Today's Research on Aging

Program and Policy Implications

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India's Aging Population

India's older population will increase dramatically over the next four decades. The share of India's population ages 60 and older is projected to climb from 8 percent in 2010 to 19 percent in 2050, according to the United Nations Population Division (UN 2011). By mid-century, India's 60 and older population is expected to encompass 323 million people, a number greater than the total U.S. population in 2012. This profound shift in the share of older Indians—taking place in the context of changing family relationships and severely limited old-age income support—brings with it a variety of social, economic, and health care policy challenges.

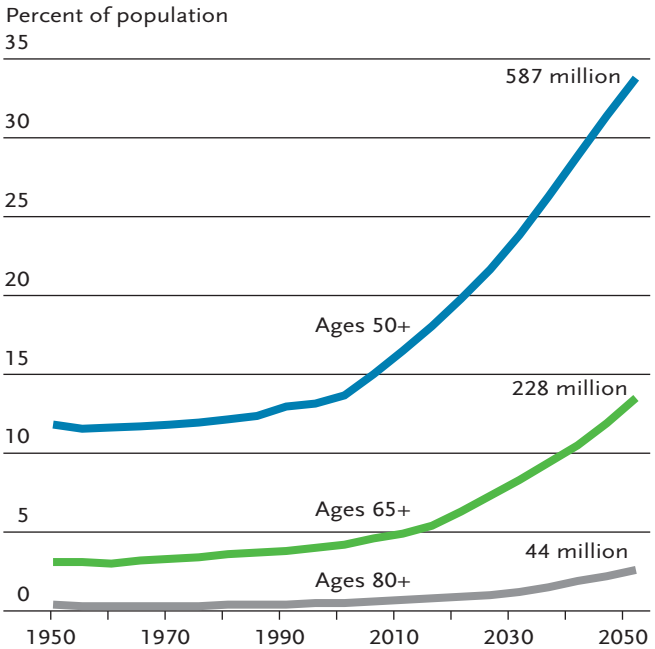
The National Institute on Aging (NIA) supports research on the health, social support, and economic security of India's elderly population. This newsletter highlights some of the recent research by NIA-supported investigators and others that can inform policy decisions as India and other developing countries plan for aging societies. Also included in this newsletter are findings from the recent pilot phase of the nationally representative Longitudinal Aging Study in India (LASI).

Demographic Context

India, now home to 1.2 billion people, is projected to overtake China in about a decade to become the world's most populous country. Bloom (2011a) calls the share of India's population ages 50 and older relatively small at 16 percent, but notes that India will experience rapid growth among this age group. The United Nations Population Division projects that India's population ages 50 and older will reach 34 percent by 2050 (UN 2011). Between 2010 and 2050, the share 65 and older is expected to increase from 5 percent to 14 percent, while the share in the oldest age group (80 and older) will triple from 1 percent to 3 percent (see figure).

The population dynamics fueling India's growth and changing age structure are rooted in the combined impact of increasing life expectancy and declining fertility. Life expectancy at birth in India climbed from 37 years in 1950 to 65 years in 2011, reflecting declines in infant mortality and survival at older ages in response to public health improvements (Arokiasamy et al., forthcoming; Haub and Gribble 2011).

India's elderly are projected to become an ever-larger share of the population.



Source: United Nations Population Division, *World Population Prospects: The 2010 Revision* (New York: United Nations, 2011), accessed at http://esa.un.org/unpd/wpp/index.htm, on March 13, 2012.

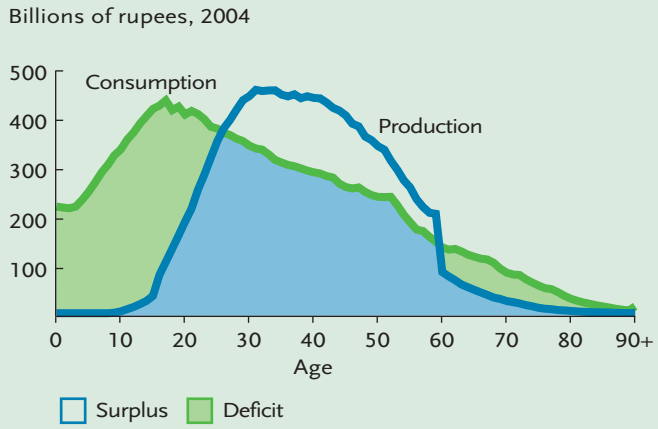
In This Issue

This publication summarizes research related to the objectives of the National Institute on Aging, with emphasis on work conducted at the NIA demography centers. Our goal is to provide decisionmakers in government, business, and nongovernmental organizations with up-to-date scientific evidence relevant to policy debates and program design. These newsletters can be accessed at www.prb.org/TodaysResearch.aspx.

