

Fiscal Math Is Daunting

It's simple arithmetic, really. Thanks to increasing life expectancy and falling fertility rates, the share of older Americans is on the rise—and the number of working-age people is declining.

As a result, the United States and many other countries are experiencing large increases in the old-age dependency ratio.

Americans 65 and older are disproportionately supported by social insurance programs like Social Security (Old Age, Survivors, and Disability Insurance, or OASDI), Medicare, Medicaid, and Supplementary Security Income (SSI). In the coming years, this oldest segment of the population is going to grow dramatically, as the working-age segment of the country, the people who mostly fund these programs through payroll and income taxes, will dwindle by comparison.

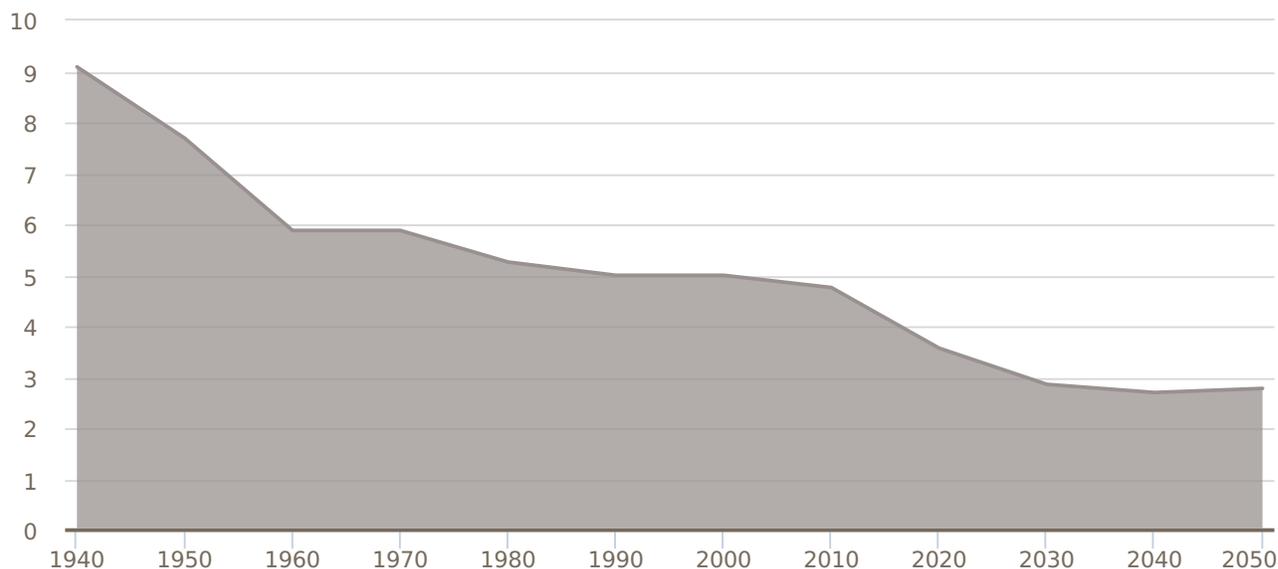
That's problematic, as it upsets the “support ratio,” or, put another way, the old-age dependency ratio. The balance of the working-age population and the elderly—the old-age

dependency ratio—is a key gauge of a country's ability to sustain old-age social insurance programs, points out Karen Kopecky, an Atlanta Fed research economist and associate policy adviser, who has studied the fiscal and economic effects of aging in the United States.

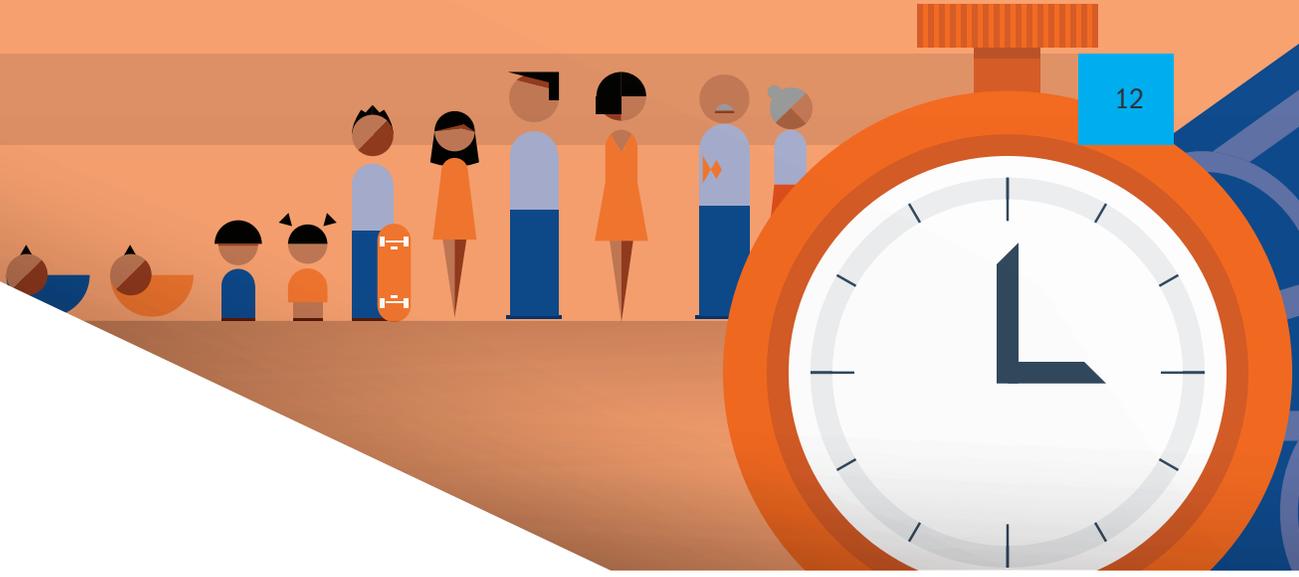
In 2010, there were 4.8 workers for each retiree. However, as the baby boomers—those born between about 1946 and 1964—age, this number will decline to just 2.7 by 2040, according to U.S. Census Bureau projections. (See chart 1.)

