



ECA POLICY BRIEF

Drawing on lessons learned from the Millennium Development Goal on HIV/AIDS to reduce poverty and inequality in the post-2015 era

Introduction

In September 2015, a new development agenda succeeding the Millennium Development Goals (MDGs) was adopted at the seventieth session of the United Nations General Assembly. The new 2030 Agenda for Sustainable Development is highly ambitious and complex with 17 goals, 169 targets and three dimensions of sustainable development (economic, social and environmental). To effectively implement this Agenda, lessons should be drawn from the rich experience of the MDGs including the necessity to build on synergies that may exist between the new Sustainable Development Goals (SDGs). Goals 1, 3, 8 and 10 are interlinked and relate, respectively, to eradicating poverty; improving health conditions; promoting inclusive economic growth and employment; and reducing inequality.

¹ The full formulations of the Goals are as follows: Goal 1. End poverty in all its forms everywhere; Goal 3. Ensure healthy lives and promote well-being for all at all ages; Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all; and Goal 10. Reduce inequality within and among countries.

The present policy brief emphasizes the relationship between the specific health problem of HIV/AIDS on the one hand, and the two phenomena of poverty and inequality on the other. Its objective is twofold: recalling that the fight against HIV/AIDS is paramount to achieving the goals on poverty and inequality in Africa; and setting out some lessons learned that have proven useful in reversing HIV/AIDS trends. Section II presents the current prevalence and death toll of the disease. Section III reviews some socioeconomic impacts of HIV/AIDS on poverty and inequality, and explores the channels and mechanisms through which these impacts operate. Section IV analyses the correlation between HIV prevalence and poverty and inequality levels in Africa. Section V concludes with some lessons learned in combatting the disease.

Current prevalence and death toll of HIV/AIDS

According to the 2015 MDG Report (ECA and others, 2015), over the last 15 years, Africa has made significant strides in combating HIV/AIDS and is succeeding in reversing the evolution of the pandemic and reducing its death toll in all five of Africa's geographical subregions. Between 2001 and 2013, the incidence of the disease among adults (i.e. the number of new HIV infections per year per 100 people aged 15-49 years) was more than halved in Southern, West and Central Africa, reduced by 46 per cent in East Africa and remained constant at a low level of 0.01 per cent in North Africa (table 1). All countries except Angola and Uganda are registering downward trends in the occurrence of new infections; those two countries are currently faced with a deteriorating situation.

As a result of the decline in new infections, from 2005 to 2013, HIV prevalence among adults in Africa, excluding North Africa, decreased from 5.6 per cent to 4.7 per cent and AIDS-related deaths in the population (all ages) recorded a 40 per cent drop, from 1.8 million people to 1.1 million. In North Africa, the prevalence of HIV among adults was 0.1 per cent over the same period; however, AIDS-related deaths in the population (all ages) increased slightly from 6,700 to 10,100 people (UNSD, 2015).

Table 1: HIV incidence rates in the subregions of Africa

No. of new HIV infections per year per 100 people aged 15 to 49 years	2001	2013	Change (%)
Central Africa	0.67	0.25	-63
East Africa	0.38	0.20	-47
North Africa	0.01	0.01	No change
Southern Africa	2.15	0.95	-56
West Africa	0.38	0.14	-63

Source: ECA and others, 2015; and UNAIDS 2013 HIV estimates.

The 2015 MDG Report also warns that, notwithstanding this appreciable progress, HIV is still a real challenge in Africa. In absolute terms, there are around 24.9 million people living with HIV in Africa, of whom only 154,000 are in North Africa and the rest distributed across the four other geographical subregions. The bulk of people living with HIV in Africa, excluding North Africa, are concentrated in 10 countries, namely Ethiopia, Kenya, Malawi, Mozambique, Nigeria, South Africa, Uganda, the United Republic of Tanzania, Zambia and Zimbabwe. Taken together, these countries account for 81 per cent of all people living with HIV in the region. The situation is skewed towards women: 58 per cent of people living with HIV are female. Furthermore, 2.9 million children are infected, in addition to other vulnerable groups such as young people and those affected by conflicts, disaster or displacement.

