Live Long and Prosper?

Burgeoning elderly populations threaten to overwhelm government benefit programs in the developed nations, but demographers differ on how great the challenge will be

Is there such a thing as living too long? Czech science fiction writer Karel Čapek thought so. He cut to the heart of the issue in the final scene of his 1926 play *The Makropulos Case*, about a 337-year-old woman, Elina Makropulos, who seeks an elixir that will renew her life for three more centuries. To one hard-headed character, the lawyer Kolenaty, living so long is "an absurd idea. ... Our social system is based completely on the shortness of life. Take for example contracts, pensions, insurance, wages, probate, and the Lord knows what else."

J. PAVLOVSKY / SYGMA

Although Čapek was a writer of startling clairvoyance—he invented the term "robot" in his 1920 play *R.U.R.*—he couldn't have foreseen how soon Kolenaty's complaint would take on urgent, and very real, dimensions. The industrialized nations' investments in improved nutrition, medical technology, and public health have paid off handsomely, raising the average life expectancy in Europe and the United States from less than 47 years in 1890, the year of Čapek birth, to a ripe 75.5 in 1993. Japan has done even better, leading the world with an average life expectancy of 76.6 years for men and 83 for women. And more recently, the developing countries have been showing similar gains (see pp. 44 and 46). Says Eileen Crimmins, a demographer at the University of Southern California (USC), "The lengthening of life expectancy for the population has been one of the greatest triumphs of humanity."

But the triumph could turn to ashes as societies struggle to support their graying populations with proportionally fewer working-age people to pay for the burgeoning costs of old-age assistance programs. Social Security, Medicare, and Medicaid benefits to the elderly already account for more than a third of U.S. federal spending, a major reason the projected 1996 budget deficit is still some $130 billion. If unchecked, spending on these entitlement programs plus interest on the national debt could consume the entire federal budget by 2012, a bipartisan congressional commission warned in 1994. Other industrialized nations face similar burdens. Member states of the Organization for Economic Cooperation and Development spend an average of 9% of their gross domestic product on old-age pensions—compared to only 6.5% in the United States—and in nations such as Germany, France, Italy, and Japan, this figure is set to rise to between 14% and 20% early in the next century.

Life expectancies will also continue to rise, although there are sharp disagreements about how fast. But even if the increase levels off, the U.S. baby boom generation will swell the elderly population as the boomers begin turning 65 in 2011, and a similar population wave will wash over Europe. The U.S. Census Bureau predicts that by 2030, the elderly's ranks will grow to between 59 million and 78 million, or about one-fifth of the total U.S. population, up from only one-eighth in 1990. The group expanding the fastest is also the frailest, the so-called "oldest old": those aged 85 and over, whose numbers are expected to nearly triple to 8.8 million by 2030. At these rates of growth, programs such as Medicare and Social Security "will bankrupt the next generation," says Laurence Kotlikoff, an economist at Boston University. Indeed, the Department of Health and Human Services calculates that the Medicare Hospital Insurance trust fund will be empty by the year 2001.

DAVID GRAHAM / BLACK STAR

Fit or frail? Longer life could mean better health in old age—or simply a drawn-out decline.

But political leaders and economists planning for this coming onslaught of elderly will find they have another problem as well. They will need detailed forecasts of the future size, health, and wealth of the elderly population, and those answers are elusive. While demographers predict that lengthening life expectancy will put severe stresses on public-sector institutions and on the adult children of the elderly, for example, they can't say just how great those stresses will be, or whether there might be countervailing savings as longer lived citizens retire later or suffer fewer health problems. Says Richard Suzman, director of the National Institute on Aging's (NIA's) Office of Demography of Aging: "Anyone who gives you firm prognostications about what is going to happen is either a liar or a fool, because the uncertainties over trends in life expectancy, health and disability, and retirement age are quite high."

A biological limit to life expectancy?

