Supporting the Oldest Old: The Role of Social Insurance, Pensions and Financial Products

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Abstract

Longevity risk—the risk of outliving one's retirement savings—is probably the greatest risk facing current and future retirees in the United States. As life expectancy increases, government programs, private pensions and various financial products will all be needed to provide retirement income over ever-longer periods of retirement. This article focuses on the optimal mix of social insurance, pensions and financial products that should be used to provide retirement income to the oldest old, here defined as those 90 and older. To be sure, Social Security and Supplemental Security Income (SSI) are already designed to provide modest, inflation-adjusted retirement benefits to all retirees. On the other hand, pensions and other forms of retirement savings are often dissipated long before people reach the esteemed status of oldest old. One approach for enhancing the retirement incomes of the oldest old would be to expand Social Security and SSI. Another approach would be to strengthen the protections provided by pensions and other forms of retirement savings. In particular, the private sector could be encouraged to sell more annuities and other lifetime income products, and, perhaps, the government should also get into the business of selling annuities. These are the kinds of solutions needed to ensure the oldest old face their final years with adequate economic resources.

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Supporting the Oldest Old: The Role of Social Insurance, Pensions and Financial Products*

Jonathan Barry Forman**

I. INTRODUCTION

Longevity risk—the risk of outliving one's retirement savings—is probably the greatest risk facing current and future retirees in the United States. As life expectancy increases, government programs, private pensions and various financial products will all be needed to provide retirement income over ever-longer periods of retirement. This article focuses on the optimal mix of social insurance, pensions and financial products that should be used to provide retirement income to the oldest old, here defined as those 90 and older (90+).[1]

Social Security and Supplemental Security Income (SSI) are federal programs that provide inflation-adjusted retirement income to the elderly. Traditional pensions and defined contribution plans (especially 401(k) plans and individual retirement accounts) also provide retirement income to many retirees, although these resources are often dissipated long before people reach the esteemed status of oldest old. Traditional lifetime annuities offer another

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[1] The term "oldest old" is alternatively defined as people age 85 and older (85+) or as people age 90 and older (90+). See, e.g., He and Muenchrath, "90+ in the United States," 1 side bar "Why 90+?".

approach for providing retirement income, and longevity insurance—for example, buying a *deferred annuity* at age 65 that starts making annual payments only if the annuitant lives past age 85—can also help. Variable annuities with guaranteed lifetime withdrawal benefits, treasury inflation-protected securities (TIPS) and other financial products can also help provide retirement income for the oldest old.

One approach for enhancing the retirement incomes of the oldest old would be to expand Social Security, SSI and the other social insurance programs. Another approach would be to strengthen the protections provided by pensions and annuities. In particular, the private sector should be encouraged to sell more annuities and other lifetime income products, and, perhaps, the government should also sell annuities. Solutions like these would help ensure the oldest old face their final years with adequate economic resources.

II. Background on the Oldest Old

A. Basic Demographics of the Oldest Old (90+)

According to the National Center for Health Statistics, life expectancy at age 65 in the United States increased from 11.6 years in 1909–11 to 18.8 years in 2008.[2] See table 1. People at very old ages are also expected to live longer. For example, those age 80 can now expect to live, on average, another 8.9 years (versus 5.25 years in 1909–11), those age 90 can now expect to live another 4.5 years (versus 3.03 years in 1909–11), and those age 100 can now expect to live another 2.2 years (versus 1.85 years in 1909–11).

[2] Arias, "United States Life Tables," 52, table 21.

Table 1. Life expectancy by age, 1909–11, 1949–51 and 2008

	Average number of years of life remaining		
Age	1909–11	1949–51	2008
0	51.49	68.07	78.1
65	11.60	13.83	18.8
70	9.11	10.92	15.2
75	6.99	8.40	11.8
80	5.25	6.34	8.9
85	4.00	4.69	6.4
90	3.03	3.44	4.5
95	2.35	2.54	3.1
100	1.85	1.92	2.2

Source: Arias, "United States Life Tables," 52, table 21.

These prolonged life expectancies at older ages have led to the growing size of the oldest segments of the population. For example, out of a total U.S. population of 310 million in 2010, 40 million (12.9 percent) are 65 or older (65+), and as the total population is expected to grow to 439 million in 2050, the 65+ population will more than double, to 88.5 million (20.2 percent).[3] Pertinent here, the 90+ population increased from 720,000 in 1980 to 1.9 million in 2010[4] and is projected to quadruple by 2050, to more than 8.7 million.[5]

The oldest old also account for an increasing share of the older population. For example, those 90+ accounted for 2.8 percent of the older population (65+) in 1980 and 4.7 percent of the older population in 2010.[6] They are projected to account for 9.9 percent of the older population

[3] Vincent and Velkoff, "The Next Four Decades," 10, table A-1, and author's computations.
[4] He and Muenchrath, "90+ in the United States," 2.
[5] Vincent and Velkoff, "The Next Four Decades," 10, table A-1. Similarly, the number of Americans age 85 and over (85+) is projected to increase from 5.7 million in 2011 to 14.1 million in 2040. See Administration on Aging (AoA), "A Profile of Older Americans: 2012," 1.
[6] He and Muenchrath, "90+ in the United States," 2.

in 2050.[7] All in all, in 2050, about 20 percent of the total U.S. population will be elderly (65+), and one-tenth of the elderly will be 90+ (that is, 2 percent of the total population).[8]

The oldest old (1,761,770 in 2006–08) are overwhelmingly white (88.1 percent) and female (74.1 percent).[9] Most are married (15.8 percent) or widowed (75.1 percent).[10] Most are high school graduates or beyond (61.4 percent).[11] Also, almost all are covered by health insurance; for example, 99.5 percent of the oldest old were covered by health insurance in 2008, with 98.8 percent getting Medicare and 28 percent also receiving Medicaid.[12]

The oldest old had a median annual income of $14,760 in 2006–08 (in 2008 inflation-adjusted dollars), although the men had a significantly higher median annual income ($20,133) than the women ($13,580).[13] Also, 14.5 percent (198,090) of the oldest old were poor in 2006–08, 9.6 percent of the men and 16.5 percent of the women.[14] The poverty rate also increases with age; for example, just 9.6 percent of people age 65 to 89 were poor in 2006–08.[15]

Disability and institutionalization generally increase with age. For example, just 1.5 million (3.6 percent) of the 65+ population were institutionalized in 2011, but that rate increases dramatically with age, ranging from 1 percent for those age 65–74, to 3 percent for individuals age 75–84, and to 11 percent for those 85+.[16] As for the oldest old (90+), the vast majority (84.7 percent in 2006–08) reported having at least one disability-type limitation (difficulties in hearing,

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[7] Ibid.
[8] Ibid.
[9] Ibid., 24, table. A-1 (0.8813437 = 1,552,725 ÷ 1,761,770; 0.7405138 = 1,304,615 ÷ 1,761,770).
[10] Ibid.
[11] Ibid., 8–9, and 24, table A-1.
[12] Ibid., 18.
[13] Ibid., 24, table A-1.
[14] Ibid.
[15] Ibid., 11.
[16] AoA, “A Profile of Older Americans,” 5.

seeing, concentrating, remembering or making decisions, walking or climbing stairs, dressing or bathing, and doing errands alone).[17] And 22.7 percent of the oldest old were institutionalized in facilities such as nursing homes (about 15 percent of men and 25 percent of women).[18]

The 2010 Census counted 53,364 centenarians (people age 100 and over, 100+),[19] and the number of centenarians is projected to grow to 601,000 in 2050.[20] Over half (62.5 percent) of the 53,364 centenarians in the United States in 2010 were age 100 or 101, and 92 percent were 100 to 104.[21] As with the oldest old, centenarians are overwhelmingly white (82.5 percent)[22] and female (82.8 percent).[23] Also of note, 35.2 percent of centenarian females and 18.2 percent of centenarian males lived in nursing homes.[24] There were also 330 supercentenarians (people age 110 and over) in the United States in 2010.[25]

Finally, geographic patterns also tend to vary with age.[26] In particular, there is a tendency toward living in urban areas as one ages. For example, 85.7 percent of centenarians lived in urban areas in 2010, compared with 84.2 percent of those in their 90s (nonagenarians), 81.5 percent of those in their 80s, and 76.6 percent of those in their 70s.[27] Also, while the states with the largest total populations generally also have the highest number of oldest old, the Northeast and Midwest had higher concentrations of nonagenarians and centenarians than the South and

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[17] He and Muenchrath, "90+ in the United States," 15–16.
[18] Ibid., 14.
[19] Meyer, "Centenarians: 2010," 1. Also, see, ibid., 1, figure 1; 13. There were 1.73 centenarians per 10,000 people in the United States in 2010, up from 1.42 per 10,000 in 1980.
[20] U.S. Census Bureau, "Older Americans Month: May 2011."
[21] Meyer, "Centenarians: 2010," 2.
[22] Ibid., 3.
[23] Ibid., 2.
[24] Ibid., 5, figure 4.
[25] Ibid., 2.
[26] Ibid., 9. Also, see Chang et al., "State-Specific Healthy Life Expectancy." Life expectancy at age 65 also varies from state to state.
[27] Meyer, "Centenarians: 2010," 9.

West.[28] For example, while nonagenarians made up 0.59 percent of the national population in 2010 (59 per 10,000 population), nonagenarians made up 0.74 percent of the population in the Northeast and 0.67 percent in the Midwest, compared to just 0.51 percent in the South and 0.53 percent in the West.[29] Not surprisingly, California, New York and Florida had the most nonagenarians, while Alaska and Wyoming had the fewest; meanwhile, North Dakota had the largest concentration of nonagenarians (0.93 percent) and Alaska had the lowest (0.20 percent).[30]

B. Sources of Income of the Oldest Old (90+)

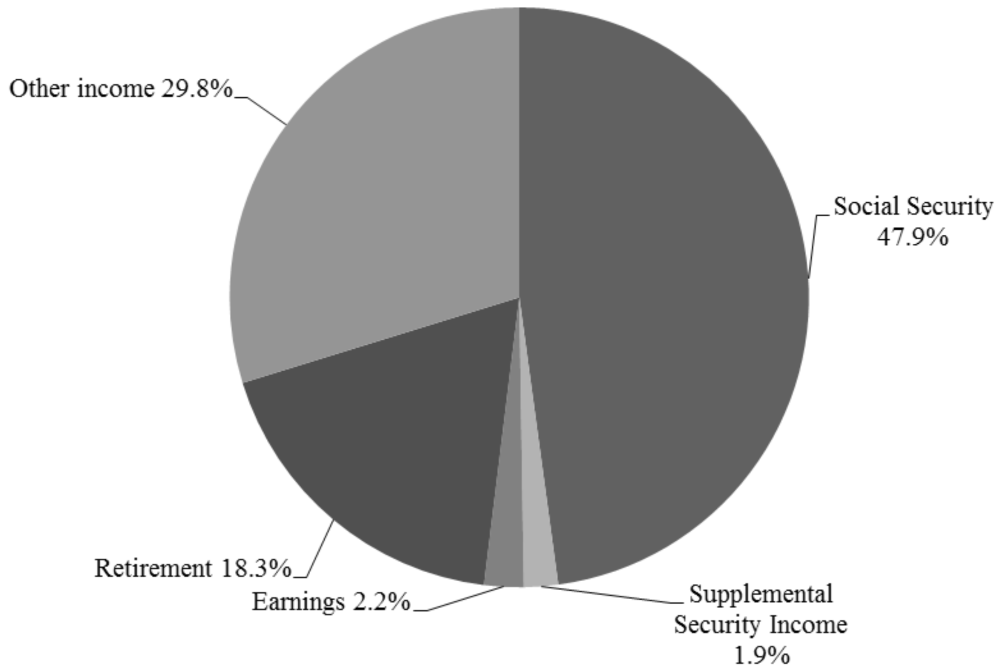
Social Security is the most common source of income for households 65 or older. For example, in 2010, 86.3 percent of households 65 or older received Social Security benefits.[31] Moreover, Social Security provided more than half of total income for 53.1 percent of age beneficiary couples and 74.1 percent of age single beneficiaries.[32] Only 39.7 percent of households received retirement benefits from sources other than Social Security, and only 51.9 percent received income from other assets.[33]

In 2006–08, 92.3 percent of the oldest old received income from the Social Security Administration, with 86.2 percent receiving only Social Security income, 3 percent collecting only Supplemental Security Income and 3.1 percent receiving both.[34] All in all, Social Security provides almost half (47.9 percent in 2006–08) of personal income for the oldest old.[35] See

[28] Ibid., 8, table 2; 9.
[29] Ibid., 8, table 2.
[30] Ibid.
[31] Social Security Administration (SSA), "Income of the Aged Chartbook, 2010," 8. See also Banerjee, "Income Composition, Income Trends," and Butrica and Waid, "What Are the Retirement Prospects."
[32] SSA, "Income of the Aged Chartbook, 2010," 9.
[33] Ibid., 8.
[34] He and Muenchrath, "90+ in the United States," 9–10.
[35] Ibid., 10, figure 7.

figure 1. Pension and retirement income accounted for another 18.3 percent, earnings for 2.2 percent, SSI for 1.9 percent and other income (e.g., interest, dividends, net rental or royalty income, welfare and all other income) accounted for 29.8 percent.[36]

Figure 1. Income sources of population ages 90 and over, 2006–08



Source: He and Muenchrath, "90+ in the United States," 10, figure 7.

The sources of income tend to change as individuals age. In particular, labor income declines as more and more workers retire. For example, according to one recent analysis of data from the National Institute on Aging's Health and Retirement Study (HRS), earnings provided 11.9 percent of the income of those age 65–74 in 2009, but earnings provided just 3.5 percent of the income of those age 75–84, and just 0.5 percent of the income of those age 85+.[37] Pension

[36] Ibid.
[37] See, e.g., Banerjee, "Income Composition, Income Trends," 6, figure 1. Also, ibid., 7. Note that the labor, Social Security and pension income data in the National Institute on Aging's Health and Retirement Study can differ significantly from that reported in the Census Bureau and Bureau of Labor Statistics' Current Population Survey.

and annuity income initially increased from 17.1 percent of income for those age 65–74 to 18.4 percent for those age 75–84, before falling to just 15.3 percent for those age 85+.[38] On the other hand, Social Security benefits went from 53.9 percent of income for those age 65–74, to 60.6 percent of income for those age 75–84, and to 65.7 percent for those age 85+.[39] That analysis of HRS data also considered the relationship between the income and expenditures of elderly households. In 2009, for example, 37.2 percent of those age 65–74 had household incomes that were less than their expenditures, increasing to 43.9 percent for those age 75–84 and to 46.3 percent for those age 85+.[40]

C. So Who Lives to be 90+?

A slightly different way of thinking about the oldest old is to ask which Americans live long enough to reach the oldest old (90+) age group. The answer to this question is especially important for making policy recommendations.

As noted, the oldest old are overwhelmingly white (88.1 percent in 2006–08) and female (74.1 percent in 2006–08).[41] On average, those who survive to 90 are more educated and had higher incomes than their deceased peers.[42] In that regard, it is well established that people with

[38] Ibid., 6, table 1.
[39] Ibid. No doubt, it helps immeasurably that Social Security benefits are indexed for inflation. See note 49 and accompanying text.
[40] Banerjee, "Income Composition, Income Trends," 9.
[41] See note 9 and accompanying text.
[42] See, e.g., Congressional Budget Office (CBO), "Growing Disparities in Life Expectancy"; Fletcher, Michael A., "Research Ties Economic Inequality to Gap in Life Expectancy," *Washington Post*, March 10, 2013, http://articles.washingtonpost.com/2013-03-10/business/37605505_1_life-expectancy-eligibility-age-retirement-age.; and Meara, Richards and Cutler, "The Gap Gets Bigger," 350. They find that virtually all recent gains in life expectancy occurred among highly educated groups.

higher incomes tend to live longer than people with lower incomes.[43] The oldest old are also more likely to have been married than their peers,[44] and they also had more pension and nonpension savings and wealth.[45]

III. An Overview of Mechanisms to Support the Oldest Old

This part explains the basic features of the current mechanisms commonly used to support the oldest old, including social insurance, pensions and various financial products.

