

## Tracking the Trends in Low-Income Working Families

by William P. O'Hare

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*This woman at a Detroit job fair is  
applying for a typing position.*

During the past decade, the number of children in low-income working families rose significantly. However, some of the reasons often given to explain this change, such as welfare reform, are not supported by the data.

### Trends During the 1990s

The number of children in low-income working families increased by more than one-third during the 1990s—from 7.6 million in 1989 to 10.2 million in 2000 (see table, page 2).

While it is clear that the number of children in low-income working families grew during the 1990s, the reasons for this increase are far from clear.

Part of this increase stems from an increase in the number of all children during the 1990s. But much of the increase stems from a rise in work force participation among low-income parents, which shifted families from “low-income” to “low-income working” status.

The number of children in families with incomes below 150 percent of poverty was not any higher in 2000 than it was in

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## U.S. Census Shows Different Paths for Domestic and Foreign-Born Migrants

by William H. Frey

America has always been a country on the move, and its growing immigrant population has added to that mobility. Yet recently released Census 2000 place-of-birth data show that the native-born population is moving to a different set of states than the traditional immigrant gateways—California, Texas, New York, Florida, Illinois, and New Jersey—that continue to show the largest foreign-born gains.

At the same time, a new migration dynamic is developing. “Domestic migration magnets,” the destinations that appeal to the native-born, are now prompting secondary migration of the foreign-born, who are beginning to disperse from the gateways. Because they are losing their hold on both domestic and foreign-born migrants, states like California and New York are becoming even more reliant on new immigrants as a source of population growth.

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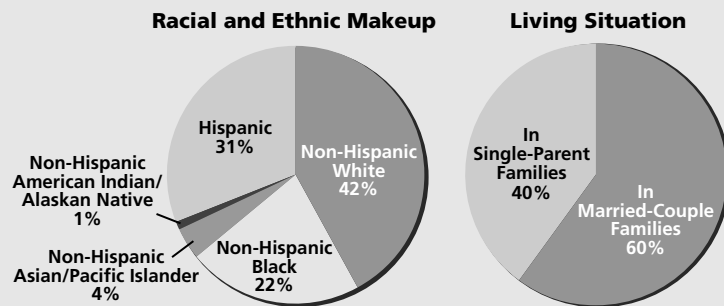
# Making Ends Meet for 10 Million Kids *Continued from page 1*

## Definition and Demographics

Low-income working families are defined as those with incomes below 150 percent of the federal poverty threshold, and where at least one parent works 50 or more weeks a year. For an average family of three, 150 percent of the poverty level is \$20,811.

The vast majority (83 percent) of low-income parents working 50 or more weeks a year work at least 35 hours per week. The most recent data available (reflecting income and work effort in 2000) indicate there were about 4.5 million low-income working families struggling to provide adequate resources for more than 10 million children. These families remained at or near poverty despite the fact that at least one parent, sometimes both parents, worked year-round.

### Children in Low-Income Working Families



Source: U.S. Census Bureau, March 2001 Current Population Survey.

ber of kids receiving welfare fell by more than 3.5 million, while the number of kids in low-income working families grew by less than 400,000.

There is evidence, however, that welfare reform may have had some impact on the demographics of the working poor in the late 1990s. The number of kids in low-income married-couple working families decreased (from 6.4 million in 1996 to 6.1 million in 2000), while the number in single-parent working families increased (from 3.4 million to 4.1 million during the same period). This is consistent with other studies that indicate a significant increase in the labor force participation rate of single mothers who had been on welfare.

While one might expect people to be more likely to move into the labor force and into low-wage jobs when the labor market is relatively tight, the number of kids in low-income working families actually increased more during the relatively high unemployment rates of the early 1990s than during the relatively low unemployment rates of the late 1990s.

Others speculate that the increase in low-income working families is related to the surge in immigration during the 1990s. The number of immigrant families increased dramatically during the 1990s, and this group is known to have a high rate of participation in the labor force, albeit often in low-income jobs. The fact that the number of Hispanic children in low-income working families increased from 1.7 million in 1989 to 3.1 million in 2000 supports this notion. However, direct evidence is not available to examine changes over the whole decade because the U.S. Census Bureau's Current Population Survey did not start to identify immigrant children (those born abroad or having at least one foreign-born parent) until 1994. Since 1994, the number of immigrant children in low-income working families has increased from 2.6 million to 3.3 million.

It is conceivable that there was little growth in the number of children in low-income working families during the late 1990s because large numbers of families were leaving this population (probably moving up the economic ladder) at the same time that large numbers were entering. However, if there were large numbers of people moving out of the low-income working family category because of increased income, one would expect an increase in the number of kids in families with incomes in the 150 percent to 200 percent of poverty range. Yet between 1996 and

## Children in Low-Income Families, 1989–2000

Year	All Children in Families Below 150 Percent of the Poverty Line (in millions)	Children in Low-Income Working Families		Unemployment Rate (%)
		Number (in millions)	As % of all children in low-income families	
1989	19.4	7.6	39	5.3
1990	20.4	8.1	39	5.6
1991	21.7	8.2	38	6.8
1992	22.8	8.8	38	7.5
1993	23.6	9.0	38	6.9
1994	23.2	9.3	40	6.1
1995	22.7	9.7	43	5.6
1996	22.5	9.8	44	5.4
1997	21.7	9.7	44	4.9
1998	21.0	10.0	47	4.5
1999	20.2	10.0	50	4.2
2000	19.4	10.2	52	4.0

Source: U.S. Census Bureau, Current Population Survey, various years.

