

POLICY BRIEFS ON

ECONOMIC IMPACT OF HIV



17.

THE ECONOMICS OF HIV AND OF HIV PROGRAMMES IN THE ERA OF COVID-19

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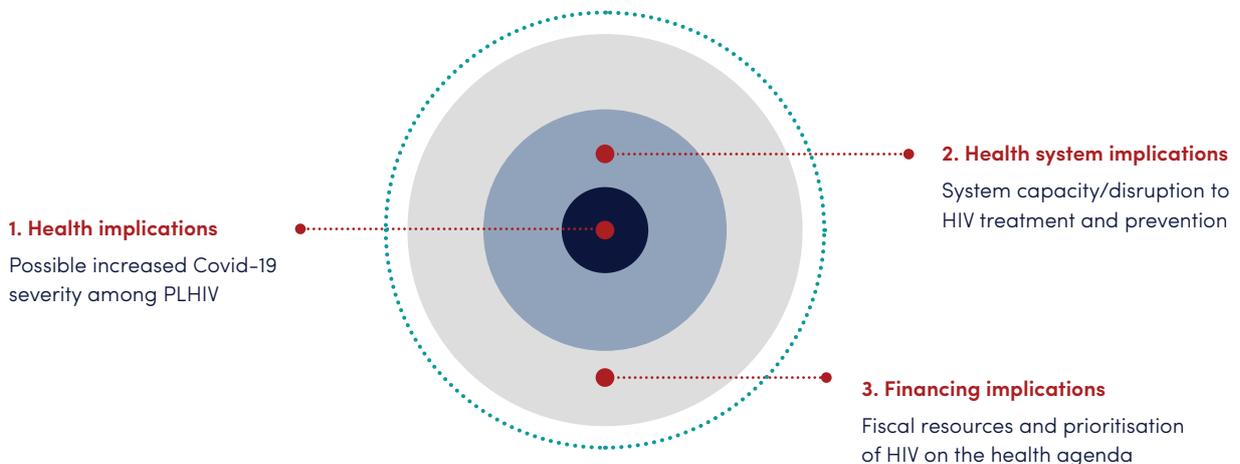
THE ECONOMICS OF HIV AND OF HIV PROGRAMMES IN THE ERA OF COVID-19

A framework for considering the impact of Covid-19 on the economics of HIV

The Covid-19 pandemic has profound negative implications for the economies of countries most affected by HIV, as well as for donor countries that support the global HIV response. It undermines underlying economic fundamentals and adds considerations for HIV policymaking. This paper explores three interrelated ways in which the Covid-19 pandemic and the response to Covid-19 affect people living with HIV and the HIV response: (1) the health impacts of

those living with or at risk of acquiring HIV; (2) healthcare capacity challenges; and (3) the consequences for domestic and global financing for HIV. These considerations affect three overlapping and increasingly large proportions of the population in low- and middle-income countries and constitute a framework that can be updated as more data on the size of the impacts become available (Figure 17.1).

Figure 17.1: A framework for the potential impacts of Covid-19 on HIV and HIV programmes



1. Individual health implications

Emerging evidence, suggests that people at risk of or living with HIV are more likely to be negatively impacted by Covid-19. While people living with HIV (PLHIV) are not necessarily at higher risk of contracting Covid-19, HIV appears to be a risk factor for the more severe forms of Covid-19 disease and death, irrespective of HIV treatment status. In addition, disengagement from care and decreased healthcare-seeking with

delayed initiation of treatment due to fear of Covid-19 have been documented. If HIV treatment for existing patients is delayed or interrupted due to the Covid-19 pandemic, this could contribute to a further spread of HIV (as treatment no longer works as prevention by suppressing viral load). Beyond this, the implications of Covid-19 for HIV prevention are complex and little understood.

2. Health system implications

Covid-19 will likely exacerbate the existing capacity constraints of healthcare systems in countries fighting both the HIV and Covid-19 epidemics. Covid-19 is changing health system priorities which, when there is a scarcity of both medical professionals and infrastructure, may result in even more disengagement and less access to HIV prevention and treatment services.

3. Financing implications

Covid-19 will reduce the amount of resources available for both domestic and donor governments, including for HIV. Covid-19 has resulted in steep fiscal deficits from (1) revenue losses due to the deteriorating economy, and (2) the fiscal costs of stabilizing businesses, providing income support to households, and funding the government response to Covid-19. Fiscal deficits result in a build-up of public debt, constraining fiscal space for years ahead. Countries relying predominantly on donor financing are particularly exposed, as donor countries have so far generally experienced a steeper macroeconomic and fiscal impact from Covid-19.

The substantial uncertainty surrounding the impacts of Covid-19 and its intersections with HIV poses immediate and longer-term programmatic challenges for HIV policies. In the short run, HIV programs need to adapt to disruptions

(e.g. in supply chains, or resource constraints) caused by the impact of and response to Covid-19. Looking beyond the Covid-19 pandemic period, the uncertainty complicates planning for financial sustainability and potentially shortens relevant policy and planning horizons, including for HIV. As a result, the framing of HIV programs in terms of health benefits and financial returns spread over the next decade(s) becomes less forceful.

The following assessment builds on various types of data available in the public domain – data on the distribution of cases of Covid-19 and HIV across countries and across population groups, emerging data on Covid-19 patients and their health outcomes, data on the use of HIV-related services as the impacts of Covid-19 and of lockdowns have been felt, and estimates and projections of the macroeconomic and fiscal consequences of Covid-19 across countries. Much of this evidence, such as the course of the Covid-19 epidemic across countries, or estimates and expectations about the economic impacts, is evolving quickly or only just emerging. Our analysis does not provide results about how Covid-19 is currently affecting the economics of HIV programs. Instead, in this highly volatile environment, it seeks to develop a framework for identifying intersections between Covid-19 and HIV, discuss the evidence available so far, and draw lessons on HIV policy challenges.

