

FORTHCOMING



# The Macroeconomics of HIV/AIDS

Editor  
Markus Haacker

INTERNATIONAL MONETARY FUND

**Forthcoming**

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To mark World AIDS Day, December 1, 2004, the IMF will be bringing out a new book, *The Macroeconomics of HIV/AIDS*. Edited by Markus Haacker of the IMF, the volume brings together contributions by experts from many different international organizations and other institutions who are involved in formulating and implementing policy responses to the epidemic or are dealing with its social and economic consequences. An order form appears on the back cover of this booklet.

**I N T E R N A T I O N A L M O N E T A R Y F U N D**

# The Macroeconomics of HIV/AIDS

## Message from the Editor

HIV/AIDS, through its demographic effects and its social and economic consequences, has evolved into a major threat to economic development in many countries around the world. In sub-Saharan Africa, where most of the worst-affected countries are found, the Joint United Nations Program on HIV/AIDS (UNAIDS, 2004) estimates that 7.5 percent of the population aged 15–49 were infected as of the end of 2004, with HIV prevalence rates for this age group ranging from about 1 percent (in The Gambia and Senegal) to almost 40 percent (in Botswana and Swaziland). Indeed, HIV/AIDS has become one of the leading causes of death in the region. According to the World Health Organization's *World Health Report 2004*, the HIV/AIDS epidemic now accounts for about 20 percent of all deaths in sub-Saharan Africa and more than half of the deaths in some countries. Even in countries where infection rates are lower, such as Cambodia and Haiti, HIV/AIDS accounts for about one-half of the deaths of individuals aged 15–49. Low national infection rates often mask serious regional epidemics, as is the case in countries such as China and India. (India has the largest number of people living with HIV outside South Africa.)

The economic and social consequences of the increased mortality and morbidity associated with HIV/AIDS are serious and manifold. The following are only a few of them. Average life expectancy has declined by more than 20 years in some of the worst-affected countries. In addition to the trauma of losing family members, households affected by HIV/AIDS may experience a precipitous decline in living standards because of loss of income and the high cost of caring for the sick. Given that HIV/AIDS typically strikes people of childbearing and childrearing age, the number of orphans is rising. In some countries, 20 percent of the population aged 17 and under have lost one or both parents, the majority to HIV/AIDS (see UNAIDS, UNICEF, and U.S. Agency for Inter-

national Development, 2004). Increasing production costs, as skilled workers succumb to AIDS-related illnesses, erode competitiveness and—together with a deteriorating economic outlook—may deter investment. Economic growth slows for many reasons, most directly because the working-age population expands more slowly or contracts, but there is considerable uncertainty regarding the size of this effect, especially in the longer run. The most visible fiscal consequences of HIV/AIDS include increased spending on prevention, care, and treatment, but the fiscal implications go far beyond this. As economic growth declines, the domestic tax base weakens and domestic revenues fall. At the same time, HIV/AIDS erodes public services as mortality rates for civil servants rise, and it drives up government spending even in areas not directly related to combating HIV/AIDS. For example, personnel costs rise as staff lost to AIDS must be replaced and new staff trained, as do social expenditures on survivors' pensions and other benefits for individuals and households affected by HIV/AIDS.

*The Macroeconomics of HIV/AIDS* grew out of the authors' experience in providing economic analysis and policy advice in countries severely affected by the epidemic. As the above sketch of the situation makes clear, one simply cannot address the economic issues facing these countries without taking the multiple effects of the epidemic into account. This, of course, is not a new insight; indeed, the impact of, and the response to, the HIV/AIDS epidemic have become central issues in economic development. Evidence of this is the fact that the contributors to *The Macroeconomics of HIV/AIDS* represent not only international organizations that are key players in the fight against HIV/AIDS (such as UNAIDS and the World Bank) but also other organizations that have added HIV/AIDS to their work agendas, primarily because of its social and economic repercussions (such as the Center for Global Development, the International Labor Organization, and the IMF).

