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AGING

Making Public Pensions Sustainable

Mortality and fertility declines inevitably lead to increases in the proportions of the elderly within populations. Demographers expect population aging to become a widespread phenomenon in all world regions in the next few decades. This trend has raised concerns about the sustainability of public pension systems, such as the U.S. Social Security system. Failure to address these concerns could have adverse economic effects on a national and international scale, according to the International Monetary Fund. Population Council demographer John Bongaarts recently examined the situation in Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States and offered policy options to make pension systems sustainable.

Pension crisis

Public pension systems in high-income countries have largely succeeded in their goal of protecting retirees from poverty. However, pension systems such as Social Security are in danger. Pay-as-you-go systems rely on transfers of income from younger to older generations. In general, as fertility rates fall, younger generations have fewer and fewer individuals. As mortality rates drop, older generations survive longer and have more individuals relative to younger people than they did in the past. As currently structured, public pension systems are unsustainable in rapidly aging societies. The state of such systems is more dire in some countries than others.

One way of assessing the sustainability of a pension system is to examine the old-age dependency ratio. This ratio compares the number of people aged 65 years and older (who are frequently retired) to the number of people aged 15–64 (who are theoretically working and contributing to the public pension system).

The old-age dependency ratio is flawed, however, as an indicator of the rising societal burden due to population aging. The number of pensioners usually exceeds the number of people aged 65 and older, as people often begin collecting reduced pensions at a younger age. Moreover, the number of workers is substantially fewer than the number of people aged 15–64.

A more accurate way to assess the demographic aspects of pension systems is to compare the actual number of pensioners to the actual number of workers. This ratio varies widely in the countries Bongaarts studied. In the United States for every pensioner there are about four workers, but in Italy there are fewer than one and a half workers for every pensioner. "The pensioner/worker ratio is one of the key determinants of the overall level of expenditures on public pensions," says Bongaarts.

Moreover, the value of pension benefits provided to each individual varies by country. Benefits are most generous in France, Germany, and Italy and least generous in the United Kingdom. The United Kingdom has the lowest benefits, with pensioners getting one-fifth the average worker's earnings. Countries with high benefits tend to have a high number of pensioners per worker. Not only does a large pool of pensioners provide the voting power to ensure that benefits stay high, but high benefits induce workers to retire early, thus enlarging the pool of pensioners.

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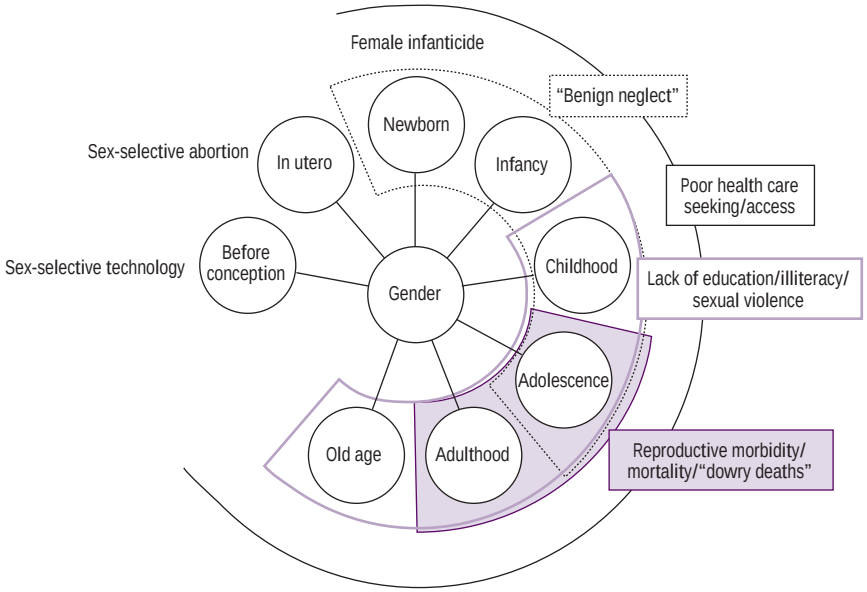
Bias Against Women in South Asia Shortens Lifespan

All things being equal, women have an advantage over men in healthy life expectancy. In industrialized countries healthy life expectancy for women is about two years longer than for men. Researchers have cited both biological and environmental reasons for this "female advantage." Not only are women genetically hardier, they also take fewer risks in general than men do. Population Council program associate Fariyal F. Fikree wondered, however, whether this female advantage existed in settings with significant discrimination against women. She collaborated with Omrana Pasha of Emory University's Women's and Children's Center to explore this question.

