

# HOW MUCH TAXES WILL RETIREES OWE ON THEIR RETIREMENT INCOME?

BY ANQI CHEN AND ALICIA H. MUNNELL\*

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## Introduction

To evaluate their retirement resources, households approaching retirement will examine their Social Security statements, defined benefit pensions, defined contribution balances, and other financial assets. However, many households may forget that not all of these resources belong to them; they will need to pay some portion to the federal and state governments in taxes. The question is just how large the tax burden is for the typical retired household and for households at different income levels.

To address that question, this *brief*, which is based on a recent study, estimates lifetime taxes for a group of recently retired households.<sup>1</sup> The project uses data from the *Health and Retirement Study* linked to administrative earnings to determine Social Security benefits, and it uses administrative records on state of residence to estimate state tax liabilities. Income is then projected over the expected retirement of each household, and federal and state taxes are estimated with the TAXSIM program. The results relate the present discounted value of lifetime taxes at retirement to the present value of retirement resources.

The discussion proceeds as follows. The first section describes the types of taxes that households face on their retirement resources. The second sec-

tion discusses the data and methodology. The third section presents the results. For the lowest four quintiles, taxes are negligible, but rise to 11 percent for the top quintile, 16 percent for the top 5 percent, and 23 percent for the top 1 percent. These percentages change very little across a variety of strategies for drawing down retirement assets. The final section concludes that taxes are an important consideration for the retirees who are most reliant on 401(k)/IRA and other financial assets. Understanding the magnitude of this liability is important not only for individuals' assessment of their own retirement security but also for measuring trends in wealth over time and the impact of wealth on retirement decisions.

## Taxation of Retirement Income

Households face taxes on most components of their retirement income: benefits from Social Security, payouts from traditional employer-sponsored retirement plans, and capital gains taxes on any financial assets that they sell to support retirement consumption.

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\* Anqi Chen is assistant director of savings research at the Center for Retirement Research at Boston College (CRR). Alicia H. Munnell is director of the CRR and the Peter F. Drucker Professor of Management Sciences at Boston College's Carroll School of Management. The authors would like to thank Daniel Feenberg at NBER and Matt Toaz at the University of Michigan for their help and troubleshooting during the complicated process of installing TAXSIM for use on restricted data.

## Social Security Benefits

Social Security is the major source of income for most retired households. Under current law, only individuals with less than \$25,000 and married couples with less than \$32,000 of modified adjusted gross income (AGI) do not have to pay taxes on their benefits. (“Modified AGI” is AGI as reported on tax forms plus nontaxable interest income, interest from foreign sources, and one-half of Social Security benefits.) Above those thresholds, recipients must pay taxes on up to either 50 percent or 85 percent of their benefits (see Table 1).

TABLE 1. CALCULATION OF TAXABLE SOCIAL SECURITY BENEFITS

Modified AGI thresholds <sup>a</sup>		Taxable portion
<i>Individual</i>		
A	Less than \$25,000	None
B	\$25,000-\$34,000	Lesser of: (1) 50% of benefits or (2) 50% of modified income above \$25,000 (maximum of \$4,500)
C	Above \$34,000	Lesser of: (1) 85% of benefits or (2) 85% of modified income above \$34,000 plus amount from line B
<i>Married filing jointly</i>		
D	Less than \$32,000	None
E	\$32,000-\$44,000	Lesser of: (1) 50% of benefits or (2) 50% of modified income above \$32,000 (maximum of \$6,000)
F	Above \$44,000	Lesser of: (1) 85% of benefits or (2) 85% of modified income above \$44,000 plus amount from line E

<sup>a</sup> Modified AGI is AGI plus certain income exclusions plus 50 percent of Social Security benefits.

Source: Congressional Research Service (2020).

## Income from Employer-Sponsored Retirement Plans

Employers offer retirement benefits through either defined benefit plans or defined contribution plans, such as 401(k)s. Individual Retirement Accounts (IRAs) are also included in this discussion, even though they are not sponsored by employers, since their tax treatment is similar to that of 401(k)s and the bulk of IRA assets are rollovers from employer-sponsored plans.

The taxation of defined benefit pensions is straightforward. Beneficiaries simply include the amount of their combined monthly checks for the year in their AGI when filling out their federal tax returns. Since virtually all private sector plans do not involve contributions from workers, that is the end of the story. State and local defined benefit plans, on the other hand, do include worker contributions. However, state and local employers generally “pick up” the employee’s contributions by decreasing the employee’s wages by the required amount and depositing it in the plan. Thus, the employee’s contributions are made on a pre-tax basis, and therefore, once the employee retires and begins receiving benefits, no further adjustment is required when calculating the tax liability under the federal personal income tax.