A. Social Insurance

1. *Social Security*

Social Security provides monthly cash benefits to retirees and their families.[46] A worker builds Social Security protection by working in employment covered by Social Security and paying the applicable payroll taxes. At retirement, disability or death, monthly benefits are paid to insured workers and to their eligible dependents and survivors. While "full retirement age" was 65, it is currently 66, and it is gradually increasing to 67 for workers born after 1959 (who reach that age in or after 2027).[47] In January 2014, Social Security paid retirement benefits to

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[43] See, e.g., Waldron, "Mortality Differentials by Lifetime Earnings Decile," 1; Singh and Siahpush, "Widening Socioeconomic Inequalities," 969; Waldron, "Trends in Mortality Differentials"; and Burtless, Gary, "Life Expectancy and Rising Income Inequality: Why the Connection Matters for Fixing Entitlements," *Real Clear Markets* (blog), October 23, 2012, http://www.brookings.edu/research/opinions/2012/10/23-inequality-life-expectancy-burtless.
[44] See, e.g., Wood, Goesling and Avellar, "The Effects of Marriage on Health," 5–6.
[45] See, e.g., Banerjee, "Income Composition, Income Trends," which discusses the income and assets of the elderly.
[46] See, e.g., Forman, *Making America Work*, 184–90.
[47] SSA, "Retirement Planner: Full Retirement Age," accessed June 17, 2014, http://www.socialsecurity.gov/retire2/retirechart.htm.

about 38 million retired workers, and the average monthly benefit paid to a retired worker was $1,295.84.[48]

Social Security retirement benefits are financed primarily through payroll taxes imposed on individuals working in employment or self-employment that is covered by the Social Security system.[49] Workers over the age of 62 generally are entitled to Social Security retirement benefits if they have worked in covered employment for at least 10 years.[50] Benefits are based on a measure of the worker's earnings history in covered employment.[51]

The benefit formula is highly progressive,[52] and, as a result, the Social Security retirement system favors workers with low lifetime earnings relative to workers with higher

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[48] SSA, "Monthly Statistical Snapshot, January 2014," released February 2014, http://www.ssa.gov/policy/docs/quickfacts/stat_snapshot/2014-01.html, table 2. Also, see SSA, "SSI Federal Payment Amounts for 2014," accessed June 17, 2014, http://www.ssa.gov/oact/cola/SSI.html. The means-tested Supplemental Security Income program provides monthly cash benefits to certain low-income elderly, disabled or blind Americans. In 2014, the maximum federal benefit for a single individual is $721 per month, and the maximum for a couple is $1,082 per month.
And see SSA, "Monthly Statistical Snapshot, January 2014," table 3. In January 2014, over 2 million elderly Americans received SSI benefits from the federal government, and their average monthly benefit was $429.64.

[49] See SSA, "2014 Social Security Changes," *Fact Sheet: Social Security*, Social Security Administration, Washington, DC, 2013, http://www.socialsecurity.gov/pressoffice/factsheets/colafacts2014.pdf. For 2014, employees and employers each pay a Social Security retirement tax of 5.3 percent on up to $117,000 of wages, for a combined Old-Age and Survivors Insurance (OASI) rate of 10.6 percent—the lion's share of the total 15.3 percent collected for OASI, Disability Insurance and Medicare. Also, self-employed workers pay an equivalent OASI tax of 10.6 percent on up to $117,000 of net earnings.

[50] 42 United States Code (USC) §§ 402(a), 414(a)(2).

[51] There is also a modest, special minimum benefit intended to provide adequate benefits for long-term low-wage workers ($804 per month in 2013). See SSA, "Current Law Projections: Special Minimum Benefit," accessed June 10, 2013, http://www.socialsecurity.gov/retirementpolicy/projections/special-minimum.html.

[52] See SSA, "Social Security Benefit Amounts," accessed Oct. 30, 2013, http://www.ssa.gov/oact/cola/Benefits.html, and SSA, "Primary Insurance Amount," accessed Oct. 30, 2013, http://www.ssa.gov/oact/cola/piaformula.html. For example, benefits for retired workers are based on a measure of the worker's earnings history in covered employment known as the average indexed monthly earnings (AIME). The starting point for determining the worker's AIME is to determine how much the worker earned each year through age 60. Once those "benefit computation years" and covered earnings for those years have been identified, the worker's earnings are indexed for wage inflation, using the year the worker turns 60 to index the earnings of prior years. The highest 35 years of earnings are selected, and the other years are dropped out. The AIME is then computed as the average earnings for the remaining 35 years (420 months). The AIME is linked by a progressive formula to the monthly retirement benefit payable to the worker at full retirement age, a benefit known as the primary insurance amount (PIA). For a worker turning 62 in 2014, the PIA equals 90 percent of the first $816 of the worker's AIME, plus 32 percent of the AIME over $816 and through $4,917 (if any), plus 15 percent of the AIME over $4,917 (if any).

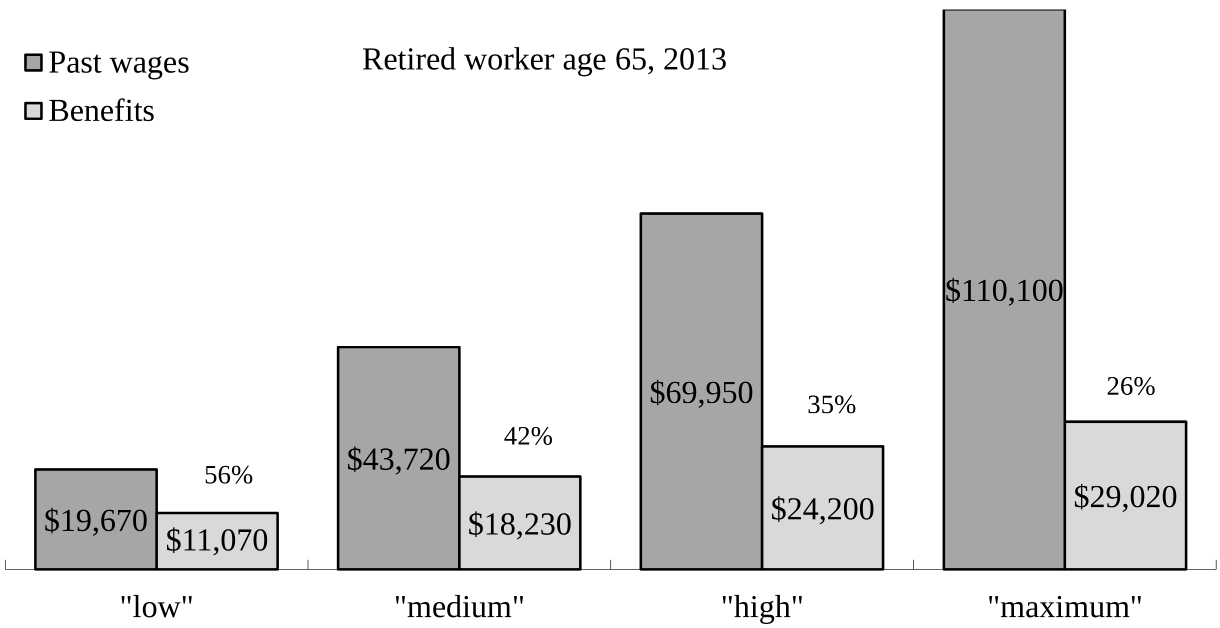
lifetime earnings.[53] For example, figure 2 shows how a worker's initial Social Security retirement benefit compares to her final pre-retirement earnings.[54] These redistributive Social Security retirement benefits play an important role in reducing poverty among the elderly. For example, without Social Security benefits, 43.6 percent of elderly Americans would have fallen below the poverty level in 2011, but with Social Security benefits, just 8.7 percent of elderly Americans were poor that year.[55]

[53] See, e.g., Clingman, Burkhalter and Chaplain, "Money's Worth Ratios." To be sure, the redistributive benefits of the progressive benefit formula are tempered by the relatively longer life expectancies of high earners relative to low earners. See, e.g., CBO, "Is Social Security Progressive?" and Waldron, "Trends in Mortality Differentials." Also see, e.g., Perry, Mark J. "Income Inequality can be Explained by Household Demographics." *AEIdeas* (blog), American Enterprise Institute, Oct. 21, 2011. http://www.aei-ideas.org/2011/10/income-inequality-can-be-explained-by-household-demographics/#print. Because high-earners are more likely to be married than low-earners, high-earners receive a disproportionate share of the Social Security system's rather generous spousal benefits. In 2010 for example, 78.4 percent of households in the top 20 percent of household income were married-couple families, but only 17 percent of households in the bottom 20 percent were married-couple families.

[54] Reno and Walker, "Social Security Benefits, Finances, and Policy Options," 5. See also CBO, "Supplemental Data for CBO's 2012 Long-Term Projections for Social Security," Congressional Budget Office, Washington, DC, Oct. 2, 2012, http://www.cbo.gov/publication/43653, Exhibit 10, which shows how replacement rates vary with pre-retirement earnings; and Brady, Burham and Holden, "The Success of the U.S. Retirement System," 17–20.

[55] Van de Water and Sherman, "Social Security Keeps 21 Million Americans Out of Poverty," which also notes that Social Security benefits lifted almost 14.5 million elderly Americans out of poverty in 2011.
In 2014, the poverty level for a single individual is $11,670, and the poverty level for a married couple is $15,730. See U.S. Department of Health and Human Services, Office of the Secretary, "Annual Update of the HHS Poverty Guidelines."

Figure 2. How benefits compare to earnings (2013 dollars and percentage of final wages)



Source: Reno and Walker, "Social Security Benefits, Finances, and Policy Options," 5.

Benefits may be increased or decreased for several reasons. Most importantly, benefits are indexed each year for inflation as measured by the consumer price index.[56] Also, the "retirement earnings test" can reduce the monthly benefits of individuals who have not yet reached full retirement age but who continue to work after starting to draw Social Security retirement benefits.[57]

In addition, workers who retire before their full retirement age have their benefits actuarially reduced.[58] On the other hand, benefits payable to workers who choose to retire after

[56] See note 49.
[57] 42 USC § 403(f).
[58] 42 USC § 402(q).

their full retirement age are actuarially increased (but only up to age 70).[59] In effect, beneficiaries can buy additional annuity protection by delaying retirement.[60] For example, consider a worker who reached age 62 in January 2014 and earned the maximum taxable amount under Social Security for every year of her working life. If she claims her Social Security benefits at 62, she will get $1,992 per month.[61] If she instead waits until she is 65, she will get $2,431 per month, and if she waits until age 70, she will get $3,425 per month—and she can get even more when we factor in cost-of-living increases and extra earnings.[62]

Spouses, dependents and survivors of the worker may also receive additional monthly benefits, which are based on the worker's benefit.[63] For example, a retirement-age wife or husband of a retired worker is typically entitled to a monthly spousal benefit equal to 50 percent of the worker's benefit.[64] Also, a retirement-age widow or widower of the worker is entitled to a monthly surviving spouse benefit equal to 100 percent of the worker's benefit.[65] In effect, the Social Security system provides married workers with a joint and two-thirds survivor annuity.[66]

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[59] 42 USC § 402(w).

[60] See, e.g., Tacchino, Littell and Schobel, "A Decision Framework for Optimizing the Social Security Claiming Age," 40; Webb, "Making Your Nest Egg Last a Lifetime"; Kotlikoff, Laurence, "Inside Social Security's Obscure Incentive to Keep Americans Working," *The Exchange* (blog), Feb. 4, 2013, http://finance.yahoo.com/blogs/the-exchange/inside-social-security-obscure-incentive-keep-americans-working-224727054.html; Tergesen, Ann, "How to Make Your Nest Egg Last Longer: When it Comes Time to Tap Savings, Use the Tax Code to Your Advantage," *Wall Street Journal*, Dec. 19, 2011, http://online.wsj.com/article/SB10001424052970203802204577066164082847438.html; and Moeller, Phillip, "How Delaying Retirement Can Help You: Deferring Retirement by Five Years can Easily Raise Monthly Retirement Income by 40 Percent," *The Best Life: Success and Happiness in Older Age* (blog), *U.S. News & World Report Money*, April 9, 2012, http://money.usnews.com/money/blogs/the-best-life/2012/04/09/how-delaying-retirement-can-help-you.

[61] SSA, "Workers with Maximum-Taxable Earnings," accessed Oct. 30, 2013, http://www.ssa.gov/oact/COLA/examplemax.html.

[62] Ibid.; see notes 49 and 59 and accompanying text.

[63] 42 USC §§ 402(b) wife, (c) husband, (d) child, (e) widow, (f) widower, (g) mother and father, and (h) parents.

[64] 42 USC § 402(b)(2).

[65] 42 USC §§ 402(e), (f).

[66] More specifically, while both the retired worker and spouse are alive, the retired worker will receive a worker's benefit (based on the worker's primary insurance amount), the spouse will receive a spousal benefit equal to 50 percent of the worker's benefit, and together they will receive a benefit that is 150 percent of the worker's benefit. If

2. *Supplemental Security Income (SSI)*

In addition, the means-tested Supplemental Security Income program provides monthly cash benefits to certain low-income elderly, disabled or blind Americans. In 2014, the maximum federal benefit for a single individual is $721 per month, and the maximum for a couple is $1,082 per month.[67] In January 2014, over 2 million elderly Americans received SSI benefits from the federal government, and the average monthly benefit was $429.64.[68]

3. *Medicare*

The Medicare program provides nearly universal coverage for elderly Americans (and for certain disabled individuals).[69] In 2012, the program covered 50.7 million people (42.1 million age 65+ and 9 million disabled) at a total cost of about $574.5 billion.[70] Medicare Part A provides coverage for inpatient hospital services, up to 100 days of post-hospital skilled nursing facility (SNF) care, some home health services and hospice care.[71] Part B is a voluntary program that generally pays 80 percent of the physicians' services, laboratory services, durable medical equipment (DME), hospital outpatient department (OPD) services and other medical services for

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the spouse dies first, the retired worker will continue to receive the worker's benefit; alternatively, if the retired worker dies first, the surviving spouse will receive a benefit equal to 100 percent of the worker's benefit. Mathematically, as 100% ÷ 150% = 2/3, the couple's benefit is essentially equivalent to a joint and two-thirds survivor annuity.

[67] SSA, "SSI Federal Payment Amounts for 2014," accessed June 17, 2014, http://www.ssa.gov/oact/cola/SSI.html.

[68] See note 49.

[69] House Ways and Means Committee, U.S. House of Representatives, "Green Book: Background Material and Data on Programs Within the Jurisdiction of the Committee on Ways and Means," 2012, http://greenbook.waysandmeans.house.gov, chapter 2; and Klees, Wolfe and Curtis, "Brief Summaries of Medicare & Medicaid."

[70] The Board of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds, "2013 Annual Report," 6; see also Davis et al., "Medicare Primer," 1.

[71] Medicare Part A is financed primarily through Social Security payroll taxes. Employees pay a Medicare payroll tax rate equal to 1.45 percent of wages, and employers pay a matching amount. Self-employed individuals pay a Medicare tax equal to 2.9 percent of net earnings from self-employment.

elderly and disabled individuals who choose to enroll and pay the monthly premium.[72] Under Medicare Part C, beneficiaries can elect to receive their covered services through private health plans. Medicare Part D provides coverage for outpatient prescription drugs through private prescription drug plans (PDPs) or Medicare Advantage prescription drug plans.