Life cycle of gender discrimination and health



South Asia

South Asian women and girls experience many forms of discrimination. They are unable to make decisions for themselves on a variety of issues. They seldom work for pay and have little control over resources. They are frequently forbidden to travel and are subjected to violence from male relatives. Fikree and Pasha examined health statistics in seven countries of South Asia: Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. "We found that women's healthy life expectancy is equal to or shorter than men's in all but one of these countries," says Fikree. "Gender discrimination at each stage of the female's life cycle contributes to this phenomenon."

Discrimination against females starts before birth. In vitro fertilization, in which couples can opt to select the sex of the embryo that is transferred to the uterus, is becoming more common. Ultrasound technology can be used to determine the sex of a fetus, and selective abortion of female fetuses is common in some areas. Female infanticide also occurs. These practices have led to severely skewed ratios of females to males in South Asia.

During early childhood, South Asian girls are often subjected to "benign neglect." Their nutrition is poorer than that of their male counterparts, they are immunized less frequently, and visits to the doctor are delayed. "A girl between her first and fifth birthday in India or Pakistan has a 30 to 50 percent higher chance of dying than a boy," notes Pasha.

In adolescence, young women face new challenges to their health. Young South Asian women are at risk for violence in the form of suicide and "dowry murder," the killing of a bride whose dowry has been found lacking. Many women bear their first child in adolescence, a situation that can raise the health risks during pregnancy. Even for South Asian women who give birth in adulthood, antenatal care and reproductive health care in general are poor, and home deliveries in unsanitary conditions are common. Complicating this situation is the fact that women are less likely than men to seek or have access to adequate health care.

Fikree and Pasha believe that "current societal circumstances make the cost of having a daughter so high that families may be unwilling to invest scarce resources for their benefit. Attempts to address gender disparities must take into account underlying economic issues." Sri Lanka, for example, spends a higher percentage of its gross domestic product on education and health than any of the other countries studied. As a result, Sri Lanka has minimal gender differences in education and employment levels. Moreover, it is the one South Asian country identified by the researchers where women enjoy the female health advantage.

The researchers conclude, "In the South Asian sociocultural context, the violation of fundamental human rights and especially reproductive rights of women plays an important part in harming the health of females. It is therefore imperative that policymakers, program managers, and health workers take special care to overcome discrimination against girls and women and pay attention to their vulnerability." ■

SOURCE

Fikree, Fariyal F. and Omrana Pasha. 2004. "Role of gender in health disparity: The South Asian context," *British Medical Journal* 328(7443): 823–826.

Combating HIV on Multiple Fronts

Despite accounting for only approximately 1 percent of circulating immune system cells, dendritic cells are among the first such cells that encounter HIV following sexual or mother-to-child transmission of the virus by virtue of their position within the mucosa and throughout the body. These little-known cells are vital to both the initiation and control of immune responses. Unfortunately, the encounter between dendritic cells and HIV does not end as it should, with immunity to the virus. Paradoxically, the meeting instead spurs an increase in viral replication.

Population Council immunologist Melissa Pope has studied dendritic cells and HIV for more than a decade. Her work may lead to identification of ways to prevent HIV infection by targeting activated dendritic cells with a vaccine to launch an attack against HIV, or by using a microbicide to block the mucosal transmission of HIV. The term "microbicide" refers to a range of products, in cream, gel, film, or suppository form, that would substantially reduce the transmission of HIV—and possibly other sexually transmitted infections—when applied prior to sexual intercourse.

HIV: A formidable foe

Pope's research has shown that HIV impairs dendritic cells in a number of ways. The virus enters dendritic cells and uses them to travel from the mucosa to areas of the body where it may infect other immune system cells. Normally, dendritic cells engulf pathogens and degrade them into protein fragments, called antigens. They display the antigens on their cell membranes. Other immune system cells recognize the antigens and launch a potent immune response. Crucially, HIV fails to stimulate dendritic cells to display these antigens optimally. Research by Pope and her collaborators shows that at the beginning of the infection process, mature and immature dendritic cells transport the virus without themselves becoming infected; later immature dendritic cells become infected and replicate HIV.

