

# THE HIGH COST OF NUDGE ECONOMICS AND THE EFFICIENCY OF MANDATORY RETIREMENT ACCOUNTS

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## INTRODUCTION

**T**HIS PAPER COMPARES THREE WAYS TO PROMOTE more retirement security through the tax code: (1) the current system of tax deductions for 401(k) and IRA-type plans; (2) the auto-IRA proposal linked to the Obama administration, which is based on a public policy framework known colloquially as “Nudge economics”;<sup>1</sup> and (3) subsidized mandatory accounts called guaranteed retirement accounts (GRAs).

Our focus is on how the three methods promote efficiency and how can tax expenditures for retirement accounts achieve public policy goals for the least cost. Policy goals include: expanding pension coverage, boosting savings, especially among those with too little retirement savings, and raising national savings rates.

The paper is divided in five sections. The first section of the study states the problem and lays out the evidence. Tax expenditures for retirement accounts have increased faster than personal savings (before the spike in savings during the recent recession) despite Congress’ intent to have tax expenditures induce more savings by raising the net-of-tax return on retirement assets. In the second section we present an overview of the literature and previous studies done to estimate micro models of savings behavior. The third section reports the results of a first-ever study that directly compares changes in tax expenditure within personal savings and employer retirement contributions and we find the evidence to be weak. The fourth section reviews three retirement programs: (1) the current system; (2) the Universal IRA reform plan, which is based on “Nudge Economics” and (3) Guaranteed Retirement Accounts (GRA), which mandate a 5 percent of pay contribution to be deposited in an account where the government guarantees a 3 percent real return and contributors receive an annual real \$600 refundable tax credit. The last section concludes that tax expenditures for retirement savings is efficient when retirement savings is mandated into noncommercial accounts whose rate are guaranteed

by the government and are administered by it, and tax breaks are progressively distributed.

## WHY THE CURRENT TAX EXPENDITURES DESIGNED TO INDUCE SAVING DO NOT WORK

Certain provisions in the United States tax code designed to favor a particular industry, activity, or class of persons produce “tax expenditures,” which are deviations from the standard tax structure and represent foregone revenues for the U.S. government.

There are more than 160 tax expenditures in the United States tax code costing more than \$800 billion annually. Tax treatment for retirement accounts – 401(k) plans, IRAs, and Keoghs – is one of the largest items, costing over \$130 billion in tax expenditures in 2009 (Joint Tax Committee, 2010). Tax expenditures for 401(k) plans grew by 28 percent from 2005 to 2009. However, contributions to 401(k) plans only increased by 9 percentage points. Paradoxically, for much of the last 20 years, the tax expenditures for personal savings was larger than personal savings (Steurele, 2005; Bosworth and Bell 2005).

The fall in retirement savings was, in part, because the share of workers who participated in employer-sponsored retirement plans fell from 50.3 percent in 2000 to 43.6 percent in 2008; this means coverage in the private sector fell from 53.5 million in 2007 to 52.3 million in 2009. In the public sector, most workers (15 million) have pension coverage, totaling 67.3 million out of the 131 million workers reported in 2009. If all workers were mandated to have some pension coverage, 64 million more workers would be covered.

This superficial evidence does not prove tax incentives do not induce more saving, since it could be that in the absence of tax incentives, the saving rates could be even lower. Nevertheless, the size of the expenditures needs to be put in perspective. Only 50 percent of households have a retirement account and benefit from the tax break. If the

value of the retirement account tax expenditures were converted into a grant for each household the amount would be \$600 per household per year.

Also, the effectiveness of the tax expenditure depends on the preferences and motives of households affected by the provisions. By design, filers who respond to tax deductions are filers with high enough incomes to itemize deductions (relevant only for 401(k) and IRA plans). According to individuals' preferences, they could respond in two ways to an increase in the after-tax rate of return: reduce savings, because a target level has been reached, or increase savings because the cost of consumption has increased. This logical yet perverse possibility exists because the theory is ambiguous about whether a tax break would increase or decrease saving, a potentially distressing situation for policy makers.