The purpose of this book is twofold. First, the book is intended to fill in the gap in the HIV/AIDS literature between studies of specific sectors—especially public health and education—and bird's-eye assessments of the broader social and economic consequences of HIV/AIDS. In contrast with most other macroeconomic studies on the subject, *The Macroeconomics of HIV/AIDS* emphasizes how HIV/AIDS affects society and the economy through its microeconomic impacts and also how the social and economic impact, combined with the increase in mortality rates, affects the welfare of individuals and households. Second, by highlighting the epidemic's fiscal consequences—direct (HIV/AIDS-related expenditures) as well as indirect (the impact of HIV/AIDS on the domestic tax base and some expenditure

categories affected by the epidemic)—and by linking the response to HIV/AIDS to a macroeconomic framework, the book aims to provide a resource for public policymakers seeking to develop an effective response to the epidemic and appropriate economic and fiscal policies. By formulating a framework for assessing the various impacts of HIV/AIDS on developing economies, it also complements efforts to develop and implement strategies to fight the epidemic.

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The studies that make up the book explore several separate strands of inquiry, which can be grouped under three general headings: the demographic impact, the macroeconomic consequences, and the effect on government finance and public services. Because most of the effects of HIV/AIDS arise directly from increased morbidity and mortality, the book begins, in Chapter 1, by focusing on the demographic impact, providing a basis for the analysis in the chapters that follow.

Chapters 2 through 6 discuss the macroeconomic effects of HIV/AIDS, addressing three topics in particular. The first is the relationship between the microeconomic effects of HIV/AIDS—for example, at the household or company level—and those at the macroeconomic level. This theme is taken up in Chapter 2 in a general fashion, while Chapter 3 builds its macroeconomic analysis around a household-level model. The second topic is the impact of HIV/AIDS on economic growth. Chapter 2 introduces this theme by describing the most common approaches used in accounting for growth in the context of an HIV/AIDS epidemic, while Chapters 3 and 4 focus on the impact of HIV/AIDS on education and the accumulation of human capital. The third topic is the effect of HIV/AIDS on welfare. Because the impact of HIV/AIDS is spread unevenly across individuals and households, standard estimates of aggregate macroeconomic changes contain very little information on welfare effects. Chapter 5 therefore discusses the impact of HIV/AIDS on poverty and inequality, and Chapter 6 estimates the broader welfare effects of HIV/AIDS stemming from increased mortality rates.

Chapters 7 through 10 deal with the impact of HIV/AIDS on the public sector. First, they provide a framework for assessing the effect of HIV/AIDS on the public sector itself. Second, although most issues in the formulation of a broad HIV/AIDS strategy—particularly the choice between different interventions—are beyond the scope of this book, these chapters seek to support this work by improving the understanding of the macroeconomic and fiscal context in which such strategies will be implemented, providing policymakers

and donors with tools for assessing and evaluating HIV/AIDS strategies from a broader development perspective.

In this context, Chapter 7 assesses the impacts of HIV/AIDS on public services (for example, through the erosion of capacities) and on government finance. One area where HIV/AIDS can have a substantial impact is social security—pension funds in particular—and this is taken up in Chapter 8. Chapter 9 describes and assesses Botswana’s National Strategic Framework on HIV/AIDS, illustrating the potential of a comprehensive national HIV/AIDS strategy to reverse the macroeconomic damage associated with the epidemic. Finally, Chapter 10 focuses on the impact of HIV/AIDS on the health sector and the challenges facing countries that set out to substantially expand access to HIV/AIDS treatment.

Having mapped out the broad themes of the book, I will now outline each chapter in more detail.

## **Chapter 1. Brynn Epstein of the International Programs Center at the U.S. Bureau of the Census**

Traces the evolution of the HIV/AIDS epidemic across countries and assesses the impact of HIV/AIDS on mortality in different demographic groups and the long-term implications, such as changes in life expectancy and in the composition of the population, for example, in terms of sex and age. Also covers some of the socioeconomic aspects of the epidemic, such as changes in dependency rates, the growing number of orphans, and changes in the composition of the working-age population.

