

Educational attainment and HIV/AIDS prevalence: A cross-country study

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Abstract

Using data for a large cross-country sample, a reasonable model is estimated to judge the effect of adult educational attainment on prevalence of HIV. Three main points are noted. First, there is an indication of a significantly negative effect of educational attainment on HIV prevalence. Second, magnitude of the impact appears sizable. Third, a simple test suggests that the model does not have any major specification problem. Three additional aspects may also be interesting. First, the impact of per capita income is negative but statistically weak. Second, the effect of health expenditures lacks significance and does not carry the expected sign. Third, the proportion of population that is Muslim has a significantly negative association with HIV prevalence, perhaps reflecting the widely-shared view that male circumcision lowers acquisition of the disease.

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1. Introduction

The HIV/AIDS epidemic has reached an alarming scale. A recent update by UNAIDS (2005, p. 1) shows that the total number of people living with HIV in 2005 was 40.3 million. Even under optimistic assumptions, the future projections seem quite grim.

Numerous studies have been conducted on the varied dimensions of the epidemic. Many of these are listed by UNAIDS (2004, pp. 212–228). In particular, as discussed by UNAIDS (2004,

pp. 41–59), considerable research has been conducted about the impact of the disease on population and its structure, poverty and hunger, agricultural and rural development, supply, demand and quality of education, and the macroeconomy. A “strategic approach” toward the impact of the epidemic on educational systems has been proposed in a document by the International Institute for Educational Planning (IIEP, 2003). There is also an extensive discussion of AIDS education in the sense of dissemination of information about the nature of the disease and its transmission and possible steps for minimizing its spread. Relative to economic growth, besides the work by other scholars, Corrigan, Glomm and Mendez (2005) used a

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general equilibrium model to assess the long-run consequences of AIDS for physical and human capital accumulation and economic growth. However, to our knowledge, no study has been conducted to judge the effect of educational attainment of the population on the prevalence of HIV/AIDS in a broad cross-country context. Such a study should be useful since there are likely to be important linkages between educational attainment of the population and the contraction, transmission and treatment of the disease. For example, in terms of education's "allocative effect" of the kind suggested by Welch (1970) and others, increased schooling is likely to enable individuals and households to (a) acquire and use more information about the nature of the disease and its transmission, (b) adopt efficient ways to avoid receiving or transmitting the virus, and (c) undertake optimal treatment if infected. Similarly, in the discussion of the non-market outcomes of education, Wolfe and Zuvekas (1997) indicated the effect on health to be among the most prominent outcomes. The present study uses cross-country data to estimate a reasonable model of HIV prevalence so as to judge the likely role of educational attainment of the population toward reducing contraction and transmission of the disease.

2. Model, data, and the main results

A model of HIV prevalence is specified with relatively straightforward arguments. The primary variable is educational attainment of the population. It has been widely documented that education has a favorable effect on one's own health and also on the health of one's spouse and children. For example, while discussing the determinants of good health, Grossman (2004, pp. 4–5) observed that "years of formal schooling completed is the most important correlate of good health", and that results from several studies "certainly suggest causality from more schooling to better health". Similarly, Wolfe and Zuvekas (1997, p. 493) stated that there is considerable evidence of child health being positively related to parents' education, that schooling positively affects one's own health status, and one's schooling influences spouse's health as well as reduces mortality. They also noted that there is consistent evidence of mother's education being negatively related to the probability of teenage daughters giving birth out of wedlock. Grossman (2004, p. 5) cited Goldman and Lakdawalla (2001)

who studied self-reported CD4 T-lymphocyte cell counts in a panel survey. A depletion in these cells correlates strongly with the worsening of HIV disease and raises the probability of developing AIDS. They reported significant positive schooling effects on these cell counts.

There are several reasons for education having a positive health effect in general, and causing a lower prevalence of HIV/AIDS. First, education raises the value of time in market and household production, and, raising the cost of sickness, provides incentives for reducing episodes of ill health. Second, as Wolfe and Zuvekas (1997, p. 494) explained, the effect of schooling may operate through (a) acquisition of better health-related information, (b) attenuating health-reducing behaviors, (c) more appropriate medical care usage, and (d) health-preserving occupational and locational choices. Relative to HIV/AIDS, education is likely to be useful at the preventive as well as therapeutic stage. It is likely to increase one's awareness of the kind of sexual and drug-use behavior that makes one contract the virus, and also of the grave health consequences of the disease. More educated persons are thus likely to have a lower probability of acquiring the virus and of transmitting it to others. Also, education may enable one to seek more effective treatment sooner, which should lower the probability of transmission. The evidence from Goldman and Lakdawalla (2001) about levels of CD4 T-lymphocyte cells, and that on teenage daughters' out-of-wedlock child births noted by Wolfe and Zuvekas (1997), are consistent with the aforesaid scenarios. More directly, noting that "good basic education ranks among the most effective—and cost-effective—means of HIV prevention", World Bank (2002, pp. xv, xvii, 4–5) stated that education has been proven to provide protection against HIV infection, that it is among the most powerful tools for reducing girls' vulnerability, and it offers a ready-made infrastructure for delivering HIV/AIDS prevention efforts. Similarly, World Education Forum held in April 2000 referred to the "enormous potential that the education system offers as a vehicle to help reduce the incidence of HIV/AIDS..." (UNESCO 2000, p. 23). Suggesting that education provides increased knowledge, information and awareness about the disease, Vandemoortele and Delamonica (2000) called education a "vaccine" against HIV infection. Coombe and Kelly (2001) noted accumulation of the evidence that "education

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