



A compilation of
articles from
Finance & Development

Health and Development

Why investing in health is critical for achieving
economic development goals



International
Monetary Fund

Health and Development

A compilation of articles from *Finance & Development*

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Preface

The past century has been marked by rapid advances in human welfare. People in most parts of the world are healthier and are living longer. While this trend is likely to continue, hopes are fading in some regions where progress slowed or stopped in the 1990s, primarily as a result of the AIDS epidemic.

This compilation of articles published over the past five years in the pages of *F&D* looks at the important links between health and economic progress. Articles range over a variety of topics, from the Millennium Development Goals and their health-related targets for 2015 to the economics of tobacco control. Several articles examine the impact of AIDS, while others look at debt and the intellectual property aspects of health care.

By publishing the articles together, we hope that they will form a useful starting point for those examining the economics of health in developing countries.

Laura Wallace

Editor-in-Chief

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Getting There

How to accelerate progress toward the Millennium Development Goals

Mark Baird and Sudhir Shetty

WITH JUST 12 years left to achieve the Millennium Development Goals (MDGs, see Box 1), a greater sense of urgency is needed by all sides if the targets are to be met. Many developing countries are making substantial progress toward the MDGs as a result of improved policies, better governance, and the productive use of development assistance. But they could do more with the right mix of policy reforms and additional help. Scaling up efforts to meet the MDGs by 2015 presents both opportunities and challenges. By

acting now, developed countries can hasten progress by providing more and better aid and by allowing greater access to their markets. Developing countries, for their part, will need to continue to improve their policies and the way they are implemented. Without greater impetus, there is a serious risk that many countries will fall far short on many of the goals.

These findings emerge from a recent World Bank study that looked at how progress toward the MDGs at the *country* level

could be accelerated through a combination of better domestic policies and improved governance, higher aid levels (in terms of official development assistance), more effective aid delivery, and improved market access to developed country markets. The study focused on 18 countries that account for

approximately half of the world's poor and a third of global aid flows and are broadly representative of low-income countries with good policies. The 18 are Albania, Bangladesh, Benin, Bolivia, Burkina Faso, Ethiopia, Honduras, India, Indonesia, the Kyrgyz Republic, Madagascar, Mali, Mauritania, Mozambique, Pakistan, Tanzania, Uganda, and Vietnam. The role for aid was also reviewed for two other groups of countries—low-income countries under stress and middle-income countries.

The country-based approach of this study complemented other work that used global and sectoral approaches to examine the cost of attaining all the MDGs in all developing countries and the implications for aid volumes (see, for instance, Devarajan, Swanson, and Miller, 2002). The study focused on countries with good policies because, as the literature on aid effectiveness has shown, the case for aid is strongest for these countries (Burnside and Dollar, 2000). The quality of policies refers to judgments about the adequacy of a country's policy, governance, and institutional framework in promoting poverty reduction through sustained growth and improved service delivery to the poor.

Each of the 18 countries has made significant progress over the past decade, especially on the goals of reducing income poverty, promoting primary education, and increasing access to safe drinking water. But progress has varied, both across goals and across countries. The least progress has been made on the child and maternal mortality goals and on sanitation. And while Bangladesh, Indonesia, and Vietnam have made rapid progress toward some or all goals, Ethiopia, Madagascar, and Pakistan have seen less improvement.

Progress on health and reducing child and maternal mortality are crucial for achieving the MDGs

Box 1

The Millennium Development Goals

1. **Eradicate extreme poverty and hunger**
 - Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day.
 - Halve, between 1990 and 2015, the proportion of people who suffer from hunger.
2. **Achieve universal primary education**
 - Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.
3. **Promote gender equality and empower women**
 - Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015.
4. **Reduce child mortality**
 - Reduce by two-thirds, between 1990 and 2015, the under-5 mortality rate.
5. **Improve maternal health**
 - Reduce by three-fourths, between 1990 and 2015, the maternal mortality ratio.
6. **Combat HIV/AIDS, malaria, and other diseases**
 - Have halted by 2015, and begun to reverse, the spread of HIV/AIDS.
 - Have halted by 2015, and begun to reverse, the incidence of malaria and other major diseases.
7. **Ensure environmental sustainability**
 - Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources.
 - Halve, by 2015, the proportion of people without sustainable access to safe drinking water.
 - Have achieved, by 2020, a significant improvement in the lives of at least 100 million slum dwellers.
8. **Develop a global partnership for development**
 - Develop further an open, rule-based, predictable, nondiscriminatory trading and financial system.
 - Address the special needs of the least developed countries.
 - Address the special needs of landlocked countries and small island developing states.
 - Deal comprehensively with debt problems of developing countries through national and international measures to make debt sustainable in the long term.
 - In cooperation with developing countries, develop and implement strategies for decent and productive work for youth.
 - In cooperation with pharmaceutical companies, provide access to affordable, essential drugs in developing countries.
 - In cooperation with the private sector, make available the benefits of new technologies, especially information and communications.

Two scenarios

The first scenario in the study looked at how much progress each of these countries could make toward the MDGs by 2015 without significant increases in aid flows or improvements in policies. (The projected outcomes under this scenario and the second scenario with improved policies and higher aid, described below, reflect the judgments of World Bank country teams, supported by existing analysis.) The left panel of Chart 1 provides a summary of the prospects for the 18 countries under the first scenario. More countries are likely to attain the education and poverty goals than those for health or the environment. In general, this is representative of what can be expected if the countries continue to pursue policies aimed at maintaining macroeconomic stability and promoting structural reform. The growth payoff from these policies will yield the biggest gains in reducing income poverty and increasing primary school enrollment. However, even among the education goals, while the primary school enrollment target is expected to be met in almost two-thirds of the sample countries, those for primary school completion and gender equality pose bigger challenges. Similarly, while almost half the sample countries would meet the income poverty goal, several of them will not be able to meet the goal of reducing hunger.

The child and maternal mortality goals are projected to remain unmet universally in the sample (see Box 2, page 4, for a discussion of why these health goals are particularly challenging). Only Bangladesh, Indonesia, and Vietnam are likely to meet the child mortality goal. And on maternal mortality, probably only Vietnam will meet the MDG. Reaching these goals is made more difficult in many of the sub-Saharan countries in the sample because of the spread of the HIV/AIDS epidemic in the 1990s.

How would significantly better policies and more aid interact in stepping up the pace of these countries' progress toward the MDGs? The outcomes for each country under this second scenario are summarized in the right panel of Chart 1, which shows how powerful this combination could be. For example, it would probably allow all 18 sample countries to achieve the poverty goals, and several of them, including Mozambique, Uganda, and Vietnam, could make even sharper reductions in poverty than called for by the MDGs. Significant progress could also be expected on the education goals, with almost two-thirds of the sample countries attaining the targets even for primary school completion and gender equality. However, progress on the health and environmental goals would remain a challenge (see Chart 2). Only a third or fewer of the countries would achieve all the targets in either area, and some would not meet any of the goals.

For improvements to occur at this faster pace, substantial policy and institutional reforms will be necessary to accelerate growth and improve service delivery. The needed reforms fall into three broad areas: improving the environment for private sector activity, particularly in terms of the rule of law and infrastructure; enhancing the quality of governance and capacity in the public sector; and delivering more effective human development and other basic services to poor people.

Reform priorities will vary by country. In some, such as Pakistan and Indonesia, strengthening governance in the public sector and improving the investment climate are the priorities. In Madagascar and Burkina Faso, it will be necessary to implement sectoral policies and reorient public expenditure programs to make the pattern of growth more pro-poor. And, in Honduras, more rapid growth will hinge on reforms to deepen the financial sector and improve governance.

How much more aid is needed?

The amount of additional aid that can be used productively varies substantially across countries because of differences in policies and institutions and the pace at which these might be improved, the incidence of income and nonincome poverty, and current aid levels. These variations emerge clearly if the 18 countries are looked at in terms of three groups.

The five large Asian countries—Bangladesh, India, Indonesia, Pakistan, and Vietnam—have large numbers of poor (collectively, they account for almost 45 percent of those who live on less than \$1 a day), good policies, and prospects for further improvement supported by reasonable institutional capacity. They currently receive low levels of aid (in per capita terms or as shares of GDP). It should therefore be possible to increase aid substantially (a doubling or more of current flows) to these countries. As a result, and provided they further improve their policies, they will be able to make faster progress toward the MDGs (and, in Indonesia and Vietnam, would go beyond several of the MDGs).

For countries with higher per capita incomes and already sizable aid flows—Albania, Bolivia, and Honduras—additional assistance could be used productively, but the incremental amounts would be much smaller. On average, their additional aid requirements will be about 20 percent over current flows. One reason is that they already receive considerable aid, with higher per capita aid than most sub-Saharan African countries. Also, while they still face serious challenges with regard to some of the goals—particularly in terms of improving conditions of marginalized regions and groups—and will continue to need aid,

many of them will require deeper reforms rather than significantly more concessional assistance to sustain higher growth.

The third group comprises the 10 countries of sub-Saharan Africa and Central Asia. These have smaller populations, weaker institutional capacity, and typically already receive substantial aid. For these countries, the additional aid needed will average about 60 percent over current aid levels, depending on country circumstances. A key consideration in these countries, where there is considerable uncertainty, is the pace at which they can reasonably expect to upgrade their institutional and human capacities so as to translate good policies and more public spending financed by aid into faster growth and better human development outcomes.

On the one hand, countries such as Burkina Faso and Mozambique are likely to be able to use only relatively modest increases in aid despite their enormous needs relative to the development goals. They already receive substantial amounts of external assistance—over half of Burkina Faso’s budget is externally financed while aid flows to Mozambique are about one-fourth of its GDP. And, while each could further improve its policies, including increasing domestic revenue mobilization, the lags between those reforms and the necessary upgrading of capacity will imply that increases in aid will

Chart 1

Prospects of meeting the MDGs

How more money, coupled with policy reforms, could make a crucial difference.



Source: World Bank.

Note: Each column shows progress in achieving MDG targets in four broad areas: poverty—income poverty and hunger; education—primary enrollment and completion, and gender equality in education; health—child (under 5) mortality, maternal mortality, and, where applicable, HIV/AIDS; and environment—improved access to water and sanitation, and, where applicable, better forestry management.

Why health lags

Meeting the health MDGs is more challenging than the other goals for several reasons. First, the declines in infant and maternal mortality required to meet the targets are especially steep (a two-thirds reduction in child mortality rates and a three-fourths reduction in maternal mortality by 2015). Second, improving health outcomes is linked not only to the provision of health services, but also to interventions outside the health sector. Access to clean water and education for mothers are both key determinants of infant and child mortality rates. And achieving sharp declines in maternal mortality requires behavioral changes in prenatal care and delivery and an improved road network, in addition to improved hospital care. Third, delivering health services effectively requires the coordination of policies across a number of fields. These include public sector management policies that provide adequate incentives to health care providers; procurement and distribution policies for pharmaceuticals so that these are available in sufficient quantities in the right places; public health measures to protect the population; and suitable regulation and quality control of private providers, who often deliver more health services than public providers.

Nevertheless, experience shows that progress toward the health goals is possible. Concerted efforts will be required to ensure sustained improvements in indicators of infant and child mortality and maternal mortality. These areas include improvements in access to and the quality of health services; better infrastructure, especially for water and sanitation; and a focus on the control of diseases that are highly concentrated among the poor (for example, tuberculosis and malaria), where the benefits go beyond those immediately affected, or have the characteristics of public goods.

need to be phased in gradually. On the other hand, Ethiopia and Madagascar should be able to use substantially more aid, possibly even a doubling of current flows over the coming decade, if these increases are accompanied by policy improvements. In per capita terms, Ethiopia currently receives about half the level of aid of Burkina Faso and a third of what Mozambique receives. So, if it is able to improve its policies, particularly by making the investment climate more favorable, large increases in aid could significantly accelerate its progress toward several of the MDGs.

Other low-income countries

What about the role of aid in low-income countries with weaker policies and governance than those of the 18 countries in the sample? Such countries pose special challenges for the effective use of aid. While the countries in this group are diverse, including postconflict countries as well as countries with poor development records, they also share several characteristics. All of them have poor and deteriorating economic and social indicators; limited data on social conditions and the impact of development programs; and very weak policies, institutions, and governance (World Bank, 2002). The challenge for donors in these countries is to find ways of balancing the countries' limited absorptive capacity and high risk with the need to remain engaged so that the prospects for progress are not compromised. Strong aid coordination is especially important, given the fragility of the countries' reform programs and limited political and technical capacities. While there is no template for how these countries can best be assisted in initiating reforms, a better understanding of local social and political dynamics must be the starting point in all cases. And their ability to use aid effectively to move toward the MDGs can be enhanced by improvements in policies and governance. One way to use increased aid more productively, even in the short run, could be by strengthening autonomous or nongovernmental institutions for service delivery.

Among these countries, the case for larger financial transfers is stronger in postconflict countries. Most of them have significant humanitarian needs coupled with the need to rebuild infrastructure and provide basic social services. At the same time, the domestic resource base is small and unlikely to grow rapidly—for instance, in Afghanistan, domestic revenues are projected to reach only about 5 percent of GDP and 9 percent of the government's budget in 2004. In this situation, donors need to finance the large up-front cost in a timely manner and in ways that support rather than undermine local efforts to mobilize resources and build capacity. Also, ways need to be found to ensure that aid flows to these countries continue to rise over time as they strengthen their institutional and policy environments rather than tapering off too soon after the conflict ends, as has typically occurred.

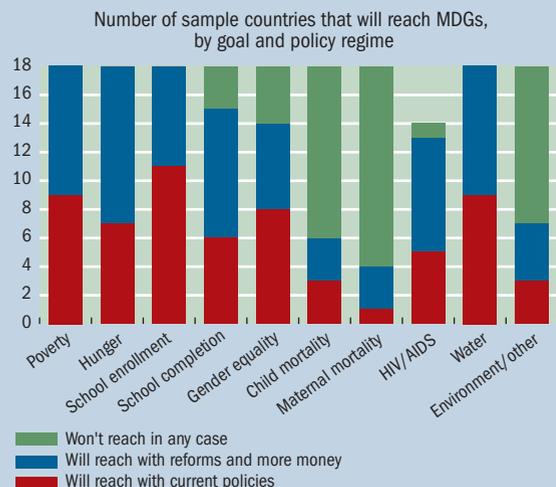
Middle-income countries

As for middle-income countries, most have already met or are on track to achieve the MDGs well before 2015. And although they received over one-fourth of total aid flows in 2001, most

Chart 2

Uneven progress

Many countries are likely to fall short on health targets, but more money and better policies could make a big difference.



rely on domestic resources and private capital flows to finance the bulk of their investment needs. Yet in 2000, these countries were still home to 280 million people living on less than \$1 a day and 870 million people living on less than \$2 a day. And, while other social indicators are, on average, better than those in low-income countries, there remain significant pockets of poverty and deprivation in most of them.

The case for aid to help these countries hasten their progress toward the MDGs varies with country conditions. Their per capita incomes range from \$750 to over \$9,000, and they differ also in terms of creditworthiness and the adequacy of their policies. Lower-middle-income countries, such as Guatemala, Morocco, Peru, and the Philippines, are similar to the wealthier low-income countries. They have widespread deprivation (although not necessarily on all dimensions—Peru, for instance, has almost universal primary schooling) and weak creditworthiness. For these countries, even when they have some access to private capital, modest levels of official development assistance could play a crucial catalytic role in implementing reforms aimed at addressing poverty and inequality and making faster progress toward the MDGs.

Although China is a lower-middle-income country, its size, track record in sustaining growth and reducing poverty, and access to private capital flows make it distinctive. It has already achieved several of the MDGs and is on track to reach all of them by 2015.

However, in 2000, about 200 million Chinese still lived on less than \$1 a day, and 600 million lived on less than \$2 a day. Inequalities across regions and between rural and urban areas are also severe. To address these problems will require comprehensive reform of the intergovernmental fiscal system, in addition to sectoral reforms to improve service delivery. In tandem, substantial incremental spending will also be needed, the bulk of which will have to come from domestic sources. Aid can play a role at the margin by helping to advance the necessary policy and institutional reforms needed for China to achieve the MDGs more uniformly.



A mother begs for coins to feed her child in the Ethiopian capital, Addis Ababa.

In upper-middle-income countries, official external assistance could usefully reinforce domestic efforts (and domestic resources) in tackling pockets of poverty, which remain significant in many of them, as well as in buffering the poor from the impact of external shocks. Since most of these countries can access international capital markets, such official flows are likely to be primarily nonconcessional and will decline as incomes rise. For these countries, greater access to developed country markets will also do more than additional aid in supporting domestic efforts to address pockets of poverty.

Implications of scaling up

To accelerate progress toward the MDGs, the international community will need to act on four fronts:

Link country strategies to medium-term national goals.

Poverty Reduction Strategy Papers (PRSPs) in low-income countries, and national development strategies more generally, need to be linked more explicitly with longer-term development goals and specify what countries and their development partners will do to meet them. This will require that countries use their PRSPs or development strategies in formulating medium-term goals and translating these into annual budgets and programs that also incorporate expectations about aid flows. To do this effectively, they will need to address country-level information and analytical gaps about MDG-related outcomes and their determinants. In particular, there are still large gaps regarding the interventions needed to improve service delivery, particularly in bringing out the indirect role of infrastructure.

Provide substantially more aid.

The country studies confirm that, with continued policy and institutional reforms, substantial increases in aid can accelerate progress toward the MDGs. The international community has committed to increase aid volumes by \$16–18 billion annually by 2006 (from its 2002 level of \$56 billion). Extrapolating from the broad typologies of the sample countries, the absorptive capacities of low-income countries with weaker policies, and the catalytic role of aid in middle-income countries, the study suggests that a larger sum—possibly at least \$30 billion annually in addition to current aid flows—is needed. Committing this additional amount early can create a virtuous circle that improves the prospects for reaching the MDGs in many developing countries by helping sustain their reform efforts. Thus, this estimate of the additional aid needed could well be exceeded over the medium term. It is conservative also because, while it reflects the best available country-level analysis, there are gaps, particularly with regard to infrastructure needs (see Box 3) and the likely pace of capacity enhancement.

Improve the delivery of aid. While there is no one answer as to what makes for good aid, the country studies on which this paper is based suggest that there are three main implications for aid delivery:

- *Support good policies with timely and predictable aid.* The recent shift in aid allocations toward low-income countries with relatively good policies is a positive trend that should be

continued. And, as countries build a track record of policy performance, they should be supported with access to timely and predictable aid, which will allow them greater confidence in undertaking the long-term reforms needed to sustain progress toward the MDGs. Although more needs to be done, one country that has made some progress in this direction is Uganda.

However, low-income countries with weaker policies should not be cut off from aid. In some countries, especially postconflict, up-front and transitional costs for humanitarian assistance, infrastructure rehabilitation, and basic social service provision can be significant. Other countries initiating reform programs can face unfavorable initial conditions, such as arrears on external debt and negative net transfers of external resources. The challenge in these cases is to provide aid quickly and without undermining local efforts to mobilize resources and build capacity.

- *Align aid with country priorities and constraints.* Aid should be provided in ways that are better aligned with the priorities as articulated in countries' poverty reduction or development strategies, as in Vietnam and Ethiopia. This means accepting national goals, improving donor coordination, and harmonizing donor policies as far as possible with the countries' own systems. Assistance should also be phased in and sequenced with improvements in country



Herding goats in Mali.

capacities (as is being done in Tanzania) so as to avoid potential problems associated with aid dependence.

- *Provide appropriate forms of aid on sustainable terms.* A much higher proportion of additional aid than at present should be provided in the form of cash so that it can finance the costs of meeting the MDGs. Aid can meet the need for increased recurrent costs if it is provided through budget or sectorwide support in countries such as Burkina Faso that are improving their public expenditure management, or by financing well-designed sectoral programs, as in Madagascar. And, to ensure debt sustainability in heavily indebted countries that have good policies but are susceptible to shocks, a greater share of aid may need to take the form of grants.

- *Enhance access to markets in industrial countries.* For many low- and middle-income countries, trade and aid complement each other. Developing countries' prospects for achieving the MDGs would be significantly enhanced by greater access to markets in industrial countries. The highest tariffs faced by developing country exporters are on agricul-

Box 3

Why better infrastructure is crucial

There is growing recognition that improving infrastructure is crucial to achieving the MDGs. Yet most country strategies do not factor in infrastructure in an integrated manner because of lack of clarity at the country level as to how reliable and affordable provision of infrastructure services can help in reducing poverty through faster growth and better service delivery. Below are two examples of how infrastructure affects progress on MDG-related outcomes:

- **Through growth.** In Uganda, a survey of 243 firms conducted in 1998 showed that inadequate electricity sources were the most important constraint to investment. Firms did not receive electricity from the public grid for 89 operating days a year, on average, with the result that 77 percent of large firms (in addition to 44 percent of medium and 16 percent of small firms) purchased generators, representing 25 percent of their total investment in equipment and machinery. Provision of reliable electricity services would likely attract more firms to invest in Uganda—improving the outlook for growth and poverty reduction.

- **Through service delivery.** In rural India, a study found that the prevalence and duration of diarrhea among children under 5 are significantly lower, on average, for families with piped water than for those without piped water. However, the results also show that the health gains largely bypass children in poor families, particularly when the mother is poorly educated. This points to the importance of combining infrastructure investments with effective public action to promote health knowledge and income poverty reduction.

tural products, processed foods, and textiles and apparel—products that dominate the exports of the poorest countries. Despite the recent setback at Cancún, successful completion of the Doha Round focused on reducing these barriers could generate substantial income gains for low- and middle-income countries and, therefore, remains a priority.

The ability to benefit from improved market access, particularly for low-income countries, depends also on their undertaking further trade reforms and investments, particularly upgrading trade-related infrastructure and improving customs administration. While improved market access will benefit most developing countries in the longer term, many will be able to use additional aid in the short and medium terms to take advantage of the resulting opportunities to expand their exports. ■

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This article draws on a World Bank paper, “Supporting Sound Policies with Adequate and Appropriate Financing,” prepared for the September 2003 meeting of the Development Committee of the World Bank and the IMF in Dubai.

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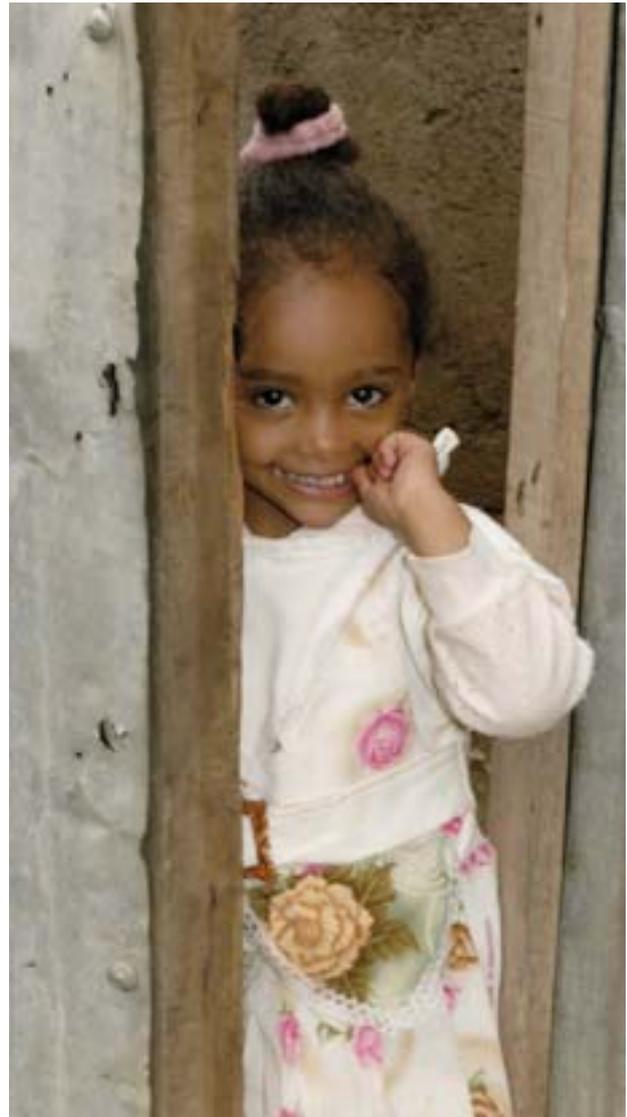
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A child looks out from her makeshift home in Ethiopia.

