly available for download (https://issp.org/data-download/by-year/). The 2021 survey's theme is Health and Healthcare. This sweep includes data from 30 countries including the UK, the USA, South Africa and China.

8) South African Quality of Life Survey 2009-2021

The South African Quality of Life surveys are conducted by the Gauteng City-Region Observatory, the University of Johannesburg, the University of the Witwatersrand, Gauteng Provincial Government, and the South African Local Government Association (SALGA). The name Gauteng is a Sesotho word that means "place of gold." The province has large deposits of gold near Johannesburg, which is the capital of Gauteng. Pretoria, the administrative capital of South Africa, is also located in the province. The question asked is:

Q5. How satisfied are you with your life as a whole these days – 1=very dissatisfied, 2=dissatisfied,3= neither, 4=satisfied, 5=very satisfied?

Surveys were undertaken in 2009, 2011, 2013/14, 2015/16, 2017/18, 2020/21 and 2023/24 which is the latest we have available. Data are available through the World Bank at https://www.datafirst.uct.ac.za/dataportal/index.php/catalog/GCRO/?page=1&sort_by=title&sort_order=asc&ps=15&repo=GCRO

These surveys were previously used by Akokuwebe et al (2023), to examine the life satisfaction of migrants.

9) Global Minds, 2020-2024

Global Minds is an internet-based survey that has been running across multiple countries since 2020, and it takes around 15 minutes to complete. We obtained data from the Global Minds Surveys of 2020-2024 available on application from Sapien Labs (https://sapienlabs.org).[21] We examine Global Minds data, pooled over the years 2020-2024 from 14 African countries with at least 5000 observations on individuals of working age under the age of 65. (The country samples are: Algeria=48,978; Angola=13,604; Cameroon=8,258; Côte d'Ivoire=8,355; Democratic Republic of Congo=7,214; Egypt=82,222; Kenya=7,375; Morocco=33,107; Mozambique=11,203; Nigeria=27,359; South Africa=36,626; Tanzania=5,788; Tunisia=20,102 and Zimbabwe=6,109). We do have small numbers of observations on most of the other African countries that we include in our overall regressions but do not report separate estimates for.

In Global Minds there are 28,958 respondents in Africa age 18-24 in the years 2023 and 2024 and, 53,676 in total between 2020 and 2024.

A unique feature of the Global Minds data is their construction of a Mental Health Quotient (MHQ) assessment of people's cognitive and emotional capabilities, calculated on a 300-point scale running from -100 to +200 where more positive scores indicate better mental health.[22] The MHQ contains an aggregate metric of mental well-being or mind health (the MHQ) and scores across six

[21] The most recent report is available here https://mentalstateoftheworld.report/2023_read/

[22] For details of how the MHQ score is constructed see Newson and Thiagarajan (2020) and Bala, Newson and Thiagarajan (2024),

domains (Mood & Outlook, Social Self, Adaptability & Resilience, Drive & Motivation, Cognition and Mind-Body Connection) derived from answers to 47 questions. Scores in the normal healthy range spanned from 0 to 200. A negative score suggests poor mental health and is a cause for concern and potentially indicates a need for intervention. In addition, the survey contains various demographic traits, activities and habits of daily living; work and family relationships and a life-satisfaction question.

We also examine a 9-step life satisfaction measure which is only available in 2023 and has previously been studied by Blanchflower, Bryson and Bell (2024), and a 9-step measure of suicidal thoughts and intentions based on responses to the question *"Thinking or feeling like you want to kill or physically harm yourself"*. For life satisfaction and suicidal thoughts, the 1 to 9 scale ranges from 1=never causes me any problems: 5=sometimes causes me difficulties or distress but I can manage and 9=has a constant and severe impact on my ability to function. The data do not allow us to track long run changes in age structure but do allow us to examine the resultant age structure of well-being and illbeing since 2020.