To date, Africa excluding North Africa accounts for around 71 per cent of all people living with HIV in the world. Coverage in terms of treatment and counselling is still not satisfactory. Currently, the proportion of people living with HIV who have access to treatment

is estimated at 37 per cent in Africa, excluding North Africa; however, there are large disparities among countries. Nigeria and South Africa, for instance, are the two countries with the largest number of people living with HIV in the region, i.e. 3.2 million and 6.3 million, respectively, but access to treatment covers 20 per cent of those infected in Nigeria and 42 per cent in South Africa (UNAIDS, 2014). There are also treatment differentials within countries: children and men are less likely than adults and women to undergo treatment (UNAIDS, 2014; ECA and others, 2015).

Socioeconomic impacts of HIV/AIDS and the channels through which they operate

The abundant literature devoted to the socioeconomic impacts of HIV/AIDS testifies that the topic has been a concern since the beginning of the pandemic. For instance, UNDESA (2004) provides a summary of studies on the macroeconomic impact of HIV/AIDS in Africa, which features some studies published as far back as the early 1990s. More recently, a literature review by Roos (2013) on the various methods used in analysing the impact of HIV/AIDS indicates that interest in the topic remains vivid.

Broadly, the literature shows that HIV/AIDS may adversely affect production factors, undermine economic growth, reduce consumption and savings, exacerbate poverty and income inequality, increase health expenditures, divert domestic resources from productive expenses, and damage human capital in the long term (UNDESA, 2004; Zerihun and others, 2005; Danziger, 1994; Sgherri and MacFarlan; 2001).

There are several channels and mechanisms through which the pandemic affects socioeconomic conditions. Economic growth can be affected through reduced labour supply owing to sickness or lower worker productivity; reduced savings and investments of families because of increases in health expenditures or reduced income; and diverted public spending from highly productive investments such as physical and human capital to HIV/AIDS-related health expenditures (UNDESA, 2004).

According to Theodore (2001), there are at least four channels through which HIV/AIDS may affect the economy. Firstly, the production channel whereby

the effect of the pandemic on labour and capital may hamper production. Secondly, the allocation channel whereby some public resources may be diverted from more productive investments to constraining expenses imposed by the pandemic. Thirdly, the distribution channel whereby an increase in health expenditures entailed by the disease weakens the income base and hits lowest income groups the hardest as richer groups may have more assets and means to cope; the pandemic may thus deepen inequality and poverty. The fourth channel is the regeneration channel referring to the adverse effect of the disease on saving capacity and human capital, which may undercut the process of economic development (UNDESA, 2004; Theodore 2001).

Correlation analysis between HIV prevalence and poverty and inequality in Africa

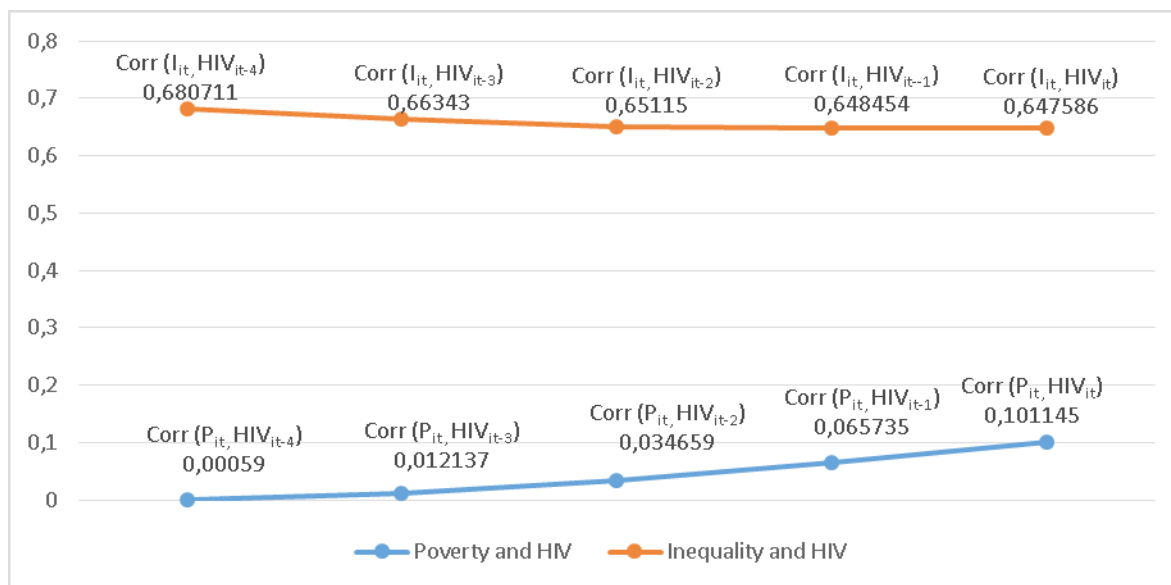
In an attempt to shed more light on the dynamic of the socioeconomic effects of HIV, the following is an empirical analysis of the links between HIV and poverty and inequality.