Recent work done by Pope and her colleagues may give insight into ways to fight HIV. Individual particles of HIV enter dendritic cells and other cells when proteins on the surface of HIV bind to specific molecular receptors on the surface of cells. Pope and her collaborators investigated HIV binding to cells in human cervical tissue, which had been removed from women undergoing planned hysterectomies.

In the best case, a vaccine could be used by people before or after HIV infection.

The team used small molecules known to attach to the cellular receptors that are favored by HIV. This strategy blocked the binding of HIV to these receptors, thus preventing the fusion of HIV to the cell. The scientists also attempted to neutralize proteins on the surface of HIV itself. They found that different receptors play a role in the infection of cervical cells, which do not migrate, and of dendritic cells, which do. The migratory nature of dendritic cells can ferry HIV into the body where it can infect and decimate other cells of the immune system. "Microbicidal preparations should target the receptors that are exploited by HIV in both of these instances and target proteins on the surface of HIV as well," says Pope.

Toward a vaccine

An effective vaccine would induce activated dendritic cells to launch a proper immune response against HIV. In the best case, a vaccine could be used by people before or after HIV infection and would result in immunity that could pass from mother to child during pregnancy. Because dendritic cells are so scarce in the periphery of the body, increasing the number of circulating dendritic cells may be a key step in producing a workable vaccine. Pope and her colleagues investigated the effects of Flt3L, a molecule that has been shown to trigger the movement of dendritic cells (and their precursors) from the bone marrow into the rest of the body. "We found that although the standard treatment with Flt3L for 10 to 14 days increased the percentage of circulating dendritic cells in monkeys, treatment for as little as five to seven days was as effective, if not more so, at increasing the dendritic cell count," says Pope. "Dendritic cell levels peak about four days after the week-long treatment, not immediately after, which is when researchers typically monitor the number of cells."

In addition to potentially enhancing an HIV vaccine, increasing the numbers of circulating dendritic cells will facilitate the study of the role of dendritic cells in HIV infection.

"Our research is illuminating ways of keeping dendritic cells from transporting or becoming infected with HIV, while at the same time improving their ability to initiate a powerful attack on the virus," concludes Pope. ■

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OUTSIDE FUNDING

Elizabeth Glaser Pediatric AIDS Foundation and the U.S. National Institutes of Health

Review Finds Scarce Documentation on Quality-of-Care Efforts

In 1990, the Population Council's Judith Bruce, now director of the Gender, Family, and Development program, developed a framework for studying quality of care in family planning service delivery and listed its key dimensions. This tool provided a means for researchers to determine what factors hindered or advanced the provision of high-quality care. Since that time, many family planning program managers and providers have instituted changes intended to improve quality, and many believe that a good deal is known about the effect of such changes on client satisfaction and behavior. Population Council program associate Saumya RamaRao and Raji Mohanam of Embryon, Inc. reviewed the available research on this topic and published their findings in *Studies in Family Planning*. They found that there are, in fact, few rigorous experimental studies of quality-of-care interventions.

RamaRao and Mohanam reviewed studies that assessed the readiness of clinics to deliver services or investigated the effect on clients of their interactions with providers. Readiness to deliver services refers to such factors as buildings, contraceptive supplies, and trained staff. "Readiness alone does not ensure good quality," states RamaRao. "The communication between the provider and the client may be the most important element."

Assessing quality

RamaRao and Mohanam outlined ways to measure the quality of services. One technique, situation analysis, was developed by Population Council researchers. Situation analysis is a practical technique for pinpointing problems in many types of service delivery. Researchers employ interviews, inventories, and observations of provider–client interactions to gather data on adequacy of training, staffing, equipment, supplies, and readiness to provide services. Findings from a representative sample of facilities can be used to estimate the needs of the whole system and to develop and test feasible strategies to address these needs. Findings from situation analysis have been used to guide the direction of policies and programs in Botswana, Morocco, Vietnam, and other countries around the world.

Another tool, the "mystery client," involves sending trained people anonymously to act as clients at clinics; they obtain services and report on their experiences. This method lowers the cost of data collection and reduces the intrusiveness of research. In lieu of mystery clients, exit interviews of actual clients provide information on client–provider interactions.

> *There are few rigorous experimental studies of quality-of-care interventions.*

Undocumented efforts

RamaRao and Mohanam found that although many innovative ideas for improving quality of care are being implemented in a variety of settings, these efforts are largely undocumented and unevaluated. Methodological flaws they encountered included absence of control groups, lack of timely measurements, and inadequate samples. The researchers uncovered only 15 rigorous studies.