These uncertainties are keenest when social scientists and biomedical researchers confront the question of human longevity. By some estimates, the practical limit to life expectancy is about 85 years. But by others, the average child born today may survive to age 95 or 100, with no inherent limit to human longevity in sight. The outcome of this dispute is far from academic, for even slight underestimates of the number of people who will become eligible for old-age benefits in the next century could mean huge unanticipated costs to taxpayers. Ronald Lee, a demographer at the University of California, Berkeley, calculates that for every 1-year increase in average life expectancy, everyone's yearly consumption must shrink by 0.9%—or labor effort must increase 0.9%—to pay for the increased benefits to retirees.

Longevity forecasts from the U.S. Social Security Administration (SSA) are among those coming in on the low side. They assume that the easy gains in longevity—those primarily due to conquering many infectious diseases—have already been made. And because SSA actuaries expect that additional progress against the diseases that are today's big killers in developed countries, such as heart attacks, cancer, and strokes, will come only slowly, they project that the average life expectancy in the United States will increase to no more than 83 years by 2050.

A 'Big Science' Survey for the Social Sciences

Rocket builders had the Apollo moon program, molecular biologists have the Human Genome Project, and demographers and economists studying aging have the Health and Retirement Study (HRS). One of the most ambitious and expensive social science projects ever undertaken, the survey is the first to track both the medical and economic conditions of middle-aged Americans as they move closer to retirement and, ultimately, the grave. So far, it has cost $30 million. Says HRS principal investigator Thomas Juster, an economist and survey research specialist at the University of Michigan's Institute for Social Research: "HRS is 'big science' for the social sciences."

The goal of the project, which began in 1992, is to provide information that will help researchers and political leaders gauge the resources that are likely to be required by the generation born during the Great Depression as its members enter old age. The information is collected in a 70- to 180-minute questionnaire administered every 2 years to a representative cohort of 12,654 workers born in the years 1931 to 1941 and their spouses. Included are questions on health and disability, as well as on income and net worth, housing status, family structure, work history, retirement plans, insurance coverage, and even cognitive skills and expectations for the future.

With its comprehensive scope and large sample size, the HRS "will allow us to study things we couldn't study before," says Michael Hurd, an economist at the State University of New York, Stony Brook, and one of the researchers analyzing the first two waves of data produced by the project. He cites as an example the need to know more about how workers make a key decision: determining when to retire.

A better understanding of what goes into that decision is needed because government planners want to encourage later retirements to help lessen the burden on the Social Security system. While researchers know that workers, when choosing to retire, may take into account such factors as their estimated life expectancy and the prospects for inflation that might erode their pensions, a detailed understanding of their decision-making has so far been elusive. But Hurd says, "With HRS we're now getting the data about worker expectations that we need." One remarkable observation so far: Respondents tend to be very good judges of their own life expectancy, giving estimates that closely match actuarial predictions.

HRS should also teach researchers more about the motivations behind "intergenerational transfers," the giving within families that may become increasingly critical to the elderly if government benefit programs shrink. Are the middle-aged motivated to provide for their elderly parents by simple altruism, as some predict, or to encourage their own children to take care of them when they are old? If the latter is correct, then middle-aged adults should be more likely to provide time, space, or money to their elderly parents if they have children of their own, and HRS data should pick up a pattern like that, say economists Donald Cox of Boston College and Oded Stark of the University of Vienna, Austria.

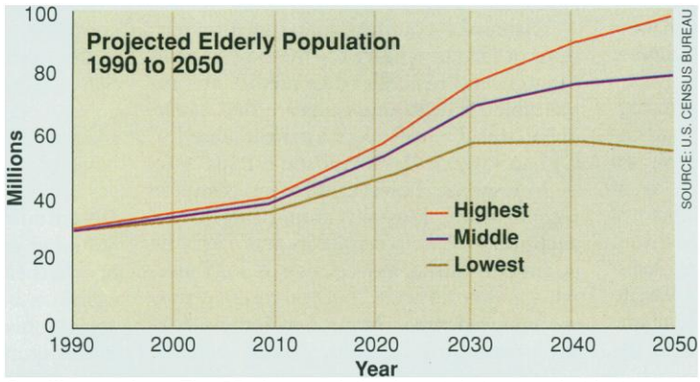
Ultimately, understanding how families cope with the aging of their own members may help political leaders tailor realistic responses to the graying of the population. "You can shape policy concerning aging on the basis of your gut feelings and instincts, or you can base it on the best scientific evidence," Juster says. "If HRS helps us do that, it will be worth its weight in gold." –W.R.