4. *Medicaid*

Medicaid is a federal-state entitlement program that provides health coverage for low-income families and individuals.[73] The program is means-tested; that is, eligible recipients must have relatively low income and relatively few assets. The program is financed by general revenues from federal and state governments. States design and administer their programs within federal guidelines, and the federal government funds about 57 percent of Medicaid spending.[74]

In 2012, the program provided health coverage for 67 million people including 6 million elderly Americans.[75] About two-thirds of Medicaid spending is for acute-care services like hospitals, doctors and prescription drugs; another 30 percent goes for nursing home and other long-term care.[76] Medicaid covers more than 60 percent of all nursing home residents and pays

[72] See Center for Medicare & Medicaid Services, "2014 Medicare Costs," updated October 2013, http://www.medicare.gov/Pubs/pdf/11579.pdf. Premiums range from $104.90 to $335.70 per month, depending on income.
[73] See, e.g., Klees, Wolfe and Curtis. "Brief Summaries of Medicare & Medicaid"; Kaiser Commission on Medicaid and the Uninsured, "Medicaid: A Primer"; Center on Budget and Policy Priorities, "Policy Basics: Introduction to Medicaid," updated May 8, 2013, http://www.cbpp.org/cms/index.cfm?fa=view&id=2223.
[74] Kaiser Commission on Medicaid and the Uninsured, "Medicaid: A Primer," 25.
[75] Center on Budget and Policy Priorities, note 73.
[76] Ibid.

40 percent of the nation's total costs for long-term care.[77] Total federal and state outlays for the program were $414 billion in fiscal year 2012, about 3.6 percent of the gross domestic product.[78]

5. *Supplemental Nutrition Assistance Program (SNAP)*

The Supplemental Nutrition Assistance Program (SNAP) was formerly known as the food stamp program.[79] It is a means-tested program designed to help low-income households with food purchases. Benefits depend on the number of people living in a household, and households with an elderly member must meet certain net income limits.

B. Pension Plans

The United States has a voluntary pension system, and employers have considerable choice about whether and how to provide pension benefits to their employees. However, when employers do provide pensions, those pensions are typically subject to regulation under the Employee Retirement Income Security Act of 1974 (ERISA).[80]

[77] Ibid.; see also Medicaid.gov, "Long-Term Services & Support," accessed June 18, 2014, http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Long-Term-Services-and-Supports/Long-Term-Services-and-Supports.html.
[78] Center on Budget and Policy Priorities, note 73.
[79] 7 USC § 2013; U.S. Department of Agriculture, "Supplemental Nutrition Assistance Program (SNAP)," accessed June 18, 2014, http://www.fns.usda.gov/snap.
[80] Public Law No. 93-406, 88 Stat. 864. See generally Joint Committee on Taxation, "Present Law and Background Relating to the Tax Treatment of Retirement Savings." JCX-32-12, submitted April 13, 2012, https://www.jct.gov/publications.html?func=startdown&id=4418.

1. *Retirement Savings are Tax-Favored*

Most pension plans qualify for favorable tax treatment. Basically, employer contributions to a pension are not taxable to the employee;[81] the pension fund's earnings on those contributions are tax-exempt;[82] and workers pay tax only when they receive distributions of their pension benefits.[83] Nevertheless, the employer is allowed a current deduction for its contributions (within limits).[84] Favorable tax rules are also available for individual retirement accounts (IRAs)[85] and Roth IRAs.[86] Also, since 2002, certain low- and moderate-income individuals have been able to claim a tax credit of up to $1,000 for certain qualified retirement savings contributions.[87]

2. *Types of Pension Plans*

Pension plans generally fall into two broad categories based on the nature of the benefits provided: defined benefit plans and defined contribution plans.

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[81] Internal Revenue Code (IRC) § 402.
[82] IRC § 501(a).
[83] IRC §§ 72, 402. See generally Internal Revenue Service (IRS), "Pension and Annuity Income: For Use in Preparing 2013 Returns," Publication No. 575, Internal Revenue Service, Jan. 2, 2014, http://www.irs.gov/pub/irs-pdf/p575.pdf.
[84] IRC § 404.
[85] IRC § 219. Also, see IRS, "IRS Announces 2014 Pension Plan Limitations: Taxpayers May Contribute up to $17,500 to Their 401(k) Plans in 2014," IR-2013-86, Oct. 31, 2013, http://www.irs.gov/uac/IRS-Announces-2014-Pension-Plan-Limitations;-Taxpayers-May-Contribute-up-to-$17,500-to-their-401(k)-plans-in-2014. Almost any worker can set up an IRA with a bank or other financial institution. In 2014, individuals without pension plans can contribute and deduct up to $5,500 to an IRA, although individuals over age 50 can contribute and deduct another $1,000 (for a total of up to $6,500), and spouses can contribute and deduct similar amounts.
[86] IRC § 408A. Unlike regular IRAs, contributions to Roth IRAs are not deductible. Instead, withdrawals are tax-free. Like regular IRAs, however, Roth IRA earnings are tax-exempt.
[87] IRC § 25B. The credit equals a percentage (50 percent, 20 percent or 10 percent) of up to $2,000 of contributions.

a. Defined benefit plans

In a defined benefit plan, an employer promises employees a specific benefit at retirement.[88] For example, a plan might provide that a worker's annual retirement benefit (*B*) is equal to 2 percent times the number of years of service (*yos*) times final average compensation (*fac*) ($B = 2\% \times yos \times fac$). Under this traditional, final-average-pay formula, a worker who retires after 30 years of service with final average compensation of $50,000 would receive a pension of $30,000 a year for life ($\$30{,}000 = 2\% \times 30\ yos \times \$50{,}000\ fac$).[89] While many defined benefit plans allow for lump sum distributions, the default benefit for defined benefit plans is a retirement income stream in the form of an annuity for life.[90]

b. Defined contribution plans

Under a typical defined contribution plan, the employer simply withholds a specified percentage of the worker's compensation, which it contributes to an individual investment account for the worker. For example, contributions might be set at 10 percent of annual compensation. Under such a plan, a worker who earned $50,000 in a given year would have $5,000 contributed to an individual investment account for her ($\$5{,}000 = 10\% \times \$50{,}000$). Her

[88] To provide that benefit, the employer typically makes payments into a trust fund, contributed funds grow with investment returns, and eventually the employer withdraws funds from the trust fund to pay the promised benefits. Employer contributions are based on actuarial valuations, and the employer bears all of the investment risks and responsibilities.
[89] Final average compensation is often computed by averaging the worker's salary over the last three or five years prior to retirement. Alternatively, some plans use career-average compensation instead of final-average compensation. Under a career earnings formula, benefits are based on a percentage of an average of career earnings for every year of service by the employee.
[90] 26 Code of Federal Regulations (CFR) § 1.401-1(b)(1). In the United States, defined benefit plans are generally designed to provide annuities, i.e., "definitely determinable benefits … over a period of years, usually for life after retirement."

benefit at retirement would be based on all such contributions plus investment earnings.[91] Unlike traditional defined benefit plans, defined contribution plans usually make distributions in the form of lump sum or periodic distributions rather than life annuities.

In the United States, there are a variety of defined contribution options, including money purchase pension plans, target benefit plans, profit-sharing plans, stock bonus plans and employee stock ownership plans (ESOPs).[92] Of particular note, profit-sharing and stock bonus plans often include a feature that allows workers to choose between receiving cash currently or deferring taxation by placing the money in a retirement account, according to Internal Revenue Code section 401(k). Consequently, these plans are often called "401(k) plans," and they are the most popular type of retirement plan in the United States.[93] The maximum annual amount of such elective deferrals that can be made by an individual in 2014 is $17,500, although workers over the age of 50 can contribute another $5,500 (for a total of up to $23,000).[94] Also, since 2006, employers have been permitted to set up Roth 401(k) plans.[95]

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[91] Forman, *Making America Work*, 216. Defined contribution plans are also known as "individual account" plans because each worker has her own account, as opposed to defined benefit plans, where the plan's assets are pooled for the benefit of all the employees.
[92] See, e.g., U.S. Department of Labor, Bureau of Labor Statistics (BLS), "Six Ways to Save for Retirement," 1, 2.
[93] See, e.g., U.S. Department of Labor, BLS. "BLS Examines Popular 401(k) Retirement Plans," 1.
[94] IRS, "IRS Announces 2014 Pension Plan Limitations," note 85.
[95] IRC § 402A. Contributions to these plans are not excludable, but neither the plan's investment returns nor distributions are taxable.

c. Hybrid retirement plans

So-called "hybrid" retirement plans mix the features of defined benefit and defined contribution plans. For example, a cash balance plan is a defined benefit plan that looks like a defined contribution plan.[96]

d. Other voluntary savings mechanisms

In addition to voluntary saving through 401(k) elections and IRAs, individuals can save money outside the retirement system. Investment income is generally subject to federal personal income tax rates of up to 39.6 percent in 2014;[97] however, dividend income and capital gains are generally taxed at no more than a 20 percent rate.[98] Also, there are various tax advantages associated with investments in homes,[99] state and local bonds,[100] annuities[101] and life insurance.[102]

[96] See, e.g., Forman and Nixon, "Cash Balance Pension Plan Conversions," 379. Like other defined benefit plans, employer contributions are based on actuarial valuations, and the employer bears all the investment risks and responsibilities. Like defined contribution plans, however, cash balance plans provide workers with individual accounts (albeit hypothetical). A simple cash balance plan might allocate 10 percent of salary to each worker's account each year and credit the account with 5 percent interest on the balance in the account. Under such a plan, a worker who earned $50,000 in a given year would get an annual cash balance credit of $5,000 ($5,000 = 10% × $50,000), plus an interest credit equal to 5 percent of the balance in her hypothetical account as of the beginning of the year.

[97] IRC § 1; Rev. Proc. 2013-35, 2013-47 *Internal Revenue Bulletin* (*IRB*), 537.

[98] IRC § 1(h).

[99] IRC §§ 163(a), 121. For example, home mortgage interest is generally deductible, and gains from the sale of a personal residence are often excludable.

[100] IRC § 103, interest exclusion.

[101] Under IRC § 72, the individual can exclude a fraction of each annuity payment from income. That fraction (the "exclusion ratio") is based on the amount of premiums or other after-tax contributions made by the individual. The exclusion ratio enables the individual to recover her own after-tax contributions tax free and to pay tax only on the remaining portion of benefits that represents income. The net effect is a deferral of taxation.

[102] IRC § 101(a), exclusion for insurance proceeds paid by reason of the death of the insured.

3. *The Regulation of Employment-Based Plans*

In the almost 40 years since it was enacted, the Employee Retirement Income Security Act has been amended numerous times, and a whole regulatory system has grown up to enforce its provisions.[103] Pension plans must be operated for the exclusive benefit of employees or their beneficiaries, and plan assets generally must be held in a trust.[104] To protect the interests of plan participants, ERISA requires significant reporting and disclosure in the administration and operation of employee benefit plans.[105] ERISA also imposes extensive fiduciary responsibilities on employers and administrators of employee benefit plans.[106] ERISA and the Internal Revenue Code also impose many other requirements on retirement plans, including rules governing normal retirement age,[107] participation,[108] coverage,[109] vesting,[110] benefit accrual,[111] contributions and benefits,[112] nondiscrimination[113] and funding.[114]

[103] The key agencies charged with the administration of ERISA are the U.S. Department of Labor, IRS and Pension Benefit Guaranty Corporation (PBGC). See, e.g., IRS, "Tax Information for Retirement Plans," accessed Feb. 12, 2014, http://www.irs.gov/Retirement-Plans; U.S. Department of Labor, Employee Benefits Security Administration, "About the Employee Benefits Security Administration," accessed Feb. 26, 2014, http://www.dol.gov/ebsa/aboutebsa/main.html; Pension Benefit Guaranty Corporation, "About PBGC," accessed Feb. 26, 2014, http://www.pbgc.gov/about. The IRS and the Department of Labor also have significant responsibilities with respect to IRAs and Roth IRAs.
[104] IRC § 401(a); ERISA §§ 403(a), 404(a)(1)(A), 29 USC §§ 1103, 1104(a)(1)(A).
[105] See, e.g., ERISA § 101(a) et seq., 29 USC § 1021 et. seq.
[106] IRC § 401(a); ERISA § 404, 29 USC § 1104. In addition, prohibited transaction rules prevent parties in interest from engaging in certain transactions with an employee benefit plan. IRC § 4975; ERISA § 406, 29 USC § 1106. For example, an employer usually cannot sell, exchange or lease any property to the plan.
[107] IRC § 411(a)(8); ERISA § 3(24), 29 USC § 1002(24).
[108] IRC § 410(a); ERISA § 202, 29 USC § 1052.
[109] IRC § 410(b).
[110] IRC § 411(a); ERISA § 203, 29 USC § 1053.
[111] IRC § 411(b); ERISA § 204, 29 USC § 1054.
[112] IRC § 415.
[113] IRC § 401(a)(4).
[114] IRC § 412; ERISA § 302, 29 USC § 1082.

4. *The Dominance of Defined Contribution Plans*

In recent years, defined contribution plans have come to dominate the pension landscape. For example, 50 percent of full-time private industry workers in the United States participated in defined contribution plans in 2011, up from 40 percent in 1989–90; meanwhile, participation in defined benefit plans fell from 42 percent in 1989–90 to just 22 percent in 2011.[115] All in all, the era of the traditional defined benefit plan is largely behind us.[116]

5. *Coverage and Retirement Income Adequacy*

To encourage Americans to save for retirement in our voluntary pension system, the government relies on two major approaches. First, most pension plans qualify for favorable tax treatment. Second, employers and workers are given great flexibility in designing their pension plans, in making contributions and in making (or taking) distributions. Despite those incentives, coverage and participation are low, and retirement savings may be inadequate for many retirees.

Indeed, at any point in time, only about one out of two American workers have pension plans, and few can be confident they will have enough income to meet their economic needs

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[115] Wiatrowski, "Changing Landscape of Employment-Based Retirement Benefits"; see also Wiatrowski, "The Last Private Industry Pension Plans," 3. See U.S. Department of Labor, Employee Benefits Security Administration, "Private Pension Plan Bulletin: Abstract of 2011 Form 5500 Annual Reports," June 2013: 1; 3, table A1, http://www.dol.gov/ebsa/PDF/2011pensionplanbulletin.PDF. More specifically, there were 683,000 private pension plans in 2011. These are ERISA-covered plans and do not include non-ERISA plans such as IRAs and Roth IRAs. Of these ERISA-covered plans, just 45,256 were defined benefit plans (with 40.9 million participants and $2.5 trillion in assets), while 638,390 were defined contribution plans (with 88.7 million participants and $3.8 trillion in assets). Ibid., 1, 2. Of these defined contribution plans, 513,000 were 401(k)-type plans. Also see U.S. Government Accountability Office (GAO), "Private Pensions: Some Key Features," 12, figure 2. A recent study estimated that 92 percent of the new pension plans formed from 2003–07 were defined contribution plans, as opposed to defined benefit plans. See also CBO, "Use of Tax Incentives for Retirement Saving."

[116] Mackenzie, *The Decline of the Traditional Pension*; Butrica et al. "The Disappearing Defined Benefit Pension," 1; McClendon, "The Death Knell of Traditional Defined Benefit Plans," 809; Zelinsky, *The Origins of the Ownership Society*; Zelinsky, "The Defined Contribution Paradigm," 451.

throughout retirement. For example, of the 156.5 million Americans workers in 2012, just 76 million (48.6 percent) worked for an employer (or union) that sponsored a retirement plan, and just 61.6 million (39.4 percent) participated in that plan.[117] Participation in IRAs is even lower than participation in pension plans. For example, only 28.0 percent of American families had an IRA or Keogh in 2010.[118]

To be sure, over their lifetimes, most households will accumulate some retirement savings through current or past work.[119] Moreover, as households get closer to retirement age, they are even more likely to have accumulated some retirement assets, and recent cohorts of retirees tend to have more retirement assets than previous cohorts.[120] Still, low participation rates in pension plans, in general, and low contributions rates to 401(k) plans, in particular, have led many analysts to wonder whether current and future generations of retirees will have adequate retirement incomes.[121] For example, according to recent research by the Employee Benefit

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[117] Copeland, "Employment-Based Retirement Plan Participation," 9, figure 1. The probability of pension coverage is greater for older workers, whites, highly educated workers, full-time workers, higher-income workers and workers at larger firms.

