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The fight against HIV/AIDS must be brought into balance

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In the last two decades the financial resources that have been provided by multilateral and bilateral donors as well the Global Fund to fight against the spread of HIV/AIDS in Sub-Saharan Africa have increased tremendously. The sum of these resources far exceeds the budgets available for many other urgent health problems and remains sequestered in largely disease-specific, vertical structures. We see this development as problematic for two main reasons.

First, HIV/AIDS has a much smaller impact on the economy than assumed by many at the start of the epidemic, raising questions regarding the exceptionality of HIV/AIDS relative to other health problems. Second, there are strong and valid concerns about the relative importance of sexual transmission of HIV in high prevalence settings, bringing into question the vast resources devoted to sexual behavior change programs as the dominant prevention interventions in SSA. Recent evidence rather suggests that an important share of new infections in high prevalence settings occurs through blood exposures in formal and informal healthcare. This implies that most prevention programs that seek to modify sexual behavior are ineffective in stemming the epidemic while the potentially highly policy-sensitive area of ensuring infection control in health settings goes largely

neglected.

In what follows we discuss both arguments in more detail and then close with some recommendations on how to revise current HIV/AIDS policies.

The social and economic costs of HIV/AIDS are overestimated relative to those implied by other diseases

In 2001, the United Nations Development Program warned that AIDS had become the primary obstacle to economic development and the principal factor of destruction of economic progress in Sub-Saharan Africa.¹ Since then many other organisations, and in particular the specially created UN initiative to fight AIDS -‘UNAIDS’- have continually emphasized the disastrous effects of HIV/AIDS on economic growth and poverty reduction. In 2008, Ban Ki-moon, Secretary General of the UN stated: ‘Halting the spread of AIDS is not only a goal within itself; it is a prerequisite for reaching almost all the other Millennium Development Goals (MDGs)’.²

Rigorous empirical evidence that would back such a strong statement is still awaited. The main problem is, of course, the lack of a reliable counterfactual, i.e. an answer to the question: “How would sub-Saharan African countries fare today without the HIV/AIDS

epidemic?”

Studies based on Computable General Equilibrium Models which attempt to assess the economic consequences of HIV/AIDS - mostly in a medium-term perspective, i.e. in a five to fifteen year horizon - usually find that the epidemic reduces economic growth in the high prevalence countries in Southern-Africa by 1 to 2%-points annually. Some studies including those based on cross-country regression analysis find even much smaller and often insignificant effects in the form of a reduction of economic growth rates by 2 to 4% per year.³ Paradoxically, such results are often incorrectly presented as implying major economic change as people confuse ‘percent’ with ‘percentage-points’.

A growth rate of 3% that is reduced by 4% still stands at 2.885%. This is hardly a disastrous impact, even if we assume that it would be a time-persistent effect. Were we to have an impact of 4%-points, the growth rate would indeed stand at -1%, and this, without a doubt, would be very dramatic.

The effect highlighted by Computable General Equilibrium Models usually stems from reduced labour supply, a decline in the average level of human capital and thus labour productivity, and cuts in savings and investment. Some studies also consider the destruction of social capital, such as trust and other institutions. All of these effects are, however, partly offset by a simultaneous decline in population growth leading to a higher per capita capital stock and, as long as the assumption of an open economy is made, from an inflow of foreign capital. The latter may happen if - as neoclassical theory predicts - returns on capital are negatively related to the stock of capital. Whether this applies to SSA and to countries severely hit by the AIDS epidemic, which typically already have a small stock of human capital, is of course questionable. Other studies, however, obtain completely different results if they consider a longer temporal horizon and take into account the impact of the epidemic on the accumulation of

¹ See Declaration of commitment on HIV/AIDS adopted at a special session of the UN General Assembly in 2001.

² Ban Ki-moon, UN Secretary-General, speaking at the General Assembly High-Level Meeting on HIV/AIDS. New York, June 2008.

³ See Dixon et al. (2001) for an overview of some of these studies.

human capital. These studies emphasize three mechanisms in particular via which the accumulation of education may be hampered.⁴

First, an AIDS-induced decline in income makes it more difficult for parents to invest in their children's education. Second, AIDS-induced adult mortality reduces the direct transmission of human capital from parents to their children. And third, in expectation of a lower life expectancy, investment in education might seem less lucrative because the potential period during which that capital can be used is expected to be shorter.