The math is daunting. Eventually either social insurance benefits must decline or taxes must increase, or some combination of both, according to Toni Braun, Atlanta Fed research economist and senior adviser.

Chart 1
Number of working-age people for each person 65 and over



Source: U.S. Census Bureau



“This increase in fiscal burdens is one of the key macroeconomic effects of an aging population,” Massachusetts Institute of Technology economist James Poterba writes in a 2014 research paper.

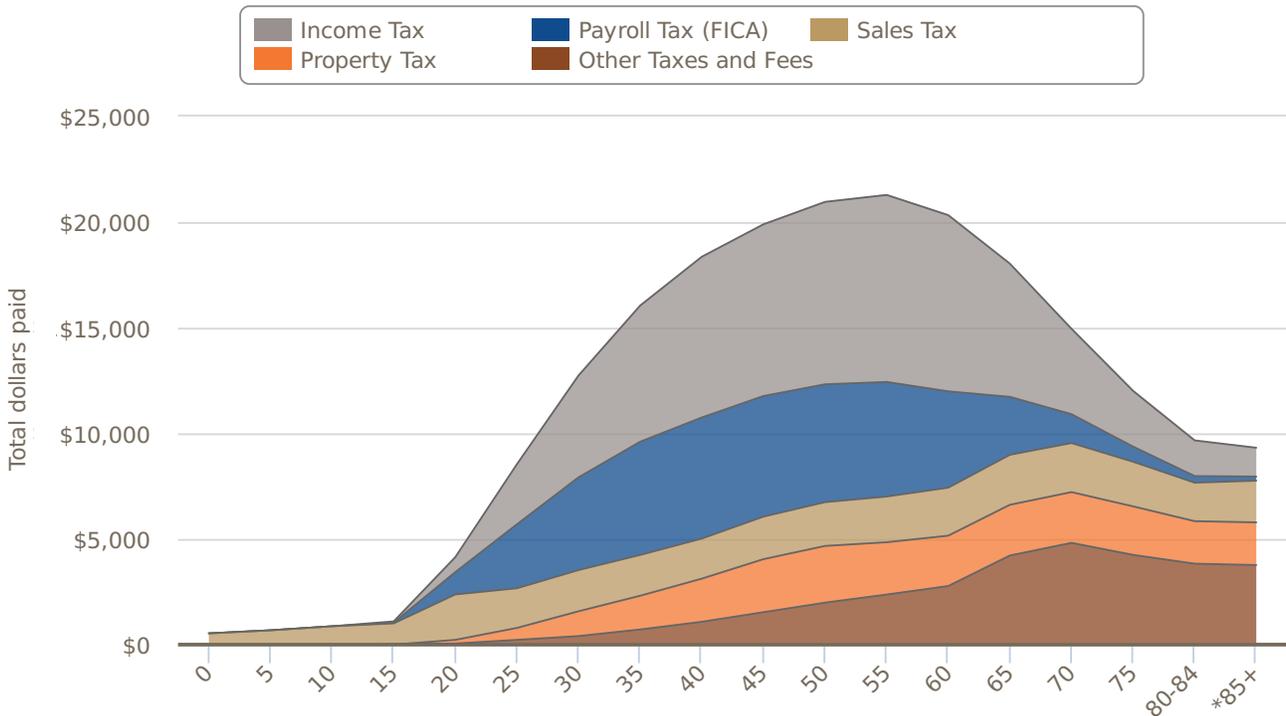
Office (CBO) reports that in 2006, the most recent year data are available, the 15 percent of U.S. households headed by someone 65 or older received more than 60 percent of net federal transfers, or government payments minus taxes paid. (See the infographic and charts 2 and 3.)

