A Voluntary Default Savings Plan: An Effective Supplement to Social Security

Dean Baker and David Rosnick

February 2011

Contents

About the Authors

Dean Baker is an economist and Co-Director of the Center for Economic and Policy Research, in Washington, D.C. David Rosnick is an economist at CEPR.

Acknowledgments

Executive Summary

This paper outlines a proposal for a default savings plan that is intended to provide an important supplement to retirement income for the bottom half of the workforce, most of whom have little other than Social Security to support themselves in retirement at present. Under the proposal, workers would make a default contribution of 3.0 percent on annual wages up to $40,000. They could opt out from this contribution if they choose. The contribution would be automatically turned into an annuity at retirement although workers would have the option to make a lump sum withdrawal after paying a modest penalty.

The lowest income workers would get a modest contribution paid into the system by the government based on their earnings. This payment would be modeled along the lines of the Earned Income Tax Credit, with the payment increasing with earnings up to $8,000 and then phasing down to zero with earnings above $20,000. There would also be a match of savings that phases down to zero at $40,000.

Based on assumptions derived from research on participation in default savings plans, the Tax Policy Center of the Brooking Institution and the Urban Institute calculated the projected average contribution rate by income and household type. The exercise showed that the plan would lead to a substantial increase in retirement savings for workers in the bottom three quintiles. This increment to savings would increase retirement income for workers in the bottom two quintiles by at least 15-20 percent from current levels, with the increase for the third quintile being somewhat more than 10 percent.

The paper notes that this plan would not achieve universal coverage and compares its merits with a mandatory proposal. The discussion notes that a mandatory plan would also not be able to achieve universal coverage, given that there would be some level of evasion, as is currently the case with Social Security. If there is substantial non-participation in a voluntary default program – meaning workers really do not want to save for retirement – then it suggests that workers view forced saving as equivalent to a tax. In this case, a mandate is likely to lead to increased non-compliance with existing tax law, including increased evasion of Social Security contributions.

A second implication is that a mandate would have negative labor market effects, with workers viewing the mandate as leading to a lower after-tax wage. This would lead to somewhat lower rates of employment. In the extreme case, where a worker viewed the entire mandated contribution as a tax, a mandated 3.0 percent contribution would reduce employment by more than 200,000, with most of the falloff coming at the bottom end of the earnings distribution.

The paper also notes that it may be more politically feasible to institute a voluntary default system than a mandatory retirement system. If this is the case, then there might be a strong argument for moving ahead with a voluntary system even if a mandatory system could in principle be more desirable. There are tens of millions of workers who are approaching retirement with little more than their Social Security to support them. Each year that the adoption of a new system is delayed ensures that more workers will be inadequately prepared for retirement. This fact would seem to be a strong argument for moving ahead with the system that is most politically feasible, recognizing that any system can always be extended and improved, if there is public support for it.

Introduction

The United States desperately needs to repair its system of retirement income. While the Social Security system provides a solid foundation that keeps the vast majority of retirees out of poverty, it is insufficient to provide a comfortable retirement income. The pillars of defined benefit pensions and individual savings that retirees once relied upon to supplement their Social Security have not held up well in the last three decades. Outside of the public sector, defined benefit pensions are rapidly disappearing. Workers have managed to save little in a period of stagnant real wages and unusually volatile stock prices. The failure of the retirement system, coupled with the collapse of the housing bubble, has left the huge cohort of baby boomers with little other than their Social Security as a source of income in retirement.

This paper puts forward a proposal to help address this problem in the future. It lays out a system of supplemental retirement accounts involving default contributions of 3 percent of wages, up to $1,000 a year. This system would be voluntary, so that any worker would have the option to refuse to contribute. There would also be matches for low-wage workers so that participation would be affordable. The government would administer the accounts to minimize administrative costs, although the investment of the funds could be managed privately, as with the federal employees' Thrift Savings Plan. The accounts would offer a guaranteed 3.0 percent rate of return. The default payback would be in the form of an annuity, although workers would be able to take lump sum distributions with a modest penalty.

The paper is divided into five parts. The first part discusses the rationale for this sort of supplemental saving program. The second part describes the main features of the proposed system. The third part discusses the projected impact of the program on retirement income and the budget deficit based on analysis by the Tax Policy Center of the Brooking Institution and the Urban Institute. The fourth part discusses these projections in comparison with standards of retirement income and other proposed systems. The fifth part is a brief conclusion.

The Need for a New Retirement System

The percentage of the population who can count on an adequate retirement income has been falling rapidly in the last three decades. The traditional defined benefit pension system is quickly disappearing in the private sector. In 2006 just 20 percent of workers participated in a defined benefit (DB) plan at their workplace.[1] This number includes many workers whose pensions have been frozen because the employer is no longer making contributions. The share is virtually certain to fall further in the near future, as many employers have switched over their defined benefit plans to defined contribution plans for new employees. Also, the firms that still have DB plans are disproportionately in contracting sectors of the economy. These firms are likely to reduce the size of their workforce in the years ahead or go out business altogether. With few, if any, new firms establishing DB plans, the share of workers enrolled in these plans will inevitably fall through time.

---

1 Bureau of Labor Statistics, Employee Benefit Survey, Series EBUDBINC000000AP.

The economic crisis has had the effect of substantially hastening this trend. First and most obviously, it increased the burden on firms who maintain DB pensions as a result of the plunge in the stock market. The value of the S&P 500 was more than 25 percent lower in real terms in the summer of 2010 than it was at its pre-recession peak in the fall of 2007. The large negative return over this 3-year period has left many DB plans seriously under-funded. **Figure 1** shows the ratio of private DB plan assets to GDP since 1993.

FIGURE 1
Assets of Defined Benefit Pensions as Percent of GDP
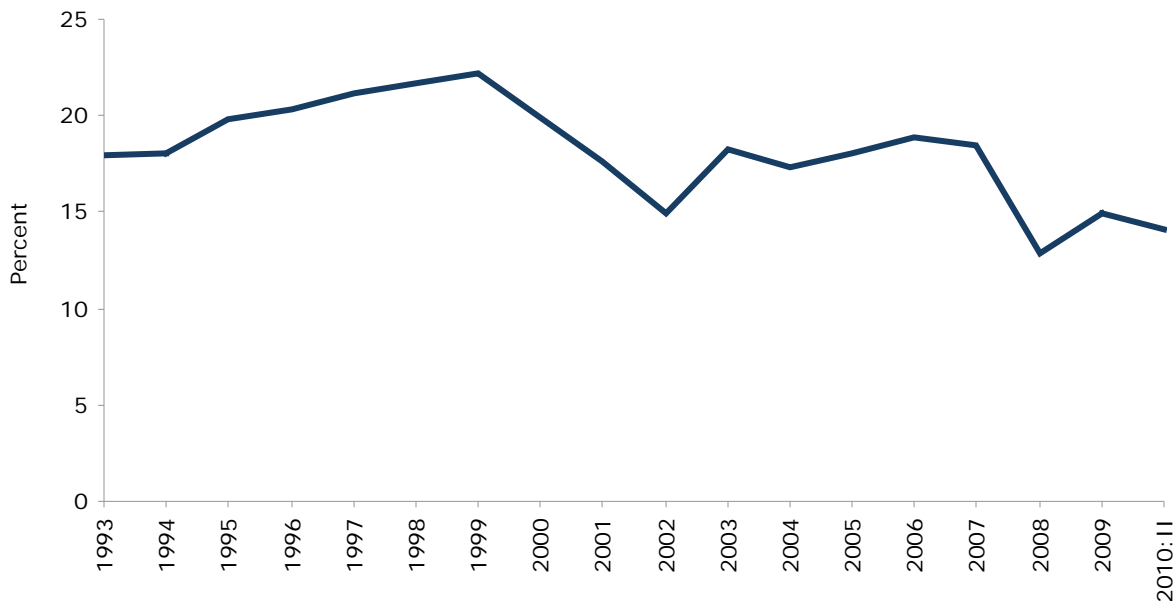
Source: Federal Reserve Board, Flow of Funds Table L.118.b