A transformed health context

Countries with high HIV prevalence did not experience early Covid-19 epidemics, but the epidemic has subsequently escalated in South Africa and some neighbouring countries.¹ As of December 8, 2020, there were 822,000 confirmed Covid-19 cases in South Africa, corresponding to 1,386 cases per 100,000 inhabitants (Figure 17.2.b). However, South Africa is one of the countries that was initially relatively successful in controlling the number of new infections – after hitting 1,000 infections per 100,000 inhabitants in early August and ranking 13th out of 179 countries in the accumulated number of cases at that time, the epidemic spread much more slowly in September to November, with a doubling time (at which the number of cases would double at current infection rates) increasing from 2 weeks in July to 10 months in October. By early December, the number of cases in South Africa was much lower than in countries like the United States (4,582 accumulated cases per 100,000) or Brazil (3,140 cases) (Figure 17.2.a). However, the country has most recently experienced a dramatic resurgence in cases, potentially in at least parts driven by the emergence of a

new SARS CoV-2 variant, N501Y, that appears to be more transmittable. This means South Africa has now joined countries in the Northern hemisphere where the number of cases had stabilized but infection numbers exploded in recent months. Among countries with high HIV prevalence, the next-highest rates of Covid-19 cases were observed in Namibia (602 per 100,000, doubling time of 3 months in week ending December 8, 2020), Eswatini (602 per 100,000, doubling time of 9 months), and Botswana (513 per 100,000, doubling time of only 6 weeks). Additionally, the number of reported cases is escalating rapidly in Kenya (166 cases per 100,000 so far, doubling time of 3 months), Uganda (51 cases per 100,000, but doubling every 7 weeks) and Zimbabwe (73 per 100,000, doubling in about two months).

¹ Comparing Covid-19 case data across countries and over time is made difficult by the unequal access to SARS CoV-2 PCR testing technology, and by changes to testing policies and coverage between and within countries over time. This makes it especially difficult to compare case data between different low- and middle-income countries (LMICs), or between LMICs and high-income countries.

Figure 17.2: Cumulative number of Covid-19 cases, selected countries, April 1, 2020 to December 8, 2020 (per 100,000)

Figure 17.2.a: Five countries with high Covid-19 case counts

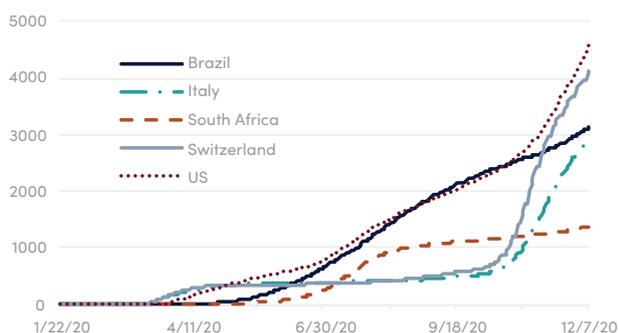
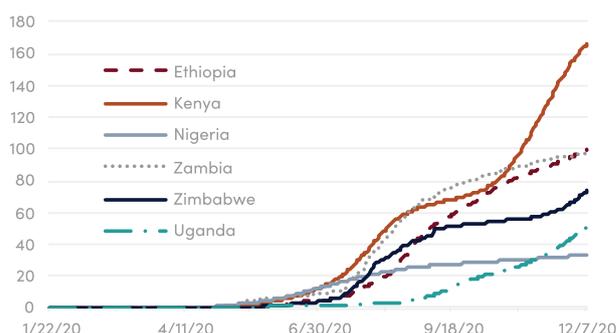


Figure 17.2.b: Six African countries



Source: CSSE/JHU (2020)

Interactions between HIV and Covid-19

Available data suggest that people living with HIV are not at greater risk of acquiring Covid-19. Boulle and others (2020), drawing on a sample of 22,308 public-sector patients with Covid-19 in South Africa (including 3,778 people living with HIV), find that HIV prevalence is slightly higher among patients diagnosed with Covid-19 than among patients not diagnosed with Covid-19 (18 percent vs. 16 percent). Data from the United Kingdom and the United States are less conclusive, because the number of people living with HIV in the sample is quite small, the data concern hospitalized patients only, and the data do not include a comparator group of patients without Covid-19. According to the most substantial study from the United Kingdom, 0.26 percent of hospitalized Covid-19 patients were HIV-positive (Geretti and others, 2020), about the same as the adult HIV prevalence of 0.23 percent (Public Health England, 2020). In New York, 0.8 percent of hospitalized patients were HIV-positive (Richardson and others, 2020), which compares to a local HIV prevalence of 1.3 percent. These comparisons between HIV-positive and other patients could be misleading, however, because serious cases of Covid-19 requiring hospitalization are concentrated in an age group (70+) where HIV prevalence is relatively low. The summary data from the three studies, which do not clearly differentiate by age, could therefore mask higher odds for people living with HIV of Covid-19 infection after controlling for age.

Emerging evidence suggests that HIV is a risk factor for the more severe forms of Covid-19 disease and death, irrespective of HIV treatment status. Boulle and others (2020) find that HIV increased the risk of mortality about two-fold when compared to HIV-negative cases (adjusted hazard ratio: 2.14; 95% confidence interval: 1.70; 2.70), and that this effect was observed whether or not people were receiving treatment or had suppressed HIV viral loads. Whilst the impact of HIV was much less than the impact of age and

some other conditions such as diabetes, it was important among those under the age of 50, and was observed among Covid-19 patients in the South Africa's Western Cape province who were well cared for with interventions such as oxygen support. Based on a sample of 47,539 Covid-19 patients from the UK (115 HIV-positive, almost all of them receiving treatment), mortality among HIV-positive patients was 1.6 times higher than mortality among HIV-negative Covid-19 patients (Geretti and others, 2020). However, both studies do not control for higher underlying mortality among HIV patients, so the additional mortality among HIV patients caused by Covid-19 is smaller than the observed difference in mortality among HIV-positive and HIV-negative patients with Covid-19.

The population of sub-Saharan Africa is relatively young, a factor that may contribute to a lower prevalence of severe COVID-19 disease. One of the most important determinants of intersections between HIV and Covid-19 is the population share of PLHIV in the 60-70 age group. Indeed, the share of the population at ages 70+ for countries shown in Table 17.1 ranges from 1.1 percent to 3.2 percent, much lower than the corresponding shares in some countries highly affected by Covid-19, such as the United Kingdom (13.7 percent) or the United States (11.2 percent). The percentage of PLHIV who are aged 70+ is similarly low, also reflecting the maturity of the HIV epidemic, and of treatment scale-up for people living with HIV.