Aging to be the biggest driver of federal spending

Government transfers, or benefits, to retirees are large and increase with age. The nonpartisan Congressional Budget

What this will mean in 25 years is that the aging of the population will be the single largest factor affecting U.S. government spending on major health care programs and

Chart 2
Per capita taxes and social contributions paid by age, 2011



Source: Gretchen Donehower, National Transfer Accounts Project (www.ntaccounts.org)

WHAT WE PAY & RECEIVE THROUGH THE LIFE CYCLE

Per Capita Taxes & Social Contributions

Age	Total taxes & fees
25	\$8,539.85
35	\$16,047.90
45	\$19,893.43
55	\$21,285.65
65	\$18,034.29
75	\$12,011.61
85+	\$9,318.05

Per Capita Public Transfers Received

Age	Medicare	Social Security	Medicaid
25	\$272.02	\$112.06	\$1,189.63
35	\$328.84	\$280.15	\$991.41
45	\$467.93	\$502.78	\$1,231.28
55	\$804.30	\$1,176.26	\$1,284.13
65	\$3,865.35	\$8,926.21	\$884.58
75	\$11,059.77	\$14,034.50	\$1,521.79
85+	\$17,223.42	\$14,420.24	\$7,115.31

Source: Gretchen Donehower, National Transfer Accounts Project (www.ntaccounts.org). Data from 2011.



Social Security recipients

2015: 59 million

2025: 78 million

2040: Nearly 100 million

Source: Congressional Budget Office

Social Security, according to the CBO. Expenditures for those two areas together already exceed all other noninterest spending, and that gap is likely to grow. In particular, expenditures on social insurance for retirees are predicted to more than double by 2040, according to CBO projections.

What is likely to happen varies by program.

Social Security and Medicare

The two biggest public programs that support the elderly are Social Security and Medicare. In 2014, Social Security outlays totaled about 5 percent of gross domestic product (GDP), and Medicare spending equaled about 3.5 percent of GDP. The Social Security Administration projects that Social Security expenditures will rise to 6 percent of GDP in 2034 and that Medicare costs will increase to 5.4 percent of GDP.

Increases in the old-age dependency ratio—more retirees per worker—significantly affect the sustainability of these programs because benefits to current retirees are largely financed by payroll taxes paid by current workers. If benefits are maintained at their current levels, the projected increases in the old-age dependency ratio will put a big dent in the paychecks of our children and grandchildren.

This is not a new issue. Congress has known of this problem for decades and created trust funds to ease the tax burden on future workers. However, Social Security Administration projections indicate that the funds are too small. Those projections show that the Medicare Trust Fund will be depleted in 2030 and the Social Security Trust Fund will be exhausted in 2034. Once the trust funds are gone, under current law, payments to retirees would have to fall suddenly and sharply. (See chart 4.)

Medicare in some ways presents a more urgent and complex challenge than does Social Security, Kopecky notes. Medicare outlays are projected to grow more rapidly than Social Security spending, mainly because health care costs are rising faster than inflation, although the rate of

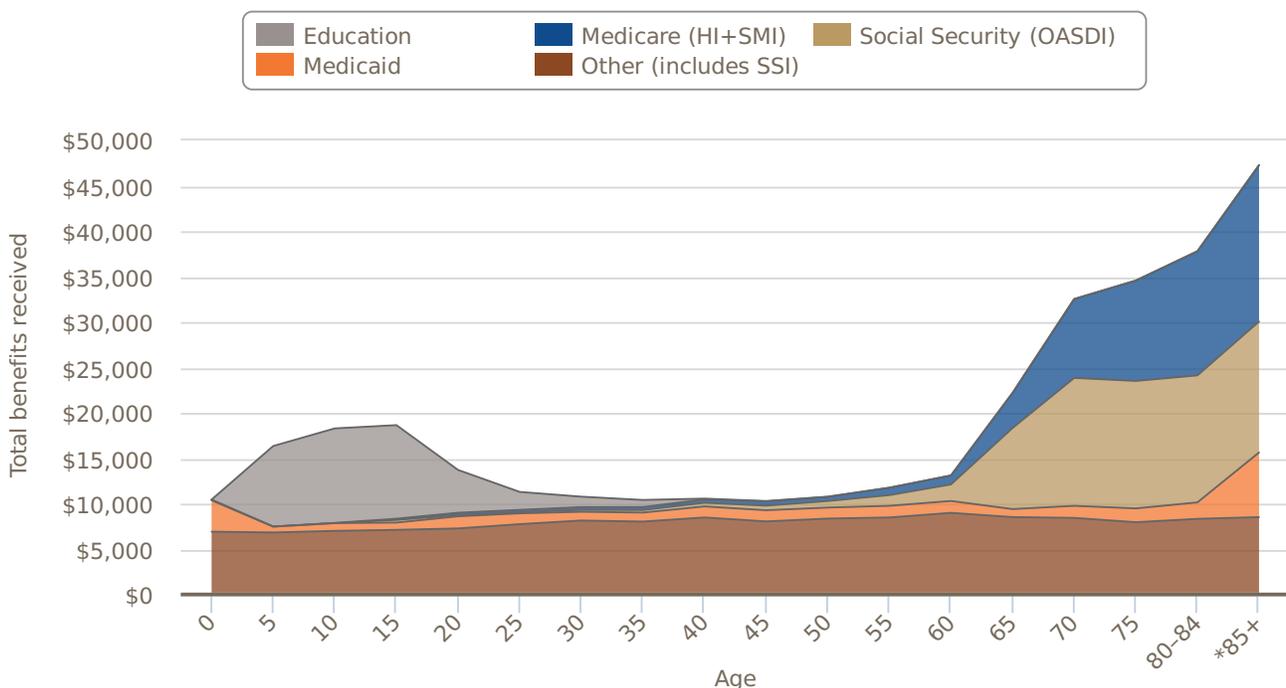
increase has slowed in recent years. But because the size of Medicare outlays is so closely tied to health care costs, the growth rate of Medicare spending is more uncertain than that of Social Security.

