Health and healthcare perceptions in sub-Saharan Africa

Angus Deaton and Robert Tortora

Woodrow Wilson School, Princeton University
Gallup Organization

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1. Introduction

Africa is the continent with the poorest health. It is the last continent where deaths from infectious disease still outnumber deaths from chronic disease. Spending on healthcare is low; a typical figure is around $100 per capita in 2005 price–adjusted terms, about half of which is spent in the private sector. A large share of western aid goes to Africa, and has increasingly been targeted towards health. Sub-Saharan Africa saw remarkable gains in life expectancy after 1950 but, in the countries that were most seriously affected by the HIV/AIDS pandemic, much or all of the gain was lost. Most recently, and especially since 2005, with help from the US President's Emergency Plan for AIDS Relief (PEPFAR) and from the Global Fund to fight AIDS, Tuberculosis, and Malaria (the Global Fund), antiretroviral (ARV) therapy has become available; according to UNAIDS (2013), 9.7 million people (out of nearly 30 million eligible) were receiving therapy in low and middle-income countries by December 2012. At the same time, and especially in the last decade, there have been marked reductions in infant and child mortality in Africa.

Africa is also the continent with the poorest data. Few African countries have complete vital registration systems and, in contrast to rich countries, there is a dearth of information on how Africans perceive their own health. The Afrobarometer surveys, which currently cover 35 countries, are an important resource for people's opinions on governance and on public sector performance, and on the priority that people attach to public healthcare, but they provide little information on how people perceive their own health. The Gallup Organization has been collecting data in sub-Saharan Africa since 2005, as part of its World Poll, and we use this rich re-

source to investigate Africans' perceptions of health and healthcare in 2012. Because it is part of the World Poll, we can compare African outcomes with those from other regions of the world.

We are also interested in the much-debated question of the effects of the HIV/AIDS epidemic on people's perceptions of health and healthcare. There is good evidence that, in the early days of the epidemic, the countries that were most affected lost out on maternal and child-care services, Case and Paxson (2011), showing either an absolute decline in services or a decline relative to what would otherwise have been expected, from pre-existing trends, or from other unaffected countries. More recent studies, Grépin (2012), Duh (2014), have painted a more complex picture; they find that some, but not all, services have shown a rebound since the rollout of antiretroviral therapy (ARV). Although the evidence is hardly conclusive, it is possible that, in the first phase, the epidemic undermined maternal and child health provision, as resources were diverted, but that the expansion of ARV has been complementary with some other categories of health provision, e.g. better for blood tests, but not for child immunizations, perhaps because new facilities can be used for multiple purposes.

In the analysis here we here find enormous diversity of health perceptions across African countries though, for the continent as a whole, self-reports of health and of wellbeing are among the worst in the world. Yet there are huge variations from country to country, in health spending, in the fractions of people who report themselves in perfect health, and in the fractions who have never had any contact with a nurse or doctor. Perhaps surprisingly, people's reports of whether healthcare

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has become better or worse over the last five years are uncorrelated with either national or regional HIV prevalence rates. Even so, we find some evidence of a positive relationship between healthcare improvement and prevalence in the countries with the highest prevalence rates; this is consistent with at least some improvements accompanying the ARV rollout although there are other explanations, as we shall see below. Within at least some high prevalence countries, healthcare is seen to have got relatively worse in regions with the highest HIV-prevalence. In spite of the pandemic, and of poor health in general, Africans do not see healthcare as the highest priority for the governments, at least compared with helping them improve their livelihoods in agriculture or in work, or controlling corruption.

2. Background

We begin with a comparison of sub-Saharan Africa with the rest of the World using the data in Table 1; the comparison here is for 2012 and uses the matching data from the core module of the World Poll. Column 1 repeats the now standard finding that Africans rate their lives more poorly than any other population in the world. The Cantril ladder is a measure of life evaluation that asks respondents to rate themselves on a ladder where zero is the worst possible life and ten is the best possible life; the question makes no reference to happiness or other aspects of hedonic experience, and so is a clean measure of life evaluation that should be thought of quite distinct from happiness. At an average over countries of 4.39, the ladder for sub-Saharan Africa—here an unweighted average of the sampling-weighted averages for each of the countries shown in Table 2—is the lowest in the Table. This is

largely a matter of low incomes in Africa. As shown in Deaton (2008) and Stevenson and Wolfers (2008), there is a close to linear relationship around the world between average ladder scores and the logarithm of per capita GDP. Sub-Saharan African countries are poor, and their inhabitants understand that their lives are much worse than they might be.

Africans are also relatively unhappy with their healthcare; only 42.4 percent are satisfied with the availability of quality healthcare in the city or area in which they live. This is again the lowest level of satisfaction in the world, and it is less than half of the figure for the non-English speaking countries of Northern Europe. Recent Afrobarometer surveys summarized by Asunka (2013) find that 57 percent of respondents say that the government has done well or fairly well at improving basic health services, a number that has fallen over time. Of course, the questions in the two surveys have different wording, and the Afrobarometer surveys only cover publicly provided healthcare.