[118] Copeland. "Individual Account Retirement Plans," 1; 10, figure 5. Of note, rollover IRAs accounted for 43.2 percent of all IRA and Keogh assets. Ibid., 18, figure 12a; 19, figure 12b. As with employment-based plans, participation in IRAs and Keoghs tends to be highest among those families where the head of the family is older, has attained a higher educational level or has a higher income level. A Keogh is a tax-deferred retirement plan for self-employed individuals and their employees (if any). Ibid., 26, endnote 24. See also Copeland, "Individual Retirement Account Balances."

[119] See, e.g., Bricker et al. "Changes in U.S. Family Finances," 37, which finds that, in 2010, 55.1 percent of families had rights to some retirement plan other than Social Security through current or past work of the family head or that person's spouse or partner.

[120] Brady, Burham and Holden, "The Success of the U.S. Retirement System," 12, which finds that households headed by a working individual age 55 to 64 are doing especially well: While these near-retiree households are less likely to be covered by a defined benefit plan than previous cohorts, about 70 percent of them had defined contribution plans and/or IRAs, and the median amount of their total retirement accumulations was $101,350 in 2010, up from just $63,719 in 2001 (in 2010 dollars).

[121] See, e.g., *Hearing on Pension Savings: Are Workers Saving Enough for Retirement? Before the Senate Committee on Health, Education, Labor and Pensions*, 113th Cong. (Jan. 31, 2013), http://www.help.senate.gov/hearings/hearing/?id=4cd69c00-5056-a032-52b4-2693a6672740; Favreault et al., "Boomers' Retirement Income Prospects," which finds four out of 10 late baby boomers will lack sufficient income at age 79 to replace 75 percent of what they earned between ages 50 and 54; VanDerhei, "Retirement Income Adequacy for Boomers and Gen Xers," 2.

Research Institute, 44 percent of baby boomer and Gen-Xer households are at risk of running short of money in retirement, and about one in five (19.4 percent) are projected to have less than 80 percent of what they will need.[122] The bottom line is that many Americans are just not saving enough in retirement plans or otherwise.[123]

6. *The Decline of Annuitization*

Over the years, there has been a significant decline in annuitization of retirement savings by American workers. The shift from traditional defined benefit plans to defined contribution plans is a large part of the story, as defined contribution plans typically distribute benefits in the form of lump sum distributions rather than as annuities.[124] Indeed, relatively few defined

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[122] VanDerhei, "All or Nothing?" 1, 11; see also Munnell, Webb and Golub-Sass, "The National Retirement Risk Index," which estimates that some 53 percent of households will have replacement rates that fall more than 10 percent below the target.

[123] LIMRA, "Most Middle-Income Workers Saving Less Than Five Percent of Their Income for Retirement," released Oct. 31, 2012, http://www.limra.com/newscenter/NewsArchive/ArchiveDetails.aspx?prid=269. This study showed that two-thirds of middle-income ($40,000–$99,999) American workers were saving less than 5 percent of their annual income for retirement, and nearly a quarter were saving nothing at all. See also HSBC Insurance Holdings Ltd., "The Future of Retirement," 26, figure 11, which finds that 31 percent of Americans surveyed have never saved for retirement; and Humphries, Lewis, "Mandatory Pension Savings: Should Employers and Employees be Forced to Make Contributions?" *Investopedia*, May 27, 2013, http://www.investopedia.com/articles/personal-finance/052713/mandatory-pension-savings-should-employers-and-employees-be-forced-make-contributions.asp, which notes that "while the average length of retirement in the U.S. is approximately 21 years, the typical citizen's savings are likely to last for just 14 years."

[124] Towers Watson, "International Pension Plan Survey: Report 2011," 1, 15, which states that lump sums distributions are by far the most prevalent form of distribution for defined contribution plans.

contribution plans even offer annuity options, and, in any event, relatively few participants elect those annuity options.[125] All in all, people rarely choose to buy annuities voluntarily.[126]

The problem for many retirees—and especially for the oldest old—is that lump sum distributions can be all too easily dissipated. Indeed, one study found that 54 percent of those who took lump sum distributions from their retirement plan had exhausted their savings within three years of retirement.[127]

C. Financial Products

1. *Lifetime Annuities*

Traditional lifetime annuities provide a powerful hedge against longevity risk.[128] For example, for a 65-year-old man who purchased a $100,000 immediate, level-payment annuity without inflation protection as of Jan. 1, 2014, the annual payout would be about $6,864 or 6.86

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[125] See, e.g., Orth, "Approaches for Promoting Voluntary Annuitization"; Yakoboski, "Retirees, Annuitization and Defined Contribution Plans," 3, 5, which finds that only about 19 percent of retirees with significant defined contribution plan assets but little defined benefit pension income annuitized a portion of their retirement savings; Figueiredo and Mackenzie, "Older Americans' Ambivalence Toward Annuities," which notes that the 54th annual Survey of Profit Sharing and 401(k) Plans carried out by the Plan Sponsor Council of America found that just 16.6 percent offered annuities as an option, while 60.2 percent offered periodic withdrawals; and *Testimony Before the ERISA Advisory Council Working Group on Spend Down of Defined Contribution Assets as Retirement*, July 16, 2008, (statement of David L. Wray, president of Profit Sharing/401(k) Council of America), 5, http://www.psca.org/psca-president-testified-july-16-2008-before-the-erisa-advisory-council-on-the-spend-down-of-defined-contribution-assets-at-retirement, which notes that only about 20 percent of defined contribution plans offer annuities, and these are hardly ever utilized.

[126] That is, the demand for annuities is lower than expected, and this shortfall has come to be known as the "annuity puzzle." See, e.g., Yaari, "Uncertain Lifetime, Life Insurance, and the Theory of the Consumer," 137; Modigliani, "Life Cycle, Individual Thrift, and the Wealth of Nations," 297; and Benartzi, Previtero and Thaler, "Annuitization Puzzles," 143.

[127] Towers Watson, "International Pension Plan Survey: Report 2011," 3.

[128] See, e.g., Dolan, "Applying the 4-Box Strategy," 84, 88; and Mercado, Darla, "Making the Case for Annuities." *InvestmentNews*, March 25, 2012, http://www.investmentnews.com/article/20120325/REG/303259969&issuedate=20120323&sid=RI0326.

percent of the annuity's purchase price.[129] With inflation-adjusted annuities, annual payouts start lower but can end up higher. For example, if our hypothetical 65-year-old man instead chose an annuity stream with a 3 percent escalator, the annual payout in the first year would be just $5,064.[130]

Many analysts believe that most retirees will get the best value for their investment if they defer their decision to annuitize until age 75 or 80.[131] A 75-year-old man who purchased a $100,000 immediate, level-payment annuity without inflation protection as of Jan. 1, 2014, could get an immediate annuity with an annual payout of $9,252; an 80-year-old could get an annual payout of $11,148, and a 90-year-old could get an annual payout of $17,052.[132]

2. *Longevity Insurance (e.g., Deferred Annuities)*

Alternatively, retirees can protect against longevity risk by purchasing longevity insurance.[133] The typical approach is to buy a deferred annuity at age 65 that starts making annual payments only if the annuitant lives past age 80 or 85. For example, in February 2012, a 65-year-old man could invest $100,000 in a MetLife deferred annuity, and beginning at age 85,

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[129] Annuity Shopper, "Immediate Annuities Update," 18, table 5, ($6,864 = $572 × 12). Because women tend to live longer than men, the annual payout for a 65-year-old woman who elected an immediate, level-payment annuity as of Jan. 1, 2014, would be just $6,408 or 6.41 percent of the annuity's purchase price. Ibid. ($6,408 = $534 × 12).
[130] Ibid. ($5,064 = $422 × 12).
[131] See, e.g., Milevsky, "Optimal Annuitization Policies," 57; Webb, "Providing Income for a Lifetime."
[132] Annuity Shopper, "Immediate Annuities Update," 20, table 6 (age 75: $9,252 = $771 × 12); 24, table 8 (age 80: $11,148 = $929 × 12); and 27, table 10 (age 90: $17,052 = $1,421 × 12).
[133] See, e.g., Scott, "The Longevity Annuity: An Annuity for Everyone?" 40; Webb, Gong and Sun, "An Annuity People Might Actually Buy."

he would receive a level lifetime income of $25,451.04 per year.[134] Companies do not offer inflation-adjusted deferred annuities, but some companies do offer fixed step-ups.[135]

With a relatively small upfront investment, a retiree can secure an income stream that starts sometime in the future, and the retiree can then use the rest of her savings to cover the fixed number of years until the year the deferred annuity payments start.[136] There is some risk of running out of money before the year the deferred annuity starts, but that is certainly a more manageable risk than trying to manage one's retirement savings over the indefinite future.[137]

3. *Guaranteed Lifetime Withdrawal Benefits and Other Financial Products*

Retirees can also use variable annuities with guaranteed lifetime withdrawal benefits (GLWB) funds to manage their longevity risk.[138] A GLWB is based on a variable annuity, but it allows investors to lock in a minimum guarantee for life.[139] Mechanically, the investor or retiree

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[134] MetLife Investors Longevity Income Guarantee Quote (on file with the author, and prepared at the request of the author by Hersh L. Stern, WebAnnuities Insurance Agency Inc., Feb. 7, 2012). Alternatively, he could purchase a deferred annuity that instead starts at age 80 that pays $17,069.40 per year, at age 75 that pays $11,649.84 per year or at age 70 that pays $8,133.60 per year.

[135] Tomlinson, Joseph A., "Income Choices." *Financial Planning* May 1, 2011, http://www.financial-planning.com/fp_issues/2011_5/income-choices-2672801-1.html, which compares various investment strategies including systematic withdrawals, immediate annuities, deferred annuities and guaranteed lifetime withdrawal benefits.

[136] See, e.g., Sexauer, Peskin and Cassidy. "Making Retirement Income Last a Lifetime," 74, which proposes a "decumulation benchmark" that would use about 88 percent of retiree savings to purchase a laddered portfolio of treasury inflation-protected securities (TIPS) for the first 20 years and a deferred life annuity purchased with the remaining 12 percent; and Wurster, "DC 20/20: Pathways to a Secure Retirement," 54, 58, which suggests an annuity providing 35 percent real income replacement at age 85 would cost about 7.5 percent of a participant's average account balance at retirement.

[137] Finally, it is worth noting that workers might be able to buy deferred annuities in installments, starting at a young age. For example, a worker could use a portion of her retirement savings each year to purchase a deferred life annuity that starts at age 65, or at the advanced ages of 70, 75, 80, 85 or even 90. Accordingly, this type of deferred annuity product could be used to provide retirement benefits that mimic the lifetime pensions provided by traditional defined benefit plans. See, e.g., Milevsky, "Real Longevity Insurance," 109; see also Wadia, "Longevity Risk & Retirement," 4.

[138] See, e.g., Milevsky and Shao, "Annuities and Their Derivatives," 50, 56.

[139] Herschler, "U.S. Perspective on Annuity Lifetime Income Guarantees," 9. By the end of 2009, annuities accounted for 83 percent of the $544 billion of retirement income product assets in the United States, with variable

deposits or rolls over a sum of money into a variable annuity with subaccounts that are invested in a portfolio of stocks, bonds and other generic investments. Depending on market performance, that investment portfolio grows (or shrinks). In any event, at retirement, the annuitant starts taking guaranteed withdrawals from the account. Payouts come from the invested funds, but if those funds are ever depleted due to long life and/or poor investment returns, the guaranteed minimum kicks in. Alternatively, if the investment portfolio performs well, payouts can be increased.[140] On the downside, GLWB annuities can be very complicated, have annual costs that exceed 3 percent of asset value and have heavy surrender charges. Also they typically do not have an inflation adjustment on the withdrawal benefit.[141]

The private sector is busy developing many other financial products to help meet the growing demand for lifetime retirement income. For example, so-called "stand-alone living benefits" are similar to GLWBs, except that instead of using a variable annuity chassis, stand-alone living benefits use mutual funds or managed accounts as the base.[142]

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annuity guaranteed living benefits accounting for 71 percent, immediate and deferred annuities accounting for 12 percent, and reverse mortgages accounting for the other 17 percent.

[140] The guaranteed withdrawal rate is determined at the time of the sale, and it might be set between 4 and 6 percent depending upon the age when withdrawals are set to begin. See, e.g., Goodman and Tanenbaum, "The 5 Percent Guaranteed Minimum Withdrawal Benefit." The guaranteed amount is determined by multiplying the guaranteed rate by the guaranteed base, which is determined when withdrawals begin. As already mentioned, depending on the contract, if the investment portfolio does well, the guaranteed base might reset to a higher level and generate even greater withdrawals.

[141] Society of Actuaries, "Designing a Monthly Paycheck for Retirement," 6; Tomlinson, note 135, compares various investment strategies including systematic withdrawals, immediate annuities, deferred annuities and guaranteed lifetime withdrawal benefits, and noting that fees run about 2 percent for the lowest cost products and may approach 4 percent for products that also include sales loads.

[142] Tomlinson, note 135.

4. *Treasury Inflation-Protected Securities (TIPS)*

The U.S. Treasury already sells inflation-adjusted bonds.[143] These treasury inflation-protected securities (TIPS) can be useful investments for individuals, and they can be used by the financial industry to develop products that will keep up with inflation.

IV. MECHANISMS FOR ENHANCING THE INCOME OF THE OLDEST OLD

This part explores a variety of ways to ensure the oldest old have adequate economic resources.

A. GUARANTEE MINIMUM INCOMES FOR THE OLDEST OLD

At the outset, it should be noted the government could redesign the social insurance system to ensure the oldest old all have incomes above the poverty level. For example, the government could achieve this result by increasing Social Security benefits and the welfare benefits under SSI and SNAP.[144]

As the oldest old tend to have had higher incomes than their deceased peers, it seems hard to justify much redistribution. Instead, it would seem more appropriate to find ways to ensure that tomorrow's oldest old are required or encouraged to manage their own resources in their earlier years so they have adequate retirement incomes in their later years.

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[143] See, e.g., TreasuryDirect, "Treasury Inflation-Protected Securities (TIPS)," last updated Sept. 27, 2013, http://www.treasurydirect.gov/indiv/products/prod_tips_glance.htm.
[144] See, e.g., GAO, "Social Security: Options to Protect Benefits."

B. ENCOURAGE WORKERS TO SAVE MORE, WORK LONGER AND ANNUITIZE MUCH OF THEIR WEALTH

At the outset, to help ensure the oldest old have adequate incomes, the government should encourage workers to save more while they are working, encourage workers to stay in the workforce longer, and encourage workers and retirees to annuitize much of their wealth.

1. *Encourage Workers to Save More and Invest Better*

If workers save more during their careers, they will have higher income in their retirement years. One way to increase retirement savings would be for the United States to adopt a mandatory universal pension system like Australia, Singapore and Chile have done.[145] For example, virtually all workers in Australia already have 9 percent of salary set aside in individual superannuation accounts, and contributions are scheduled to increase to 12 percent in the coming years.[146]

At a minimum, the government should adopt policies that make 401(k) plans or payroll-deduction IRAs available to all workers.[147] Automatically enrolling workers into these types of individual retirement savings accounts can achieve higher levels of participation, and

[145] See, e.g., Forman "Should We Replace the Current Pension System," 48; Forman and Carasso, "Tax Considerations in a Universal Pension System"; see also Ghilarducci, *When I Am Sixty Four,* 260–92; GAO, "Private Pensions: Alternative Approaches."