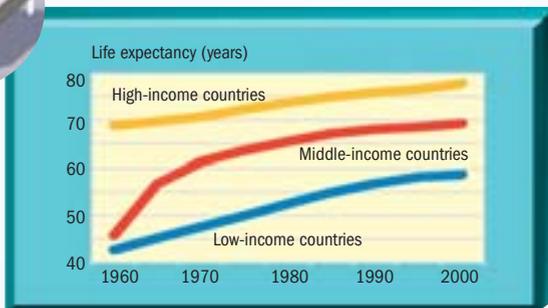
Checking Up on Health

IN MOST parts of the world, people are healthier and living longer, thanks to improved health services and living conditions and the more widespread use of immunization, antibiotics, and better contraceptives. Although this trend is likely to continue, hopes are fading in some regions where progress slowed or stopped in the 1990s, primarily as a result of the AIDS epidemic. Indeed, life expectancy in sub-Saharan Africa declined from 50 to 46 years

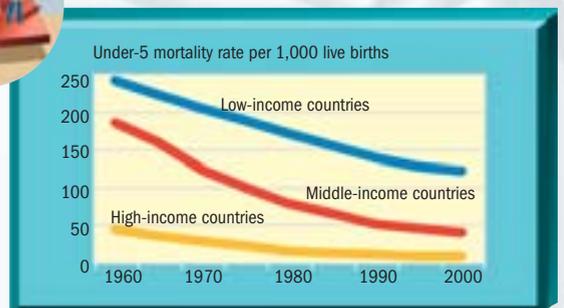
between 1990 and 2001. Moreover, most regions of the developing world will not, at the current pace, reach the Millennium Development Goals for health by 2015—including reducing child and maternal mortality and combating HIV/AIDS, malaria, and other diseases. Here, we give a snapshot of changes in the world's health and demographic conditions, and, in the following pages, four articles explore the importance of good health for economic development.



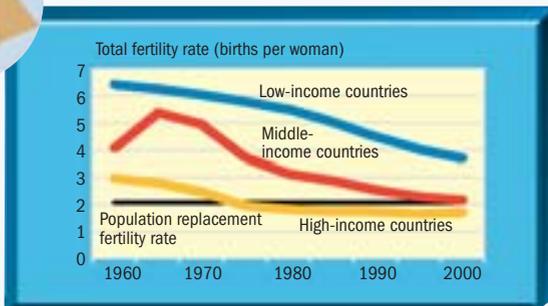
Better health care has extended lives and . . .



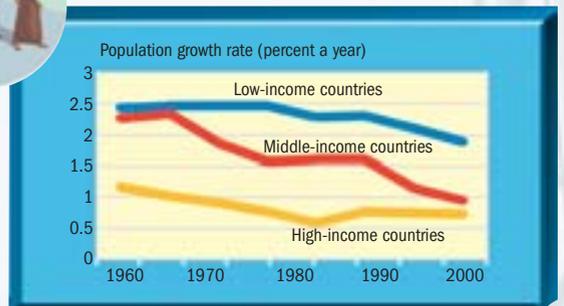
lowered under-5 mortality rates worldwide.



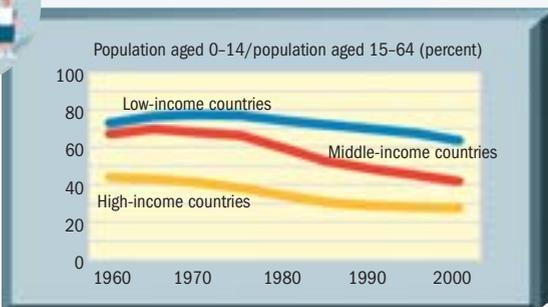
This, in turn, has led to lower fertility rates . . .



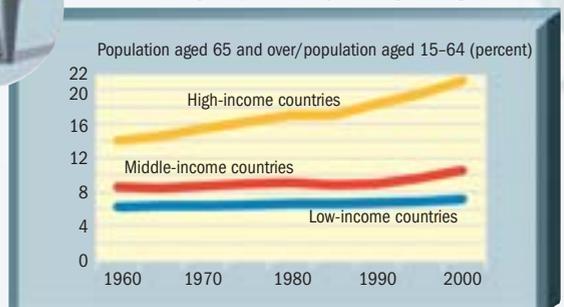
and thus slower population growth rates.



Worldwide, youth dependency is falling steadily . . .



while elderly dependency is beginning to rise.



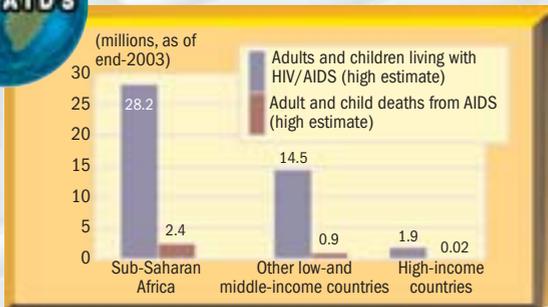
Source: The World Bank Group, World Development Indicators online at <http://devdata.worldbank.org/dataonline/>.

People in developing countries suffer from far higher rates of infectious diseases than do people in the developed world. For example, about 99 percent of all the deaths from AIDS, tuberculosis, and malaria occur in developing countries. To finance a dramatic turnaround in the fight against these diseases, the UN Global Fund was created in 2001. AIDS, in particular, has ravaged populations in the developing world, and major childhood infections and maternal mortality continue to present formidable challenges. At the same time, noncommunicable diseases, such as heart disease and cancer, already pose huge and rapidly

growing threats as populations continue to age. In 2001, over 13 million people in developing countries died of cardiovascular diseases alone. This figure is startling compared with the 7.9 million people who died of all causes in high-income countries. Tobacco, which is a major contributor to three main causes of death worldwide—heart disease and stroke; cancers, particularly lung cancer; and chronic obstructive pulmonary disease—is already killing 2 million people a year in the developing world, and the number of tobacco-related deaths is expected to more than triple over the next quarter century.



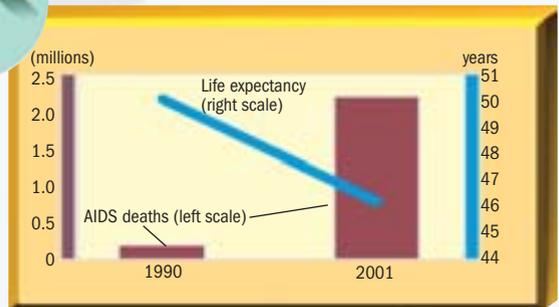
Over 44.6 million people worldwide, most of them in Africa, are living with HIV/AIDS.



Sources: UNAIDS; and World Health Organization.



AIDS accounted for 2.2 million deaths in Africa in 2001, and life expectancy is falling.



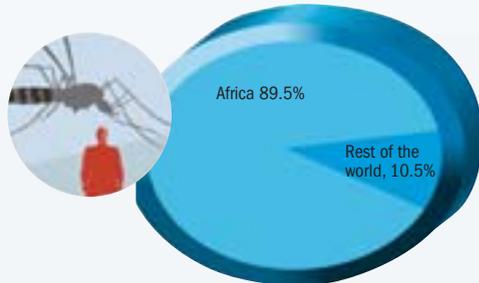
Sources: The World Bank Group, World Development Indicators online; and Disease Control Priorities Project Working Paper Number 20, November 2003.

Tuberculosis killed 1.7 million people in 2000; most new infections occurred in low-income countries.



Source: World Health Organization.

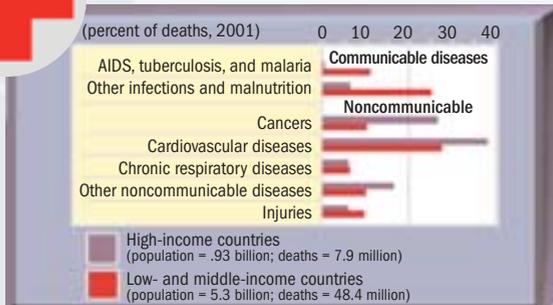
Malaria was responsible for an estimated 1.1 million deaths in 2000, most of them in Africa.



Sources: World Health Organization; and the World Bank Group, World Development Indicators.



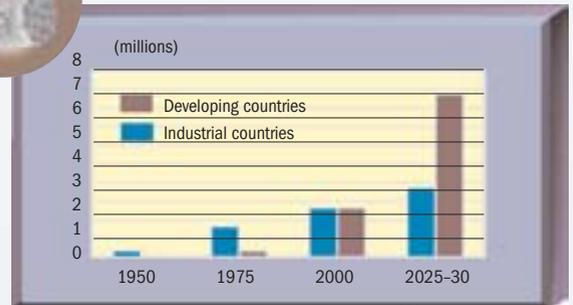
In poorer countries, noncommunicable diseases and injuries cause 63 percent of deaths.



Source: World Health Organization.



Tobacco-related deaths are expected to soar, especially in developing countries.



Source: World Health Organization.

Health, Wealth, and Welfare

David E. Bloom, David Canning, and Dean T. Jamison

New evidence coupled with a wider perspective suggest sizable economic returns to better health

THE LAST 150 years has witnessed a global transformation in human health that has led to people living longer, healthier, more productive lives. While having profound consequences for population size and structure, better health has also boosted rates of economic growth worldwide. Between the 16th century and the mid-19th century, average life expectancy around the world fluctuated but averaged under 40 years, with no upward trend. Life spans slowly but steadily increased in the second half of the 19th century and then jumped markedly in the 20th century, initially in Europe and then in the rest of the world (see table). Economic historians and demographers still debate the genesis of these changes, but they increasingly point to rising incomes (and resulting improvements in sanitation and food availability) as the major cause of declines in 19th-century mortality rates. For the 20th century, however, they believe technical improvements were the catalysts—particularly the discovery of the germ theory of disease, a better understanding of

hygiene, and the development of antibiotics and vaccines.

Chile provides a well-documented example of dramatic mortality decline. A Chilean female born in 1910 had a life span of 33 years. Today, her life expectancy exceeds 78 (only 2 years shorter than that in the United States). In 1910, the odds were more than one in three that she would die before age 5; today, they are less than one in fifty. Moreover, for middle-aged people, death rates are also now far lower: today's Chilean female is far less likely to die as a young adult from tuberculosis or childbearing or in middle age from cancer. Mirroring these mortality changes are marked changes in her quality of life. She can choose to have fewer pregnancies and spend less time raising children: from an average of 5.3 children in 1950, Chilean women's fertility has dropped to 2.3 (barely above replacement). She suffers fewer infections and has greater strength and stature and a quicker mind. Her life is not only much longer, it is much healthier as well.

What has this improvement in population health since the mid-19th century meant for economies as a whole? And what does the recent fall in life expectancy in Africa and elsewhere as a result of the HIV/AIDS epidemic portend? This article tries to answer these questions by exploring the increasingly strong body of evidence showing that better health contributes to the more rapid growth of GDP per capita. The article also delves into recent studies that argue that past estimates of economic progress have been understated and that recent economic losses caused by HIV/AIDS are likewise being understated if economists rely on GDP per capita as a yardstick. A better indicator would be "full income," a concept that captures the value of changes in

Living longer

Life expectancy rose sharply around the world in the second half of the 20th century, but AIDS is undermining progress in Africa and elsewhere.

Region	Life expectancy, years			Rate of change in years per decade	
	1960	1990	2001	1960-90	1990-2001
Low and middle income	44	63	64	6.3	0.9
East Asia and Pacific	39	67	69	9.3	1.8
Europe and Central Asia	n/a	69	69	n/a	0.0
Latin America and Caribbean	56	68	71	4.0	2.7
Middle East and North Africa	47	64	68	5.7	3.6
South Asia	44	58	63	4.7	4.5
Sub-Saharan Africa	40	50	46	3.3	-3.6
High income	69	76	78	2.3	1.8
World	50	65	67	5.0	1.8

Source: *World Development Indicators 2003* (Washington: World Bank, 2003).

Note: Entries are the average of male and female life expectancies. Assignment of countries to regions uses the World Bank convention for 2003 that is listed on the inside back cover of *WDI 2003*.



Filipinos light candles to commemorate AIDS victims while marking AIDS Day in Manila.

occurred in much of West Africa prior to the successful control of river blindness. Yet another channel is through boosting education. Healthier children have higher rates of school attendance and improved cognitive development, and a longer life span can make investment in education more attractive.

The initial beneficiaries of health improvements are often the most vulnerable group: children. Lower infant mortality initially creates a “baby boom” cohort and often leads to a subsequent reduction in the birth rate as families choose to have fewer children in the new low-mortality regime. A baby-boom cohort is thus unique and affects the economy profoundly as it enters education, then finds jobs, saves for retirement, and, finally, leaves the labor market. The cohorts before and after a baby boom are much smaller.

If better health improves an economy’s productive potential, we would expect good health to go hand in hand with higher steady-state output. However, there may be a lag such that

life expectancy by including them in an assessment of economic welfare. For Africa, this new yardstick sharply illuminates the economic consequences of AIDS in the past 15 years and signals catastrophe ahead.

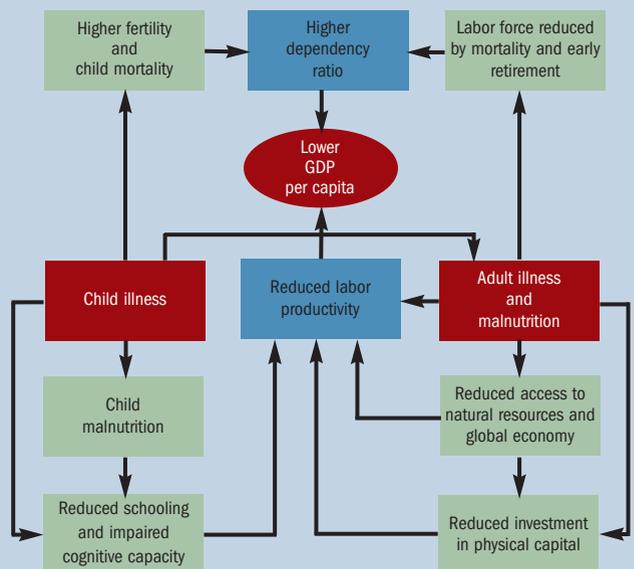
How health affects GDP per capita

How does health influence GDP per capita? To begin with, healthy workers are more productive than workers who are otherwise comparable but for their health. One strand of supporting evidence comes from studies on individuals that link investments in health and nutrition of the young to adult wages.

Better health also raises per capita income through a number of other channels (see Chart 1). One way is by altering decisions about expenditures and savings over the life cycle. The idea of planning for retirement occurs only when mortality rates become low enough for retirement to be a realistic prospect. Rising longevity in developing countries has opened a new incentive for the current generation to save—an incentive that can have dramatic effects on national saving rates. While this saving boom lasts for only one generation and is offset by the needs of the elderly once population aging occurs, it can substantially boost investment and economic growth rates while it lasts. Another channel is by encouraging foreign direct investment: investors shun environments where the labor force suffers a heavy disease burden. Endemic diseases can also deny humans access to land or other natural resources, as

Chart 1
Health’s links to GDP

Poor health reduces GDP per capita by reducing both labor productivity and the relative size of the labor force.



Source: Ruger, Jennifer Prah, Dean T. Jamison, and David E. Bloom, 2001, “Health and the Economy,” p. 619, in *International Public Health*, edited by Michael H. Merson, Robert E. Black, and Anne J. Mills (Sudbury, Massachusetts: Jones and Barlett).

Box 1

The East Asian “miracle”

There is a growing body of evidence that the East Asian countries that sustained high rates of economic growth in the second half of the 20th century did so largely thanks to high rates of growth of factor inputs—labor, physical capital, and human capital—rather than increases in total factor productivity. One reason for the rapid increase in labor supply per capita in East Asia has been the effect of better health. Improvements in health, feasible at modest cost, preceded and helped catalyze the so-called miracle. Life expectancy increased from 39 years in 1960 to 67 years in 1990, with a concomitant decline in fertility. Declining mortality and fertility rates meant that between 1960 and 2000 the ratio of working-age people (15–64) to the dependent population (0–14 and 65 plus) rose from about 1.3 to over 2, which facilitated a much higher input of workers per capita into production and a higher GDP per capita.

Another key element in East Asia’s economic success stories was the region’s exceptionally high rates of capital accumulation, driven by saving levels that often exceeded 30 percent of income. Increases in longevity led to an increase in the need for saving to secure retirement income, as studies have suggested. Savings by individuals peak when they are between 40 and 65 and are preparing for retirement, resulting in a savings boom when the baby-boom cohort enters this age range. Not only did East Asia have a large fraction of its population in this peak savings age range, but also this cohort was the first in the region to be living in a low-mortality environment and to be saving for retirement on a large scale.

economies adjust gradually to their steady-state output level over time. In this case, we expect countries that have high levels of health but low levels of income to experience relatively faster economic growth as their income adjusts. How big an overall contribution does better health make to economic growth? Evidence from cross-country growth regressions suggests the contribution is large. Indeed, the initial health of a population has been identified as one of the most robust and potent drivers of economic growth—among such well-established influences as the initial level of income per capita (once countries reach their steady-state level of income, growth slows), geographic location, institutional environment, economic policy, initial level of education, and investments in education. For example, Bloom, Canning, and Sevilla (Harvard University) found that one extra year of life expectancy raises steady-state GDP per capita by about 4 percent.

But not all countries benefit equally from this link. Alok Bhargava (University of Houston) and colleagues found that better health matters more for wages in low-income countries than in high-income ones. Studies also show that better health matters more for countries with good economic policies, such as openness to trade and good governance. Work undertaken by Bloom, Canning, and Malaney (Harvard University) concluded that the East Asian growth miracle was actually no miracle at all: rather, it represents compelling evidence for a process in which health improvements played a leading role in the context of generally favorable economic policies (Box 1).

Virtuous and vicious circles

Health improvements can spur economic performance, but causality also runs in the reverse direction. This reverse causality makes estimating the causal effect of health on economic performance difficult, but work in the area usually identifies the effect through timing; using childhood health

Box 2

The “value of a statistical life”

How should governments evaluate the consequences of public sector health, safety, and environmental interventions that reduce mortality risks? Over several decades, a substantial body of research has addressed this question by using information from individuals’ choices about willingness to take risks. W. Kip Viscusi of Harvard University has closely tracked this literature, and, in a recent overview, he and colleague Joseph Aldy provide a clear statement of the approach:

Individuals make decisions everyday that reflect how they value health and mortality risks, such as driving an automobile, smoking a cigarette and eating a medium-rare hamburger. Many of these choices involve market decisions, such as the purchase of a hazardous product or working on a risky job. Because increases in health risks are undesirable, there must be some other aspect of that activity that makes it attractive. Using evidence on market choices that involve implicit tradeoffs between risk and money, economists have developed

estimates of the value of a statistical life (VSL). (Viscusi and Aldy, 2003)

If, for example, a worker requires (and is paid) \$500 a year of additional pay to accept a more risky but otherwise similar job, where the increase in the mortality rate is 1 in 10,000 a year, the value placed on reducing risk by this magnitude is simply \$500. The value of a statistical life is defined as the observed amount required to accept a risk divided by the level of the risk—that is, in the example we have chosen, the VSL would be $\$500/(1/10,000) = \$5,000,000$, a number in the range of estimates for the United States today. Viscusi and Aldy provide a comprehensive overview of the methods used in this research and summarize results of 60 studies from 10 countries.

Willingness to pay to avoid risks rises, not surprisingly, with income. A reasonable range of values for a country’s VSL appears to be 100–200 times GDP per capita, with values estimated in richer countries more likely to occur toward the high end of the range.



An obstetrics ward in the Ethiopian capital, Addis Ababa.

and nutrition inputs as a determinant of adult wages or taking population health in, say, 1960 as a factor influencing economic growth during 1960–95. More important, this two-way causality can give rise to cumulative causality, with health improvements leading to economic growth, which can facilitate further health improvements, and so on. While this virtuous circle of improvements in health and income can continue for a time, it will eventually come to an end as returns to health improvements diminish and demographic change leads to an aging population.

There is also scope, however, for vicious circles, with health declines setting off impoverishment and further ill health. This pattern has been particularly evident in the former Soviet Union, where male life expectancy declined sharply during the transition from communism, and in sub-Saharan Africa, where HIV infection rates are high and AIDS is already dramatically increasing adult mortality rates.

The effect of HIV/AIDS on GDP per capita could eventually prove devastating. There is an enormous waste of human capital as prime-age workers die. A high-mortality environment deters the next generation from investing in education and creating human capital that may have little payoff. The creation of a generation of orphans means that children may be forced to work to survive and may not get the education they need. High mortality rates may reduce investment. Saving rates are thus likely to fall, as the prospect of retirement becomes less likely. And foreign companies are less likely to invest in a country with a high HIV prevalence rate because of the threat to their own workers, the prospect of high labor turnover, and the likely loss of workers who have gained specific skills by working for the firm.

How health influences “full income”

Judging countries’ economic performance by GDP per capita, however, fails to differentiate between situations where health

differs: a country whose citizens enjoy long and healthy lives clearly outperforms another with the same GDP per capita but whose citizens suffer much illness and die sooner. Individual willingness to forgo income to work in safer environments and social willingness to pay for health-enhancing safety and environmental regulations provide measures, albeit approximate, of the value of differences in mortality rates. Many such willingness-to-pay studies have been undertaken in recent decades, and their results are typically summarized as the “value of a statistical life,” or VSL (Box 2).

Although the National Income and Product Accounts include the value of inputs into health care (such as drugs and physician time), standard procedures do not incorporate information on the value of changes in mortality rates. In a pathbreaking (but long-neglected) paper, Dan Usher of Queen’s University, Canada, first brought the value of mortality reduction into the economic analysis of national income accounting. He did this by generating estimates of the growth in “full income”—a concept that captures the value of changes in life expectancy by including them in an assessment of economic welfare—for six countries and territories (Canada, Chile, France, Japan, Sri Lanka, and Taiwan Province of China) during the middle decades of the 20th century. For the upper-income countries in this group, perhaps 30 percent of the growth of full income resulted from declines in mortality. In the developing countries, where this was a period of particularly rapid mortality decline, full income was influenced even more by mortality changes. Estimates of changes in full income are typically generated by adding the value of changes in annual mortality rates (calculated using VSL figures) to changes in annual GDP per capita. Even these estimates of full income are conservative in that they incorporate only the value of mortality changes and do not account for the total value of changes in health status.

The devastating economic impact of AIDS in sub-Saharan Africa

Life expectancy in Africa increased from 40 years in 1960 to 50 years in 1990, but the AIDS epidemic is reversing these gains. By 1990, infection with HIV had penetrated deeply into Africa, although the number of deaths remained fairly small (218,000 out of an estimated 7,940,000 deaths in 1990, or 2.7 percent of the total). But by 2001, the number of AIDS deaths had climbed to an estimated 2,197,000, or 20.6 percent of total deaths, with projections for continued increases. As a result, life expectancy has declined to 46 years.

Despite this fall in life expectancy, however, many investigators have so far found little, if any, impact of the AIDS epidemic on GDP per capita in the region—pointing to the shortcomings of GDP per capita as a measure of national economic well-being. While GDP per capita may suffer in the long run as education rates and savings fall because of high mortality rates, AIDS has certainly created a human disaster in many countries in sub-Saharan Africa. The measures of full income now entering the literature—a concept that captures the value of changes in life expectancy by including them in an assessment of economic welfare—provide a quantitative indicator of this disaster

and convey a more accurate picture of the economic effect of AIDS. They suggest that AIDS is already having a devastating economic effect on Africa.

How is the change in full income resulting from the AIDS epidemic assessed? It consists of two components: the change in GDP per capita and the value of changes in mortality rates as estimated in the VSL literature. To obtain the latter component, the first step is to calculate the impact of AIDS on mortality rates. By 2000, the epidemic had, on average, progressed to the point that mortality rates (in middle ages) were beginning to increase substantially. In 1990, a 15-year-old male had a 51 percent chance of dying before his 60th birthday, and this had increased to 57 percent by 2000. For females, the increase was from 45 to 53 percent. (By comparison, in Japan, the comparable probability for females in 1999 was only 4.8 percent.) Taking the average of the change in annual mortality probabilities gives 0.35 percent a year from 1990 to 2000.

The next step is to calculate the economic cost of these mortality increases. Conservatively, using 100 times GDP per capita as the VSL, Africa's mortality changes imply an economic cost of the epidemic approximately equal to 15 percent of Africa's GDP in 2000 (assuming that about 50 percent of the population is aged 15–60 and that 90 percent of AIDS deaths are in this age group). This corresponds to a decline in income of 1.7 percent a year from 1990 to 2000, far higher than existing estimates of the effect of AIDS on GDP.

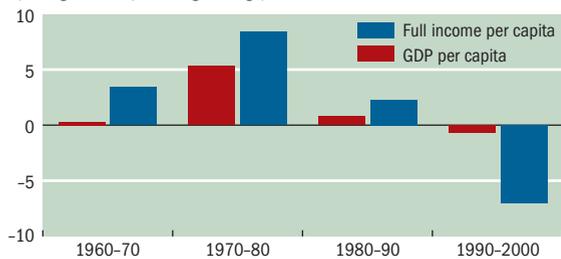
Before 1990, in contrast, improvements in adult health led to large economic benefits relative to changes in GDP per capita. The estimated effect adds several percentage points a year to the GDP growth rate in many African countries during 1960–90. This changes the overall perception of performance. Malawi, for example, in the 1980s had a slightly negative growth rate of GDP per capita, but a rather larger positive growth rate of full income that turned sharply negative in the 1990s. The chart illustrates the contrast for Kenya. To the extent that full income is a better indicator of overall economic performance than GDP per capita, Kenya's economic performance before 1990 has been significantly underestimated and, after 1990, dramatically overestimated.