1989—19.4 million. But the share of all children in low-income families with parents who worked all year increased from 39 percent in 1989 to 52 percent in 2000.

The fact that most of the increase over the 1990s occurred prior to 1996 suggests that it cannot be attributed to the federal welfare reform legislation passed in 1996. Moreover, the number of kids in low-income working families increased steadily during the 1990s, while the welfare rolls rose then fell. Between 1996 and 2000, the num-

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# Mountains: Sources of Water, Sites of Poverty and War

by *Hans Schreier*

With UN agencies celebrating 2002 as the “International Year of Mountains,” this is an opportune time to draw attention to the challenges brought to mountain populations from increasing globalization.

Why the focus on mountains? They provide fresh water for most of the urban population living in the lowlands, the Earth’s greatest biodiversity, and recreation destinations. Despite their bounty, mountains are home to some of the poorest people in the world, and this poverty invites resource conflicts that threaten mountain ecosystems and all those who depend on them.

Mountains have been described as the water towers of the world. Almost all major rivers have their sources in mountains, and more than half of humanity relies on water from these rivers for domestic irrigation, industry, and the generation of hydroelectric power. These waters are also essential to the health of ecosystems since they provide nutrients for aquatic life and dilute pollutants generated mostly in the lowland areas.

In the years to come, mountain streams will become even more critical because pollution and depletion will threaten lowland stream and groundwater supplies as urbanization accelerates and agriculture intensifies. Nearly 50 percent of the global population currently lives in cities,

and this figure is expected to rise to 60 percent in the next 30 years, placing enormous strain on lowland water supplies. Given the need to increase food production by 50 percent over the same period, it is clear that water originating in the mountains will be in critical demand.

Already, remote mountain watersheds are being targeted for water supplies for thirsty cities and for hydropower. Unfortunately the benefits from such services flow downstream, and economic gains rarely return to the source.

Without these economic gains, poverty in the mountains—where economic activities are severely restricted by adverse climatic conditions, limited arable land, a lack of infrastructure, limited access to markets, and natural hazards such as landslides and avalanches—only deepens. Migration ensues because, as access to communication reaches into the mountains, the lure of greater economic opportunities in the city increases. Migration to cities by young people, predominantly young men, is most widespread in the Himalayas and Andes, despite the limited opportunities for minimally educated individuals in overcrowded urban areas. Young people without gainful employment who do not migrate to cities sometimes join guerrilla groups that make isolated mountain regions their base of opera-

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## Policies That Work for Families *Continued from page 2*

2000, the number of kids in this category increased by less than 100,000. Similarly, the number of kids in the 200 percent to 250 percent of poverty category showed no marked increase.

### **More Support for Low-Income Families**

While the reasons for a sharp increase in the number of kids in low-income working families during the 1990s are not clear, the movement of

low-income parents into the work force is incontrovertible. To continue moving up the economic ladder, rather than slipping back into poverty and perhaps dependence on welfare programs, these families need support. Expanded funding for child care, for instance, could help low-income adults better manage the responsibilities of work and parenthood. Given the strong connection between family income and child well-being, providing supports that help low-income families move up the economic ladder would undoubtedly lead to better outcomes for America’s most vulnerable children. ■

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# Immigrant Pockets and Pull Factors *Continued from page 1*

TABLE 1

## Areas That Gained the Most Domestic and Foreign-Born Migrants Between 1990 and 2000

	States		Metropolitan Areas <sup>a</sup>	
<b>Increase in Domestic Migrants<sup>b</sup></b>	Georgia	748,299	Atlanta	530,137
	Florida	744,559	Las Vegas	392,606
	North Carolina	701,226	Phoenix	363,225
	Arizona	560,579	Denver	223,475
	Texas	514,695	Dallas	188,743
<b>Increase in Foreign-Born Migrants<sup>c</sup></b>	California	2,405,430	New York	1,524,229
	Texas	1,375,206	Los Angeles	1,122,787
	New York	1,016,272	San Francisco	651,611
	Florida	1,008,227	Chicago	552,359
	Illinois	576,786	Miami	485,309

<sup>a</sup> MSAs, CMSAs, and (in New England) NECMAs, as defined in June 2000 by the Office of Management and Budget; official names are abbreviated.

<sup>b</sup> 1990–2000 gains in people born in another U.S. state or born abroad to U.S. natives. The calculation of metropolitan area gains does not include people born in the same state as the metropolitan area.

<sup>c</sup> 1990–2000 gains in the foreign-born population.

Source: Author's analysis of decennial census data.

### Domestic Migration Magnets

During the 1990s, the states that appealed most to domestic migrants, or native-born migrants from other states, were in the South and the West. (The top half of Table 1 shows the top five, along with the top metropolitan magnets.) Georgia, North Carolina, and Arizona are increasingly attractive because of their growing economies, relatively low cost of living, and their weather and recreational amenities. They draw native-born residents from more expensive, congested coastal states (California, New York, New Jersey, and Connecticut) and from midwestern states (Illinois, Michigan, and Ohio), all of which (like Hawaii and Washington, D.C.) registered declines during the 1990s in their populations born in other states.

The popularity of two magnet states, Florida and Texas, slipped during the last decade. In the 1980s, they ranked first and second in attracting residents born in other states, but in the 1990s fell to second and

fifth place, respectively. Now the growth of each is more dependent on gains in foreign-born residents.