It comes as no surprise then that in such settings, the effects of HIV/AIDS on the economy are substantial (a 'collapse of the South African economy'), but they are closely tied to the underlying assumption. It is not difficult to find studies that show, with just 'minor' changes to these assumptions, exactly the opposite: a decline in educational capital leading to an increase in the returns to education which in turn would enhance investments in education and reduce fertility; both together would lead to a substantial increase in income per capita for South Africa.⁵ Given the structure and time-horizon of such models they do not lend themselves to rigorous empirical validation, however, this does not prevent advocates of HIV/AIDS exceptionalism from quoting the former while apparently ignoring the latter.

Among the bulk of case studies that looks at the economic impact of HIV/AIDS from the micro-perspective, there is ample evidence that households affected by HIV/AIDS experience particular hardships through periods of costly illness, the loss of an income earner and when children are withdrawn from school and sent to work. These effects cannot and should not be denied, yet they are often exaggerated and again, are rarely backed by rigorous quantitative assessments, being based, instead, on anecdotal evidence. Many studies show that households in poor countries cope quite well economically with the loss of a household member, in particular if the deceased made only a small or even negative net contribution to household in-

come.⁶ In contrast to what is assumed in many sloppily written reports, not every deceased person is a primary income earner. This is not to say that households may not be affected durably but the effect of HIV/AIDS is from an economic point of view often less dramatic than usually presented. This is in particular the case if the effects are aggregated over larger populations. Moreover, the actual period of illness (AIDS) for those infected with HIV is, in fact, quite short, rarely exceeding two years in the absence of treatment and on average around one year.

More importantly, what is typically lacking is a direct comparison of effects induced by HIV/AIDS and those induced by other health problems, including other communicable diseases. Worms, diarrhoea, chronic malnutrition - including the lack of protein and micronutrients - have substantial impacts on children's physical and cognitive development. This is widely documented in the literature.⁷ A dollar invested in deworming or children's nutrition can return three dollars plus gains in academic achievement. Hence, under-investing in children's health implies reduced productivity for the rest of their lives not only for a limited number of years.

In turn, such comparative studies would form a better basis to discuss and decide on the allocation of health expenditures. A recent paper shows, for instance, that being HIV positive in South Africa is associated with a six to seven %-point increase in the probability of being unemployed.⁸ This is of course a quite sizeable effect and will impress many readers of the study; however, without any comparison, it is not clear if this effect exceeds what we would find for other chronic health conditions. There is no doubt that health has direct and often important impacts on economic outcomes. Obviously, HIV/AIDS is an infectious disease whereas many of the other pressing health problems are not; however, this alone is not enough to justify HIV/AIDS exceptionalism. We will return to this point below, first turning the discussion to a second important bias in HIV/AIDS policies and priorities.

New evidence regarding the transmission channels of HIV/AIDS call for an adjustment of prevention policies

While academic arguments continue regarding the proportion of HIV infections in any particular African country which can be attributed to the various modes of transmission, issues of reverse causality, political expediency and path dependence often preclude serious large-scale attempts to trace modes of transmission and react accordingly. It is telling that an HIV outbreak investigation (genetic sequencing of HIV genetic material to match specific viruses from different infected persons) has never been conducted in any high-prevalence African setting.

However, there is recent, compelling evidence that nosocomial (medical) transmission of HIV in high-prevalence settings in SSA has been vastly underestimated at below 2% of all infections. In Mozambique's 2009 Demographic and Health Survey where concomitant HIV testing of children and their mothers was carried out, it was found that 31% of children ages 0-11 who tested positive for HIV had mothers who were not infected (and we must, of course, remember that vertical, mother-to-child transmission in the complete absence of antiretroviral interventions, hovers around 25-35% in developing nations,⁹ meaning that we may not assume that because a child's mother is HIV+, the child necessarily became infected vertically). The national statistical office of Mozambique found a positive and significant correlation between medical injections in the 12 months preceding the test and HIV seropositivity in these HIV-infected children.¹⁰ Similar to what was observed in Mozambique, in Swaziland's 2006-2007 DHS (with concomitant HIV testing), 22% of children (aged 2-12) with HIV were born to uninfected mothers.¹¹

As more African nations begin to include concomitant HIV testing of babies and children in their DHS, we may expect further evidence contradicting the official UNAIDS estimate that over 90% of HIV infections in children are due to mother-to-child transmission. Casual claims that these alarming numbers can be explained by child sexual abuse

⁴ See Bell et al. (2006).