[146] See, e.g., Forman and Mackenzie, "Optimal Rules for Defined Contribution Plans," 613, 625.

[147] See, e.g., Automatic IRA Act of 2012, H.R. 4049, 112th Cong. (2012); GAO, "Automatic IRAs: Lower-Earning Households"; Forman, *Making America Work,* 233–35; Gale, William G., and David C. John. "The President's 2013 Budget Would Enable Almost All Americans to Save for Retirement." *Up Front* (blog) Feb. 15, 2012, http://www.brookings.edu/opinions/2012/0215_budget_retirement_gale_john.aspx; Iwry and John, "Pursuing Universal Retirement Security"; Harris and Johnson, "Economic Effects of Automatic Enrollment"; Harris and Fischer, "The Population of Workers Covered by the Auto IRA," which finds that between 24 million and 43 million workers—approximately one-quarter of the workforce—would be eligible for automatic enrollment in the proposals under consideration in Congress.

automatically escalating the levels of their contributions can dramatically increase the amount of their retirement savings.[148] One study estimated that, in the long run, 3 percent add-on individual retirement savings accounts could provide an annual retirement benefit equal to 14.5 percent of final wages for men and 13.3 percent of final wages for women.[149]

In addition to getting workers to save more, government policies should be designed to encourage workers to do a better job with their investments, for example, by defaulting workers into target date funds instead of low-yield, stable-value funds.[150] Government regulation of the fees and expenses associated with defined contribution plans and IRAs is also very important, as high fees can significantly reduce the size of retirement nest eggs.[151] Government policies should also be designed to get workers to preserve their retirement savings until retirement, for example, by discouraging premature withdrawals and loans.[152]

2. *Encourage Workers to Work Longer*

The government should also encourage workers to remain in the workforce longer.[153] Working longer increases retirement savings and reduces the number of years that retirement

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[148] See, e.g., Organisation for Economic Development (OECD), *OECD Pensions Outlook 2012*, 45–76; Thaler and Benartzi, "The Behavioral Economics of Retirement Savings Behavior"; VanDerhei, "Increasing Default Deferral Rates in Automatic Enrollment 401(k) Plans," 12. Of note, the Pension Protection Act of 2006 made it easier for employers to include automatic enrollment features in pension plans, by adding IRC §§401(k)(13), 401(m)(12) and 414(w). Pension Protection Act of 2006 § 902, Public Law No. 109-280, 120 Stat. 780. See also Notice 2009-65, 2009-39 IRB 413, which added automatic enrollment to Section 401(k) Plans – Sample Amendments.
[149] Forman and Carasso, "Tax Considerations in a Universal Pension System."
[150] See, e.g., U.S. Department of Labor, Employee Benefits Security Administration, "Target Date Retirement Funds: Tips for ERISA Plan Fiduciaries," released February 2013, http://www.dol.gov/ebsa/pdf/fsTDF.pdf.
[151] See, e.g., Forman, "The Future of 401(k) Plan Fees," 9-1.
[152] Forman and Mackenzie, "Optimal Rules for Defined Contribution Plans"; Kaplan, "Retirement Funding and the Curious Evolution of Individual Retirement Accounts," 283, 293–303.
[153] See, e.g., Forman and Chen, "Optimal Retirement Age," 14-1; Clements et al. "The Challenge of Public Pension Reform," 25; Munnell, Orlova and Webb. "How Important is Asset Allocation to Financial Security in Retirement?"

savings need to cover, thereby increasing annual income when the worker ultimately retires.[154] Table 2 shows estimates of how average annual income can increase from working longer. For instance, working just one more year can increase annual income 9 percent on average and by 16 percent for low-income workers. Monthly Social Security benefits would increase, and the additional savings to buy a private annuity would increase, while the premium would fall.

Table 2. Increase in average annuity income from working longer (percent)

Lifetime earnings quintile	Increase from working one more year	Increase from working five more years
Bottom	16	98
Second	12	71
Middle	10	61
Fourth	8	52
Top	7	42
All	9	56

Source: Butrica, Smith and Steuerle, "Working for a Good Retirement," 28, figure 2.

Because Social Security provides actuarial increases in benefits to those who delay taking their benefits, the government should encourage people to delay taking their benefits until they reach their full retirement age or, better still, until age 70. The government should also raise the early and normal retirement ages for pensions and for Social Security.[155] For example, the Internal Revenue Code Section 72(t) 10 percent penalty on premature withdrawals applies only to distributions made before an individual reaches age 59½. It would make sense to raise the

[154] VanDerhei and Copeland, "The Impact of Deferring Retirement Age"; Blakely, "Is There a Future for Retirement?" 16 (statement of Mathew Greenwald); Quinn, Cahill and Giandrea. "Early Retirement: The Dawn of a New Era?" 14; Munnell, "How Much to Save for a Secure Retirement"; Butrica, Smith and Steuerle, "Working for a Good Retirement," 28, figure 2.
[155] See, e.g., Forman and Chen, "Optimal Retirement Age," 14-33.

penalty-free age from 59½ to 62 (the early retirement age for Social Security) and, eventually, to raise both early retirement ages to 64 or even 65.

It would also make sense to raise the normal retirement age for pensions. ERISA generally defines "normal retirement age" as the earlier of the time specified in the plan or age 65.[156] Meanwhile, the Social Security full retirement age is currently 66, and it is gradually increasing to 67.[157] It would make sense to raise the normal retirement age for pension plans to 66 and, eventually, to raise both full retirement ages to 68 or even 70.[158]

3. *Encourage Workers and Retirees to Annuitize Much of Their Wealth*

The government should also encourage greater utilization of annuities and deferred annuities. While some of the oldest old will have adequate annual incomes from Social Security, traditional pensions and annuities, many—especially those that take lump sum distributions from their pensions and 401(k) plans—will not.

One approach would be for the government to mandate retirees use at least a portion of their retirement savings to purchase annuities or similar lifetime income guarantees.[159] Alternatively, the government might only want to encourage annuitization. For example, the government might require plan sponsors to make annuity options available to plan participants as they near retirement.[160] The government might even require plans to default participants into

[156] IRC. § 411(a)(8); ERISA § 3(24), 29 USC. § 1002(24).
[157] See note 47 and accompanying text.
[158] See, e.g., Forman and Chen, "Optimal Retirement Age," 14-33.
[159] See, e.g., Mackenzie, *The Decline of the Traditional Pension*, 191–200; Brown, "Automatic Lifetime Income"; Perun, "Retirement Savings"; Forman, *Making America Work*, 238–39.
[160] See, e.g., GAO, "Retirement Income: Ensuring Income," 38–39; Brown, "Understanding the Role of Annuities," 178, 199–200; Kennedy, "How Can Lifetime Income," 1-1.

annuities or trial annuities, unless plan participants affirmatively elect otherwise.[161] The tax system could also be used to encourage people to take their pension distributions as annuities, for example, by exempting annuity payouts from income taxation or favoring them with a reduced tax rate.[162]

The government should also promote inflation-adjusted annuities. While Social Security benefits are adjusted for inflation, relatively few private pensions or annuities have cost-of-living adjustments, but inflation-adjustments are exactly the way to preserve the value of benefits as the years go by—and especially for those fortunate few who get to be 90+.

In 2010, the Internal Revenue Service and the U.S. Department of Labor started a joint effort to improve lifetime income options for retirement plans.[163] In 2012, the Treasury and IRS released a package of proposed regulations and rulings intended to make it easier for pension plans to offer partial annuities, longevity annuities and other lifetime income choices.[164]

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[161] See, e.g., GAO, "Retirement Income: Ensuring Income," 39–40; Mackenzie, *The Decline of the Traditional Pension*, 200–03; Iwry and Turner, "Automatic Annuitization: New Behavioral Strategies," which discusses various default strategies; Gale et al., "Increasing Annuitization in 401(k) Plans," which recommends defaulting retirees into receiving at least 24 consecutive monthly payments from an annuity or similar lifetime income product.

[162] See, e.g., Retirement Security Needs Lifetime Pay Act of 2009, H.R. 2748, 111th Cong. (2009), a bill introduced by former Rep. Earl Pomeroy (D-N.D.) to encourage guaranteed lifetime income payments by excluding from income a portion of such payments.

[163] See, e.g., U.S. Department of Labor, Employee Benefits Security Administration, "Lifetime Income Options for Participants and Beneficiaries in Retirement Plans," September 2010, http://www.dol.gov/ebsa/regs/cmt-1210-AB33.html.

[164] U.S. Department of Treasury, "Treasury Fact Sheet: Helping American Families Achieve Retirement Security by Expanding Lifetime Income Choices," released February 2012, http://www.treasury.gov/press-center/press-releases/Documents/020212%20Retirement%20Security%20Factsheet.pdf; Executive Office of the President, Council of Economic Advisors, "Supporting Retirement for American Families," released February 2012, http://benefitslink.com/articles/CEA_report_2_2_2012.pdf.

C. Increase Social Security Benefits for the Oldest Beneficiaries

Increasing Social Security benefits could really help improve the retirement incomes of the oldest old. As already mentioned, the government should encourage workers to work longer and delay claiming Social Security benefits, at least until they reach full retirement age. This subpart offers some other ways to increase Social Security benefits for the oldest old.

1. *Increase Benefits Across the Board*

Of course, one way to enhance the retirement income security of Americans would be to increase Social Security benefits across the board. Alternatively, the government could tweak the Social Security benefit formula so that the system replaced at least 80 percent of pre-retirement earnings for workers with low lifetime earnings. As Social Security already replaces about 70 percent of the pre-retirement earnings for workers in the bottom quintile of lifetime earnings,[165] increasing replacement rates to 80 percent for those households would not cost all that much.[166] The cost would be even lower if Congress targeted the benefit increases to those with the lowest lifetime earnings.

[165] CBO, "Supplemental Data for CBO's 2012 Long-Term Projections for Social Security," Congressional Budget Office, Washington, DC, Oct. 2, 2012. http://www.cbo.gov/publication/43653, Exhibit 10; see also Brady, Burham and Holden, "The Success of the U.S. Retirement System," 17–20. See, e.g., CBO, "The 2012 Long-Term Projections for Social Security: Additional Information," Congressional Budget Office, Washington, DC, October 2012, http://www.cbo.gov/sites/default/files/cbofiles/attachments/43648-SocialSecurity.pdf. Of note, future retirees are projected to receive somewhat higher Social Security retirement benefits than today's beneficiaries. See also Munnell, Webb and Golub-Sass, "The National Retirement Risk Index," 2, figure 1. However, future retirees will have to wait longer to reach full-retirement age; they are projected to face higher Medicare Part B premiums, and a greater portion of their Social Security retirement benefits will be subject to income taxation.

[166] A recent survey found that 75 percent of Americans believe we should consider increasing Social Security benefits to provide a more secure retirement for working Americans. Tucker, Reno and Bethell, "Strengthening Social Security," 10.

2. *Provide Longevity Insurance by Increasing Benefits for the Oldest Beneficiaries*

Another approach would be to increase Social Security benefits, but just for the oldest old. For example, benefits could be increased for beneficiaries who live to age 80 or 85.[167] In essence, this would be a way of providing longevity insurance through the Social Security system, although, to keep costs under control, it might be necessary to target the benefit increases to those with the lowest lifetime earnings.

3. *Increase Survivor Benefits*

Increasing survivor benefits is an option that would help the many oldest old widows and widowers.[168] One approach would be to increase the surviving spouse benefit from two-thirds to, say, 75 percent of the combined amount the couple received before the other spouse's death, and, perhaps, this benefit increase could be paid for by reducing or capping the spousal benefit.

4. *Other Possible Benefit Enhancements*

Other possible benefit enhancements that could help the oldest old include: 1) increasing the minimum benefits available under Social Security,[169] 2) reducing the work requirements for

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[167] See, e.g., GAO, "Social Security: Options to Protect Benefits," 17; Orth, "How to Survive Living to 100," 5; Turner, "Longevity Insurance: Strengthening Social Security for Older Retirees," 843.

[168] See, e.g., GAO, "Social Security: Options to Protect Benefits," 16; see also Favreault and Steuerle, "Social Security Spouse and Survivor Benefits"; Entmacher and Matsui, "Addressing the Challenges Women Face in Retirement," 749, 757–60; FitzPatrick and Entmacher, "Widows, Poverty, and Social Security Policy Options"; Urban Institute, Program on Retirement Policy, "Spouse and Survivor Benefits," accessed June 10, 2013, http://www.urban.org/retirement_policy/ssspousesurvivor.cfm. Recall that in 2006–08, 75.1 percent of the oldest old were widowed. See note 10 and accompanying text.

[169] See, e.g., GAO, "Social Security: Options to Protect Benefits," 7; Urban Institute, Program on Retirement Policy, "Minimum Benefits," accessed June 10, 2013, http://www.urban.org/retirement_policy/ssminbenefits.cfm.

eligibility,[170] 3) supplementing benefits for low-income single workers,[171] 4) earnings sharing,[172] 5) reducing the marriage duration required for spousal benefits, say, from 10 years to seven years,[173] and 6) providing caregiver credits.[174]

D. Increase Pension Benefits for the Oldest Old

Strengthening pensions could also help increase the retirement incomes of the oldest old. As already mentioned, 1) the government should encourage workers to save more for retirement, for example, by encouraging or mandating individual retirement savings accounts on top of Social Security, 2) the government should encourage workers to stay in the workforce longer, for example, by raising the early and normal retirement ages for pensions, and 3) the government should encourage workers to take their pension benefits in the form of annuities, perhaps even inflation-adjusted annuities. This subpart offers some other ways to help increase pension benefits for the oldest old.

1. *Relax the Minimum Distribution Rules*

The Internal Revenue Code generally requires participants in pension plans to begin taking distributions soon after they reach age 70½.[175] Failure to take the required minimum distribution can result in a 50 percent excise tax penalty on the excess of the amount required to

[170] See, e.g., GAO, "Social Security: Options to Protect Benefits," 9–10.
[171] See, e.g., ibid., 11.
[172] See, e.g., ibid., 12–13; Forman, *Making America Work*, 205–06; see also Iams, Reznik and Tamborini. "Earnings Sharing in Social Security," 1.
[173] See, e.g., GAO, "Social Security: Options to Protect Benefits," 14.
[174] See, e.g., ibid., 15; Iams and Sandell, "Changing Social Security Benefits to Reflect Child-Care Years," 10.
[175] IRC § 401(a)(9).

have been distributed over the amount that actually was distributed.[176] Admittedly, most elderly Americans retire long before they reach age 70½. Still, raising the minimum distribution age to 75 or more—or eliminating the requirement altogether—could encourage some elderly workers to remain in the workforce and should make it easier for retirees to preserve more of their retirement savings until 90+.[177]

The minimum distribution rules can also make it quite difficult to use defined contribution plan savings to purchase deferred annuities.[178] In that regard, however, new proposed regulations from the IRS would ease the minimum distribution requirements to allow plan participants to spend up to $100,000 on deferred annuities.[179] Finalizing these proposed regulations would help the oldest old, but the minimum distribution statute itself could use some serious reconsideration.