² Global deaths from Covid-19 are concentrated in older age groups, from about age 60 or 70 (Verity and others, 2020). Since these older age groups also tend to be in poorer health, the age profile of deaths may reflect the higher prevalence of pre-existing conditions, such as hypertension and diabetes mellitus, that affect disease severity. Indeed, while mortality involving Covid-19 in March and April increased steeply with age in the UK, the share of deaths associated with Covid-19 in total was fairly stable, at about one-quarter from age 50, and a little lower, at 22 percent, at ages 40-49 (Office of National Statistics, 2020).

Table 17.1: Age, HIV status and living circumstances (selected countries)

| Source | HIV prevalence, 15+ | Share of population aged 70+ | Share of PLWH, 70+ in total PLWH (15+) | Share of PLWH, 70+ in the total population (15+) | Share of PLWH who are not virally suppressed in all PLWH (15+) | Share of PLWH who are not virally suppressed in the total population (15+) | Share of population living in urban slums |
|--------------|---------------------|------------------------------|--|--|--|--|---|
| | (1), (3) | (2) | (2) | (2) | (1) | (1,3) | (4) |
| Botswana | 22.6 | 2.6 | 1.7 | 0.27 | 17.2 | 3.9 | n.a. |
| Eswatini | 26.8 | 2.6 | 1.8 | 0.32 | 18.0 | 4.8 | 7.6 |
| Kenya | 4.4 | 1.3 | 1.5 | 0.06 | n.a. | n.a. | 14.1 |
| Lesotho | 22.6 | 3.0 | 2.2 | 0.35 | 43.7 | 9.9 | 13.5 |
| Malawi | 8.9 | 1.6 | 2.1 | 0.13 | 28.1 | 2.5 | 10.8 |
| Mozambique | 11.7 | 1.7 | 1.2 | 0.08 | n.a. | n.a. | 27.2 |
| Namibia | 11.8 | 2.2 | 2.1 | 0.19 | 11.9 | 1.4 | 15.2 |
| Nigeria | 1.5 | 1.5 | 1.1 | 0.02 | n.a. | n.a. | 23.6 |
| South Africa | 17.7 | 3.2 | 2.0 | 0.24 | 45.8 | 8.1 | 14.8 |
| Uganda | 5.2 | 1.1 | 1.5 | 0.05 | 34.8 | 1.8 | 11.5 |
| Tanzania | 4.3 | 1.5 | 1.8 | 0.05 | 36.8 | 1.6 | 15.7 |
| Zambia | 11.5 | 1.2 | 1.6 | 0.11 | 41.7 | 4.8 | 22.3 |
| Zimbabwe | 14.1 | 1.8 | 1.7 | 0.15 | n.a. | n.a. | 8.2 |

Sources: (1) WHO (2020b), (2) World Bank (2020b), (3) Kavanagh and others (2020).

Many population groups vulnerable to HIV – including prisoners, migrants, and sex workers – are also at greater risk of acquiring Covid-19 and suffering worse outcomes.

This is well documented for prison populations, considered a key population at risk of HIV and also one experiencing extremely high rates of infection with Covid-19, owing to overcrowding and poor sanitary conditions. In the United States, 7 of the 10 largest local clusters of Covid-19 occurred in prisons (New York Times, May 25, 2020), and this is likely to be more pronounced in countries where prison populations are housed more densely. For example, isolated prison outbreaks fuelled the early rise in cases in South Africa's Eastern Cape province (News24, May 19, 2020). Another population at high risk of both HIV and Covid-19 is migrants, owing (for Covid-19) to often dense living conditions and (for both) to suboptimal healthcare access. Sex workers, due to the nature of their work, are also at high risk of contracting Covid-19, but the principal impact for them may be economic, owing to lockdowns and reduced demand for their services.

According to evidence mostly from advanced countries, the impact of Covid-19 is distributed unevenly across

the population, not only by age but also according to socioeconomic factors, some of which intersect with HIV risk factors. In Singapore, 88 percent of Covid-19 cases were recorded among migrant workers living in foreign-worker dormitories, which account for about 5 percent of the total population; this means that the incidence of Covid-19 among these migrant workers was 130 times higher than for the rest of the population (Koh, 2020). In the United Kingdom, age-standardized mortality owing to Covid-19 in the most deprived areas is 2.2 times higher than in the most affluent ones (ONS, 2020b), compared to a factor of 1.9 for all-cause mortality. This indicates that the impact of Covid-19 in part replicates existing inequities in health between socio-economic strata (e.g., by intersecting with pre-existing health conditions which are reflected in higher all-cause mortality), but it also exacerbates such inequities. The causes of these discrepancies by socio-economic categories are not yet well understood, and could reflect a combination of dense living conditions, inability to adopt social distancing at work or to take time off from work for quarantining, and health-related factors (e.g. prevalence of diabetes), as well as weaker health systems and poorer health care access in these areas.

The implications of this socio-economic gradient of Covid-19 for the economics of HIV are complex. Covid-19 disproportionately affects poorer households, and these households are more exposed to the macroeconomic consequences of Covid-19. In turn, Covid-19 is likely to magnify poverty-related HIV risks, both in terms of risk behaviour and the health prospects of people living with HIV; for example, food insecurity has been greatly exacerbated in countries such as South Africa (Spaull and others, 2020), and poor nutrition is a risk factor for HIV disease progression as well as for less access to effective care and treatment. However, while some aspects of the risk of contracting HIV are linked to economic disadvantage, the overall picture of the socio-economic gradient of HIV is not consistent across countries (e.g. HIV prevalence is higher in poorer populations in some countries, but lower in others).

Importantly, Covid-19 adversely impacts health care use by people living with HIV. For example, lapses in engagement in care or delayed initiation of treatment due to Covid-19 have been documented. In South Africa, the number of CD4 cell count tests (a marker for treatment initiation) declined by one-third during the most restrictive phase of the country's lockdown, and the number of viral load tests (a marker for engagement in care of people receiving treatment) declined by 22 percent over the same period (Mahdi and others, 2020). These developments (and even more pronounced drops in TB tests) likely reflect the difficulties in accessing treatment during lockdown, with reduced transport capacities, or concerns about the risk of Covid-19 infection when accessing health services. These estimates are consistent with recent household survey data from South Africa, according to which nearly 40 percent of respondents with a chronic condition (including but not only HIV) "could not access medicine, condoms or contraception" (Spaull and others, 2020).

