

# Today's Research on Aging

PROGRAM AND POLICY IMPLICATIONS

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## Social Security Systems Around the World

Social security programs are increasing in number around the world. Initially instituted in European and Latin American countries in the early 20th century, social security plans can now be found in developed and developing nations worldwide. However, as is the case in the United States, social security systems in many of these countries have funding problems. Social security may also have unintended effects on economic and demographic behavior in a country. Many of these behaviors are only now beginning to be understood.

The National Institute on Aging (NIA) supports research on the social security system in the United States and worldwide in order to better understand their effects and possible means of reforms. This newsletter discusses some of the current research undertaken by NIA-sponsored and other researchers.

### Program Types

Two different kinds of financing systems are generally used for social security programs: defined-contribution and defined-benefit. These systems work very differently in the way they fund accounts. Defined-contribution accounts are similar to pensions offered by private employers—individuals contribute to their accounts and receive payments from their own accounts when they are eligible for benefits. The

funds in an account may be invested and payouts are a function of the amount contributed and the return on investment. This system varies from country to country in several aspects, including how funds are invested, whether funds are government-run or managed by regulated private pension companies, and how payouts are distributed. The common aspect of each system, however, is that each person funds an account from which that person's benefits will be paid. This system is often referred to as "funded" because its obligations are backed up by funds.

A competing system is the defined-benefit, or pay-as-you-go (PAYG) system, which exists in all OECD (Organization for Economic Co-operation and Development) countries including the United States. This system consists of a benefit amount defined by the government and which, in many systems, bears little relation to the amount actually contributed by the individual. Benefits paid to retirees are contributed by workers paying into the system currently. In a balanced system, the amount paid in by current workers in a given year is supposed to equal the amount being paid out to retirees in that year. However, this setup is highly vulnerable to changes in demographics and imbalances may occur in a given period. In one particular type of PAYG system—notional defined contribution (NDC)—benefit payments are tightly linked to the amount paid into the system over a worker's lifetime. Sweden, Italy, and Latvia use this system. The French and German systems are closely related to the NDC system. In principle, such systems are supposed to adjust automatically to economic and demographic change and so remain fiscally stable (Auerbach and Lee 2006). Generally, funded plans are found in developing nations because these plans present less risk to the government, and PAYG is common in developed nations. But many countries have hybrid systems (see table, page 2).

### Effects on Retirement Age

Many developed countries have problems with their PAYG systems. One concern is population aging: In many industrialized countries, relatively more people are retiring and drawing benefits and fewer workers are paying into the sys-

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This review summarizes research related to the objectives of the National Institute on Aging, with emphasis on work conducted at the NIA demography centers. Our objective 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](http://www.prb.org/TodaysResearch.aspx).

## Retirement and Pension Provisions in 2002

Country	Universal coverage	Retirement incentive	Country	Universal coverage	Retirement incentive
Argentina	Yes	No	Mali	Yes	Yes
Australia	Yes	No	Mexico	Yes	Yes
Austria	Yes	No	Morocco	No	Yes
Belgium	Yes	No	Netherlands	Yes	No
Bolivia	Yes	No	New Zealand	Yes	No
Brazil	Yes	No	Nigeria	No	Yes
Burkina Faso	No	Yes	Norway	Yes	Yes
Canada	Yes	No	Panama	No	Yes
Chile	Yes	No	Peru	Yes	No
Colombia	No	No	Philippines	Yes	Yes
Denmark	Yes	Yes	Portugal	Yes	Yes
Dominican Republic	Yes	No	Senegal	Yes	Yes
Ecuador	Yes	Yes	Singapore	Yes	No
Egypt, Arab Rep.	Yes	No	South Africa	Yes	Yes
Finland	Yes	Yes	Spain	Yes	Yes
France	Yes	Yes	Sri Lanka	Yes	Yes
Germany	Yes	No	Sweden	Yes	No
Ghana	Yes	No	Switzerland	Yes	No
Greece	Yes	Yes	Taiwan	No	Yes
Hong Kong, China	Yes	No	Tanzania	No	Yes
India	No	Yes	Tunisia	Yes	Yes
Indonesia	No	No	Turkey	Yes	No
Ireland	Yes	No	Uganda	No	Yes
Israel	Yes	Yes	United Kingdom	Yes	No
Italy	Yes	Yes	United States	Yes	Yes
Jamaica	Yes	Yes	Uruguay	Yes	Yes
Japan	Yes	No	Venezuela, RB	Yes	No
Kenya	Yes	Yes	Vietnam	No	No
Korea, Rep.	Yes	Yes	Zambia	No	Yes
Madagascar	Yes	Yes	Zimbabwe	No	No
Malaysia	Yes	No			

Source: Bloom et al. (2007b).

tem. When social security began in the United States in 1935 there were 45 people paying into the system for every retiree. Today the ratio is approximately 3 to 1 (Pethokoukis 2005). Social security systems may, in part, be contributing to this trend (see box, page 3).

Recent studies have pointed to incentives that make retiring at the earliest allowed age the most prudent course of action (Gruber and Wise 1999; Bloom et al. 2007a and 2007b). For instance in Taiwan, benefits will increase if a worker stays in the labor force until age 65. But if a person continues to work beyond 65, he or she will continue paying into the system, but benefits will not increase (Bloom et al. 2007b). Gruber and Wise (2005) calculated an “implicit

tax on work” for 12 OECD countries, taking into consideration both the benefits a person would lose over a lifetime by working an extra year past the early retirement age and what that person would gain in income. Gruber and Wise found that for many countries this tax is 80 percent in the first year after retirement eligibility. Italy and Belgium have the highest implicit tax on work.