The small number of systematic studies that have been published clearly show that quality can be improved and that good care has beneficial effects. The available research, which looks at interventions designed to make both system-wide and specifically targeted improvements, has shown that better physical infrastructure does not always result in better care. The most promising interventions are the ones that facilitate an improved interaction between clients and providers.

Unanswered questions

Their review reveals a number of unanswered questions, say RamaRao and Mohanam. How will health-sector reforms, such as the decentralization of authority that is occurring in ministries of health around the world, influence the process of improving quality of care? What levels of readiness and quality of care can be found in the private sector? Why do family planning clients choose to use some facilities rather than others? What changes would encourage clients to continue to visit facilities and stay with existing programs? How can family planning programs ensure that their services are responsive to the needs of their clients? How can quality of care be improved without extraordinary financial outlays? What curriculums exist or could be developed for medical and nursing schools for integrating quality of care into the training of medical providers?

"We've won the battle about giving prominence to quality," concludes RamaRao. "What the field lacks is rigorous evaluation. Without this we do not know whether we are meeting our objective of helping individuals meet their reproductive goals in a healthy way." ■

SOURCE

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Is Focus on Premarital Sex in Vietnam Warranted?

Sexual activity and its consequences, particularly HIV risk, have been a major focus of research on unmarried adolescents in Vietnam. A recently published study, however, suggests that other challenges may be more pressing for young people in that country. The study was based on a survey carried out by the Institute of Sociology in Hanoi in collaboration with the Population Council. The study was conducted by Population Council demographer Barbara Mensch; Wesley H. Clark, formerly of the Population Council and now at Gynuity Health Projects; and Dang Nguyen Anh, formerly of the Institute of Sociology and now at the Vietnam Asian-Pacific Economic Center. "The data analysis reveals that, at least currently, the sexual behavior of unmarried adolescents in Vietnam is not what jeopardizes their health and well-being," says Mensch.

In 1986, the Vietnamese government instituted the *Doi Moi* economic policy, which shifted the country from a planned socialist economy to a more privatized system. This change increased the population's exposure to Western culture and thus, some government officials contend, increased the amount of premarital sex and the number of unplanned pregnancies, along with boosting other "social evils," such as drug use, prostitution, and HIV/AIDS.

Examining the evidence

The researchers analyzed data on premarital sex and reproductive behavior from a 1999 survey conducted in six provinces among more than 1,600 adolescent males and females aged 15–22. Young people included in the survey came from a range of urban and rural ecological and cultural zones in the south, north, and center of the country.

Survey respondents were asked whether they had ever had sex and, if so, at what age they first did so. Only 10 percent of the 764 males and 5 percent of the 884 females reported having had premarital sex. Among married women who reported that they had had premarital sex, 87 percent had sex with their future husbands. Having sex with a future husband is unlikely to be considered problematic in the eyes of most Vietnamese, contend the researchers.

HIV/AIDS statistics lend some support to the contention that unprotected premarital sex is uncommon in Vietnam. According to UNAIDS, Vietnam has much lower rates of HIV prevalence among 15–24-year-olds than do nearby Cambodia, Myanmar, and Thailand. UNAIDS and WHO estimate that, in 1998–99, 64 percent of new HIV infections in Vietnam were the result of sharing needles while using injected drugs.

> *"The sexual behavior of unmarried adolescents in Vietnam is not what currently jeopardizes their health and well-being."*

Nevertheless, the researchers uncovered some evidence that respondents to their survey were underreporting their sexual activity. Because young people are more likely to be candid in providing information about their friends' behavior than about their own, the researchers asked respondents whether their best friends ever had sex. Of those whose best friend was not married, 14 percent of boys and 9 percent of girls reported that their friend had had sex. However, unless underreporting is much greater in Vietnam than in other countries, the data suggest that premarital sex is lower in Vietnam than in many other developing countries in Southeast Asia, Latin America, and sub-Saharan Africa.

As would be expected given the low rate of premarital sex reported by survey respondents, only four of the 733 unmarried women in the sample reported a pregnancy. Two of these women said they had had an abortion. Pregnancy and abortion were much more common among the married women surveyed.

One explanation for the skewed perception of young people's sexual behavior in Vietnam may be that journalists generally report on people living in urban areas, where Western-style cultural changes, such as the appearance of nightclubs, are occurring. But 80 percent of Vietnam's population lives in rural areas.