⁵ See Young (2005).

⁶ For a brief discussion of some of these studies, see Seeley et al. (2010).

⁷ See e.g. Glewwe et al. (2000).

⁸ Levinsohn et al. (2011).

⁹ UNAIDS (1998).

¹⁰ Ministry of Health, Mozambique (2010).

¹¹ Okinyi et al. (2009).

are absurd. The number of cases would have to be implausibly high to explain this level of horizontal transmission. As many healthcare workers who work directly with children who have acquired HIV horizontally will attest, these blood exposures in high prevalence settings occur for adults as well, but due to the overwhelming focus on sexual transmission, these exposures in adults are systematically ignored in health policy.

When HIV prevention is discussed, issues of, for example, high quality blood screening rarely receive attention. In 2009 in Mozambique, only 69.5% of donated blood units were screened for HIV in a quality assured manner, a vast improvement over just 5 years earlier, but still representing a significant and unacceptable level of HIV transmission risk which receives little attention and no HIV-specific funding.¹² However, blood transfusions are only one part of the issue: the WHO readily admits that in many developing countries autoclaves (for sterilization of medical tools) and instruments are often only poorly monitored and maintained. Obviously, there are many sharp objects in medicine which, when unsterilized, present enormous risks for transmission of blood borne pathogens.¹³

This is not only an area of great concern, but also and importantly, one of great policy sensitivity. While there is no doubt that HIV is very frequently sexually transmitted, the evidence that sexual transmission in the high prevalence African nations may be drastically overestimated can no longer be ignored. The recent and overwhelming push by the WHO and UNAIDS to carry out mass circumcision campaigns in SSA countries to prevent HIV is particularly chilling from both sides of this issue. The three randomized control trials on which these policies are based once again fail to address the issue of modes of transmission so that, with rigorous analysis, we find that less than half (43%) of the seroconversions in the three studies combined, can be attributed to sexual transmission.¹⁴ And yet, these studies are used as the basis for policies that, not only assume 95% sexual transmission, but also heavily-handedly encourage SSA nations to add another (unsafe) medical procedure for all boys and men, thereby multiplying several

fold the already considerable risk of nosocomial transmission for these individuals. We must rethink these policies which choose to intervene in what is, arguably, the least policy sensitive area possible: sexual transmission. We also believe that continued efforts to combat the epidemic through individual sexual behaviour change necessarily ignore issues such as the aforementioned proven horizontal transmission in children. The current policies disregard weak and contradictory evidence supporting the popular African 'concurrency' hypothesis,¹⁵ and necessitate the willingness to believe that high prevalence nations experience sexual behaviour under-reporting at levels exceeding all reasonable expectations as well as empirical evidence,¹⁶ effectively throwing away data that do not match the enduring sexual behaviour paradigm's preconceptions. We believe that many of the vast resources (financial and human) which are currently dedicated to prevention in the form of sexual behaviour change campaigns (which, after more than 20 years, have yet to show positive and concrete results) or misguided mass circumcision efforts, could be better spent investing in integrated health systems where HIV is treated exactly the same as other infectious and chronic illnesses; as an infectious disease from the prevention side and as a chronic disease from the treatment perspective.

Whereas in the beginning of the AIDS epidemic the World Health Organisation and UNAIDS were accused of not doing enough to fight the epidemic, today more and more experts accuse them of a biased presentation of the facts to distort priorities in favour of the treatment and prevention of AIDS compared to other disease and global health issues.

