HIV/AIDS statistics: thoughts about knowledge, complexity, cost and value

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The problems and potential of the rapidly evolving world of HIV/AIDS statistics, including the question of establishing validated indicators and warnings, were examined in the next session. Professor Tony Barnett, ESRC Professional Research Fellow of the Development Studies Institute, London School of Economics, introduced the session.

What most epidemiological statistics seek to represent, Barnett maintained, is seroprevalence, i.e. the percentage of a susceptible population known or assumed to be infected with a disease agent. It follows, therefore, that the course of the epidemic depends on the relation between the density of susceptible people and the density of infectious individuals. The critical variables to probe are whether the epidemic curves indicate a generalised or a concentrated epidemic; whether they are rising or declining; at what rate they are fluctuating; when they will peak; and whether endemic disease progression might result in “aftershocks” or new outbreaks.

HIV/AIDS epidemics can be classified as low-level (in which no single group has a prevalence rate of more than 5%); concentrated (in which prevalence rates among pregnant women in urban areas remain under 1%, but certain high-risk groups have breached the 5% prevalence rate); and generalized (in which prevalence among pregnant women remain consistently above 1%).

In low-level and concentrated HIV/AIDS epidemics, prevalence estimates are based primarily on surveillance data collected from intravenous drug users, sex workers, men who have sex with men, STI clinics, mobile groups, and pregnant women attending antenatal clinics. For the prevalence rate to be determined, an estimate of the size of each of these groups also needs to be provided.

Generalized HIV/AIDS epidemic prevalence rates, however, are based primarily on surveillance data collected from pregnant women attending antenatal clinics. This data is then assumed to be broadly similar to HIV/AIDS prevalence among men and women aged between 15 and 49 in the community. What these estimates do not consider, however, is the probability that HIV-positive women are less likely to attend antenatal clinics. They also make certain distinct assumptions on the number of sexual partners of men and women. It is important to note that risk behaviour never occurs in a vacuum, but always in a risk environment, and this environment can aggravate or alleviate risk behaviour to various degrees. Indeed, this point is quite vital, for Barnett stressed the degree to which the vulnerability of at-risk populations is closely linked to the scope of their life choices; and the poorer people are, the more restricted these choices become. Poverty puts people at risk from HIV/AIDS, especially from cruelly vulnerable constructions of sexuality: male machismo as a means of coping with danger and powerlessness; young women driven to sell unprotected sex for mere survival.

There has been much heated debate, especially in South Africa, on the reliability of the statistics underpinning key policy choices. Much of the criticism is misinformed, Barnett maintained, and he therefore spent some time explaining how the estimates are constructed. Nothing was secret, he explained. The models utilised and the assumptions incorporated in the estimation of national HIV/AIDS prevalence rates are peer reviewed, in the public domain and widely debated in various journals and media. Once national HIV/AIDS prevalence estimates have been determined, they are compared with community and population surveys. The data is then incorporated into the UNAIDS
database and, in conjunction with UN Population Division data, is then utilised to compile global epidemic estimates of new infections, mortality and prevalence rates using the Spectrum model. The US Bureau of Census is an especially important global resource. It maintains an online HIV/AIDS surveillance database, which forms the basis for the UN country sheets and global report.

Contrary to the suggestions of conspiracies by Rian Malan (who had agreed to attend the first workshop but then, without prior explanation, failed to appear to defend his take on the issue), all HIV/AIDS statistics are peer reviewed and are progressively being refined. As with all data, however, “accuracy” is within a range, and as with all models, the outputs vary according to the assumptions that are incorporated. A key question to probe, however, is whether the prevalence rates are showing upward or downward trends.

HIV/AIDS is a long-wave disaster because it has such a long “incubation” period (i.e. invisible) in which the major shaping influences are rooted and growing before the magnitude of the crisis becomes clear and before any significant response can be launched. It is therefore of crucial importance to establish these trends by using the available statistics.