Medicaid, SSI, and other means-tested benefits for retirees

In means-tested social insurance programs, benefit eligibility depends on a person's financial situation—their current income and wealth, for example. Put simply, the more you already have, the less you get. Medicaid and SSI, the two largest means-tested social insurance programs for retirees, are small compared to Social Security and Medicare. Together, outlays from Medicaid and SSI accounted for about 1 percent of GDP in 2014. These programs are smaller because instead of paying benefits to all retirees, they target those with the greatest financial and medical need.

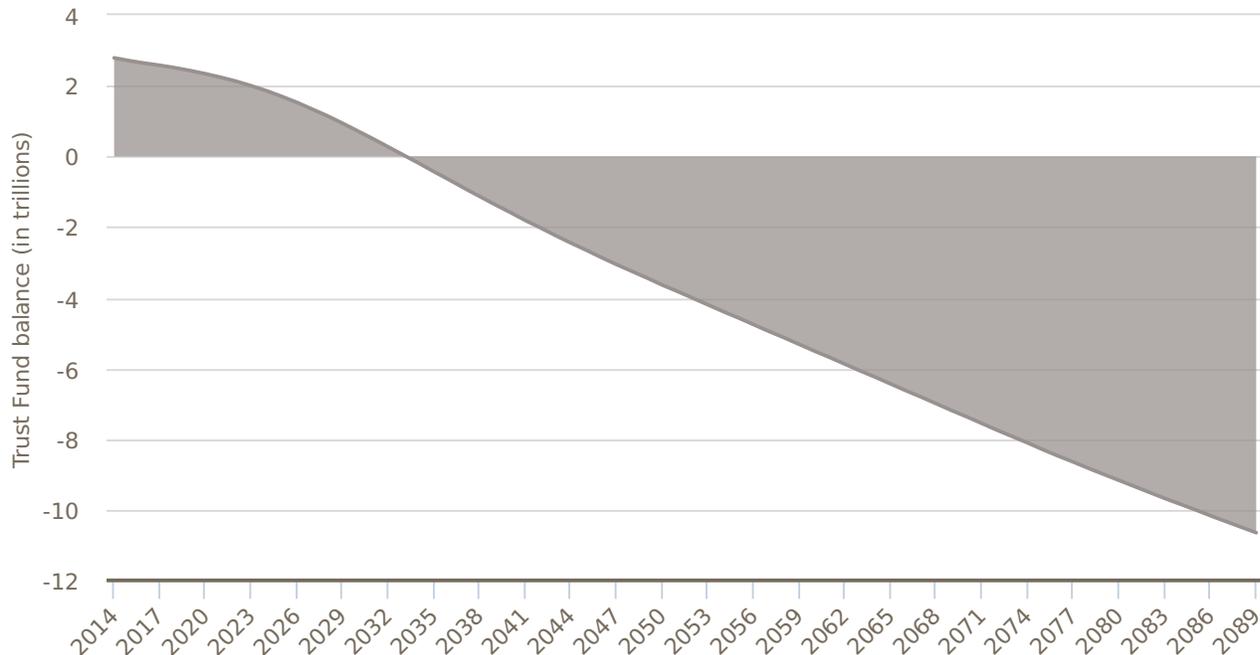
Although Medicaid expenditures on retirees are less than 1 percent of GDP, expenditures per enrollee age 65 and older are large and growing. They were about \$15,000 in 2014—versus about \$4,000 for working-age adults—and are projected to

Chart 3
Per capita public benefits received by age, 2011



*Slope rises dramatically because numbers represent all people 85 and older and not individuals of a single age.
Source: Gretchen Donehower, National Transfer Accounts Project (www.ntaaccounts.org)

Chart 4 Social Security Trust Fund balance



Source: 2015 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Trust Funds

exceed \$23,000 by 2023, according to the Centers for Medicare and Medicaid Services (CMS).

Large costs for older enrollees are fueled by expenditures of the “oldest old” retirees—those age 85 and older—many of whom rely on Medicaid to finance long-term care costs including nursing home stays. As Kopecky notes, among public health care programs, Medicaid is the largest funder of long-term care for the elderly. In 2013, it financed 41 percent of all long-term care expenses, according to CMS, while Medicare covered just 18 percent.

SSI, the Supplementary Security Income program, is run and funded by the federal government. Medicaid is jointly operated and funded by the federal government and the states. These programs rely on revenue from income, payroll, sales, and property taxes, the bulk of which is collected from working-age individuals. (See the infographic.) As the old-age dependency ratio increases, total tax revenues from working-age individuals will decline relative to outlays to retirees from these programs.

How to fix the funding shortfalls today

To get a handle on how daunting the fiscal math is, consider what measures would be required to fix the budget imbalances

immediately. To maintain Social Security benefits at their current levels over the next 75 years, the payroll tax would have to be immediately and permanently increased from its current level of 12.40 percent to 15.02 percent, the Social Security Administration estimates. In that scenario, a person earning \$60,000 a year would pay about \$1,500 more per year in taxes.