### Immigration Gateways

California, Texas, New York, Florida, Illinois, and New Jersey still experience the largest increases in the population of foreign-born (see the bottom half of Table 1). Collectively, these states are home to 69 percent of the nation's foreign-born population but only 36 percent of its native-born residents. Yet these states have lost some of their dominance in foreign-born growth, garnering 60 percent of the country's foreign-born gains in the 1990s compared with 87 percent in the 1980s. Beyond the gateway states, Georgia, Arizona, North Carolina, and Washington registered substantial gains in their foreign-born populations in the 1990s. Among metropolitan areas, New York and Los Angeles attracted the most foreign-born, followed by San Francisco, Chicago, Miami, Dallas, Houston, and Washington, D.C. Together, these eight

areas accounted for half of the nation's foreign-born growth during the 1990s and were home to 57 percent of the foreign-born population.

### New Dispersal Out of the Gateways ...

While some among the foreign-born population are dispersing from the gateway states, the question arises: Is this dispersal occurring among the recent immigrants? Or is it due to the secondary migration of long-term foreign-born residents? The new census data suggest that the answer is both. Only 65 percent of recent (1990–2000) immigrants live in the six gateway states, compared with 71 percent of the long-term foreign-born residents (who arrived pre-1990). This suggests that many new immigrants are choosing to live outside of traditional gateway states. Yet long-term foreign-born residents are less likely to live in these states in 2000 than they were in 1990, suggesting that secondary migration of the foreign-born population is also a factor.

With the new dispersal of both recent immigrants and

TABLE 2

## Greatest Gainers From Secondary Migration of the Foreign-Born\*

States	
Nevada	72,471
Arizona	60,597
Georgia	59,384
North Carolina	46,566
Texas	39,682
Metropolitan Areas	
Las Vegas	70,493
Phoenix	50,650
Atlanta	49,918
Dallas	35,355
Orlando	29,068

\* 1990–2000 gains in foreign-born residents who arrived in the United States to live, prior to 1990. Source: Author's analysis of decennial census data.

long-term foreign-born residents from the traditional immigrant gateway states, these states are becoming even more dependent on new immigrants for continued growth. During the 1990s, California, New York, New Jersey, and Illinois lost both domestic migrants and long-term foreign-born to other states (see figure at right for the effects on California and New York). As a result, the foreign-born and immigrant minority compositions of these states, and of their major metropolitan areas, are likely to become even more demographically distinct from other parts of the country.

### ... And Into Domestic Migration Magnets

While the share of long-term foreign-born residents has decreased in traditional gateways, it has increased in states and metropolitan areas where domestic migration dominates growth. These include Nevada, Arizona, Georgia, and North Carolina, and the metropolitan areas of Las Vegas, Phoenix, and Atlanta (see Table 2). The long-term foreign-born residents relocating there appear to be attracted by the growing employment opportunities created in part by the larger domestic migration.

The influx of domestic migrants in these states has boosted demand for construction, service, and retail jobs, which are increasingly filled by immigrants. The relationship between domestic migration and immigrant dispersal is particularly visible in seven states: Nevada, Arizona, Idaho, Colo-

rado, Georgia, North Carolina, and Utah. In these states, migration of people born in other states contributed at least 10 percent to the total growth during the 1990s; in all but one of these (Idaho), foreign-born gains contributed at least an additional 5 percent.

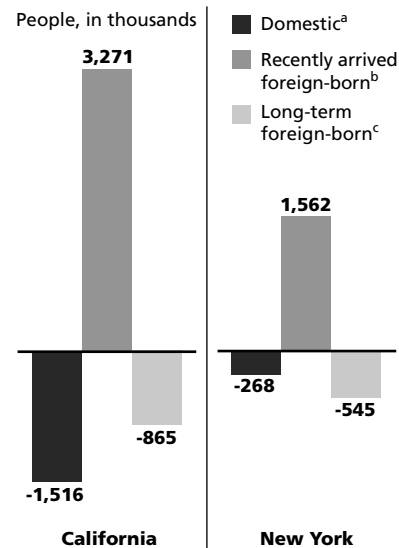
How will both groups of migrants fare in their new communities? Their different demographic attributes will likely keep them apart, creating the potential for “barbell economies.” Domestic migrants tend to be highly educated; recent foreign-born migrants to these areas tend not to be. In Nevada, for example, college graduates increased by 97 percent over the 1990s, while high school dropouts increased by 51 percent (comparable national figures are 38 percent and -9 percent).

Other states showing similar education shifts are Arizona, Colorado, and Utah—states that are attracting both domestic and foreign-born migrant growth. In Georgia and North Carolina, the education effects are less dramatic, but both states have shown recent gains in people who do not speak English very well. New immigrants may have a hard time assimilating because they are taking lower-skilled jobs, which will segregate them from the domestic migrants.

### Melting Pots and Barbells

For states like New York and California, recent immigration now represents the primary source of migratory growth. These states are true melting pots, with high incidences of mixed-race marriages, multi-race identification, immigrant minority presence in the suburbs, and influence on elections and other local institutions.

### Migration Components in the Major Gateway States



<sup>a</sup> 1990–2000 change attributable to people born in another U.S. state or born abroad to U.S. natives.

<sup>b</sup> 1990–2000 change attributable to foreign-born who arrived in the United States to live, between 1990 and 2000.

<sup>c</sup> 1990–2000 change attributable to foreign-born who arrived in the United States to live, prior to 1990.

Source: Author's analysis of decennial census data.

For states in the South and West whose growth has been dominated by domestic migration, recent gains in foreign-born migrants bring ethnic and cultural diversity but also new challenges. The new immigrant minorities are still in the minority and are much more likely to be separated residentially and socioeconomically from the rest of the population. ■

#### For More Information:

For more on this topic, see two upcoming articles by the author:

“Census 2000 Reveals New Native and Foreign Born Migrant Shifts Across U.S.” Research Report 02-520. Ann Arbor, Mich.: Population Studies Center, University of Michigan, 2002.