A transformed health systems context

The absorption of health sector resources by Covid-19 exacerbates existing healthcare system capacity constraints in countries fighting both epidemics, and may result in less access to HIV treatment and prevention services due to a scarcity of both medical professionals and infrastructure.

The current and impending demand for care and treatment for patients with Covid-19 poses immediate and longer-term challenges for the HIV response. In the short run, health-care staff and facilities cannot be expanded significantly, and increased demand in response to a health emergency may have to be met by re-allocating resources away from other health services such as HIV. Service disruptions in the area of HIV, in turn, have the potential to contribute to higher HIV incidence and thus a growing burden of HIV in the future.

The availability of human resources, including to treat Covid-19, in countries severely affected by HIV is often very limited (especially considering that they already experiencing the severe health shock of HIV) and is also highly uneven across countries (see Table 17.2). However, comparing per capita availability of doctors, nurses, and hospital beds across countries does not tell the full story. Effective care for patients suffering severe complications from Covid-19 requires intensive care and high-flow oxygen therapy, which are largely unavailable in countries facing severe HIV epidemics, apart from South Africa (Walker and others, 2020); in these countries, peaking Covid-19 epidemics have drastically reduced inpatient resources for other patients, including those living with HIV.

Emerging evidence suggests that Covid-19 and the disruptions associated with the response to it are already having an effect on the provision of services to people living with HIV. The World Health Organization (2020) reports that 36 countries (home to almost one-half of people living with HIV) reported some disruptions in the provision of antiretroviral treatment services between April and June 2020, and assessed that 73 countries were facing risks of service disruptions, reflecting factors including production shut-downs, capacity constraints such as health worker shortages, or restrictions of movement because of lockdowns.

In terms of testing for Covid-19 and tracing contacts – if enough test kits are indeed made available by manufacturers – countries facing severe HIV epidemics may be in a better position than otherwise similar countries, if community health assets used for HIV outreach and testing are utilized for Covid-19, and if testing draws on the same strengthened lab infrastructure used by (and often developed in support of) HIV programs. Programmes for dispensing medicines for chronic illness, developed in support of HIV programmes, can likewise help buffer the impact of Covid-19-related disruptions to HIV and other chronic care.

Two recent modelling studies suggest that disruptions in HIV treatment could increase AIDS-related mortality by about 50 percent if health systems are overwhelmed by an unfettered Covid-19 epidemic (Jewell and others (2020), Hogan and others (2020), the latter also addressing

Table 17.2: Indicators for health sector capacities (selected countries)

| Source | Health expenditures per capita, 2017 | | | | Health sector capacity, latest available year | | | HIV tests |
|-----------------------|--------------------------------------|------------|----------|---------|---|---------------------|---------------|-------------------|
| | Total | Government | External | Private | Physicians | Nurses and midwives | Hospital beds | (Q4 2019) |
| | (1) | | | | (2) | | | (3) |
| | (US\$) | | | | (per 1,000 population) | | | (% of population) |
| Botswana | 466 | 353 | 45 | 69 | 0.37 | 3.30 | 1.8 | 1.5 |
| Eswatini | 225 | 114 | 53 | 57 | 0.08 | 2.00 | 2.1 | n.a. |
| Lesotho | 105 | 66 | 21 | 17 | 0.07 | 0.65 | 1.3 | n.a. |
| Malawi | 32 | 10 | 17 | 5 | 0.02 | 0.25 | 1.3 | 5.5 |
| Mozambique | 21 | 6 | 13 | 2 | 0.07 | 0.44 | 0.7 | 5.8 |
| Namibia | 447 | 206 | 18 | 223 | 0.37 | 2.78 | 2.7 | n.a. |
| South Africa | 499 | 268 | 10 | 222 | 0.91 | 3.52 | 2.8 | 12.3 |
| Tanzania | 34 | 15 | 11 | 8 | 0.04 | 0.41 | 0.7 | 2.4 |
| Zambia | 68 | 26 | 29 | 13 | 0.09 | 0.89 | 2.0 | 5.2 |
| Zimbabwe | 110 | 57 | 16 | 37 | 0.08 | 1.15 | 1.7 | 4.3 |
| China | 441 | 250 | 0 | 191 | 1.7 | 2.1 | 4.2 | n.a. |
| Italy | 2 840 | 2 099 | 0 | 741 | 4.1 | 5.9 | 3.4 | n.a. |
| Spain | 2 506 | 1 770 | 0 | 736 | 4.1 | 5.5 | 3.0 | n.a. |
| United Kingdom | 3 859 | 3 064 | 0 | 794 | 2.8 | 8.3 | 2.8 | n.a. |
| United States | 10 246 | 5 139 | 0 | 5 107 | 2.6 | 8.6 | 2.9 | n.a. |

Sources: (1) WHO (2020b), (2) World Bank (2020b), (3) Kavanagh and others (2020).

excess mortality from TB and malaria). According to these studies, effective suppression of Covid-19, by delaying and mitigating the peak in demand for Covid-19 health services, would also be effective in preventing many of the excess HIV deaths. In this sense, investments in controlling Covid-19 may positively contribute to the HIV response, and decisions regarding the allocation of financial resources between HIV, Covid-19, and other health challenges need to take into account such non-financial capacity constraints.

The consequences of Covid-19 for health care access for people living with HIV could result in increased HIV incidence, whether through reduced viral suppression as people living with HIV access treatment later, or because they are monitored less effectively and do not achieve or maintain viral suppression on treatment, or through disruptions to HIV prevention programs. Some of these disruptions may have

small effects if they are of short duration (e.g. viral monitoring or interventions aimed at reinforcing HIV prevention awareness), others would have an immediate impact (e.g. disruption to mother-to-child-transmission programs, condom supplies, or delays in treatment initiation). One factor that is not well understood is the effect of physical distancing measures, which could lead to a reduction in risky sex (Jewell and others, 2020). While this could offset some of the negative effects of service disruptions on HIV incidence, it does not invalidate the concerns about the negative consequences of the service disruptions. An effective response to Covid-19 (and HIV) requires that these disruptions are mitigated by ensuring continuation of the most essential services and accelerating efforts to improve the effectiveness of treatment delivery (e.g. through differentiated care and multi-month dispensing of drugs).