2. *Improve Spousal Protections in Retirement Accounts*

Another way to help ensure the oldest old have adequate retirement incomes would be to strengthen the spousal and surviving spouse protections applicable to retirement plans.[180] Under ERISA, defined benefit plans (and some defined contribution plans) are required to provide a qualified joint-and-survivor annuity (QJSA) as the normal benefit payment for married

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[176] IRC § 4974.
[177] See also Kaplan, "Reforming the Taxation of Retirement Income," 327, 357.
[178] IRC § 401(a)(9); Choate, Natalie. "New! Longevity Insurance for IRAs." *Morningstar Advisor*, released March 9, 2012, http://www.morningstar.com/advisor/t/52769065/new-longevity-insurance-for-iras.htm.
[179] Internal Revenue Service, "Longevity Annuity Contracts," 5,443; U.S. Department of Treasury, "Treasury Fact Sheet: Helping American Families Achieve Retirement Security by Expanding Lifetime Income Choices," released February 2012, http://www.treasury.gov/press-center/press-releases/Documents/020212%20Retirement%20Security%20Factsheet.pdf; Toth Jr., "First Steps to Modernizing DC Annuitization."
[180] Recall that in 2006–08, 15.8 percent of the oldest old were married, and 75.1 percent were widowed. See note 10 and accompanying text.

participants, unless the spouse consents to another form of distribution.[181] These plans are also required to provide a qualified pre-retirement survivor annuity (QPSA) option in case the worker dies before retirement.[182]

Many analysts believe the joint and survivor annuity should be the default for all defined contribution plans (including 401(k) plans) and for all non-ERISA retirement plans (including IRAs, government plans and military plans).[183] It might also make sense to increase the size of the minimum survivor annuity from 50 percent to 75 percent of the worker's annuity. The government might even want to mandate that at least of portion of retirement savings is paid out in the form of a joint and survivor annuity.

Also, most ERISA-covered pension plans and many other retirement plans allow state courts to divide the pension benefits of married couples through qualified domestic relations orders (QDROs) and similar court orders.[184] To help ensure virtually all spouses get pension benefits, the government might want to change the default rule so that all types of retirement plans are divided equally at divorce, unless a court orders, or the parties agree, otherwise.

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[181] IRC §§ 410(a)(11), 417; ERISA § 205, 29 USC § 1055. A qualified joint-and-survivor annuity (QJSA) is an immediate annuity for the life of the pension plan participant and a survivor annuity for the life of the participant's spouse. The amount of the survivor annuity may not be less than 50 percent, or more than 100 percent, of the amount payable during the time the participant and spouse are both alive.

[182] Ibid. A qualified pre-retirement survivor annuity (QPSA) typically pays an annuity that is equal to the survivor's portion of the QJSA.

[183] See, e.g., Forman, "Protecting Spousal Rights in Private Pensions," 55; Entmacher and Matsui, "Addressing the Challenges Women Face in Retirement," 789; National Women's Law Center, "Increasing Spousal Protections in Retirement Accounts Would Increase Women's Retirement Security," released February 2011, http://www.nwlc.org/sites/default/files/pdfs/increasingspousalprotectionsinretirement_0.pdf.

[184] See, e.g., IRC §401(a)(13); ERISA §206(d)(1), 29 USC § 1056(d)(1).

E. Have the Government Issue or Guarantee Annuities

As already mentioned, the federal government sells treasury inflation-protected securities that can be useful in dealing with longevity risk. Moreover, this article has explained how delaying receipt of Social Security benefits until full retirement age or later is equivalent to purchasing an annuity from the Social Security Administration. For that matter, it would make sense for the government to offer starter retirement savings accounts and to issue or guarantee annuities.

1. *My Retirement Accounts (MyRAs)*

A number of analysts have suggested the U.S. Treasury should sell no-fee retirement bonds (R-bonds) that workers could use to build secure retirements savings—long-term bonds that pay interest at a rate similar to the five-year Treasury Bond.[185] In that regard, President Obama recently proposed that the government offer no-fee starter retirement savings accounts known as MyRAs, short for My Retirement Account.[186] Participants in these new accounts would earn interest at the same variable interest rate as the federal employees' Thrift Savings Plan (TSP) Government Securities Investment Fund.

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[185] See, e.g., Gale, John and Smith, "New Ways to Promote Retirement Savings," 11–13; Entmacher and Matsui, "Addressing the Challenges Women Face in Retirement," 778–80; Women's Institute for a Secure Retirement (WISER), "Simplify Savings for Retirement: Create a U.S. R-Bond," accessed Feb. 25, 2013, https://www.wiserwomen.org/images/imagefiles/U%20S%20RetirementBond2_F.pdf; but see Aspen Institute, Initiative on Financial Security, "Your Nest Egg on Auto Pilot: The Advantages of Real Savings + Over the R-Bond as a Default Investment for the Automatic IRA," accessed Feb. 25, 2013, http://www.aspeninstitute.org/sites/default/files/content/docs/pubs/YourNestEggOnAutoPilot.pdf, which expresses the concern that R-Bonds would have relatively low interest rates and, instead, recommends the creation of higher-yield "Real Savings +" funds that would include both bonds and stocks.

[186] See, e.g., White House, Office of the Press Secretary, "Opportunity for All: Securing a Dignified Retirement for All Americans," Fact Sheet, Jan. 29, 2014, http://www.whitehouse.gov/the-press-office/2014/01/28/fact-sheet-opportunity-all-securing-dignified-retirement-all-americans.

2. *Longevity Bonds*

Some analysts have suggested the government should sell longevity bonds—bonds whose coupon payment increases when the longevity of a targeted population exceeds a certain benchmark.[187] Such longevity bonds could facilitate the development of financial products that offer longevity protection (for example, deferred annuities). A fledging market for longevity bonds already exists in Europe.[188]

3. *Annuities, Pooled Annuities and Tontines*

The government could actually get into the market of selling annuities[189] or, alternatively, guaranteeing annuity products sold by private companies.[190] For example, the government might allow individuals and couples to purchase a limited amount of inflation-adjusted life annuities—perhaps, enough to keep them out of poverty throughout their retirement years.

Moreover, the government is in the almost unique position of being able to sell pooled annuities that could share longevity risk among annuitants.[191] The Social Security Administration

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[187] See, e.g., Blake, Boardman and Cairns, "Sharing Longevity Risk"; Blake, Boardman and Cairns, "The Case for Longevity Bonds"; Antolin and Blommestein, "Governments and the Market"; Thomsen and Andersen, "Longevity Bonds: A Financial Market Instrument to Manage Longevity Risk," 29; Brown and Orszag, "The Political Economy of Government Issued Longevity Bonds."

[188] See, e.g., Burne, Katy, "'Longevity' Bond Market May Spring to Life," *Wall Street Journal*, Feb. 7, 2013, http://online.wsj.com/article/BT-CO-20130207-713432.html.

[189] See, e.g., Hu, Henry T. C., and Terrance Odean, "Paying for Old Age," *New York Times* Opinion Pages, Feb. 25, 2011, A19, which recommends that the federal government issue annuities; Orth, "Approaches for Promoting Voluntary Annuitization," 3, which suggests that the Social Security Administration could sell supplemental annuities at a subsidized rate.

[190] See, e.g., Frolik, "Protecting our Aging Retirees," 277, which suggests that the federal government guarantee lifetime annuities for retirees.

[191] See, e.g., Maurer, Rogalla and Siegelin, "Participating Payout Life Annuities," which notes that participating life annuities offer guaranteed minimum benefits for life and an additional nonguaranteed surplus based on investment return, mortality and costs; Donnelly, Guillen and Nielsen, "Exchanging Uncertain Mortality for a Cost"; Richter and Weber, "Mortality-Indexed Annuities," 212; Denuit, Haberman and Renshaw, "Longevity-Indexed Life Annuities," 97; Rocha and Vittas, "Designing the Payout Phase of Pension Systems"; Stamos, "Optimal

already provides benefits to almost every elderly American and compiles death information about them to ensure it does not pay Social Security benefits to deceased individuals and to establish benefits for survivors.[192] With that information, the government would be able to make annuity payments only to the surviving members of each birth cohort (e.g., among all those born 90 years ago in 1924). For that matter the government could share the longevity risk over multiple birth cohorts (e.g., among all those born more than 90 years ago or among those born more than 80 but less than 90 years ago).[193]

Along the same lines, the government could sell or encourage the sale of tontine-like annuities.[194] Tontines are investment vehicles that combine features of an annuity and a lottery. Basically, investors pool their money to buy a portfolio of government bonds [195] Each year they are alive, investors receive interest, and, as investors die, their shares are forfeited to the surviving investors, who benefit from the mortality gains. Unless the fund is divided earlier, the entire fund goes to the last survivor.[196]

Consumption and Portfolio Choice," 56; Piggott, Valdez and Detzel, "The Simple Analytics of a Pooled Annuity Fund," 497.

[192] GAO, "Social Security Administration: Preliminary Observations on the Death Master File."

[193] One can imagine all kinds of formulas that could be used to share longevity risk over multiple birth cohorts. For example, mortality experience could simply be averaged over three, five or even 10 consecutive birth cohorts. Alternatively, the mortality experiences of prior or subsequent birth cohorts could be given lower weights. Interest rates could also be averaged over some number of years.

[194] See, e.g., Milevsky and Salisbury, "Optimal Retirement Tontines for the 21st Century."

[195] See, e.g., Cooper, *An Historical Analysis of the Tontine Principle*; McKeever, "A Short History of Tontines," 491; Jennings, Swanson and Trout, "Alexander Hamilton's Tontine Proposal," 107.

[196] This latter variant makes for some great fiction. See, e.g., *Wikipedia*, s.v. "Tontine; Popular Culture," accessed July 22, 2013, http://en.wikipedia.org/wiki/Tontine. For example, on the television show *M*A*S*H*, Colonel Sherman T. Potter, as the last survivor of his World War I unit, got to open the bottle of French cognac he and his buddies bought (and share it with his Korean War compatriots). IMDb, *M*A*S*H*, season 8, episode 18: "Old Soldiers," aired Jan. 21, 1980, http://www.imdb.com/title/tt0638372.

For example, imagine that 1,000 65-year-old retirees each contribute $1,000 to an investment fund that purchases a $1 million Treasury bond paying 4 percent interest coupons.[197] The bond will generate $40,000 interest per year, which will be split equally among the surviving participants. A custodian holds the bond, and because the custodian takes no risk and requires no capital, the custodian charges a trivial fee. Assuming that all the investors live through the first year, they will each receive a $40 dividend from the fund ($40 = $40,000 ÷ 1,000). If only 800 original investors are alive a decade after the tontine started (when the survivors are 75), then each will receive a $50 dividend ($50 = $40,000 ÷ 800). If only 100 are alive two decades after that (when the survivors are 95), then each will receive a $400 dividend ($400 = $40,000 ÷ 100). Later, when only 40 remain, each will receive a $1,000 dividend ($1,000 = $40,000 ÷ 40). If the terms of the tontine call for liquidation at that point, then each of the 40 survivors would also receive a liquidating distribution of $25,000 ($25,000 = $1 million ÷ 40). Alternatively, the tontine could be designed so that the last survivor receives the entire $1 million.[198]

To be sure, most retirees would probably prefer to have reasonably level benefits throughout their lives, rather than benefits that increase sharply at the very end of life. Accordingly, it would make sense to design tontine-type products with benefits that increase gradually throughout retirement, perhaps in the style of an inflation-adjusted annuity (but without having to support insurance company profits and reserves). The point here is that

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[197] This example follows Milevsky, Moshe A. "Want Financial Security? Look to the Renaissance," *Wall Street Journal*, April 21, 2013, http://online.wsj.com/article/SB10001424127887324532004578358110813542442.html?mod=ITP_journalreport_1.
[198] Cooper, *An Historical Analysis of the Tontine Principle*, 61. Traditional pensions exhibit tontine characteristics, for example, those who live longer will collect more (monthly) benefits.

variations on the tontine principle could be used to create a variety of attractive retirement income investment vehicles.[199] Also, unlike traditional immediate and deferred annuities, an early death in a tontine scheme only benefits other investors, not some amorphous insurance company. That should make tontine schemes popular.[200]

V. CONCLUSION

The total population of the oldest old (90+) is expected to grow from 1.9 million in 2010 to more than 8.7 million in 2050.[201] A variety of approaches will be needed to ensure that these oldest old have adequate incomes throughout their lives. Social insurance programs like Social Security, Supplemental Security Income and Medicaid will certainly need to be expanded. Workers will also need to be encouraged to work longer and save more for their eventual retirements, and both workers and retirees should be encouraged to annuitize more of their retirement savings.

While these kinds of solutions seem fairly predictable, the answers to two important policy questions have yet to be decided. First, how much will the government require the oldest old to save earlier in their lives? And second, how much will the government redistribute to benefit the oldest old? Unfortunately, if the history of the Social Security system is any indication, both government mandates and redistribution will be modest, and a significant portion of the oldest old will face their final years with inadequate economic resources.

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[199] See, e.g., Forman and Sabin, "Tontine Pensions"; Newfield, "The Tontine"; Sabin, "Fair Tontine Annuity"; Milevsky and Salisbury, "Optimal Retirement Tontines for the 21st Century"; Goldsticker, "A Mutual Fund to Yield Annuity-Like Benefits," 63.

[200] For example, professor Suzanne Shu suggests that a tontine for one's fellow firefighters will be perceived as fairer than the typical annuity they could buy from an insurance company: With an annuity, an early death seems to benefit the insurance company, but with a tontine, an early death benefits fellow firefighters. Benartzi, "Behavioral Finance and the Post-Retirement Crisis," 15.

[201] See notes 4–5 and accompanying text.

VI. References

Administration on Aging (AoA). "A Profile of Older Americans: 2012." Administration on Aging, Administration on Community Living, U.S. Department of Health and Human Services, Washington, DC, 2013. http://www.aoa.gov/Aging_Statistics/Profile/2012/docs/2012profile.pdf.

Antolin, Pablo, and Hans Blommestein. "Governments and the Market for Longevity-Indexed Bonds." Working Paper on Insurance and Private Pensions No. 4, Organisation of Economic Co-operation and Development, Paris, January 2007. http://www.oecd.org/insurance/insurance/37977290.pdf.

Arias, Elizabeth. "United States Life Tables, 2008." *National Vital Statistics Reports* 61, no. 3 (2012). http://www.cdc.gov/nchs/data/nvsr/nvsr61/nvsr61_03.pdf.

Annuity Shopper. "Immediate Annuities Update." *Annuity Shopper Buyer's Guide* 29, no. 1 (winter 2013). http://www.immediateannuities.com/pdfs/as/annuity-shopper-current-issue.pdf?arx=d.

Banerjee, Sudipto. "Income Composition, Income Trends, and Income Shortfalls of Older Households." Issue Brief No. 383, Employee Benefit Research Institute, Washington, DC, 2013. http://www.ebri.org/pdf/briefspdf/EBRI_IB_02-13.No383.IncmEld.pdf.

Benartzi, Shlomo. "Behavioral Finance and the Post-Retirement Crisis: A Response to the Department of the Treasury/Department of Labor Request for Information Regarding Lifetime Income Options for Participants and Beneficiaries in Retirement Plans." Allianz, April 29, 2010. http://www.dol.gov/ebsa/pdf/1210-AB33-617.pdf.

Benartzi, Shlomo, Alessandro Previtero, and Richard H. Thaler. "Annuitization Puzzles." *Journal of Economic Perspectives* 25, no. 4 (fall 2011).

Blake, David, Tom Boardman, and Andrew Cairns. "Sharing Longevity Risk: Why Governments Should Issue Longevity Bonds." Discussion Paper No. PI-1002, The Pensions Institute, London, February 2013. http://pensions-institute.org/workingpapers/wp1002.pdf.

———. "The Case for Longevity Bonds." Issue in Brief No. 10-10, Center for Retirement Research at Boston College, June 2010. http://crr.bc.edu/wp-content/uploads/2010/06/IB_10-10-508.pdf.

Blakely, Stephen. "Is There a Future for Retirement?" *Employee Benefit Research Institute Notes* 32, no. 9 (2011). http://www.ebri.org/pdf/Notes.Sept11.Pol-For-only.06Sept.pdf.

