A life insurance deterrent to risky behavior in Africa

Pedro de Araujo [a],[*], James Murray [b],[1]

[a] *Department of Economics and Business, Colorado College, USA*
[b] *Department of Economics, University of Wisconsin, La Crosse, USA*

Abstract

The spread of HIV and AIDS and risky sexual behavior continues to be a problem in Sub-Saharan African countries despite government measures to educate people on the risk and severity of the disease and measures to promote safe sex practices such as making condoms readily available at reduced or no cost. We examine whether people decide to engage in risky sexual behavior due to low income and low life expectancy. Sub-Saharan Africa is characterized by conditions that significantly reduce life expectancy such as unsanitary conditions prevalent in poverty stricken areas, inaccessibility to health care, and dangerous working conditions such as those in very poor mining regions. Moreover, since income per capita in these countries is very low, the opportunity cost associated with dying from AIDS and foregoing future consumption is very low. We examine how a government provided life insurance benefit may be an effective means of deterring risky sexual behavior. To evaluate this policy prescription we develop a life-cycle model with personal and family consumption and endogenous probability of survival. In the model, agents can receive life insurance benefits if their death is not the result of AIDS. We demonstrate that excessive risky behavior does result from low life expectancy and low levels of income and illustrate the conditions for which the life insurance benefit can replicate the effects of higher income and life expectancy, deterring risky sexual behavior and reducing the spread of HIV/AIDS.

* Correspondence to: 14 E. Cache La Poudre Street, Colorado Springs, CO 80903, USA. Tel.: +1 719 389 6470.
  E-mail addresses: pedro@coloradocollege.edu (P. de Araujo), jmurray@uwlax.edu (J. Murray).
[1] 1725 State St., La Crosse, WI 54601. Tel.: +1 608 406 4068.

1. Introduction

AIDS is an incurable disease that kills individuals during their most productive years and is most often transmitted through consensual, unprotected sexual encounters. According to the most recent HIV epidemic update (UNAIDS, 2009), the worldwide number of HIV infections in 2008 was between 31 to 36 million and 2 million people worldwide died as a result of AIDS. Sub-Saharan Africa, the epicenter of the pandemic, is responsible for approximately two thirds of all infections and over 70% of all deaths, and the great majority of infections in sub-Saharan Africa is due to heterosexual sex. HIV prevalence among adults in sub-Saharan Africa is approximately 5.2%, whereas the worldwide prevalence among adults is only 0.8%. In some sub-Saharan countries the pandemic is particularly bad: the adult HIV prevalence reaches 26.1% in Swaziland, 23.2% in Lesotho, and 15.2% in Zambia. These numbers are not projected to decrease any time soon.

There has been a substantial body of research, empirical and theoretical, on the effects of HIV on economic growth and development. Robalino, Voetberg, and Picazo (2002) demonstrate that policies to reduce HIV incidence in the short-run are particularly important as the epidemic reduces private savings and capital accumulation. In an early study, Over (1992) uses a two sector model for 30 sub-Saharan African countries and finds a negative effect on annual real GDP growth of 1%. Other studies have found similar effects on economic growth of African economies, for example Kambou, Devarejan, and Over (1992), Cuddington and Hancock (1994), Arndt and Lewis (2000),[2] Bonnel (2000), World Bank (2001a, 2001b, 2001c), and Dixon, McDonald, and Roberts (2001). When we compound a 1% loss in real GDP growth over many years, this effect becomes very large.[3] In the absence of a cure or an effective prevention campaign, the evidence suggests that AIDS in sub-Saharan Africa can be a great impediment to long-run economic growth.

The evidence above has been contested by some studies. Bloom and Mahal (1997) use data for 51 countries and find no effect of HIV on economic growth. Young (2005a) constructs and simulates a model in which HIV generates two opposing effects: reduced fertility and reduced human capital. He argues that the former effect outweighs the latter implying increases in the standards of living over time. Since then, however, Corrigan, Glomm, and Mendez (2005) show the human capital loss effect is much greater when accounting for inter-generational transfers in schooling decisions. This large loss in human capital is also demonstrated by Hamoudi and Birdsall (2002) and most recently in Fortson (2008). In short, there is strong evidence that HIV/AIDS is not only a health problem, but a serious economic problem in sub-Saharan Africa.

Because the main mode of HIV transmission in sub-Saharan Africa is through heterosexual sex, most public policy efforts to contain the spread of the disease focus on influencing individuals to limit engagement in unprotected sex and to be faithful to their partners. Usually these campaigns involve educating the population on HIV/AIDS and discussing how sexual behavior increases risk of transmission. In this paper we suggest an alternative policy approach, still aimed at influencing people's risky sexual behavior. We investigate the efficacy of government-provided life insurance benefit payable to families for deaths that are not the result of AIDS. We use a life-cycle optimization model to show that individuals' decisions to engage in risky sexual behavior depend negatively on income and non-HIV life expectancy. When compared to the developed world, individuals in sub-Saharan African countries have very short life expectancies, even absent

---

[2] They find a 2.6% negative growth effect.

[3] Many other papers have found very large long-run level effects of HIV on output, including Cuddington (1993b), Cuddington and Hancock (1995), Botswana Institute for Development Policy Analysis (2000), Arndt (2006), Bell, Devarajan, and Gersbach (2003), Santaeulàlia-Llopis (2007), Roe and Smith (2008), and de Araujo (2012).