“Three Americas: The Rising Significance of Regions.” *Journal of the American Planning Association* 68, no. 4 (Autumn 2002).

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# Has Global Growth Reached Its Peak?

by Carl Haub

Every year, world population grows by a little over 79 million people, roughly the population of Germany, the Philippines, or Vietnam. Almost 99 percent of natural increase (births minus deaths, disregarding migration) occurs in the less developed countries. As the clock at right shows, more developed countries as a group account for a mere 1.4 percent of natural increase, although there is wide regional variation: Europe's population experiences a natural decrease of 1.0 million per year, but Australia, Japan, New Zealand, and North America have a natural increase of about 2.1 million.

Less developed countries, home to 81 percent of the world's population, have 90 percent of the world's births per year. But infant mortality rates are significantly higher in those nations.

About 6.6 million people are added to the world's population each month, equivalent to the population of Israel or El Salvador. The increase each week, at 1.5 million, is equal to the population of Gambia.

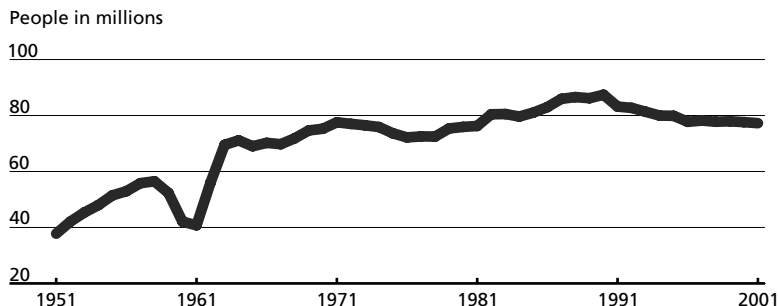
The number of people added annually to world population has been declining recently, after peaking at about 87 million around 1990 (see figure). The number added each year has peaked several times in the past, affected by changes in China's birth rate. With China and India now accounting for one-third of births worldwide, if their birth rates rise, global growth could reach yet another peak. ■

## World Population Clock, 2002

	World	More Developed Countries	Less Developed Countries	Less Developed Countries (less China)
<b>Population:</b>	6,214,891,000	1,197,329,000	5,017,562,000	3,736,850,000
<b>Births per:</b>				
Year	133,144,457	13,280,363	119,864,094	102,728,168
Month	11,095,371	1,106,697	9,988,675	8,560,681
Week	2,560,470	255,392	2,305,079	1,975,542
Day	364,779	36,385	328,395	281,447
Hour	15,199	1,516	13,683	11,727
Minute	253	25	228	195
Second	4.2	0.4	3.8	3.3
<b>Deaths per:</b>				
Year	53,930,540	12,168,652	41,761,888	33,526,910
Month	4,494,212	1,014,054	3,480,157	2,793,909
Week	1,037,126	234,013	803,113	644,748
Day	147,755	33,339	114,416	91,855
Hour	6,156	1,389	4,767	3,827
Minute	103	23	79	64
Second	1.7	0.4	1.3	1.1
<b>Natural Increase per:</b>				
Year	79,213,917	1,111,711	78,102,206	69,201,258
Month	6,601,160	92,643	6,508,517	5,766,772
Week	1,523,345	21,379	1,501,966	1,330,793
Day	217,024	3,046	213,979	189,592
Hour	9,043	127	8,916	7,900
Minute	151	2	149	132
Second	2.5	0.04	2.5	2.2

Source: Population Reference Bureau, 2002 World Population Data Sheet.

## Annual Increase in World Population, 1951-2001



Source: U.S. Census Bureau, International Database ([www.census.gov/ipc/www/worldpop.html](http://www.census.gov/ipc/www/worldpop.html), accessed July 22, 2002).

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## Graying Canada Welcomes Immigrants

Recently released figures from Canada's 2001 census confirm that the country is aging rapidly. The median age has reached an all-time high of 38 years, up from 35 years in 1996 (the median age divides the population in half, one-half younger and one-half older than the median). The fastest-growing segment of the population was the 80-and-older group, which increased 41 percent since the last census to 932,000. By 2011, this total is expected to exceed 1.3 million.

Other figures include:

- In 2001, the median age of the working-age population (20 to 64) was 41 years, 3 years higher than it was a decade earlier; that increase was the biggest since 1921.
- Fewer young people are entering the work force to replace workers approaching retirement. In 2001, for every person between the ages of 55 and 64, there were 1.4 individuals ages 15 to 24. If current trends continue, by 2011 the ratio could be 1:1.
- The number of children under 5 fell by 11 percent between 1991 and 2001.

To boost the labor force and shore up pension plans, Prime Minister Jean Chretien has called for an increase in immigration. Prospective immigrants, though, are held to high standards: Canada's immigration policy favors the highly skilled and highly educated. The country's goal is to attract these immigrants at the annual rate of 1 percent of the population, which would amount to roughly 300,000 people.

Information on census releases is available on the Statistics Canada website at: [www12.statcan.ca/english/census01/release/index.cfm](http://www12.statcan.ca/english/census01/release/index.cfm).

## Pakistan Announces New Population Policy

Saying that Pakistan cannot be pulled out of the trap of poverty with 3 million additional births

every year, Pakistan's president, General Pervez Musharraf, launched the country's first-ever population policy. Musharraf announced the policy on the occasion of World Population Day, July 11.