The final three columns of Table 1 show (a) the fractions of people who have a health problem that prevents them from doing any of the things that people their age can usually do, (b) the fractions of people who experienced a lot of physical pain on the day prior to the interview, and (c) the fractions who say they are satisfied with their personal health. These measures are more equally distributed across the regions of the world. Although Africa does not come last on any of them, the picture of self-reported health is broadly negative.

Table 2 shows the countries in sub-Saharan Africa that were surveyed in the 2012 round of the World Poll. There is an astonishing range of health outcomes

across these countries. The fraction of respondents who report that they are in perfect health ranges from highs of more than 50 percent in Somaliland and in Ethiopia to only 17 percent in Madagascar and Tanzania. In Ghana, Somaliland, and Sudan, more than half of the population say that they have *never* had contact with a medical professional while in Cameroon, Senegal, and Gabon, the fractions are less than ten percent. The correlation between these first two columns is (positive) 0.285; clearly, contact with the medical system simply be the direct result of poor health. Beyond that, as in the Rand Health Experiment for the US, Manning et al (1987), access to healthcare may raise expectations and reduce perceived health status.

Health expenditures (expressed in 2005 price-adjusted international dollars) are even more widely variable. South Africa and Botswana, both relatively wealthy and with high HIV-prevalence (see last column), spend $942 and $734 respectively. The median over all our countries is $109 per head, but DRC, Ethiopia, Madagascar and Niger spend less than half of that; even $109 a year does not buy much healthcare—these numbers are expressed in US healthcare prices. In many of these countries, there is little or no healthcare. At these levels of spending, there is a zero correlation between spending on healthcare and the fraction that has never had contact with a medical professional.

Much of the literature on health in poor countries focuses on the provision of healthcare by the state, often because, since the Alma Ata declaration of 1978, such provision is seen as desirable in itself, and at least some of the questions about attitudes, as in the Afrobarometer, relate to the government's role in providing basic health services. Yet, Table 2 documents that privately provided healthcare is im-

portant in Africa; in 12 of the 26 countries listed, *at least half* of all healthcare expenditure is in the private sector, and in only one country does the private sector account for less than a third. There is a mild negative correlation between total healthcare expenditure and the share of the private sector, so that the private sector tends to be more important in places where little is spent. The recent literature on healthcare provision in poor countries suggests that private providers can often provide as good a service as the state where the state has low capacity, especially for routine care. Private provision also does not suffer from the problems of mass absenteeism that often mar public sector provision, Filmer, Pritchett, and Hammer (2002), Chaudhury et al (2006). Of course, the limited capacity of the state undercuts not only its own provision, but also the regulation of private healthcare providers, so that both public and private providers each have their own distinct strengths and weaknesses, Das and Hammer (2005). That said, the worst of the private sector, with unqualified and unregulated practitioners, can be very bad indeed.

The highest correlation in Table 2 is between the last two columns; the correlation between HIV-prevalence and the fraction approving of the healthcare system is 0.51. Although it is true that there is a positive correlation between per capita GDP (in purchasing power parity dollars) and HIV-prevalence, the correlation between approval of the healthcare system and HIV is not attributable to variations in income. It should be noted, however, that the countries with the highest prevalence at the beginning of the epidemic were those with the best-developed health systems, Case and Paxson (2011)

The Gallup data allow us to look beneath the aggregates in Tables 1 and 2 and to see how perceptions, self-reported health, and wellbeing vary across age, sex, income and other variables. The results in Table 3 confirm some familiar results from the literature on health in wealthy countries, but also contain some differences and some surprises.

Our procedure here is too pool all of the data for all of the countries, with about 1,000 observations for each. We then run ordinary least squares regressions (weighted by the within-country sampling weights, but with each country counting the same) on the variables of interest, whose coefficients are reported in the table, together with a set of dummy variables one for each country. The country coefficients are not reported—though Table 2 provides a good guide—but we provide F–statistics to test for country differences. None of the variables that we look at eliminate the differences by country. The first of the F–statistics at the bottom of the table shows the test for the joint significance of country effects, and in all cases is highly significant.

The first column of the table looks at wellbeing as life-evaluation, as represented by Cantril's ladder. The age effects provide the first surprise; the age-profile is essentially flat, and the F–statistic is barely significant. This is in sharp contrast to the famous U-shaped age-profile of life evaluation in Britain, the US, and other regions of the world, see Steptoe, Deaton and Stone (in press.) One hypothesis for the U-shape is that it holds only in countries where there are strong social security systems and healthcare for the elderly, something that is certainly not the case in sub-Saharan Africa. Yet the other variables are correlated with well-being in familiar

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ways; women evaluate their lives more highly than men, income brings higher well-being with a coefficient in line with other countries, see Sacks, Stevenson and Wolfers (2012), as does education, and divorced, separated, and widowed people (the "other" category under marital status) do worse than either single or married people. Those with two or more children living in the household report lower wellbeing than those with one or none.