A transformed economic and fiscal context

Covid-19 has caused arguably the deepest global recession since the Great Depression, although at this point most observers expect that it will be shorter. The IMF (2020) estimates that global GDP will contract by 4.4 percent in 2020, which represents a decline in economic growth by 7.2 percentage points (Table 17.4). Economic growth in advanced economies is projected to decline by 7.5 percentage points between 2019 and 2020, and in emerging markets and developing economies is projected to drop by about 7 percentage points. For 2021, the IMF projects a partial recovery, with global economic growth higher than before the recession, but not enough to make up for the contraction in 2020. These estimates primarily reflect the disruptions caused by lockdowns and their gradual easing. Looking ahead, it is plausible that global GDP will for many years remain lower than had been projected before the economic shock triggered by Covid-19 hit, to the extent that investment is delayed because of high

uncertainty or displaced by the financial costs caused by Covid-19.

Decreased economic growth is also projected in countries facing severe HIV epidemics. In sub-Saharan Africa, for example, economic growth is projected to drop by about 6 percentage points (from 3.1 percent to -3.2 percent; see Table 17.3), and by 8 percentage points in South Africa, which also strongly impacts neighbouring economies (including countries with the highest HIV prevalence anywhere). Such estimates of GDP growth (at constant prices), though, understate the implications of the economic shock if the economic contraction is associated with a terms-of-trade shock or a depreciation of the currency. For example, for a country depending on oil exports, whatever the change in GDP at constant prices (including constant oil prices), the value of output in terms of purchasing goods and funding imports would drop steeply as the price of oil is projected to be over 40 percent lower in 2020 than in 2019, and government revenues would contract much more than GDP. This distinction is important – in Angola, dependent on oil exports, the value of GDP in US\$ terms contracted by 30 percent in 2020, even though real GDP declined by only 4 percent. And in South Africa, Zambia, and Zimbabwe, GDP in US\$ terms declined by about 20 percent or more (i.e., by much more than real GDP).

Table 17.3: Projected economic growth, selected countries, 2018–2021

| | 2018 | 2019 | 2020 | 2021 |
|---|-----------|-----------|-----------|-----------|
| | (percent) | (percent) | (percent) | (percent) |
| World | 3.6 | 2.9 | -4.9 | 5.4 |
| Advanced Economies | 2.2 | 1.7 | -8.0 | 4.8 |
| Japan | 0.3 | 0.7 | -5.8 | 2.4 |
| Germany | 1.5 | 0.6 | -7.8 | 5.4 |
| United States | 2.9 | 2.3 | -8.0 | 4.5 |
| United Kingdom | 1.3 | 1.4 | -10.2 | 6.3 |
| Emerging Market and Developing Economies | 4.5 | 3.7 | -3.0 | 5.9 |
| China | 6.7 | 6.1 | 1.0 | 8.2 |
| Sub-Saharan Africa | 3.2 | 3.1 | -3.2 | 3.4 |
| Nigeria | 1.9 | 2.2 | -5.4 | 2.6 |
| South Africa | 0.8 | 0.2 | -8.0 | 3.5 |

Sources: IMF (2020b).

These economic projections are subject to extreme uncertainty, arising especially from the spread of the pandemic, the pace and the effectiveness of vaccination campaigns, and the nature of its unprecedented economic shock are the key factors underlying the economic uncertainty. For example, in the United States, the number of Covid-19 cases doubled in just two months between October 8 (just before the latest IMF WEO projections were published) and December 8, which necessitated new restrictions on economic activity. This an escalation likely invalidates the IMF's assumption of a gradual recovery in one of the world's biggest economies through the second half of 2020 as the epidemic is gradually brought under control. As vaccinations are just beginning to be rolled out, there is little experience at this time on their long-term effectiveness and especially on the duration of protection they offer. The other source of uncertainty is the nature of the economic shock, which on this global scale is unprecedented. In particular, the impact of ongoing restrictions on the global economy through disruptions in trade, travel, and production chains, and the speed at which economies could recover once those restrictions are lifted, are not well understood.

This era of severe macroeconomic uncertainty has several important consequences for HIV policy and planning. First, an uncertain outlook means that the focus of policymakers is more strongly oriented towards the short term. Existing HIV analytical tools and policies that may rely on time horizons extending over a decade or more become less persuasive. Second, planning for an HIV policy that is financially sustainable becomes much more challenging, given the uncertainty around the availability of domestic public and external financing. This is especially detrimental to countries that have been trying to increase domestic financing for HIV.

In addition to the economic contraction, Covid-19 is resulting in reduced government revenue and increased government expenditures, and consequently increased fiscal deficits. Across sub-Saharan Africa, government revenues are projected to decline by US\$ 53 billion (IMF

(2020), and by 2.0 percentage points relative to GDP (from an average of 17.1 percent of GDP in 2019 to 15.1 percent of GDP in 2020). These declines are very substantial, meaning that revenues drop by 18 percent in US\$ terms, and by 12 percent relative to (and on top of the decline in) GDP. This loss in government revenue, however, is distributed unevenly. Exporters of oil and other commodities, and countries dependent on tourism, are particularly severely affected.

The value of fiscal measures announced so far in response to Covid-19 amounts to about US\$ 11.7 trillion globally, or 12 percent of global GDP (IMF, 2020b). Of these, about one-half reflect additional spending or tax breaks, while the other half represents liquidity support to companies in the form of loans and guarantees. In most countries, expenditures on health-related measures are dwarfed by "other" expenditure and foregone revenue, which includes measures of income support to households, grants to businesses, and broad measures to stimulate the economy such as tax cuts (Table 17.4).

While there is large variation in the value of fiscal measures across countries, there are also important systematic differences between countries at different levels of economic development. First, the fiscal response in terms of expenditure and foregone revenue is much stronger in advanced economies (8.4 percent of GDP) than in emerging markets (3.9 percent of GDP) or in low-income developing countries (1.6 percent of GDP). Second, non-health spending dominates across all countries but plays a relatively smaller role in low-income countries (about 80 percent of the total value of expenditure and foregone revenue) than in middle- or high-income countries (about 90 percent, respectively). The most pronounced differences across countries, though, occur with respect to equity injections, loans, and guarantees, which amount to 9.7 percent of GDP in advanced economies but only 2.2 percent of GDP in emerging markets, and 0.3 percent of GDP in low-income countries.

