

BRIEFING NOTE

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The Impact of HIV/AIDS on the Education Sector in Southern Africa

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Since the onset of the HIV/AIDS epidemic in Africa the virus has killed approximately 15 million people, and it is estimated that another 25 million people are infected, representing almost three-fourths of total HIV infections. AIDS morbidity and mortality is concentrated among working age individuals, resulting in a devastating impact on human capital resources in the worst affected countries. The education system, which is the primary mechanism for the development of the future human resources, has not been spared the effects of the epidemic. Not only are enrollments declining as AIDS orphans can no longer afford to attend school, the loss of teachers and even education administrators to the illness is undermining the very structure of education systems in sub Saharan Africa.

The linkage between the education system and the AIDS epidemic can be seen as a dual one. On the one hand the school system provides a mechanism for the transmission of information about HIV and hence can play a central role in the prevention effort. On the other hand the disease undermines the structure and function of the education system itself. In this study we focus primarily on the latter effect, developing a framework within which to assess the various aspects of the burden imposed by the disease.

One way to view the impacts of the disease on the education sector is within an economic demand and supply framework. The impacts on demand for education come from the effects on the students themselves, while the impacts on the supply of education come from the effects on the provision of education services to students who demand them. Figure 1 provides a schematic for categorizing the various ways in which the epidemic will affect the demand and supply of education.

The costs represented by many of the factors listed in the schematic were brought out explicitly in a series of focus group discussions with schoolteachers and in-depth interviews with school principals in the Ondangwa East and Ondangwa West regions of Namibia. The seroprevalence rate in this densely populated region of the country was estimated to be as high as 34% in recent antenatal sero-surveillance data. While there was a high level of denial amongst focus group participants about the impacts of the disease on their own lives, they readily admitted to the increasing financial and emotional burden on students. In the words of one teacher:

"You know when parents die and the child becomes an orphan. And then he or she has to take care of the others. They are forced to take care of them if the grandmother is old or the grandmother dies. Then the elder child, especially if it is a girl, has to take care of the brothers and sisters and the grandchildren. Sometimes she can leave

school to take care of the others, and sometimes the child does come to school but she or he doesn't have any concentration, because she is just thinking of what they're going to do at home, what they are going to eat, where will they get clothes, or other things."

-35 year old female teacher

There was also a concern about the loss of teachers, both with respect to the loss of experience that it entailed as well as the practical problems of reorganizing teaching schedules around such a loss:

"Some of the schools have lost teachers due to this disease. Even the secretaries are exposed. Some of the schools have lost those kinds of people at their school. Eventually after a year or two, they are replaced with another teacher or another secretary. But they are not the same as the ones who have died. They cannot teach or do the work as well the one affected by AIDS. And also the learners, the learners used to know their teachers very well. Even when you enter the class, if you are not good that day, they can just say, ah, you are not feeling good today. But they love their teacher. They know the teacher very well. They know their teacher, even the handwriting. But if that teacher dies and is replaced by another teacher, I think they won't feel good, that they will be upset by it."

-29 year old female teacher

Perhaps the most disturbing result, though, is the impact of the disease on the psyches of young people, as they react not only to deaths within their own families, but also to the overall atmosphere of loss:

"Something which is remarkable is that you see, let's say, the school requires to ask the learners about their future and their hopes, particularly when you want to ask them what are you going to be when you finish this school. Some are telling you that, OK, me, I want to be this, me I want to be a police. Some are saying, me, sick. I don't know what am I going to be in the future, Then you ask them, why? It's because I'm going to die soon, because people are dying."

-32 year old male teacher

In order for ministries of education to understand the full extent of the burden that they will face as a result of the epidemic, and to find ways in which to deal with this burden, it is necessary to have estimates of the impacts that the disease is likely to have on demand for schooling and supply of inputs such as teachers. The paper presents a template for an input-output model that can be used to estimate the impact on enrollments and on teacher attrition. This model is designed to be easily replicable, and to enable modeling for the purpose of increasing insight and understanding of the impacts of the disease.

The first step in the projection process is to model the demographic impacts of the epidemic. This is done using the readily available SPECTRUM System of Policy

Models prepared by The Futures Group International (www.tfgi.com). Enrollments are then assessed using a standard enrollment model (Al Sammarai, 1997) that is modified to take into account changes in enrollment based on AIDS. This includes the effects of lowered fertility, and hence a smaller school-age cohort; and increased dropout rates in response to the financial and psychological burden imposed by the disease. On the supply side the model accounts for the increased attrition in teachers as a result of AIDS mortality.