The taxation of withdrawals from a defined contribution plan is more complicated, because the tax treatment depends on: 1) whether the plan is a traditional plan or a Roth; and 2) how the retiree decides to withdraw money from the account.

The saving done through traditional 401(k)s/IRAs is tax-advantaged in the same fashion as accumulations in a defined benefit plan. The employee and often the employer contribute on a pre-tax basis, and the contributions and investment returns are taxed in full in retirement. Taxes depend on how households draw down their assets during their retirement. Drawdown consists of both a mandatory and a voluntary component. Under current law, holders of 401(k)s and IRAs are required to withdraw a percentage of their account balances each year once they reach 72 (70½ for those who turned 70 prior to 2020).<sup>2</sup> In terms of the voluntary component, we know very little about how households reliant on 401(k)s are going to draw down their assets.<sup>3</sup> Hence, the calculations reported below include a series of alternative assumptions.

Since 2006, employers also have had the option of offering a Roth 401(k), and individuals could open a Roth IRA. Under the Roth arrangement, initial contributions are put in the plan after income taxes have been paid, but investment earnings accrue tax free and no taxes are paid when the money is withdrawn in retirement. Although lifetime taxes may be roughly equivalent under the traditional and Roth plans, it is important to know which type of account is involved because the focus here is not on lifetime tax burdens, but rather on the share of assets at the start of retirement that must be paid in taxes. Data from the Internal Revenue Service (IRS) and Vanguard show that roughly 10 percent of assets are held in Roth IRAs or Roth 401(k)s.<sup>4</sup>

### *Taxation of Other Financial Assets*

Although Social Security and retirement plans constitute the bulk of assets for most households, higher-income households also have some additional financial assets. Unlike accumulations in retirement plans, these assets are not subject to any IRS distribution requirement. One issue is simply the extent to which households are likely to tap these resources to support their consumption in retirement, as opposed to retaining them as insurance against long-term care costs or to leave as a bequest. The second issue is the nature of the additional assets. To the extent that households hold these assets in cash, they incur no federal tax liability when they hold it or tap their holdings for consumption. On the other hand, if they hold stocks and bonds, they will pay tax on dividend and interest income. And if they want to sell stocks and bonds to support their consumption or buy an annuity, they will face federal capital gains taxes on these securities and some taxes on annuity income.

### *State Taxes*

In general, state personal income taxes piggyback on federal taxes. That is, many states use federal AGI, federal taxable income, or federal taxes paid as a starting point for state income tax calculations. As a result, income for state tax purposes generally begins with the taxable portion of Social Security benefits, payments from defined benefit plans, withdrawals from defined contribution plans, and any realized capital gains.

States may also make an adjustment for all or part of the federally taxed Social Security benefits. Thirty states and the District of Columbia fully exclude

Social Security from the state personal income tax. Twelve states tax all or part of Social Security in a way that differs from federal taxation; one state (Utah) follows federal taxation of Social Security; and seven states do not have an income tax. In addition, some states may exempt benefits for their public employees from taxation.

In summary, given the myriad of ways in which retirement resources might be taxed, the potential liability could account for a significant share of retirement assets.

## Data and Methodology

The analysis is based on income data from the *Health and Retirement Study* (HRS), a nationally representative longitudinal survey of older Americans.<sup>5</sup> The project focuses on recently retired households where at least one earner claimed Social Security between 2010 and 2018. This construct produces a sample of 3,852 individuals and 2,173 households.<sup>6</sup> Excluding households where the primary earner received disability benefits and those with no earnings records brings the final sample to 3,419 individuals and 1,907 households. Table 2 shows the marital status and financial resources of the sample households at the time of retirement by lifetime income quintile, where income is measured as the total Average Indexed

TABLE 2. MARITAL STATUS AND AVERAGE RETIREMENT RESOURCES IN YEAR OF RETIREMENT IN 2018 DOLLARS, BY AIME QUINTILE

Quintile	% married	Social Security	DB pensions	DC wealth	Other financial wealth
Lowest	35.5%	\$11,000	\$2,500	\$19,200	\$30,600
Second	60.3	29,200	4,400	60,600	74,200
Middle	75.7	34,400	8,000	88,000	98,200
Fourth	82.7	39,800	9,700	159,600	194,200
Highest	82.2	50,900	25,900	325,400	441,400
Top 5%	81.8	56,700	32,200	497,500	455,600
Top 1%	86.2	60,700	33,200	661,600	1,632,300

Source: Authors' calculations from University of Michigan, *Health and Retirement Study* (2010-2018).