The next two columns concern self-reported health: in column (2) a dichotomous variable that is 1 or 0 if the respondent says they are in perfect health, and in column 3 a dichotomous variable for satisfactory health. These questions are posed separately and both are distinct from the question about whether or not *healthcare* is satisfactory. Not surprisingly, the age effects for both show that self-reported health declines with age, but "perfect" health deteriorates more rapidly at young ages, while "satisfactory" health deteriorates more rapidly at older ages, once few people are left in "perfect" health. Better off, more educated, and more religious people (those who report that religion is very important in their lives) are in better health, while women and those who are widowed, separated or divorced have worse health—all familiar effects from the health literature in general.

Confidence in African healthcare systems (the healthcare OK variable in Table 2) varies sharply by country, but within country, very little by age or marital status. Women, the more educated, and those with higher incomes have *more* confidence in the systems; this is surprising, because these are the groups that are more likely to experience healthcare, and one might have thought, to understand its weaknesses. Perhaps they have nothing else with which to compare it.

Table 2 shows huge cross-country variation in the numbers of people who have never had contact with the medical system. Table 3 shows that the probability of "never" declines with age; older people have had more chance to experience it, and is lower for women, people who are married, have children, are more educated, or more religious, that last possibly reflecting the role of religious institutions in providing healthcare in much of the continent.

3. Healthcare perceptions and the HIV/AIDS epidemic

One controversial issue in both the literature and in the aid community is the effect of the epidemic on healthcare, both before and after the dramatic increase in aid after 2004 from PEPFAR and the Global Fund, an issue that has been addressed for a range of periods by Case and Paxson (2011), Grépin (2012) and Duh (2014). Perhaps the most obvious story here is that, prior to the aid for the disease, HIV/AIDS simply put additional strain on already weak healthcare systems, undermining previous services, such as mother and child health services. With the inflow of funds from abroad in recent years, such undermining might have been reversed if the expansion of facilities and medical personnel could be and was used, not only for the delivery of anti-retroviral therapy, but also for other services. A more negative possibility, which has been a concern, is that new services displace the old, for example by bidding nurses away from what they were previously doing as argued, for some countries, by Grépin (2012). Recent work by Duh (2014) paints a relatively positive picture, with mother and child services doing better in the affected regions and countries after 2004 than before. Blood tests for pregnant women are now routinely

given in order to prevent mother to child transmission of the virus, and this has certainly led to an increase in blood tests, and possibly to some other antenatal services. For both Grépin and Duh, the effects differ for different kinds of provision.

The most relevant question in the World Poll is whether the respondent believes health care has improved over the last five years; the respondent can answer yes, stayed the same, or got worse, and we coded the three responses as 1, 0, and –1. Figure 1 plots the average score against the prevalence estimates reported in Table 1. Note first that in *all* countries except Sudan and Tanzania people think that the quality of healthcare has increased over the last 5 years.

The correlation here is only 0.21, and is not significantly different from zero so that, according to these measures, people do not perceive better or worse healthcare between 2007 and 2012 according to the level of HIV prevalence. The results for individual countries are also interesting. Botswana is often cited as the case where high prevalence has brought substantial improvements in healthcare, and this shows up clearly in the Figure. Similarly, among the highest prevalence countries, those above 5 percent prevalence, Uganda, Malawi, Zambia, Zimbabwe, South Africa, Botswana, Kenya, Tanzania, and Gabon there is a positive relation between prevalence and a perceived improvement in healthcare. That there is no overall positive correlation is because, among the low prevalence countries, there is a wide range of improvements that came about through other factors.

The World Poll also asks respondents their expectations about healthcare improvement in the *next* five years. This variable, which is also coded 1, 0, –1, is higher on average than the perception of the last five years, with 47 percent expect-

ing net improvements, as opposed to only 36 percent who reported seeing improvements in the past five years. Even so, there is a high cross-country correlation between the past and the future, and expectations about the latter are no more correlated with HIV prevalence than are the former.

In summary, there is no evidence in Figure 1 that high HIV-prevalence countries have seen any systematic decline in the quality of healthcare from 2007 to 2012. If anything, the reverse seems to be true, at least among the worst affected countries. And note again from Table 2 that the high prevalence countries are also those with the highest fraction that is satisfied with the quality of their healthcare in 2012, a correlation that is statistically significant. All of this gives a cautiously positive picture of the relationship between healthcare perceptions and HIV-prevalence, at least in the most recent years.