Table 17.4: Fiscal costs of Covid-19 response, selected countries

| | Expenditure and foregone revenue | | | Equity, loans & guarantees |
|------------------------------|----------------------------------|--------|-------|----------------------------|
| | Total | Health | Other | |
| | (percent of GDP) | | | |
| 37 Advanced Economies | 8.4 | 0.8 | 7.6 | 9.7 |
| Germany | 8.3 | 0.7 | 7.7 | 30.8 |
| Japan | 11.3 | 1.0 | 10.3 | 23.7 |
| United Kingdom | 9.2 | 1.5 | 7.6 | 16.6 |
| United States | 11.8 | 1.5 | 10.3 | 2.5 |

Table 17.4: Fiscal costs of Covid-19 response, selected countries

(continued)

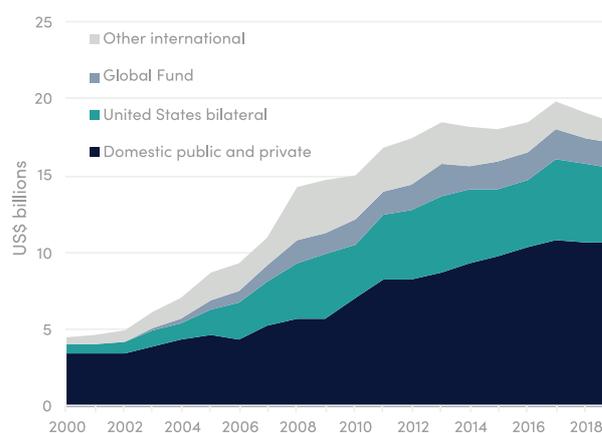
| | Expenditure and foregone revenue | | | Equity, loans & guarantees |
|---|----------------------------------|------------------|-------|----------------------------|
| | Total | Health | Other | |
| | | (percent of GDP) | | |
| 87 Emerging Markets | 3.9 | 0.3 | 3.4 | 2.2 |
| China | 4.6 | 0.1 | 4.5 | 1.3 |
| Eswatini | 2.8 | 0.4 | 2.5 | n.a. |
| Namibia | 1.1 | 0.6 | 0.6 | 1.3 |
| South Africa | 5.3 | 0.4 | 4.9 | 4.3 |
| 56 Low-Income Developing Countries | 1.6 | 0.3 | 1.3 | 0.3 |
| Democratic Republic of the Congo | 1.1 | 0.2 | 0.9 | n.a. |
| Ethiopia | 1.5 | 0.5 | 1.0 | 0.6 |
| Malawi | 0.2 | 0.2 | 0.0 | n.a. |
| Mozambique | 4.8 | 0.8 | 4.0 | n.a. |
| Nigeria | 1.5 | 0.3 | 1.2 | n.a. |
| Zambia | 2.1 | 0.3 | 1.8 | 0.3 |
| Zimbabwe | 4.8 | 0.1 | 4.7 | n.a. |

Sources: IMF (2020b), using IMF country classifications.

Domestic and global HIV financing

As of 2019, US\$ 18.6 billion was being spent on HIV in low- and middle-income countries, of which domestic financing accounted for 57 percent (UNAIDS, 2020). Global HIV spending has broadly stagnated in nominal (US\$) terms since 2013 (apart from a peak attained in 2017). The share of domestic funding has gradually increased over the last years, and by 10 percentage points between 2013 (when it stood at 47 percent) and 2019 (Figure 17.3). Over this period, funding from the US government and through the Global Fund was broadly stable in nominal terms, but direct contributions from other international sources (mainly direct bilateral support for HIV programs) declined by nearly one-half. In relation to economic capacities (and taking into account the appreciation of the US\$ over this period), the funding trends are consistent with a declining emphasis on financing of the global HIV response both in the United States (the nominally constant contributions mask a decline of about 20 percent relative to US GDP between 2013 and 2019) and other donor countries.

Figure 17.3: Resources for HIV across low- and middle income countries by funding source, 2000–2019



Source: UNAIDS, accessed online on July 26, 2020 at <http://hivfinancial.unaids.org/hivfinancialdashboards.htm>

These global aggregates, however, mask important differences in the role of domestic financing of HIV programs across regions and countries. Regionally, much of the increase in domestic financing took place in Latin America (accounting for about one-half of the global increase), whereas in Eastern and Southern Africa total spending, and the contributions from different sources, were broadly stable in 2013–2019. As is well known, contributions from external sources and domestic resources, respectively, differ greatly

among countries, with external resources accounting for around 90 percent or more of HIV spending in some low-income countries (Table 17.5). For countries with higher GDP per capita, this share gradually declines. In this regard, external support for HIV programs resembles development assistance for health, or development assistance overall. However, HIV stands out, as the role of external funding tends to be larger than for health financing overall, especially for middle-income countries.

Table 17.5: HIV financing: contribution of domestic financing varies across countries

| Country | PLWH | HIV prevalence | GDP per capita | HIV spending | | |
|---------------------|----------------|---------------------|----------------|--------------|------------|--------------------|
| | | | | per capita | per PLWH | Domestic financing |
| | Millions, 2019 | %, ages 15–49, 2019 | US\$, 2019 | US\$, 2017 | US\$, 2017 | % of total, 2017 |
| Brazil | 0.899 | 0.5 | 8 751 | 8 | 1 840 | 99.7 |
| Kenya | 1.560 | 4.7 | 2 004 | 18 | 553 | 50.5 |
| Malawi | 1.049 | 9.2 | 378 | 17 | 302 | 14.8 |
| Mozambique | 2.185 | 12.6 | 488 | 12 | 163 | 7.7 |
| Nigeria | 1.909 | 1.5 | 2 230 | 2 | 233 | 37.5 |
| South Africa | 7.740 | 20.4 | 5 978 | 38 | 290 | 80.1 |
| Tanzania | 1.555 | 4.6 | 1 080 | 9 | 283 | 11.4 |
| Uganda | 1.388 | 5.7 | 916 | 11 | 279 | 17.4 |
| Zambia | 1.241 | 11.3 | 1 318 | 18 | 250 | 14.1 |
| Zimbabwe | 1.305 | 12.7 | 1 254 | 17 | 177 | 30.0 |

Source: UNAIDS (2020b), IMF (2020), and IHME (2020)

Taking into account the different configurations in terms of countries' reliance on domestic and external financing, and evidence and projections on the macroeconomic and fiscal consequences of Covid-19, there are a number of consequences for the sustainable financing of HIV programs:

Covid-19 will reduce the amount of resources available for both domestic and donor governments to spend on HIV.