As can be seen, this ratio has fallen sharply over most of this period. At the second quarter of 2010 it stood at just 14.1 percent of GDP, down from a peak of 22.2 percent at the end of 1999. The end-of-period asset level implied average pension wealth of $47,000 for each of the 44 million current or retired workers covered by private DB plans. Since benefits are hugely skewed, with a relatively small share of these workers enjoying comfortable pension levels, the vast majority of current workers who have qualified for a DB pension in the private sector will only see a very limited benefit in retirement.

The other reason that the downturn hastened the decline of DB plans is that it led to a large loss of jobs in manufacturing, which was the sector of the private economy most likely to have DB pensions. Manufacturing employment, which had been declining over most of the last decade, plummeted with the onset of the recession. From the beginning of the recession in December of 2007 until December of 2009, manufacturing employment fell by almost 2.2 million, or 16 percent. The job loss was skewed toward higher-paying union jobs where workers were most likely to have DB pensions.

In short, the effect of the recession was to sharply hasten the decline of traditional DB pensions. They were already rapidly becoming a less important feature of the private sector work place, but as a result of the downturn, traditional DB pensions are substantially less relevant today than in 2007.

Defined contribution (DC) plans have proven to be an inadequate replacement for DB plans. Employer contributions to DC plans have generally been inadequate to support a decent retirement and workers often find it difficult to sustain their own contributions to DC plans through periods of hardship. As a result, the combined contributions to DC plans are often inadequate from the onset.[2]

In addition, administrative costs for DC plans are often quite high, substantially reducing returns. Administrative costs average more than 1.0 percent of plan assets and often exceed 1.5 percent of assets.[3] Costs in excess of 1.0 percent can reduce accumulations by more than 20 percent compared to a situation in which no fees were charged.

Another factor reducing savings in DC plans is the fact that workers often take out money from DC plans when changing jobs, making it more difficult to accumulate substantial savings for retirement. An analysis of the 2001 Survey of Consumer Finance found that 55 percent of workers changing jobs cashed out their 401(k) plans.[4] In an economy where long-term employment is becoming increasingly rare, this pattern of behavior will severely limit workers' ability to accumulate the savings necessary to support a comfortable retirement.

The other major source of individual savings has historically been the accumulation of home equity. The traditional 30-year fixed rate mortgage is effectively a phased savings plan, with a gradually growing portion of the mortgage payment going towards equity rather than interest. Insofar as the home price rises in excess of the inflation rate anticipated at the time of the mortgage contract, this is an additional dividend for homeowners, providing an additional boost to their equity.

The notion that homeownership was a riskless way to save for retirement or other purposes was always exaggerated. There was always a risk that home prices could fall, or at least lag the overall inflation rate, as they have in many areas. Nationwide, home prices have just tracked the overall inflation rate.[5] Since there are many areas, such as the California coastal cities and New York, where home prices have substantially outpaced the overall inflation rate over long periods of time, there also must be many areas where home prices have not kept pace with inflation.

Also, it is important to recognize that homeownership may be especially risky in an undiversified economy. In an area that is heavily dependent on a single industry, for example Detroit, which is heavily dependent on the auto industry, a worker is effectively placing the same bet on their employment security as with their major investment asset. If the auto sector takes a downturn, these workers face the likelihood of both losing their job and also seeing a major drop in the value of their main source of wealth. In an undiversified economy, homeownership is comparable to a worker investing all of their savings in their employers' stock. This is a risky practice that would be discouraged by any reasonable investment adviser. Yet, homeownership is widely encouraged even though in many metropolitan areas it carries similar risks.

Whatever problems are associated with homeownership as an investment in normal times, the risks were far greater during the years of the housing bubble. During these years, home prices had diverged sharply from fundamental values, creating a near-certainty that they would eventually

---

2 For example, see Weller and Wolff (2005).
3 Government Accountability Office (2006).
4 Munnell and Sunden (2004).
5 Shiller (2005).

decline. This correction began in the summer of 2006 and was not yet completed by the fall of 2010.[6] Homeowners who bought homes during the bubble years were likely to see large losses on their homes. This clearly was not an effective route to save for retirement.

Even many homeowners who bought prior to the bubble also lost savings as a result of the bubble, in this case due to the decision to spend some of their bubble-generated equity. There was a massive wave of cash-out refinancing and home equity loans during the peak years of the housing bubble.[7] It was perfectly reasonable for homeowners to spend based on the values their homes reached during the bubble years, since homeowners had no reason to believe that this equity would not persist. The vast majority of economists and housing analysts insisted that the run-up in home prices was justified by the fundamentals of the market. Homeowners can hardly be blamed for assuming that this assessment was correct. Nonetheless, the decision to spend bubble-generated equity left homeowners with little or no equity in their homes after home prices moved back toward trend levels. In this case, the price volatility of their major asset led many homeowners to act in a way that was very destructive of their effort to accumulate wealth for retirement.

Homeownership may be a useful way for many workers to save, however it is far from the risk-free formula for wealth accumulation that many have touted. It certainly cannot be seen as providing a viable alternative to pensions as the main route for workers to accumulate retirement savings.

At this point, there is no reliable mechanism available to moderate- and middle-income families to accumulate wealth for retirement. While DB pensions never covered much more than half of the private sector workforce, they did at least provide a guaranteed retirement income to a substantial segment of the working population, including many moderate-income workers. DC pensions have not come close to filling the gap created by the collapse of the DB system. And, homeownership can not be viewed as an alternative to workplace pensions.

As a result of the failings of traditional savings mechanisms, the huge baby boom cohort is approaching retirement with most workers having little other than their Social Security to support them. The median wealth (including home equity) for early baby boomers (ages 55-64 in 2009) was projected at just $168,700 in 2009, roughly enough to pay off the mortgage on the median home price, leaving workers with nothing other than Social Security to support themselves in retirement.[8] The median late baby boomer (ages 45-54 in 2009) had accumulated just $88,000 in wealth in 2009, approximately enough to pay half of the mortgage on the median home.

This wealth data implies that most near-retirees will be almost entirely dependent on their Social Security benefits. This will be sufficient in most cases to keep retirees above the poverty level, but certainly not enough to allow moderate-income and middle class workers to sustain a standard of living in retirement that is close to what they enjoyed during their working years.