Jobs

What are the critical problems facing Vietnam's young people? Mensch and her team asked the survey participants about their biggest concerns for themselves in the next five years. "Although education in general is a worry for younger adolescents," says Mensch, "the main issues that trouble young people are employment and poverty." Among survey participants in urban areas, more than half of all males and unmarried females with some secondary education are not currently working.

The absence of sufficient employment opportunities for young people has implications for their health and well-being as well as for the economy. "In light of the ready availability of injectable drugs in Vietnam and the difficulty of providing adequate job opportunities, a scenario can easily be envisioned in which large numbers of young people become substance abusers," states Mensch. Instituting a job development program may help the Vietnamese government to keep HIV confined to a relatively small proportion of young people. ■

SOURCE

Mensch, Barbara S., Wesley H. Clark, and Dang Nguyen Anh. 2003. "Adolescents in Vietnam: Looking beyond reproductive health," *Studies in Family Planning* 34(4): 249–262.

Approaches to Researching Women's Reproductive Health

Since the late 1980s, comprehensive studies from Egypt, India, Nigeria, and Turkey have revealed the widespread prevalence of reproductive tract and other gynecologic disorders. These findings have prompted researchers to expand this work to explore the pervasiveness of these illnesses and to shed light on factors that place women at risk. But what are the best ways to conduct this type of research? Population Council senior program associate Shireen Jejeebhoy; Michael Koenig, associate professor, Bloomberg School of Public Health, Johns Hopkins University; and Christopher Elias, president, Program for Appropriate Technology in Health (PATH), have collaborated on a book, *Reproductive Tract Infections and Other Gynaecological Disorders: A Multidisciplinary Research Approach*, that tackles this question. The editors draw upon the considerable experience of their contributing authors and provide a synthesis of the best approaches for studying this topic.

A spectrum of reproductive ailments can affect women. Reproductive tract infections (RTIs) are some of the most common. They can be transmitted sexually, produced by an overgrowth of normal microorganisms, or result from infections related to abortion, childbirth, sterilization, or the insertion of an intrauterine device. Women may also develop gynecologic cancers, endocrine disorders, genital prolapse (a painful condition in which the uterus or vagina is displaced downward), obstetric fistulae (a loss of tissue between the vagina and bladder and/or rectum caused by obstructed labor), infertility, sexual dysfunction, and menopausal symptoms. Discomfort caused by these conditions can impair a woman's ability to engage in a wide range of activities and can damage marital and sexual relationships and psychological well-being.

Although it is important to determine the prevalence of these disorders, it is equally crucial to understand their social, behavioral, and biomedical precursors. Jejeebhoy and Koenig offer a conceptual framework for exploring the social context of gynecologic disorders.

Key to this framework is the difference between disease and illness. Although many infections among women produce no symptoms, clinical examination and, in particular, laboratory tests can confirm the presence of disease. Conversely, many women who report symptoms have no medically verifiable disease. The authors underscore the fact that the association between self-reported, clinically diagnosed, and laboratory-tested conditions remains poor, and draw a distinction between disease, which can be medically confirmed, and illness, which involves women's perceived symptoms.

Best study practices

Researchers can employ community-based or facility-based studies to investigate women's reproductive health. When working within a community, a high level of rapport and interaction with the populace, including men and community leaders, is essential. Including free medical treatment as part of investigations in resource-poor settings not only facilitates women's participation, but is also ethically necessary.

Koenig and contributor Mary Shepard, also of Johns Hopkins University, suggest that facility-based studies—which can enroll women seeking family planning or health services, or women in settings such as schools or the workplace—are less expensive, often more feasible than community-based studies, and likely to achieve high compliance rates. However, they are subject to selection bias and ethical concerns related to women's voluntary participation.

One of the challenges posed by the research that has already been done on gynecologic disorders is the lack of consistency across studies due to different definitions of disease, different clinician assessments, and the inclusion of different diseases. Elias and contributors Nicola Low of the University of Bristol and Sarah Hawkes of the London School of Hygiene and Tropical Medicine recommend that all broad-based studies of gynecologic disease include laboratory testing for a core group of reproductive-tract pathogens. Although many women have declined to participate in such studies because they wish to avoid pelvic examinations, new methods for diagnosing disease may help to overcome this hurdle. These techniques include self-administered vaginal swabs, urine tests, saliva tests, and finger-stick blood tests.