Box 1
Findings From the National Transfer Accounts Project

Children and the elderly consume more than they produce through their labor. To understand the way economic resources flow to the young and old, the National Transfer Accounts (NTA) project has created various measures that capture the interplay among family support, government programs, and savings at various ages. The project—led by the Center for the Economics and Demography of Aging, University of California at Berkeley and the Population and Health Studies Program, East-West Center—offers a detailed view of the economic impact of population aging in nearly three dozen countries, including India. The results can inform public policy decisions related to pensions, health care, education, and the family.

The total consumption of India's young is much higher than that of the old.



Source: Ronald Lee and Andrew Mason, National Transfer Accounts Project, revised estimates, March 12, 2012.

Analysis of the way resources are shared, consumed, saved, and produced in India yields some surprising results. The figure provides a graphic illustration of the differences in economy-wide consumption by India's relatively large young population and small old population. Ladusingh and Narayana (2011) document the role of public funding for education (mainly consumed by the young) and of private funding for health care (mainly consumed by the elderly). They find that the lion's share of family support goes to those below age 20, with little if any going to family members ages 60 and older. These findings run counter to the widespread assumption that in the absence of a viable public social security safety net, kin provide for Indian elders. Lee and Mason (forthcoming) suggest that this unbalanced flow of resources may reflect the fact that the elderly in India continue to earn income and to support their adult children. Specifically, elderly parents may own the homes where their children's families live and the farms they work on. Under such circumstances, the costs of population aging do not fall as heavily on the working-age population as they would if the elderly did not continue to work and to support their adult children.

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Ronald Lee and Andrew Mason, "Population Aging, Intergenerational Transfers, and Economic Growth: Asia in Global Context," in *Aging in Asia: Findings From New and Emerging Data Initiatives*, ed. James P. Smith and Malay Majmundar (Washington, DC: The National Academies Press, forthcoming).

By 2050, life expectancy at birth is projected to reach 74 years. Fertility rates in India have declined to 2.6 children per women, less than one-half the early 1950s rate of 5.9 children per woman (Haub and Gribble 2011).

As India's population ages, the nation will face a shrinking pool of working-age people to support the elderly population. Arokiasamy and colleagues (forthcoming) report that the old-age dependency ratio—the number of people ages 60 and older per person ages 15 to 59—is expected to rise from 12 per 100 to 31 per 100 by 2050. By 2042, the share of Indians 60 and older is projected to exceed children and youth ages 14 and younger (Chatterji et al. 2008). Bloom (2011a) notes the burden of old-age dependency "will be substantially offset by the decline in youth dependency associated with declining fertility." Indeed, some studies suggest that in India, the burden of old-age dependency may be less than usually assumed (see Box 1).

India's national trends mask tremendous regional variation. Pointing to India's 16 languages, Haub and Gribble (2011) describe India as a "collection of semi-independent countries united under one democracy." Fertility rates in India's southern states of Kerala and Tamil Nadu were a low 1.7 children per woman in 2009, while the fertility rates in the northern states of Bihar and Uttar Pradesh were twice as high. Bloom (2011a) notes that the ratios of the working-age population to the nonworking-age population for Tamil Nadu and Bihar are widely different, comparing that difference to the gap between the ratios for Ireland and Rwanda today. These stark

Box 2
The Longitudinal Aging Study in India

To examine the health as well as the economic and social well-being of Indian's elderly population, the Longitudinal Aging Study in India (LASI) will follow a nationally representative sample of roughly 30,000 Indians ages 45 and older over time. LASI is modeled after the Health and Retirement Study (HRS) in the United States and is comparable to similar studies in Asia, including the Chinese Health and Retirement Longitudinal Study (CHARLS), the Japanese Study of Aging and Retirement (JSTAR), and the Korean Longitudinal Study of Aging (KLoSA). LASI also takes account of features unique to India, including its institutional and cultural characteristics. Funded by the NIA, LASI is a partnership between the Harvard School of Public Health, the International Institute for Population Sciences in Mumbai, and the RAND Corporation.