---

6 During the housing bubble, nationwide house prices departed from a 100-year long trend in which they had just tracked the overall rate of inflation. At the peak of the bubble in 2006, real house prices had increased by more than 70 percent since 1996, according the Federal Housing Finance Authority's House Price Index. By the fall of 2010, the real value of this index was still more than 20 percent higher than it had been in 1996.

7 See Greenspan and Kennedy (2007).

8 Rosnick and Baker (2010).

Unfortunately, it is too late to devise any savings schemes to help the early baby boomers accumulate wealth during the few years they have remaining in the workforce. There is also probably little hope for substantially improving the prospects of the late baby boomers. However, it is important that policy makers address this issue soon so that future generations of retirees can be better prepared, allowing them to anticipate a more comfortable retirement. A new retirement savings system must be a central part of this picture.

A Hybrid Supplemental Saving Plan

The CEPR supplemental saving plan is a mix of a defined contribution and defined benefit plan comparable to a cash-balance private pension plan. It would have the government offer a guaranteed real rate of return of 3.0 percent above the rate of inflation. This return would be only slightly lower than what could be expected in a typical defined contribution account, after deducting for administrative costs.[9,10] There would be a modest contribution made on behalf of low-income workers that would be phased out for moderate-income workers. There would also be a modest match available to low and moderate-income earners that would be phased down to zero for middle-income workers.

The default payout would be an actuarially fair annuity; with age 62 being the first age at which participants could begin to receive benefits (tied to the minimum age for collecting Social Security benefits). Workers would have the option to take their benefits in a lump sum, however to limit the problem of adverse selection, a penalty would be attached to a lump sum withdrawal (e.g. 15 percent), with an exception made for participants afflicted with a terminal illness as attested to by their physician. (The assumption is that since it is possible to get a lump sum payout by paying a modest penalty, relatively few people would engage in criminal fraud to avoid this penalty.)

Ideally few workers would opt to take a lump sum payment in place of annuity. The purpose of a program of subsidized savings like this is to increase workers' retirement income. If workers take their money as a lump sum and then spend it shortly after the withdrawal, then the money would not be able to support them throughout their retirement. However, as a voluntary program, it is likely that more people would contribute knowing that they have the option of taking their money out in a lump sum, if that is what they choose to do.

The exception for workers with terminal illnesses is included both because it would probably be desirable to let people with terminal illnesses benefit from this money during the last months of their lives and also because the image of people who had saved through this system dying in poverty, unable to tap the money, would not be very attractive. In addition, the knowledge that people could

---

9   If stocks provide an average real rate of return 6.5 percent and bonds an average real rate of 3.0 percent, then a portfolio that is a mix of 60 percent stock and 40 percent bonds would provide an expected return of 5.1 percent. If administrative costs on this account average 1.0 percent, then the expected return would be 4.1 percent. If a worker opted to turn their savings into an annuity on retirement the fees would typically between 10-20 percent of the accumulation.

10 It is very unlikely that a guaranteed rate of return set at this level would require any public funding except for very short periods. Assuming that most of the money were invested in an equity index fund, it would be highly unlikely that the real return would fall under 3.0 percent. See Munnell, Golub-Sass, Kopcke, and Webb (2009).

tap their money in the event of a terminal illness would likely make the system more attractive and increase participation rates.

The option of taking lump sum payments rather than an annuity would likely lead to somewhat of a problem of adverse selection, as those with shorter life expectancies disproportionately cash out their savings. However, the modest rate of return guaranteed in these funds should allow for some adverse selection in the population mix that ends up taking an annuity. The lump sum option would only create a problem for the system if both a very large portion of participants went this route and there was considerable skewing towards shorter life expectancies among this group.

Account Schedule

The program assumes automatic enrollment with a default contribution of 3 percent of income up to $1,000 per year, plus a subsidy schedule is as follows in **Table 1**:

TABLE 1
Subsidy Schedule of CEPR Savings Plan

Annual Earnings	Subsidy	Default Contribution	Subsidy on default contribution	Default contribution with subsidy
$0-8,000	5 percent of income, plus 100 percent match up to $400	$0-240	$0-640	$0-880
$8,000-12,000	$400, plus 100 percent match up to $400	$240-360	$640-760	$880-1,120
$12,000-20,000	$400 minus 5 percent of income over $12,000, plus 100 percent match up to $400	$360-600	$400-760	$1,000-1,133*
$20,000-30,000	100 percent match up to $400	$600-1,000	$400	$1,000-1,300
$30,000-40,000	100 percent match up to $400 minus 4 percent of income above $30,000	$1,000	$0-400	$1,000-1,300
Above $40,000	No subsidy	$1,000	$0	$1,000
* The default contribution of three percent of income reaches the $400 match maximum at $13,333.33.				

Additional Details

The $1,000 yearly contribution maximum and the earnings bend-points would be indexed for inflation. The accounts would generate guaranteed real interest of 3 percent. If we assume 2.5 percent inflation, then the nominal rate of return on the accounts would be 5.575 percent. For tax purposes, the accounts would be treated as standard IRAs, but the system of subsidies would replace the Saver's Credit.

Workers who are not currently enrolled in a comparable retirement plan at their workplace, either because their employer does not offer one or because the worker is not enrolled in the employer's plan, would be enrolled in the saving plan with 3.0 percent deducted from their paycheck, up to $1,000 a year. This enrollment is optional so the worker has the option to request that they be taken out of the program, with no money taken out of their check.[11] Workers would be able to keep their savings in the plan even as they changed jobs.

---

11 It might be desirable to have periodic default re-enrollments. For example, if a worker has opted out of the program, after three years they could be re-enrolled, with the option to again opt out. This would ensure that it is a conscious choice by the worker not to be enrolled.

The government would administer the funds in the same way as it administers the federal employees' Thrift Savings Plan (TSP). Under this system, the money is collected by the TSP, with the TSP responsible for keeping records and maintaining contact with participants, however the management of the funds is contracted out to private money managers. As a result of the enormous size of the fund and the fact that it would be restricted to investing in broad market indexes, the administrative fees would be low, typically just over 0.1 percent.[12]

It is likely that administrative costs of this proposed system would be even lower than it is for TSP, since there would be no options for participants to choose among and to switch between. The administrative tasks would be limited to keeping records of deposits and accumulations and for allowing payouts when a participant opted to collect benefits. The assets of the fund would be invested in broad indexes of equities, bonds, and money market holdings, like TSP funds. The purpose would be to maintain a stable rate of return with limited risk. The accounting of the funds would be similar to TSP, with the funds not included in the federal budget.

The guaranteed rate of return would most immediately be a commitment from the fund, not the government. However, as a practical matter, if the fund ever did suffer large enough losses so that it was unable to meet its commitments, as a political matter, it would be almost inevitable the federal government would honor its obligations, much as it did for Fannie Mae and Freddie Mac. However, given the modest return assumptions, this seems unlikely, although clearly not impossible.