According to the *Pakistan Newswire*, the policy would address population in accordance with national laws and development priorities, while "remaining within national social and cultural norms." Its short-term goal is to lower population growth to 1.9 percent by 2004 (it is currently 2.5 percent per year); its longer-term objective is 1.3 percent annual growth by 2020. The policy will be based on informed and voluntary choice and will strive for universal access to safe family planning methods by 2010.

To bring down the birth rate, Musharraf favors:

- Public awareness campaigns to communicate the impact of "runaway population growth on the lives of individuals, families, and communities";
- Outreach to couples, to build and sustain the adoption of a small family norm; and
- Family life education in both the formal and nonformal education sectors.

As of 2000, 20 percent of Pakistani couples used modern methods of family planning, and the total fertility rate was around 5 children per woman. Pakistan's population of 144 million makes it the world's seventh largest country.

## Counting on Condoms

AIDS prevention campaigns in less developed countries require at least 8 billion condoms each year, but fewer than 1 billion are provided by international donors. And donors have reduced—not increased—the number of condoms they supply compared with a decade ago, despite the ravages caused by AIDS during that time.

According to a new report by the Washington, D.C.-based organization Population Action International (PAI), paying for

condoms and their promotion and distribution (approximately US\$1.2 billion per year now, and doubling by 2015) would be a cost-effective way to protect against AIDS. "The money we are talking about pales next to the human and financial costs of letting AIDS go unchecked," said Terri Bartlett, PAI's vice president for public policy.

The report, released in early July to coincide with the XIV International AIDS Conference in Barcelona, Spain, calls on national governments and especially on donor countries and institutions to allocate more money to support the promotion and distribution of male and female condoms. The report is available on PAI's website: [www.populationaction.org](http://www.populationaction.org).

## Naturalization Requests Up in U.S. After 9/11

The number of people applying to become U.S. citizens has soared since the September 11 terrorist attacks.

At 519,523, the number of applications received during the first eight months of the 2002 fiscal year, which began in October 2001, was 65 percent higher than the number received over the same period the previous year, according to the Immigration and Naturalization Service (INS). And the number of applications received just in May of 2002 was 121 percent higher than in May of last year. Immigration assistance groups attribute the increase to patriotism and a desire to avoid arousing suspicion, which might lead to detention or deportation under new antiterrorism laws.

Yet the increase in applications and the greater scrutiny to which they are subject have slowed approvals. Between October 2001 and May of this year, 337,590 applications were approved—down 10 percent from last year's total.

The most recent data on naturalization are available on the INS website at: [www.ins.gov/graphics/aboutins/statistics/msrmay02/NATZ.HTM](http://www.ins.gov/graphics/aboutins/statistics/msrmay02/NATZ.HTM). ■

# For Botswana, No Easy Answers in Dealing With Burgeoning AIDS Epidemic

Long viewed as an African success story, Botswana is still booming economically, thanks to wise management of revenues from its diamond trade. But with the highest prevalence of HIV/AIDS in the world (39 percent of adults ages 15 to 49 have the disease), Botswana now is struggling to channel its wealth into developing a valuable nontradable commodity: its people's health.

Ironically, the country's economic achievement does not translate into easy answers in dealing with the epidemic. In fact, in some ways, prosperity makes for tougher choices. As appealing as it would be to fund a massive and immediate medication program, such an effort alone would yield only short-term gains and could encourage risky behavior.

## A massive medication program alone would yield only short-term gains.

Beginning this year, Botswana is undertaking a countrywide anti-HIV program. It consists of medication (with antiretroviral drugs, which extend the lives of those with the virus but do not provide a cure) and education intended to bring about behavior change—that is, condom use. Funding and drugs for the program come from sources including the Bill & Melinda Gates Foundation, the Merck Company Foundation, and the government of Botswana.

Before the program advances, policymakers must know more about its potential effects, cautions Warren C. Sanderson, professor of economics and history at the State University of New York at Stony Brook and senior research scholar at the International Institute for Applied Systems Analysis in Laxenburg, Austria. For instance, would it make a difference whether more money went to medication or to behavioral change? And what kind of difference? "It is not obvious," he notes, "what the right mix of the two is. Poorly designed programs can ... pile more suffering upon those who have already suffered gravely."

To help determine the right mix, he modeled the effects of pursuing medication-only, behavior-change-only, and combination pro-

grams. He started by dividing the current population into those with and without HIV. He then divided the HIV group into three smaller groups: those showing no symptoms and taking no medication, those showing no symptoms but taking medication, and those with full-blown AIDS. These groups roughly correspond with the stages of the disease's progression. He also disaggregated the population by age, gender, level of education, initiation to sexual activity, and riskiness of sexual behavior.

He simulated exposure of these populations to HIV, factoring in current and projected incidence and prevalence rates, length of time an infected person typically spends in the various disease stages, and life expectancy.