In 2010, the LASI pilot phase surveyed a representative sample of nearly 1,700 Indians ages 45 and older in four states (Karnataka, Kerala, Punjab, and Rajasthan), chosen to reflect the nation's regional, cultural, and socioeconomic variation. Early results from the LASI pilot offer a variety of findings that illustrate the health risks faced by older Indians (Arokiasamy et al., forthcoming). Thirteen percent of older Indians sampled have some type of disability that affects at least one activity of daily living. More than one-quarter are underweight and nearly one-third have undiagnosed hypertension. Nearly 80 percent live in households that lack running water in the home, and 45 percent report not having access to "an improved water source." Nearly 60 percent live in dwellings lacking access to an improved sewer system. The majority of households use poor-quality cooking fuel; the smoke from poor-quality fuel contributes to indoor air pollution and tends to have a particularly negative impact on older persons who spend more time indoors.

Cardiovascular Health: Economic development and population aging in India have contributed to increases in cardiovascular diseases and obesity—noncommunicable diseases previously associated with more industrialized countries. Using LASI pilot data, Lee and colleagues (forthcoming, 2) find an association between higher socioeconomic status (SES) and increased risk of hypertension, a pattern opposite from that seen in the broader population in developed countries. The researchers also found that older Indians of higher SES are more likely to be diagnosed and to be in better control of their blood pressure than respondents with low SES. Overall, they find twice the risk of cardiac conditions for those in the oldest age groups, those who have higher education levels, and those who are overweight, compared with their respective counterparts. The researchers suggest the health care system should be strengthened, and that the negative diet and sedentary lifestyle associated with urban living and economic development should be addressed. They note that increases in health care services are likely to reach the most economically disadvantaged people last.

Mental Health: Dementia is another noncommunicable disease associated with old age that becomes more prevalent in the wake of population aging. Lee and colleagues (forthcoming, 1) examined the cognitive function of older Indians who participated in the 2010 LASI pilot and found that the women had lower cognitive function than the men. This disadvantage among older Indian women contrasts with findings from studies in industrialized countries where women score the same as or better than men after controlling for socioeconomic, health, and demographic differences (Langa et al. 2009, cited in Lee et al., forthcoming, 1). But in recent studies in developing countries, men tend to outscore women on cognitive tests, even after adjusting for social, economic, and health factors (Maurer 2011, cited in Lee et al., forthcoming, 1). In India, the gender differences among southern Indians could be explained by disparities in education, health, and social engagement. But in northern India, the disparity between men and women persists even after controlling for education and other risk factors for poor cognitive function, suggesting that the level of discrimination experienced by women in that region plays a role. These findings have policy implications for India and beyond, the researchers argue: "Greater access to education among girls and women has the potential to reduce gender disparities. ... educating girls may improve cognitive health and alleviate health disparities observed later in life."

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regional differences will mean that the impact of a shifting age structure and population aging will not unfold uniformly throughout the country.

Health and Health Care

Economic development and urbanization have brought lifestyle changes that have led to unhealthy nutrition, physical inactivity, and obesity contributing to the prevalence of diabetes. Chatterji and colleagues (2008) report a high rate of smoking (26 percent) and inadequate physical activity (18 percent) among Indians. These behaviors will likely translate into future ill health.

Almost one-half (47 percent) of older Indians have at least one chronic disease such as asthma, angina, arthritis, depression, or diabetes (Chatterji et al. 2008). The aging of India's population will lead to increases in the prevalence of chronic conditions such as diabetes and hypertension. By one measure, nearly one-half (45 percent) of India's disease burden is projected to be borne by older adults in 2030, when the population age groups with high levels of chronic conditions will represent a much greater share of the total population.

Fewer than 10 percent of Indians have health insurance from private or public sources, and about 72 percent of health care spending is paid out-of-pocket, according to national surveys (Bhattacharjya and Sapra 2008). India's health insurance scheme for the poor only covers those ages 65 and younger, leaving India's elderly population particularly vulnerable. Within the older Indian population, women face additional risks: They tend to have poorer health and less access to health care than men of similar backgrounds (Roy and Chaudhuri 2008). The Indian government and several states have begun a variety of programs designed to increase access to health care or health insurance for the majority of the population that lacks sufficient access (Bloom et al. 2010)

Rising numbers of older people will put new and increasing demands on the health care system. Chatterji and colleagues (2008) suggest that the "health care services will need to shift resources and services to respond to an aging population." An analysis by Farahani, Subramanian, and Canning (2010) linked public health spending in India to increased survival of the elderly and other vulnerable groups. They found that a 10 percent increase in public health spending decreases deaths by about 3 percent among the elderly, women, and children. India has committed new public funds to its health care system. An analysis by Yip and Mahal (2008) documented wide disparity in access to health care for aging Indians who are poor or live in rural areas. They suggest health care reforms should not just increase funding but also address inequality of access and include regulations to limit cost inflation, writing: "Money alone, channeled through insurance and infrastructure strengthening, is inadequate to address the current problems of unaffordable health care and the future challenges posed by aging populations that are increasingly affected by noncommunicable diseases."