Chart 2

Differing yardsticks

Trends in full income tell a very different story about Kenya's economic performance than trends in GDP.

(Average annual percentage change)



Source: Jamison, Sachs, and Wang, 2001.

For almost 15 years, little further work was done on the effects of mortality change on full income (although the number of carefully constructed estimates of VSLs increased enormously). Two papers then appeared that kindled substantial new interest. Newly appointed World Bank Chief Economist François Bourguignon and Christian Morrisson (University of Paris) addressed the long-term evolution of inequality among world citizens, starting from the premise that a “comprehensive definition of economic well-being would consider individuals over their lifetime.” Their conclusion was that rapid increases in life expectancy in poorer countries had resulted in declines in inequality, broadly defined, beginning sometime after 1950, even though income inequality had continued to rise. (The table on page 10 shows life expectancy increasing between 1960 and 1990 in developing countries at

a rate of 6.3 years a decade, whereas in the high-income countries, the rate was “only” 2.3 years a decade.) In another important paper, Yale University's William Nordhaus assessed the growth of full income per capita in the United States in the 20th century. He concluded that somewhat more than half of the growth in full income in the first half of the century had resulted from mortality decline, and somewhat less than half in the second half of the century. This was a period when real income in the United States increased sixfold, and life expectancy increased by a little over 25 years. Nordhaus's paper also provides a valuable summary of the theory and methods of estimation of full income.

Three lines of more recent work extend these methods to the interpretation of the economic performance of developing countries in recent decades, and all reach conclusions that

differ substantially from analyses based on GDP alone. Two of these studies—one undertaken for the World Health Organization's Commission on Macroeconomics and Health (CMH) and the other at the IMF—assessed the impact of the AIDS epidemic on full income. Both concluded that the AIDS epidemic in the 1990s had far more adverse economic consequences than its effects on per capita GDP would suggest (Box 3). Gary Becker and colleagues at the University of Chicago extended the earlier work of Bourguignon and Morrisson in finding strong absolute convergence in full income across countries over time, in contrast to the standard finding of continued divergence of GDP per capita. Finally, Jeffrey Sachs (Columbia University) and colleagues have extended the earlier CMH work by using standard cross-country growth regressions to model determinants of full income (rather than GDP per capita). They also conclude that economies have been converging in terms of full income, and, tentatively, they find the determinants of growth in full income to be similar to those of growth in GDP.

Conclusion

The dramatic mortality declines of the past one and a half centuries—and their reversal by AIDS in Africa and elsewhere subsequent to 1990—have had major economic consequences. The impact of health on GDP is substantial—an extra year of life expectancy is estimated to raise a country's per capita GDP by about 4 percent, for example. The intrinsic value of mortality changes—measured in terms of the value of a statistical life, or VSL—is even more substantial.

What are the implications of these findings for development strategy and for benefit-cost analyses of public sector investment options? Using full income in benefit-cost analyses of investments in health (and in health-related sectors such as education, water supply and sanitation, and targeted food transfers) would markedly increase our estimates of net benefits or rates of return. Currently, only about 10 percent of official development assistance (ODA) is committed directly to health. Given the highly efficacious and low-cost technologies that exist for improving health (particularly in high-mortality settings), a careful, quantitative reassessment of competing investment priorities for improving living standards will likely conclude that existing ODA and budgetary allocations to health are richly deserving of a substantial boost. ■

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Making Health Care Accountable

Why performance-based funding of health services in developing countries is getting more attention

Robert Hecht, Amie Batson, and Logan Brenzel



DEVELOPING countries and their international partners are increasingly adopting methods of financing health care activities in developing countries that link the availability of funding to concrete, measurable results on the ground. Such “performance-based” financing was advocated a decade ago in the World Bank’s 1993 *World Development Report—Investing in Health* and other policy documents in the early 1990s, although relatively little practical experience with this type of financing was available. Since then, much experimentation has taken place, and we are seeing with growing clarity the important potential—as well as the challenges—of performance-based financing for achieving national and global health goals.

Governments and partner agencies are interested in performance-based financing for health for a number of reasons. First, there is a growing focus worldwide on achieving measurable results with development assistance, and performance-based financing spotlights such results. In terms of health care, these results are being closely tracked as governments and their partners strive to achieve the Millennium Development Goals (MDGs). The goals include reductions in child and maternal deaths; reductions in rates of infection from HIV, malaria, and tuberculosis; and improvements in the nutritional status of children. Governments and their

partners are thus naturally attracted to the idea of providing funds for programs that achieve or make progress toward the MDGs in health or that at least show increases in some of the key services needed to reach the goals. For example, where immunization and prompt treatment of pneumonia are crucial for halting child deaths, funding for health care might be tied to advances in the coverage of these services.

Second, even though external funding for health care in developing countries is currently in excess of \$8 billion a year (Michaud, 2003), substantially greater development assistance will be needed to reach the health

MDGs. Politicians and legislators in donor countries are under growing pressure from their constituencies to show

that development assistance budgets, in health as in other areas, are having measurable results. Partner agencies are thus seeking to

increase the effectiveness of these resources by allocating them to countries and programs that demonstrate progress as measured by performance indicators.

Third, linking the availability of financing to measurable results—whether in terms of changes in health status or in the coverage and quality of health services—is consistent with the objective of making service providers more accountable. Increasing accountability of service providers to clients in low-income communities and to government policymakers is the theme of the 2004 *World Development Report—Making Services Work for Poor People*. Linking financial payments to getting the job done—immunizing infants, treating tuberculosis patients, or testing more young men and women for HIV and counseling them on their status—can be a tremendous incentive for those providing the services, not least because it exposes their performance to their clients and others footing the bill. The 1993 *World Development Report* advocated the expanded use of public monies to pay private nongovernmental and for-profit doctors and clinics to deliver basic health services to the poor. Performance-based contracts between the government and these private providers are the principal instrument for putting this recommendation into practice.

Recent experience

Performance-based financing in health is now being widely and actively tested at several levels of the health care system. Here are some examples: (1) developing country governments pay health care providers in nongovernmental organizations (NGOs) and the private sector for delivering essential health services to poor households; (2) central governments determine the transfer of funds to local governments on the basis of their performance in strengthening health services; and (3) donors release funding (disbursements) to recipients in developing countries as and when certain key health targets are achieved.

Performance-based contracts with NGOs. A number of governments in low-income countries are funding NGOs to deliver basic health services on a performance basis. Many of the earliest experiments are from Latin America and the Caribbean. In Haiti, for example, NGOs were contracted to provide child health and family planning services (World Bank, 2001). They were given an advance each year and then a quarterly sum, based on a negotiated budget. At the end of the year, performance was measured against various indicators, including immunization coverage, percentage of families using oral rehydration to treat acute diarrhea, number of pregnant women attending prenatal care, and average waiting times in clinics. The NGOs' performance determined the bonus they received, which could be up to 10 percent of the original prenegotiated budget. As a result, the Haitian NGOs made changes in their service delivery schemes and improved their performance, especially in immunization and oral rehydration. In Guatemala, the government is implementing a large performance-based program with NGOs that currently covers nearly four million persons, mostly among the country's indigenous population (see Box 1). Other schemes have been implemented in Argentina, El Salvador, and Nicaragua.

Countries in South Asia are also moving into performance-based health programs with NGOs. In the Islamic

Box 1

Guatemala leads the way

Guatemala has successfully implemented, on a large scale, the contracting of nongovernmental organizations to deliver health services. The government started the Program to Extend Coverage of Basic Health Services (PESCB in Spanish) in 1997, soon after the end of a long civil war. The program has continued under successive administrations. By 2000, 89 NGOs under 137 separate contracts provided health care to about 3.7 million of Guatemala's population of 14 million.

The contracts specify a range of maternal and child health services and prevention and treatment of a number of diseases, including malaria. The NGOs are paid about \$8 for each person served, mostly in cash but also in kind, in the form of such items as vaccines and medicines. Payments are released quarterly, once performance has been checked and verified.

Performance is measured by a series of indicators, including coverage of immunization and prenatal care, distribution of iron sulfate tablets to children and pregnant women, and frequency of home visits by the NGO outreach staff. Private firms have been hired to develop the monitoring system, which also looks at the accounting practices of the NGOs.

The contracting system under the PESCB appears to have produced important gains in health service delivery. Immunization rates in Guatemala rose from 69 percent to 87 percent between 1997 and 2001. Household surveys now under way will be able to assess the impact of the program on mother and child health outcomes.

During the early years of PESCB, a number of obstacles had to be overcome. Government health workers resisted the scheme because they feared that contracting with NGOs was a hidden form of privatization of the government health services. The NGOs were initially reluctant to get involved, too, because they felt that the government was demanding too much in the way of improved performance, and they doubted that the government would pay them in a timely manner. Given the financial fragility of many local NGOs in Guatemala, it was critical for the government to make advance payments and release quarterly payments without delay to build confidence in the relationship between the public and private sectors in the country.

State of Afghanistan under a recently approved project for health service rehabilitation financed by the World Bank, NGOs are being contracted by the government to run health centers. NGOs that achieve specific targets will be eligible to receive additional payments of up to 10 percent of their baseline subsidies from the government.

In a similar vein, the central and state governments in India have started to reimburse NGOs and private providers according to their performance. The national tuberculosis program reimburses private laboratories for testing sputum samples to detect tuberculosis and also pays NGOs and

Box 2

GAVI pioneers performance-based grants

Eight developing countries will receive \$15 million in performance-based payments for their achievements in increasing immunization rates as part of a groundbreaking new grant program approved in December 2003 by the Global Alliance for Vaccines and Immunization (GAVI) Board. The eight are Azerbaijan, Ghana, Mali, Pakistan, Rwanda, Tajikistan, Tanzania, and Uganda. These countries' externally audited health data show that they have succeeded in reaching more of their children with life-saving vaccines in the past three years.

Under the program, countries applied for grants by submitting to GAVI their long-term strategies for reaching more children. The GAVI Board approved successful applications for three years of investments in the countries' immunization systems. These funds could be used in any way countries deemed most appropriate; the only requirement was results. In the fourth year, additional funding is available only to countries that have actually reached more children.

For example, when Tanzania first applied to GAVI in 2000, the country was immunizing 950,000 infants annually, or 74 percent of those born, with three doses of the diphtheria-tetanus-pertussis vaccine (DTP3), used as an indicator for basic immunization coverage. By 2002, 1.2 million infants, or 89 percent of those born, had access to DTP3. This success means that, in addition to the \$2.4 million investment provided between 2001 and 2003, GAVI will provide an extra \$3 million to Tanzania in 2004.

To date, 16 countries have each received three years of immunization system investments from GAVI. Ten of them—Armenia, Burkina Faso, Cameroon, Côte d'Ivoire, Haiti, Kenya, Liberia, Madagascar, Mozambique, and São Tomé and Príncipe—will not qualify for performance-based payments. Either these countries were not able to increase their immunization rates in the past three years, or their reported coverage data could not be externally verified. As soon as the countries are able to turn around their performance, however, the funding will start to flow again.

private doctors a fixed sum for each infected patient who is cured using the directly observed short course therapy approach. In Kerala state's Kannur district, where this scheme is well advanced, NGOs and private providers have helped boost the case detection rate (the share of those with active tuberculosis who are diagnosed and treated) by about 20 percent (Granich, 2003). In the state of Tamil Nadu, the government is testing another program under which private doctors are paid for providing family planning services and for performing cesarean sections to deliver babies.

Central government transfers to local authorities. In the World Bank-supported Family Health Project in Brazil, the central government is making per capita transfers to the local municipalities on the basis of planned increases in certain services, such as safe delivery of babies for low-income women, monitoring of infants' nutritional status and growth, and treatment of poor children for various illnesses.

For example, at least 40 percent of babies should be delivered in maternity facilities managed under the government's family health program; participating outreach workers should provide an average of at least nine home visits to targeted low-income families each year; and all doctors enrolled in the program should undergo special training. If the municipalities reach these targets and several others, they will continue to be eligible for future financial transfers; otherwise, the level of central government support will be reduced and other remedial measures put in place in an effort to improve the targeting and effectiveness of the activities of those underperforming municipalities.

Donor disbursements to national governments and other recipients. A number of innovative approaches are in place that make donor financing of health programs conditional on successful performance on the ground. One example is the World Bank's credit "buy down" program for polio eradication. Under the program, countries receive low-interest loans to purchase polio vaccine in an effort to eliminate the last remaining pockets of the disease that persist in Africa and South Asia. If the vaccine is judged to be purchased, delivered, and administered in a timely and effective manner, additional resources in a trust fund financed by the Bill and Melinda Gates Foundation, the United Nations Foundation, and Rotary International are used to buy down the interest and principal repayment on the loan, thus converting it to a grant. So far, Nigeria and Pakistan have initiated polio eradication projects for about \$50 million. If they are successful, about \$20 million from the Gates-Rotary trust fund will be used to transform the World Bank loans to pure grants. In this way, every dollar from the foundations will leverage \$2.00–\$2.50 of external assistance for the polio program. This leveraging has tremendous potential and gives an important incentive for donors to get involved.

The Global Alliance for Vaccines and Immunization (GAVI) has been a pioneer in the performance-based approach to grant assistance (see Box 2). Through its sister organization, the Vaccine Fund, which raises and disburses funds for the alliance, GAVI provides commodity assistance to countries in the form of new and underused vaccines (hepatitis B, *hemophilus influenza* type b, and yellow fever, with new products for rotavirus and pneumococcus to follow) and safe injection supplies. In addition, GAVI allocates grant funds to countries that increase coverage rates for diphtheria/tetanus/pertussis (DTP3). Countries' applications to GAVI specify current coverage levels. On the basis of these data, performance is assessed annually, and countries receive \$20 for each additional child immunized with DTP3. This year, GAVI will make its first payment for performance verified through externally audited health data. Eight countries will receive \$15 million in performance-based payments for increasing immunization rates. The Global Fund to Fight AIDS, Tuberculosis, and Malaria is also planning to disburse its financing to dozens of countries for disease control activities on the basis of measured changes in program performance. The Global Fund is currently refining its monitoring arrangements to do this effectively.

Learning what works

The recent experience with performance-based financing in health has been encouraging. When properly designed, performance-oriented “contracts” can help stimulate individual providers—doctors, nurses, midwives, village health workers—to expand their coverage, reach poor people, and enhance the quality of what they do. When the contract is between a central government and local authorities or between an international development assistance agency and a government, improvements in program performance can also be stimulated. Performance-based financing is helpful in focusing all parties on the services produced and their impact on the health and nutritional status of the intended population, rather than simply on counting inputs such as drugs, doctors, ambulances, hospital buildings, and equipment.

But performance-based financing for health must also overcome a number of serious hurdles to work well. One is the difficulty of measuring performance quickly and accurately. Data on such key outcomes as maternal mortality are rare in many countries, and even intermediate indicators, such as the number of women who have their babies under adequate medical care, can be hard to monitor in the poorest regions and countries. Much work is required to raise the quality and comprehensiveness of national monitoring systems to track health performance, but countries like Albania and Tanzania (Settles, 2002) show that this is possible. When a government’s own performance is being assessed, and the results are tied to a financial reward, it is perhaps unrealistic to expect that a government-run monitoring system will be wholly objective. For this reason, it sometimes makes sense to commission an independent institution to do the monitoring, as in the cases of Haiti and the polio buy-down schemes in Nigeria and Pakistan.

Another related problem is the widespread lack of capacity in ministries of health to design, negotiate, and enforce performance contracts with NGOs and private health care providers. In most countries, the ministry of health has traditionally seen its role as one of owning and operating its own hospitals and clinics. The task of managing thousands of contracts with private health care providers and paying for services such as good prenatal care or treating children for acute respiratory infections is daunting for most ministries. A major shift in the ministry’s fundamental mission and operating mode is required to implement large-scale performance-based systems.

A final hurdle is the risk that performance-based financing might be perceived as a harsh or an unfair imposition of

conditions by the financing source on the health service providers. Because relations between ministries of health and NGOs are already strained in many developing countries, successful performance-based contracts tend to be flexible and respectful, allowing NGOs to operate with some freedom and ensuring that government payments for good performance are timely. Similarly, performance-based financing of governments by donor agencies should be structured to benefit both parties and so avoid “conditionality” that is not embraced by the government.

Looking ahead

Performance-based financing for health is likely not only to continue but to expand. This trend is being spurred on by several factors. They include government and donor concern for health outcomes; interest in improved measurement of results; the push for greater accountability of health care providers to their clients and to governments and for stronger accountability of governments to donor agencies; and a recognition that NGOs and the private sector can, in some cases, deliver essential health services to poor people more efficiently than

the public sector. It is vital for the development community to continue to monitor closely these promising experiments in performance-based financing and to disseminate and apply the lessons of success and failure as rapidly as possible to maximize the benefits of development assistance in pursuit of the health MDGs. ■

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Testing for AIDS in Jaipur, India.

A global public goods commission looks at ways to stop or slow the spread of drug-resistant strains of malaria.

New Antimalarial Drugs: Biology and Economics Meet

Kenneth J. Arrow

MALARIA has been and remains one of the greatest scourges of humanity. Its geographical range is wide, even today. It is a particularly devastating health problem in Africa, especially between the Sahara Desert and South Africa. At one time, malaria was a major illness in the southern United States and southern Europe and was much more widespread in Latin America. Although figures are far from reliable, malaria deaths are estimated at over one million children a year—about 9 percent of all childhood deaths. However, with malaria more than many other killer diseases, mortality is a small fraction of morbidity. In the highly epidemic regions of Africa, the approximately 650,000,000 inhabitants are infected, on average, more than once a year.

The economic implications of a frequently sick population are evident. To some observers, the economic retardation of sub-Saharan Africa can be substantially explained by the prevalence of malaria. In addition to its direct effects on productivity, the presence of this devastating disease scares off foreign investors and traders.

There are several strategies other than drugs for controlling and reducing the incidence of malaria: draining standing water, spraying pesticides on potential breeding grounds for mosquitoes and on houses, and using netting to protect people from mosquito bites at night. Vaccine development continues but offers no medium-term prospects. These strategies are all important, but none is likely to eliminate malaria, especially in sub-Saharan Africa. Drugs remain our best hope. In this article, I focus on the use of drugs to combat malaria and the need for those currently in use in Africa to be replaced by new and much more expensive ones—the subject of a study by a committee, which I chair, of the Institute of Medicine of the U.S. National Academy of Sciences.

Alternative drugs

A synthetic variation of quinine, called chloroquine, was introduced into general usage around 1950. It was effective and, at about 10 cents a treatment, remarkably cheap. Cost was no obstacle to its use, even in the poorest countries. Chloroquine was and still is widely used in Africa, Southeast Asia, and India, where it has contributed greatly to the control of malaria. But as a result of mutation, the malaria parasite has become resistant to chloroquine in Southeast Asia and most parts of East Africa. The resistant strains will soon undoubtedly take over elsewhere, such as in West Africa. An alternative inexpensive drug, sulfadoxine-pyremethamine, which replaced chloroquine in some places, has also been effective. But resistance to it developed even more rapidly than to chloroquine.

Faced with malaria in its southern areas, Chinese researchers reexamined traditional herbal medicine—specifically the claim that *Artemisia annua* (sweet wormwood) was useful against fevers and particularly periodic fevers (presumably malaria). Researchers were able to verify that claim and identify the active antimalarial elements in *Artemisia*. These derivatives, artemisinins, are the standard and highly effective treatment in Vietnam and Thailand and are increasingly being used in India. So far, despite intense use of artemisinins in Southeast Asia, the malaria parasite does not appear to have developed resistance. Their only immediate drawback is cost—about \$2 a treatment. In moderate- and high-income countries, this amount would be of no consequence. But in low-income countries, which have the greatest malaria incidence and where individuals may be infected a few times a year, the cost would be prohibitive—even though costs per death averted are remarkably low.

One other consideration is the knowledge that resistance to artemisinins will develop. For this reason, it is widely agreed that artemisinins should be given in combination with some other medication (artemisinin combination therapy, or ACT). The emergence of resistance would thus require two simultaneous mutations, a most unlikely event. And the combination conveys therapeutic advantages while raising the cost only slightly, if at all, over artemisinin monotherapy.

Drug production and distribution

What are the critical economic aspects of antimalarials? First, because malaria affects only poor nations—those with highly restricted purchasing power—biology collides with economics. The creation of new pharmaceuticals involves high fixed expenses for research, development, and testing. These expenses are recovered, and profits made, in the markup of the price charged for a drug over the costs of producing it. Government imposition of temporary monopolies—patents—allows this markup in what would otherwise be competitive markets. But poor countries cannot afford the markup.

When the demand for a drug is worldwide, it is possible to charge more in richer countries than in poor countries. Such price discrimination is clearly emerging for antiretroviral drugs to treat AIDS and the drugs needed for tuberculosis, and it has characterized other drugs. But, with malaria, there is no scope to recover the fixed costs in the countries most affected. Development of new antimalarials has consequently been confined to a dwindling number of private companies, the U.S. military, and public-private partnerships.

Second, the distribution of antimalarials in Africa is, for the most part, private. Governments, of course, set standards and impose tariffs, but drugs are largely imported, distributed, and sold at retail through purely market transactions. Although there are exceptions, public health systems are geographically less dense than retail stores, drugs in these facilities are frequently out of stock, and their operation is unpredictable. There seems no reason to expect their operation to improve enough to handle the proposed ACTs. Hence, it is important to ensure that private distribution continues for the time being.

Third, the costs of producing artemisinins and ACTs should, according to all precedents, decline because of larger scales of production, experience, and innovation (for example, artemisinins and chemically related drugs will probably be produced through synthesis instead of extraction from plants). But increasing supplies in the near future will take time—it takes about 18 months to plant and bring *Artemisia* to maturity—as will increasing productive capacity. Moreover, there must be ways to encourage competition, particularly through modifications of the drugs or of their manufacturing processes.

A possible new direction

For a large and expanding part of the world, avoiding deaths from malaria will require much greater use of artemisinins.

Protecting artemisinins from resistance will require combination therapy. How can the international public sector create financial and other incentives for countries and individuals to use artemisinins and to use them in combinations? Suppose, for the moment, we assume that ACTs must be subsidized because of their cost relative to African incomes. The case for doing so is strong. How is this best accomplished? Policymakers will need to find a way to provide a reliable and predictable demand for ACTs to encourage planting of *Artemisia* and a building up of capacity. They must not interfere with the functioning of the existing private distribution system and must prevent the diversion of funds to other purposes by governments or other agencies. Policymakers will also need to implement mechanisms for maintaining quality control over the manufacturers—internationally subsidized centralized-purchasing and quality-control mechanisms are one possible approach, particularly if allowed to supply private sector distribution systems.

What is the justification for subsidizing a particular good (antimalarial drugs or ACTs, in particular) rather than making general income transfers to poor countries? A standard economic argument says that imposing constraints on an individual's spending is bound to reduce his or her welfare. Therefore, it is usually concluded, income transfers should take the form of purchasing power and not of specific goods. For this reason, most advanced countries have largely abandoned housing subsidies. The counterarguments take three forms: the recipient does not know his or her welfare as well as the giver; the direct recipient is the local government, whose interests may conflict with those of the people; and spending has spillover effects (externalities). There is also the idea that antimalarials are an international public good. If a country does not use ACTs—in particular if it uses artemisinins as monotherapy—resistance is more likely to develop. With international travel, the spread of resistance is inevitable, and currently no other effective drug is available for widespread use. Another kind of externality is that donor nations are clearly more willing to give to overcome disease than for other reasons.

Finally, how can we, in the longer run, encourage the further development of antimalarial drugs and related strategies? Even better therapies are clearly possible, such as a single-dose drug that is as effective as artemisinins. Malaria vaccines have been researched but still need extensive exploration. Given the lack of research by major pharmaceutical companies (because there is no profitable market), there must be a lot of unexplored potential. What incentives can be created to encourage private and public research of these issues? Something beyond ordinary intellectual property rights seems to be necessary: public sector investment in research and development. ■

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This paper draws on the author's experience as Chair of the Committee on the Economics of Anti-Malarial Drugs of the Institute of Medicine. The opinions expressed are strictly his and are not to be attributed to the institute or the committee.

Medicines, Patents, and TRIPS

Has the intellectual property pact opened a Pandora's box for the pharmaceuticals industry

Arvind Subramanian

IF YOU HAD asked the average policy wonk in the field of finance or development about TRIPS, even until a few years ago, you would probably have elicited a quizzical expression of bemusement, betraying mild condescension: how important can *that* be compared with broader and weightier matters, such as exchange rates, fiscal policy, aid, and debt?