In a separate survey run by Global Minds in 2024 respondents were asked the full set of Global Minds questions but also the Cantril 0-10 life satisfaction ladder question used in the Gallup World Poll. We took these data and regressed a) mhq b) cantril on an 18-24 dummy and a female dummy for each country in turn. This included data on 4 African countries with more than 100 observations – Egypt (n=140); Kenya (n=307); Nigeria (n=501), South Africa (n=1078)– sample sizes are in parentheses. In each of these countries the young variable was significantly negative, suggesting any difference between GWP and GM was not due to the questions being asked.[23]

[23] The finding was the same in thirty other countries that an age 18-24 variable entered negatively and significantly in MHQ and Cantril equations - Afghanistan; Argentina; Australia; Bangladesh; Bolivia; Canada; Chile; Colombia; Costa Rica; Dominican Rep; Ecuador; Guatemala; Honduras; India; Ireland; Israel; Mexico; Nicaragua; NZ; Pakistan; Paraguay; Peru; Philippines; Singapore; Spain; Sri Lanka; Trinidad; UK; Uruguay; USA and Venezuela;

Appendix Table 1. Human Development Index (HDI) and its components in 53 African countries

(1)		(2)	(3)	(4)	(5)	(6)	(7)
92	Libya	.746	72.2	14.0	7.8	$19,752	92
93	Algeria	.745	77.1	15.5	7.0	$10,978	98
101	Tunisia	.732	74.3	14.6	8.0	$10,297	102
105	Egypt	.728	70.2	12.9	9.8	$12,361	116
110	South Africa	.717	61.5	14.3	11.6	$13,186	104
114	Botswana	.708	65.9	11.4	10.4	$14,842	120
120	Morocco	.698	75.0	14.6	6.1	$7,955	125
123	Gabon	.693	65.7	12.4	9.6	$11,194	117
131	Cabo Verde	.661	74.7	11.5	6.1	$7,601	124
133	Equatorial Guinea	.650	61.2	12.1	8.3	$10,663	129
141	Sao Tome & Principe	.613	68.8	12.7	5.9	$4,054	142
142	Eswatini	.610	56.4	14.9	5.7	$8,392	146
142	Namibia	.610	58.1	11.8	7.2	$9,200	134
145	Ghana	.602	63.9	11.6	6.4	$5,380	146
146	Kenya	.601	62.1	11.4	7.7	$4,808	148
149	Congo	.593	63.1	12.4	8.3	$2,903	140
150	Angola	.591	61.9	12.2	5.8	$5,328	145
151	Cameroon	.587	61.0	13.4	6.5	$3,681	152
152	Comoros	.586	63.7	13.0	6.2	$3,261	155
153	Zambia	.569	61.8	11.0	7.3	$3,157	151
159	Uganda	.550	63.6	11.5	6.2	$2,241	161
159	Zimbabwe	.550	59.4	11.0	8.8	$2,079	158
161	Nigeria	.548	53.6	10.5	7.6	$4,755	163
161	Rwanda	.548	67.1	11.4	4.9	$2,317	166
163	Togo	.547	61.6	13.0	5.6	$2,214	164
164	Mauritania	.540	64.7	8.1	4.8	$5,344	159
166	Côte d'Ivoire	.534	58.9	10.1	4.2	$5,376	170
167	Tanzania	.532	66.8	8.6	5.6	$2,578	169
168	Lesotho	.521	53.0	11.1	7.5	$2,709	168
169	Senegal	.517	67.9	9.1	2.9	$3,464	171
170	Sudan	.516	65.6	8.5	3.9	$3,515	164
171	Djibouti	.515	62.9	8.0	3.9	$4,875	175
172	Malawi	.508	62.9	11.5	5.2	$1,432	173
173	Benin	.504	60.0	10.3	3.1	$3,406	167
174	Gambia	.495	62.9	9.0	4.5	$2,090	179
175	Eritrea	.493	66.6	7.3	5.1	$1,957	176
176	Ethiopia	.492	65.6	9.9	2.4	$2,369	181
177	Liberia	.487	61.1	10.5	5.3	$1,330	177
177	Madagascar	.487	65.2	9.2	4.6	$1,464	172
179	Guinea-Bissau	.483	59.9	10.5	3.7	$1,880	177
180	Congo DR	.481	59.7	9.6	7.2	$1,080	180
181	Guinea	.471	59.0	10.2	2.4	$2,404	183
183	Mozambique	.461	59.6	10.7	3.9	$1,219	184
184	Sierra Leone	.458	60.4	9.0	3.5	$1,613	185
185	Burkina Faso	.438	59.8	8.1	2.3	$2,037	187
186	Yemen	.424	63.7	7.9	2.8	$1,106	182
187	Burundi	.420	62.0	10.0	3.3	$712	186
188	Mali	.410	59.4	7.0	1.6	$2,044	188
189	Chad	.394	53.0	8.2	2.3	$1,389	189
189	Niger	.394	62.1	7.2	1.3	$1,283	191
191	CAR	.387	54.5	7.3	4.0	$869	192
192	South Sudan	.381	55.6	5.6	5.7	$691	189
193	Somalia	.380	56.1	7.6	1.9	$1,072	