The Board of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds, "2013 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds," Washington, DC, May 2013. http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ReportsTrustFunds/Downloads/TR2013.pdf.

Brady, Peter, Kimberly Burham and Sarah Holden. "The Success of the U.S. Retirement System." Investment Company Institute, Washington, DC, December 2012. http://www.ici.org/pdf/ppr_12_success_retirement.pdf.

Bricker, Jesse, Arthur B. Kennickell, Kevin B. Moore, and John Sabelhaus. "Changes in U.S. Family Finances from 2007 to 2010: Evidence from the Survey of Consumer Finances." *Federal Reserve Bulletin* 98, no. 2 (2012). http://www.federalreserve.gov/pubs/bulletin/2012/pdf/scf12.pdf.

Brown, Jeffrey R. "Automatic Lifetime Income as a Path to Retirement Income Security." White paper, American Council of Life Insurers, September 2009. http://www.wiserwomen.org/pdf_files/Brown,%20Retirement%20Income%20Security.pdf.

Brown, Jeffrey R. "Understanding the Role of Annuities in Retirement Planning." In *Overcoming the Savings*

Slump: How to Increase the Effectiveness of Financial Education and Savings Programs, edited by Annamaria Lusardi. Chicago, University of Chicago Press, 2008.

Brown, Jeffrey R., and Peter R. Orszag. "The Political Economy of Government Issued Longevity Bonds." Presented at the Second International Longevity Risk and Capital Market Solutions Conference, Chicago, April 2006. http://www.investmentnews.com/assets/docs/CI15770330.PDF.

Butrica, Barbara, Karen E. Smith, and C. Eugene Steuerle. "Working for a Good Retirement." Discussion Paper No. 06-03, The Retirement Project, Urban Institute, Washington, DC, May 2006. http://www.urban.org/UploadedPDF/311333_good_retirement.pdf.

Butrica, Barbara A., and Mikki D. Waid. "What Are the Retirement Prospects of Middle-Class Americans?" Middle Class Security Project Paper No. 2013-01, AARP Public Policy Institute, Washington, DC, 2013. http://www.aarp.org/content/dam/aarp/research/public_policy_institute/security/2013/retirement-prospects-middle-class-AARP-ppi-sec.pdf.

Butrica, Barbara A., Howard M. Iams, Karen E. Smith, and Eric J. Toder. "The Disappearing Defined Benefit Pension and Its Potential Impact on the Retirement Incomes of Baby Boomers." *Social Security Bulletin* 69, no. 3 (2009).

Chang, Man-Huei, Heba Athar, Paula W. Yoon, Michael T. Molla, Benedict I. Truman, and Ramal Moonesinghe. "State-Specific Healthy Life Expectancy at Age 65 Years—United States, 2007–2009." *Morbidity and Mortality Weekly Report* 62, no. 28 (July 19, 2013). http://www.cdc.gov/mmwr/pdf/wk/mm6228.pdf.

Clements, B., D. Coady, M. Soto, F. Eich, A. Kangur, J. Kapsoli, K. Kashiwase, M. Nozaki, B. Shang, and V. Thakoor. "The Challenge of Public Pension Reform in Advanced and Emerging Economies." International Monetary Fund, Fiscal Affairs Department, Washington, DC, Dec. 28, 2011. http://www.imf.org/external/np/pp/eng/2011/122811.pdf.

Clingman, Michael, Kyle Burkhalter, and Chris Chaplain. "Money's Worth Ratios Under the OASDI Program for Hypothetical Workers." Actuarial Note No. 2012.7, Social Security Administration, Office of the Chief Actuary, Baltimore, MD, March 2013. http://www.ssa.gov/OACT/NOTES/ran7/index.html.

Congressional Budget Office (CBO). "Growing Disparities in Life Expectancy." Economic and Budget Issue Brief, Congressional Budget Office, Washington, DC, April 2008. http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/91xx/doc9104/04-17-lifeexpectancy_brief.pdf.

———. "Is Social Security Progressive?" Economic and Budget Issue Brief, Congressional Budget Office, Washington, DC, December 2006. http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/77xx/doc7705/12-15-progressivity-ss.pdf.

———. "Use of Tax Incentives for Retirement Saving in 2006." Publication No. 4167, Congressional Budget Office, Washington, DC, October 2011. http://www.cbo.gov/sites/default/files/cbofiles/attachments/2011-10-14-TaxIncentives.pdf.

Cooper, Robert W. *An Historical Analysis of the Tontine Principle, With Emphasis on Tontine and Semi-Tontine Life Insurance Policies.* Philadelphia: Huebner Foundation for Insurance Education, University of Pennsylvania, 1972.

Copeland, Craig. "Employment-Based Retirement Plan Participation: Geographic Differences and Trends, 2012." *EBRI Issue Brief* 392, November 2013. http://www.ebri.org/pdf/briefspdf/EBRI_IB_011-13.No392.Particip.pdf.

———. "Individual Account Retirement Plans: An Analysis of the 2010 Survey of Consumer Finances." *EBRI Issue Brief* 375, September 2012. http://www.ebri.org/pdf/briefspdf/EBRI_IB_09-2012_No375_IndvAccts.pdf.

———. “Individual Retirement Account Balances, Contributions, and Rollovers, 2011: The EBRI IRA Database.” *EBRI Issue Brief* 386, May 2013. http://www.ebri.org/pdf/briefspdf/EBRI_IB_05-13.No386.IRAs.pdf.

Davis, Patricia A., Cliff Binder, Jim Hahn, Paulette C. Morgan, Janemarie Mulvey, Scott R. Talaga and Sibyl Tilson. “Medicare Primer.” Report No. R40425, Congressional Research Service, Washington, DC, April 24, 2012. http://www.fas.org/sgp/crs/misc/R40425.pdf.

Denuit, Michel, Steven Haberman, and Arthur Renshaw. “Longevity-Indexed Life Annuities.” *North American Actuarial Journal* 15, no. 1 (2011): 97.

Dolan, Farrell. “Applying the 4-Box Strategy to Retirement Income Planning: Generating a Lifetime of Income.” *LIMRA's MarketFacts Quarterly*, fall 2009. http://pjwalkercommunications.com/wp-content/uploads/2010/02/Market-Facts.pdf.

Donnelly, Catherine, Montserrat Guillen, and Jens Perch Nielsen. “Exchanging Uncertain Mortality for a Cost.” Nov. 23, 2012. http://www.macs.hw.ac.uk/~cd134/2012/DGN1.pdf.

Entmacher, Joan, and Amy Matsui. “Addressing the Challenges Women Face in Retirement: Improving Social Security, Pensions, and SSI.” *John Marshall Law Review* 46, no. 3 (2013).

Favreault, Melissa M., Richard W. Johnson, Karen E. Smith, and Sheila R. Zedlewski. “Boomers' Retirement Income Prospects.” Brief No. 34, Urban Institute, Program on Retirement Policy, Washington, DC, February 2012. http://www.urban.org/uploadedpdf/412490-boomers-retirement-income-prospects.pdf.

Favreault, Melissa M., and C. Eugene Steuerle. “Social Security Spouse and Survivor Benefits for the Modern Family.” Discussion Paper No. 07-01, The Retirement Project, Urban Institute, Washington, DC, March 2007. http://www.urban.org/UploadedPDF/311436_Social_Security.pdf.

Figueiredo, Carlos, and Sandy Mackenzie. “Older Americans' Ambivalence Toward Annuities: Results of an AARP Survey of Pension Plan and IRA Distribution Choices.” AARP Research Report No. 2012-07, AARP Public Policy Institute, Washington, DC, April 2012. http://www.tiaa-crefinstitute.org/ucm/groups/content/@ap_ucm_p_tcp_docs/documents/document/tiaa04044741.pdf.

Forman, Jonathan Barry. “The Future of 401(k) Plan Fees.” In *New York University Review of Employee Benefits and Executive Compensation 2007*, 9-1. New York: Matthew Bender, 2007.

———. *Making America Work*. Washington, DC: Urban Institute Press, 2006.

———. “Protecting Spousal Rights in Private Pensions.” Monograph No. M-RS00-1, Society of Actuaries' Retirement Needs Framework series, 2000, 55. http://www.soa.org/news-and-publications/publications/other-publications/monographs/m-rs00-1-toc.aspx.

———. “Should We Replace the Current Pension System with a Universal Pension System?” *Journal of Pension Benefits* 16, no. 2 (2009).

Forman, Jonathan, Barry, and Adam Carasso. “Tax Considerations in a Universal Pension System (UPS).” Discussion Paper No. 28, Urban-Brookings Tax Policy Center, Washington DC, December 2007. http://www.urban.org/publications/411593.html.

Forman, Jonathan Barry, and Yung-Ping “Bing” Chen. “Optimal Retirement Age.” In *New York University Review of Employee Benefits and Executive Compensation 2008*, 14-1. New York: Matthew Bender, 2008.

Forman, Jonathan Barry, and Gordon D. Mackenzie. “Optimal Rules for Defined Contribution Plans: What Can We Learn from the U.S. and Australian Pension Systems?” *Tax Lawyer* 66, no. 3 (spring 2013).

Forman, Jonathan Barry, and Amy Nixon. “Cash Balance Pension Plan Conversions.” *Oklahoma City University Law Review* 25, no. 1 & 2 (2000): 379.

Forman, Jonathan Barry, and Michael J. Sabin. "Tontine Pensions: A Solution to the State and Local Pension Underfunding Crisis." March 1, 2014, http://ssrn.com/abstract=2393152.

Frolik, Lawrence A. "Protecting Our Aging Retirees: Converting 401(k) Accounts into Federally Guaranteed Lifetime Annuities." *San Diego Law Review* 47 (2010): 277.

Gale, William G., J. Mark Iwry, David C. John, and Lina Walker. "Increasing Annuitization in 401(k) Plans with Automatic Trial Income." Paper No. 2008-2, Retirement Security Project, Washington, DC, 2008. http://www.brookings.edu/~/media/Files/rc/papers/2008/06_annuities_gale/06_annuities_gale.pdf.

Gale, William G., David C. John, and Spencer Smith. "New Ways to Promote Retirement Savings." AARP Research Report No. 2012-09, AARP Public Policy Institute, Washington, DC, November 2012. http://www.aarp.org/work/retirement-planning/info-11-2012/new-ways-to-promote-retirement-saving-AARP-ppi-econ-sec.html

Ghilarducci, Teresa. *When I Am Sixty Four: The Plot Against Pensions and the Plan to Save Them*. Princeton: Princeton University Press, 2008, 260–92.

Goldsticker, Ralph. "A Mutual Fund to Yield Annuity-Like Benefits." *Financial Analysts Journal* 63, no. 1 (2007).

Goodman, Benny, and Seth Tanenbaum. "The 5 Percent Guaranteed Minimum Withdrawal Benefit: Paying Something for Nothing?" Research Dialogue No. 89, TIAA-CREF Institute, New York, April 2008. https://www.tiaa-crefinstitute.org/public/pdf/5percent-gmwb-goodman-tanenbaum.pdf.

Harris, Benjamin H., and Ilana Fischer. "The Population of Workers Covered by the Auto IRA: Trends and Characteristics." AARP Research Report No. 2012-03, AARP Public Policy Institute, Washington, DC, 2012. http://www.aarp.org/content/dam/aarp/research/public_policy_institute/econ_sec/2012/Population-of-Workers-Auto-IRA-Trends-and-Characteristics-Research-Report-AARP-ppi-econ-sec.pdf.

Harris, Benjamin H., and Rachel M. Johnson. "Economic Effects of Automatic Enrollment in Individual Retirement Accounts." AARP Research Report No. 2012-04, AARP Public Policy Institute, Washington, DC, February 2012. http://www.aarp.org/content/dam/aarp/research/public_policy_institute/econ_sec/2012/Economic-Effects-of-Auto-IRA-Research-Report-AARP-ppi-econ-sec.pdf.

He, Wan, and Mark N. Muenchrath. "90+ in the United States: 2006–2008: American Community Survey Reports." ASC-17, U.S. Census Bureau, Washington, DC, November 2011. http://www.census.gov/prod/2011pubs/acs-17.pdf.

Herschler, Jacob M.A. "U.S. Perspective on Annuity Lifetime Income Guarantees." Presented at Organisation for Economic Development (OECD) Seminar on Annuities and Pensions, Mexico City, June 8, 2011. http://www.oecd.org/dataoecd/56/41/48130072.pdf.

HSBC Insurance Holdings Ltd., "The Future of Retirement: A New Reality." A global report, HSBC Insurance Holdings Ltd., London, 2013. http://www.hsbc.bm/1/PA_ES_Content_Mgmt/content/bermuda/pdfs/future_of_retirement.pdf.

Iams, Howard M., Gayle Reznik, and Christopher R. Tamborini. "Earnings Sharing in Social Security: Projected Impacts of Alternative Proposals Using the MINT Model." *Social Security Bulletin* 69, no. 1 (2009). http://www.ssa.gov/policy/docs/ssb/v69n1/ssb-v69n1.pdf.

Iams, Howard M., and Steven H. Sandell. "Changing Social Security Benefits to Reflect Child-Care Years: A Policy Proposal Whose Time Has Passed?" *Social Security Bulletin* 57, no. 4 (1994). http://www.ssa.gov/policy/docs/ssb/v57n4/v57n4p10.pdf.

Internal Revenue Service. "Longevity Annuity Contracts." *Federal Register* 77 (Feb. 3, 2012).

Iwry, J. Mark, and David C. John. “Pursuing Universal Retirement Security Through Automatic IRAs.” Paper No. 2009-3, Retirement Security Project, Washington, DC, 2009. http://www.brookings.edu/~/media/Files/rc/papers/2009/07_automatic_ira_iwry/07_automatic_ira_iwry.pdf.

Iwry, J. Mark, and John A. Turner. “Automatic Annuitization: New Behavioral Strategies for Expanding Lifetime Income.” Paper No. 2009-2, Retirement Security Project, Washington, DC, 2009. http://www.brookings.edu/~/media/Files/rc/papers/2009/07_annuitization_iwry/07_annuitization_iwry.pdf.

Jennings, Robert M., Donald F. Swanson, and Andrew P. Trout. “Alexander Hamilton's Tontine Proposal.” *William and Mary Quarterly* 45, no. 1 (1988).

Kaiser Commission on Medicaid and the Uninsured. “Medicaid: A Primer, Key Information on the Nation’s Health Coverage Program for Low-Income People.” Report 7334-05, Henry J. Kaiser Family Foundation, Menlo Park, CA, March 2013. http://kaiserfamilyfoundation.files.wordpress.com/2010/06/7334-05.pdf.

Kaplan, Richard L. “Reforming the Taxation of Retirement Income.” *Virginia Tax Review* 32, no. 2 (2012).

———. “Retirement Funding and the Curious Evolution of Individual Retirement Accounts.” *Elder Law Journal* 7 (1999): 283.

Kennedy, Kathryn J. “How Can Lifetime Income Be Made a Desirable Retirement Plan Distribution Option?” In *New York University Review of Employee Benefits and Executive Compensation 2013*, 1-1. New York: Matthew Bender, 2013.

Klees, Barbara S., Christian J. Wolfe, and Catherine A. Curtis. “Brief Summaries of Medicare & Medicaid: Title XVIII and Title XIX of the Social Security Act.” Office of the Actuary, Centers for Medicare and Medicaid Services, Department of Health and Human Services, Baltimore, MD, December 2012. http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/MedicareProgramRatesStats/Downloads/MedicareMedicaidSummaries2012.pdf.

Mackenzie, George A. “Sandy.” *The Decline of the Traditional Pension: A Comparative Study of Threats to Retirement Security* Cambridge: Cambridge University Press, 2010.

Maurer, Raimond, Ralph Rogalla, and Ivonne Siegelin. “Participating Payout Life Annuities: Lessons from Germany.” WP No. 2012-03, Pension Research Council, Philadelphia, May 1, 2012. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2078114##.