That estimate fits neatly with the view of biodemographers S. Jay Olshansky of the University of Chicago and Bruce Carnes of Argonne National Laboratory in Illinois, who calculate that human life expectancy has a practical upper limit of about 85 years. They came to this conclusion partly by tallying up the reductions in current mortality rates that would be needed to achieve a life expectancy of, say, 95 or 100 years. What they found is startling: Even eliminating most of the major killers—including cancer, cardiovascular disease, and diabetes—won't do the trick (*Science*, 2 November 1990, p. 634).

Now Olshansky and Carnes have gone a step further, arguing that a biological "law of mortality" determines how many individuals in a species will survive beyond a given age. They did this by following up on the observation, originally made in 1825 by British actuary Benjamin Gompertz, that human death rates roughly double with every decade of life from age 20 to 80. Ever since, biologists and demographers have been unsuccessfully searching the animal kingdom for equivalent mortality patterns, which might indicate that the orderly thinning of the old is a natural byproduct of evolution. Now Olshansky and Carnes may have finally uncovered such parallels.

They have found that lab mice and beagles that are less exposed to exogenous causes of death, such as infection and predation, tend to die at the rate Gompertz found for humans. "The only species where you can see the common [Gompertzian] pattern are those protected from these 'extrinsic' causes of death, including humans, lab animals, zoo animals, and pets," Olshansky observes.

Even if Olshansky and Carnes's conservative estimates of human life expectancy are right, the developed nations will have a tough time meeting the costs of supporting the elderly. In 1990, there were 20 net consumers aged 65 and older for every 100 net economic producers—workers aged 18 to 64. By 2050, however, the Social Security and Medicare taxes of each 100 workers will have to support 36 retirees, according to U.S. Census Bureau projections, which assume future life expectancies only a fraction of a year greater than the SSA figures.



Swelling seniors. The 65-plus population is certain to grow, but just how much depends on assumptions about future life expectancies, fertility rates, and migration.

But some researchers paint a far more alarming picture—and are marshaling their own data to back it up. "The Social Security Administration would prefer it if the low-cost future were true," says James Vaupel, a mathematical demographer with appointments at Duke University and Odense University in Denmark. "But the result of our research is that there does not appear to be any genetic barrier to a substantially increased life expectancy."

Using government records on

Japan: Feeling the Strains of an Aging Population

For many researchers and policy-makers trying to figure out how societies will take care of the ever-increasing numbers of the old and very old in their midst, Japan has seemed to provide a glimpse of a future that works. The Japanese currently have the world's longest life expectancy, but the problems of growing old in Japan are eased by a tradition of children taking care of their parents, as well as highly developed pension and health care systems. Yet, beneath the surface, all is not well.

As in most countries the demand for care for the elderly in Japan is far outstripping its availability. Family support structures are breaking down under the strain of wider demographic trends. And pension and health care systems—which provide an average pension for a retired employee of 168,000 yen (about $1600) a month and unlimited outpatient care for people over age 70 for a copayment of ¥1020 (about $10) a month—are already under financial stress. "My preconception was that filial piety would minimize many problems for the elderly," says demographer Linda Martin of the RAND Corp. "But putting such ideals into practice is difficult, even in Japan, when there is rapid aging and social and economic change." Says Keiko Higuchi, a professor of family relations at Tokyo Keizai University, "Elderly-care service is still far less than adequate."

Higuchi, who is also a member of the Council for Health for the Aged, an advisory panel to the health and welfare minister, can speak from personal as well as professional experience. In the mid-1970s, when her mother developed senile dementia, she searched in vain for either a nursing home or home care service and "ended up sending her to a hospital two-and-half hours away from home," Higuchi recalls. Now she is worried about finding care for her husband, who at age 66 has been hospitalized after having a stroke. And Higuchi's plight is far from unusual.