Notes: (1) HDI rank 2022 (2) HDI value (3) Life expectancy at birth years. (4) Expected years of schooling years (5) Mean years of schooling (6) Gross national income (GNI) per capita (2017 PPP $) and (7) HDI rank 2015. https://hdr.undp.org/data-center/documentation-and-downloads

Appendix Table 2. Population growth inequality and the unemployment rate (%)

			Inequality		Unemployment rate	
	2010-2024	Population (millions)	Year	Gini	Year	Rate
USA	11%	342	2022	41	2023	3.6
Algeria	31%	47	2011	28	2017	12.0
Angola	64%	37	2018	51	2021	15.8
Benin	60%	14	2021	34	2022	1.7
Botswana	24%	3	2015	53	2023	23.4
Burkina Faso	47%	24	2021	37	2023	5.3
Burundi	49%	14	2020	38	2020	1.4
Cabo Verde	20%	<1	2015	42	2019	65.2
Cameroon	48%	29	2021	42	2021	3.3
Central AR	21%	5	2021	43	n/a	
Chad	59%	20	2022	37	2018	1.1
Comoros	59%	1	2014	45	2021	4.4
Congo Brazzaville	43%	6	2020	45	2020	1.5
Congo Kinshasa	59%	109	2011	49	n/a	
Cote d'Ivoire	38%	32	2021	35	2022	2.3
Djibouti	34%	1	2017	42	2017	26.1
Egypt	36%	116	2019	32	2022	7.3
Eswatini	12%	1	2016	55	2021	34.2
Ethiopia	44%	132	2015	35	2021	3.9
Gabon	51%	25	2017	38	2010	20.4
Gambia, The	44%	25	2020	39	2023	6.5
Ghana	51%	34	2016	44	2022	3.1
Guinea	44%	15	2018	30	2019	5.0
Guinea-Bissau	41%	2	2021	33	2019	16.9
Kenya	46%	56	2021	39	2021	5.7
Lesotho	41%	2	2017	45	2012	19.3
Liberia	39%	6	2016	35	2017	5.9
Libya	16%	7	n/a		2012	19.0
Madagascar	12%	32	2012	43	2022	3.2
Malawi	45%	22	2019	39	2020	0.9
Mali	42%	24	2021	36	2022	2.4
Mauritania	45%	5	2019	32	2019	10.4
Mauritius	2%	13	2017	37	2023	5.6
Morocco	16%	38	2013	40	2022	11.8
Mozambique	45%	35	2019	50	2015	3.4
Namibia	28%	3	2015	59	2018	19.9
Niger	69%	27	2021	33	2022	0.4
Nigeria	43%	232	2018	35	2022	3.8
Rwanda	37%	14	2016	44	2023	12.4
Sao Tome	27%	<1	2017	41	2017	8.8
Senegal	49%	19	2021	36	2022	2.8
Sierra Leone	49%	9	2018	36	2018	3.2
Somalia	33%	19	n/a		2017	8.8
South Africa	17%	60	2014	63	2023	32.1
South Sudan	30%	12	2016	44	n/a	
Sudan	44%	50	2014	34	2022	7.5
Suriname	21%	<1	2022	39	2016	7.9
Tanzania	52%	69	2018	41	2020	2.8
Togo	44%	10	2021	38	2022	2.0
Tunisia	14%	12	2021	34	2023	15.1
Uganda	59%	50	2019	43	2021	3.4
Yemen	39%	32	2014	37	2014	13.5
Zambia	52%	21	2022	52	2022	6.0
Zimbabwe	30%	16	2019	50	2023	9.3