To understand the implications of HIV/AIDS statistics, it has to be recognized that a conventional economic approach to the assessment of impact has distinct limitations. These limitations have security implications because they affect how resources are distributed and they impact the assessments of urgency and of timescale. In the 1990s, environmental issues suffered a similar fate, when conventional economics systematically excluded from view the “externalities” of costs. Here, as there, the need is to make the “externalities” visible “internally”. As participants noted, this is similar to what Green Economics seeks to do (in the successive volumes of the Blueprint for Sustainable Economics edited by David Pearce and colleagues during the 1990s). In large measure, the issue is also similar to that which has plagued development economics, which fail to take account of the nature and role of the “informal sector”.

As an example of the partial picture given by a conventional economic assessment, a book entitled The impact of HIV/AIDS on labour productivity in Kenya (by Fox et al) was used as illustration. The book delineates the corporate bottom line, and does not adequately concern itself with “external costs”. It illustrates how Kenyan workers often bring unrecorded “helpers” along, as decreased attendance and output may put sick workers in jeopardy of losing their jobs, and also imposes financial burdens on employers. With “only” a 6% national HIV/AIDS prevalence rate in Kenya (a more robust figure calculated from national sero-survey data than the previous UNAIDS estimate of 15% extrapolated from those attending antenatal clinics), HIV/AIDS is taking its toll on commercial agriculture in Kenya and affecting the income of workers and the foreign exchange earnings of the country.

This implies a serious impact on economic costs. But who really carries those costs? Kenyan tea pickers, for instance, are eligible for paid sick leave and annual leave and receive a service gratuity upon reaching ten years of service for the same company. Yet, they are not entitled to receive retirement, death or disability benefits. Moreover, in the commercial sector in 2003, the monthly income of a Kenyan tea picker was US $48. The reality is people working for low incomes with little in the way of social support beyond their own households and communities until they have worked for ten years for the same company. This may be a very difficult threshold for most people to achieve. In addition, workers on Kenyan tea plantations support their dependants and are supported by them in turn. In other words, their presence in the tea estate is intertwined with complex processes of social and economic reproduction elsewhere.

What of excluded “external” costs? When the non-wage sector is unable to function effectively because of a disease, a whole series of costs accrue to Kenyan society, as indeed to any society under threat from this epidemic. These costs are impossible or very difficult to calculate and may include the costs of dying and of subsequent orphan care. Losses of social infrastructure also carry in steep price. In the longer term, costs also accrue to communities and to the country as a result of
large numbers of poorly socialized people who have grown up as orphans.

Another example of excluded costs refers to so-called “hedonic losses”. This describes costs incurred as a result of the emotional trauma and the loss of happiness associated with HIV/AIDS. The inclusion of hedonic losses in economic calculations will inevitably alter the benefit-to-cost ratio of standards of care. In addition, the hedonic effects of large numbers of orphans on the future of any region are bound to be severe. Apart from hedonic losses, the loss of relational goods (i.e. relationships viewed as “goods” and thus lost relationships as a consequence of HIV/AIDS viewed as “costs”) also needs to be considered. In this regard, the variables of cost against return, value measured against benefit, the time period, and the unit of analysis all need to be weighed up.

What can be said then of the responsibilities of conventional economists? Their problem is familiar. Science asks strictly delimited questions, and hence many economists strive to maintain the “scientific” status of their answers. In offering policy advice, economists and politicians either forget the strict limitations of their arguments or extend them inappropriately, or they exclude variables as external to their necessary dataset, which are then ignored, may lapse into denial by allocating variables to certain “externalities” that remain unanalysed.

In conclusion, it can be said that HIV/AIDS statistics reflect the normal problems of sampling and representivity, but that the urgency and severity of the subject make it especially important to clarify any issues. This must be done in a way that will deny those who seek to avoid confronting the pandemic the opportunity to hide behind supposedly confusing data. It was put forward that HIV/AIDS projections depend on model assumptions, and that these, the data and the models are peer reviewed. If prevalence rates are high and/or curves are rising, the impact must be fully analysed: both the “internalities” and the “externalities” must be in view. Conventional economic techniques, however, tend to underestimate costs and to exclude many vital but non-quantifiable effects of the impact of the epidemic. This, in turn, will by implication limit understanding of the impact of HIV/AIDS and may therefore dull or delay an urgent awakening to its security implications.