A good deal of the literature, at least as far back as Preston (1975), has argued that incomes are one of the primary determinants of health, and that one of the mechanisms is the cost of providing healthcare, both by states and individuals, see also Pritchett and Summers (1996), and Filmer and Pritchett (1999). Unlike what happened in the 80s and 90s, there has been substantial economic growth in Africa since 2000, much (but not all) of it based on commodity prices, but perhaps also attributable to better macroeconomic management, see Rodrik (2014) and McMillan and Harttgen (2014) for discussions. It is often argued (the resource curse) that the revenues from commodity price growth are sometimes mismanaged, or not widely distributed, and so may not be very likely to promote social services such as health delivery. Yet in these data, economic growth, like HIV-prevalence, does little to pre-

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dict whether or not people see healthcare as improving. We have used the rate of growth of GDP per capita from 2000 to 2012, as well as the growth rates from 2000 to 2005, and from 2005 to 2012, and none has a significant correlation with perceptions of healthcare improvement

In many of the affected countries in Africa, the HIV prevalence rate varies regionally within the country. These regional prevalence rates can be estimated from successive rounds of the recent Demographic and Health Surveys, a subset of whom test respondents for the HIV virus. We have taken these prevalence estimates for the subset of regions that we can match to the regional information in the World Poll, which gives us 140 observations from 15 countries observed between 2003 and 2012; 86 out of the 140 regions were observed in the four years 2009 to 2012. For these regions, we can calculate the average prevalence rates of those aged 15 to 49, which is the age range of respondents in the DHS. Clearly, these data, with the age restriction, and with the range of years, are less than perfect, but having 140 observations, as opposed to only 24 in Figure 1, gives us a better chance of observing any patterns that exist.

Figure 2 shows the results and, in spite of the missing countries—including Botswana—fills out the detail of Figure 1. It confirms the overall lack of a pattern when all regions in all countries are pooled and, as in the previous figure, there is a suggestion of a negative relationship when HIV prevalence is low, and a *positive* relationship among the regions with high prevalence. Within countries, which is the regression corresponding to Figure 2 but with country dummies, there is a *negative* (but insignificant) relationship between whether healthcare was perceived to have

improved and the rate of HIV-prevalence. We have examined whether this relationship is different when we account for education (which is positively correlated with HIV-prevalence) and urbanization (which is uncorrelated with HIV-prevalence in the data in Figure 2) but their presence in the regression has little effect.

In summary, one explanation for the data in Figure 2 is that HIV prevalence, *by itself*, has worked to reduce the perceived effectiveness of the healthcare system. This is true in the low prevalence countries today, just as it was in all countries in the early years of the epidemic. In recent years however, the high prevalence countries have attracted a great deal of health-related aid, and this may have helped improve their citizens' perceptions of their healthcare systems. The Figure also shows some evidence that, within high prevalence countries such as Tanzania, Zambia, and Zimbabwe, there is a negative relationship across regions between perceived improvement and prevalence, which would come about if health aid were not well allocated within countries.

4. What people get and what they want

In this final section, we address another controversial issue, which is whether assistance to Africa is well aligned with what Africans themselves perceive as their most urgent needs. In recent years, health aid to Africa from rich countries has increased much more rapidly than non-health aid, yet there have been occasional questions about whether this is a response to African demands, or something that the rich countries are choosing to do for reasons of their own, see Kharas (2008) and Leo (2013), both of whom work with Afrobarometer data.

The World Poll asks respondents to name the issues that should be the highest priority for government; they are presented with a list that includes healthcare, education, providing new jobs, improving agriculture, providing electricity, or tackling corruption. As found in the Afrobarometer surveys, healthcare is not the highest priority. Averaged over all the countries (one country one observation), 31 percent of people picked new jobs as their top priority, and 21 percent picked improving agriculture. Control of corruption comes next, at 14.4 percent, with education and healthcare next at 13.6 and 13.5 percent. Providing electricity was picked by only 6.3 percent. We have also examined the correlation between these preferences, and those who prioritize agriculture also prioritize providing jobs, suggesting that these are picking up the same underlying factor, the importance of better livelihoods. There is also a strong *negative* correlation across countries between prioritizing healthcare and HIV prevalence as listed in Table 1, See Figure 3. Countries with the highest HIV rates has the most advanced healthcare systems at the start of the epidemic, Case and Paxson (2011), so that people in those countries may feel that governments are already paying enough attention to healthcare. The 2012 World Poll did not ask about HIV/AIDS as a priority, but when it was asked in a previous round, it ranked third after poverty reduction and hunger reduction, ahead of providing more jobs, reducing child mortality, reducing maternal mortality, and improving education.