Expected Participation

Lowest-income workers

For workers earning between $20,000 and $40,000 the program offers free money, but it does at least require worker contribution. This is not so for the lowest-income workers, who earn less than $20,000 per year. For those workers, there is no trade-off. They may fail to contribute, but there is no reason why workers who already participate in Social Security would opt entirely out of the program. On the other hand, someone who had opted-out previously might fail to opt back in if his or her income fell to a level where they would effectively be turning down free money. This form of decision stickiness may be a problem with workers who have opted out, since they are likely more concerned with current than future income. However, the majority of such pay cuts surely involve job changes and the worker would be automatically re-enrolled at the new job.

Approximately 6 percent of workers covered by Social Security fail to make their required contributions. Assuming these gray-market workers are concentrated in the lowest incomes, participation may be as low as 85 percent for prime-age workers in this category. The youngest and oldest workers may be less likely to participate in gray-market activity—for example, the youngest particularly concentrating in food service industries—and therefore have somewhat higher rates of participation.

Lower-middle-income workers

For these workers (those making $20,000-30,000 per year) the program offers a 100 percent match up to $400 (1.33-2 percent of income). By comparison, Madrian and Shea (2001) analyze a plan with

---

12 See Beedon (1999).

a 50 percent match up to 6 percent of income with automatic enrollment at 3 percent. Based on Utkus (2005), the differences in plan generosity mostly favor the 100 percent match. Utkus predicts 73.5 percent participation with a 50 percent match up to 6 percent, but 75.9 percent participation with a 100 percent match up to 3 percent. These effects seem largely consistent with Dworak and Fisher (2008), and on the low-end in comparison to Beshears, et. al. (2007) who also find much higher participation rates, generally. Thus, we estimate that this plan is 1.5 percentage points more generous than that in Madrian and Shea. Regardless of age, then, we expect these workers to participate at about an 81.0 (79.5 + 1.5) percent rate overall[13] and assume half the variation due to age (on account of age/income correlation).

Upper-middle-income workers

These workers (making $30,000-40,000 per year) face a declining match maximum. Assuming an average maximum of $200, this is an equivalent of about half of one percent of income. Still, the 100 percent match is a strong incentive to participate even if the contribution rates are low. Thus, we do not add in the 1.5 percentage points for plan generosity, leaving a 82.8 (82.8+0.0) percent overall rate of participation for this income group, or nearly two percentage points above the $20,000-30,000 income group.

Higher-income workers

For the highest-income workers (those making $40,000 or more per year), there is no subsidy. Utkus estimates this costs 10.0 percentage points of participation relative to a Madrian and Shea type structure. On the other hand, Madrian and Shea find much higher rates of participation among higher-income workers (6-12 percentage points). We simply assume a range of 78.9 percentage points on the low end to 84.7 percentage points on the high end.

The expected participation rates by age and 2008 income are shown in **Table 2**.

TABLE 2
Expected Participation Rates by Age and Income (Percent)

	$0-20,000	$20,000-30,000	$30,000-40,000	Above $40,000
Under 20	90-97	71-76	73-78	72-77
20-29	87-96	76-81	78-83	76-82
30-39	85-95	78-83	79-84	78-84
40-49	85-95	79-84	81-86	80-86
50-59	87-96	79-84	81-86	80-86
60 and over	90-97	77-82	79-84	78-84

Expected Contribution Rates

For those who participate, we can expect most to stick to the default 3 percent contribution rate. Madrian and Shea find that 71.2 percent of those who participate contributed 100 percent of a 3 percent of income contribution into the default money-market fund. The average contribution rate was 4.4 percent of income, but by income only those making more than $30,000 in 1999 averaged more than 4 percent.

---

13 Madrian and Shea report 79.5 percent participation for the under-$20,000 income category. Ten years of nominal income growth place the threshold closer to $30,000 today.

Among participants, we estimate the rate of default participation. This fraction of participants contributes 3 percent of income, while the rest require additional contribution assumptions.

For the lowest-income group, Madrian and Shea would expect the highest rate of default contributions, but in this scenario, we adjust downward to reflect the much higher rates of participation. That is, to reflect that the only reason that many have not opted out is because they gain even by not contributing we assume non-default contributions by three-quarters of those drawn in by the program's generosity.

The expected rate of default participation (3 percent contributions among those participating) by age and 2008 income are show in **Table 3**:

TABLE 3
Expected Default Contribution Rates by Age and Income (Percent)

	$0-20,000	$20,000-30,000	$30,000-40,000	Above $40,000
Under 20	86-91	98-100	92-97	50-80
20-29	85-90	92-97	86-91	40-70
30-39	84-89	88-93	82-87	40-70
40-49	83-88	86-91	80-85	35-65
50-59	78-83	83-88	77-82	30-65
60 and over	67-72	74-79	68-73	25-55

For the lowest-income group, we assume that non-default contributions are zero. For middle-income groups, we assume that non-default contributions half target the match maximum and half target the $1,000 contribution maximum. For the highest – given that they receive no subsidy apart from the tax benefit – we assume that they would largely make their default contribution rate or not participate at all. However, the default contribution is at the $1,000 maximum for these participants. **Table 4** shows the expected contribution rate by age and income:

TABLE 4
Expected Total Contribution Rates by Age and Income (Percent)

	$0-20,000	$20,000-30,000	$30,000-40,000	Above $40,000
Under 20	2.6-2.7	3.0	2.8	1.8
20-29	2.5-2.7	3.0	2.7	1.8
30-39	2.5-2.7	3.0	2.7	1.6
40-49	2.5-2.6	3.0	2.7	1.5
50-59	2.4-2.5	3.0	2.6	1.5
60 and over	2.0-2.2	3.0	2.5	1.5

Simulation Results

The Tax Policy Center of the Brooking Institution and Urban Institute modeled the CEPR savings plan as described above, based on the assumed participation rates suggested by our analysis of the literature. The modeling exercise assumes that the plan is first put into effect in 2011. **Table 5** shows the average increase in savings for households headed by someone under the age of 65.[14]

---

14 The unit here is tax-filing unit. Married couples filing jointly are treated as single unit in this analysis.

TABLE 5
Average Change In Retirement Contributions by Cash Income Percentile, 2011-2020 [a, b]

Cash Income Percentile [c, d, e]	Average Annual Change in Contributions (2009 Dollars)									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Lowest Quintile	378	387	393	394	400	406	413	420	427	436
Second Quintile	528	535	541	545	550	559	566	578	584	592
Middle Quintile	481	487	488	483	480	496	496	512	513	517
Fourth Quintile	471	482	480	474	470	483	479	492	489	486
Top Quintile	312	325	323	315	310	319	315	324	320	314
All	434	444	447	444	445	455	456	468	470	473
Addendum										
80-90	371	376	373	359	353	363	359	369	365	358
90-95	265	293	295	294	286	292	288	296	294	289
95-99	243	258	257	254	254	263	261	272	267	262
Top 1 Percent	201	204	202	200	198	204	202	203	197	199
Top 0.1 Percent	117	123	120	121	121	122	122	125	126	125