## **Chapter 2. Markus Haacker of the International Monetary Fund**

Addresses the impact of HIV/AIDS on the social fabric—social and economic institutions (households, companies, and governments) as well as more abstract concepts such as governance and social cohesion—and on the macroeconomy. Summarizes different approaches to synthesizing the various impacts of HIV/AIDS within a macroeconomic framework, estimates the possible consequences for major variables such as output growth, and discusses the potential effect on saving and investment behavior. Stresses the uneven impact of HIV/AIDS, exploring the links between the epidemic’s aggregate macroeconomic effects and its impact on poverty, inequality, economic risk, and welfare.

### **Chapter 3. Clive Bell and Hans Gersbach of the University of Heidelberg, Shantayanan Devarajan of the World Bank**

Provides an assessment of the long-term consequences of HIV/AIDS built around a model of the accumulation of human capital at the household level. In this model, HIV/AIDS is interpreted as an income shock to affected households that forces them to reduce their investment in the education of younger members. At the same time, the returns to investment in human capital decline because of increased mortality as a whole. The authors predict that, in the absence of policies to mitigate the impact of HIV/AIDS, an increasing share of the population will sink into poverty because of this twofold adverse impact on human capital.

### **Chapter 4. Amar Hamoudi of the University of California, Los Angeles, and Nancy Birdsall of the Center for Global Development**

Examines how HIV/AIDS exacerbates shortages of human capital in Africa. The authors observe that, even as the loss of teachers to AIDS reduces the capacities of the education sector, shortened life expectancy means that the returns to education decline. In addition, more children are being brought up by foster parents, who may be less willing than birth parents to enroll them in school. The authors also discuss the probable economic implications: a decrease in the number of educated people could reduce the social returns to skills even among the educated people who survive, and—to the extent investment declines—the returns to skilled labor may fall still further.

### **Chapter 5. Robert Greener of the Joint United Nations Program on HIV/AIDS**

Discusses the impact of HIV/AIDS on poverty and inequality. Because HIV/AIDS capriciously strikes some individuals and households while leaving others untouched, measures of macroeconomic aggregates such as output and income can mask the substantial changes that HIV/AIDS causes in the distribution of income and the incidence of poverty. The author presents a framework for making inferences about the impact of HIV/AIDS on poverty and inequality using demographic estimates and data from household expenditure and income surveys.

## **Chapter 6. Nicholas Crafts of the London School of Economics and Markus Haacker**

Looks at the broader welfare effects of HIV/AIDS. Macroeconomic analyses typically focus on aggregate changes in output and income and therefore fail to capture the welfare losses stemming from increased mortality and reduced life expectancy. Yet obviously these do have an impact—indeed, a potentially huge one—on living standards. Drawing on an extensive literature that seeks to measure the “value of statistical life,” the authors derive estimates of the welfare impact of increased mortality that can be expressed in the same metric as other welfare losses, namely, as a percentage of GDP. They find that, measured this way, the decline in welfare due to HIV/AIDS dwarfs any estimates that focus only on output or income.

## **Chapter 7. Markus Haacker**

Examines both the direct and the indirect effects of HIV/AIDS on public services and government finance. HIV/AIDS erodes the government’s human and financial resources as increased mortality results in higher attrition rates in the civil service, and as the tax base—and, hence, domestic revenue—grow more slowly. At the same time, however, HIV/AIDS boosts demand for certain public services, especially in the health sector. The chapter discusses the costs and the financing of HIV/AIDS-related health services in particular detail. In light of the importance of external grants in enabling developing countries to respond more extensively to HIV/AIDS, the chapter also covers issues related to external finance and the management of foreign aid.

## **Chapter 8. Pierre Plamondon, Michael Cichon, and Pascal Annycke of the International Labor Organization**

Discusses social protection in sub-Saharan Africa, particularly pensions and public health expenditures. The impact of HIV/AIDS on pensions is uneven. Although fewer individuals survive to receive old-age pensions, the number of people receiving other types of pensions—for example, disability and survivors’ pensions—will rise. The authors outline a framework for quantifying the impact of HIV/AIDS on various categories of social spending, some of which are financed from individual contributions and others through the budget.