An integrated approach

The authors emphasize that the key to this type of research is an integrated approach. Surveys provide breadth of knowledge on the extent of self-reported illness, along with associated factors and behaviors, and health-seeking actions. Qualitative tools, such as focus groups and in-depth interviews, probe disease pathways and obstacles to health. Laboratory tests detect infections.

Because studies of gynecologic disorders are so complex, the authors contend, they should be conducted infrequently, using multidisciplinary research teams, and only when financial and infrastructural resources are in place. And, while researchers do not typically implement interventions, they should disseminate findings to the broader community of health care providers, educational institutions, media, policymakers, and program managers and make practical suggestions for action. The research approaches outlined in this volume will produce findings that are robust enough to offer meaningful programmatic and policy responses, say Jejeebhoy, Koenig, and Elias. ■

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Recent Publications

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Projecting into the future

Bongaarts projected pensioner/worker trends for these countries to 2050. He assumed that pension benefits (relative to wages) would remain fixed, as would rates of employment and retirement by age and sex. He found that the number of pensioners per worker will rise sharply by 2050 in all the countries he studied. "In Italy the number of pensioners is expected to exceed substantially the number of workers by 2050, with about one and a half pensioners for every worker," notes Bongaarts. Japan will have a nearly one-to-one ratio of pensioners to workers, while the United States will have about two workers for every pensioner.

Not surprisingly, large increases in pension expenditures are also expected in all seven countries. "These trends are clearly unsustainable over the next few decades for Italy and other continental European countries," asserts Bongaarts. "Even the smaller projected growth in expenditures in the United Kingdom and the United States is often considered problematic."

Policy options

Governments of industrialized countries around the world are now tackling this challenge to their pension systems. Bongaarts offers four policy options to offset these trends: counteract population aging, increase employment, raise the age at retirement, and reduce public pension benefits.

Governments can counter population aging by making it easier for women to reach their reproductive goals and by permitting more immigration. "Research has shown that women on average want more children than they actually have," notes Bongaarts. "Often they are hindered from meeting their reproductive goals because of difficulties combining work and childbearing." Governments could reduce these obstacles by subsidizing childcare, reducing taxes for families with children, and providing paid parental leave. Bongaarts's projections show that, on average, for each increase in fertility of 0.1 births per woman, pension expenditures in 2050 decline by 4 percent. For example, if fertility in Italy increased from 1.5 to 2 children per woman, pension expenses in that country would be 20 percent lower than they would be if fertility remained unchanged.

Bongaarts also found that an increase of 1 migrant per 1,000 population in the annual net migration rate reduces pension expenditures in 2050 by 5 percent. In developed countries the average age of immigrants is typically lower than that of the resident population. Thus, increasing the number of immigrants reduces the average age of a population and the old-age dependency ratio. "If these immigrants participate in the workforce to the same extent as the average population does, which is usually the case," says Bongaarts, "then there will also be more workers." Pension systems in Canada, the United Kingdom, and the United States are in less jeopardy than in Japan and much of Europe, in part because of higher levels of immigration in the English-speaking countries.

Any increase in the number of individuals who are employed would directly reduce the pensioner/worker ratio. The percentage of people employed varies greatly from country to country. In the United States, for example, 76 percent of working-age people are employed, compared with only 55 percent of working-age people in Italy. One way to employ more people in many countries is to encourage greater workforce participation among women. In Italy, for example, 70 percent of men are employed whereas only 40 percent of women have jobs. "If future female labor force participation were to rise to equal that of males, the pensioner/worker ratio would be reduced by 21 percent," asserts Bongaarts.

The average age at retirement in the industrialized countries has been decreasing over the last several decades. Pension benefits are often high, and there is little incentive to continue working once a person qualifies for a pension. Encouraging a later age at retirement by increasing the age at which pension benefits could be obtained would enhance pension system sustainability by reducing the number of pensioners and increasing the number of workers contributing to the pension system. Bongaarts estimates that, on average, a one-year increase in age at retirement would reduce the ratio of pensioners to workers in 2050 by 6 percent.

Finally, reducing pension benefits would make pension systems more sustainable, says Bongaarts. Governments will have to combine a number of these strategies, and perhaps also raise taxes, to bring pension expenditures in line with contributions, asserts Bongaarts.

"My analysis suggests that demographic options for addressing the pension crisis, such as making it easier for women to reach their reproductive goals and increasing immigration, have been neglected," concludes Bongaarts. "More attention should be paid to them." ■

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