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0509-6) -- adjusted with authors' calculations, see appendix.
(a) Calendar year. Baseline is current policy. The proposal introduces automatic enrollment in IRAs combined with a subsidy for contributions to IRAs. All workers without employer-sponsored saving plans are automatically enrolled in a traditional IRA with a default contribution rate equal to 3 percent of wages; the maximum contribution to an Auto IRA is $1,000 annually under the plan. Individuals with wages below $30,000 receive a 100 percent match on contributions up to $400; this credit is phased-out for wage levels between $30,000 and $40,000. Individuals with wages below $12,000 also receive a refundable saving credit equal to the lesser of $400 and 5 percent of wages; this credit is phased-out for wage levels between $12,000 and $20,000. All thresholds are indexed to inflation. This credit replaces the existing Saver's Credit.
(b) IRA contributions include traditional IRAs, Roth IRAs and the Saver's Credit (which is expanded under the proposal).
(c) Tax units with negative cash income are excluded from the lowest income class but are included in the totals. For a description of cash income, see http://www.taxpolicycenter.org/TaxModel/income.cfm
(d) Includes both filing and non-filing units but excludes those that are dependents of other tax units.
(e) The cash income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. For breaks, see http://taxpolicycenter.org/numbers/displayatab.cfm?DocID=2835

The pattern shown in Table 5 shows a modest increase in contributions to a retirement plan for workers in the bottom quintile, averaging about $380 in 2011. This should not be surprising since many of the people in this quintile are young, still in their teens or twenties, and part-time and/or part-year workers. Average income for the bottom quintile is just $11,500, so the increase in contributions is projected as being more than 3.0 percent of their income.

The second quintile is more likely to include full-year workers who work near full-time. The increase in contributions for these workers is projected as averaging roughly $530 in 2011. This is more than 2.1 percent of their average annual income of $24,400 a year. The increase in contributions for the third quintile averages about $480 in 2011, roughly 1.1 percent of their average annual income. The reason for the falloff is both that the incentives are considerably less generous at this income level and also a higher share of workers in this quintile are already contributing to defined contribution plans. This means that there would be less of an increase in contributions even if they were to join a new publicly sponsored plan.

The fourth and fifth quintiles are projected to increase their contributions by $470 and about $310, respectively, as a result of being offered this plan. These sums are low relative to the incomes of these workers, less than 0.6 percent in the case of workers in the fourth quintile and less than 0.2 percent in the case of workers in the top quintile. While the point of this program is not to provide an additional benefit to the most highly paid workers, it would in fact be desirable if a substantial number of higher income workers did opt to take part in the program.

Participation by higher income workers would give a larger portion of the population a stake in the program. This should increase support for preserving and extending the program. In addition, the participation of higher income people who have ready access to alternative saving vehicles is likely to put pressure on the administrators of the program to maintain high quality service. There is also little downside to the participation of higher paid workers since there is no real subsidy being provided to them apart from the tax benefits that would accrue from participating in any retirement savings plan.

Table 6 shows the implied annuity from this benefit assuming that a worker contributes at this rate over a 35 year working career and chooses to start collecting the annuity at age 65. The additional contribution for the lowest quintile of taxpayers would lead to an accumulation of approximately $27,700 over a working lifetime in 2009 dollars. (This assumes that annual contributions rise in step with the 1.3 percent rate of real wage growth projected by the Social Security trustees.) For the second lowest quintile the accumulation would be about $38,600. The implied annuities in these cases are roughly $1,900 and $2,600 a year, respectively.

TABLE 6
Increase in Lifetime Accumulations and Annuity Payouts (2009 dollars)

Income Quintile	Increase in Annual Contribution (2011)	Increase in Lifetime Accumulation	Implied Annuity -- Age 65
Lowest Quintile	378	27,662	1,881
Second Quintile	528	38,577	2,623
Middle Quintile	481	35,137	2,389
Fourth Quintile	471	34,421	2,341
Top Quintile	312	22,781	1,549
All	434	31,719	2,157

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0509-6) and authors' calculations, see appendix.

In 2009 the median income for the bottom quintile of households headed by someone over age 65 was close to $10,000. It was close to $20,000 for the second quintile of older households.[15] These annuities would imply a substantial increase in income for the bottom 40 percent of senior households, a rise of close to 20 percent for the bottom quintile, and roughly 13 percent for the second quintile.

Of course, the position of older households in the income distribution will not match up closely with their position in the distribution of income in any specific year during their working career. Most of the older households in the bottom quintile of the income distribution will not have 35

---

15 Data on income of older households is available from the United States Census Bureau (2010).

years of work experience, having spent a considerable amount of time unemployed or out of the labor market. For this reason, these calculations are likely to substantially overstate the increase in benefits for those at the bottom.

A factor that may go the other way is that this system would both encourage workers to keep money in their accounts as they change jobs and also to annuitize whatever they have accumulated when they reach retirement. As noted earlier, workers often cash out their retirement savings when changing jobs. This is not an option under the CEPR proposal. Therefore there would be fewer leakages from any pool of retirement savings. Since to some extent contributions to the CEPR system would displace contributions to current defined contribution plans, this system would reduce the leakage from money that is already being contributed, in addition to ensuring that there would be a lower leakage rate from new funds. This means that the increase in retirement income should be somewhat higher than is suggested by these calculations.

Table 7 shows the tax incidence of this plan. As intended, the vast majority of the tax benefit accrues to low- and middle-income households. The bottom quintile sees an average reduction in their net tax burden of $217 per year. The tax burden for the second lowest quintile falls by an average of $196. For households in the top quintile the average tax burden falls by $83. This drop is due to the fact that more workers in this quintile are opting to contribute to a retirement plan (or contributing more) and therefore getting the benefit of the tax deduction. The progressivity of the program is even more apparent when the reduction in net burden is expressed as a percentage of income. The tax benefit for workers in the bottom two quintiles are equal to 1.9 percent and 0.7 percent of income, respectively. By contrast, the tax benefit for workers in the top quintile is projected to average less than 0.1 percent of income.

The simulation shows that the assumed rates of participation would lead to a net revenue loss of roughly $28 billion in 2011, or a bit less than 0.2 percent of GDP. This is not trivial, especially in an environment where deficit reduction has become a major national priority, but it would certainly seem a manageable burden if there were a commitment to increasing retirement savings. By comparison, it is worth noting that the annual cost of the tax expenditure for tax-favored savings plans is projected to be $140.9 billion in 2011, more than five times the cost of the proposed saving plan.[16] This expenditure would seem to provide an obvious potential source of funding for a supplemental saving plan along the lines of the CEPR proposal. A reduction in the value of this tax expenditure for higher income taxpayers could easily cover the cost of the subsidies in this proposal.