The analysis entailed computing, over a five-year period, correlation coefficients² between the prevalence of HIV and poverty; and the prevalence of HIV and inequality. More specifically, it considers the most recent poverty rate series for African countries where data exist. For each country in the series and its level of poverty given at year t , P_{it} , we associate its current and past levels of HIV prevalence, HIV_{it} , HIV_{it-1} , HIV_{it-2} , HIV_{it-3} , HIV_{it-4} . Then we compute the five following coefficients of correlation: $Corr(P_{it}, HIV_{it-4})$, $Corr(P_{it}, HIV_{it-3})$, $Corr(P_{it}, HIV_{it-2})$, $Corr(P_{it}, HIV_{it-1})$, and $Corr(P_{it}, HIV_{it})$.

Similarly, for the most recent series available on inequality in African countries, with I_{it} referring to inequality in country i in year t , we associate the current and past levels of HIV prevalence and also compute coefficients of correlations. These coefficients are named $Corr(I_{it}, HIV_{it-4})$, $Corr(I_{it}, HIV_{it-3})$, $Corr(I_{it}, HIV_{it-2})$, $Corr(I_{it}, HIV_{it-1})$, and $Corr(I_{it}, HIV_{it})$.

These calculations show how current levels of poverty and inequality are correlated to past and present levels of HIV. In other words, the idea is to

Figure 1: Evolution of correlations between HIV prevalence and poverty and inequality



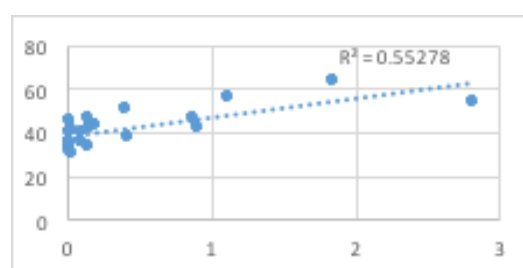
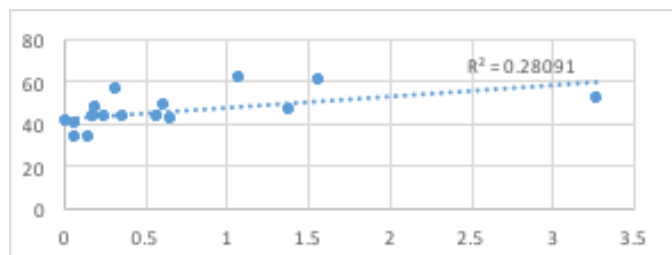
Source: The coefficients of correlation were computed by the author. HIV data are from UNSD (2015). Data on poverty and inequality are from World Bank (2015).

² Coefficients of correlation take values between 0 and 1, with 1 representing total positive correlation and 0 representing the absence of correlation.