Source: Census International Database, World Bank and the International Labor Organization
https://www.census.gov/data-tools/demo/idb/#/dashboard?COUNTRY_YEAR=2024&COUNTRY_YR_ANIM=2024
https://wdi.worldbank.org/table/1.3?_gl=1*fathonyc7r*_gcl_au*MTg5ODc3NDQ1Mi4xNzI3MDk1ODMx
https://ilostat.ilo.org/topics/unemployment-and-labour-underutilization/

Appendix Table 3. GWP ranking

	WHR	WHR <30	Cantril	All 38
Algeria	85	93	3	10
Benin	116	115	21	32
Botswana	137	133	35	25
Burkina Faso	110	117	16	N/a
Cameroon	104	106	8	22
Chad	113	120	23	31
Comoros	132	132	33	33
Congo (Brazzaville)	89	88	4	30
Congo (Kinshasa)	139	140	37	36
Comoros	132	132	33	N/a
Cote d'Ivoire	96	100	6	9
Egypt	127	130	25	16
Eswatini	135	134	34	35
Ethiopia	130	131	26	13
Gabon	95	91	9	21
Gambia	112	110	24	7
Ghana	120	121	14	5
Guinea	97	103	7	19
Kenya	114	109	20	8
Lesotho	141	138	38	26
Liberia	121	113	29	24
Libya	66	50	2	N/a
Madagascar	123	124	30	27
Malawi	136	137	36	34
Mali	122	125	27	6
Mauritania	111	119	15	18
Mauritius	70	85	1	1
Morocco	107	98	12	N/a
Mozambique	90	94	10	17
Namibia	106	105	17	12
Niger	109	116	19	11
Nigeria	102	108	11	3
Senegal	99	99	13	2
Sierra Leone	140	141	40	37
South Africa	83	87	5	4
Tanzania	131	129	32	14
Togo	124	126	28	29
Tunisia	115	118	15	23
Uganda	117	111	19	20
Yemen	135	135	N/a	N/a
Zambia	134	136	31	15
Zimbabwe	138	139	39	28

Columns 1 & 2 are from the World Happiness Report 2024 (Helliwell et al, 2024) and columns 3 and 4 from Counted et al (2024)