Of course, just because people in Africa do not see healthcare as the highest priority does not mean that aid agencies are incorrect to prioritizing it. Africans may be poorly informed, for example about the possible effects of better healthcare on

their health and thence on their livelihoods or, after centuries of high morbidity,

they may not believe that the government (or anyone else) is capable of brining any

meaningful relief. But even if Africans are well informed, it might also be that aid

agencies believe—correctly or incorrectly—that they are more effective at saving

lives than at generating economic growth.

Citations

Asunka, Joseph, 2013, "What people want from government: basic services performance ratings, 34 countries," Afrobarometer Policy Paper, http://www.afrobarometer.org/files/documents/policy_brief/ab_r5_policybriefno5.pdf

Case, Anne C., and Christina H. Paxson, 2011, "The impact of the AIDS epidemic on health services in Africa: evidence from demographic health surveys," *Demography*, 48:2, 675–97.

Chaudury, Nazmul, Jeffrey Hammer, Michael Kremer, Karthik Muralidharan, and F. Halsey Rogers, 2006, "Missing in action: teacher and health worker absence in developing countries," *Journal of Economic Perspectives*, 20:1, 91–116.

Das, Jishnu and Jeffrey Hammer, 2005, "Which doctor? Combining vignettes and item response to measure clinical competence," *Journal of Development Economics*, 78:2, 348–83.

Deaton, Angus, 2008, "Income, health, and wellbeing around the world: evidence from the Gallup World Poll," *Journal of Economic Perspectives*, 22:2, 53–72.

Duh, Josephine, 2014, "Spillovers of AIDS treatment on maternal and child health services in sub-Saharan Africa," Princeton University, Center for Health and Wellbeing, working paper.

Flimer, Deon, Jeffrey S. Hammer, and Lant H. Pritchett, 2002, "Weak links in the chain II: a prescription for health policy in poor countries," *World Bank Research Observer*, 17:1, 47–66.

Filmer, Deon, and Lant H. Pritchett, 1999, "The impact of public spending on health: does money matter?" *Social Science and Medicine*, 49:10, 1309–23.

Grépin, Karen, 2012, HIV donor funding has both boosted and curbed the delivery of different non-HIV health services in sub-Saharan Africa," *Health Affairs*, 31:7, 1406–14.

Kharas, Homi, 2008, "A reality check on African aid," Brookings Institution, http://www.brookings.edu/research/opinions/2008/02/20-african-aid-kharas

Leo, Benjamin, 2013, "Is anyone listening? Does US foreign assistance target people's top priorities?" Working Paper No. 348, Center for Global Development (December).

Manning, Willard, G., Joseph P. Newhouse, Naihua Dun, Emmett B. Keeler and Arleen Leibowitz, 1987, "Health insurance and the demand for medical care: evidence from a randomized experiment," *American Economic Review*, 77:3, 251–77.

McMillan, Margaret, and Kenneth Harttgen, 2014, "What is driving the 'African growth miracle'?", NBER Working Paper No. 20077, Cambridge, MA (April)

Preston, Samuel H., 1975, "The changing relation between mortality and level of economic development," *Population Studies*, 29:2, 231–48.

Pritchett, Lant H., and Lawrence Summers, 1996, "Wealthier is healthier," *Journal of Human Resources*, 31:4, 841–68.

Rodrik, Dani, 2014, "An African growth miracle?" NBER Working Paper No. 20188, Cambridge, MA (June).

Sacks, Daniel, Betsey Stevenson, and Justin Wolfers, 2012, "The new stylized facts about income and subjective wellbeing," *Emotion*, 12:6, 1181–7.

Steptoe, Andrew, Angus Deaton and Arthur A. Stone, in press, "Subjective wellbeing, health, and ageing," *The Lancet*.

Stevenson, Betsey, and Justin Wolfers, 2008, "Economic growth and subjective wellbeing: reassessing the Easterlin paradox," *Brookings Papers on Economic Activity*, Spring, 1–87.

UNAIDS, 2013, *AIDS by the numbers*, http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2013/JC2571_AIDS_by_the_numbers_en.pdf

Table 1: Self-reported health and wellbeing ratings for regions of the world, 2012

Region	Wellbeing Cantril Ladder Score	Quality of health-care is OK	Unable to do normal activities	A lot of physical pain yesterday	Own health is OK
Africa	4.39	42.4	24.8	30.3	75.5
East Asia	5.39	64.4	17.8	19.2	81.1
Former Communist	5.34	51.1	29.1	27.5	69.6
Latin America	6.20	58.9	21.5	32.1	82.0
Middle East	4.94	49.0	20.8	35.0	83.5
N. Europe non-Anglo	6.99	86.3	23.2	24.6	82.4
South Asia	4.90	64.9	24.7	26.7	80.6
South Europe	5.92	60.6	17.6	30.4	80.6
Rich Anglo	6.99	78.4	18.7	21.3	84.6

Notes: The Cantril ladder asks the respondent to imagine a ladder numbered from 0 (worst possible life for you) to 10 (best possible life for you) and to report where they see themselves: the numbers are the regional averages. Other columns are averages of dichotomous indicators, where 1 is yes, and 0 is no. Within regions, each country is given equal weight, irrespective of population size. Where it is not obvious, the regions are as follows: Africa is sub-Saharan Africa, north African countries are included in the Middle East region; N. Europe non-Anglo are the non-English speaking countries of Northern Europe, excluding the ex-satellites of the former Soviet Union, which are included in Former Communist; Rich Anglo is the US, Canada, Ireland, UK, Australia, and New Zealand. These selections correspond to different patterns of wellbeing around the world, see Steptoe et al (forthcoming.)