But the agreement on TRIPS, or the Trade-Related Aspects of Intellectual Property Rights, including Trade in Counterfeit Goods (see box), has turned out to be among the more significant elements of international cooperation and treaty making in the past decade. Negotiated during the 1986–94 Uruguay Round of world trade talks, TRIPS introduced intellectual property rules into the multilateral trading system for the first time. For developing countries, this has had profound consequences, not all of which have been beneficial, making TRIPS a bellwether of the antiglobalization backlash of recent years. In particular, the high prices of AIDS treatments have shined an ethical spotlight on patent protection. Ironically, and as a testament to the iron law of unintended conse-

quences, TRIPS may well prove to have as great an impact on medicines and health policy in industrial countries.

TRIPS and pharmaceuticals

For developing countries, the most important aspect of the TRIPS agreement relates to its provisions on patents, especially as they affect pharmaceuticals. Prior to TRIPS, most developing countries had “weak protection” for pharmaceutical patents. This took the form of short patent terms (typically 4–7 years), narrow scope for defining the invention to facilitate ease of imitation, and relatively permissive use of compulsory licensing to dilute the monopoly power of the patent holder. (Compulsory licenses allow third parties to exploit the technology protected by the patent. Patent holders are compensated, albeit only partially, for the dilution of their exclusive rights through the payment of royalties.) Industrial countries, in contrast, provided “strong protection,” with a patent term of about 20 years and limited possibilities for imitation or dilution of monopoly power.

In the Uruguay Round, which offered scope for bargaining and the exchange of



What is TRIPS?

The TRIPS agreement of the World Trade Organization (WTO) requires all member countries to adhere to minimum standards of intellectual property protection (for example, all technological inventions must be protected for at least 20 years). TRIPS constitutes one of the three pillars on which the WTO now rests, along with trade in goods and trade in services.

The minimum standards of protection in TRIPS cover different kinds of intellectual property, including patents (which grant market exclusivity for technological inventions), copyright (for artistic and literary works), and trademarks (for names and symbols). TRIPS requires that these standards be effectively implemented by all WTO members. This means that countries should have legal and administrative procedures under the national courts that would allow holders of property rights—domestic and foreign—to seek and obtain redress in the event that their rights are infringed. If a WTO member fails to embody these standards in national law or to implement them, it can be challenged by trading partners under the WTO dispute settlement procedures.

concessions between countries, developing countries sought compensation for the likely negative impact of TRIPS. Industrial countries agreed to liberalize their textiles, clothing, and agricultural markets to provide increased access to the exports of developing countries. Higher standards of protection for intellectual property in exchange for better access for clothing and agricultural goods thus constituted the grand bargain in the Uruguay Round between industrial and developing countries.

Why strengthen patents?

In the TRIPS negotiations, developing countries were asked to strengthen their patent protection to levels prevailing in industrial countries. But what is the likely economic impact on developing countries? According to economic theory, stronger patent protection has two conflicting effects on economic welfare. In the short run, it confers monopoly power on patent holders, reducing competition and increasing prices in the market in which the patented product is sold. In the long run, by providing rents or monopoly profits, it increases the incentive to undertake research and

development (R&D), by allowing the fixed costs of R&D to be recouped. Better incentives, in turn, confer long-run dynamic gains in terms of improved technology and better products. Societies that have adopted patent protection have judged that, on balance, the dynamic gains outweigh the short-run efficiency costs.

For developing countries, however, the economic calculus is different for two reasons. First, as net users rather than net exporters of R&D-intensive products, they do not benefit from the monopoly profits that are created by patent protection. On the contrary, their consumers suffer from the higher prices that result. Second, because their markets are small in relation to global demand—at least for pharmaceutical products to treat a number of diseases such as cancer, hypertension, and ulcers—actions taken by developing countries to strengthen patent protection have little impact on the incentive to undertake additional R&D. Thus, a combination of higher costs in the short run and the likely absence of dynamic gains over time means that raising levels of protection would not benefit developing countries.

A number of studies have shown that the net economic welfare losses to developing countries of higher patent protection for pharmaceuticals could be substantial. For example, analytical models predict that the price of drugs could increase by 25–50 percent if patent protection is introduced. Simple comparisons of prices of drugs in countries with and without patent protection also support this finding. Table 1 shows the prices of selected drugs in the United States and the United Kingdom (countries with strong protection) compared with those in India and Brazil, where protection is relatively weak. In the case of the antiretroviral triple combination for fighting AIDS, prices in the industrial countries were over \$10,000 compared with prices of \$200–\$350 in India, a differential of 4,000 percent.

More broadly, developing countries have maintained that standards of patent protection should rise naturally over time as countries develop rather than be forced up prematurely. Indeed, this has been the historical experience in relation to pharmaceutical patents. For example, Table 2 illustrates that the major industrial countries adopted strong patent protection at high levels of real income (upwards of \$20,000 per capita), whereas under TRIPS, developing countries will be required to adopt similar standards at much lower income levels (between \$500 and \$8,000 per capita).



Table 1

Comparison shopping

Prices of antiretroviral triple-combination AIDS drugs vary widely.
(May 2003)¹

Originator company in industrial country	\$10,439
Brazilian company	\$2,767
Indian company A	\$350
Indian company B	\$201

Source: <http://www.accessmed-msf.org/documents/untangling4thapril2003.pdf>.

¹Stavudine + lamivudine + nevirapine.

AIDS alters perceptions

The global AIDS crisis altered the TRIPS landscape dramatically. The ravage wreaked by AIDS underlined the very high costs of AIDS treatments and the unaffordability of relief to patients in developing countries. The focus naturally shifted to patent protection as a cause of these high costs and to whether such protection—enforced around the world by TRIPS—was defensible, not just from an economic but also from an ethical perspective.

For the poorest countries, particularly in Africa, where drug needs were especially pressing, the problem with TRIPS was serious. Lacking the expertise to produce drugs domestically and unable to afford drugs produced in industrial countries, they sought to rely on cheaper imports from other developing countries. However, a relatively obscure provision of the TRIPS agreement presented a serious obstacle to such a course of action. Spurred by the support of civil society and aided by the force of international moral outrage, the poorer countries pressed for a change to the TRIPS agreement that would allow them to import AIDS drugs and other medicines from cheaper sources in developing countries. In August 2003, agreement was reached in Geneva among member countries of the World Trade Organization (WTO) to remove the final patent obstacle to cheap imports of drugs by the least developed countries and other developing countries. Under this agreement, countries that cannot produce drugs domestically and that seek to obtain them from cheaper sources would be allowed to do so subject to certain conditions aimed at preventing abuse, for example, reexporting the drugs to industrial country markets.

Of course, this agreement will not, of itself, address the serious health challenges facing Africa. Broader action to improve domestic delivery systems and health-related insti-

tutions is also necessary. But the recent agreement to create the conditions for drugs to be delivered to patients at the cheapest possible prices is a step in the right direction.

The Dracula effect

The immediate problems of access to affordable medicines faced by the poorest countries in the world have, to some extent, been addressed by the recent agreement. But the controversies and tensions over affordable medicines are far from over. Ostensibly, these have related to access in the poorest countries. The real battleground, however, is going to be the larger markets both in developing countries and in the industrial countries themselves.

In the larger developing countries with indigenous pharmaceutical sectors—such as Brazil, India, South Africa, and Thailand—the key issue is whether the TRIPS agreement affords them enough flexibility to dilute the monopoly power, conferred by TRIPS on pharmaceutical companies, through the use of compulsory licensing. In a series of skirmishes between developing country governments on the one hand and foreign companies and their governments on the other, the limits of what the TRIPS agreement permits have been tested. Brazil, South Africa, and Thailand have all authorized the production of patented drugs by their own firms to reduce the prices of AIDS drugs and help address their own public health challenges.

The consequences in industrial countries could be profound too. The TRIPS debate has highlighted the large wedge between the cost of supplying drugs by generic producers in developing countries and the prices charged in industrial countries. Increasing public awareness of this discrepancy—what might be called the Dracula effect because of the perceived price gouging in industrial countries—has led consumer and civil society groups in industrial countries to question whether patent protection is too restrictive and whether the resulting prices are excessively high. In their defense, major pharmaceutical producers argue that, in contrast to the generic manufacturers, they spend a significant portion of their revenues on research for new drugs. Against the background of runaway health costs in the United States and the consequent fiscal pressures, drug prices in industrial countries have also become an important public policy issue, leading to calls in the United States for imports from Canada, where prices are lower. In a number of industrial countries such as Australia, Canada, and New Zealand, public health systems use reference pricing to provide drugs at the lowest available prices.



Table 2

Earlier adoption

Under TRIPS, developing countries are being asked to adopt strong patent protection at much lower income levels than developed countries did.

	Year of adoption	GDP per capita (1995 U.S. dollars)
OECD adopters		
Japan	1976	24,043
Switzerland	1977	36,965
Italy	1978	13,465
Holland	1978	20,881
Sweden	1978	21,896
Canada	1983	16,296
Denmark	1983	28,010
Austria	1987	25,099
Spain	1992	14,430
Greece	1992	10,897
Norway	1992	30,389
Recent adopters		
China	1992/3	424
Brazil	1996	4,482
Argentina	2000	8,100
Uruguay	2001	6,208
Guatemala	Future	1,545
Egypt	Future	1,191
Pakistan	Future	508
India	Future	450
Malawi	Future	156

Source: Lanjouw, Jean, 2002, *Intellectual Property and the Availability of Pharmaceuticals in Poor Countries*, CGD Working Paper No. 5 (Washington: Center for Global Development).

Note: China GDP is for 1992. For countries adopting after 1999, the GDP per capita figure is for 1999.

Beyond TRIPS

The TRIPS agreement has opened a Pandora's box of issues going beyond the WTO. First, with respect to medicines, the international community has come to a collective understanding that the poorest countries need not contribute to global R&D creation. That, in short, is the significance of the recent agreement in Geneva. But there is still no consensus on the contribution to global R&D that should be made by larger or richer developing countries. It is not unreasonable for the pharmaceutical companies and the international community to ask that the rich within developing countries also contribute to the supply of global public goods, such as R&D. But even if this principle were accepted, the implementation challenges would be immense, requiring segmentation and targeting in developing countries, which have not proved successful in other areas, such as aid delivery.

A second issue relates to the incentives that need to be created for increased R&D for cures and technologies that are endemic and specific to the poorest countries. Although developing countries account for a small share of a number of common diseases (such as cancer and hypertension), they do account for a very large share of diseases endemic to the tropics, such as diphtheria, encephalitis, malaria, sleeping sickness, measles, and polio. For these diseases, patent protection could, in principle, be an important incentive to promote innovation to find cures. The question remains

whether this would be a sufficient condition given the low incomes and small markets. The focus appears to be shifting to finding the most efficient ways to fund and deliver the supply of global goods of particular and specific importance to the poorest countries, especially in Africa. Recent suggestions by Michael Kremer of Harvard and Jeffrey Sachs of Columbia to create a fund to reward the discovery of cures for malaria and AIDS are a welcome step.

A third issue is whether the current societal arrangements embodied in the system of intellectual property protection are the best way of ensuring the optimal creation and dissemination of knowledge and R&D. The intellectual property system is subject to the famous assignment problem first described by the Nobel Prize winner Jan Tinbergen. Society has two objectives when it comes to such public goods as knowledge and R&D—creation and invention, on the one hand, and their diffusion and dissemination, on the other. But the intellectual property system deploys one instrument—according monopoly power to the creator—that promotes R&D creation but thwarts the objective of efficient dissemination. Hence its inadequacy. Moreover, as currently implemented, the intellectual property system is also a very blunt instrument: patent protection is awarded for 20 years for all inventions, irrespective of their type, sector, and other characteristics, even though there is no evidence that the optimal trade-off between invention and diffusion is the same for inventions in pharmaceuticals as it is in such fields as chemicals and biotechnology.

An ideal system would use two instruments: the first would provide the best incentives for creating knowledge and recovering the large fixed costs involved in this process, while the second would ensure that, once created, the invention could be made available at the marginal cost of production to maximize the benefits from diffusion and dissemination. The search for this ideal system will no doubt be a long one as new technological developments combined with changing values and politics expose existing deficiencies. But TRIPS may well have accelerated the search for this system. ■

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Further reading:

For a detailed description of the TRIPS agreement, see Subramanian, Arvind, 1997, "Trade-Related Intellectual Property Rights and Asian Developing Countries: An Analytical View," in *The Global Trading System and Developing Asia*, edited by Arvind Panagariya, M.G. Quibria, and Narhari Rao (Oxford and New York: Oxford University Press).

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Debt Relief and Public Health Spending in Heavily Indebted Poor Countries

Sanjeev Gupta, Benedict Clements, Maria Teresa Guin-Siu, and Luc Leruth

THE HEAVILY Indebted Poor Countries (HIPC) Initiative, launched in 1996, was the first comprehensive effort by the international community to reduce the external debt of the world's poorest countries. It went beyond earlier debt-relief initiatives in that it included debt from multilateral creditors like the IMF and the World Bank and placed debt relief within an overall framework of poverty reduction. Enhancements made to this Initiative in 1999 further strengthened the links among debt relief, poverty reduction, and social policies.

The underlying objective of the enhanced Initiative is to channel the government resources freed up because of debt relief into poverty reduction programs. Under the programs being negotiated by the World Bank and the IMF with countries eligible for debt relief, government spending on public services—such as preventive health care and primary education—that directly affect the poor will increase.

By the end of May 2001, debt relief was committed to 23 of 41 eligible countries: Benin, Bolivia, Burkina Faso, Cameroon, Chad, The Gambia, Guinea, Guinea-Bissau, Guyana, Honduras, Madagascar, Malawi, Mali, Mauritania, Mozambique, Nicaragua, Niger, Rwanda, São Tomé and Príncipe, Senegal, Tanzania, Uganda, and Zambia. At this stage—called the “decision point”—interim debt relief becomes available to these 23 HIPCs, provided they meet certain conditions. This interim relief is provided by the IMF and the World Bank, and by other creditors at their discretion. At the completion point—which countries reach after establishing a track

record of policy implementation determined at the decision point—all creditors provide the remainder of their agreed debt relief.

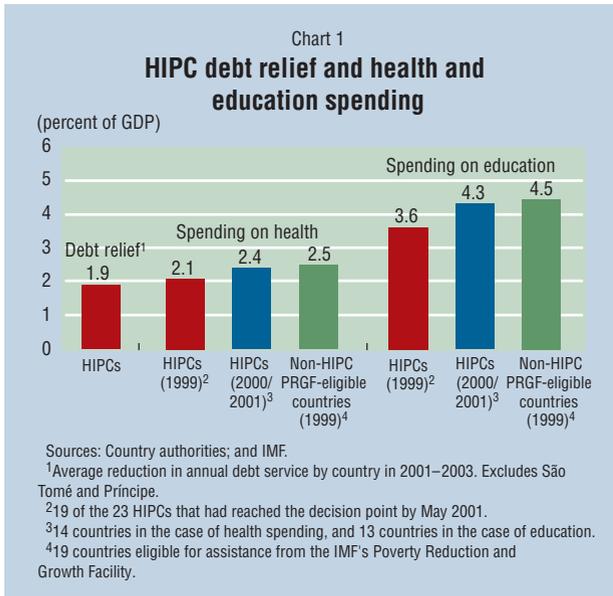
Decrease in debt service

Countries receiving debt relief under the enhanced HIPC Initiative should see their debt-service payments drop, on average, by 1.9 percentage points of GDP a year during 2001–03, relative to what they paid during 1998–99 (Chart 1). Based on an average weighted by each country's GDP, debt-service payments will decline by 1.6 percentage points of GDP. Savings on debt service could be quite significant for some countries—for example, Guyana's savings from debt relief will average 9 percent of GDP a year over the next few years.

Some HIPC debt relief may not be reflected in the beneficiary countries' budgets immediately, however. For instance, relief on debt owed to the IMF may not show up in a country's fiscal accounts initially because it accrues to the central bank rather than to the budget (except in the CFA franc zone countries). Hence, countries may need to set up special accounts in the central bank to identify savings stemming from HIPC relief so that they can be transferred to the budget as grants. Similarly, some public enterprises may benefit from debt relief in the form of write-downs of their government-guaranteed debt, but such write-downs will not be reflected in the government budget unless the savings they entail are transferred to it.

Poverty reduction measures

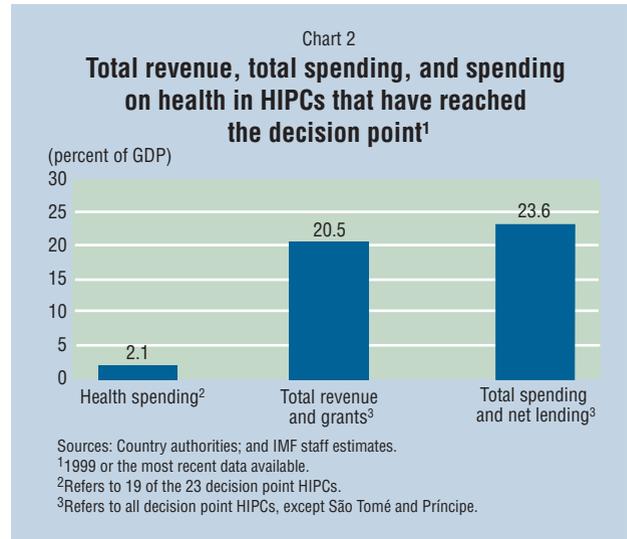
The use of funds saved because of debt relief is to be guided by each country's poverty



reduction strategy, which is delineated in a Poverty Reduction Strategy Paper (PRSP). The PRSP will determine the basis for access to concessional loans from the IMF and the World Bank. Countries will formulate their poverty reduction strategies in collaboration with the IMF and the World Bank, as well as with civil society and development partners. Updated annually, the PRSP describes a country's plan for macroeconomic, structural, and social policies for three-year adjustment programs designed to foster growth and reduce poverty. Strategies are results-oriented so as to encourage countries to adopt policies that will lead to tangible and measurable improvements in the well-being of the poor. To date, five HIPCs have prepared full-fledged PRSPs; the others have articulated their strategies in interim PRSPs.

The PRSPs of the 23 HIPCs that have reached the decision point all include measures designed to increase the poor's access to primary and preventive health care and to primary education. Some PRSPs also call for increased spending on water and sanitation (9 countries), roads and road maintenance (7 countries), and rural development (8 countries), and some include programs that provide housing for the poor and measures to strengthen social safety nets.

The funds freed up by debt relief under the enhanced HIPC Initiative will be substantial relative to current and past spending on health care and education. The 1.9 percentage points of GDP released every year are equivalent, on average, to roughly 50 percent and 90 percent of public spending in 1999 on education and health care, respectively, in HIPCs that have reached the decision point. In fact, spending on poverty reduction programs—including for health care—could increase by even more than the resources freed by the enhanced HIPC Initiative. For the 23 countries that have reached the decision point, total public spending and total revenues (including grants) are estimated at 24 percent of GDP and 21 percent of GDP, respectively, while public health spending is estimated at 2.1 percent of GDP in

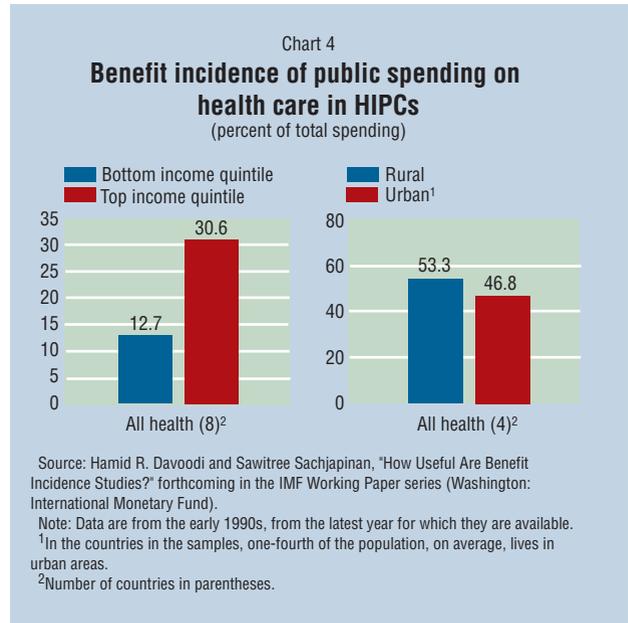
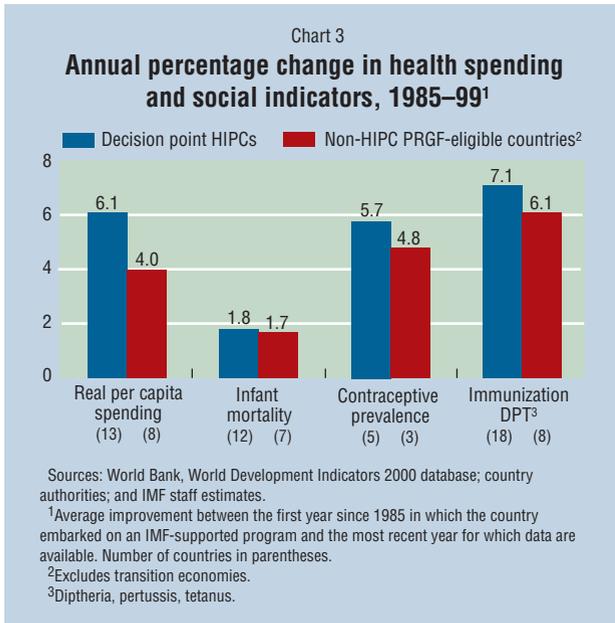


1999 (Chart 2). By tilting the composition of public spending in favor of poverty reduction programs, the PRSP process could increase the budgetary allocations for these programs.

There is ample scope to raise spending on health care in HIPCs. Although HIPCs that have reached the decision point have increased their public health care outlays sharply in real per capita terms since the mid-1980s (Chart 3), they still spend less on health care than other low-income countries. In 1999, for example, non-HIPC countries eligible for debt relief from the IMF's Poverty Reduction and Growth Facility spent about 1/2 of 1 percentage point of GDP more on health care than HIPCs that have reached the decision point. In terms of total government outlays, only about 9 percent of spending in the heavily indebted poor countries—ranging from \$3 a person in Madagascar to \$35 a person in Bolivia and Guyana—was devoted to health care in 1999.

In light of the urgent health needs of many HIPCs and the challenges posed by HIV/AIDS, it is tempting to argue that all HIPC relief should be channeled to higher public spending on health. In fact, some—including Jubilee 2000, in a joint statement issued in May 2000 by Jeffrey Sachs and Ann Pettifor—have advocated sequestering the external debt service currently being paid by HIPCs in a special fund designed to address these needs. However, even if improvements in health indicators are the most important objective of government policy, it may not be advisable to spend all of the savings from HIPC debt relief on public health. Other government spending programs—such as those for water and sanitation, nutrition, and education for women of childbearing age—might yield a larger payoff in terms of improving the health of the poor.

Furthermore, an exclusive focus on raising health outlays in HIPCs to improve health indicators is not justified. While health indicators have, on average, improved in HIPCs since the mid-1980s (Chart 3)—although from low levels—higher public outlays on health have not always been associated with better performance on social indicators. This has



reflected, in part, inefficiencies in this spending and the allocation of health outlays to activities that have relatively little effect on social indicators and the well-being of the poor, such as curative services. Benefit incidence studies confirm that the poor reap a disproportionately small share of the benefits from public health outlays in HIPCs (Chart 4). As such, a comprehensive strategy to improve health outcomes must focus not only on securing additional resources for public health but also on wringing out these inefficiencies in spending and reallocating funds to programs that are most beneficial to the poor. Examples of such programs are those that provide women with prenatal care and vaccinate children against preventable diseases.

Mindful of these considerations, many countries have focused their PRSPs on steps to improve the efficiency of social spending (including health) and reallocate expenditures to pro-poor activities within each sector. Countries' poverty strategies have generally aimed to improve the quality and extend the coverage of public health services, with an emphasis on disease prevention (see box). To achieve these objectives, HIPCs are committed to increasing public outlays on health programs. However, in line with the considerations described above, resources freed by debt relief will be allocated to a wide spectrum of poverty reduction programs, and health sector outlays are expected to increase by an average of 0.4 percentage points of GDP between 1999 and 2000/01—less than the total amount of HIPC debt relief.

Beyond the challenge of improving the allocation and efficiency of social spending, HIPCs must overcome a number of additional obstacles if they are to achieve their goals for poverty reduction. Economic growth—one of the key ingredients for poverty alleviation—must be raised well above its historical average in many countries, and capacity constraints in the social sectors must also be tackled if large increases in the provision of social services are to be realized over the next few years.

Monitoring use of HIPC debt relief

It is critical that debt relief result in an increase in public spending related to poverty reduction programs and that these funds be used for their intended purposes and reach the poor. In this context, all spending on poverty reduction needs to be tracked, not just that associated with the Initiative. The objectives are increases in spending on poverty reduction programs and in the share of total public spending devoted to these programs.

This tracking will require the identification of spending on poverty reduction in the context of each country's poverty reduction strategy. In the short run, the analysis of the shift in spending toward more pro-poor programs will have to focus on broad-brush estimates of central government spending by function (for example, education and health care). However, within a given category—health, for example—these estimates will not distinguish between spending directed to helping the poor and other spending (say, hospital care in urban areas). Countries are therefore being encouraged to provide more detailed data. As these become available with improvements in budget classification, it will be easier for countries to track spending on basic social services for the poor (such as primary education and preventive health care).