Appendix Table 4. Time series of Cantril age <25 from GWP, 2005-2023

	Egypt	Morocco	Nigeria	Kenya	Tanzania	Ghana	Uganda	Benin	Madagascar	Malawi	South Africa	Angola	Botswana	Ethiopia
2006			4.8	4.3	4.0	4.7	3.9	3.4	4.0	4.0	5.2		4.9	
2007	5.8		4.9	4.7	4.2	5.6	4.5			4.9	5.2			
2008	5.0		4.9	4.2	4.3	5.2	4.8	3.8	5.0		5.4		5.8	
2009	5.2		4.9	4.5	3.5	4.4	4.5			5.4	5.6			
2010	4.8	4.5	4.8	4.3	3.2	4.8	4.2				4.8		3.9	
2011	4.5	5.0		4.5	4.3	5.9	4.9	3.9	4.4	4.3	5.2	5.4	3.8	
2012	4.5	5.4	5.6	4.8	4.1	5.3	4.5	3.3	3.9	4.5	5.2	4.4	4.9	4.8
2013	3.9	5.5	4.8	3.8	4.1	5.0	3.8	3.7	4.0	4.4	3.6	4.1	4.3	4.7
2014	5.3			5.2	3.4	4.0	3.7	3.4	3.9	4.8	5.0	3.8	4.7	4.5
2015	5.2	5.7	5.1	4.4	3.9	4.2	4.7	3.9	3.7	4.2	5.0		4.2	4.7
2016	5.2	5.9	5.1	4.6	3.4	4.6	4.4	4.3	3.9	3.7	4.9		4.3	4.4
2017	4.6	5.8	5.6	5.0	3.6	5.1	4.5	5.1	4.2	3.9	4.7		4.1	4.6
2018	4.1	5.4	5.5	5.1	4.1	5.4	4.9	6.3	4.1	3.7	5.3		4.3	4.6
2019	4.4	5.7	4.5	4.8	4.1	5.1	5.5	5.1	4.7	4.3	5.3		4.3	4.3
2020	4.7	5.3	5.9	4.7	3.9	5.4	4.5	4.1			5.3			4.8
2021	4.3	5.4	4.7	4.7	4.1	4.7	4.7	4.8		3.9	6.1			
2022	4.2	5.3	5.3	4.9	4.4	4.5	4.9	4.7	4.2	3.8			4.1	4.1
2023	4.1	5.5	4.8	5.3	4.4	4.2	4.9	4.7	4.5	3.6	5.6		4.5	4.4

	Mali	Mauritania	Mozambique	Niger	Rwanda	Senegal.	Zambia	Burkina	Cameroon	Sierra Leone	Zimbabwe	Algeria	CAR	Chad
2006	4.1		4.7	3.7	4.3	4.3	5.0	3.7	4.1	3.6	4.3			3.4
2007		4.0	4.9	4.2		4.6	4.2	4.0	4.5	3.6	3.5		4.1	4.1
2008	4.3	4.3	5.0	4.3	4.4	4.7	4.7	4.0	4.7	3.1	3.2			4.6
2009	4.1	4.5		4.3	4.0	4.2	5.5		5.1		4.3			3.6
2010	3.8	4.9		4.0		4.2		3.9	4.8	4.4	4.7	5.5	3.7	3.5
2011	4.7	5.0	5.1	4.6	4.2	3.7	5.1	4.8	4.8	4.2	4.7	5.5	3.7	4.1
2012	4.4	4.6		3.8	3.5	3.7	5.2	4.1	4.8		5.1	5.5		4.0
2013	3.6	4.1		3.6	3.5	3.8	5.3	3.3	4.7	4.7	4.7			3.6
2014	4.0	4.3		4.2	3.7	4.3	4.4	3.3	4.6	4.6	4.4	6.3		3.6
2015	4.8	3.8	4.8	3.7	3.6	4.6	5.4	4.4	5.1	5.1	3.9			4.3
2016	4.0	4.4		4.2	3.6	4.7	4.7	4.1	4.9	5.2	4.1	5.5	2.9	3.8
2017	5.1	4.4	4.6	4.7	3.6	4.6	4.3	4.9	5.4	4.0	4.1	5.4	3.7	4.7
2018	4.2	4.7	5.0	5.2	4.1	4.8	4.4	5.1	5.9	4.9	4.0	5.0		4.9
2019	5.3	3.9	5.3	5.3	4.1	5.8	3.4	5.2	5.3	3.8	3.2	4.8		4.2
2020	4.8					4.8	4.9		5.9		3.8	5.7		
2021	4.3		5.6			5.3	3.0		5.2	3.9	3.8	5.3		
2022	4.3	4.6	5.0	4.6		5.1	4.3	5.0	5.0	2.5	3.7	5.6		4.6
2023	4.6	4.3	5.9	4.8		5.4	4.1	4.4	5.2	3.4	3.7			4.5