Here is how the perverse effect could work. Typically savings models assume people prefer present consumption to future consumption and will delay gratification if a reward compensates them for waiting. But this does not mean increasing the reward increases savings. In fact, increasing the reward could induce people to shift money from taxed to taxed-favored accounts, or worse, to consume more in the present because the increased after-tax returns allowed savers to reach their target savings sooner making tax breaks for savings decrease national savings.

So economic theory is agnostic on whether people save more if the reward is higher. On the other hand, mandating retirement savings, and subsidizing low- and middle-income workers to do so, would be a more effective use of tax revenue (Jappelli and Pistaferri, 2002). Following a standard two-period consumption model, an agent maximizes utility, subject to a budget constraint, in both periods by consuming enough in order to equalize pleasure in both periods and receives a return for their savings from the first period to the second. Thus a person will consider the saving reward when deciding to consume in the first period or the second. Precisely, they will choose to save so that the resulting loss of utility is compensated by the increase in the amount they can consume in the second period due to the net of tax interest rate. The reward for waiting is equal to the after-tax rate of return on savings.

Raising the after-tax real interest rate – by increasing the tax break for savings in retirement accounts – has three effects on savings: the income, substitution, and wealth effects.

The increase in the rate of return on savings increases income and thus raises consumption in both periods. The *income* effect lowers savings because if the individual is a saver, an increase in the after-tax rate of return on assets increases asset income received in the second period, which lowers saving by raising consumption in both periods. The *substitution* effect raises savings because a tax break raises the “price” of first-period consumption by raising the after-tax return of not consuming in the first period. The *wealth* effect is not as obvious as the previous two effects; it increases savings by reducing future human capital. An increase in the after-tax rate of return raises the discount rate, which reduces human capital wealth (defined as the present value of future earnings), which in turn reduces consumption in both periods. In sum, the substitution effect and wealth effects increase saving, whereas the income effect induces people to consume more in the first period. The overall impact of the tax break on savings results ambiguous because of these counteracting effects.<sup>2</sup> Therefore, the debate can only be settled with evidence.

#### PREVIOUS WORKS ON THE EFFECT OF TAX EXPENDITURES ON SAVING

From the literature surveyed, we found thirteen studies with similar research strategies that support the view that tax-favored 401(k) plans do not encourage new savings. Micro household data is used to isolate a key independent variable – whether the household is eligible for a 401(k) plan and the estimates of its effect on wealth holdings are obtained controlling for household characteristics such as age level of income. Admittedly, the 401(k) eligibility criterion is not a good proxy for the effect of a tax break. 401(k) plans could encourage saving without the tax break. Employees could like the convenience of saving at work, the employer match and enthusiasm could be more important for participation purposes.

In ping-ponging papers, Poterba, Venti, and Wise (1994, 1995, 1996; hereafter PVW) make within group comparisons based on eligibility for IRA and 401(k) participation to assess the effectiveness of such plans on savings. Using data from the Survey of Income and Program Participation (SIPP) and Survey of Consumer Finances (SCF) for 1984, 1987, and 1991, they conclude the increase in financial assets of 401(k) eligible households can be attributed to the saving

incentives provided by the 401(k) structure and not just the tax incentives. Using the same data over the same period, Engen, Gale, and Scholz (1994<sup>3</sup>, 1996) and Engen and Gale (2000) argue that the relationship is a mirage: eligible households hold a greater portion of their wealth in financial assets, which together with the rise of the stock market in the late 1980s would explain the increase in financial assets. The differences in the literature show signs of overestimation in the effect of saving programs on saving. PVW's estimates present bias mainly because people in 401(k) plans are people who would have saved somewhere else.<sup>4</sup>

Engelhardt (2000) uses data from the 1992 Health and Retirement Study (HRS). The HRS data has an important advantage over SIPP, namely, it contains detailed data on different pension assets (on past and current jobs) collected from the employee and the employer, which is then matched to Social Security assets from the Social Security Administration. Engelhardt argues that previous studies that have analyzed the effect of 401(k) plans on saving appear to have overstated its effectiveness due to significant measurement error in (self-reported) eligibility of respondents. Once these errors are accounted for by broadening the saving measure to include all pension assets, the estimates found are much lower than in PVW (1996), and thus suggests that 401(k)s have not increased household saving.