The proportion of people age 65 and older in Japan, now about 14%, is no higher than in Western countries. But according to the Ministry of Health and Welfare, that percentage is double what it was just 25 years ago. And Japan has more of the "oldest old," who tend to need the most care. Since the mid-1980s, the Japanese life expectancy at birth has been the highest in the world: It is now 76.6 years for males and 83 years for females.

As more and more Japanese enter the ranks of the very old, a declining proportion can count on their children for support. While 55% of the elderly lived with their children in 1994, this number is down from more than 80% in 1957. One reason for the drop is increased mobility of the population. In a 1992 survey by the Management and Coordination Agency, 42% of the elderly living separately from their children cited job-related reasons for the separation. Also, more Japanese women—the traditional caregivers—are working outside the home. In 1960, 22% of women over age 15 were employed, but by 1994, that figure had increased to 38%.

At the same time, the higher life expectancy means a high incidence of disability. Figures compiled by the Ministry of Health and Welfare show that in 1991, nearly half the nation's disabled were over 65, with one of every five people over age 80 needing some kind of care. On top of that, the elderly's children are now elderly. "The situation is that 70-year-old children now look after 90-year-old parents, and they themselves collapse," Higuchi says.

Social services, whether public or private, can't fill the gap left by the decline in family support. The Japanese press reports that some 60,000 elderly people are on waiting lists for the country's 3000 nursing homes, which only take people who are bedridden or have senile dementia. Requests for home care providers, by the Ministry of Health and Welfare's own estimate, also outpaced the supply by 12 to 1 in 1991.

To try to avoid these problems, the government launched a project in 1990 to provide expanded home care and institutional services for the elderly through local governments. "If each

identical twins born in Denmark, for example, Vaupel and his colleagues have found that heredity accounts for only about one-quarter of the variation in human life-spans. "Danish monozygotic [identical] twins die a little bit closer together than dizygotic [fraternal] twins, who die closer together than unrelated individuals," says Vaupel. "But there was no evidence whatsoever that genes operated by fixing the life-span. Rather, they raised or lowered the relative risk of death, by making it more likely that one would get heart disease or Alzheimer's or cancer."

Vaupel and fellow Duke University demographers Kenneth Manton and Eric Stallard further argue that science has repeatedly shown that such diseases are subject to delay, if not prevention. To estimate the impact of such changes on life expectancies, Manton, Stallard, and Yale University epidemiologist Burton Singer have developed a multivariate mathematical model, based on the Gompertz function but including terms that allow for the effects of periodic health advances—such as new drugs or diet and lifestyle modifications—on the risk of death.

They have used the model to calculate, for example, that if the 5209 participants in the well-known Framingham Heart Study, conducted from 1950 to 1984 in Framingham, Massachusetts, had somehow been able to hold their levels of 11 different risk factors—such as blood pressure and serum cholesterol levels—to those of a typical 30-year-old, the men would have survived to an average age of 99.9 years and the women to 97.0 years.

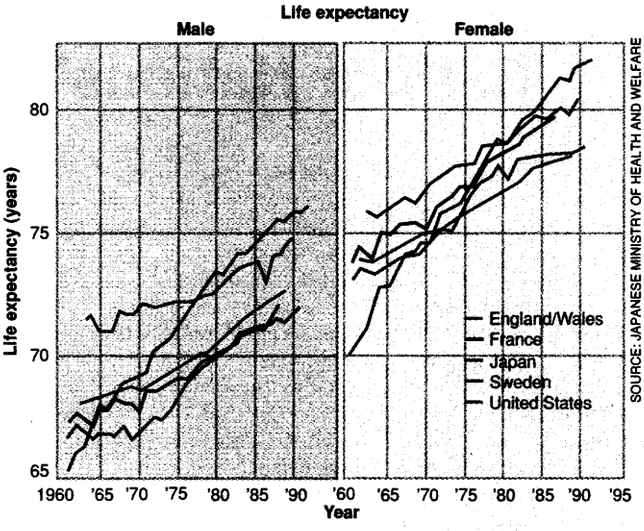
Olshansky counters that the interventions needed to achieve the life expectancies Manton and his colleagues predict are implausible. "The assumptions are that everyone in the U.S. will adopt a perfect lifestyle," Olshansky says. "How realistic is that?"