---

16 Office of Management and Budget (2010).

TABLE 7
Distribution of Federal Tax Change by Cash Income Percentile, 2015 [a]

Cash Income Percentile [b, c]	Percent of Tax Units [d]		Change in After-Tax Income (%) [e]	Share of Federal Tax Change (%)	Average Federal Tax Change ($)	Average Federal Tax Rate [f]	
	With Tax Cut	With Tax Increase				Change (% Points)	Under the Proposal
Lowest Quintile	39.5	1.9	1.9	33.7	-217	-1.8	2.9
Second Quintile	39.6	7.7	0.7	26.9	-196	-0.6	9.7
Middle Quintile	39.1	5.6	0.3	16.0	-129	-0.2	16.6
Fourth Quintile	38.1	0.5	0.2	15.8	-152	-0.2	19.8
Top Quintile	17.4	0.1	0.0	7.5	-83	0.0	25.5
All	**35.8**	**3.4**	**0.3**	**100.0**	**-163**	**-0.2**	**21.1**
Top Quintile Subsets							
80-90	19.9	0.1	0.1	4.1	-89	-0.1	22.4
90-95	14.9	0.1	0.0	1.7	-74	0.0	23.3
95-99	14.8	0.0	0.0	1.5	-81	0.0	25.2
Top 1 Percent	13.6	0.0	0.0	0.3	-74	0.0	29.1
Top 0.1 Percent	9.7	0.0	0.0	0.0	-51	0.0	31.7

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0509-6).
Number of AMT Taxpayers (millions). Baseline: 6.0; Proposal: 6.0
(a) Calendar year. Baseline is current policy. The proposal introduces automatic enrollment in IRAs combined with a subsidy for contributions to IRAs. All workers without employer-sponsored saving plans are automatically enrolled in a traditional IRA with a default contribution rate equal to 3 percent of wages; the maximum contribution to an Auto IRA is $1,000 annually under the plan. Individuals with wages below $30,000 receive a 100 percent match on contributions up to $400; this credit is phased-out for wage levels between $30,000 and $40,000. Individuals with wages below $12,000 also receive a refundable saving credit equal to the lesser of $400 and 5 percent of wages; this credit is phased-out for wage levels between $12,000 and $20,000. All thresholds are indexed to inflation. This credit replaces the existing Saver's Credit.
(b) Tax units with negative cash income are excluded from the lowest income class but are included in the totals. For a description of cash income, see http://www.taxpolicycenter.org/TaxModel/income.cfm
(c) The cash income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2009 dollars): 20%, $20,402; 40%, $39,233; 60%, $69,458; 80%, $119,854; 90%, $174,556; 95%, $246,364; 99%, $652,142; 99.9%, $3,005,194.
(d) Includes both filing and non-filing units but excludes those that are dependents of other tax units.
(e) After-tax income is cash income less: individual income tax net of refundable credits; corporate income tax; payroll taxes (Social Security and Medicare); and estate tax.
(f) Average federal tax (includes individual and corporate income tax, payroll taxes for Social Security and Medicare, and the estate tax) as a percentage of average cash income.

The Relative Merits of Voluntary and Mandatory Savings Proposals

The analysis above suggests a voluntary savings plan with default enrollment could substantially increase retirement savings and income for a large portion of the workforce, especially those earning below the median wage. Of course, it would not benefit all workers since some would opt out of the program and many would choose to contribute during only a portion of their working careers. In this sense, a mandatory savings program would appear to be preferable, since it would lead to a larger increase in savings for a larger segment of the workforce. For example, Teresa Ghilarducci

outlines a proposal that would require that all workers contribute 3.0 percent of their wages to a government-run savings program.[17]

It is also possible that the assumptions on contribution rates modeled in this exercise are overly optimistic. There is some recent research suggesting that earlier findings – that default contribution rules would lead to near universal participation – failed to follow up sufficiently to assess long-term effects. For example, Beeferman and Becker examine the evidence from a default savings program recently put in place in New Zealand.[18] They cite research showing that while initial participation rates are high, there is a substantial falloff in subsequent years, leading to enrollment rates that could be in the range of 60-70 percent.

In the same vein, an analysis comparing the characteristics of workers who are at firms that offer retirement plans with the characteristics of workers at firms that do not offer plans suggests that far lower participations rates should be expected from the latter group of workers, even if they are offered plans.[19] The analysis suggests that there is a selection issue involved in the decision to work at a firm that offers a retirement plan. This means that estimates of voluntary participation rates for low- and moderate-income workers that are based on the behavior of these workers at firms that offer plans would be biased on the high side.

This work should raise serious questions about the extent to which voluntary mechanisms, including default enrollment, would lead to universal coverage. However, even if a mandatory program would lead to a larger increase in coverage and retirement income, there are both economic and political reasons for believing that a voluntary program would be preferable.

First, it is worth noting that the quest for a universal program will inevitably come up short. There is always some amount of evasion, so there is no program that will literally include the entire workforce. The Social Security Administration considers the rate of compliance of employers in submitting taxes for its payroll employees to be very high, over 99 percent. However, the compliance rate among self-employed workers is considerably lower. A comparison that matched records from the Current Population Survey (CPS) with the Detailed Earning Records (DER) from the Social Security Administration found that between 3.8 and 5.2 percent of all workers listed self-employment earnings on the CPS but did not have any self-employment earnings appear on their DER. With total employment of 150 million, this would imply that between 5.7 million and 7.8 million workers are evading at least some of their Social Security taxes. In addition, even if Social Security contributions are paid for more than 99 percent of payroll employees, this would still leave as many as 1.4 million workers for whom no payment is being made.[20]

For the most part, self-employed workers are participating in gray market activities, such as house and car repair, and not reporting their income to the government. Many are evading both income and payroll taxes by not fully reporting their income. These workers, who are already working off the books, would presumably also not contribute to a mandatory saving program, so the program would not literally be universal in the sense of covering everyone.[21]

---

17 Ghilarducci (2007).
18 Beeferman and Becker (2010).
19 Karamcheva and Sanzenbacher (2010).
20 Nicholas and Wiseman (2009).
21 In principle, we could have a universal program that provides retirement income based on citizenship or residency, independent of actual work history or contributions. The Supplemental Security Income (SSI) program in fact has

In fact, one downside of imposing mandates on the workforce is that it could lead more workers to opt to work off the books and thereby avoid all mandates and taxes, not just the new one being imposed. In other words, the imposition of a new requirement that all workers contribute 3 percent of their wages to a retirement fund may lead more workers to move to gray market work, where they do not contribute to Social Security and Medicare or pay income taxes.

The size of this effect would depend on the extent to which workers see the mandated contribution as a tax, as opposed to a payment for a benefit that is valued. It is also important to recognize that many of the workers currently working in the underground economy are doing so for reasons that have little to do with tax evasion. Many of these workers are undocumented immigrants who may fear deportation if they filed tax returns. Other workers may be in the underground economy to evade child support payments, creditors, or law enforcement authorities. In such cases, an additional mandate would be largely irrelevant to the decision to work off the books. However, insofar as tax evasion is the main impetus, the savings mandate would increase the incentive to work off the books. This would both reduce revenue for Social Security and the government more generally and also leave a somewhat larger share of the labor force uncovered by Social Security.

The other response mechanism to a mandate that is viewed as a tax is a reduced supply of labor. This response would also depend on the extent to which workers view the mandate as a tax. If there is reason to believe that there would be a high opt-out rate from a voluntary program, then it suggests that a substantial segment of the workforce would view a mandated contribution as a tax. The extent to which the 3 percent contribution is viewed as a tax would depend on the value workers attach to the eventual benefit.

In the extreme case, where they see no value to the retirement benefit, workers view the full 3 percent contribution as a tax. This would mean that they attach no value whatsoever to the retirement income that they would receive as a result of contributing to their account. The other extreme is that they view none of the payment as a tax. In this case, the workers value the retirement income they expect to receive as much or more than they do getting the same money in their paycheck. In this case of course there would be no need for the mandate, since the workers would contribute to their retirement fund voluntarily. Finally, we can envision an intermediate case where workers see the mandate as being in effect a 50 percent tax. In this case, workers would effectively view the retirement income they expect from these accounts as being equivalent to half of the money being pulled out of their paycheck. In this case, they would see the 3.0 percent mandated contribution as being equivalent to a 1.5 percent tax on their pay.