Alternatively, to keep taxes unchanged, benefits would have to be immediately slashed by 16.4 percent for all retirees. If that happened, a retiree receiving \$20,000 a year in Social Security payments, roughly the average for someone who retired in 2014, would see a \$3,280 cut in annual benefits. To maintain Medicare benefits at their current levels, the payroll tax rate would have to be immediately increased by 0.26 percentage points or, to keep taxes unchanged, benefits would have to be immediately reduced by 15 percent.

For fiscal policymakers, it would surely be very difficult to enact these drastic measures.

Unlike Social Security and Medicare, Medicaid and SSI are not funded by a dedicated revenue source and trust fund. Thus, the solvency of these programs is not an issue. Moreover, growth in Medicaid spending on long-term care has been somewhat mitigated by efforts to steer the elderly away

from nursing home care in favor of less costly alternatives such as home care. Still, Medicaid and SSI combined constitute a significant portion of the federal budget, and Medicaid makes up a large portion of the states' budgets, Kopecky and Braun point out. In 2013, for example, these two programs accounted for 10 percent of federal spending and 19 percent of all state spending.

The costs of delaying reform

Digging out of this fiscal hole is a thorny political challenge. It is very difficult to legislate large increases in payroll or income taxes. And higher taxes have a depressing effect on the economy. Also, it is difficult to push through legislation that reduces benefits for retirees, who tend to be politically active. So there is a tendency for policymakers to delay taking either action. But the longer policymakers wait to address the fiscal challenges of aging, the more intractable the problems become, Braun observes, citing the case of Japan. (See the sidebar "Along with America, the World Is Graying.")

It's clear we need reform. So what do economists say about what potentially good reforms might look like?

An economic perspective on policy reforms

Social Security, Medicare, Medicaid, and SSI insure the elderly against various risks. Social Security furnishes a steady income to help insulate people from poverty very late in life. The size of one's Social Security benefits depends on one's earnings history. SSI provides additional transfers to elderly individuals whose Social Security benefits are especially low.

Of course, the elderly also face a high risk of large health care expenses. Medicare provides health insurance to all Americans 65 and older, but it does not cover long-term care expenses. That matters, as the prospect of long-term care is one of the two largest financial risks individuals face over their lifetime, second only to the risk of low lifetime earnings, according to a 2014 research paper by the Atlanta Fed's Kopecky and Tatyana Koreshkova of Concordia University.

Nursing home stays are particularly expensive. In 2010, it cost an average of \$75,000 to spend a year in a semi-private room. Some seniors are fairly likely to face these costs. The average 50-year-old woman has a 38 percent chance of spending more than 100 days in a nursing home, and for the average 50-year-old male, the chance is 20 percent, Rand Corporation economist Michael Hurd and coauthors estimate in a 2014 research paper. Kopecky and Koreshkova report

that 40 percent of those who enter a nursing home will stay for more than a year, 20 percent for more than three years, and 11 percent for more than five years.

Medicaid is the largest public insurer of long-term care. However, because only poorer individuals who meet a means test are covered by Medicaid, most of nursing home expenses are paid for out of pocket, from savings. Kopecky and Koreshkova calculate that savings for anticipated nursing home expenses account for 3.7 percent of private wealth in the U.S. economy, or more than \$1 trillion. That's enough money to purchase the nation's entire stock of cars, pickup trucks, heavy cargo trucks, airplanes, ships, and every other form of transportation equipment.

Relatives are most common caregivers

Given how expensive long-term care can be, it is not surprising that family members provide much of this type of assistance. In fact, unpaid female family members are the most common care providers. As noted, females are also more likely to require long-term care.

Alzheimer's disease and other dementias are among the biggest reasons why people end up needing long-term care. Women and older minorities face heightened risks of dementia, numerous studies have found. In fact, women account for nearly two-thirds of Americans with Alzheimer's, according to the Alzheimer's Foundation. Taken together, these results suggest that minority females are most likely to require formal long-term care. (See the sidebar "Dementia Takes Large and Growing Economic Toll.")

Reforming social insurance for retirees

Though retirees face significant risks, it doesn't necessarily mean the government has a special role to insure against these risks, Kopecky and Braun point out. Americans, after all, have many years to prepare for retirement, and on average retirees have substantial savings. Private insurance markets sell a range of products that are specifically designed for retirees. Private annuities and reverse mortgages offer stable cash flows through the end of life, and private insurance markets also offer long-term care insurance.

Nevertheless, even if they plan well for retirement, some retirees will survive to an old age and find themselves sick, alone, and poor. This sad state may result from the death of a spouse or burdensome long-term care expenses due to dementia. And, again, this risk is particularly significant for

females and minorities. What is special about the people who end up sick, alone, and poor is that they can't cope on their own by returning to work.

So in this sense, there is a special role for social insurance. In a formal analysis in 2016, Braun, Kopecky, and Koreshkova found that even though Medicaid, SSI, and other means-tested social insurance programs for retirees are relatively small, they provide valuable protections against these risks: households with both low and high lifetime earnings receive benefits, and means testing holds down the public costs of providing these benefits. Indeed, this research suggests that the current scale of these means-tested programs for retirees may be too small.