Table 2: Health statistics sub-Saharan Africa
(2012 World Poll countries)

Country	Perfect health	Never seen a medic	Health spending per head 2005 $	Private share in total	Health-care is OK	HIV prev-alence percent
Benin	0.39	0.13	75	0.47	0.45	1.2
Botswana	0.24	0.20	734	0.39	0.57	23.4
Burkina Faso	0.24	0.16	81	0.50	0.42	1.1
Cameroon	0.22	0.07	128	0.69	0.48	4.6
Chad	0.30	0.17	65	0.73	0.47	3.1
Comoros	0.40	.	59	0.42	0.24	0.1
Congo	0.41	0.20	109	0.33	0.38	3.3
DR Congo	0.19	0.13	32	0.66	0.32	.
Ethiopia	0.52	0.22	52	0.42	.	1.4
Gabon	0.24	0.08	515	0.47	0.30	5.0
Ghana	0.23	0.52	90	0.44	0.46	1.5
Guinea	0.34	0.21	67	0.73	0.21	1.4
Kenya	0.19	0.17	77	0.60	0.57	6.2
Madagascar	0.17	0.10	40	0.37	0.35	0.3
Mali	0.42	0.21	73	0.55	0.31	1.1
Malawi	0.36	0.33	77	0.27	0.64	10.0
Mauritania	0.38	0.25	129	0.39	0.31	1.1
Niger	0.34	0.12	39	0.45	0.37	0.8
Nigeria	0.38	0.28	139	0.63	0.49	3.7
Rwanda	0.27	0.32	134	0.43	0.65	2.9
Senegal	0.30	0.08	119	0.42	0.42	0.7
Somaliland	0.55	0.52	.	.	0.49	.
South Africa	0.20	0.23	942	0.52	0.46	17.3
Sudan	0.24	0.57	180	0.72	0.28	0.4
Tanzania	0.17	0.24	107	0.60	0.28	5.8
Uganda	0.23	0.19	128	0.74	0.41	7.2
Zambia	0.39	0.37	99	0.40	0.50	12.5
Zimbabwe	0.35	0.33	.	.	0.59	14.9

Notes and Sources: Health spending per capita is in 2005 PPP $; that number plus the share of private spending in the total are taken from the World Development Indicators and refer to the year 2011. HIV prevalence comes from UNAIDS. Other statistics were calculated by the authors from the 2012 World Poll data. Note that Somaliland is the Somaliland region, and is not Somalia.

Table 3: Individual correlates of perceptions of health and wellbeing Sub-Saharan Africa, World Poll countries, 2012

	Ladder	Perfect health	Health OK	Confidence Healthcare	Never seen a medic
Ages					
15–19	0	0	0	0	0
20–29	–0.03	–0.03**	–0.02*	–0.02*	–0.01
30–39	–0.10*	–0.06**	–0.04**	–0.03**	–0.01
40–49	–0.10*	–0.11**	–0.07**	–0.01	–0.02
50–59	–0.00	–0.16**	–0.16**	–0.02	–0.06**
60–69	–0.10	–0.20**	–0.32**	–0.00	–0.07**
70 plus	0.03	–0.25**	–0.41**	0.01	–0.10**
Married					
Single	0	0	0	0	0
Married	–0.01	–0.02*	–0.01	–0.00	–0.03**
Other	–0.23**	–0.05**	–0.08**	–0.01	–0.06**
Education					
None	0	0	0	0	0
High Sch.	0.36**	0.05**	0.06**	0.04**	–0.05**
More	0.55**	0.08**	0.06**	0.04*	–0.13**
Log income	0.36**	0.02**	0.03**	0.04**	–0.01
Religious	0.05	0.05**	0.07**	0.04**	–0.04**
Female	0.09**	–0.04**	–0.01**	0.02**	–0.05**
Adults					
One	0	0	0	0	0
Two	–0.00	0.02	0.04**	–0.01	–0.01
More	0.03	0.00	0.01	–0.04*	–0.01
Children					
None	0	0	0	0	0
One	–0.05	0.00	–0.01	–0.00	–0.02*
Two	–0.12**	0.01	–0.00	–0.01	–0.05**
Three +	–0.18**	–0.02	–0.03*	–0.03**	–0.04**
F-stats					
Countries	69.86**	60.69**	23.70**	54.49**	106.41**
Marital	19.69**	11.57**	42.67**	0.47	18.31**
Education	92.14**	32.82**	42.18**	18.57**	46.78**
Age	2.42*	56.98**	188.25**	2.29	12.20**