The United States is different—social security payments are actuarially fair. Individuals who retire at the earliest age of eligibility receive the same amount of benefits during their lifetimes as if they retired at the regular retirement age. In addition, for those who work longer, and therefore pay more payroll taxes, the lifetime benefits are higher. This system

## Gruber and Wise Landmark Study

Gruber and Wise (1999) identified a strong association between social security incentives to retire and the withdrawal of older workers from the labor force. Labor force withdrawal rates jump at early eligibility ages and again at statutory retirement ages. These departure rates are higher in countries with stiff tax penalties for those who work beyond the age of eligibility (Germany and France) than in countries with smaller penalties (the United States). More recently, researchers have used these data to estimate how much labor force participation rates of older workers would change in response to possible country-specific changes in social security schemes (Gruber and Wise, 2004).

### References

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Jonathan Gruber and David Wise, eds., *Social Security Programs and Retirement Around the World: Micro Estimation* (Chicago: University of Chicago Press, 2004).

reduces the tax on work. However, this system still discourages work after one becomes eligible for full benefits—65 for those born in 1937 or earlier (Gruber and Wise 2005).

The work disincentive problem may not exist in fully funded systems. A recent study by Bloom and colleagues (2007a) showed that a fully funded retirement system had no significant effect on the retirement decisions of men below age 65, while men older than 65 sometimes worked more in order to boost the amount in their retirement accounts.

## Effects on Fertility Rates

Social security programs may be inadvertently contributing to their funding problems by decreasing fertility rates. While the link between fertility and social security may not seem evident, much research has been done on this subject. Several recent studies using cross-national data have shown an increase in the social security tax to be statistically significant in lowering the fertility rate (Boldrin et al. 2005; Ehrlich and Kim 2007a and 2007b; Zhang and Zhang 2004).

Many researchers have suggested that parents have children in part to provide security in old age. In the presence of a social security system, the need to have children for this pur-

pose is not as great. Although PAYG social security benefits to elderly workers need to be ultimately paid for by the next generation of workers, parents' benefits do not depend on their own investments in children. Individuals do not receive more social security benefits if they have more children. This equality in benefits lowers the material benefits parents derive from children in old age relative to benefits from present consumption of goods (Ehrlich and Lui 1998). As a result, even the incentive to form families may be adversely affected by social security (Ehrlich and Kim 2007a).

Controlling for variables such as female labor force participation, income level, and GDP, Ehrlich and Kim (2007a) found that the rise in government-provided social security (including disability) in 28 OECD countries from 1965 to 1989 accounted for over 40 percent of the decline in the total fertility rate and about 50 percent of the decline in marriage net of the divorce rate. They found similar qualitative results using an expanded sample of 57 developing and developed countries (Ehrlich and Kim 2007b). Boldrin and colleagues (2005) found an even greater contribution of social security to the decline in fertility rates in European countries and the United States. The effect of old-age pensions on fertility is partially because, in the absence of these pensions, children transfer funds directly to their parents. A social security scheme, in effect, substitutes for a family system of transfers, reducing the need to have children in order to ensure financial security in old age. Although evidence for an effect of fully funded systems on fertility rates is weaker, researchers argue that a similar effect should exist. Anything that allows parents to transfer income to their old age at a cost lower than having and caring for children is likely to lead to lower fertility.

## Future Research

Any international comparison of social security systems must be done carefully. Some systems are relatively new, others long-established, but all are embedded in economic and demographic realities and in cultural expectations about who cares for the elderly. The National Transfer Account Project is estimating the economic flows across age groups to aid understanding of population aging and the consequences of alternative approaches to age reallocations implicit in health care, education, and social policy. In addition, the recent global financial crisis may test the performance of social security systems with defined contribution components, providing new information on the pros and cons of these systems.

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David E. Bloom et al., "Demographic Change, Institutional Settings, and Labor Supply," paper presented at the Social Security Workshop of the NBER's Summer Institute, July 2007(a), accessed online at [www.hsph.harvard.edu/pgda/Working%20Papers/2008/PGDA\\_WP\\_42.pdf](http://www.hsph.harvard.edu/pgda/Working%20Papers/2008/PGDA_WP_42.pdf), on Nov. 19, 2008.

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## The NIA Demography Centers

The National Institute on Aging supports 13 research centers on the demography and economics of aging, based at the University of California at Berkeley, the University of Chicago, Harvard University, the University of Michigan, the National Bureau of Economic Research, the University of North Carolina, the University of Pennsylvania, Pennsylvania State University, Princeton University, RAND Corporation, Stanford University, the University of Southern California/University of California at Los Angeles, and the University of Wisconsin.

This newsletter was produced by the Population Reference Bureau with funding from the University of Michigan Demography Center. This center coordinates dissemination of findings from the 13 NIA demography centers listed above. This issue was written by Melissa Kornblau, an intern at the Population Reference Bureau in 2008.

## For More Information

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### Issac Ehrlich: Economics of Social Security

<http://wings.buffalo.edu/economics/IEss.html>

### Ronald Lee

[www.ceda.berkeley.edu/peoplenew/rlee.html](http://www.ceda.berkeley.edu/peoplenew/rlee.html)

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### National Transfer Account Project

[www.ntaccounts.org/web/nta/show](http://www.ntaccounts.org/web/nta/show)

### Social Security Programs Throughout the World

[www.ssa.gov/policy/docs/progdesc/ssptw/index.html](http://www.ssa.gov/policy/docs/progdesc/ssptw/index.html)



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