In response, however, Manton points to recent history. Mortality from heart disease declined 71% between 1958 and 1992, he points out. Further reductions in old-age mortality may be difficult, "but you can't say they are unprecedented," Manton maintains. And while research by Manton, Vaupel, and their collaborators challenges the traditional wisdom about longevity, it's won wide publication and funding, including a $668,000 NIA grant last year for a multicomponent biodemography project analyzing mortality trends in Denmark, Sweden, and the United States, as well as among laboratory fruit flies.

Realistic or not, the consequences for old-age benefits programs if average life expectancy does approach triple digits are ominous. While SSA's most generous forecasts peg the 65-plus population at 75.5 million in 2040, Manton, Stallard, and Singer's risk-factor-control model produces an estimate of 127.5 million, more than half again as big. How the Social Security and Medicare programs could accommodate an elderly population this large is a question no U.S. political leader has yet dared to broach.

Disagreeing over disabilities

Whether death can be delayed indefinitely or whether longevity researchers come up against a biological brick wall, life expectancy is only one of the important unknowns in the future of the elderly. Unless longer life is accompanied by better health, for example, the years added to people's lives could be both unpleasant and expensive. In 1993, according



Going up. Life expectancies have been increasing in all the developed countries, but since about 1980 Japan has been leading the pack.

municipality accomplishes the elderly-care project plan, everyone who wants nursing services can have them," says Nobukatsu Shinozaki, an official at the Ministry of Health and Welfare. But a Japanese lawyers' group reported last year that 70% of local governments would not be able to fulfill their goals because of the budget strain. "The serious problem is not the aging of the population; it is the lack of substantial measures [to care for the elderly]," says Saburo Nishi, an expert on health and welfare planning at Aichi Mizuho College.

One consequence of the lack of services is that in 1992, 80,000 people, primarily women, were forced to quit their jobs to take care of an elderly relative, according to the Management and Coordination Agency. What's more, the shortage of community care and nursing homes may be part of the reason people age 65 and over average 71 days per hospital stay, compared to 18 days for those between 15 and 34. By some estimates, these "social admissions" cost ¥1 trillion to ¥2 trillion ($10 billion to $20 billion) per year. "This is a big waste of public resources," Nishi says.

And the need for services will continue to grow. By 2025, the number of elderly who need care will increase, from 2 million in 1993 to more than 5 million. This means that the proportion of health care costs going to the elderly, about 30% of Japan's ¥24 trillion ($240 billion) health care budget in 1993, is projected to increase to 50%. Also, the work force paying into the public employee pension system will outnumber the pensioners by only about 2.4 to 1, compared to 6 to 1 in 1993. As a result, workers' insurance costs for pensions will double, consuming a third of their income.

To reduce the anticipated burden on the pension system, the government plans to raise the pensionable age gradually from 60 to 65. But that could mean trouble for workers, unless the normal retirement age, which is now 60, is also raised to 65.

To pay for the projected demand for elderly services, the Ministry of Health and Welfare, following Germany's lead, has also proposed Care Insurance, a public insurance plan to pay for home care workers and nursing homes. As currently formulated, the costs will be split between the people to be insured and the national and municipal governments. Ministry officials hope to start the system by 2000. However, many analysts argue that, without adequate services for the elderly, workers will be required to pay for "insurance without care." Japan may, indeed, be giving other countries a glimpse of the future, but it is looking less and less like a future that works.

–Sumiko Oshima

Sumiko Oshima is a Knight Science Journalism Fellow at the Massachusetts Institute of Technology.

to the National Health Interview Survey, some 14% of Americans aged 70 and older needed help with routine activities such as household chores and shopping, and 6% needed help eating, bathing, or dressing. In 1990, nearly a quarter of those aged 85 and over lived in nursing homes, a circumstance that can empty the deepest pockets. Nursing-home charges now average $38,000 per year in Florida, for example. How fast the group needing such services can be expected to grow is another area where the experts disagree.