Figure 2: Correlation between Gini coefficient and lagged values of HIV, 2003-2009 and 2010-2012

2003-2009: Corr (lit,HIVit-2) = 0.53001

2010-2012: Corr (lit,HIVit-2)= 0.65115



Source: Plotted by author based on data from World Bank (2015) and UNSD (2015).

highlight the extent to which HIV prevalence has long lasting effects, and whether past prevalence affects present levels of poverty and inequality.³ The results are given in figure 1.4

Figure 1 shows that the past and present levels of HIV prevalence are correlated with the present levels of both poverty and inequality. However, the dynamic of the disease on poverty and on inequality is quite different. In the case of poverty, it shows that the current level of poverty has a stronger correlation with the present level of the HIV prevalence than with past prevalence levels. This implies that HIV has an instant effect on poverty rather than a lagged one. Therefore, to avoid HIV negatively affecting poverty levels, new cases must be handled very fast and ideally incidences should be curbed.

As for inequality, the trend observed in the coefficients of correlation is totally contrary to the one observed for poverty (figure 1). The current value of inequality has a stronger correlation with past levels of HIV prevalence than with its present prevalence level. This implies that HIV has a long lasting effect on inequality, meaning that today's HIV prevalence levels can impact inequality for many years to come.

³ It should be noted that the existence of correlations between two variables informs more about the existence and degree of relationship between these two variables than about the links of causation between them. Hence, when stating the "effect of HIV on poverty or on inequality", what is meant is the "potential/possible effects".

⁴ Inequality and poverty are captured, respectively, by the Gini coefficient and the headcount ratio at \$1.25 a day. The series considered cover the period 2003-2012. All series used in this analysis are presented in the annexes to the present paper.

Figure 1 also shows that inequality is significantly more correlated to HIV than poverty, with coefficients of correlation between inequality and HIV ranging above 0.6 while coefficients of correlation between poverty and HIV barely rising above 0.1.

On the basis of these initial results, the analysis was pushed further to check whether the links observed between inequality and HIV prevalence have weakened or grown stronger overtime. To do this, the series of Gini coefficients are broken into two periods (2010-2012 and 2003-2009) and the coefficient of correlation between the Gini and a lagged value of HIV prevalence is computed.⁵ The results are shown in figure 2. The correlation between inequality and lagged values of HIV prevalence is even stronger in recent years than before. This indicates that, despite progress in curbing the pandemic in terms of occurrence and death toll, it still represents an important threat for inequality reduction efforts. Consequently, any efforts to achieve SDG 10 on inequality should also include efforts towards combatting HIV.

Lessons learned in combatting HIV

Given its numerous short-term and long-lasting socioeconomic impacts, notably on poverty, inequality and growth, and given its current spread which is still high in absolute terms, the HIV pandemic remains a potential threat to Africa's quest for inclusive growth and structural transformation.

⁵ The lagged value we use is t-2, because it is mid-way between t-4 and t, the time period considered in the initial analysis.

However, the good news is that the recent significant progress in combatting the disease coupled with considerable knowledge about it mean that countries can aim high and pursue a zero-case scenario.

Based on the experience generated through the pursuit of MDG 6 on HIV, malaria and tuberculosis, some factors that have contributed greatly to the progress registered so far in reversing the trends in HIV include: improvement in testing, counselling and access to antiretroviral therapy; reduction in mother-to-child transmission; increase in the use of condoms and treatment as prevention; and improvements in general awareness and knowledge of the disease, including a better understanding of the link between HIV and tuberculosis. For instance, it has been established that HIV treatment lowers the risk of death among people who have both HIV and tuberculosis by 50 per cent. Similarly, among tuberculosis-free HIV patients, antiretroviral treatment reduces the risk of contracting tuberculosis by 66 per cent (ECA and others, 2015; UNAIDS, 2014).

It has also been established that young women and adolescent girls face specific inequities that render them more vulnerable to the pandemic. For instance, some lack access to education, health services and social protection. These circumstances are likely to undermine their ability to protect themselves against HIV and to access antiretroviral therapy. They require special attention and there is a pressing need to protect them, including from gender-based violence and sexual abuse (ECA and others, 2015).