Tracking of spending on poverty reduction programs will require improvements in public expenditure management (PEM) systems and a scaled-up program of technical assistance from international institutions and donors. In the short run, these improvements will involve pragmatic steps to bolster the identification and reporting of spending on poverty-reducing programs, based on existing PEM systems. Over the medium term, more comprehensive improvements that address budget formulation, execution, and reporting will be needed.

The ultimate aim of tracking expenditures on poverty reduction programs is to evaluate whether they actually benefit

the poor. Simply allocating additional spending to these programs will not suffice to bring about the desired reduction in poverty. Therefore, countries should also monitor the actual delivery and impact of poverty reduction programs. In this regard, monitoring the benefit incidence of health programs and conducting periodic surveys to assess whether funds in the budget actually reach their intended uses could be helpful.

Assessing the effectiveness of these programs would also be facilitated by countries' improving their data on social indicators. Such data are produced infrequently, making it difficult to assess the impact of spending. Fewer than half of the PRSPs for countries that have reached the decision point provide data on four or more of the six health indicators (infant, child, and maternal mortality rates; percentage of births attended by skilled personnel; contraceptive prevalence rate; and HIV prevalence in pregnant women 15 to 24 years old) used by the international institutions to monitor the developmental progress of poor countries (see *A Better World for All: Progress Towards the International Development Goals*, a report published by the IMF, the Organization for Economic Cooperation and Development (OECD), the United Nations, and the World Bank). In their PRSPs, more than half the 23 HIPC countries acknowledge constraints that prevent them from monitoring social indicators with any degree of accuracy and note that more work is needed in this area. More timely and complete data will be instrumental in strengthening poverty reduction strategies as countries obtain feedback more rapidly on trends in social indicators and on the impact of programs on these indicators.

In addition to obtaining reliable, detailed data, the HIPC countries will need to add to the resources made available to them under the enhanced HIPC Initiative by mobilizing domestic resources to assure themselves of adequate funding over the long term for poverty reduction programs. They will thus need to strengthen governance and tax administration—while developing institutions better able to monitor government spending—to achieve sustained improvements in living standards for their poorest citizens. They will also need to craft poverty reduction strategies that are conducive to high economic growth, which will be necessary to ensure that the burden of external debt, relative to the size of the economy, remains sustainable. ■

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For more details on the HIPC Initiative, see <http://www.imf.org/external/np/hipc/hipc.htm>, and on Poverty Reduction Strategy Papers (PRSPs), <http://www.imf.org/external/np/prsp/2001/042001.htm>.

*For more information on international development goals, see *Shaping the 21st Century: The Contribution of Development Cooperation*, a report published by the Organization for Economic Cooperation and Development in 1996. In 2000, the IMF, the OECD, the United Nations, and the World Bank jointly published *A Better World for All: Progress Towards the International Development Goals*.*

Health care measures included in poverty reduction strategies

In their poverty reduction strategy papers, the 23 heavily indebted poor countries that have reached the decision point have outlined their main goals with respect to health care and the measures to be taken to achieve them.

Expanding the coverage of, or access to, health facilities, particularly for the poor:

- Increase the supply of basic medicines by making generic drugs more affordable and improving the distribution of drugs, including vaccines (Cameroon, Malawi, Mauritania, Niger, and São Tomé and Príncipe).
- Establish a minimum health services package that covers primary care, prenatal care, and vaccinations (Burkina Faso, Chad, Senegal, and Tanzania).
- Provide basic health insurance (Bolivia).
- Expand health infrastructure (Benin, Bolivia, Chad, Mauritania, and Senegal).
- Increase the number of health workers (Burkina Faso).

Improving the health of the population:

- Raise awareness about health issues and intensify efforts to disseminate public health information (Mozambique).
- Promote immunization and increase the vaccination rate (Guinea-Bissau, Mali, Niger, and Uganda).

- Strengthen programs to combat infectious diseases (Malawi and Mauritania).
- Educate mothers about nutrition and family planning methods (Benin, Bolivia, São Tomé and Príncipe, and Tanzania).
- Curb the spread of sexually transmitted diseases through educational programs and public awareness campaigns that disseminate information on the transmission and prevention of these diseases (Bolivia, Burkina Faso, Cameroon, Guinea-Bissau, Madagascar, Malawi, Mozambique, and Rwanda).

Improving the quality of health services:

- Provide training programs for health staff (Guyana, Niger, Rwanda, and Tanzania).
- Upgrade health workers' career streams (São Tomé and Príncipe).
- Adopt a system for annual performance evaluation in the health sector (Benin).
- Modernize the health sector by increasing the participation of the private sector (Nicaragua).
- Improve the management of hospitals (São Tomé and Príncipe).
- Decentralize services (Malawi, Nicaragua, and São Tomé and Príncipe).



Making Services Work for Poor People

Shantayanan Devarajan and Ritva Reinikka

The poor need more control over essential services

POVERTY HAS many dimensions. In addition to low income (living on less than \$1 a day), illiteracy, poor health, gender inequality, and environmental degradation are all aspects of being poor. This is reflected in the eight Millennium Development Goals (MDGs), the international community's unprecedented agreement on the goals for reducing poverty (see page 2). But progress in human development is lagging behind progress in reducing income poverty (Chart 1). While the world as a whole (with the exception of sub-Saharan Africa) is on track for the first goal—reducing by half the proportion of people living on less than \$1 a day by 2015—it is not on track for reaching the goals for primary education, gender equality, and child mortality. Furthermore, there are large discrepancies between rich and poor in the same countries with respect to health and education outcomes. In Bolivia, under-5 mortality is about 30 per 1,000 live births for the richest fifth of the population and 140 for the poorest fifth. Whereas almost all adolescents from the richest fifth of Peru's population have completed primary school, less than 67 percent of the poorest fifth have.

Economic growth is necessary for reaching the MDGs, but it is not sufficient, especially for the health and education goals. Africa will reach the income-poverty goal if forecast per capita growth on the continent doubles, but it will fall short of the primary education and child mortality goals if it relies on this higher growth rate alone. Accelerating progress toward the MDGs will require a substantial increase in external resources and more effective use of internal and external resources. For the human development goals, more effective use of resources means improvements in the

delivery of services—such as water, sanitation, energy, transport, health care, and education—that contribute to health and education outcomes.

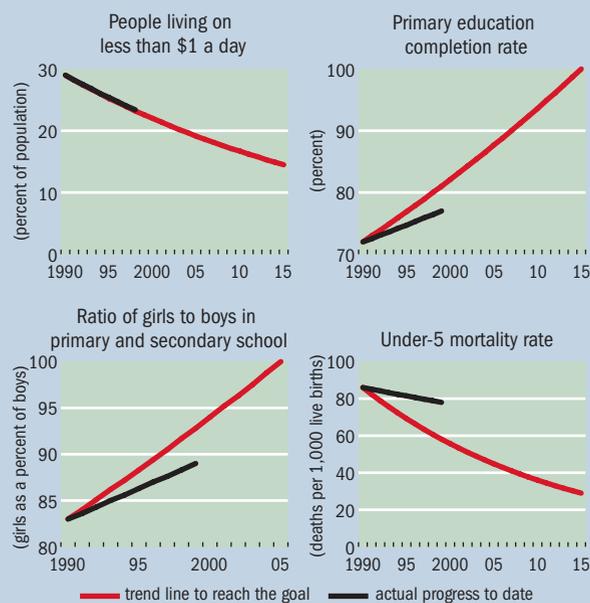
Improving services is critical

Too often, these services are failing poor people. First, governments spend very little of their budgets on poor people—that is, on the services poor people need to improve their health and education (Chart 2). Second, even when public spending can be reallocated toward the poor—say, by shift-

Chart 1

Reaching the Millennium Development Goals

Progress in human development is lagging progress in reducing income poverty.



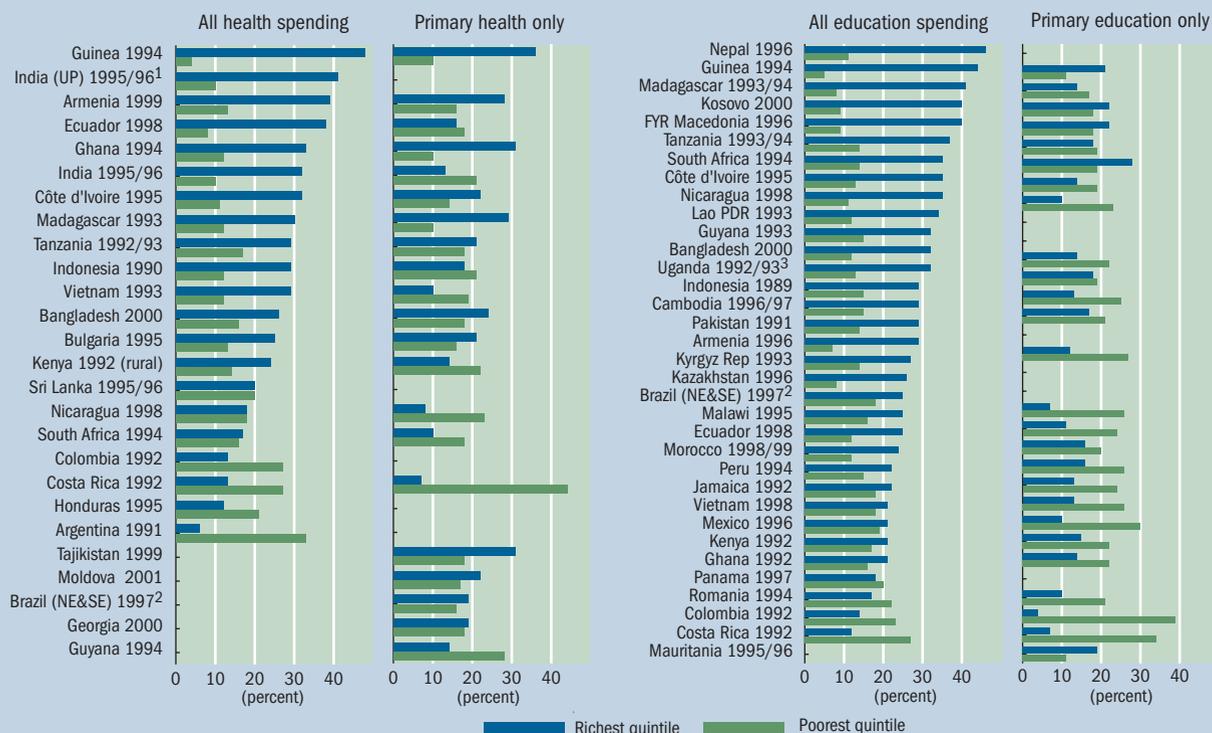
Source: www.developmentgoals.org

Photo on facing page:
Collecting clean drinking
water in Bangladesh.

Chart 2

Inequitable public spending

Some developing countries spend more on health care and education for the richest fifth than for the poorest fifth of their populations.



Source: Compiled from various sources by World Bank staff.

Note: Missing bars mean data not available.

¹Uttar Pradesh.

²Northeast and southeast.

³Budgeted expenditures, not actual expenditures, which were even more regressive.

ing resources to primary schools and clinics—the money does not always reach frontline service providers. In the early 1990s in Uganda, only 13 percent of nonsalary spending on primary education actually reached the primary schools. This was the average: poorer schools received even less. Third, increasing the share of spending that goes to poor schools—as Uganda has done—is not enough. For education outcomes to improve, teachers must show up at work and perform effectively, as doctors and nurses must do for health outcomes to improve. But these service providers are often mired in a system where the incentives for effective service delivery are weak, corruption is rife, and political patronage is a way of life. A survey of primary health care facilities in Bangladesh found the absenteeism rate for doctors to be 74 percent.

Because central governments have not delivered as expected, societies around the world have tried to find alternatives. The results have been mixed.

- In the aftermath of a civil war, Cambodia introduced contracting for the delivery of primary health care in some districts, retaining government provision in others. Randomly assigning the arrangements across 12 districts, it found that

health indicators, as well as use by the poor, increased most in the districts where services were contracted out.

- Selling water concessions to the private sector in Cartagena, Colombia, improved services and access for the poor. But a similar sale in Tucuman, Argentina, led to riots in the streets and a reversal of the concession.

- Transferring responsibility for infrastructure to local governments in South Africa improved service provision in a short time. But decentralizing social assistance in Romania weakened the ability and incentives of local councils to deliver cash assistance to the poor. Romania's program is being recentralized.

- El Salvador's Educo program gives parents' associations the right to hire and fire teachers. That, plus the associations' monthly school visits, has reduced teacher and student absenteeism and improved student performance.

- Mexico's Progresá program gives cash to families if their children are enrolled in school and they regularly visit a clinic. Numerous evaluations show that the program has increased school enrollment and improved children's health.

Some of these experiments are being adopted elsewhere. Ecuador has introduced a new program along the lines of Progresá; Uganda is starting to contract health services as in

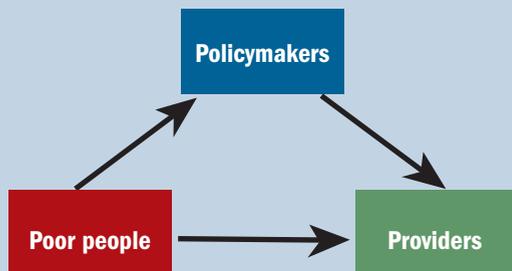


A doctor checks the health of a flood victim at a relief center in Bangladesh.

Chart 3

Accountability in service provision

The three key relationships are between poor people and providers, poor people and policymakers, and policymakers and providers.



Cambodia; and Educo-style school management committees are being developed in Nepal.

Framework of relationships

We can interpret the variety of experiences with traditional and alternative service delivery arrangements by unbundling the service delivery chain into three sets of actors and examining the relationships between them

(Chart 3). Poor people—as patients in clinics, students, travelers on buses, consumers of water—are clients. They have a relationship with frontline providers—doctors, teachers, bus drivers, water companies. Poor people have a similar relationship when they buy something in the market, such as a sandwich. In a competitive-market transaction, they get the service because they can hold the provider accountable. That is, consumers pay the provider directly; they know whether or not they have received the service they paid for; and, if they are dissatisfied, they have power over the provider—they can refuse to do repeat business with him or her.

For services such as health care, education, water, electricity, and sanitation, however, the provider is not directly accountable to the consumer because society has decided that these particular services will be provided by government—that is, through the “long route” of accountability—clients/citizens influence policymakers and policymakers influence providers. When the relationships along this long route break down, service delivery fails, and human development suffers.

Consider the first of the two relationships along the long route—the link between poor people and policymakers or politicians. Poor people are citizens who contribute to defining society’s collective objectives, in principle. In prac-

Eight sizes fit all?

Based on our three questions, we need at least eight different solutions flexible enough to be tailored to individual cases.

Central government financing with contracting (1). In a favorable political context, with agreement on what the government should do, an easy-to-monitor service such as immunization could be delivered by the public sector or financed by the public sector and contracted out to the private or nonprofit sector, as Cambodia has done with primary health care.

Central government provision (2). When services are not easy to monitor—say, because explicit contracts are difficult to write or enforce—but the country’s policies are pro-poor and clients are homogeneous, the traditional, centralized public sector is the appropriate delivery system. The French education system, which administers a uniform service centrally, is one of the best examples. But too many societies fall into the trap of thinking that just because a service is difficult to monitor, it must be delivered by the central government. When students are heterogeneous, when the politics of the country are not geared toward poor people, central government control of the education system—with no participation by students, parents, or local communities—can leave the poor worse off.

Local government financing with contracting (3). When clients are heterogeneous and have different preferences, local

governments should be involved in providing services. When local politics are pro-poor (but national politics aren’t), local governments could be a more reliable financier of services, and vice versa. Giving clients vouchers enables them to express their heterogeneous preferences. And the competition created may improve service quality.

Local government provision (4). For difficult-to-monitor services, such as education (for quality), management responsibility might be ceded to parent groups, as in El Salvador’s Educo program, if the country’s politics are pro-poor.

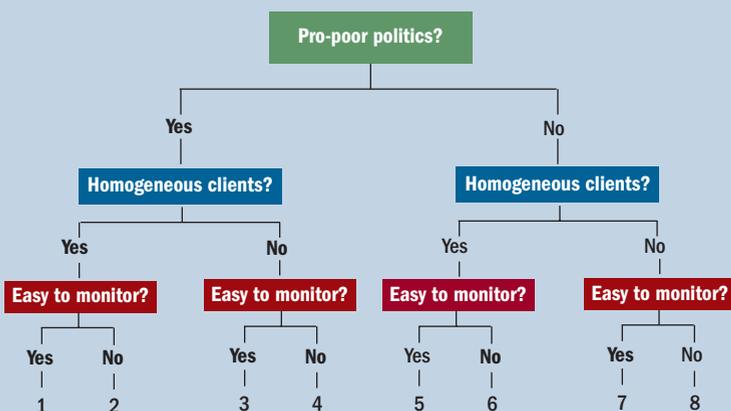
Client power—experiment with contracts (5). When publicly financed services are subject to capture—the country’s politics are not pro-poor—the best thing to do is to strengthen the client’s power. Community user groups could be a source of contracts to the private sector or NGOs.

Client power—experiment with providers (6). This is similar to (5), but explicit contracts are difficult to monitor. Instead, use altruistically motivated providers (such as faith-based NGOs).

Client power—experiment with community participation (7). Similar to (5) but requires discretion by users—through voucher schemes, for instance—although the rules should be transparent to reduce the chances of political capture. The service could be provided through explicit contracts.

Client power—imitate the market (8). Similar to (7), but explicit contracts are not feasible. Evaluating and publicizing efforts in one community may help others.

These service delivery arrangements represent efforts to balance problems with the long route of accountability with the short route. The reason societies chose the long route was that there were market failures or concerns with equity that make the traditional short route—consumers’ power over providers—inadequate. But the government failures associated with the long route may be so severe that, in some cases, the market solution may actually leave poor people better off.



tice, this does not always work. Free public services and “no-show” jobs are handed out as political patronage, with poor people rarely the beneficiaries. In 1989, Mexico introduced Pronasol, a poverty alleviation program that spent 1.2 percent of GDP annually on water, electricity, nutrition, and school construction in poor communities. Assessments of the six-year program found that it reduced poverty by only about 3 percent. If it had been perfectly targeted, it could have reduced poverty by about 60 percent. The reason for the program’s dismal performance becomes apparent when the political affiliation of the communities that received Pronasol spending is examined. Municipalities dominated by the Institutional Revolutionary Party, the party in power, received significantly higher per capita transfers than those voting for another party.

Even if poor people can reach policymakers, services will not improve unless policymakers ensure that service providers

really deliver. In Cambodia, policymakers were able to specify the services required to the nongovernmental organizations with which they contracted. But policymakers may not be able to specify the nature of many services, much less impose penalties for underperformance. Given the weaknesses in the long route of accountability, service outcomes can be improved by strengthening the short route—by increasing the client’s power over providers. School voucher schemes and scholarships such as Bangladesh’s Female Secondary School Assistance Program, where schools receive a grant based on the number of girls they enroll, offer clients choices and enable them to exert influence over providers. El Salvador’s Educo program is a way for client participation to improve service provision.

Strengthening accountability with aid

Improving service outcomes for poor people requires strengthening the three relationships in the chain—between client and

provider, between citizen and policymaker, and between policymaker and provider. In their zeal to get services to the poor, foreign-aid donors often bypass these relationships.

Donors weaken the relationship between policymakers and providers when they bypass the former to work with the latter. Some aid agencies choose to work with line ministries. Others engage local governments. And others go directly to frontline providers, such as health clinics or schools. As a result, the recipient country's policymakers lose control of the program. Incoherent spending allocations and uneven coverage of services ensue.

Some donors and recipients try to use foreign aid to strengthen the links in the service delivery chain. One approach is to incorporate donor assistance in the recipient's budget, making service providers accountable to the recipient country rather than to the donor. The assistance Uganda receives from Germany, Ireland, the Netherlands, Norway, the United Kingdom, and the World Bank is all part of the country's budget, the outcome of a coordinated participatory process.

What can be done?

Experience with traditional and innovative modes of service delivery shows that there is no single solution. In different sectors and countries, different relationships need strengthening. In education, the biggest payoff may come from strengthening the client-provider link, as Bangladesh's Secondary School Assistance Program is designed to do. But that may not be so in easily monitored services with spillover effects, such as immunization campaigns. Does this mean that there are no general lessons about making services work for poor people? No. But there is no one-size-fits-all solution (see box, previous page). The three questions below can provide us with guidance in coming up with solutions that are appropriate to different services and circumstances.

- **Are the country's policies pro-poor or are they the result of "clientelist" politics?** If politicians are likely to capture the rents from free public services and distribute them to their preferred clients ("clientelist politics"), an arrangement that reduces the rents may leave the poor better off. This might include transparent and publicly known rules for allocation, such as per-student grants to schools or conditional transfers to households, like the transfers made through Mexico's Progresa program. In some cases, a suitable arrangement may include fees to reduce subsidies and, hence, incentives for politicians to redirect services to their clients.

- **Are clients homogeneous or heterogeneous?** Students with disabilities have special needs for education but not for immunization. Heterogeneity is also defined by preferences.

Whether a girl goes to school may depend on whether there are separate latrines for boys and girls. The more people differ in their desires, the greater the benefits from decentralizing service provision.

- **Are the services easy or hard to monitor?** The answer depends on the type of service and on the government's institutional capacity to do the monitoring. A doctor has much more discretion in treating a patient than an electrician does in switching on a power grid. Of course, it depends on who is doing the monitoring. Parents can observe whether teachers are in attendance and what their children are learning more easily than can some central education authority.

Scaling up

How can service reforms go from being innovative experiments to being adopted on a national basis? In addition to tailoring service delivery to service and country circumstances, information can play a critical role—as a stimulus for public action, as a catalyst for change, as an input into making other reforms work. Even in the most resistant societies, the creation and dissemination of information can be accelerated. Surveys of the quality of service delivery conducted by the Public Affairs Center in Bangalore, India, have increased public demand for service reform and been replicated in 24 Indian states.

The systematic evaluation of service delivery can also affect progress toward the MDGs. Evaluations based on random assignments give confidence to policymakers and the public that what they are seeing is real. Governments are constantly trying new approaches to service delivery. Some of them work. But unless there is systematic evaluation of these programs, we will not know for sure why some approaches work and others don't. Based on the systematic evaluations of Progresa, the government has scaled up the program to encompass 20 percent of the Mexican people.

Service-delivery reforms will not be easy to implement. The vested interests that block the poor's access to better services will resist reforms, and developing countries have a limited capacity to make radical changes. But the global community has made a commitment to help the world's poor people to reach the Millennium Development Goals. Coupled with additional resources, service reforms can help countries accelerate progress toward these goals. The time to act is now. ■

Shantayanan Devarajan was the Director and Ritva Reinikka the Co-Director of the World Bank's World Development Report 2004: Making Services Work for Poor People (New York: Oxford University for the World Bank).

Even in the most resistant societies, the creation and dissemination of information can be accelerated.

Confronting AIDS

Lyn Squire

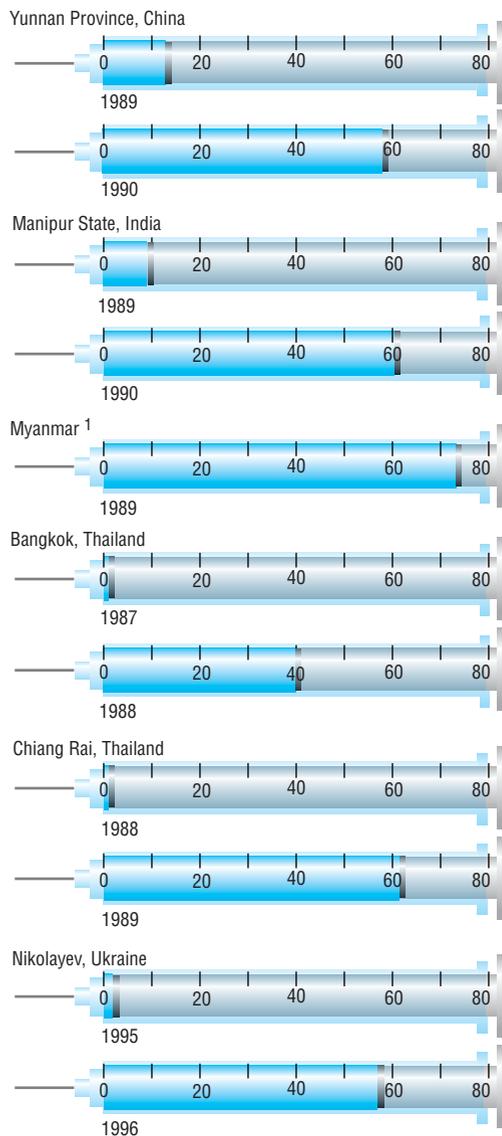
If developing countries face up to the realities of AIDS and act quickly, millions of lives can be saved. The following three articles on AIDS, written in 1998, look at the epidemic from an economic perspective and outline priorities for developing countries in preventing the spread of HIV and helping people already infected.