Monthly Earnings (AIME) for the household.<sup>7</sup> The wealth amounts for the top 5 percent and 1 percent of households are lower than one might expect; the reason is that the HRS does not capture the extremely wealthy.<sup>8</sup>

### *Calculating Retirement Income*

The first step in estimating tax liabilities is to identify the income streams that retirees will have available from: 1) Social Security; 2) employer-sponsored retirement plans; and 3) other financial wealth.

*Social Security Income.* Social Security benefits depend on two factors: earnings history and claiming age. The earnings history for this analysis comes from the administrative earnings records in the Social Security Administration's Master Earnings File.<sup>9</sup> The claiming age is based on the actual age and year that the primary earner claimed benefits.<sup>10</sup> With earnings history and claiming age in hand, determining the annual benefits involves three steps: 1) calculating each worker's AIME; 2) applying the Social Security benefit formula to the AIME to determine their Primary Insurance Amount (PIA); and 3) adjusting the PIA through reductions for early claiming or credits for delayed retirement. Spousal benefits are incorporated based on the relative earnings of the two spouses. Benefits are adjusted annually in line with changes in the cost-of-living, with COLAs for future years based on projections from the *2020 Social Security Trustees Report*.

*Income from Employer-Sponsored Retirement Plans.* For households with defined benefit plans, annual pension income is based on self-reported estimates. For households with defined contribution plans, the issue is more complicated because the tax burden depends on whether the contributions were made pre-tax (traditional plans) or post-tax (Roth plans) and on the pattern of withdrawal in traditional plans.

Since the withdrawal pattern is unclear, we estimate taxes based on several alternatives. Our base case assumes that households withdraw nothing from their 401(k)s and IRAs until age 70½ (or 72 for individuals who turn 70 after 2020) and then draw down their assets at the rate dictated by the IRS' required minimum distribution (RMD) rules. In addition to the base case, we consider two alternatives. Under one option, households before the applicable RMD

age withdraw at a rate implied by the RMD rules and then follow the RMD rules once they become binding.<sup>11</sup> Under the other option, households use either half or all of their 401(k)/IRA balances at the claiming age to buy an immediate annuity, with joint-and-survivor benefits for married couples.<sup>12</sup>

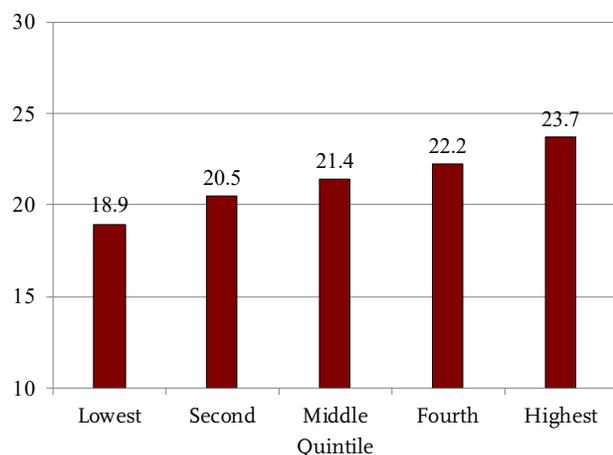
*Other Financial Assets.* While most households' retirement resources consist mainly of Social Security benefits, income from defined benefit plans, and/or 401(k)/IRA assets, some households in the top two income quintiles also hold other financial assets. Our baseline assumption is that these households use only the interest and dividends from these assets to support their consumption, leaving the rest as a bequest. The other option considered is that households use half of their financial assets to buy a joint-and-survivor annuity at the time they claim Social Security. This purchase requires selling financial assets, and the tax liability on the sale will depend on the gain or loss in the market value since the assets were acquired.<sup>13</sup>

### *Calculating Taxes in Retirement*

Once these income streams are identified, the TAXSIM 32 program, developed by the National Bureau of Economic Research, is used to derive federal and state taxes for Social Security, employer-sponsored plans, and other financial wealth. TAXSIM 32 reflects the current law in each year and incorporates provisions from the Tax Cuts and Jobs Act of 2017 (TCJA), including the Affordable Care Act taxes on earned and unearned income (but not the penalties for lacking health insurance), up through 2023. For state taxes, TAXSIM 32 incorporates state tax laws through 2019, and for years after 2019 assumes the "real" value of the 2019 law. While many of the provisions in the TCJA have an expiration date of December 31, 2025, we assume that the provisions remain in place for the lifetime of the household.