Engaging men in the fight against HIV has also proven to be a winning strategy. Voluntary medical male circumcision has the potential of reducing the risk of acquiring HIV among men by 66 per cent (UNAIDS, 2014). Moreover, when men know their HIV status, they are more likely to appropriately resort to prevention and seek treatment. Sex workers, men who have sex with men, and people who inject drugs are also groups that need to be followed closely owing to particularly high infection rates among them.

HIV funding is still highly dependent on external resources. African countries will have to double efforts and reverse that situation by mobilizing and dedicating more domestic resources to the cause. UNAIDS estimates for 2012 indicate that around \$6.6 billion was invested in the AIDS response in Africa excluding North Africa, 47 per cent of which came from domestic sources and the rest from international sources (ECA and others, 2015).

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Annex 1: Gini coefficients and HIV prevalence in Africa, 2003-2012

	Year t	Ginit	HIVt	HIVt-1	HIVt-2	HIVt-3	HIVt-4
Angola	2008	42.7	0.25	0.24	0.25	0.25	0.24
Botswana	2009	60.5	1.35	1.51	1.57	1.7	1.86
Burkina Faso	2009	39.8	0.07	0.06	0.07	0.06	0.06
Burundi	2006	33.4	0.06	0.1	0.15	0.21	0.27
Cameroon	2007	42.8	0.49	0.52	0.58	0.62	0.67
Central African Republic	2008	56.2	0.27	0.29	0.32	0.36	0.45
Chad	2011	43.3	0.16	0.17	0.2	0.24	0.28
Congo	2012	42.1	0.14	0.16	0.17	0.2	0.23
Cote d'Ivoire	2008	43.2	0.12	0.14	0.18	0.24	0.32
Democratic Republic of the Congo	2011	40.2	0.09	0.1	0.1	0.11	0.12
Djibouti	2012	45.1	0.01	0.01	0.02	0.02	0.05
Ethiopia	2010	33.2	0.02	0.02	0.02	0.02	0.02
Gabon	2005	42.2	0.43	0.52	0.66	0.76	0.85
Gambia	2003	47.3	0.21	0.21	0.2	0.19	0.17
Ghana	2005	42.8	0.14	0.17	0.18	0.21	0.23
Guinea-Bissau	2010	50.7	0.37	0.39	0.41	0.43	0.45
Kenya	2005	48.5	0.55	0.58	0.62	0.65	0.71
Lesotho	2010	54.2	2.38	2.65	2.82	2.75	2.7
Liberia	2007	36.5	0.06	0.07	0.1	0.07	0.08
Madagascar	2010	40.6	0.03	0.03	0.04	0.05	0.06
Malawi	2010	46.1	0.63	0.74	0.87	1.03	1.21
Mali	2009	33	0.06	0.07	0.07	0.08	0.1
Mauritius	2012	35.8	0.05	0.1	0.1	0.11	0.1
Morocco	2007	40.7	0.02	0.02	0.02	0.01	0.01
Mozambique	2008	45.6	1.16	1.26	1.38	1.5	1.63
Namibia	2009	61	0.95	1	1.08	1.22	1.47
Niger	2011	31.5	0.01	0.01	0.01	0.01	0.02
Nigeria	2009	43	0.31	0.35	0.37	0.38	0.42
Sao Tome and Principe	2010	30.8	0.01	0.01	0.03	0.05	0.08
Senegal	2011	40.3	0.02	0.02	0.02	0.03	0.03
Sierra Leone	2011	34	0.13	0.14	0.15	0.17	0.19
South Africa	2011	63.4	1.69	1.79	1.84	1.88	1.93
Swaziland	2009	51.5	3.12	3.22	3.27	3.39	3.49
Togo	2011	46	0.09	0.13	0.14	0.17	0.2
Tunisia	2010	35.8	0.01	0.01	0.01	0.01	0.01
Uganda	2012	42.4	0.88	0.94	0.91	0.89	0.89
United Republic of Tanzania	2011	37.8	0.34	0.38	0.42	0.44	0.49
Zambia	2010	55.6	1.02	1.04	1.11	1.24	1.34

Source: World Bank, 2015; UNSD, 2015.