Notes: Results from ordinary least squares regressions. Countries are as shown in Table 2. All regressions include dummy variables for countries, estimates not shown, though see *F*-statistics in bottom panel. The ladder is an 11-point scale from 0 to 10, while the other variables are dichotomous, so the regressions are linear probability models. One (two) star(s) indicates significance at 5 (1) percent.
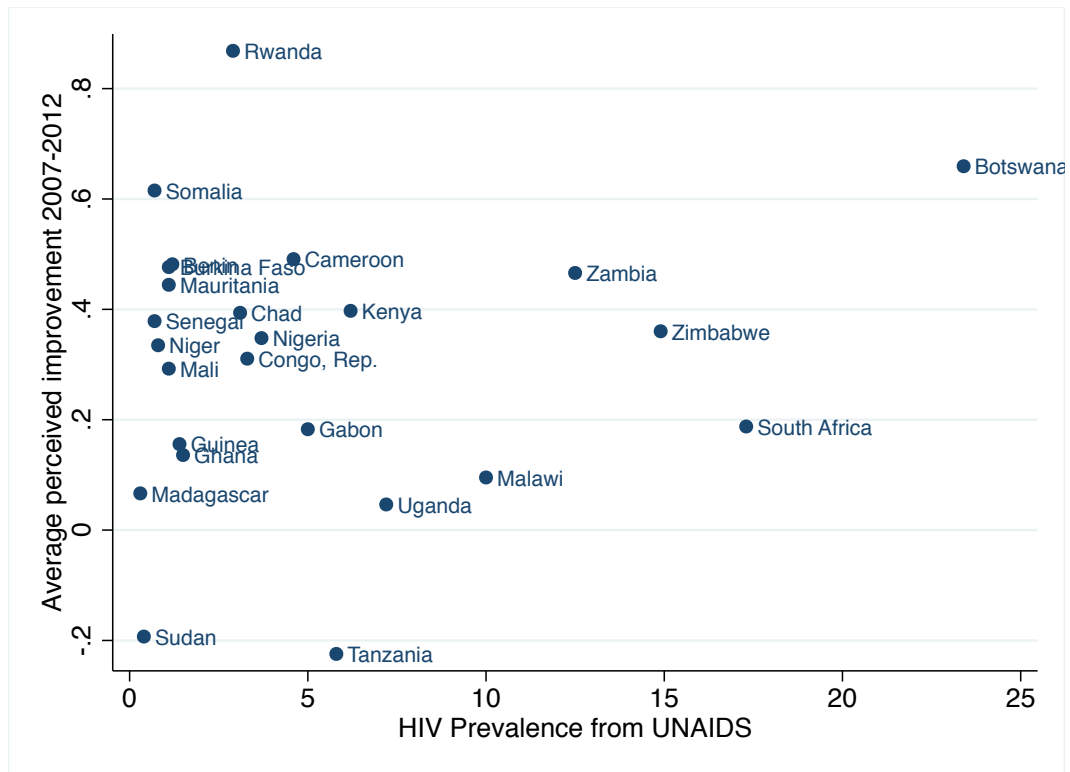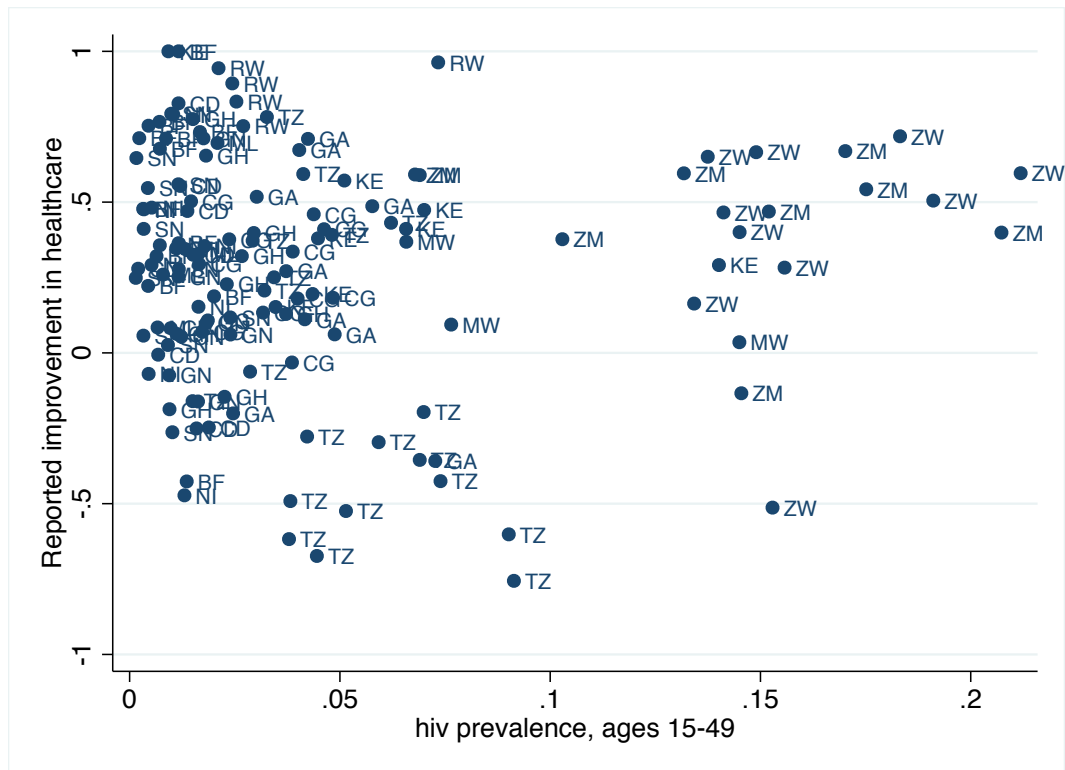
Figure 1: Perceived improvement in healthcare in the past five years and HIV prevalence, 2012

