

**Treatment Programs, Chronic Conditions and the Wealth of Nations: The
Case of HIV in a Microsimulation Model**

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ABSTRACT

Thanks to modern medicine, developing countries are currently experiencing an epidemiological transition (diseases becoming chronic), similar to which high-income countries experienced in the 20th century. This paper aims at quantifying the effect of healthcare programs on economic outcomes in the context of developing countries experiencing epidemiological transitions. It is widely accepted in the literature that curative programs result in production gains among ill-health workers. However, curative programs have the additional effect of modifying both the size and the composition of the working population by increasing the proportion of chronically-ill individuals. This macro-epidemiological phenomenon could attenuate or even outweigh the positive effect of an increase in production. Indeed, following the chronicization of illness, the population size increases, but the average productivity may not.

The paper attempts to evaluate the magnitude of this epidemiological effect in the context of programs for access to antiretroviral treatments against HIV in three sub-Saharan African countries. Forecasts of an individual's health status, depending on whether he or she has access to medication, are generated using a discrete-time microsimulation model. We use microsimulation models in order to generate a "virtual case" (as if the adverse epidemiological effect did not exist), which allows decomposing the total impact of the HIV-medicines program into two analytically different effects: positive and negative. We find that the positive effect of treatment procurement outweighs the negative epidemiological effect. Of course, this approach is only an indicator of economic performance and should in no way constitute a decision-making criterion on the ethical necessity of access to health care.