Annex 2: Gini coefficients and HIV prevalence in Africa, 2003-2012

	Year t	Pt	HIVt	HIVt-1	HIVt-2	HIVt-3	HIVt-4
Angola	2000	20.22	0.24	0.24	0.24	0.31	0.29
	2008	13.3	0.25	0.24	0.25	0.25	0.24
Benin	2003	27.64	0.11	0.13	0.15	0.18	0.21
	2011	22.43	0.1	0.09	0.09	0.09	0.09
Botswana	2002	16.27	0.1	0.09	0.09	0.09	0.09
Burkina Faso	1994	70.43	0.43	0.52	0.6	0.67	0.72
	1998	64.66	0.13	0.18	0.26	0.33	0.43
	2003	35.53	0.06	0.06	0.07	0.08	0.1
	2009	28.93	0.07	0.06	0.07	0.06	0.06
Burundi	1998	65.15	0.44	0.43	0.4	0.35	0.3
	2006	53.28	0.06	0.1	0.15	0.21	0.27
Cameroon	1996	19.76	0.84	0.8	0.74	0.66	0.57
	2001	7.41	0.76	0.78	0.82	0.84	0.84
	2007	11.79	0.49	0.52	0.58	0.62	0.67
Central African Republic	2003	44.38	0.53	0.66	0.8	0.96	1.07
	2008	46.56	0.27	0.29	0.32	0.36	0.45
Chad	2003	40.71	0.47	0.51	0.54	0.55	0.56
	2011	21.8	0.16	0.17	0.2	0.24	0.28
Democratic Republic of the Congo	2004	81.26	0.15	0.16	0.17	0.18	0.18
	2012	58	0.09	0.09	0.1	0.1	0.11
Cote d'Ivoire	1995	4.51	1.03	1.03	1.01	0.96	0.9
	1998	9.45	0.9	1	1.03	1.03	1.03
	2002	9.16	0.49	0.6	0.71	0.81	0.9
	2008	14.17	0.12	0.14	0.18	0.24	0.32
Djibouti	2002	7.72	0.38	0.43	0.47	0.47	0.44
	2012	10.55	0.01	0.01	0.02	0.02	0.05
Ethiopia	1995	40.91	0.74	0.71	0.64	0.55	0.44
	1999	21.4	0.46	0.57	0.66	0.72	0.74
	2004	8.15	0.07	0.11	0.18	0.26	0.35
	2010	10.93	0.02	0.02	0.02	0.02	0.02
Gabon	2005	1.78	0.43	0.52	0.66	0.76	0.85
Gambia	1998	55.88	0.15	0.13	0.11	0.09	0.07
	2003	25.38	0.21	0.21	0.2	0.19	0.17
Ghana	1998	15.56	0.31	0.33	0.35	0.35	0.35
	2005	11.08	0.14	0.17	0.18	0.21	0.23
Guinea-Bissau	2002	25.88	0.52	0.55	0.54	0.56	0.57
	2010	44.5	0.37	0.39	0.41	0.43	0.45
Kenya	1994	8.56	2.59	2.6	2.24	1.69	1.15
	1997	7.08	1.33	1.75	2.24	2.59	2.6
	2005	15.97	0.55	0.58	0.62	0.65	0.71
Lesotho	1994	57.93	3.53	2.49	1.56	0.87	0.44