Figure 2: Perceived improvement in healthcare in past five years, by regions of Demographic Health Surveys

Notes: Each region is denoted by DHS code for the country: BF is Burkina Faso, CD is DRC, CG is Congo, GA is Gabon, GA is Ghana, GN is Guinea, KE is Kenya, MW is Malawi, NI is Niger, RW is Rwanda, SN is Senegal, TZ is Tanzania, ZM is Zambia, and ZW is Zimbabwe.
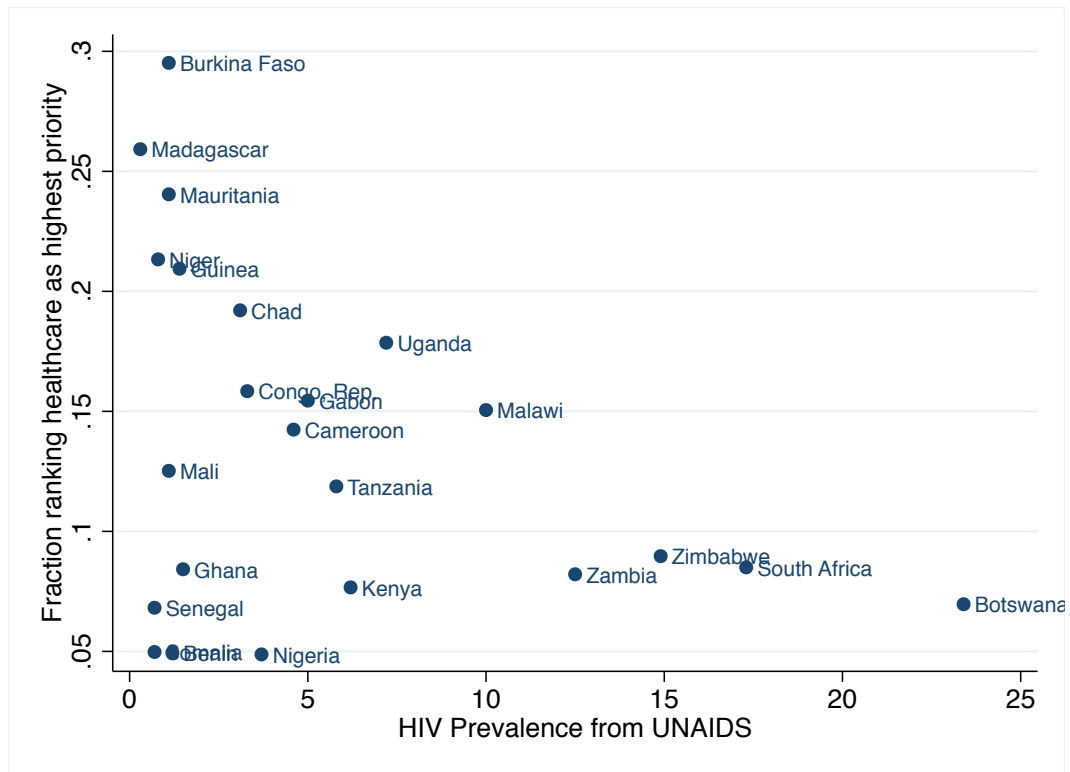
Figure 3: First priority to healthcare and HIV prevalence, 2012