McClendon, Janice Kay. “The Death Knell of Traditional Defined Benefit Plans: Avoiding a Race to the 401(k) Bottom.” *Temple Law Review* 80, no. 3 (2007).

McKeever, Kent. “A Short History of Tontines.” *Fordham Journal of Corporate & Financial Law* 15, no. 2 (2009).

Meara, Ellen, Seth Richards, and David Cutler. “The Gap Gets Bigger: Changes in Mortality and Life Expectancy by Education, 1981–2000.” *Health Affairs* 27, no. 2 (2008): 350–60. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2366041/pdf/nihms-42081.pdf.

Meyer, Julie. “Centenarians: 2010. 2010 Census Special Reports.” C2010SR-03, U.S. Census Bureau, Washington, DC, December 2012. http://www.census.gov/prod/cen2010/reports/c2010sr-03.pdf.

Milevsky, Moshe A. “Optimal Annuitization Policies: Analysis and Options,” *North American Actuarial Journal* 5 (2001): 57.

———. “Real Longevity Insurance with a Deductible: Introduction to Advanced-Life Delayed Annuities (ALDA).” *North American Actuarial Journal* 9, no. 4 (2005).

Milevsky, Moshe A., and Thomas S. Salisbury. "Optimal Retirement Tontines for the 21st Century: With Reference to Mortality Derivatives in 1693." May 28, 2013. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2271259.

Milevsky, Moshe A., and Ling-wu Shao. "Annuities and Their Derivatives: The Recent Canadian Experience." In *Securing Lifelong Retirement Income: Global Annuity Markets and Policy*, edited by Olivia S. Mitchell, John Piggott, and Noriyuki Takayama. Oxford: Oxford University Press, 2011.

Modigliani, Franco. "Life Cycle, Individual Thrift, and the Wealth of Nations." *American Economic Review* 76, no. 3 (1986).

Munnell, Alicia H. "How Much to Save for a Secure Retirement." Issue in Brief No. 11-13, Center for Retirement Research at Boston College, November 2011. http://develop.fafo.no/files/news/8018/IB_11-13.pdf.

Munnell, Alicia H., Natalia Sergeyevna Orlova, and Anthony Webb. "How Important is Asset Allocation to Financial Security in Retirement?" CRR WP No. 2012-13, Center for Retirement Research at Boston College, April 2012. http://crr.bc.edu/wp-content/uploads/2012/04/wp-2012-13.pdf.

Munnell, Alicia H., Anthony Webb, and Francesca Golub-Sass. "The National Retirement Risk Index After the Crash." Issue in Brief No. 9-22, Center for Retirement Research at Boston College, October 2009. http://crr.bc.edu/wp-content/uploads/2009/10/IB_9-22.pdf.

———. "The National Retirement Risk Index: An Update." Issue in Brief No. 12-20, Center for Retirement Research at Boston College, October 2012. http://crr.bc.edu/wp-content/uploads/2012/11/IB_12-20-508.pdf.

Newfield, Paul. "The Tontine: An Improvement on the Conventional Annuity?" *Journal of Retirement* 1, no. 3 (2014).

Orth, Beverly I. "Approaches for Promoting Voluntary Annuitization." Monograph No. M-RS08-1, presented at the Society of Actuaries 2008 Retirement 20/20 Conference, Washington, DC, Nov. 17–18, 2008. http://www.soa.org/library/monographs/retirement-systems/retirement2020/2008/november/mono-2008-m-rs08-01-orth.pdf.

———. "How to Survive Living to 100: Ways to Improve the U.S. Retirement System." Monograph No. M-L111-1, presented at the Society of Actuaries' 2011 Living to 100 Symposium, Orlando, FL, Jan. 5–7, 2011. http://www.soa.org/library/monographs/life/living-to-100/2011/2011-toc.aspx.

Perun, Pamela. "Retirement Savings: Confronting the Challenge of Longevity." The Aspen Institute, Initiative on Financial Security, Washington, DC, 2010. http://www.aspeninstitute.org/sites/default/files/content/docs/pubs/ConfrontingLongevity_AspenIFS.pdf.

Piggott, John, Emiliano A. Valdez, and Bettina Detzel. "The Simple Analytics of a Pooled Annuity Fund." *Journal of Risk and Insurance* 72, no. 3 (2005).

Quinn, Joseph, Kevin Cahill, and Michael Giandrea. "Early Retirement: The Dawn of a New Era?" Policy Brief, TIAA-CREF Institute, New York, July 2011. http://www.tiaa-crefinstitute.org/pdf/research/dvds_books/pb_earlyretirement0711.pdf.

Organisation for Economic Development (OECD). *OECD Pensions Outlook 2012*. Paris: OECD Publishing, 2012. http://www.oecd-ilibrary.org/finance-and-investment/oecd-pensions-outlook-2012_9789264169401-en.

Reno, Virginia P., and Elisa A. Walker. "Social Security Benefits, Finances, and Policy Options: A Primer." National Academy of Social Insurance, Washington, DC, June 2013. http://www.nasi.org/sites/default/files/research/2013_Social_Security_Primer_PDF.pdf.

Richter, Andreas, and Frederik Weber. "Mortality-Indexed Annuities: Managing Longevity Risk Via Product Design." *North American Actuarial Journal* 15, no. 2 (2011).

Rocha, Roberto, and Dimitri Vittas. "Designing the Payout Phase of Pension Systems: Policy Issues, Constraints and Options." Policy Research Working Paper No. WPS5289, World Bank, Washington, DC, April 2010. http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2010/05/04/000158349_20100504092303/Rendered/PDF/WPS5289.pdf.

Sabin, Michael J. "Fair Tontine Annuity." March 26, 2010, http://papers.ssrn.com/abstract_id=1579932.

Scott, Jason S. "The Longevity Annuity: An Annuity for Everyone?" *Financial Analysts Journal* 64, no. 1 (2008): 40. http://corp.financialengines.com/employer/FE-LongevityAnnuity-FAJ-08.pdf;

Sexauer, Stephen, Michael Walter Peskin, and Daniel Cassidy. "Making Retirement Income Last a Lifetime." *Financial Analysts Journal* 68, no. 1 (2012).

Singh, Gopal K., and Mohammad Siahpush. "Widening Socioeconomic Inequalities in U.S. Life Expectancy, 1980–2000." *International Journal of Epidemiology* 35, no. 4 (2006).

Social Security Administration (SSA). "Income of the Aged Chartbook, 2010." SSA Publication 13-11727, Social Security Administration, Washington, DC, March 2012. http://www.ssa.gov/policy/docs/chartbooks/income_aged/2010/iac10.pdf.

Society of Actuaries. "Designing a Monthly Paycheck for Retirement." Managing Retirement Decisions Series, 2012. http://www.soa.org/Workarea/DownloadAsset.aspx?id=30089.

Stamos, Michael Z. "Optimal Consumption and Portfolio Choice for Pooled Annuity Funds." *Mathematics and Economics* 43, no. 1 (2008): 56.

Tacchino, Kenn Beam, David A. Littell and Bruce D. Schobel. "A Decision Framework for Optimizing the Social Security Claiming Age." *Benefits Quarterly* 28, no. 2 (second quarter 2012): 40–54.

Thaler, Richard H., and Shlomo Benartzi. "The Behavioral Economics of Retirement Savings Behavior." AARP Research Report No. 2007-02, AARP Public Policy Institute, Washington, DC, January 2007. http://assets.aarp.org/rgcenter/econ/2007_02_savings.pdf.

Thomsen, Jens, and Jens Verner Andersen. "Longevity Bonds: A Financial Market Instrument to Manage Longevity Risk." *Monetary Review* (fourth quarter 2007). http://www.pensions-institute.org/commentaries/Longevity_article_JVA.pdf.

Toth Jr., Robert J. "First Steps to Modernizing DC Annuitization: QLACs and Revenue Ruling 2012-3." *Pension & Benefits Daily* 68 (April 10, 2012).

Towers Watson. "International Pension Plan Survey: Report 2011." Report TW-EU-2011-22755, Towers Watson, London, November 2011. http://www.towerswatson.com/en-AE/Insights/IC-Types/Survey-Research-Results/2011/12/International-Pension-Plan-survey-2011.

Tucker, Jasmine V., Virginia P. Reno, and Thomas N. Bethell. "Strengthening Social Security: What Do Americans Want?" National Academy of Social Insurance, Washington, DC, 2013. http://www.nasi.org/sites/default/files/research/What_Do_Americans_Want.pdf.

Turner, John A. "Longevity Insurance: Strengthening Social Security for Older Retirees." *John Marshall Law Review* 46, no. 3 (2013).

U.S. Census Bureau. "Older Americans Month: May 2011." *Profile America: Facts for Features* No. CB11-FF.08, U.S. Census Bureau (2011). https://www.census.gov/newsroom/releases/archives/facts_for_features_special_editions/cb11-ff08.html.

U.S. Department of Health and Human Services, Office of the Secretary. "Annual Update of the HHS Poverty Guidelines." *Federal Register* 79, no. 14 (January 22, 2014): 3,593–94.

U.S. Department of Labor, Bureau of Labor Statistics (BLS). "BLS Examines Popular 401(k) Retirement Plans." *Program Perspectives* 2, no. 6 (2010). http://www.bls.gov/opub/perspectives/program_perspectives_vol2_issue6.pdf.

———. "Six Ways to Save for Retirement." *Program Perspectives* 3, no. 3 (2011). http://www.bls.gov/opub/perspectives/program_perspectives_vol3_issue3.pdf.

U.S. Government Accountability Office (GAO). "Automatic IRAs: Lower-Earning Households Could Realize Increases in Retirement Income." GAO-13-699, Government Accountability Office, Washington, DC, August 2013. http://www.gao.gov/assets/660/657171.pdf.

———. "Private Pensions: Alternative Approaches Could Address Retirement Risks Faced by Workers but Pose Trade-offs." GAO-09-64220-26, Government Accountability Office, Washington, DC, July 2009. http://www.gao.gov/new.items/d09642.pdf.

———. "Private Pensions: Some Key Features Lead to an Uneven Distribution of Benefits." GAO-11-333, Government Accountability Office Washington, DC, March 2011. http://www.gao.gov/new.items/d11333.pdf.

———. "Retirement Income: Ensuring Income throughout Retirement Requires Difficult Choices." GAO-11-400, Government Accountability Office, Washington, DC, 2011, 38-39.

———. "Social Security Administration: Preliminary Observations on the Death Master File." GAO-11-333, Government Accountability Office, Washington, DC, May 8, 2013. http://www.gao.gov/assets/660/654411.pdf.

———. "Social Security: Options to Protect Benefits for Vulnerable Groups When Addressing Program Solvency." GAO-11-333, Government Accountability Office, Washington, DC, December 2009. http://www.gao.gov/assets/100/96496.pdf.

VanDerhei, Jack. "All or Nothing? An Expanded Perspective on Retirement Readiness." *Employee Benefit Research Institute Notes* 33, no. 11 (2012): 1, 11. http://www.ebri.org/publications/notes/index.cfm?fa=notesDisp&content_id=5131.

———. "Increasing Default Deferral Rates in Automatic Enrollment 401(k) Plans: The Impact on Retirement Savings Success in Plans with Automatic Escalation." *Employee Benefit Research Institute Notes* 33, no. 9 (2012).

———. "Retirement Income Adequacy for Boomers and Gen Xers: Evidence from the 2012 EBRI Retirement Security Projection Model." *Employee Benefit Research Institute Notes* 33, no. 5 (2012): 2. http://www.ebri.org/pdf/notespdf/EBRI_Notes_05_May-12.RSPM-ER.Cvg1.pdf.

VanDerhei, Jack, and Craig Copeland. "The Impact of Deferring Retirement Age on Retirement Income Adequacy." Issue Brief No. 358, Employee Benefit Research Institute, Washington, DC, June 2011. http://www.ebri.org/pdf/briefspdf/EBRI_IB_06-2011_No358_Defr-Ret.pdf.

Van de Water, Paul N., and Arloc Sherman. "Social Security Keeps 21 Million Americans Out of Poverty: A State-by-State Analysis." Center on Budget and Policy Priorities, Washington, DC, Oct. 16, 2012. http://www.cbpp.org/files/10-16-12ss.pdf.

Vincent, Grayson K., and Victoria A. Velkoff. "The Next Four Decades: The Older Population in the United States: 2010 to 2050," P25-1138, U.S. Census Bureau, Washington, DC, May 2010. http://www.census.gov/prod/2010pubs/p25-1138.pdf.

Wadia, Zorast. "Longevity Risk & Retirement." *Actuarial Digest* 31, no. 1 (Spring 2012). http://publications.milliman.com/publications/eb-published/pdfs/longevity-risk-and-retirement.pdf.

Waldron, Hilary. "Mortality Differentials by Lifetime Earnings Decile: Implications for Evaluations of Proposed Social Security Law Changes." *Social Security Bulletin* 73, no. 1 (2013).

———. "Trends in Mortality Differentials and Life Expectancy for Male Social Security-Covered Workers, by Average Relative Earnings." ORES Working Paper No. 108, Social Security Administration, Office of Policy, Office of Research, Evaluation, and Statistics (ORES), Washington, DC, October 2007. http://www.ssa.gov/policy/docs/workingpapers/wp108.html.

Webb, Anthony. "Making Your Nest Egg Last a Lifetime." *Insight on the Issues* 132, AARP Public Policy Institute, Washington, DC, June 2009. http://assets.aarp.org/rgcenter/ppi/econ-sec/i32.pdf.

———. "Providing Income for a Lifetime: Bridging the Gap between Academic Research and Practical Advice." AARP Research Report No. 2009-11, AARP Public Policy Institute, Washington, DC, June 2009. http://assets.aarp.org/rgcenter/ppi/econ-sec/2009-11.pdf.

Webb, Anthony, Guan Gong, and Wei Sun. "An Annuity People Might Actually Buy." Issue in Brief No. 7-10, Center for Retirement Research at Boston College, July 2007. http://crr.bc.edu/wp-content/uploads/2007/07/ib_7-10.pdf.

Wiatrowski, William J. "Changing Landscape of Employment-Based Retirement Benefits." *Compensation and Working Conditions*, Sept. 29, 2011. http://www.bls.gov/opub/mlr/cwc/changing-landscape-of-employment-based-retirement-benefits.pdf.

———. "The Last Private Industry Pension Plans: A Visual Essay," *Monthly Labor Review* 135, no. 12 (2012): 3. http://www.bls.gov/opub/mlr/2012/12/art1full.pdf.

Wood, Robert G., Brian Goesling, and Sarah Avellar. "The Effects of Marriage on Health: A Synthesis of Recent Research Evidence." ASPE Research Brief, Office of the Assistant Secretary for Planning and Evaluation, Office of Human Services Policy, U.S. Department of Health and Human Services, Washington, DC, June 2007. http://aspe.hhs.gov/hsp/07/marriageonhealth/rb.pdf.

Wurster, Rick. "DC 20/20: Pathways to a Secure Retirement." *Rotman International Journal of Pension Management* 4, no. 2 (fall 2011): 54, 58.

Yaari, Manahem E. "Uncertain Lifetime, Life Insurance, and the Theory of the Consumer." *Review of Economic Studies* 32, no. 2 (1965).

Yakoboski, Paul. "Retirees, Annuitization and Defined Contribution Plans." *TIAA-CREF Institute Trends and Issues* April 2010. http://www.tiaa-crefinstitute.org/ucm/groups/content/@ap_ucm_p_tcp_docs/documents/document/tiaa02029462.pdf.

Zelinsky, Edward A. "The Defined Contribution Paradigm." *Yale Law Journal* 114, no. 3 (2004).

———. *The Origins of the Ownership Society: How the Defined Contribution Paradigm Changed America* New York: Oxford University Press, 2007.