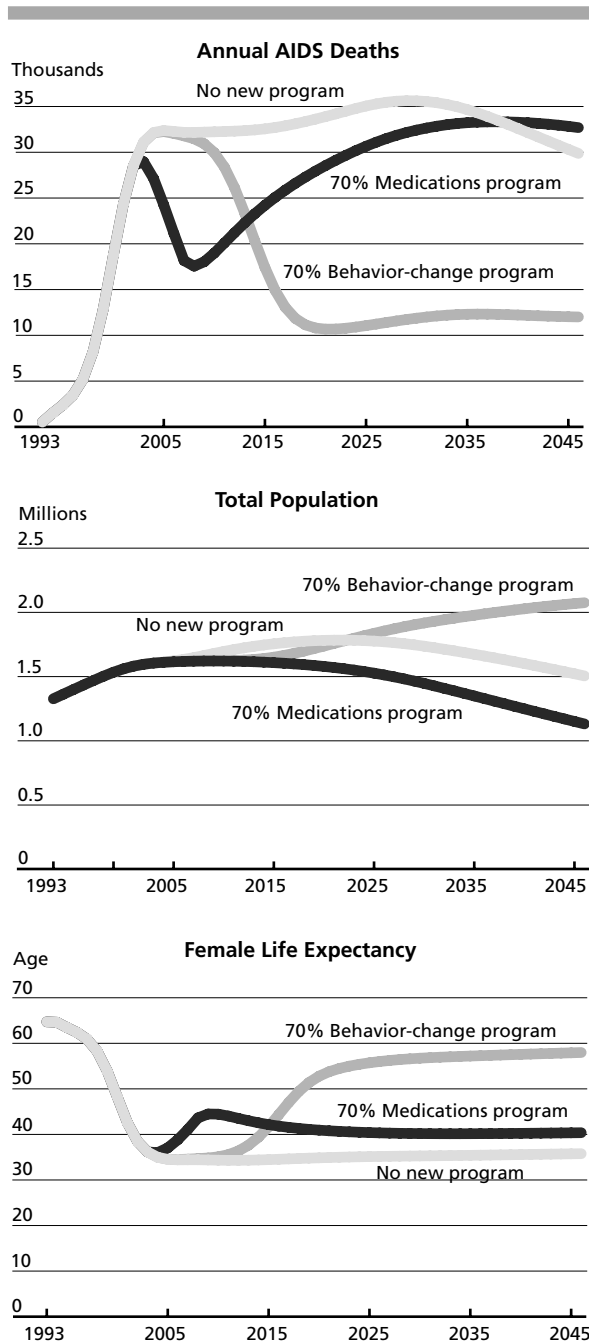
HIV prevalence data in Botswana are based solely on tests of women who have sought prenatal care. These data are biased and have to be adjusted before they can be used in a model. Sanderson noted that no nationwide data on the HIV prevalence among African men currently exist, a factor that complicated his research.

## Trade-offs

Sanderson's research shows the limitations of medication and behavior-change programs in controlling the epidemic. As seen in the accompanying figures, an all-out medication campaign (Sanderson believes the maximum coverage of such a campaign would be 70 percent of those who need it, since there are always people who will not be reached) would keep more people alive in the short-term but would lose effectiveness in the long run. Even with this large a program, there would be 1.3 million AIDS deaths between 2003 and 2046. Further, after initially boosting female life expectancy at birth, by 2019 the medications-only program would not be able to raise life expectancy above its currently depressed level of 42 years.

Reasons for this poor performance in the long-term include direct and indirect effects of the program itself. Although medication programs can lower the degree to which people on medication are infectious, thus lowering the rate at which the disease spreads through unprotected sexual contact, they increase the number

## AIDS Projections for Botswana, by Type of Intervention, 1993-2046



Source: Warren Sanderson, "The Demographic Impact of HIV Medication Programs" (presented at the annual meetings of the Population Association of America, Atlanta, May 9, 2002).

of people who have HIV and can spread it to others; lead to drug resistance; and reduce the fear associated with developing the deadly disease, thereby increasing the population's likelihood of engaging in risky sex.

An all-out behavior-change program (one that motivates nonmonogamous people to use condoms 70 percent of the time) would not pro-

duce any visible results until 2012, contributing to a lowering of the population in the short-term, but would eventually save more lives—roughly half a million—than medications alone. And a behavior-change-only program would raise female life expectancy at birth fairly dramatically—from the current 42 years to 58 by 2046—but only after it falls to around 35 in the near term.

The alternative to any program is not to do anything new. In the long run, this would lead to fewer annual deaths by 2046 than would the all-out medications-only program, but total population would be 400,000 people fewer, and life expectancy would be only 36 years instead of 40.

Other findings, based on a wide range of possible scenarios, include:

- **Comparing an all-out medication program with one that combines a 20 percent medication rate and a 20 percent behavior-change goal.** The combination of very modest programs can bring about nearly the same positive results as a much larger medication-only program but does no better in elevating female life expectancy at birth, which would be only about 40 years.
- **Combining programs of all types with a not-yet-developed vaccine, hypothetically administered in 2012.** The basic results do not change. A large medication program yields only modest advantages over a smaller medication program; roughly the same results as a modest condom-use program; and roughly the same results as a very modest combination program.

## Prospects

Unlike many of its neighbors, Botswana can afford to sustain a large, expensive medication program begun with international aid. But large medication-only programs compete with behavior-change programs for resources, and they may hasten the development of medication-resistant strains of the virus. In the long run, implementing a modest medication program while emphasizing education that promotes behavior change is probably the best approach, although many people now living with AIDS won't be around to see its merits. ■

—Allison Tarmann

## For More Information:

The research this article describes was undertaken for the International Institute for Applied Systems Analysis in Laxenburg, Austria, with funding from the European Commission. For questions on the research, contact Warren Sanderson by e-mail: wsanderson@notes.cc.sunysb.edu.

tions. The results in both cases are more poverty and more conflicts, with far-reaching implications for global security (see box).