## **Chapter 9. Iyabo Masha of the International Monetary Fund**

Assesses Botswana's National Strategic Framework on HIV/AIDS from a macroeconomic and fiscal perspective. The author shows that the economic effects of a comprehensive HIV/AIDS prevention and treatment program can be substantial, in addition to such a program's impact on HIV prevalence, mortality, and life expectancy, and that indirect fiscal effects (such as savings in certain categories of expenditure and improvements in the domestic tax base) are an important element of the overall fiscal assessment.

## **Chapter 10. Mead Over of the World Bank**

Addresses the impact of HIV/AIDS on the health sector. Begins with an analysis of the impact of HIV/AIDS on the demand and supply of health services in the recent past. Unlike many other studies that focus primarily on resource requirements, this one explicitly addresses the effectiveness of the delivery of health services. It stresses the implications of expanded access to antiretroviral treatment, highlighting the discrepancies in available financial and human resources across countries. Although some countries are able to expand access to antiretroviral treatment in line with the World Health Organization's "3 by 5" initiative—which calls for providing antiretroviral treatment to 3 million people in developing countries by the end of 2004—some of the less developed countries will require a comprehensive transformation of their health care systems to be able to achieve this.

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For economic policymakers and analysts working in or with developing countries with severe HIV/AIDS epidemics, the disease—through its numerous social, economic, and fiscal effects—has become part of the broader political and development agenda. By bringing together studies by authors with diverse backgrounds and from different organizations and institutions, this book aims to provide a comprehensive resource on these effects. At the same time, the analyses in this book seek to strengthen efforts to formulate and implement strategies to fight the epidemic and mitigate those effects, and to do so along two lines. First, a good understanding of the economic consequences of the epidemic can help in formulating policies and allocating scarce resources. Second, well-crafted programs designed to fight the epidemic and mitigate its impact can offset or reduce some of the serious social and economic consequences of HIV/AIDS. Thus a successful strategy will have a positive impact

on the economic and fiscal outlook, which, in turn, means that more funds can be mobilized to support longer-term health strategies. In this sense, HIV/AIDS strategies are a form of economic policy.

*The Macroeconomics of HIV/AIDS* has thus been written for a broad readership, which could include, for example, officials in a finance ministry assessing the impact of HIV/AIDS on the fiscal balance and outlook of their country. It could include representatives of an international financial organization and their counterparts in an AIDS-ravaged developing country, meeting to discuss the economic outlook or negotiate a policy program. It is also likely to be of interest to members of the media and other policy observers in countries affected by HIV/AIDS, as well as to the representatives of nongovernmental organizations advocating an expanded response to HIV/AIDS in their home countries or worldwide. Last but not least, as policies to fight the epidemic attain increasing macroeconomic and fiscal relevance, this book's readership could include those officials in international organizations, donor agencies, implementing agencies, and country governments who formulate and carry out such policies.

The authors hope that their work will prove useful to all who deal with or are interested in the social, economic, and fiscal effects of HIV/AIDS, but we are also well aware that the mission—even in its analytical dimension, to say nothing of its execution—is as yet by no means accomplished. A lack of available data often means that the economic analyst, rather than providing compelling answers, can only formulate questions and hypotheses, supported by assorted observations pulled together from different countries. For various reasons, this constraint applies in particular to the impact of HIV/AIDS over time, to the macroeconomic consequences, and to the fiscal effects of HIV/AIDS, as they go far beyond specific HIV/AIDS-related expenditures. Thus, where this book cannot provide full answers, it is hoped that it may at least stimulate further research that can help us better understand the economic and fiscal consequences of the epidemic and that can complement and support efforts to fight this scourge.

*Markus Haacker*  
*September 2004*

## References

- Joint United Nations Program on HIV/AIDS (UNAIDS), 2004, *2004 Report on the Global HIV/AIDS Epidemic* (Geneva).
- , United Nations Children's Fund (UNICEF), and U.S. Agency for International Development (USAID), 2004, *Children on the Brink 2004* (Geneva).
- World Health Organization, 2004, *World Health Report 2004: Changing History* (Geneva).

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