Worldwide, HIV causes 'only' about 3.7% of all deaths (presently about 2.8 million per year) while experts estimate that it receives 25% of international healthcare aid and a significant share of domestic expenditure.¹⁷ In some countries HIV aid clearly exceeds total domestic health budgets. Moreover, infant mortality due to acute respiratory infections, diarrhoea, measles, malaria and malnutrition in general causes more than twice as many deaths as AIDS. Even in Africa, although

AIDS is the most frequent single cause of death, it contributes 'only' about 12% to the total disease burden while receiving an estimated 40% of all health aid in that region.¹⁸ Cost-benefit analysis shows that costs per 'disability adjusted life years lost' (DALY) - a metric that combines the burden of mortality and morbidity (non-fatal health problems) into a single number - are lower for immunisations, malaria, traffic injuries, childhood illness and tuberculosis than for AIDS.¹⁹ Despite these facts, UNAIDS is still calling for a drastic budget increase.

How could such a bias arise? One reason is certainly that AIDS activists have typically been a very powerful lobby backed by popular celebrity figures such as Mr. Hewson (Bono) and Mr. Geldorf. Another reason is that prevalence rates and cases of new infections were systematically overestimated in the past. Recent estimates, for instance, suggest that the UN numbers over-estimate by 25% to 40%. The UN, in response, has decreased its mid-point estimate from 37 million infected persons to 33 million.²⁰ Finally, as mentioned above, HIV has been presented as a major break in economic progress and development since the early days of the epidemic. While emergency response measures that sought to create strong, vertical health structures to deal with the epidemic quickly and efficiently may have been appropriate in the early years, we believe that these structures and services have outlived their usefulness and must now be integrated into general public health systems which have had time to adjust. What has been, in effect, an emergency response must now be assimilated into a long-term, sustainable general health strategy.

Policy implications

Hence, we recommend a rebalancing of priorities for health expenditure and health investment in Sub-Saharan Africa. Patients presenting to health facilities for intestinal parasites, malnutrition or a host of other conditions should be guaranteed the same chance of receiving necessary treatment as an HIV-positive patient in need of antiretroviral therapy.

Investment plans in health care provision

¹² UNGASS (2010).

¹³ WHO (2010).

¹⁴ Van Howe und Storms (2011).

¹⁵ Sawers und Stillwaggon (2010).

¹⁶ Buvé et al. (2001) and Deuchert (2011).

¹⁷ England (2007).

¹⁸ See Global Health Observatory of the WHO [URL: <http://www.who.int/gho/>].

¹⁹ England (2007).

²⁰ UNAIDS (2010).

must be balanced and, considering the usual prevailing budget constraints, designed in a way that they save lives in the most fair and cost-effective manner. Of course this does not mean that current HIV treatment programs should be eliminated (particularly in light of the fact that treatment is proven to greatly reduce transmission of the virus), however, the question is to what extent we should continue to aim for 100% treatment coverage as target 6b of the MDGs prescribes. For logistical reasons and considering the realities of treatment adherence, reaching and maintaining the final 25% of persons eligible for HIV treatment may become a very difficult and expensive endeavour. Moreover, it is important to more carefully investigate all possible HIV transmission channels. Substantial evidence suggests that blood borne transmission of HIV is heavily underestimated. This calls for a reallocation of resources from prevention programs directed at sexual behaviour change to interventions targeted to strengthening the health care system in general and infection control in particular.

We believe it would be wiser to integrate HIV/AIDS prevention and treatment into general health budgets and to undertake more measures which strengthen health systems in general. Presently, many resources continue to be channelled into infrastructure and services specifically dedicated to fighting HIV. These vast resources with little additional cost and possibly with savings in administrative costs, could in principle also be used to combat other diseases and promote general health. Although such considerations have begun to appear within the international aid community's rhetoric, much of this has not yet found its way into concrete policies. At the moment, empirical evidence still suggests that HIV/AIDS instead crowds out the resources available for other health conditions.²¹ Several nations in SSA are in the midst of decentralization efforts in order to integrate HIV counselling, testing and treatment into their regular health systems, however, they face serious barriers in terms of earmarked international funding which may not be routed through their general health budgets, forcing them to retain some vertical structures and personnel, not to mention extraordinary administrative duties and costs related to HIV-specific services. HIV/AIDS should no longer be treated as an extraordinary issue of cultural and moral deficiency, but rather as a medical issue whose proper policy domain lies, not only in

people's bedrooms, but first and foremost in the public health infrastructure. ■

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²¹ Case and Paxson (2009).