And even if the government were to fix the fiscal imbalances in the U.S. Social Security system now, its pay-as-you-go structure—current workers fund the benefits of current retirees—means that workers in future years will face larger payroll taxes to cover benefits of retirees.

Perhaps, then, it is time to consider an alternative way to provide public pensions, Braun and Kopecky suggest. One reform that has received considerable attention is a defined-contribution public pension, something like a 401(k) plan. Under this system, part of a worker's payroll taxes are used to fund a mandatory retirement savings account that belongs to an individual worker.

Defined-contribution public pensions have several advantages, the Atlanta Fed economists note. They work well when the old-age dependency ratio is high—the situation the United States is facing—because workers are saving for their own retirement. There is also less political uncertainty about the eventual size of benefits because the accounts are in workers' names, so there is not a shrinking pool of money that must be divvied up among all retirees. Contributions to these savings accounts also offer individuals a higher rate of return than their contributions to a pay-as-you-go social security system. Earlier research by economists including Atlanta Fed research director Dave Altig found that this type of social security reform enhances general social welfare.

The biggest hurdle would be in managing the transition from the current plan to a defined-contribution public pension system. In particular, how do you grandfather in current retirees? Economists have suggested strategies for dealing with this issue. One approach proposed by Juan Carlos Conesa of the Universitat Autònoma de Barcelona and Carlos Garriga, an economist at the Federal Reserve Bank of St. Louis, is to increase government debt to fund a couple of costly measures:

to give those who are relatively close to retirement a deposit into their account for their previous contributions to Social Security, since they wouldn't be contributing to the savings account for an entire career, and to continue Social Security payments for existing retirees.

In this scenario, citizens at some future date would pay a minimal tax to cover interest on the newly issued government debt. The economists argue that this is good for future citizens because they have the benefit of their own personal retirement savings accounts and avoid high payroll taxes to support retirees in a society with a large old-age dependency ratio.

Other countries have done this. Sweden and a number of Latin American nations have implemented reforms along these lines. A lesson from Latin America: less affluent retirees still need a safety net, say Stephen Kay, a senior economist and director of the Atlanta Fed's Americas Center, and Tapen Sinha, an economist at Instituto Tecnológico de México, who edited the 2008 book *Lessons from Pension Reform in the Americas*.

Means testing Social Security and Medicare

As an alternative to defined-contribution public pension plans, a somewhat less radical but perhaps more contentious solution would be to means test Social Security and Medicare benefits. Some countries, including Australia and the United Kingdom, have adopted means-tested public pension benefits. In those countries, the middle class and the needy continue to receive benefits. But benefits gradually fall with wealth, and the most affluent receive few or no benefits. In Australia, for instance, only about half of retirees receive public pensions.

In the United States, the sustainability of Social Security and Medicare is going to receive far more attention as the programs' trust funds dwindle. What specific reforms to make and how to implement them are difficult questions. Yet it is important to begin these discussions now and to take actions soon.

Japan's experience suggests that delaying public pension reforms casts a pall on the economy. The longer we wait, the larger are the tax increases or spending cuts needed to restore balance. And uncertainty about the nature of the eventual reforms makes it difficult for individuals to plan for retirement.

74 MILLION

THE NUMBER OF AMERICANS
OVER AGE 65 BY 2030, AN
85% INCREASE FROM 2010

Source: U.S. Census Bureau



Along with America, the World Is Graying

Much of the world is undergoing a fundamental demographic shift.

Most developed nations, in fact, are graying even faster than America. Among large developed countries, only Russia was younger than the United States in 2012, according to the U.S. Census Bureau. Japan, meanwhile, has aged more—and faster—than any other country.

This demographic wave originated as a global baby boom that started right after World War II. The boom is following its predictable course: it produced lots of children, then a quarter-century later lots of working-age adults, and now lots of elderly people, according to *Population Aging and the Generational Economy: A Global Perspective*, a 2011 book edited by Ronald Lee, director for the Center for the Economics and Demography of Aging at the University of California-Berkeley, and Andrew Mason, professor of economics at the University of Hawaii at Manoa.

A surge in fertility meant the portion of children in the world's population swelled to a peak in 1975, Lee and Mason write. Then the second wave began in the mid-1970s as the huge baby-boom cohort entered adulthood, initiating rapid growth in the working-age population.

Rising numbers of workers, supplemented in some countries by greater numbers of women entering the workforce, fueled economic growth. Some economists and demographers even labeled this phenomenon a “demographic dividend.”

The coming Old World

Now a third demographic phase is beginning: global growth in the older population. Worldwide, the working-age population in 2011 outnumbered those 60 and older by 4 to 1, according to Lee and Mason. By 2050, that ratio is projected to drop to 2 to 1.

“This third phase of the global age transition is without precedent,” they write. “Populations in the future will be much older than ever before in human experience.”

This phase will present fiscal and economic challenges. Older people are net consumers—they consume more than they produce—and compared to working-age adults, more of the consumption of the elderly is publicly funded. In the United States, for example, about 35 percent of the consumption of 75- to 79-year-olds in 2011 was financed publicly, versus

roughly 20 percent of the consumption of those aged 40 to 44, according to the National Transfer Accounts, a database maintained by researchers at the University of California-Berkeley and the East-West Center in Hawaii.