Stanford University physician James Fries, who, in 1980, was one of the first to argue that human life expectancy will peak at about 85, also predicted that the approach to this limit would be accompanied by a "compression of morbidity," or an increase in the proportion of one's lifetime spent free of disease and disability. As more and more "extrinsic" causes of death are eliminated, Fries argued, only deaths due to old age will remain. And indeed, Manton, although he disagrees with Fries's idea that life expectancy will peak at 85, believes he has found evidence of such a compression. Data Manton analyzed from the National Long-Term Care Survey showed that the proportion of elderly who were chronically disabled or institutionalized decreased from 23.7% to 22.6% over the years 1982 to 1989.

Other researchers, unfortunately, have failed to confirm this promising pattern. USC's Crimmins, for example, says she finds no clear trend in the prevalence of disability in the elderly in either the Longitudinal Study on Aging over the period of 1984 to 1990 or the National Health Interview Survey from 1982 to 1993.

And while some people may indeed be reaping the benefits of a healthier old age, those benefits are by no means equally distributed across the U.S. population, according to Mark Hayward, a demographer at Pennsylvania State University's Population Research Institute. He found, for example, that 20-year-old white non-Hispanic men can expect to live another 54.6 years, with only 14.5% of those years "inactive" ones due to disability. Black 20-year-olds, on the other hand, can expect to live 47.4 years, 18.6% of them inactive, and Native Americans 53.1 years, a whopping 24.8% of them inactive. "We know that longer life means better health for some groups in the population ... but it's more complicated than we heretofore have been thinking about," Hayward says.

Concludes Crimmins, "The U.S. government would like to feel that for its Medicare dollars it's getting a healthy older population. But I think that's the wrong thing to expect. ... Longer life doesn't come without the cost of having more years with diseases unless you prevent people from getting disease."

Family finances

Trimming old-age medical and retirement benefits—or at least capping their rate of growth—is one obvious way to keep health and longevity trends from depleting government coffers. But whether such limitations in public transfers can be put in place without reversing this century's gains against poverty among the elderly hinges largely on the answer to another unresolved question: whether families would help to make up the difference through private transfers.

Analysts who examined this question in

the 1970s, including University of Chicago economist Gary Becker, believed that middle-aged parents' spending on adult children and on their own elderly parents is altruistic, motivated by the donor's perceptions of the recipient's need. As a result, reductions in public transfers to the elderly would be offset to some extent by increases in private transfers. In the eyes of some scholars, including economists Kathleen McGarry of the University of California, Los Angeles, and Robert Schoeni of the RAND Corp., the altruism model has not yet been ruled out. McGarry and Schoeni found that the less well-off an elderly parent, the more likely he or she was to receive a transfer from a middle-aged child. "To some degree," they write, "the middle generation acts like a government entitlement program by buffering elderly parents and adult children against economic hardship."

But other economists, including Boston University's Kotlikoff, have used survey data to test whether, as altruism-based models would predict, well-off family members share their wealth, helping to equalize household consumption throughout an extended family. They don't, Kotlikoff finds: Instead, each household's consumption depends mainly on its own income. "Without Social Security and Medicare, there would be some higher level of private transfers from young to old, but nothing near the magnitude of what we have the government forcing us to do," he says.

Beth Soldo, a demographer at Georgetown University, points out that the magnitude of transfers within families must be considered within a broad demographic context. The baby boomers have fewer children than previous generations to support them when they retire, for example, a trend that will be further exaggerated by the greater labor participation rate of their daughters, she notes: "Unless you model death and disability rates of the coming generation of retirees together with labor supply and other factors, you have an incomplete account of the benefits and burdens accruing to any one generation."

It will be years, Soldo and other researchers say, before demographers, economists, and policy-makers gain much confidence in their answers to all the thorny social and political questions raised by population aging. And in the end, as some of their work indicates, it may be better not to hope for too much longevity too soon. Consider the perspective of Elina Makropulos, who, at the end of Čapek play, chooses death over another 300 years of life. "You cannot go on hoping, creating, gazing at things for 300 years," she admits to Kolenaty. "You fools, how happy you are! And it's simply due to the ridiculous coincidence that you're going to die soon."