	Congo K.	Congo B.	Djibouti	Gabon	Guinea	Ivory Coast	Lesotho	Gambia	Liberia	Libya	Eswatini	Togo	Somalia	South Sudan
2006												3.3		
2007									3.8					
2008		3.8	4.9						4.2			2.9		
2009	4.0		5.1			4.4								
2010			5.0						4.2				5.0	
2011	4.8	4.8	4.3	4.6	4.0		5.3				5.0	3.2	4.9	
2012	4.8	4.4		4.2	3.7					5.7			5.1	
2013	4.7	4.1		4.2	4.0	4.0							5.1	
2014	4.7	4.5		4.1	3.4	3.8			4.7			2.8		4.1
2015	4.0	4.9		5.1	3.4	4.7			3.0	5.7		4.0		4.2
2016	4.7	4.3		5.2	3.6	5.0	4.4		3.6	5.8		4.5		3.1
2017	4.5	5.2		5.3	5.4	5.3	4.1	4.3	4.7	5.9		4.7		3.1
2018		6.0		5.4	5.3	5.8		5.5	4.7	5.6	4.9	4.3		
2019		5.5		5.5	4.7	5.7	4.6	5.6	5.3	5.4	5.0	4.2		
2020		5.7				5.6								
2021		5.2		5.4	4.8	5.1	3.8					4.2		
2022	3.4	6.5		5.7	5.6	5.3		4.5	4.7	5.9	3.8	4.5		
2023	3.5	5.3		5.7	4.7	5.4		4.9	5.2	6.1		4.6		

Source: GWP

Appendix Table 5. Afrobarometer #9, 2023 % 'never used the internet' weighted

	Females	Males	age<25	age 25-64	age ≥65
Angola	52	44	38	51	98
Benin	69	48	48	60	74
Botswana	52	42	21	47	95
Burkina Faso	70	58	60	64	86
Cameroon	28	21	22	25	49
Cape Verd	21	16	5	17	44
Congo-Brazzaville	43	40	32	42	74
Cote d'Ivoire	44	35	27	43	63
Eswatini	31	28	10	32	66
Ethiopia	81	70	69	76	95
Gabon	19	18	9	18	74
Gambia	36	22	20	29	55
Ghana	53	37	28	46	86
Guinea	60	51	35	57	75
Kenya	51	39	26	49	75
Lesotho	55	54	26	53	87
Liberia	60	46	56	51	78
Madagascar	89	83	82	86	96
Malawi	79	68	64	76	88
Mali	71	47	47	58	77
Mauritania	44	43	32	44	71
Mauritius	16	17	0	11	64
Morocco	18	19	6	17	65
Mozambique	63	59	53	62	92
Namibia	36	35	29	35	73
Niger	76	64	56	73	81
Nigeria	53	42	47	46	87
Sao Tome	34	28	13	34	67
Senegal	45	34	28	39	67
Seychelle	26	26	7	19	63
Sierra Leone	67	53	51	61	83
South Africa	22	20	10	20	64
Sudan	51	35	34	45	71
Tanzania	78	70	66	75	85
Togo	53	35	38	44	70
Tunisia	34	28	2	31	65
Uganda	81	69	69	76	91
Zambia	60	48	49	54	72
Zimbabwe	50	44	44	44	79