More recent studies conducted by Attanasio, Banks, and Wakefield (2004) found that in United States and the United Kingdom specific tax advantaged programs (IRAs in the United States and TESSA, ISA in the United Kingdom) have very little effect on savings.<sup>5</sup> Bernheim (2002) uses multivariate analysis and finds that 401(k) plans increase saving.

Pence (2002) employs an econometric method that takes into account non-positive wealth values (debt) and concludes the results do determine whether 401(k) eligibility increases saving. 401(k) accounts could displace other assets, such as home equity or defined benefit pensions, but she does not include them in her wealth measure. Also there may not be enough statistical variation or presence to determine the effect of 401(k) eligibility on saving. 401(k) contributions, in 1995-2001, were only 18 percent of the change in aggregate defined contribution pension balances (the Federal Reserve provided Pence with unpublished estimates from 1995 to 2001).

Jappelli and Pistaferri (2002) do not use micro data but examine tax incentives across nations and conclude no increase in national savings is induced by tax favoritism for voluntary programs. They recommend mandatory savings programs as the only effective way to increase national savings. Having in mind the previous works reviewed above, we go to the next section, which presents our empirical estimation.

#### REGRESSION MODEL ON TAX EXPENDITURES AND SAVINGS

We used an ordinary least squares (OLS) estimation method to regress personal savings on tax expenditures and other controls. Our sample size is small and we analyze data for only 23 years.

The Congressional Joint Committee on Taxation (JCT) and the Department of the Treasury's Office of Tax Analysis, the Office of the Management and Budget (OMB) use different methodologies for estimating tax expenditures; we use both sources for the years 1986 to 2009.<sup>6</sup>

We identified private employer spending on defined-contribution and on defined-benefit plans as variables of interest from the Employee Benefit Research Institute (EBRI). Obtaining a measure on employees' response to varying degrees of tax expenditures was not possible, private sector employee contributions for pension and profit-sharing plans are not reported separately. Personal savings is a net residual equal to personal income minus personal contributions to social insurance, personal tax and nontax payments, and personal outlays: consumption. Thus, personal savings includes employer contributions to private and public pension and profit-sharing plans and benefits paid by government employee retirement plans. Personal saving also includes "life insurance savings" attributable to premiums paid by individuals, and contributions to individual retirement accounts and employment-based retirement plans. However, because of the possible failure of some employers to report amounts voluntarily contributed by employees to retirement plans through pretax salary reduction, personal saving (and total compensation) may understate such amounts. Also, employee contributions to public pension plans are not included and employees' voluntary contributions to private retirement plans through pretax salary reduction are included in personal saving to the extent that they are reported by employers

as wage and salary disbursements in their unemployment insurance reports. Despite this we use personal saving as a proxy for retirement saving by private employees.

We use nominal U.S. GDP data controls for income and the Dow Jones Industrial Average Index to control for wealth effects through changing equity returns. A two-sided *t*-test measures the significance of the coefficients. Given the relative small sample size, we choose a significance level of 10 percent and the coefficients, whose *t*-ratios lead to a rejection of the null hypothesis, are starred.

The model using the OMB estimates results in tax expenditures having no effect on personal saving; using JCT data tax expenditures have a highly negative effect on personal saving. In all regressions with JCT data, the negative coefficients fluctuate around -4.5 and are statistically significant. Therefore, we find that tax expenditures for retirement savings accounts slightly influence employer spending on retirement plans. The significance of the tax expenditures depends on the data set used and the variable regressed. The estimated coefficients vary between 0.0081 and 0.1234, indicating only relatively small effects (see Table 1).

This means that Congress’s rationale for tax expenditures for retirement accounts – the hoped result that tax expenditures promote saving cannot be sustained by our analysis of the empirical data. At best, tax expenditures have no effect at all, but given our results, it is likely they have a negative effect on retirement saving.<sup>7</sup>

**COMPARING THE CURRENT SYSTEM, AUTO-IRA PROPOSALS, AND GRAS**

The U.S. Government Accountability Office (GAO, 2009a) reviewed the GRA plan and Obama’s plan and others for their ability to address:

lack of coverage, insufficient contributions, risky investment returns, lack of portability, pre-retirement leakages, high fees, and the possibility of outliving retirement savings.