Tables 8A and **8B** show the predicted labor supply response in each of these three cases by income quintile. Table 8A expresses the predicted drop in employment in percentage terms while Table 8B shows the decline in jobs, assuming total employment of 150 million. The estimated labor supply elasticities are taken from the Congressional Budget Office. It is worth noting that lower income

---

this character. SSI is very much an anti-poverty program with a poverty level benefit; it is not designed to benefit middle income or even moderate income wage earners who would almost certainly have a retirement income above the cutoff levels. It would be possible to design a universal program like SSI with payouts more consistent with middle class living standards. However, there seems very little public support for such a program, nor has there been much interest in policy circles in designing this sort of program.

workers are estimated to have the largest supply elasticities, implying that the mandate would have a larger impact on their employment than on the employment of higher paid workers.

TABLE 8A
Predicted Reduction in Employment due to Mandated Retirement Savings (Percent)

Income Decile	Average labor supply elasticity	Reduction in Employment under Various Perceived Tax Rates (percent)		
		Low (0.0%)	Middle (1.5%)	High (3.0%)
1st decile	0.168	0.0%	0.3%	0.5%
2nd decile	0.126	0.0%	0.2%	0.4%
3rd and 4th deciles	0.084	0.0%	0.1%	0.3%
5th and 6th deciles	0.063	0.0%	0.1%	0.2%
7th-10th deciles	**0.028**	**0.0%**	**0.0%**	**0.1%**
Source: Congressional Budget Office 2007 and authors' calculations, see text				

TABLE 8B
Predicted Reduction in Employment due to Mandated Retirement Savings (Thousands)

Income Decile	Assumed Current Coverage	Implied Reduction in Employment under Various Perceived Tax Rates (thousands)		
		Low (0.0%)	Middle (1.5%)	High (3.0%)
1st decile	10%	0.0	34.0	68.0
2nd decile	15%	0.0	24.1	48.2
3rd and 4th deciles	25%	0.0	28.4	56.7
5th and 6th deciles	50%	0.0	14.2	28.4
7th-10th deciles	70%	0.0	7.6	15.1
Total		**0.0**	**108.2**	**216.4**
Source: Congressional Budget Office 2007 and authors' calculations, see text.				

Table 8A shows that, in the middle scenario, employment for workers in the lowest decile who are affected by the mandate would drop by 0.3 percent.[22] This corresponds to a decline in employment of 34,000 for these workers (Table 8B). The drop in employment for workers in the second lowest decile would be 0.2 percent, corresponding to a reduction in employment of 24,100. For the third through the 6th deciles the drop in employment would be just 0.1 percent in the middle scenario. The decline would be virtually zero for the top four deciles, who are estimated to have almost completely inelastic labor supplies.

In total, the projected drop in employment in the middle scenario is 108,200. It is 216,400 in the high scenario in which the entire mandate is perceived to be a tax. The drop in employment is of course zero in the low scenario, where none of the mandate is viewed as a tax.

---

22 The labor supply elasticities are only applied to the segment of quintile that is assumed to not currently be covered by a plan that would meet the mandates. The numbers in Table 8B show the portion of each quintile grouping that is assumed to currently be covered by a plan that would meet the mandate.

It is important to note that the labor supply responses shown in the table do not correspond to more workers being involuntarily unemployed in the sense of being unable to find jobs. Rather, the job losses shown in the table are the number of workers who opt not to work because their pay is now lower. This is similar to the modeling of other policies. For example, the job losses that are reported in modeling exercises of the impact of carbon taxes or emission permits do not show an increase in the number of people who are involuntarily unemployed. They show the number of people who would opt not to work given the decline in the real wage that is projected as a result of the policy being assessed.

The responses to a mandate such as the one discussed above do not necessarily argue against a mandated saving plan; however they do call attention to the undesirable economic side effects of a mandate. First, we must recognize that a savings plan does not become universal by virtue of a government mandate. There will always be some non-compliance for any program that requires workers to contribute. Furthermore, the mandate would to some extent reduce compliance with existing programs, leaving more workers outside of the safety net these programs provide. Because this involves workers trying to evade the law (and therefore conceal their activity) it is not easy to determine the extent of this impact. However, there clearly are a substantial number of workers who already find it possible to work off the books.

The other impact is the effect that a mandate would have on labor supply. The evidence suggests that labor supply elasticity is greatest among the lowest paid workers, which implies that the reduction in labor supply would be concentrated among low-wage workers. However the extent to which a reduction in supply actually occurs would depend on the extent to which workers view the mandate as a tax. If they do view the mandate primarily as a tax, then the decline in labor supply could be close to 0.5 percent among the lowest paid workers. Of course, if workers view the retirement benefit as being roughly equivalent to their wage reduction then there would be little, if any, decline in employment. However, if workers do not view the mandate as a tax there would also be little difference in participation rates between a voluntary and mandatory program.

A Mandatory Versus a Voluntary System: Political Issues

One consideration in deciding between a mandatory system and a voluntary system should be the likelihood of gaining the political support necessary to have the system adopted. At present, the vast majority of workers do not have a savings mechanism that will leave them with an adequate retirement income. Every year that a new system is delayed means that more workers will be reaching retirement with inadequate savings. For this reason, there should be a real priority placed on the speed with which a system could be adopted. If the political obstacles to a voluntary system are fewer than the obstacles to a mandatory system, then this would be a strong argument for pushing ahead with a voluntary system.

At this point there is little polling data that would allow for a definitive assessment of the political obstacles facing a voluntary as opposed to a mandatory program, however the opposition to the mandates in the Affordable Care Act could be informative. Polls consistently found the individual mandate, that people have health insurance or pay a fine, to be one of the most unpopular features

of the health care bill. For example, a poll conducted by the Kaiser Family Foundation in August of 2010 found that 52 percent of those polled viewed the mandates negatively, even though the bill as a whole was viewed positively. This provision was rated far more negatively than any other aspect of the bill included in the poll.[23]

As a historical matter, there are not many precedents for introducing a mandatory program that applies to all workers at its inception. Medicare would be the main exception, applying to virtually the entire population over age 65 from its inception. This program was put in place with a Democratic president who enjoyed a 68-32 seat majority in the Senate and a 295-140 seat majority in the House. It does not seem likely that a president supporting a mandatory retirement system will take office commanding this sort of majority in Congress any time in the foreseeable future.

Social Security was of course not introduced as a universal program, originally applying to just over half of the workforce with a wide range of occupations explicitly excluded from coverage, including farm workers and itinerant workers. Its coverage and generosity were gradually extended over the next seven decades. Even now Social Security still does not apply to the whole workforce, with more than 6 million state and local government employees still not covered by Social Security.

The history of Social Security suggests an alternative path toward building a supplemental retirement system. If a program can be put in place that is effective and is popular among its participants, then there would likely be political support for its expansion. From this perspective, the key is to get a well-designed program in place.