	Year t	Pt	HIVt	HIVt-1	HIVt-2	HIVt-3	HIVt-4
	2002	44.18	2.91	3.13	3.43	3.84	4.26
	2010	44.25	2.38	2.65	2.82	2.75	2.7
Liberia	2007	40.45	0.06	0.07	0.1	0.13	0.17
	1999	41.99	0.07	0.08	0.09	0.11	0.12
	2005	48.3	0.07	0.08	0.08	0.08	0.07
	2010	61.46	0.03	0.03	0.04	0.05	0.06
Malawi	1997	37.87	2.43	2.43	2.4	2.35	2.32
	2004	48.5	1.61	1.8	1.98	2.14	2.27
	2010	50.05	0.63	0.74	0.87	1.03	1.21
Mali	1994	72.37	0.26	0.23	0.2	0.16	0.12
	2001	33.78	0.16	0.18	0.21	0.23	0.25
	2006	23.93	0.08	0.1	0.11	0.13	0.15
	2009	20.9	0.06	0.07	0.07	0.08	0.1
Mauritius	2006	0.07	0.22	0.21	0.18	0.17	0.17
	2012	0.08	0.05	0.1	0.1	0.11	0.1
Morocco	1998	0.83	0.01	0.01	0.01	0.01	0.01
	2007	0.56	0.02	0.02	0.02	0.01	0.01
Mozambique	1996	68.71	1.05	0.87	0.71	0.58	0.47
	2002	62.33	1.8	1.81	1.75	1.63	1.44
	2008	46.17	1.16	1.26	1.38	1.5	1.63
Namibia	2003	13.67	1.92	2.19	2.45	2.72	2.95
	2009	8.59	0.95	1	1.08	1.22	1.47
Niger	1994	64.56	0.13	0.11	0.1	0.08	0.06
	2005	53.32	0.05	0.07	0.09	0.11	0.13
	2007	45.07	0.02	0.03	0.05	0.07	0.09
	2011	16.79	0.01	0.01	0.01	0.01	0.02
Nigeria	1996	44.18	0.53	0.48	0.45	0.41	0.36
	2003	31.79	0.46	0.47	0.51	0.54	0.53
	2009	31.56	0.31	0.35	0.37	0.38	0.42
Rwanda	2000	56.41	0.33	0.38	0.43	0.48	0.54
	2005	45.85	0.22	0.23	0.25	0.27	0.3
	2010	35.26	0.15	0.16	0.17	0.18	0.19
Sao Tome and Principe	2000	9.27	0.24	0.22	0.21	0.19	0.16
	2011	16.64	0.01	0.01	0.01	0.03	0.05
Senegal	1994	30.89	0.05	0.05	0.04	0.03	0.03
	2001	22.78	0.09	0.08	0.07	0.06	0.08
	2005	16.82	0.06	0.07	0.08	0.09	0.09
Sierra Leone	2003	32.16	0.25	0.24	0.22	0.2	0.17
	2011	23.26	0.13	0.14	0.15	0.17	0.19
South Africa	1995	20.23	1.99	1.46	0.98	0.59	0.33
	2000	20.58	2.95	3.04	3.01	2.83	2.48
	2006	9.59	2.01	2.11	2.24	2.4	2.59
	2011	5.95	1.69	1.79	1.84	1.88	1.93

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	Year t	Pt	HIVt	HIVt-1	HIVt-2	HIVt-3	HIVt-4
Swaziland	1994	68.47	3.86	3.06	2.18	1.39	0.79
	2000	25.73	4.42	4.74	4.96	5.05	4.91
	2009	23.41	3.12	3.22	3.27	3.39	3.49
Togo	2006	31.68	0.23	0.29	0.34	0.41	0.48
	2011	33.86	0.09	0.13	0.14	0.17	0.2
Tunisia	1995	2.68	0.01	0.01	0.01	0.01	0.01
	2000	0.83	0.01	0.01	0.01	0.01	0.01
	2005	0.63	0.01	0.01	0.01	0.01	0.01
	2010	0.38	0.01	0.01	0.01	0.01	0.01
Uganda	1996	33.59	0.6	0.74	0.89	1.09	1.34
	2002	36.18	0.63	0.61	0.56	0.54	0.54
	2009	17.29	0.89	0.89	0.86	0.8	0.76
	2012	13.03	0.88	0.94	0.91	0.89	0.89
United Republic of Tanzania	2000	67.44	0.76	0.83	0.91	1.02	1.13
	2007	27.23	0.49	0.52	0.56	0.59	0.63
	2011	19.73	0.34	0.38	0.42	0.44	0.49
	1998	24.38	1.92	1.96	1.97	1.99	1.99
	2004	39.96	1.52	1.64	1.73	1.8	1.81
	2010	46.7	1.02	1.04	1.11	1.24	1.34

Source: World bank, 2015; UNSD, 2015.