MORE THAN 11 million people have already died of AIDS. But 2.3 billion people live in developing countries where the disease has not yet spread beyond certain groups at risk. If the governments of these countries, the international community, and nongovernmental organizations act now, countless lives can be saved. And if the spread of AIDS is contained, the quality of care available to those unfortunate enough to become infected is likely to be better than it would be in the face of a full-blown epidemic, which would overwhelm the health care systems of most developing countries.

A recent World Bank Research Report, *Confronting AIDS: Public Priorities in a Global Epidemic*, asks how the governments of developing countries should respond to the AIDS epidemic when they face so many other daunting problems. Although the epidemic requires an immediate response, we must bear in mind that using scarce resources to help those suffering from AIDS means that this will reduce the resources available to achieve other important objec-



Chart 1
HIV spreads rapidly among injecting drug users who share needles
 HIV prevalence (percent)



Sources: Gerry V. Stimson, 1996, "Drug Injecting and the Spread of HIV Infection in South-East Asia," in L. Sherr, J. Catalan, and B. Hedge, eds., *The Impacts of AIDS: Psychological and Social Aspects of HIV Infection* (Reading, United Kingdom: Harwood Academic); and, for Ukraine, UNAIDS, 1996, "UNAIDS Fact Sheet, Mid-1996" (Geneva).

¹ In 1988, HIV prevalence among injecting drug users in Myanmar was 0 percent.

tives, such as sending children to school, providing safe drinking water, and building roads. In the article titled "Setting Government Priorities in Preventing HIV/AIDS," Martha Ainsworth describes cost-effective measures governments can take to contain the epidemic. Mead Over's article, "Coping with the Impact of AIDS," focuses on the difficult issue of how societies can alleviate, equitably and compassionately, the suffering caused by the epidemic.

How serious is the epidemic?

As of the end of 1997, 30 million adults—90 percent of them in developing countries—were infected with the human immunodeficiency virus (HIV), which causes AIDS. Given that the mortality rates for other illnesses—tuberculosis, for example—are higher for people infected with HIV, by 2020 HIV/AIDS will be the single largest infectious killer of adults in their prime in the developing world.

These statistics are averages for the developing world as a whole. Where the epidemic is already advanced, the picture is much worse. In two African cities—Francistown in Botswana and Harare in Zimbabwe—40 percent of the women who visit prenatal clinics are infected with HIV. Admittedly, these countries have two of the highest rates of infection in the world, but HIV spreads with extraordinary speed in certain groups—such as people with many sexual partners and drug users who share needles. The percentage of HIV-infected injecting drug users in Nikolayev, a Ukrainian city on the Black Sea, rose from less than 2 percent in January 1995 to nearly 60 percent in just 11 months (Chart 1). Once the virus has spread to this extent in a group whose behavior puts it at risk, it will be passed to lower-risk individuals in the broader population, such as their sexual partners. Infected mothers may also transmit the virus to their children.

Past gains in life expectancy, an important measure of progress, are being eroded in the most severely affected countries. Between 1950 and 1990, life expectancy in the developing world increased from 40 to 63 years. However, in just a few short years, AIDS will have wiped out that entire gain in Zimbabwe (Chart 2). Many other countries will also see their hard-won gains reversed as AIDS spreads.

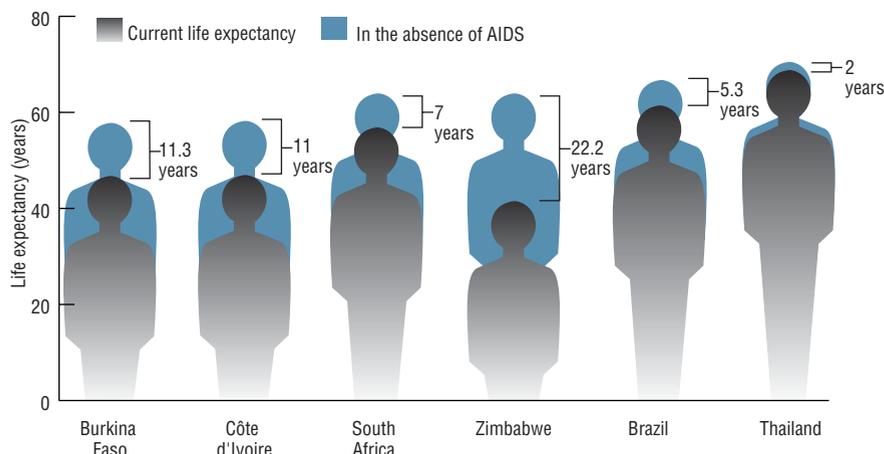
What should governments do?

These outcomes would seem to provide governments with ample justification for allocating scarce public funds to the fight against AIDS. But governments in developing countries have limited resources and face many competing demands. The sums—public and private—needed to treat a single AIDS patient for one year would pay for one year of primary education for 10 children. The choices that countries make will, of course, depend on political, social, and moral considerations, but economics can be useful in helping governments set priorities. First, it can help to focus attention on areas where public action will be needed to achieve certain goals in the fight against AIDS. Second, within those areas, it can help us identify the actions that will have the greatest impact at the least cost and therefore warrant the use of scarce public funds.

From an economic standpoint, there are three important justifications for governments to play a role in fighting the AIDS epidemic.

Externalities. When the actions of one individual produce benefits for or impose costs on another, economists refer to these outcomes as positive and negative externalities, respectively. Externalities play an important role in economic analysis because they provide a clear rationale for public

Chart 2
**AIDS has shortened life expectancy
 in some developing countries**



Source: U.S. Bureau of the Census, 1996, 1997.

intervention. Why? Because individuals typically do not consider the externalities that will result from their actions. Only governments can act on society's behalf to correct this failure.

AIDS provides a classic example of the negative externalities of high-risk behavior. People who engage in unprotected sex with many partners may not even know they are infected and may fail to consider the risks to which they expose others—particularly their sexual partners and their children. As a result, there will be more unprotected sex than is socially desirable and everyone, including those who do not engage in risky behavior, will have a greater chance of becoming infected. The situation is similar for injecting drug users who share unsterilized needles.

Public goods. This is another important area where governments, and only governments, have the capacity for effective action. Public goods have two characteristics—they benefit society (hence their name) and they are unlikely to be provided by the private sector because it is difficult to profit from their production and distribution. Similarly, the generation and dissemination of certain types of information that the private sector is unwilling to produce or supply may be considered a public good. There is a compelling need to disseminate information on how HIV is spread and how people can protect themselves; to monitor risky behavior and HIV infection; and to evaluate the costs and effectiveness of different programs to prevent HIV and reduce its impact. The onus to provide these services will fall on governments.

Redistribution. The redistribution of income or assets is a third area that typically requires public action. The private sector, apart from some private charities, has little incentive to engage in redistributive actions. Societies have a moral responsibility to help those in need. HIV-infected individuals clearly fall into this category, but large numbers of poor people in the countries hit hardest by the epidemic are not suffering from HIV/AIDS. Governments with limited resources face a difficult challenge in supporting those with HIV/AIDS without

shortchanging other vulnerable groups.

Combining the elements

All countries will need to employ some combination of preventive and coping measures. Ensuring an appropriate balance between the two is critical, both to achieve the best use of resources within the overall HIV/AIDS budget and to secure adequate funding for AIDS programs without neglecting other goals. In India, for example, the government subsidized about one-fifth of total health care expenditures in 1990, a small share compared with that of other developing countries, many of which subsidized as much as one-half the cost of health care. Assuming that the government maintains this level

of subsidy and that HIV prevalence increases in India in line with increases observed in other countries, by the year 2010 the government would have to spend about one-third more on health care than would have been the case in the absence of the epidemic. This amounts to a staggering \$2.5 billion increase in the health care budget. Spending relatively small amounts today to prevent the spread of HIV will reduce the future cost to governments of treating and caring for HIV-infected patients. Whatever the overall size of the AIDS budget, therefore, it is important to ensure adequate spending on prevention.

This argument has even more force in countries that provide larger public subsidies for health care. Unless these countries act now to contain the epidemic, they will face one of two equally undesirable outcomes. If they choose, at one extreme, to finance the ever-expanding health budget, the pursuit of other development goals will be severely hampered. At the other extreme, they could maintain public spending for other goals at the expense of the health budget; in this case, services both for AIDS patients and for those who are not HIV-infected are likely to deteriorate. The most extreme actions are unlikely, of course, and the probable outcome will be something in the middle. But the key point is that by devoting adequate attention to prevention today, governments will not be forced to make such painful choices tomorrow. By acting now, developing countries will be able to save millions of lives while preserving the scarce public resources that are needed to improve the quality of life for all members of society. ■

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This article is based on a World Bank Policy Research Report, Confronting AIDS: Public Priorities in a Global Epidemic (New York: Oxford University Press for the World Bank, 1997).

Coping with the Impact of AIDS

Mead Over

The AIDS epidemic is straining the limited resources of many developing country governments. How can governments provide support to those affected by AIDS without neglecting others in need or abandoning important development goals?

WHILE SOME countries still have the opportunity to avert a full-blown AIDS epidemic, others are already confronting widespread HIV infection. What can be done to help people with AIDS in developing countries? What will be the impact of AIDS morbidity and mortality on health systems, on poverty, and on developing economies generally? And what should governments do to mitigate that impact?

Many societies consider it a priority to help those who are disadvantaged from birth—the poor and the handicapped—or those who suffer some calamity during their lifetime. While people with HIV/AIDS clearly fall into the second category, equity considerations and budgetary constraints suggest that any given society should treat HIV/AIDS the same way it treats the problems of sickness, poverty, and vulnerability more generally. Governments should be guided by two propositions in their efforts

to alleviate the suffering caused by the AIDS epidemic.

First, all patients suffering from illnesses for which treatment does not affect transmission, regardless of cause, should be equally eligible for public assistance. Thus, a patient suffering from terminal cancer should have the same right to public support as an HIV-infected patient. This leaves open the question of how much of the cost of treatment should be covered by public funding. The standard arguments (externalities, public goods) for public subsidies do not apply here: the benefits of treatment accrue almost entirely to the individuals being treated. Nevertheless, other arguments—compassion, society's moral responsibility to its less fortunate members, the belief that health or health care is a basic need—typically support substantial public subsidies for the sick. This has significant implications for an overall approach to the HIV/AIDS epidemic.

Second, governments should focus on helping poor people equally, regardless of the cause of their poverty. Research in Kagera, Tanzania, finds that the death of an adult from AIDS depresses per capita food consumption in the poorest households by 15 percent—but this is not much different from the effect of adult deaths from other causes. Children in AIDS-stricken households are malnourished and drop out of school, resulting in serious long-term harm—but children in other poor households suffer the same fate. Thus, an adult death (from whatever cause) may be useful as an additional indicator that a household needs help, but, in the interests of equity, a death should not by itself trigger government antipoverty assistance.

Impact on the HIV-infected

The first and most basic impact of HIV/AIDS is on those who contract the disease. Medication to relieve symptoms and treat opportunistic illnesses (illnesses that affect people with weak immune systems) can, sometimes at low cost, ease suffering and prolong the productive lives of people infected with HIV. But as the immune system collapses, leaving the AIDS patient susceptible to the opportunistic illnesses that are ultimately fatal, available treatments become increasingly expensive and their efficacy less certain.

The table presents the costs of treating an AIDS patient under three different assumptions regarding the aggressiveness of the treatment strategy. Palliative care, which alleviates the symptoms of some of the more common opportunistic illnesses that appear in the early stages of AIDS, and treatment of the less complex opportunistic illnesses extend many patients' lives by several years and would be affordable in most countries (the cost per patient is approximately \$300 in sub-Saharan Africa and \$1,000 in Thailand). Tragically, however, the trained personnel and basic drugs needed for this level of care are often unavailable in the poorest countries. As AIDS cases begin to appear, governments should take prompt action to ensure that health personnel and AIDS patients know how to obtain and use the necessary drugs. Such an improvement in the availability and use of basic drugs against opportunistic illnesses is the primary aim of the UNAIDS (Joint United Nations Programme on HIV/AIDS) HIV Drug Access Initiative.

The drugs used to treat some of the rarer opportunistic illnesses are substantially more expensive. Including them increases the cost of treating the average AIDS patient by two-thirds, in Africa as well as in Thailand. This extra expense buys relatively little additional healthy life for the

Annual cost per patient of AIDS treatments

(dollars)

	Sub-Saharan Africa	Thailand	United Kingdom
Palliative care plus treatment of inexpensive opportunistic illnesses	300	1,014	—
Palliative care plus treatment of all opportunistic illnesses	490	1,657	—
Antiretroviral, triple-drug therapy			
AZT, ¹ ddI, ² and IDV ³	—	9,595	19,803
AZT, ddI, and RTV ⁴	—	13,285	23,493

Source: World Bank Policy Research Report, 1997, *Confronting AIDS: Public Priorities in a Global Epidemic* (New York: Oxford University Press for the World Bank).

Note: — means not available.

¹ Zidovudine.

² Didanosine.

³ Indinavir.

⁴ Ritonavir.

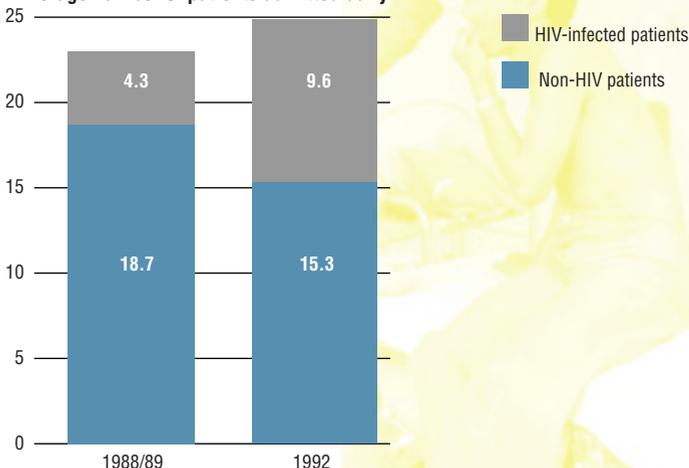
average person with AIDS. For example, an AIDS patient stricken with cryptococcal meningitis in the Democratic Republic of the Congo (formerly Zaïre) is estimated to live an average of only 150 additional days under the most advanced, expensive treatment for that disease. Because the cost of treatment is \$870, more than seven times the country's per capita income, many patients and their families would be likely to refuse treatment, even if it were available at cost. Governments of middle-income countries with serious AIDS epidemics can subsidize this care to the same degree that they subsidize other curative health care, but this does little to reduce transmission.

The most aggressive—and expensive—therapies attempt to attack directly the retrovirus that causes AIDS. These therapies, collectively referred to as antiretroviral therapy, have achieved dramatic improvements, at least temporarily, in the

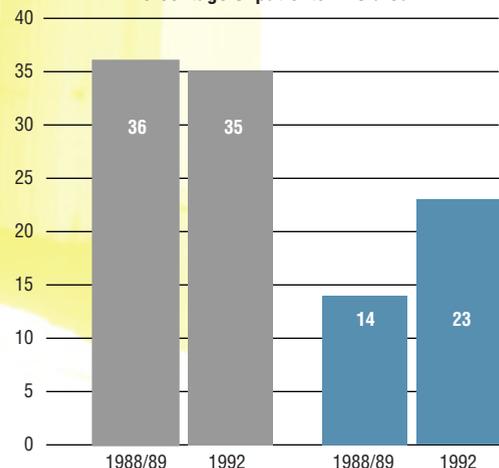
Chart 1

Impact of AIDS on hospital admissions and mortality at Kenyatta National Hospital, Nairobi, Kenya

Average number of patients admitted daily



Percentage of patients who died



Source: Katherine Floyd and Charles F. Gilks, 1996, "Impact of, and Response to, the HIV Epidemic at Kenyatta National Hospital, Nairobi," Report 1 (April) (Liverpool, England: Liverpool School of Medicine).

health of some individuals in high-income countries. Unfortunately, others do not benefit or are even made sicker by the treatments available. Furthermore, these experimental treatments can be properly administered only in extremely advanced clinical settings, and, as shown in the table, they raise the cost of treatment to at least \$9,000 a patient a year. The level of funding that would be needed to make such treat-

Community-initiated care provided at home greatly reduces the cost of care and therefore offers hope that affordable measures exist for improving the quality of the last years of life for AIDS patients.

ments available in developing countries is extremely high. And if donor countries were to provide the necessary funds at the expense of other health care interventions, the cost in lives lost to measles, malaria, and tuberculosis would greatly outweigh the benefits.

In countries with severe AIDS epidemics, health policymakers have sought low-cost ways to provide compassionate care to AIDS patients. An analysis of alternative treatment and care options shows that community-initiated care provided at home, while often shifting costs from the national taxpayer to the local community, greatly reduces the cost of care and therefore offers hope that affordable measures exist for improving the quality of the last years of life for AIDS patients.

Impact on health care

A generalized AIDS epidemic is a severe shock to the health sector. It increases the demand for medical care and reduces the supply of care at a given quality and price. As the number of people with HIV/AIDS mounts, access to medical care becomes more difficult and more expensive for everyone, including people not infected with HIV, and total health expenditures rise.

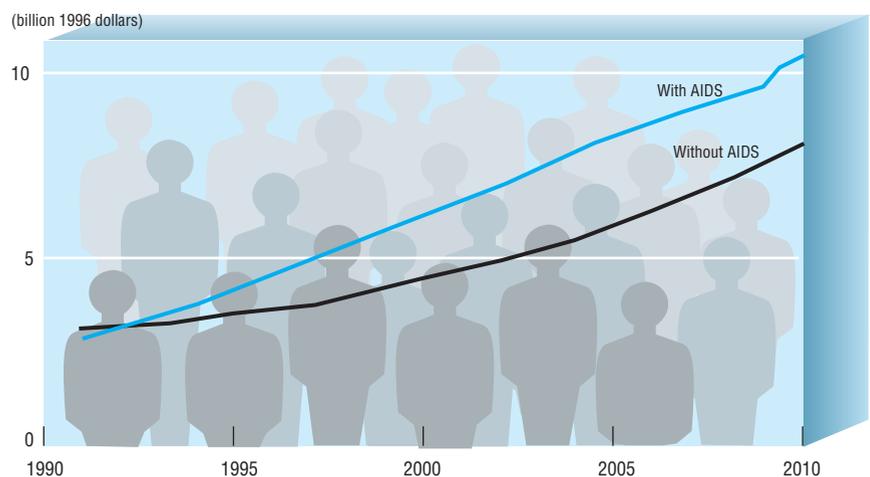
The impact of AIDS on an entire curative health care sector is demonstrated by what happened at the Kenyatta National Hospital in Nairobi, Kenya (Chart 1), between 1988/89 and 1992, when the number of HIV-infected patients admitted daily more than doubled. The mortality rate of HIV-negative inpatients rose by more than two-thirds, indicating that those with less serious conditions could not even get admitted to the hospital.

The impact of a serious AIDS epidemic on government health spending will be amplified in countries that provide larger subsidies for health care. For example, suppose that the infection rate in India, now quite low nationally, were to rise to 5 percent of the adult population over the next 10 years. Even if India's subsidy of health care remained at its current low level of 21 percent, the government's health expenditures would increase by about one-third (Chart 2). If India were to subsidize half the cost of health care—a share closer to the average for poor developing countries—the AIDS epidemic would increase government spending by about 41 percent.

Governments will undoubtedly be pressured to increase their share of health care spending and to provide special subsidies for the treatment of HIV/AIDS. Unfortunately, because of the scarcity of resources and the inability or unwillingness of governments to increase public health spending enough to offset these pressures, either of these actions may exacerbate the impact of the epidemic on the health sector and make it harder for the majority who are not infected with HIV to obtain care.

However, there are things that governments can do. Governments should ensure that HIV-infected patients benefit from the same access to care as other patients with comparable illnesses and a similar ability to pay. Sometimes,

Chart 2
Simulated impact of a severe AIDS epidemic on public health expenditures in India



Sources: Randall Ellis, Moneer Alam, and Indrani Gupta, 1997, "Health Insurance in India: Prognosis and Prospectus" (Boston University); and author's calculations.
Note: Calculations assume a public subsidy of health care expenditures of 21 percent.



A health worker explains how to avoid sexually transmitted diseases to prostitutes in Calcutta.

because of discrimination, people with HIV are denied treatment or face barriers to care that others do not encounter. In other situations, people with HIV receive subsidized access to advanced therapies while people sick with other severe and difficult-to-treat diseases lack access to therapies with comparable costs. Although patients with HIV-related illnesses need and should receive a different mix of services than those with, say, cancer, diabetes, or kidney disease, they should pay the same percentage of their health care costs out of their own pockets as patients with other diseases. Other measures that governments can and should undertake include providing information about the efficacy of alternative treatments for opportunistic illnesses and AIDS; subsidizing the treatment of sexually transmitted diseases and infectious opportunistic illnesses as well as the start-up of blood-safety and AIDS care programs; and ensuring access to health care for the poorest, regardless of their HIV infection status.

Impact on poverty

The third major impact of the epidemic is on households and, in the aggregate, on the extent and depth of national poverty. To cope with the loss of adults in the prime of life to AIDS, households and extended families often reallocate their resources—for example, withdrawing children from school to help at home, working longer hours, adjusting household membership, or selling household assets—and turn to friends and relatives for cash and other kinds of assistance. Poorer households, having fewer assets, have more difficulty coping.

Today's leaders can decide whether their children will grow up in a world where one out of four potential marriage partners is infected with a fatal sexually transmitted disease.

Their children may be permanently disadvantaged by worsening malnutrition or withdrawal from school. However, governments and nongovernmental organizations should not forget that, in low-income countries, many households that have not experienced an AIDS death are nonetheless so poor that their children suffer similar disadvantages. And some households will have enough resources to cope with the death of an adult from AIDS without help from the government or a nongovernmental organization. Government assistance programs should thus target households based on both direct poverty indicators and the presence of AIDS, rather than on either indicator alone.

The role of government

We have seen that the epidemic's greatest impact is likely to fall on individuals living with HIV/AIDS, the health sector, and the poorest households. Governments can play an important role in mitigating the effects, especially by prohibiting discrimination against HIV-infected persons in health care settings and in the workforce and by strengthening antipoverty policies. But the most important lesson for governments to learn is that it is imperative to prevent the effects of AIDS in the first place, through vigorous, effective interventions aimed at changing the behavior of those most likely to contract and spread infection. Today's leaders can decide whether their children will grow up in a world where one out of four potential marriage partners is infected with a fatal sexually transmitted disease and AIDS patients occupy half of all hospital beds, leaving fewer beds for other patients. Prompt action today can prevent these outcomes or, in countries already seriously affected, can reverse them. ■

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This article is based on a World Bank Policy Research Report, Confronting AIDS: Public Priorities in a Global Epidemic (New York: Oxford University Press for the World Bank, 1997).

Setting Government Priorities in Preventing HIV/AIDS

Martha Ainsworth

Public policy has proved to be an effective weapon in containing the HIV/AIDS epidemic. Governments can have the greatest impact by providing incentives for those most likely to spread HIV to adopt safer behavior.

NO CURE has yet been found for the virus that causes AIDS, and an effective vaccine is still far off. The key to arresting the AIDS epidemic in developing countries is preventing HIV infection by changing individual behavior. What actions can be taken to encourage such change, and to which of these should governments give priority?

Behavior change is key

The biological characteristics of HIV determine, to some extent, the rate at which it spreads, but human behavior plays a critical role in transmission. People who have many sexual partners and do not use condoms, and people who inject drugs and share unsterilized injecting equipment have the greatest risk of contracting HIV and unknowingly infecting others. Typically, the virus first spreads quickly in a series of small epidemics among those with the riskiest behavior; it then spreads more slowly from them to lower-risk individuals in the population at large. How quickly and extensively an HIV/AIDS epidemic spreads in a given pop-

ulation depends largely on the extent to which people with many sexual partners mix with people with fewer partners.

The World Bank Research Report *Confronting AIDS: Public Priorities in a Global Epidemic* finds that people who engage in high-risk behavior do act to reduce their risk of contracting and spreading HIV when they have the knowledge and means to do so and a supportive community. The report highlights three strategies to reduce risky behavior: providing information, lowering the costs of safer behavior, and raising the costs of risky behavior.

Awareness. Knowledge of how extensive HIV infection is in one's community, how the virus is transmitted, and how to avoid contracting it will induce some people to behave more safely—for example, by using condoms, reducing the number of sexual partners, sterilizing injecting equipment, or avoiding needle sharing. In Thailand, the announcement in 1989 that 44 percent of sex workers in the northern city of Chiang Mai were infected with HIV is believed to have contributed to the growing use of condoms, even before the launching of large-scale government programs. Condom use by young adults in the United States doubled in the mid-to-late 1980s because of growing awareness of the risk of contracting HIV.