So far, Japan offers a cautionary example

No country has aged as much or as quickly as Japan. The share of Japanese people 65 and older, nearly 25 percent, is already larger than the portion of Americans who will be elderly in 2050, the Census Bureau reports. (See chart 5.)

Japan offers a cautionary tale in grappling with the fiscal challenges of a rapidly aging population. As recently as 1990, Japan was the youngest of the “Group of 6” large, developed countries, Atlanta Fed economist Anton Braun and coauthor Douglas Joines of the University of Southern California write in a 2015 research paper. But the graying of the baby-boomer generation, combined with low fertility rates—the same forces changing the makeup of the U.S. population—produced rapid aging. From 1990 to 2005, the share of Japan's population 65 and older rose from 12 percent to 20 percent.

Along with sluggish economic growth since 1990, the rapid aging of the Japanese population has been associated with a dramatic increase in government debt, Braun and Joines found. Japan's net public sector debt increased from 8 percent of its GDP in 1990 to 150 percent of GDP in 2012. Meanwhile, spending on social insurance nearly doubled to 31.4 percent of government general account expenditures in 2013.

The accumulating debt is worrisome, Braun and Joines point out, because the government will spend even more on public pensions and medical care as the population continues to age. In other words, the fiscal challenges will only intensify.

A key measure of a country's capacity to support pay-as-you-go programs for the elderly is the so-called old-age dependency ratio—the proportion of the population 65 and older compared to those 18–64. Japan's dependency ratio will peak around 2080 at some 88 elderly residents for every 100 working-age people, Braun and Joines note.

By comparison, the United States' old-age dependency ratio is expected to crest at about 37 elderly residents for every 100 working-age people in 2040, according to the Census Bureau.

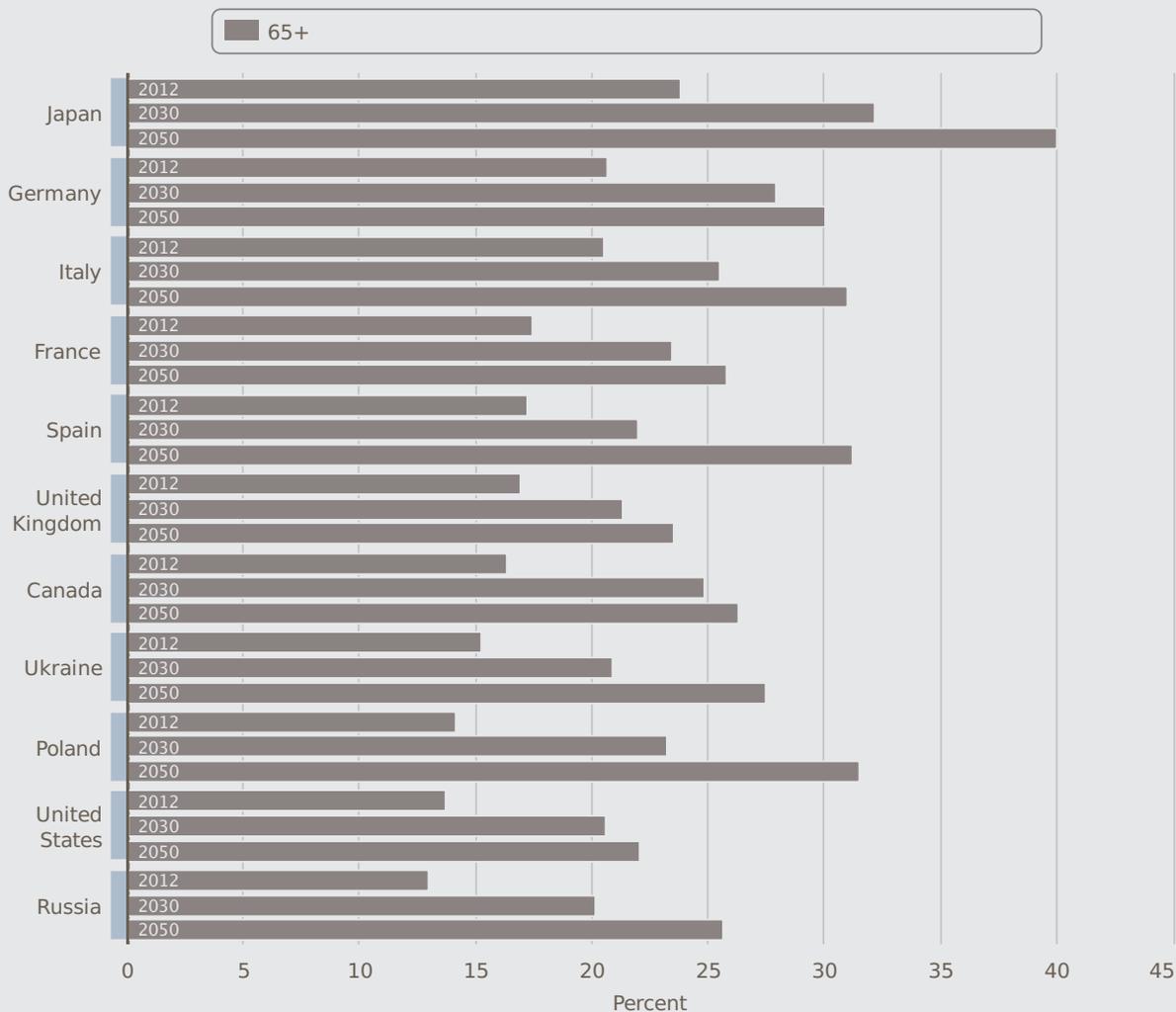
Along with America, the World Is Graying

Repairing Japan's fiscal imbalances will require both higher taxes and cuts in government spending, according to Braun and Joines. "We find that Japan faces a severe fiscal crisis if remedial action is not undertaken soon," they wrote.