What can we do to prevent such conflicts and at the same time sustain people in the mountains? Mechanisms have to be found to compensate mountain people for the benefits their actions, services, and resources provide to the lowlands. Revenue from hydropower production, for instance, mostly benefits lowland consumers and utilities. Except during the construction period, revenues rarely return to the mountain people. Revenue sharing and compensation subsidies are some of the remedies available. Similarly, water is a commodity that is grossly undervalued. Urban users should pay fair prices for water and pay to protect its source. And farmers who maintain a relatively stable terrain—that is, take steps such as terracing and planting cover crops—rather than harvesting the resources in the most profitable manner should also be compensated. Finally, to offset damage caused by recreational pursuits such as skiing and climbing, an environmental protection tax could be levied on the tourism industry.

The linkages between upland activities and lowland impacts may seem obscure to urban populations when these activities are hundreds of kilometers away. However, the impacts take

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**Hans Schreier** is a professor with the Institute for Resources and Environment at the University of British Columbia.

## Facts About Mountains

- Mountains make up 24 percent of the Earth's surface.
- An estimated 600 million people, or 10 percent of world population, live in mountain areas.
- More than 3 billion people rely on mountains to provide fresh water to drink, grow food, generate hydropower, and sustain industries.
- The European Alps and the Himalaya-Karakorum-Hindu Kush chain (which stretches from the borders of Myanmar and China across northern India, Bhutan, Nepal, Pakistan, and Afghanistan) were deemed in 2002 to be the most ecologically threatened mountain ranges in the more developed and less developed worlds, respectively.
- In 1999, 23 of the 27 major armed conflicts in the world were being fought in mountain regions.
- Mountain tourism accounts for 15 percent to 20 percent of all tourist revenue.

Source: [www.mountains2002.org](http://www.mountains2002.org).

three forms: short catastrophic events; long-term problems associated with water shortages and floods; and people leaving devastated mountain environments, adding to the mass of urban poverty. Creating greater public awareness of the plight of the mountains during this year may persuade the urban population that there is more to mountains than climbing to the top. ■

## For More Information:

Katrina Payne, Siobhan Warrington, and Olivia Bennett, *High Stakes: The Future for Mountain Societies* ([www.panos.org.uk/environment/Panos\\_Mountains\\_Pages1.pdf](http://www.panos.org.uk/environment/Panos_Mountains_Pages1.pdf), accessed on July 22, 2002).

## Webwise

[www.prb.org](http://www.prb.org) • [www.ameristat.org](http://www.ameristat.org) • [www.popnet.org](http://www.popnet.org) • [www.measurecommunication.org](http://www.measurecommunication.org)

*The following were posted recently on the PRB network of websites:*

### **Making the Link: Population, Health, and Environment**

This wallchart provides information and data on critical linkages between people and the environment. Selected graphics available on the website highlight trends in urbanization, population momentum, consumption levels, carbon dioxide emissions, changes in land use, and declining availability of fresh water. ([www.prb.org](http://www.prb.org))

### **Finding the Balance: Population and Water Scarcity in the Middle East and North Africa**

The Middle East and North Africa is the most water-scarce region of the world. Home to 6.3 percent of the world's population, the region con-

tains only 1.4 percent of the world's renewable fresh water. As population pressures in the region increase, the demand for water resources rises. This policy brief, part of PRB's series on emerging policy issues in population, health, and the environment, discusses ways that the region can find a balance between water scarcity and human demand. ([www.prb.org](http://www.prb.org))

### **Meeting the Reproductive Health Needs of Displaced People**

According to the United Nations High Commissioner for Refugees, reproductive health care is among the crucial elements that give refugees the basic human welfare and dignity that is their right. Many international humanitarians have begun to develop and implement programs to give refugees the sup-

port they need. This policy brief discusses the current situation of refugees worldwide, the health concerns they face, and the programs needed to ensure that refugees receive health care. ([www.measurecommunication.org](http://www.measurecommunication.org))

### **World Summit on Sustainable Development**

For the next month, PRB will be posting Web articles related to the World Summit on Sustainable Development (WSSD), to be held Aug. 26 through Sept. 4, 2002, in Johannesburg, South Africa. The summit, also referred to as Rio+10 or Earth Summit 2002, is the latest in a series of UN-sponsored "Earth Summits" that have focused on striking the balance between conservation of natural resources and pursuit of sustainable development. ([www.prb.org](http://www.prb.org))

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**Population Today** is published 8 times a year by the Population Reference Bureau (PRB). PRB is the leader in providing timely and objective information on U.S. and international population trends and their implications. PRB informs policymakers, educators, the media, and concerned citizens working in the public interest around the world through a broad range of activities including publications, information services, seminars and workshops, and technical support. PRB is a nonprofit, non-advocacy organization. The views and opinions of *Population Today's* contributors do not necessarily reflect those of PRB.

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# Numbers You Can Use

Latest data and estimates

## Speaking Graphically

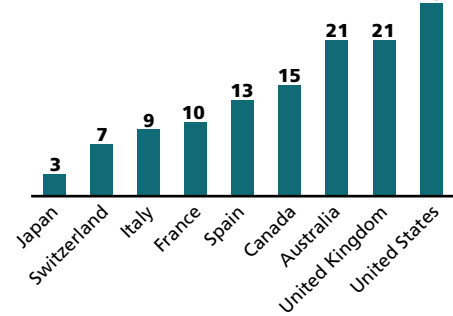
### Obesity Among Adults in OECD Countries

*OECD Health Data 2002*, just published by the Organisation for Economic Co-Operation and Development, finds that although the United States spends more per capita on health care than any other industrialized country, in some respects the health of its people is not appreciably better.