We find that current tax breaks for savings induce little savings. Inducing voluntary activity is costly and also inefficient not because it is not effective. 401(k) plans are inefficient financial intermediaries and the tax subsidies go to people who need them the least.

President Obama proposes that employers who do not offer retirement plans enroll employees in a “direct-deposit IRA account.”<sup>8</sup> Employers without pension plans will put 3 percent of their workers’ pay in 401(k)/IRA-type accounts. For households earning under \$65,000, the federal government would match those savings up to \$1,000 a year with a 50 percent tax credit. This progressive tax credit is aimed at increasing the savings rate for low- and middle-income workers. This plan might temporarily increase the IRA or 401(k) participation rate for low- and middle-income workers, but it might not, because workers can, at any time, opt out and withdraw their own funds, and not participate.

The Administration’s pension proposals are inspired by behavioral economics; in particular, the idea that “inertia” guides human behavior so employees who are automatically signed up to participate will likely participate even if they can opt out. The best-selling business book called *Nudge* by economist Richard Thaler, and law professor and Obama advisor Cass Sunstein (2009) promises small changes in “choice architecture”; in this case how people are signed up for their voluntary 401(k)s or paid their tax refunds, will yield large changes in behavior and big advances in social policy.<sup>9</sup>

The President’s proposal adds tax credits that mitigate the regressivity of the tax expenditures.

*Table 1*  
**How Tax Expenditures Affect Personal Savings**

<i>Dependent variable: Personal Savings</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
Tax expenditures for DC plans – OMB	.1654*			.0384
Tax expenditures for DC plans – JCT		-4.7931*	-4.6048*	
Nominal Gross domestic Product	-0278*	.0046	.0002	.0359*
Dow Jones Industrial Average			15.321	37.51
Intercept	437*	518*	414	194
N	23	23	23	23

\*Significant at the 10 percent level.

All retirement plans – DB pensions, 401(k) plans, IRAs, etc. have special tax provisions: taxes on contributions and earnings are deferred until a person retires or withdraws income, which is usually when tax rates are lower than at the time of contributions and fund earnings. Therefore, tax deferrals are more valuable to people with high-income tax rates, than those with low or zero tax liability. On the other hand, a tax credit is given to any taxpayer, even those with incomes so low they don't pay federal income tax. The President's proposed tax credit means that all workers, not just those who itemize, will get some retirement savings subsidy, but Obama retains the current tax deduction, which means his plan is pricey – an extra \$25 billion in tax expenditures.

The Obama plan helps expand coverage but does not make it universal; it retains, but softens, the tax regressivity; investment returns are not guaranteed; there are still pre-retirement leakages, high fees, and the longevity risk. In its favor, the President's plan maintains the portability of IRAs. The problems with any voluntary system that relies on tax incentives for participation.

A guaranteed retirement account (GRA) is a national system of individual accounts that supplements Social Security (Ghilarducci 2007, 2008). Each year, employees would put at least 5 percent of their pay into their GRA, a government-backed savings account to which employers can also contribute if they wanted. The government would provide a \$600 tax credit each year (indexed for inflation) to defray the employee's contributions. The contributions would earn an annual 3 percent interest after inflation and only redeemed at retirement as an annuity. In contrast 401(k) plans and Obama's plans are not guaranteed.

People could opt out of GRAs if their pensions met GRA standards. GRAs would help low-wage workers and the self-employed in a way that the current system doesn't. GRAs are conceived of as a government/private sector partnership. The Social Security Administration would administer the contributions, like employers do with employer-based defined benefit plans, and would contract out with professional investors who are overseen by independent and government-appointed trustees to invest the portfolio. Since the U.S. government is a large entity with a very long time horizon, it could achieve a 3 percent real return.

The tax expenditures for GRAs are revenue neutral, coverage would be universal, and the savings

rates for retirement would increase to 5 percent. There may be some offsetting present consumption since the tax subsidy is a wealth transfer.

## CONCLUSIONS

In evaluating the current system we find a negative or neutral effect on personal savings and tax expenditures for DC plans. This supports the view that households are "target savers" so that when the net-of-tax rate of return increases and savings decreases persons reach their target with less saving. Other evidence for target savings is that pension funds contributions (controlling for household characteristics) substitute for flows into other financial assets, such as housing, and fall when rates of return rise. We conclude that the favored treatment of DC plans likely reduces saving for retirement since most people are target savers.