The fact that such a program is voluntary and exists side by side with the current structure may be an advantage in two ways. First, workers would have the opportunity to deal with both the new publicly managed system as well as the current private system and determine for themselves which system is better. The guaranteed rate of return, the low administrative costs, the portability, and the costless conversion of an accumulation into an annuity are all features that are likely to make this system attractive relative to private sector alternatives. If the public system offers advantages over the current system, workers would have the opportunity to see these for themselves, rather than being coerced into the system. It is also likely that many businesses would prefer to let their workers opt to take part in the public system rather than worry about making arrangements with a private financial firm.

The other advantage of having the systems operate side by side is that the competition could ensure that the public system is well run and quickly adopts more efficient procedures and technology. In other words, competition can ensure that the public system is actually a good system that effectively serves the needs of participants.

---

23 Kaiser Family Foundation (2010).

Conclusion

There can be little dispute that the current retirement system is inadequate to meet the needs of a very substantial segment of the country's workforce. Social Security fills its role in providing a core retirement income for the vast majority of workers. While this is generally sufficient to keep workers above the poverty level, it is not sufficient to provide most workers with a standard of living that is comparable to what they enjoyed during their working years.

The combination of traditional defined benefit pensions and individual savings largely filled this gap in the decades immediately following World War II; however they no longer play this role. Defined benefit pensions outside of the public sector are rapidly disappearing. The combination of defined contribution pensions and individual savings is likely to provide little retirement income to the vast majority of near-retirees. Without a substantial change in the retirement savings options facing workers, it is likely that younger workers will not fare much better.

The voluntary default savings plan outlined in this paper could fill much of the retirement income gap for a substantial segment of the workforce. The analysis in this paper suggests that this system could raise retirement income for the bottom two quintiles of the workforce by 15-20 percent. While this may still not be sufficient to guarantee these workers a comfortable retirement, such an increase would be a substantial boost compared to their current income levels.

As a voluntary system there would be more people who are not included than under a mandatory system. However, the advantage of covering more workers in a mandatory but still not universal system must be weighed against the economic and political disadvantages of requiring workers to contribute to a retirement system. While both could be substantial, the political considerations are likely to be over-riding. Since the prospect of establishing a mandatory system seems distant, the insistence that any new system include a mandate may imply that tens of millions of workers reach retirement in coming decades with very little income to support themselves other than their Social Security.

Appendix

In Table 6, the increases from Table 5 were assumed to persist for 35 years, roughly a working lifetime. The annual contribution is assumed to rise at a real rate of 1.3 percent, the assumed rate of real wage growth in the 2010 Social Security Trustees Report. The accumulations are assumed to draw a 3.0 percent real interest rate. This rate is also used to calculate the size of an annuity, which is calculated to cover a retirement lasting on average 20 years. This is approximately the projected life expectancy for workers turning age 65 in 2020.

References

Beedon, Laurel. 1999. "The Thrift Saving Plan for Federal Employees," Washington, DC: AARP Public Policy Institute, # 9909. http://assets.aarp.org/rgcenter/econ/9909_thrift_savings.pdf

Beeferman, Larry W. and Matthew B. Becker. 2010. "Going on Automatic: The Right Path Toward Retirement Income and Security for All?" Cambridge, MA: Pension and Capital Stewardship Project Harvard Law School Labor and Worklife Project.

Beshears, John, James J. Choi, David Laibson, and Brigitte C. Madrian. 2007. "The Impact of Employer Matching on Savings Plan Participation under Automatic Enrollment." Cambridge, MA: National Bureau of Economic Research, Working Paper 13352. http://www.nber.org/papers/w13352

Dworak-Fisher, Keenan. 2008 "Encouraging Participation in 401(k) Plans: Reconsidering the Employer Match." Washington, DC: U.S. Bureau of Labor Statistics, Working Paper 420. http://www.bls.gov/osmr/pdf/ec080060.pdf

Ghilarducci, Teresa. 2007. "Guaranteed Retirement Accounts," Washington, DC: Economic Policy Institute, Briefing Paper #207. http://www.sharedprosperity.org/bp204.html

Government Accountability Office (2006). 2006. "Private Pensions: Changes Needed to Provide Plan Participants and Department of Labor Better Information on Fees." Washington, DC: Government Accountability Office, GAO-07-21. http://www.gao.gov/new.items/d0721.pdf

Greenspan, Alan and James Kennedy. 2007. "Sources and Uses of Equity Extracted from Homes." Finance and Economic Discussion Series, Divisions of Research & Statistics and Monetary Affairs, Federal Reserve Board, Washington, DC. 2007-20.

Karamcheva, Nadia and Geoffrey Sanzenbacher. 2010. "Pension Participation and Uncovered Workers." Center for Retirement Research at Boston College, Issue Brief #10-13. http://crr.bc.edu/briefs/pension_participation_and_uncovered_workers.html

Kaiser Family Foundation. 2010. "Kaiser Tracking Poll, August 2010." Question 16. http://www.kff.org/kaiserpolls/upload/8093-T.pdf

Madrian, Brigitte C. and Dennis F. Shea. 2001. "The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior." *The Quarterly Journal of Economics*: Vol. CXVI, No. 4: 1149-1187 (November). http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.102.9391&rep=rep1&type=pdf

Munnell, Alicia H., Alex Golub-Sass, Richard W. Kopcke, and Anthony Webb. 2009. "What Does It Cost to Guarantee Returns?" Boston College Center for Retirement Research, Issue Brief 9-4. http://crr.bc.edu/images/stories/Briefs/ib_9-4.pdf

Munnell, Alicia H. and Annika Sunden. 2004. *Coming Up Short: The Challenge of 401(k) Plans.* Washington, DC: The Brookings Institution.

Nicholas, Joyce and Michael Wiseman. 2009. "Elderly Poverty and Supplemental Security Income." *Social Security Bulletin*, Vol. 69, No. 1. Table 2. http://www.socialsecurity.gov/policy/docs/ssb/v69n1/v69n1p45.html

Office of Management and Budget. 2010. "Analytical Perspectives, Budget of the United States Government, Fiscal Year 2011." Washington, DC: Office of Management and Budget, Table 16.1. http://www.whitehouse.gov/sites/default/files/omb/budget/fy2011/assets/receipts.pdf

Rosnick, David and Dean Baker. 2010. "The Impact of the Housing Crash on the Wealth of the Baby Boom Cohorts." *Journal of Aging and Social Policy*, Vol. 22, No. 2: 117-128.

Shiller, Robert J. 2005. *Irrational Exuberance*, 2nd edition. New York: Crowne Business.

United States Census Bureau. 2010. "HINC-02. Age of Householder--Households, by Total Money Income in 2009, Type of Household, Race and Hispanic Origin of Householder." http://www.census.gov/hhes/www/cpstables/032010/hhinc/new02_001.htm

Utkus, Stephen P. 2005. "401(k) Plan Design: Match, Loan, and Investment Menu Effects." Valley Forge, PA: Vanguard Center for Retirement Research.

Weller, Christian and Edward N. Wolff. 2005. *Retirement Income: The Crucial Role of Social Security.* Washington, DC: Economic Policy Institute. http://www.epi.org/publications/entry/book_retirement_income/