–Wade Roush

THE DEVELOPING WORLD

New Populations of Old Add To Poor Nations' Burdens

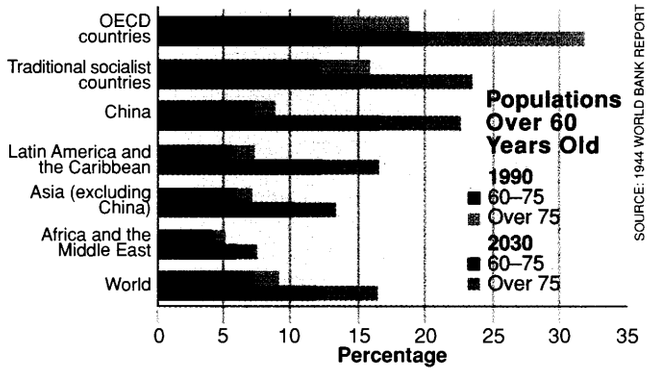
When Alexandre Kalache, a native of Rio de Janeiro, was setting out for medical school in the late 1960s, he paid a visit to a local nursing home. It was a "spacious, clean, and pleasant" place that housed some 400 patients, he recalls. But a few years ago, when Kalache, who now heads the World Health Organization's (WHO's) Aging and Health Programme, went back to the home, it was shabby and depressing—with 1300 occupants. And they may be the lucky ones: Last month a public scandal erupted over filthy and vermin-infested conditions said to have caused up to 100 deaths in Brazilian nursing homes. This is the kind of thing that may become commonplace in developing countries with fast-growing older populations, where Kalache says, "Lack of policies will lead to disaster."

Indeed, while most discussions of the problems of aging populations focus on the industrial world (see pp. 42 and 44), a similar demographic transition is happening all over the developing world as well. And coming on top of all the other problems attendant on poverty and overpopulation, it threatens far more serious difficulties for developing countries. They now face massive increases in both the numbers and proportions of elderly—people who as a rule will have no old-age pensions, who no longer can count on help from their families, and who will have access only to the most rudimentary medical care. "This is a problem which has sort of exploded on peoples' radars in the last 5 years," says Omar Rahman, a physician at Harvard School of Public Health who does research on aging in Bangladesh.

Paradoxically, the problem is the result of a huge public-health success story: Antibiotics and vaccines, combined with improved nutrition and sanitation, have raised the average life expectancy in developing countries from about 40 in the early 1950s to almost 62 in 1990, according to the U.S. Bureau of the Census. As a result, says Census Bureau demographer Kevin Kinsella, 56% of the world's over-65-year-olds are now in those countries, and that proportion is growing: Each month, the world sees a net gain of 800,000 people over 65, 70% of whom are in the developing world.

And because fertility rates are declining in most countries, the growth of older populations is outpacing total population growth. Take China, where fertility has plummeted from 4.9 births per woman in 1970 to 1.8 this year—a trend that was already well under way when that country initiated its one-child-per-family policy in 1979. That drop, combined with a 30-year increase in life expectancy since 1950, means that between 1982 and 2000, the number of people over 60 in China is projected to increase by 72% while the total population grows by only 19%.

In countries already hard pressed to meet basic needs, it's far from clear where financial support for these burgeoning elderly populations will come from. In China, only about half of urban workers (about 10% of the country's working population) are covered by old-age pensions, says sociologist Jersey Liang of the University of Michigan. In rural areas, only government workers get pensions. In India, the situation is worse: Less than 8% of its population, mainly government workers and employees of large corporations, is covered by social security programs, says labor economist Kasturi Sen of Oxford University.



Phase transition. Longer life, lowered fertility are dramatically transforming population profiles worldwide.

And that's not likely to improve. While Asia's "tigers," countries with booming economies such as Taiwan and South Korea, can afford formal social security systems, governments in poorer countries aren't likely to follow suit. They have more pressing concerns, such as creating additional jobs to keep up with the results of runaway population growth. Unemployment, on the rise since the 1960s, has now reached "crisis" proportions, says José Luis Bobadilla, an