In Braun's view, the main lesson from Japan's experience: the longer policymakers wait to take action, the worse the situation becomes, and thus the more severe the actions they must take.

For more information on the economic situation in Japan, listen to a podcast with Braun and Professor Masaaki Shirakawa, former governor of the Bank of Japan, at frbatlanta.org/podcasts/transcripts/economy-matters/160321-the-graying-of-the-japanese-economy.

Chart 5
Percent 65 and over in selected developed countries: 2012, 2030, and 2050



Source: U.S. Census Bureau, 2012 Population Estimates, 2012 National Projections, and International Data Base

Dementia Takes Large and Growing Economic Toll

Dementia directly costs the U.S. economy upwards of \$100 billion a year, more than cancer or heart disease. Add the cost of “informal care,” including earnings people forgo to look after suffering relatives, and the overall cost was an estimated \$159 billion to \$215 billion in 2010, according to research by Michael Hurd, an economist and director of the RAND Corporation’s Center for the Study of Aging.

Dementia is strongly age-related, so as the country’s population gets older, more and more people will develop the disease. Consequently, annual costs to the economy could exceed \$500 billion by 2040, Hurd and other economists at RAND predict. Hurd was lead author of a groundbreaking 2013 study on the monetary cost of dementia in the United States. He defines dementia as a “serious loss of cognitive ability in a previously unimpaired person, beyond what might be expected from normal aging, leading to disability.”

Dementia is a major driver of health care costs not just in the United States but throughout the developed world, according to Sube Banerjee, director of the Centre for Dementia Studies at the University of Sussex in the United Kingdom. “Dementia is the highest-ticket health and social care item that we have, making up 60 percent of long-term care spending according to some estimates,” Banerjee wrote in the November 2012 edition of *Archives of Medical Research*.

Incidence of dementia rises with age

In the United States, dementia afflicts about 10 percent of people 75 to 79 years old, 20 percent of 80- to 84-year-olds, 35 percent of those aged 85 to 89, and more than 50 percent of people 90 and older, Hurd’s research shows. By 2050, the portion of the U.S. population 85 and older will rise from 2 percent to 5 percent, according to the U.S. Census Bureau. The share of Americans 65 and older is projected to climb from 15 percent now to nearly 25 percent by 2060.

So if the rates of developing dementia hold steady, the ranks of sufferers will grow significantly.

Hurd wrote the 2013 paper along with four other economists and scientists. They arrived at a monetary cost of dementia that includes out-of-pocket spending by households, Medicare and Medicaid spending, and private insurance expenditures.

Most dementia costs go toward institutional and home-based long-term care, and not medical services, as dementia sufferers typically require round-the-clock attention, Hurd said during an October 2015 presentation at the Federal Reserve Bank of Atlanta.

Hurd and his collaborators pegged the total, direct monetary cost of dementia at about \$109 billion for the year 2010. Add the estimated costs for informal caregivers’ time—or, alternatively, the cost to replace that time with hours of formal care in the marketplace—and the estimated 2010 cost for dementia totaled \$159 billion to \$215 billion, Hurd and his collaborators calculated. By 2020, the direct monetary cost will rise to \$129 billion, while the wider cost will reach roughly \$189 billion to \$255 billion.

As much as 84 percent of dementia-related costs are attributable to long-term services and support, much of which is supplied by relatives and friends of dementia sufferers, according to an October 2015 RAND study. Overall, informal caregivers, mainly relatives and mostly daughters, provided 83 percent of the hours of care for the elderly. The percentage of informal care hours was a little lower for adults who likely had dementia, the RAND researchers found.

“Short of major technological breakthroughs, the need for care is only going to rise in the future as the population grows older,” Hurd and his colleagues wrote in the October 2015 issue of the journal *Health Affairs*. “Future efforts to reform the U.S. system of long-term services and supports should include a focus on policies to supplement and support informal caregivers.”

The need to care for dementia patients will contribute to the expected dramatic growth in demand for personal care and home health aides. The U.S. Bureau of Labor Statistics (BLS) projects that over the next decade, there will be more new jobs for personal care aides than for any occupation in the economy. A similar occupation, home health aide, is projected to add the third most jobs. “In both occupations,” the BLS reports, “aides assist people, primarily the elderly, living in their own homes or in large care communities.” Watch a video of Hurd discussing his work at frbatlanta.org/news/paforum/2015/1021-hurd.aspx.

“The need for care is only going to rise in the future as the population grows older.”