This is predominantly a consequence of the macroeconomic repercussions of Covid-19 rather than the financial resources absorbed by the health-sector response, as the latter typically accounts for only about one-tenth of the fiscal costs of Covid-19 in low- and middle-income countries, and about one-fifth in developing countries. Thus, the principal determinant of resource availability is the depth of the macroeconomic shock, and its fiscal consequences in terms of lost revenues and government spending on mitigating

the fallout from this shock on enterprises and individuals. This suggests that two types of countries are particularly exposed to shortfalls in HIV financing:

- Countries relying predominantly on donor financing. Donor countries have generally experienced a steeper fiscal impact. The United States, the main source of external HIV funding, is experiencing a deteriorating and highly unpredictable fiscal situation.
- Countries experiencing steep declines in government revenues as a consequence of a negative terms-of-trade shock. For example, oil exporters such as Nigeria are suffering from the decline in oil prices triggered by the global economic impact of Covid-19, while countries depending on revenues from tourism have been impacted by the large-scale international travel bans.

Over the longer term, the fiscal measures in response to Covid-19, and the resulting higher fiscal deficits, will constrain fiscal space through an accumulation in public debt. The relevance of this aspect can be gauged by comparison with the consequences of the global financial crisis of 2008–09. That crisis also resulted in steep increases in fiscal deficits, of the same order of magnitude as the estimated emerging impacts of Covid-19 though typically somewhat smaller, and more concentrated in advanced economies. Advanced economies are especially exposed because many of them rely extensively on loans and guarantees to stabilize businesses affected by Covid-19. This is not included in fiscal deficits so far, but it represents a contingent liability – if the crisis persists some of these loans may have to be written off, and guarantees be called, adding substantially to the fiscal deficits recorded so far.

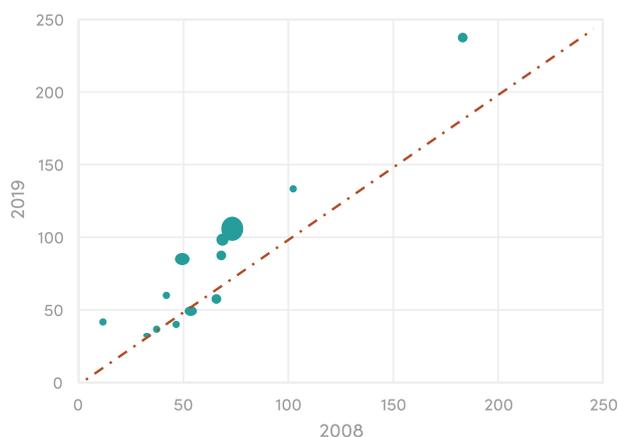
This build-up in debt could be very significant and sustained, judging from the experience of the 2007–08 global financial crisis; HIV donor countries are in a much worse position to manage the consequences of an economic shock than they were in 2008. For example, in countries like the United States and the United Kingdom, public debt increased by about 40 percentage points of

GDP during the financial crisis and its aftermath, and has not come down from this level. Overall, the level of public debt in principal HIV donor countries (13 countries identified by Kates, Wexler, and Lief (2020), accounting for 98.1 percent of all disbursement of external HIV funding in 2019) has increased from 72 percent of GDP to 101 percent of GDP (weighted average, applying the disbursements made in 2019 as weights), or from 65 percent of GDP to 86 percent of GDP if the United States are excluded (Figure 17.4.a).

Public debt in countries facing a high HIV burden has doubled between 2008 and 2019, from 29 percent of GDP to 58 percent of GDP (average weighted by number of people living with HIV in each country, covering all countries with HIV prevalence of at least 1 percent) (Figure 17.4.b). This increase occurred gradually and was mostly unconnected to the 2008–09 financial crisis (which affected most strongly and directly high-income countries). As a consequence of this build-up in public debt, countries facing a high HIV burden are now in a worse position to manage the economic shock through expansionary fiscal policy, and to isolate priority expenditures like health spending or HIV programs from the economic disruptions.

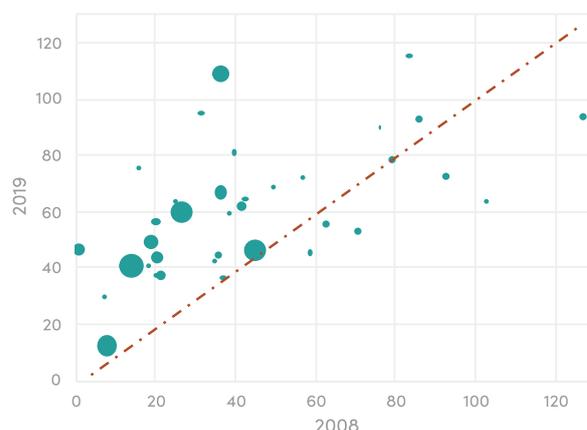
Figure 17.4: Gross public debt, selected countries, 2008 and 2019

Figure 17.4.a: Gross public debt in donor countries supporting HIV programs (percent of GDP)



Source: IMF (2020) for public debt. Bubble size increases (less than proportionally) with size of disbursements in 2018.

Figure 17.4.b: Gross public debt in countries with HIV prevalence (ages 15–49) exceeding 1 percent (percent of GDP)



Source: IMF (2020) for public debt. Bubble size is proportional to HIV prevalence in 2019 (source: UNAIDS, 2020b).