Auto-IRAs may achieve much higher initial participation rates but there is little evidence<sup>10</sup> that people who are automatically enrolled will keep their contributions in the accounts over time. Based on the most recent studies of voluntary participation with an "opt-out" provision, and the estimates of the Obama Administration, we estimate the opt-out provision will increase coverage from 50 to 75 percent.

The GRA accounts are mandatory unless workers have a qualified 401(k) or DB alternative so coverage should be 100 percent, slightly more than coverage now. This means that 64 million more Americans, in 2008, would have had a pension plan if GRAs were in place. The cost of the GRAs include the administrative costs estimated at \$1.14 billion per year, which is a 20 percent increase in Social Security Administrative costs. If qualified 401(k) contributions are capped at \$5,000 per year rather than \$49,000 per year and the GRA subsidy was \$600 per year, than the tax expenditure would be close to zero.

Both the current system and the auto-IRA system are voluntary, individual, commercial-based accounts. The auto-IRA system would change the "hard" voluntary system to a "soft" voluntary system as advised by the nudge architecture of choices and add tax subsidies for lower income people. GRAs are mandatory and not commercial based. Government tax subsidies are reduced and shifted away from high-income to middle-class

employees. The mandatory, noncommercial based system achieves broader coverage, more national savings, for the least tax expenditure.

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### Notes

- <sup>1</sup> Nudge as a social policy framework is popularized in the best-selling book by Thaler and Sunstein (2009), which advanced a political philosophy and policy making based on the principal of "libertarian paternalism."
- <sup>2</sup> The tax break for savings has no effect on a debtor's income and therefore does not induce more consumption in the first period.
- <sup>3</sup> Engen, Gale, and Scholz (1994) show that an increase in the contribution limit between 1983 and 1986 would have resulted in little, if any, increase in national saving. In contrast, Poterba, Venti and Wise (1996) estimate that contributions have little substitution effect.
- <sup>4</sup> Heterogeneity of households' saving behavior, for example, will show the effect of 401(k) plans to be larger as eligible households systematically have stronger tastes for saving than other households. This criticism extends to eligibility for saving plans, which is argued to be positively correlated with the households' tastes for saving as opposed to be exogenously determined (see Engen, Gale, and Scholz, 1994, 1996; Engen and Gale, 2000; Bernheim, 2002). Other explanations focus on the difference in net financial assets and include other tangible assets such as housing. Engen and Gale (1997) interpret the drop in the net worth of 401(k)-eligible households (compared to ineligible households) in the late 1980s as evidence that 401(k) accounts do not increase saving; Poterba, Venti, and Wise (1998) interpret it as evidence that eligible households had more wealth (especially housing) and were hit harder by the drastic drop in housing values over this period.
- <sup>5</sup> Consumer Expenditure Survey data is used for the period of 1982 to 1986 in the United States; the evidence shows that tax favored schemes have very little effect.
- <sup>6</sup> Unfortunately, separate estimates for tax expenditures on defined-contribution plans (DC) and defined-benefit plans (DB) are only available for a few recent years.
- <sup>7</sup> Our conclusions make sense because even though DC's are increasingly dominating DB plans, the growth in DC plans has not raised pension participation rates, over 50 percent of the workforce still has no pension plan of any kind.
- <sup>8</sup> Obama's plan is based on the proposal by David John from the Heritage Foundation and Mark Iwry from the Retirement Security Project sponsored by the Hamilton Project (Pichardo-Allison, 2009b, p. 1).
- <sup>9</sup> Unfortunately, for Nudge GAO (2009) found that despite automatic enrollment becoming more common among employers (16 percent used it in 2009, up from about 1 percent in 2004, with higher rates among large companies) lower income workers contribute minimally. And, there is not enough evidence to assess how workers will use the accumulations for non retirement purposes.
- <sup>10</sup> The new CBO (2010, p. 37) report on the president's budget says the proposed refundable Saver's Credit (for Auto IRAS) *would not significantly expand savings for low-income workers* as a group, though "extending the credit to...higher-income taxpayers would probably result in a slight increase in private saving."

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