But knowledge alone is unlikely to change individual behavior enough to stop the HIV/AIDS epidemic. Many of the individuals who engage in high-risk behavior are likely to make decisions based on what they perceive to be their own risk of contracting HIV, while ignoring the risks to which their actions expose others. Even when considering their own risk of infection, many people

persist in risky behavior because the costs of safer behavior are clear and immediate, while the benefits are uncertain and distant.

Lowering the costs of condom use and safe injecting behavior. Condoms are highly effective in preventing HIV transmission, but they entail costs—not only the money and time spent buying condoms, but also potential inconvenience and embarrassment and, for some people, reduced pleasure. Reducing these costs will encourage more people to use condoms and lead to lower rates of HIV transmission. In Kinshasa, Democratic Republic of Congo, a program that offered sex workers free condoms, treatment for other sexually transmitted diseases, counseling, and group discussions had impressive results. A mere 11 percent of the sex workers had used condoms on an “occasional” basis before the program; afterward, more than two-thirds reported using condoms on a “consistent” basis. The incidence of HIV—the number of new cases over time—dropped by two-thirds. At the same time, mass marketing of highly subsidized condoms—known as “social marketing”—in Kinshasa increased the willingness of clients to use them. Sixty developing countries now have condom social marketing programs, both for the prevention of sexually transmitted diseases and HIV infection and for family planning.

Injecting drug users face substantial costs in adopting safer behavior. For people who are truly addicted, drug treatment programs are often difficult to get into and painful to go through; 70–80 percent of those treated typically resume drug use within a year or two of completing treatment. The scarcity of sterile injecting equipment is one of the most important reasons why injecting drug users share needles and syringes, spreading HIV and other blood-borne diseases. The availability of sterile injecting equipment is highly restricted in many countries; possession of it may be illegal and lead to imprisonment.

“Harm-reduction” programs reduce these costs and increase safe injecting behavior among people who cannot stop injecting drugs. They include such measures as legalization of over-the-counter purchase of needles and syringes, bleach distribution, needle exchange, outreach by peer educators,

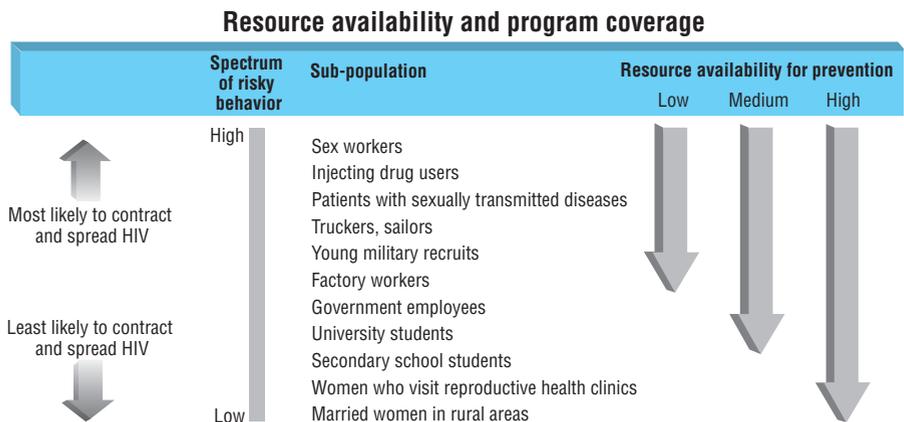
and referral for drug treatment. Needle exchange programs, which provide new, sterile injecting equipment in exchange for used syringes, reduce needle sharing and remove contaminated needles from circulation. Such programs are credited with keeping HIV infection levels below 5 percent among injecting drug users in cities like Glasgow, Scotland, and Tacoma, Washington, in the United States, even as infection rates have soared to 40 percent or more in neighboring cities. In Kathmandu, Nepal, a program offering needle exchange, bleach, education, and health care to injecting drug users lowered the frequency of injection by one-third and the number of unsafe injections by one-half; HIV prevalence has remained low—less than 2 percent of injecting drug users—while the prevalence of HIV among injecting drug users in India and Myanmar has soared to 60 percent

or more. Evaluations of these programs find no evidence that they encourage people to start injecting drugs, but there is substantial evidence that they reduce the types of behavior that spread HIV.

Raising the costs of risky behavior. An alternative strategy to reduce risky behavior is to make it illegal, more difficult, or costlier, for example, by enforcing laws against commercial sex or drug use, or by reducing the drug supply. Such a strategy may appeal to many people because both prostitution and the use of addictive drugs have substantial negative externalities for the rest of society—the spread of sexually transmitted and blood-borne diseases, higher crime rates, and increased expenditures on law enforcement and incarceration. However, attempts to prohibit or regulate these behaviors are costly and difficult to enforce and rarely succeed in

Prevention measures should first focus on people with the greatest risk of transmitting HIV.

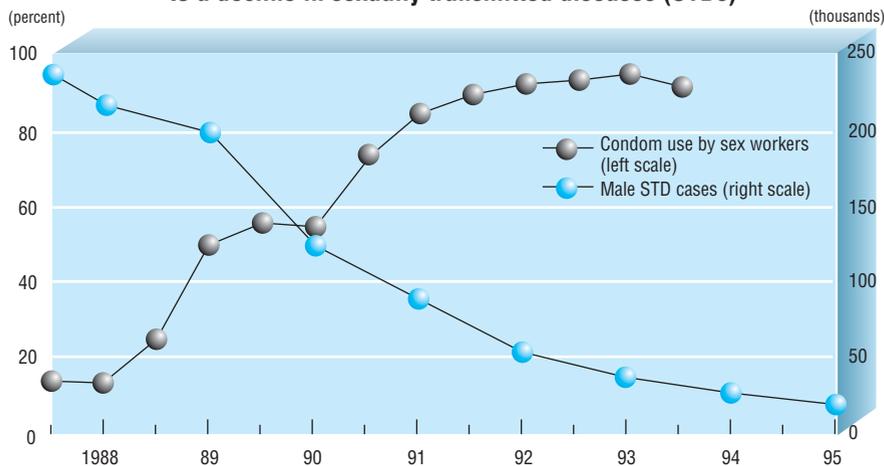
Chart 1



Source: World Bank, 1997, *Confronting AIDS: Public Priorities in a Global Epidemic* (New York: Oxford University Press for the World Bank).
Note: This is a hypothetical example only and is not meant to reflect the situation in any particular country.

Chart 2

Increased condom use by sex workers in Thailand leads to a decline in sexually transmitted diseases (STDs)



Source: Wiwat Rojanapithayakorn and Robert Hanenberg, 1996, "The 100% Condom Program in Thailand," *AIDS* 10(1), pp. 1-7.

either eliminating or controlling them. Prohibition may discourage some people but merely drives others underground, where it is harder for public health programs to reach them, or it may simply rearrange the problem. When Singapore attempted to eradicate prostitution by closing down red-light districts, brothels appeared in residential areas. Legalizing prostitution makes the legal segment of the commercial sex market easier to reach and regulate, but it tends to raise prices for the regulated sexual services, giving rise to a lower-cost parallel market of unregulated sex workers who are harder to reach. When prostitution was officially regulated in Melbourne, Australia, the number of brothels declined by two-thirds; the price of sex in brothels rose; and the number of lower-priced streetwalkers increased.

Similarly, attempts to restrict the supply of drugs or to put drug addicts in prison may not only fail to slow the rate of HIV transmission but may have the opposite effect. Efforts to control opium smoking in Bangkok and Calcutta induced addicts to switch from smoking to injecting heroin, increasing the risk of HIV transmission. The threat of imprisonment is notoriously ineffective in getting injecting drug users to quit; HIV spreads very rapidly among prisoners who continue to inject drugs using shared, improvised equipment, like ball-point pens and rubber tubing, which are hard to sterilize.

It is difficult to measure the impact on HIV transmission of raising the costs of risky behavior because such behavior is often clandestine. Commercial sex or injecting drugs per se does not spread HIV—the failure to use condoms and the sharing of unsterilized needles and syringes do. Given the high costs of enforcement, the possibility that unsafe behavior may actually increase as a result of prohibitions, and evidence that people adopt safer behavior when the incentives are right, programs that reduce the costs of safer behavior are likely to be more cost-effective in preventing HIV transmission.

Government priorities

Given the enormous consequences of HIV/AIDS, few people would debate the need for developing country governments to take action to curb the epidemic. But these governments are faced with numerous pressing demands and a shortage of funds. Which activities should receive priority?

Governments have two key responsibilities in preventing the spread of HIV/AIDS: reducing the negative externalities of high-risk behavior and producing public goods (see "Confronting AIDS" in this collection). Some societies will want to do more than this and may have the money to do so. But these two activities, which are essential for stopping the epidemic, are priorities

for all governments because, without government action, private individuals and firms will not have the incentives to do what is necessary. Governments also have a responsibility to protect the poor, who will best be served in most countries by measures that prevent infection among high-risk individuals.

Preventing HIV among those most likely to spread it. Because of the negative externalities of high-risk behavior, governments must ensure effective prevention efforts among people most likely to contract and spread HIV. Preventive measures among people with many sexual partners, for example, will do more to protect those in the general population from infection than will preventive measures among people who have few sexual partners. A program for sex workers in Nairobi, Kenya, vividly illustrates this point. By treating the other sexually transmitted diseases of 500 sex workers and increasing their condom use to 80 percent, the program prevented 10,000 HIV infections a year among their clients, the clients' spouses, and other partners. In contrast, had condom use been raised to 80 percent of an equal number of men taken at random from the same community, fewer than 100 infections a year would have been prevented.

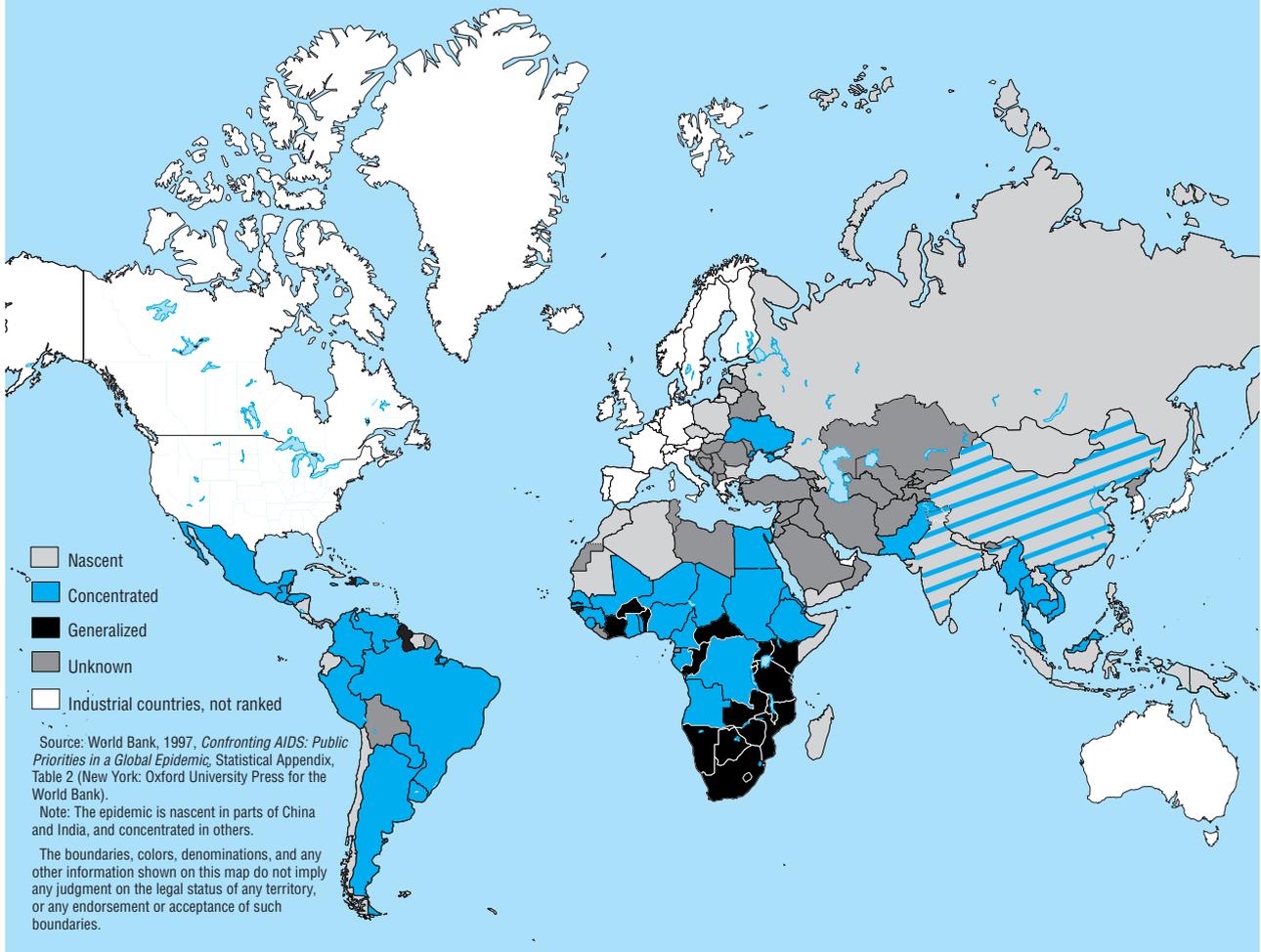
In setting priorities, therefore, governments should first focus on prevention among people with the greatest risk of transmitting HIV (Chart 1). As additional resources become available, prevention efforts can be extended progressively to people who are less likely to spread the virus.

Simulations show that in countries where HIV infection levels are low, prevention of transmission among those with the very riskiest behavior may be sufficient to prevent a widespread epidemic. Even in countries where HIV is already widespread, it is likely to be the most cost-effective strategy in curbing the spread of HIV, although a much larger group must be covered to bring infection levels down quickly.

Directly or indirectly, governments of developing countries *can* successfully implement such programs on a wide

Chart 3

Stages of the AIDS epidemic in developing and transition countries



scale. In Thailand, a multifaceted program increased condom use in brothels to more than 90 percent of sex workers (Chart 2). At the same time, the number of patients with other sexually transmitted diseases, like gonorrhea and syphilis, has dropped by 90 percent. HIV infection among young army conscripts peaked at 4 percent in 1993; since then it has declined by more than half. Other countries, like Brazil and India, have succeeded in reaching those with the highest-risk behavior by enlisting nongovernmental organizations, which often have greater flexibility and more access to intended program participants, to implement programs.

Despite these successes, available evidence suggests that most countries have not reached the majority of people with the riskiest behavior.

- In surveys in seven African countries hard hit by the epidemic, respondents were asked how they could protect themselves from getting AIDS. Of the respondents who had recently had a casual sexual partner, only 40–70 percent named condom use as a means of protection.

- People in the military are thought to have a high risk of contracting and spreading HIV because they are often sta-

tioned away from their families. A study of HIV/AIDS prevention measures in the militaries of 50 industrial and developing countries found that one-fifth of the militaries did not distribute condoms and that most of the others offered condoms free of charge but only on request.

- A survey of UNAIDS (Joint United Nations Program on HIV/AIDS) Country Program Advisers for 32 developing countries found that public and private HIV prevention efforts rarely reached even half of the groups with high-risk behavior. In fact, many governments have impeded prevention efforts from reaching injecting drug users and men who have sex with men.

Providing information. Governments also need to invest in public goods essential to the control of HIV: monitoring infection and behavior, providing information on how HIV can be transmitted and prevented, and evaluating the costs and effects of different approaches. Likewise, bilateral and multilateral donors have a responsibility to invest in information that is an “international” public good: medical research on a vaccine that can be effective in developing countries; low-cost, effective treatments for AIDS in low-

income countries; and evaluation of the cost-effectiveness of behavioral and medical interventions in the field.

The available evidence suggests that, for prevention efforts to succeed, many countries need to invest in information about the types and distribution of risky behavior in the population and, among those with risky behavior, the prevalence of HIV infection. However, fewer than 20 developing countries have carried out sexual behavior surveys. As recently as 1995, one-fourth of all developing countries had not yet initiated systematic monitoring of HIV prevalence. More than one-third of the 123 countries studied for *Confronting AIDS* had no information on HIV prevalence in populations with high-risk behavior during the past five years. Equally critical, very few studies have attempted to measure both the costs and effects of programs, and almost none have included the prevention of secondary infections as one of the benefits.

The need to act now

Epidemiological models predict that between 1996 and 2001, 10–30 million people in developing countries will become infected with HIV. But the future of the epidemic is not carved in stone. Action now can save millions of lives. *Confronting AIDS* classifies developing countries by the extent to which HIV has spread among people with the riskiest behavior and from them to the general population (Chart 3).

- 2.3 billion people (half of the population of the developing world) live in areas with “nascent” epidemics—that is, HIV has infected fewer than 5 percent of people presumed to have high-risk behavior. Bangladesh, Indonesia, the Philippines, and most countries of the former Soviet Union, as well as vast areas of China and India, fall into this category. Immediate action to prevent infection in the groups with the highest risk can avert a widespread epidemic.

- 1.6 billion people live in countries with “concentrated” epidemics—that is, more than 5 percent of the highest-risk individuals have been infected with HIV but the infection rate for the rest of the population is still low. Most of Indochina, Latin America, and West Africa, as well as Yunnan Province of China and about half of India, have concentrated epidemics. Thailand’s experience shows that concerted action focused on people with the riskiest behavior can have immediate impacts, even in a concentrated epidemic.

- About 250 million people live in countries with “generalized” epidemics. The rate of HIV infection in these countries is high in the groups with the riskiest behavior, and 5 percent or more of the women visiting prenatal clinics are infected, indicating that HIV has spread widely in the general population. Most countries in eastern and southern Africa, a few West African countries, and Guyana and Haiti fall into this category. These countries must cope with the impact of severe AIDS epidemics while maintaining strong prevention programs, especially among those most likely to spread the virus.

Mobilizing political support

Virtually every country that is confronting a severe AIDS epidemic once claimed: “It can’t happen here.” Initially, poli-



Demonstrators wear masks representing anonymous victims of AIDS in Buenos Aires.

cymakers denied that the types of behaviors responsible for the transmission of the virus existed in their culture and blamed foreigners. But in each and every case they have been wrong.

It is not difficult to understand why denial is such a common response. When only a few people are sick, policymakers and the public have difficulty grasping the urgency of preventive measures; the programs needed to prevent transmission of the virus are often controversial; and other development problems seem more pressing. Unfortunately, denial robs society of precious time during which early and focused action could avert an epidemic. Because a long asymptomatic period—lasting 8–10 years—usually follows infection with HIV, by the time a significant number of AIDS cases appear and the public awakens to the threat of HIV/AIDS, many people will have been infected. At that point, preventing an epidemic is costlier and more difficult.

Programs that aim to prevent HIV among those with the riskiest behavior are controversial but they save lives. Without them, the epidemic cannot be stopped. Emotional responses are not a good guide for dealing with this public health problem. The public needs to understand that the most effective way of preventing an epidemic that could eventually affect all of us in some way is to encourage those most likely to contract and spread HIV to adopt safer behavior. Stigmatization of these individuals and discrimination against them are counterproductive. Only by facing these difficult issues will developing countries succeed in blunting the tragic impact of AIDS. ■

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Making AIDS Part of the Global Development Agenda

Robert Hecht, Olusoji Adeyi, and Iris Semini

AIDS is not just a health issue but a development problem that must be addressed at the global level. As countries increasingly recognize the need to incorporate strategies for tackling AIDS in their national policy frameworks, they are discovering important new weapons—notably national poverty reduction plans—that were not available even two years ago.

IN THE past two years, development thinking has undergone a major shift, from viewing AIDS as purely a health issue to acknowledging that it must be tackled as part of a broader development agenda. There is evidence of this new approach, referred to as “mainstreaming,” at the highest levels of development policy and assistance. At a meeting of the Development Committee of the World Bank and the IMF in April 2001, ministers called for focusing on HIV/AIDS in development policies and increasing assistance to affected countries. Developing countries themselves have announced their intention of making AIDS a mainstream issue, most visibly in June 2001 during the United Nations General Assembly Special Session on HIV/AIDS.

Why is this shift in thinking so important? HIV/AIDS takes a heavy toll, both economic and human, as it undermines productivity,

security, education, health care, civil service systems, social cohesion, and political stability. It is shortening the life expectancy of working-age adults, dramatically increasing the numbers of infant and child deaths, shrinking the workforce, creating tens of millions of orphans, widening the gap between rich and poor, and reversing development gains. Since the onset of the epidemic, almost 22 million people worldwide have died of AIDS, and another 36 million people are living with the HIV virus. In Africa alone, 12 million men, women, and children—more than the entire population of Belgium—have died to date.

Developing countries that do not, or cannot, protect human capital—the education and skills embodied in people that enable them to increase their future incomes—will not be able to participate fully in the global economy, much less take advantage of the opportunities it affords. Smallholder farm families in Zimbabwe experience a 40–60 percent fall in the production of maize, peanuts, and cotton after suffering an AIDS death. Children who lose a parent to AIDS in rural Tanzania are about 50 percent more likely to be malnourished than children from families with both parents living. Data from over 15 African and Latin American countries also show that children who lose both parents to AIDS are much less likely to continue attending school. A recent World Bank study estimates that Africa’s income growth per capita is being reduced by about 0.7 percent a year because of HIV/AIDS.

Moreover, although AIDS is not exclusively a disease of the poor, much evidence suggests that certain poor groups run a disproportionately greater risk of becoming infected with the HIV virus. In many coun-

tries, infections are heavily concentrated among injecting drug users and their partners and among commercial sex workers, most of whom are poor. Even in Africa, where the epidemic is now widespread, it appears that HIV infection rates are starting to fall among more educated women while continuing to rise among those with little or no schooling.

Fortunately, policymakers now have at their disposal a new tool—the Poverty Reduction Strategy Paper (PRSP)—that greatly facilitates mainstreaming the fight against HIV/AIDS. The PRSP, which sets out a country’s approach to poverty reduction, can be used by the donor community as a framework for technical and financial support. Moreover, its usefulness has been dramatically enhanced in recent years by the availability of debt relief for the world’s poorest countries.

Poverty reduction tool

What exactly are PRSPs? They are documents in which low-income countries describe the policies and programs they expect to put in place to promote growth and reduce poverty, the associated external financing needs, and major sources of financing. Each country prepares its own PRSP with input from domestic stakeholders and external development partners.

To be effective, a country’s poverty reduction strategy should be led by the country itself; aim for faster economic growth that specifically addresses the needs of the poor; reflect a comprehensive understanding of poverty and its determinants; help identify the public actions that have the greatest impact on poverty; and establish outcome indicators that are set and monitored by the government, with domestic and external input.

Partly to qualify for debt relief under the Heavily Indebted Poor Countries (HIPC) Initiative, launched by the IMF and the World Bank in 1996, about 40 low-income countries took the first steps toward elaborating a full PRSP during 2000–01 by preparing an interim PRSP in which they began to analyze the extent and causes of poverty and the main actions needed to combat it, and outlined the process for producing a full strategy. By the end of 2001, eight countries had completed and published full PRSPs, and many others were working to complete their full PRSPs.

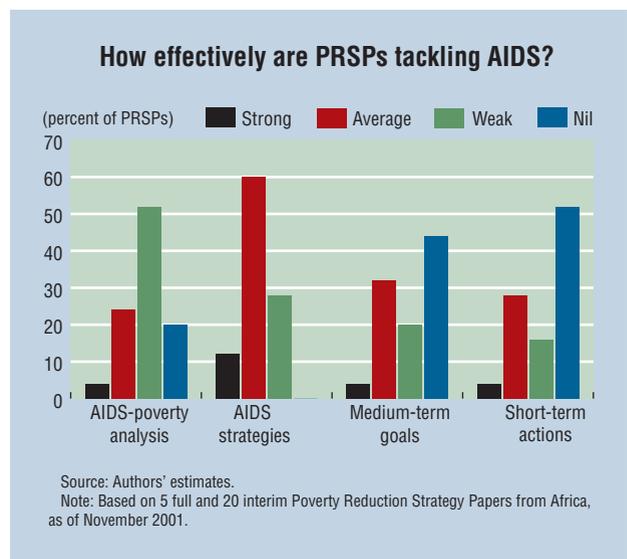
Recently, the UNAIDS Secretariat reviewed the first generation of 25 full and interim PRSPs prepared by sub-Saharan African countries to get a sense of how well they are dealing with HIV/AIDS. The review was based on four criteria: (1) analysis of the relationship between AIDS and poverty; (2) inclusion of the main strategies from the country’s national AIDS plan; (3) use of medium-term AIDS prevention and care goals and indicators for monitoring poverty; and (4) incorporation of monitorable short-term actions to fight HIV/AIDS (see chart).

What was the verdict? The initial signs were promising, but far more could be done to fully exploit the potential of PRSPs. The countries rated highest on inclusion in the PRSPs of approaches for fighting AIDS drawn from their

national AIDS plans. Their analysis of the relationship between AIDS and poverty was generally weak, however, even in countries where research has been done on the social and economic impact of the epidemic. The elaboration of short-term actions and medium-term goals on AIDS was also generally weak or even nonexistent. The review did not examine the quality of national and local participation.