Living Arrangements and Social Support

The 2005-2006 National Family Health Survey in India examined living arrangements by household, which is defined by having separate cooking facilities even if older parents and adult children live in adjacent structures. The survey found that more than four out of five (78 percent) Indians ages 60 and older lived in the same household with their children, while about 14 percent lived with only a spouse and 5 percent lived alone (Kumar, Sathyanarayana, and Omer 2011). This represents a doubling of the share of older Indians living with only a spouse or alone since the early 1990s (see table). During the same period, the share of older Indians living with their children declined by about 7 percentage points.

A number of trends may explain these changes in living arrangements, including declining fertility leaving fewer children available to care for older parents, rural to urban migration for employment that separates families, and changing social expectations regarding intra-family obligations (Bloom et al. 2010). Recent surveys confirm this shift in attitudes, with a 40 percentage point decline in the share of adult children who said caring for their elderly parents was their

While the vast majority of older Indians live in multigenerational households, a growing share lives alone or with only a spouse.

	Males	Females	Both
Living alone			
1992-1995	1.4	3.5	2.4
2005-2006	2.6	7.6	5.0
Living with a spouse only			
1992-1995	7.5	5.6	6.6
2005-2006	15.9	11.5	13.7

Source: Sanjay Kumar, K.M. Sathyanarayana, and Azza Omer, "Living Arrangements of Elderly in India," paper presented by UN Fund for Population Activities, New Delhi, at the International Conference on Challenges in Population Aging in Asia, March 14-15, 2011, New Delhi; slides accessed at http://nationalacademies.org/AgingInAsia/Presentations/Kumar.pdf, on Feb. 2, 2012.

duty—from 91 percent in 1984 to 51 percent in 2001 (Ramamurti and Jamuna 2005, cited in Uppal and Sarma 2007). Intergenerational conflict may also explain why elderly live in separate residences from their offspring. Both generations may prefer living separately, and there is evidence that even when they reside apart, adult children and elderly parents remain economically and socially interdependent (Husain and Ghosh 2011).

Work, Retirement, and Income Security

Despite India's recent rapid economic growth, the living conditions of a majority of older Indians remain poor (Husain and Ghosh 2011). Less than 11 percent of older Indians have a pension of any sort, according to national surveys (World Bank 2001; Uppal and Sarma 2007). Saving is difficult or impossible for a majority of Indians because earnings are low, some economic activity in the informal sector does not involve currency exchange, and a large share of the aging population lives in a rural area where banking is unavailable. With little old-age income support and few savings, labor force participation remains high among Indians ages 60 and older (39 percent), and particularly high among older rural Indians (45 percent) (Uppal and Sarma 2007).

Paradoxically, initiatives to increase the well-being of older Indians may lead to higher poverty rates, if impoverished Indians remain poor but begin living to older ages rather than dying young as many now do (Pal and Palacios 2011). Expanded access to health care and increases in social pension benefits may bring improvements in survival but not in poverty rates. Evaluating these programs solely on the basis of changes in poverty rates among the elderly would not adequately capture the benefits to society.

In the future, Bloom (2011a) argues that India's system of family-based support will not be able to withstand the increased numbers of older Indians, "especially given increased female labor force participation, smaller numbers of more mobile children, widening generation gaps, and increasing burdens of costly-to-treat diseases such as diabetes, cancer, and stroke." Even with the findings that adult children still receive support from their elderly parents (see Box 1, page 2), such social changes would affect the status quo because increases in chronic diseases affect the needs of the elderly and their ability to continue to work. The other factors affect the availability of kin to provide care. Bloom suggests that India will benefit from gathering high-quality data on population aging and using it to inform policies to create and expand income support and health insurance programs for older Indians. Also, by investing now in the education and training of today's youth, India can lay the groundwork for increased economic productivity and "ease the process of caring for growing numbers of older Indians in the future" (Bloom 2011b).

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The NIA Demography Centers

The National Institute on Aging supports 14 research centers on the demography and economics of aging, based at the University of California at Berkeley, University of Chicago, Duke University, Harvard University, Johns Hopkins University, University of Michigan, National Bureau of Economic Research, University of Pennsylvania, Princeton University, RAND Corporation, Stanford University, Syracuse University, University of Southern California/University of California at Los Angeles, and University of Wisconsin-Madison.

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For More Information

The Longitudinal Aging Study in India
www.hsph.harvard.edu/pgda/lasi.html

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