Taxes are calculated each year for each household between age 62 and its quintile-related life expectancy, as recently calculated by researchers at the Social Security Administration (see Figure 1 on the next page).<sup>14</sup> The final step is to discount both taxes and income back to the Social Security claiming age. The ratio of the present discounted value of taxes to the present discounted value of income is calculated for each household.

FIGURE 1. ESTIMATED LIFE EXPECTANCY AT AGE 62 BY AIME QUINTILE, 2018



Note: Estimates assume a linear mortality trend for years without data and that mortality rates remain constant after age 80, the last age of available data.

Source: Authors' calculations from Bosley, Morris, and Glenn (2018).

## Results

The results for the base case, which involves minimal withdrawals from non-Social Security resources (taking only RMDs and living off the interest and dividends on other financial assets), show that households in the aggregate will pay about 6 percent of their income in federal and state income taxes (see Table 3). However, the tax rate varies sharply by AIME quintile. Those in the bottom three quintiles pay close to zero, but the rate rises to 1.9 percent for the fourth quintile and 11.3 percent for the top quintile, 16.4 percent for the top 5 percent, and 22.7 percent for the top 1 percent. The rates also vary by household type; for the highest quintile, they range from 10.7 percent for married couples to 17.3 percent for single individuals.

The next three sets of results, which gradually increase the amount withdrawn, are shown in Table 4 (on the next page). The first column assumes people make 401(k) withdrawals in line with an imputed RMD before age 70½ (or 72) but continue to live off

the interest and dividends from their other financial wealth. The second column assumes again that people take money out of their 401(k) early, following an imputed RMD, but this time they use 50 percent of their other financial assets to purchase a joint-and-survivor annuity. The third column assumes full annuitization of 401(k) balances as well as 50-percent annuitization of other financial wealth. Comparing the final scenario with the base case shows that, in a system with progressive rates, retirement taxes are higher when a greater portion of retirement assets are withdrawn for consumption.

In short, regardless of the drawdown strategy, households in the bottom three AIME quintiles most likely pay zero taxes in retirement. This percentage rises to only 2 to 3 percent for the fourth quintile. In terms of financial security in retirement, this finding is good news – most households are not dramatically underestimating their retirement resources by not considering taxes.

TABLE 3. RETIREMENT TAXES AS A PERCENTAGE OF RETIREMENT INCOME, FOLLOW RMD AND CONSUME ONLY INTEREST AND DIVIDENDS FROM FINANCIAL ASSETS, BY AIME QUINTILE AND MARITAL STATUS

Quintile	All	Single	Married
Lowest	0.0%	0.0%	0.0%
Second	0.0	0.2	0.0
Middle	0.2	2.1	0.1
Fourth	1.9	7.7	1.1
Highest	11.3	17.3	10.7
Top 5%	16.4	24.8	15.8
Top 1%	22.7	*	*
All	5.7%	7.2%	5.5%

\*Tax rates for the top 1 percent of households could not be broken down by marital status due to disclosure agreements.

Source: Authors' calculations.

TABLE 4. RETIREMENT TAXES AS A PERCENTAGE OF RETIREMENT INCOME, BY DRAWDOWN STRATEGY AND AIME QUINTILE

Quintile	Follow imputed RMD; consume only interest/dividends (1)	Follow imputed RMD; annuitize 50% of other financial assets (2)	Annuitize all DC assets and 50% of other financial assets (3)
Lowest	0.0%	0.0%	0.0%
Second	0.0	0.2	0.1
Middle	0.2	0.5	0.4
Fourth	2.2	2.7	2.1
Highest	12.5	11.9	12.8
Top 5%	18.1	17.0	17.9
Top 1%	25.0	22.7	22.6
All	6.5%	6.3%	6.7%

Source: Authors' calculations.

Taxes, however, are meaningful for the top quintile, so it is important to consider the economic circumstances of these households. They are mostly married couples with average combined Social Security benefits of \$50,900, 401(k)/IRA balances of \$325,400 and financial wealth of \$441,400. These households as a group are not what many would consider wealthy. Yet, they will pay about 11 percent (or 12-13 percent for other drawdown scenarios) of their retirement income in taxes.

Households in the top 5 percent and 1 percent of the AIME distribution hold more wealth both inside and outside of retirement plans. But even here, their reported average 401(k)/IRA holdings are only

\$497,500 and \$661,600, respectively. These asset levels, which must look quite similar to what many academics hold in their TIAA accounts, are consistent with the fact that the HRS excludes extremely wealthy households, as noted above. For the top 5 percent and 1 percent of households, taxes amount to 16 percent and 23 percent of retirement income in our base case, respectively. Thus, taxes are an important consideration for those who hold meaningful balances and should be considered in their financial planning.