Clearly, future PRSPs can provide a sounder basis for making decisions about AIDS funding if they pay more attention to the links between AIDS and poverty. Poverty strategies can draw on the growing evidence of the impact of HIV illness and AIDS deaths on household production and incomes, school attendance, and child nutrition. In addition, the main AIDS prevention and care strategies need to be more clearly defined, for example, working through schools and peer counselors to change the sexual behaviors of young people and using nongovernmental organizations (NGOs) to reach commercial sex workers and their clients with information, condoms, and care for other sexually transmitted infections. The identification of medium-term AIDS goals and indicators in each country should build on the targets already agreed upon as part of the Millennium Development Goals, including reducing the incidence of new HIV infections among 15–24-year-olds and of infections transmitted from pregnant women to their unborn children.

Uganda, one of Africa’s worst-affected countries, has become the continent’s success story and can serve as a model for others. It has succeeded in reducing the HIV prevalence rate in young women from 25 percent in 1992 to 8 percent today. Uganda’s PRSP describes the impoverishing effects of AIDS on women, orphans, and households. It highlights strategies for reducing new HIV infections, mitigating the health and socioeconomic effects of the epidemic, and improving Uganda’s capacity to respond to the problem. The PRSP then sets an overall target for reducing HIV prevalence in the adult population, as well as more detailed objectives and



Using debt relief to fight AIDS

Country	AIDS-related actions in HIPC documents
Benin	Increase budget for improved reproductive health and HIV/AIDS Present HIV/AIDS strategy to National Assembly
Cameroon	Curb infection rates through increased use of condoms by port workers, truckers, soldiers, and commercial sex workers Expand HIV testing and counseling services Introduce AIDS education in secondary schools
Guinea-Bissau	Adopt strategic framework to fight HIV/AIDS Inform high-risk population (ages 14–29) of transmission and prevention methods
Malawi	Establish fully staffed, autonomous National AIDS Control Secretariat Ensure that 75 percent of all condom outlet points are stocked with condoms Make testing kits available at all blood transfusion sites Implement behavior change communication strategy Manage sexually transmitted infections in all hospitals
Mauritania	Maintain HIV prevalence rate at the 1998 level of less than 1.2 percent maximum of blood donors
Mozambique	Implement the National Multisectoral Plan on HIV/AIDS
Rwanda	Adopt new strategy and action plan for HIV/AIDS control
Tanzania	Implement national spearhead campaign against HIV/AIDS, including visits to 75 percent of all districts
Zambia	Fully staff National HIV/AIDS Council Secretariat Introduce AIDS awareness and prevention programs in at least 10 government ministries

Source: World Bank website on HIPC.

targets, such as reducing violence against women and improving access to AIDS counseling, care, and social support.

Mozambique's PRSP is also worthy of emulation. The paper explicitly links AIDS to growth prospects and household poverty. It then lays out strategies to combat the epidemic in education, agriculture, and health; sets short-term targets for program implementation that can be assessed over the next four years; and estimates the costs of these actions.

Resources from debt relief

Another major development in the last few years has been the availability of—and potential to marshal—new resources in the fight against AIDS through the HIPC Initiative. This Initiative was enhanced in 2000 to make more funds available to more countries more quickly. As of early 2002, 24 countries had concluded debt-relief agreements under the Initiative, with substantial debt-service savings. On an annual basis, these countries will pay about \$0.8 billion less in 2001–03 than they did in 1998–99.

How much of these savings are going toward health care—keeping in mind that all eligible HIPCs must prepare PRSPs to ensure that savings go toward poverty reduction? Early indications suggest that, on average, HIPCs will spend about 25 per-

cent of their annual interim debt relief on health care. As for AIDS, data from 10 low-income African countries from this group (Benin, Burkina Faso, Cameroon, Madagascar, Mali, Mauritania, Mozambique, Tanzania, Uganda, and Zambia) suggest that, together, they are budgeting some \$32 million for AIDS activities, or about 5 percent of their HIPC savings, in 2001. In some other HIPCs, however, little or no money from debt-relief proceeds has been specifically allocated to HIV/AIDS.

Perhaps the most promising development is that, in many of the HIPC agreements, governments have committed themselves to key actions against AIDS (see table). Global NGOs have played an important role in providing impetus to this movement. Two examples are Jubilee 2000, which advocated debt relief that countries could earmark for AIDS; and ActionAid, which supported an emphasis on AIDS in PRSPs.

What else can be done?

Looking ahead, the international community needs to focus on five areas:

First, policymakers should improve the quality and presentation of

HIV/AIDS prevention and care efforts in poverty reduction strategies. Guidelines and examples of good practice are available and should be updated as more is learned. The standard AIDS outcome indicators, such as the rate of new infections in young women, already endorsed by developing countries at the UN special session on AIDS in June 2001, could be usefully adopted in the PRSP. National AIDS commissions and their various partners, including the World Bank, UN agencies, local research institutions, and NGOs, can bring these guidelines and indicators to the attention of ministries of finance, which typically lead the PRSP process at the country level.

Second, international development institutions should vigorously support the development of national capacities to design, implement, and monitor AIDS strategies as part of the PRSP and debt-relief processes. Early work by UNAIDS and its partners to create networks of English-speaking and French-speaking specialists is starting to bear fruit. These capacity-building initiatives need to be sustained and extended beyond Africa.

Third, despite the many legitimate competing claims on their budgets for primary education, basic water supplies, and other areas, countries should devote a larger percent-

age of debt-relief savings to HIV/AIDS than the typical 3–10 percent observed to date in countries with very high levels of HIV infection.

To avoid a social and economic catastrophe from AIDS in Africa, for example, it is estimated that \$3–4 billion a year will have to be spent to mount a major counterattack on the pandemic. If 20 percent of debt-relief savings were allocated to HIV/AIDS in the first 18 African countries to reach HIPC agreements, the total amount would be nearly \$200 million—not enough but still an important contribution to the several billion dollars required.

Fourth, countries should strive to cost their national AIDS plans fully, develop realistic financing schemes to back these plans, and ensure that this financing is reflected in annual national budgets and in medium-term public expenditure frameworks.

Few countries have costed their national AIDS plans, and those that have done so have not incorporated them in their national budgeting systems. Some positive signs have begun to emerge in, for example, Burkina Faso and Mozambique, where some AIDS activities have been included in PRSP budget tables. Further steps in this direction will help make senior public officials fully aware of the HIV/AIDS problem, increase accountability for spending and results in fighting the pandemic, and improve the chances that national AIDS programs will receive funding from national governments and donors on a sustained basis.

Fifth, the international community will need to increase its financial support for AIDS programs in the poorest countries to complement domestic spending through debt relief and other sources. The costs of an adequate response to the pandemic globally are so vast—around \$10 billion a year—that neither additional resources generated through debt relief nor reallocations from existing government spending programs will suffice in most developing countries.

Ongoing initiatives to put HIV/AIDS squarely at the center of the world's development agenda have enormous potential for mobilizing the vastly increased political and financial resources required to bring the epidemic under control and to care for affected individuals and communities. PRSPs and debt relief are two such initiatives that offer



Kenyan scientists examine blood samples for HIV testing.

hope. These, combined with other new mechanisms—such as the Global Fund for AIDS, Tuberculosis, and Malaria, which is expected to begin its operations in the first half of 2002—must be understood and exploited if the international community is to build and sustain an adequate response to AIDS. ■

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Death and Taxes: The Economics of Tobacco Control

Prabhat Jha, Joy de Beyer, and Peter S. Heller

ABOUT 1.1 billion people worldwide smoke, and, with current trends, the number is expected to rise to more than 1.6 billion by 2025. In high-income countries, the number of smokers has, overall, been declining for decades, although it continues to rise in some population groups. In low- and middle-income countries, by contrast, cigarette consumption has been increasing.

Few people now dispute that cigarette smoking is damaging human health on a global scale. Smoking-related diseases are already responsible for 1 in 10 adult deaths worldwide. By 2030, perhaps sooner, the ratio will be 1 in 6, or 10 million deaths a year, making smoking the largest single cause of death. Until recently, this epidemic of chronic disease and premature death affected mainly the populations of rich countries, but it is rapidly shifting to the developing world. By 2020, 7 of every 10 people who die from smoking-related diseases will be from low- and middle-income countries.

Despite these trends, many governments have avoided taking action to control smoking because of concern about potential economic harm. For example, some policymakers fear that reduced sales of cigarettes would mean the permanent loss of thousands of jobs, particularly in agriculture, and that higher tobacco taxes would result in both lower government revenues and massive cigarette smuggling. Recent research allays these fears.

Health effects of smoking

Smoking has two major health consequences. First, the smoker rapidly becomes addicted to nicotine, whose addictive properties, although well documented, are often

underestimated. Second, smoking ultimately causes disabling and fatal diseases, including cancers of the lung and other organs, ischemic heart disease and other circulatory diseases, and respiratory diseases such as emphysema. In regions where tuberculosis is prevalent, smokers also face a greater risk than nonsmokers of dying from this disease. Half of all long-term smokers will eventually die as a result of smoking; of these, half will die during productive middle age. Because the poor are more likely to smoke than the rich, their risk of smoking-related disease and premature death is also greater. In high- and middle-income countries, men in the lowest socioeconomic groups are up to twice as likely to die in middle age as men in the highest socioeconomic groups, and smoking accounts for half of this additional risk. Finally, smoking also affects the health of nonsmokers, such as babies born to mothers who smoke.

Risks and costs of smoking

Modern economic theory holds that consumers are usually the best judges of how to spend their money on goods and services. When consumers bear all the costs of their actions and know all the risks, society's resources are, in theory, allocated as efficiently as possible. Does this theory apply to smoking? Smokers clearly perceive benefits from smoking, such as the pleasure it provides or the avoidance of withdrawal pains, and weigh these against the private costs of their choice. Defined this way, the perceived benefits outweigh the perceived costs; otherwise, smokers would not pay to smoke. However, the choice to smoke appears to differ from the choice to buy other consumer goods in three important ways.

First, there is evidence that many smokers, particularly in low- and middle-income countries, are not fully aware of the high risks of disease and premature death that their choice entails. In China in 1996, for example, 61 percent of smokers questioned thought that tobacco did them little or no harm. In high-income countries, smokers tend to minimize the personal relevance of these risks. Second, nicotine addiction usually starts in adolescence or early adulthood. Even when they have been given information, young people do not always have the perspective or ability to make sound decisions. Most new recruits seriously underestimate the future costs of smoking—that is, the cost of being unable, later in life, to reverse a youthful decision to smoke, in part because of nicotine addiction. Societies restrict young people in various ways, for example mandating minimum voting and driving ages, and most could justify restricting young people's freedom to smoke and to become addicted to a behavior that carries a very high risk of premature death.

Third, smoking imposes financial as well as other costs on nonsmokers, including health damage and nuisance and irritation from exposure to environmental tobacco smoke. In high-income countries, smoking-related health care accounts for between 6 and 15 percent of all annual health care costs, and nonsmokers bear a significant share of these costs. In any given year, the cost of health care for smokers will exceed that for nonsmokers. Recent studies in high-income countries also suggest that lifetime medical costs are, ultimately, somewhat higher for smokers. However, some analysts have argued that because smokers die earlier, lifetime health care costs may be no greater, and possibly even smaller, for smokers than for nonsmokers. This issue remains controversial. It should also be noted that the higher costs observed in the higher-income countries may not necessarily apply to low- and middle-income countries, where epidemics of smoking-related dis-

eases are at earlier stages and where the coverage of medical care systems may be more limited.

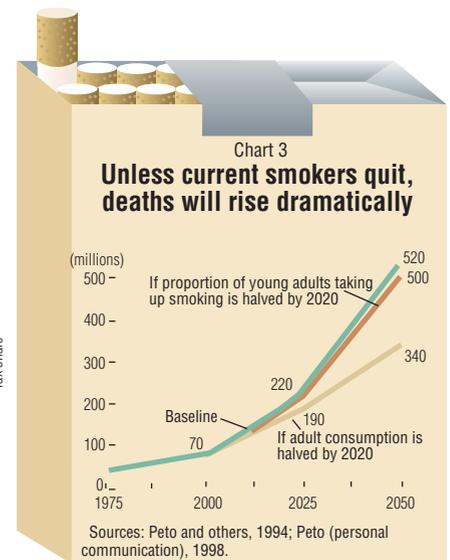
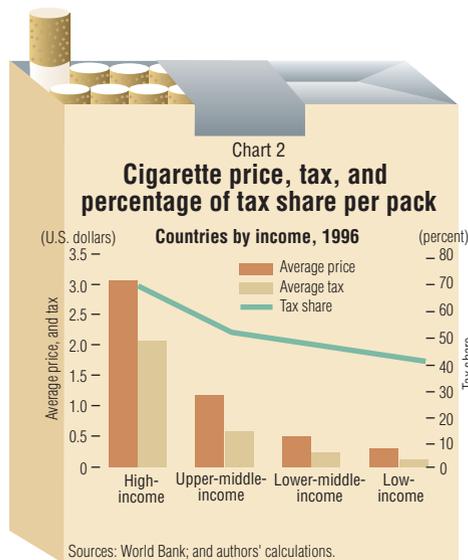
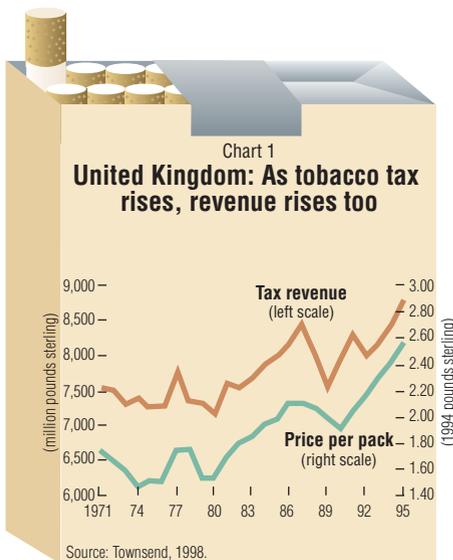
Costs and consequences of tobacco control

Policymakers traditionally raise several concerns about controlling tobacco. The first of these is that tobacco controls will cause permanent job losses. However, falling demand for tobacco does not necessarily mean a decline in a country's total employment level. Money that smokers once spent on cigarettes would instead be spent on other goods and services, generating new jobs to replace those lost in the tobacco industry. Several independent studies show that most countries would see no net job losses, and that a few would see net gains, if tobacco consumption fell.

There are, however, a small number of countries, mostly in sub-Saharan Africa, whose economies are heavily dependent on tobacco farming. For these countries, reductions in domestic demand would have little impact, but a decline in global demand could result in job losses. Policies to aid adjustment in such circumstances would be essential. Even if demand were to fall significantly, however, it would occur slowly, over a generation or more.

A second concern is that higher tax rates will reduce government revenues. In fact, the empirical evidence shows that an increase in tobacco taxes can raise tobacco tax revenues. One reason is that the proportionate reduction in demand does not match the proportionate size of the tax increase because addicted consumers respond relatively slowly to price hikes. An econometric analysis concludes that increases in cigarette excise taxes of 10 percent worldwide would increase tobacco tax revenues by about 7 percent overall, with the effects varying by country (see Chart 1 for evidence from the United Kingdom).

A third concern is that higher taxes will lead to a massive



increase in smuggling, thereby keeping cigarette consumption high but reducing government revenues. Smuggling is a serious problem, but even where it is widespread, tax increases bring greater revenues and reduce consumption. Therefore, rather than forgoing tax increases and health gains, the appropriate response is to crack down on criminal activity. The U.K. government, for example, recently appointed a “tobacco anti-smuggling czar” to spearhead such efforts.

The potential of tobacco taxation to raise revenues cannot be ignored. In China, for example, conservative estimates suggest that a 10 percent increase in the cigarette tax would decrease consumption by 5 percent and increase revenue by 5 percent and that the increase would be sufficient to finance a package of essential health services for one-third of China’s poorest 100 million citizens.

A fourth concern is that higher cigarette taxes will have a disproportionate impact on poor consumers. Existing tobacco taxes do consume a higher share of the income of poor consumers than of rich consumers. Policymakers, however, should be more concerned about the overall distributional impact of the *entire* tax and expenditure system than about the incidence of individual taxes. Also, poor consumers are usually more responsive to price increases than rich consumers, so their consumption of cigarettes will fall more sharply following a tax increase, and their relative financial burden may be correspondingly reduced.

Policy responses

Ideally, government intervention should address each identified problem specifically. Thus, for example, children’s imperfect judgments about the health effects of smoking could be addressed by restricting their access to cigarettes or by improving their education and that of their parents. But adolescents respond poorly to health education, perfect parents are rare, and existing restrictions on cigarette sales to the young seldom work, even in high-income countries.

In reality, increasing taxes on tobacco is likely to be the most effective way to deter children from taking up smoking and to encourage those who already smoke to reduce their consumption. This kind of intervention would have a significant impact on the smoking habits of children and adolescents because they are more responsive to price rises than adults. But taxation is a blunt instrument, and higher taxes on cigarettes would also impose costs on adult smokers, many of whom are poor. These costs may be considered acceptable, depending on how highly society values curbing tobacco use by children and on the acceptability of using taxes to improve public health and save lives.

Policies to reduce demand are effective

Evidence from countries at all income levels shows that price increases on cigarettes are highly effective in reducing demand. Higher taxes induce some smokers to quit and deter others from starting. They also reduce the number of ex-smokers who return to cigarettes and reduce consumption among continuing smokers. On average, a price rise of 10 percent on a pack of cigarettes would be expected to reduce demand for cigarettes in the short term by about 4 percent in high-income countries and by about 8 percent in low- and middle-income countries, where lower incomes tend to make people more responsive to price changes. Long-run price responsiveness is estimated to be twice as high. Tax increases that would raise the real price of cigarettes by 10 percent worldwide would cause at least 40 million smokers alive in 1995 to quit, thus preventing a minimum of 10 million tobacco-related deaths. The modeling assumptions on which this result is based are deliberately conservative, and these figures are therefore minimum estimates.

What is the right level of tax?

This is a complex question. The size of the tax should depend on such empirical data as per capita income levels and the scale of costs to nonsmokers, which may not yet be available. It also depends on societal values, such as the extent to which children should be protected, and on what a society hopes to achieve through the tax, such as a gain in revenue or a reduction in the disease burden. For the time being, policymakers who seek to reduce smoking should use, as a yardstick, the tax levels adopted as part of the comprehensive tobacco-control policies of countries where cigarette consumption has fallen. In these countries, the tax component of the price of a pack of cigarettes is between two-thirds and four-fifths of the retail cost. Currently, in high-income countries, taxes average about two-thirds or more of the retail price of a pack of cigarettes. In lower-income countries, taxes are no more than half the retail price of a pack of cigarettes (Chart 2).

Governments have employed other effective measures—nonprice regulatory and informational measures—to reduce demand. These include

- comprehensive bans on advertising and promoting tobacco, which can reduce demand by about 7 percent, according to econometric studies in high-income countries;
- mass media counteradvertising, prominent health warning labels, and publication and dissemination of research findings on the health consequences of smoking;
- restrictions on smoking at schools, work sites, and public places; and

Evidence from countries at all income levels shows that price increases on cigarettes are highly effective in reducing demand.

- deregulating and increasing access to nicotine-replacement therapy and other remedies for smokers who wish to quit.

Employed as a package, nonprice information measures, used globally, could persuade some 23 million smokers alive in 1995 to quit and avert the tobacco-attributable deaths of 5 million of them. Additionally, wider access to nicotine-replacement therapies could avert several million more deaths. As with the estimates for tax increases, these are conservative estimates.

Reducing supply is generally ineffective

While interventions to reduce the demand for tobacco are likely to succeed, measures to reduce its supply are less promising. This is because, if one supplier is shut down, an alternative supplier gains an incentive to enter the market. The extreme measure of prohibiting tobacco consumption is unwarranted on economic grounds, as well as unrealistic and likely to fail. Crop substitution is often proposed as a way to reduce the tobacco supply, but there is little evidence that it reduces consumption, because the incentives to farmers to grow tobacco are currently much greater than for most other crops. Crop substitution may, however, be a useful strategy for aiding the poorest tobacco farmers in transition to other livelihoods as part of a broader diversification program.

Similarly, the evidence so far suggests that trade restrictions, such as import bans, will have little impact on cigarette consumption worldwide. Instead, countries are more likely to succeed in curbing tobacco consumption by adopting measures that effectively reduce demand and applying those measures symmetrically to imported and domestically produced cigarettes. Likewise, in a framework of sound trade and agricultural policies, the subsidies on tobacco production that are found mainly in high-income countries make little sense. In any case, their removal would have little impact on the total retail price. One supply-side measure that should be part of a strategy to control tobacco is action against smuggling. Effective measures include prominent tax stamps and local-language warnings on cigarette packs, as well as aggressive enforcement and consistent application of tough penalties to deter smugglers. Tight controls on smuggling may also improve the revenue yield to governments from tobacco tax increases.

An agenda for action

Some policymakers will consider that the strongest grounds for intervening are to deter children from smoking. However, a strategy aimed solely at deterring children is not practical

and would bring no significant public health benefits for several decades. Most of the tobacco-related deaths that are projected to occur in the next 50 years would be among today's existing smokers (Chart 3). Governments concerned with health gains over the medium term may therefore consider adopting broader measures that help adults quit.

A recent World Bank report on the economics of tobacco control (Jha and others, 1999) recommends, first, that governments that decide to take action to curb the tobacco epidemic adopt a multipronged approach. Tailored to individual country needs, the strategy would include raising taxes to at least two-thirds to four-fifths of the retail price of cigarettes, adopting comprehensive bans on advertising and promotion of tobacco, publishing and disseminating research results on the health effects of tobacco, and widening access to nicotine-replacement and other cessation therapies. Second, international agencies should review their existing programs and policies to ensure that tobacco control is given due prominence; sponsor research into the causes, consequences, and costs of smoking and into the cost-effectiveness of local interventions; and address tobacco-control issues that cross borders, including supporting the World Health Organization's new Framework Convention for Tobacco Control.

The health threat posed by smoking is enormous, but so is the potential for reducing smoking-related mortality with cost-effective

policies. Modest action could ensure substantial health gains in the twenty-first century. ■

Crop substitution may, however, be a useful strategy for aiding the poorest tobacco farmers in transition to other livelihoods as part of a broader diversification program.

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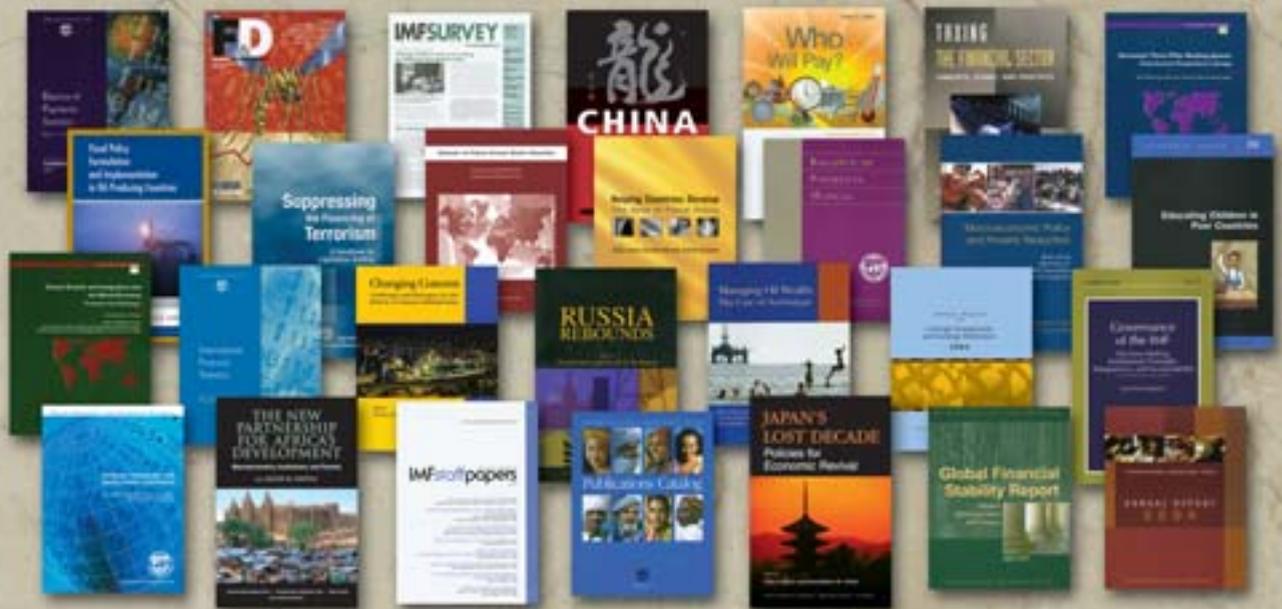
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