The United States spends 13 percent of its gross domestic product on health care, compared with an average of 8 percent of GDP spent by other OECD members. The difference in per capita spending on health care is even more pronounced: \$4,600 in the United States and \$2,000 on average in all other member countries. The report attributes part of the gap in spending to a higher reliance in the United States on expensive, technology-intensive medical procedures.

In terms of American life expectancy at birth and infant mortality, the United States ranks below half of all OECD member countries. And, as the figure above shows, the United States has the highest level of obesity of all member countries.

Percent of population



Source: *OECD Health Data 2002: A Comparative Analysis of 30 Countries*. (For ordering information, go to [www.oecd.org](http://www.oecd.org) and click on "Documentation.")

Source: *OECD Health Data 2002: A Comparative Analysis of 30 Countries*. (For ordering information, go to [www.oecd.org](http://www.oecd.org) and click on "Documentation.")

## Estimated World Population

As of Aug. 2002 6,222,000,000  
 Annual growth 83,000,000

Source: Extrapolated from the mid-2002 population on PRB's *2002 World Population Data Sheet*.

## Estimated Population of the United States

As of July 15, 2002 287,533,470

Source: U.S. Census Bureau ([www.census.gov](http://www.census.gov)).

## U.S. Vital Stats

### 12 Months Ending With October

	Number		Rate	
	2001	2000	2001	2000
Live births . . . . .	4,031,000	4,034,000	14.5	14.7
Fertility rate . . . . .	—	—	67.0	67.1
Deaths . . . . .	2,409,000	2,418,000	8.7	8.8
Infant deaths . . . . .	26,500	27,500	6.6	6.8
Natural increase . . . . .	1,622,000	1,616,000	5.8	5.9
Marriages . . . . .	2,351,000	2,385,000	8.5	8.7
Divorces . . . . .	—	—	4.0	4.2

Note: Fertility rate is given per 1,000 women ages 15-44; infant deaths per 1,000 live births; other rates per 1,000 population. Number of divorces not available.

Sources: National Center for Health Statistics, *National Vital Statistics Reports 50*, no. 11 ([www.cdc.gov/nchs/data/nvsr/nvsr50/nvsr50\\_11.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr50/nvsr50_11.pdf), accessed on July 15, 2002).

## Spotlight Statistic

### Unemployment in the Arab Region

Job opportunities are a primary concern among the Arab region's young people, who make up a large part of the population (38 percent of the population is under age 15). Half of young Arabs polled by the team that contributed to the recently published *Arab Human Development Report 2002* indicated they wanted to emigrate because of their limited job prospects.

Year	Number of Unemployed
1995	12 million
2010	25 million (estimated)

Source: United Nations Development Programme, *Arab Human Development Report 2002*. (For ordering information, see [www.undp.org/rbas/ahdr/contact.html](http://www.undp.org/rbas/ahdr/contact.html).)

# WebSittings

## Your Guide to Virtual Resources

### **Child Trends DataBank**

[www.childtrendsdatbank.org](http://www.childtrendsdatbank.org)

The Child Trends DataBank provides over 70 indicators on health, social and emotional development, income and work, education, demographics, and family and community for children, youth, and families in the United States.

### **World Contraceptive Use 2001 (UN Population Division)**

[www.un.org/esa/population/publications/contraceptive2001/contraception01.htm](http://www.un.org/esa/population/publications/contraceptive2001/contraception01.htm)

This wallchart contains regional and country-specific data on number of married women of reproductive age, contraceptive use by type, use trends, and unmet need for family planning.

### **Maternal Mortality Statistics by Region and by Country (UNFPA)**

[www.unfpa.org/mothers/statsbycountry.htm](http://www.unfpa.org/mothers/statsbycountry.htm)

This website presents maternal mortality estimates developed by WHO, UNICEF, and UNFPA for countries and regions. Data include lifetime risk of maternal death, skilled attendant at delivery, and perinatal deaths.

### **Report on the Global HIV/AIDS Epidemic 2002 (UNAIDS)**

[www.unaids.org/barcelona/presskit/report.html](http://www.unaids.org/barcelona/presskit/report.html)

This report contains a global overview of the HIV/AIDS epidemic, prevention and care, national responses, and country-specific prevalence estimates and data including children orphaned and AIDS deaths at the end of 2001.

### **CensusScope (Social Science Data Analysis Network, University of Michigan)**

[www.censusscope.org/](http://www.censusscope.org/)

CensusScope presents U.S. demographic trends in the form of charts, maps, and rankings using Census 2000 data. Data are available on population growth, race/ethnicity, age distribution, and household and family structure for the country and for states, counties, and metro areas.

### **Population Foundation of India**

[www.popfound.org](http://www.popfound.org)

The Population Foundation of India supports research and social action for population stabilization. It provides a forum for sharing experiences and expertise to

strengthen and enlarge India's family welfare program. Its site presents organizational history, staff, projects, publications, and demographic links.

### **Development Gateway Population and Reproductive Health Portal**

[www.developmentgateway.org/node/146526/](http://www.developmentgateway.org/node/146526/)

The portal presents an expansive collection of links to population and reproductive health resources produced by governments and by international and national non-governmental organizations. Its contents are updated by UNFPA in collaboration with 12 partner institutions in the population community. Additional features include a news service, bulletin board, events calendar, project information, and a discussion forum. ■

### **[www.popnet.org](http://www.popnet.org)**

These listings were prepared by PRB librarian, Zuali H. Malsawma, who maintains our PopNet website. For more listings like these, visit PopNet, the most comprehensive directory of population-related websites available ([www.popnet.org](http://www.popnet.org)).



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