The final observation is that the drawdown strategy does not appear to have much impact on the tax rate. For those in the top quintile, effective taxes range from 11.3 to 12.8 percent. Those in the top 5 and top 1 percent are subject to a 16.4 to 17.9 percent tax rate or a 22.7 to 25.0 percent tax rate, respectively, depending on the drawdown strategy.

## Conclusion

As households approaching retirement examine the resources they will have available, they may forget that not all these resources belong to them. This paper estimated the size of the tax burden for households at different income levels.

The results show the tax burden on retirement income is negligible for the vast majority of households. Under the base case, taxes as a percentage of retirement income in the first four quintiles range from 0 percent to 1.9 percent. Serious tax liabilities arise only in the top quintile, where households face tax liabilities of 11 percent, rising to 16 percent for the top 5 percent and 23 percent for the top 1 percent. Thus, for many households reliant on 401(k)/IRA or other financial assets for security in retirement, taxes are an important consideration.

Understanding the size of this liability can help individuals assess their own retirement security and also inform research on trends in wealth and on how wealth affects retirement decisions.

## Endnotes

- 1 Chen and Munnell (2020).
- 2 This Required Minimum Distribution (RMD) assures that these tax-favored saving accounts are used to provide income during retirement rather than to pass on wealth to heirs. The RMD is calculated so as to spread balances over the participants' remaining lives. The penalty for failure to take an RMD is draconian – 50 percent of the amount that should have been withdrawn.
- 3 A few studies have evaluated the drawdown strategies of retirees, but they have tended to focus on an earlier generation that is not very reliant on defined contribution wealth (Love, Palumbo, and Smith 2009 and Poterba, Venti, and Wise 2011a, 2011b). A more recent study, based on Internal Revenue Service data for IRAs, showed that only 20 percent of holders withdraw funds before the RMD rules become binding (Mortenson, Schramm, and Whitten 2019). For a review of the limited literature, see MacDonald et al. (2013).
- 4 Internal Revenue Service (2020) and Vanguard (2020).
- 5 For more information on data and methodology, see Chen and Munnell (2020).
- 6 For simplicity, a household is deemed retired if at least one spouse has claimed benefits.
- 7 AIME is the measure of lifetime earnings used by the Social Security Administration in determining benefits.
- 8 The top 1 percent of the wealth distribution in the HRS holds about 17 percent of all net wealth, compared to about 30 percent in the Federal Reserve's *Survey of Consumer Finances*. Bosworth and Smart (2009) find that the HRS is good at capturing the wealth of the bottom 95 percent.
- 9 For respondents who did not agree to linkages with administrative earnings records, self-reported benefits are used.
- 10 For households where only one member has claimed as of the last observation, it is assumed that the spouse claims at the same time as the retired spouse. In some cases, spouses are below the early eligibility age when their spouse claims; in these scenarios, it is assumed that the spouse claims at the average age at which others in their lifetime earnings quintile claim.
- 11 Implied RMDs for ages prior to 70½ (72 after 2020) are calculated by taking the inverse of the average life expectancy provided by the Internal Revenue Service (2019).
- 12 The first two drawdown options require assumptions about the returns on untapped assets. The balances in both 401(k)s and IRAs are assumed to be allocated across asset classes based on allocations of retired households in a typical target date fund, and assets are assumed to earn the average gross real return for each asset class for the period 1970-2016 (Ibbotson et al. 2017). Annuity prices are as of June 20, 2020 (from [immediateannuities.com](https://www.immediateannuities.com)) and, for simplicity, assume that the wife in a married household is three years younger than the husband.
- 13 While the HRS does not provide information on the total gain/loss in market value, the *Survey of Consumer Finances* (SCF) does ask people a series of questions to get at the magnitude of their capital gains; and, for this analysis, the 2016 SCF-derived percentage gain is applied to stock accounts liquidated to buy an annuity.
- 14 Interest rates are based on the ultimate assumed rates from the *2020 Social Security Trustees Report*. Bosley, Morris, and Glenn (2018) provide estimates of mortality by AIME. Although taxes on housing are based on wealth, this calculation does require housing income to be converted to a flow. For this purpose, the project uses the concept of imputed rent for the home.

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### Contact Information

Center for Retirement Research  
Boston College  
Hovey House  
140 Commonwealth Avenue  
Chestnut Hill, MA 02467-3808  
Phone: (617) 552-1762  
Fax: (617) 552-0191  
E-mail: [crr@bc.edu](mailto:crr@bc.edu)  
Website: <https://crr.bc.edu>

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