Namibia is once again used as a case study to assess the impacts of the disease. The evaluation highlights some important considerations that must be accounted for when assessing the impact of AIDS on the education sector. Namibia currently produces more teachers than can be absorbed in the educational system. As a result of this surplus it can be expected that the impact of increased teacher attrition will not be felt for at least a few years. Over the next few years, however, teacher attrition is predicted to increase rapidly as a result of increasing mortality rates amongst the working-age population. It is therefore somewhat surprising at first that the predicted differential in teacher shortfall in a "with-AIDS" and "without-AIDS" scenario, while significant, is not excessive. If there is no increase in the number of teachers being trained annually, the shortfall in the absence of the epidemic is projected to be 6,548 teachers. In the face of the epidemic this shortfall is projected to be 7,161 teachers.

This limited differential can be explained by the fact that AIDS has a significant impact not only on mortality rates but also on overall fertility, and the cohort of school-age children will be considerably smaller as a result of the epidemic. However, the analysis also brings out the problem with focusing exclusively on overall pupil-teacher ratios when assessing the impact of the disease. First, while pupil-teacher ratios are one of the most prominent targets used by education ministries when measuring quality, it is critical to note that this number is simply an average and that averages are often misleading. An overall pupil-teacher ratio can hide wide disparities across regions. For example, low pupil teacher ratios in areas less affected by the crisis can pull down country averages, hiding higher ratios in areas with high infection rates. Second, pupil-teacher ratios will miss the discrete nature of teacher attrition. For example, assume that a small rural school has 400 students and 10 teachers, with one teacher assigned to each grade. Assume further that as a result of the epidemic there is a 10% decline in enrollments and the death of one teacher. While the size of the average class may have declined only slightly, there will be one grade that will now have no teacher at all. This is an effect that will not be picked up by the pupil-teacher ratio, which in this example remains the same.

Such problems are of particular concern when thinking about the impacts of teacher attrition in rural schools with only one or two teachers. In larger schools the loss of a teacher can often mean that the other teachers will carry the teaching load during their open periods, or that classes will be combined. However the impact on a one-teacher school will be discretely different. If it entails closing the school down then students will lose access entirely.

The paper discusses some of the coping mechanisms available to policy-makers in countries faced with high rates of HIV infection. For example, one response is to give candidates from highly affected regions preferential admission to teacher training colleges or other such incentives, in order to increase teacher supply in highly affected regions. Another response is to focus educational resources on other inputs, such as textbooks, supplementary readers, and exercise books, rather than on

lowering pupil-teacher ratios, which is generally less cost-effective.

Two models of successful educational programs are discussed that may prove useful in thinking about developing educational policy in highly affected regions facing resource constraints. The first is a model of multigrade teaching that has been employed with extremely positive results in Colombia's rural educational system, Escuela Nueva. Multigrade teaching allows one teacher to teach students at different levels and ages concurrently. In order for such a system to be effective it is necessary to develop a very structured curriculum, with highly developed learning guides and teaching materials, such as instructor manuals and student workbooks on which the teacher can rely. The second is the model developed by the Bangladesh Rural Advancement Committee (BRAC), a non-government organization in Bangladesh that has set up a network of rural schools, providing access where the public system has been unable to. While teachers in BRAC schools have minimal training, the system once again emphasizes the development of a highly structured curriculum and effective teaching materials such as books, workbooks, accompanying notes and teaching aids. Both these models are particularly important to consider in situations where access is threatened, such as in the case of rural areas currently served by one or two teacher schools.

In conclusion, while AIDS is primarily a health problem, its impacts will be felt on the economy primarily through the loss of human capital. The role of the education sector is particularly important in moderating some of the long-term negative consequences of the disease, as it is the primary mechanism for the development of tomorrow's human capital resources. It is critical, therefore, that education ministries incorporate the effects of the crisis into their long-term planning in order to minimize the negative consequences on educational outcomes. This study highlights the impacts that AIDS will have on the three cornerstones of the education system: access, attendance, and quality, and explores policy options to cope with some of these effects.