Appendix Table 6. Individuals using internet – population share Africa and USA %

Year	2000	2008	2015	2019	2020	2021	2022
USA	43	74	75	89	97	97	97
Algeria	0	10	38	59	61	66	71
Angola	0	2	22	32	37	38	39
Benin	0	2	11	21	22	31	34
Botswana	3	6	37	65	68	75	77
Burkina Faso	0	1	7	9	16	18	20
Burundi	0	1	2	6	9	10	11
Cabo Verde	0	4	8		25	33	36
Cameroon	0	3	18	37	41	43	44
CAR	0	1	3	8			8
Chad	0	1	4	8	8	11	12
Comoros	0	3	7	16			16
Congo Rep	0	4	8		25	33	36
Côte D'Ivoire	0	2	38	36	36	39	38
Democratic	0	0	4	17	20	26	27
Djibouti	0	2	23	59	63	64	65
Egypt	1	18	38	57	72	72	72
Equatorial Guinea	0	2	21	49	55	61	67
Eritrea	0	0	1	11	24	25	27
Eswatini	1	7	26	44	49	56	58
Ethiopia	0	0	14	16	16	17	19
Gabon	0	0	14	16	16	17	19
Gambia	1	7	18	36	45	50	54
Ghana	0	4	23	22	63	69	70
Guinea	0	1	9	23	29	31	34
Guinea-Bissau	0	2	6	23	28	29	32
Kenya	0	5	17	23	28	38	41
Lesotho	0	4	25	42	40	44	47
Liberia	0	1	10	24	28	28	30
Libya	1	18	38	57	72	72	72
Madagascar	0	2	4	12	16	18	21
Malawi	0	1	6	15	22	27	28
Mali	0	2	10	22	28	31	33
Mauritania	1	33	57	84	84	88	90
Mauritius	7	22	50	62	68	72	76
Morocco	1	33	57	84	84	88	90
Mozambique	0	2	7	15	18	20	21
Namibia	2	5	26	50	58	61	62
Niger	0	1	2	17	14	15	17
Nigeria	0	8	23	30	32	32	36
Rwanda	0	5	13	21	24	29	34
Senegal	0	7	22	43	53	55	60
Sierra Leone	0	0	6	21	28	28	30
Somali	0	1	2		15	20	28
South Africa	5	8	52	70	72	74	75
South Sudan			3	7	9	10	12
Sudan	0			26	26	28	29
Tanzania	0	2	10	18	26	30	32
Togo	1	2	7	21	29	33	38
Tunisia	3	28	47	67	69	68	74
Uganda	0	4	6		7	10	10
Yemen	0	7	24		14	15	18
Zambia	0	2	9	19	25	27	31
Zimbabwe	0	4	23	27	29	33	33

Appendix Table 7. Individuals using internet – population share English speaking, Latin America, Europe and other major countries %

	2000	2008	2015	2019	2020	2021	2022	2023
a) Latin America								
Argentina	7	28	68	80	86	87	88	89
Brazil	3	34	58	74	81	81	81	84
Chile	17	37	77	85	88	89	91	94
Colombia	2	26	56	65	70	73	73	
Mexico	5	22	57	70	72	76	79	81
Peru	3	31	41	60	65	71	75	
b) English speaking								
Australia	47	72	85	94	95	95	95	
Canada	51	77	90	92	92	93	94	
New Zealand	47	72	85	90	95	96	96	
UK	27	78	92	93	95	95	95	
USA	43	74	75	89	97	97	97	
c) Europe								
Finland	37	84	86	90	92	93	93	94
France	14	71	78	83	85	86	85	87
Germany	30	78	88	88	90	91	92	93
Greece	9	38	67	76	78	79	83	85
Italy	23	45	58	68	71	75	85	87
Netherlands	44	87	92	93	91	92	93	
Spain	14	60	79	91	93	94	95	95
Sweden	46	90	91	95	95	95	95	96
d) Other major countries								
China	2	23	50	64	70	73	76	78
India	1	4	15	30	43			
Japan	23	45	58	68	71	75	85	87
Russia	2	32	70	83	85	88	90	92
South Korea	45	81	90	96	97	98	97	97