The capability of many governments in countries with high HIV prevalence to respond to Covid-19 is compromised by limited access to financial markets. Capital has been flowing out of emerging markets and developing economies since the global spread of Covid-19 and its

potential economic consequences have become apparent. For example, capital outflows from sub-Saharan Africa amounted to US\$ 5 billion in February to May 2020 (IMF, 2020c), followed by a modest rebound (an inflow of US\$ 1.3 billion in June to September). Additionally, private

remittances – which normally increase when a developing country experiences a crisis – are projected to drop by 20 percent (IMF, 2020c). Interest rates have increased by up to 1,000 basis points (10 percentage points) for bonds issued by governments in sub-Saharan Africa, much higher than during the global financial crisis, and remain higher than before the onset of Covid-19 by about 4 percentage points (IMF, 2020c). These high costs of borrowing add to the strain on public finances when existing debt needs to be repaid or refinanced at a higher interest rate, and compromise the government's capability to manage the revenue shortfalls and acute expenditure needs as a consequence of Covid-19.

Where governments are shut out of financial markets, or face very high borrowing costs, international financial institutions like the International Monetary Fund (IMF) or the World Bank may fill the gap. The IMF so far has released financial assistance amounting to US\$ 83 billion to buffer the impact of Covid-19. In countries facing a high HIV burden, these

loans so far typically amounted to between 1 and 2 percent of GDP (but spread over several years, so the annual contribution is smaller), e.g. in Malawi (1.2 percent of GDP), Mozambique (2.0 percent of GDP), Rwanda (2.2 percent of GDP), and Uganda (1.6 percent of GDP), and Kenya (exceptionally, 8 percent of GDP). The World Bank (2020) has pledged US\$ 160 billion to help developing countries manage the consequences of Covid-19. The first round of support from the World Bank under this umbrella, though, was relatively small (total of US\$ 1.9 billion, distributed over 25 countries), focusing on funding immediate needs of the Covid-19 response. Overall, these loans or grants appear to cover only a small proportion of the size of the fiscal shock caused by Covid-19, which means that countries' HIV responses could face acute competing demands and pressures for expenditure cuts across low- and middle-income countries.

Discussion

Covid-19 poses immense challenges for countries facing severe HIV epidemics. This applies in particular to Southern Africa, where Covid-19 infections have been taking off in countries which are also facing the highest rates of HIV prevalence globally. With low health-sector capacities that are already coping with a severe idiosyncratic health shock wrought by HIV, and emerging evidence that Covid-19 is already compromising access to effective care by HIV patients, it is likely that an escalation of Covid-19 will result in disruptions of HIV prevention and treatment services.

The consequences of Covid-19 for HIV policies fall into two categories. First, the economic outlook has deteriorated sharply, so that prior expectations on resource availability for HIV programs may not play out. Second, Covid-19 – by disrupting service delivery or absorbing specific health sector resources – poses direct challenges to the continuity or scaling up of HIV services.

Covid-19 has triggered arguably the steepest global recession since (though much smaller than) the Great Depression starting in 1929. One immediate consequence of the economic crisis and its fiscal repercussions is the fact that there is less funding available for HIV or any other purpose. This will test assumptions about what constitutes politically and financially sustainable HIV programming.

Beyond the current financial pressures owing to reduced fiscal revenues and increased expenditure needs, the economic crisis caused by Covid-19 means that there will

be less funding available over the coming years as well. In part this is because the economic recovery may be slower than anticipated, especially for the United States, which is currently experiencing an escalation of Covid-19, and which of course is the biggest funder of the global HIV response. The other reason is that current spending needs are partly met by increased borrowing, resulting in increased public debt. It is possible that the consequences of this build-up in debt will be more severe than following the global financial crisis of 2008–09, because major donors and most developing countries start with a level of public debt that is much higher than before the global financial crisis.

A third factor that may limit availability of funding for HIV programs is the increased uncertainty. While observers agree that the current recession will be of much shorter duration, the possibility of second and onward waves of Covid-19, the resulting need to impose new restrictions on economic activities and movement, and the lack of experience in addressing such a joint health and economic crisis, introduce tremendous uncertainty to the economic picture. This creates a challenge for HIV policy planning and advocacy. HIV is a chronic disease, and the consequences of current HIV policies, in terms of providing effective HIV prevention and treatment, are spread over decades. The pressing and acute economic and health concerns linked with Covid-19 could affect the time horizons relevant for policymaking, rendering investment cases built around longer-term strategies (e.g. towards “ending AIDS”) less persuasive.

For service delivery, there are immediate challenges to HIV programs arising from disruptions both in accessing available services by people living with HIV (e.g. because of concerns about visiting health centres, or transport disruptions) and the delivery of services (e.g. through disruptions to supply chains, or resource constraints). The potential consequences of disruptions in HIV services have been illustrated by several modelling studies suggesting that HIV mortality could increase by one-half if health systems are overwhelmed by an unfettered Covid-19 epidemic (Jewell and others (2020), Hogan and others (2020)). In the longer run, such disruptions have the potential to slow down progress in controlling HIV and towards “ending AIDS” (notwithstanding any short-term gains which may arise through social distancing during lockdowns).

In the immediate term, strategies to mitigate such disruptions include measures to accelerate transitions to HIV service delivery modalities that economize on human resources (e.g. extending drug dispensation cycles for stable patients), and dedicated funding to overcome specific bottlenecks which have a high potential for disrupting services (e.g. distribution of drugs and others medical supplies).

Over the coming years, much will depend on the course of the Covid-19 pandemic, the speed of the economic recovery, and the depth of the lingering fiscal consequences (e.g. through a build-up in debt). Much of this is speculation at this stage, but there are a few lessons so far on how these challenges may be approached. Where established narratives on HIV control are no longer politically or financially feasible, these will have to be adapted, while preserving gains and momentum towards “ending AIDS” as much as possible. More generally, it may be necessary for policy discourse to take a non-HIV-specific but health systems perspective (or an even wider one, incorporating economic repercussions), as financial and health sector capacities on HIV are in part shaped by the effectiveness of efforts to control Covid-19, and because Covid-19 may have disproportionate consequences for people living with HIV. Consequently, where countries face a dual challenge of a severe HIV epidemic and a large impending Covid-19 shock, joint planning and effective resource prioritization will be important, protecting essential health services through effective suppression of Covid-19 while effectively prioritising HIV and other health services to enable the Covid-19 response.

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