
The Basic Proposal: Retirement Policy for a New Generation



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Economics Club at Michigan Tech

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Executive Summary

We envision a radical change in the current retirement system for the future. This future is one where people do not have to drastically alter their retirement plans with each job change over the course of a career. A future where people do not need to analyze multiple highly complex and technical tax advantaged retirement plans to ensure that they are saving effectively. A future where one can see if their savings are sufficient to last a lifetime at the click of a button. Where they can know for a matter of fact that the money that they have saved is there for them. This is a future that young people can depend on.

To achieve our vision we propose the implementation of three primary reforms: 1) a restructuring of Social Security that phases out the program; 2) a consolidation of tax advantaged retirement plans into a “Basic Plan”, and; 3) a subsidy for boosting the “Basic Plan” accounts of the lowest income groups to an adequate level. With these changes our proposal aims to decrease inequality and increase retirement savings while minimizing poverty in retirement. The goal of this proposal is not to create a highly detailed technical document that contains precise rates, amounts, and formulas, but to show a general proof of concept for the restructuring of the current U.S. retirement system. This restructuring will give policymakers the necessary flexibility to adapt the retirement system to respond to modern challenges.

Our restructuring of Social Security should be seen as a phaseout that will put it on good fiscal standing for its final years. We propose to do this by funding Social Security through the general budget of the federal government for current retirees, and giving those who have already paid into the Social Security system long-term coupon paying bonds. The concept of using bonds

for this task is inspired by a video made by Uncommon Knowledge with the Hoover Institution and Milton Friedman, (Hoover Institution, 1999). The dollar amount of said bonds would be equal to the inflation-adjusted value of an individual's contributions to the Social Security system. Upon the implementation of this policy, no more citizens would be accepted into the Social Security program. This will lead to a gradual phase-out of Social Security that will be costly, as we are moving current retiree's benefits to the general federal budget, however this could be paid off by increasing consumption taxes, such as a progressive Value Added Tax (VAT) that does not include necessity goods. Social security as we know it would end when the last person receiving Social Security payments dies.

The consolidated plan that will be replacing it - the "Basic Plan" - carries a great advantage in that it simplifies retirement for people who may not have the time, money, or patience to learn about the complexities of finance and the minutiae of tax advantaged retirement plans. The consolidation aims to merge 401(k)'s, Roth 401(k)'s, Roth IRA's, SIMPLE plans, among another whole host of IRAs into the "Basic Plan". The subsidy that we propose for topping off income is structured as a negative income tax so that everyone, regardless of income, will have enough to save for retirement without a significant disincentive to improve their economic situation.

Modern Issues in Retirement

The modern U.S. retirement system faces serious challenges, from liability issues with Social Security, the rise of employer sponsored defined contribution plans to which workers often do not contribute adequately, an aging population, to relatively flat real wages since the 1970s that lead to some workers not saving enough for retirement (Desilver, 2018). All these challenges demand a comprehensive review of the U.S. retirement system.

Social Security is depleting its reserves with the retirement of the baby boomer generation. The rise of employer sponsored defined contribution retirement plans has been met with piecemeal, incomprehensive reform. The rapid increase of student loan debt and health care debt likely means that the future will see an increasing number of individuals reaching retirement age without adequate financial resources. While an aging population means a longer period of health-related expenses upon retirement, higher student loan debt means that young adults are jeopardizing their ability to save for retirement given the fundamentals of interest compounding. If young people cannot take advantage of the incredibly important early years of investment because of student loan debt, how can one expect a comfortable retirement? How can we expect people to know how to save when there are dozens of tax advantaged plans, each with their own special rules? How can we expect people to safely retire when Social Security (i.e., a government-based benefits plan), one of the 3 so-called pillars of retirement (the other two being personal savings and employment-based benefits plans), is crumbling?

Social Security “insolvency” has been talked about for a long time, since at least the turn of the century, when in 2000, the Board of Trustees wrote that the Social Security trust fund’s

assets from 2024 on will decline until they are “exhausted in 2037” (Social Security Board of Trustees, 2000). This date has now been revised to 2034 according to the most recent report (Social Security Board of Trustees, 2019). The exact date when the trust fund ratio (i.e., how much of a year’s cost of Social Security can be paid with reserves) goes to zero is not certain. In the trustees’ most pessimistic forecast, what the trustees call “Alternative III”, the reserves will be exhausted in 2030. This is in contrast to the trustees’ most optimistic scenario - “Alternative I” - where Social Security will shelter the storm of the baby-boomer generation’s retirement and return to accumulating reserves for the future. These forecasts show that Social Security may not be as secure as one would hope for.

Projected OASI and DI Shortfall

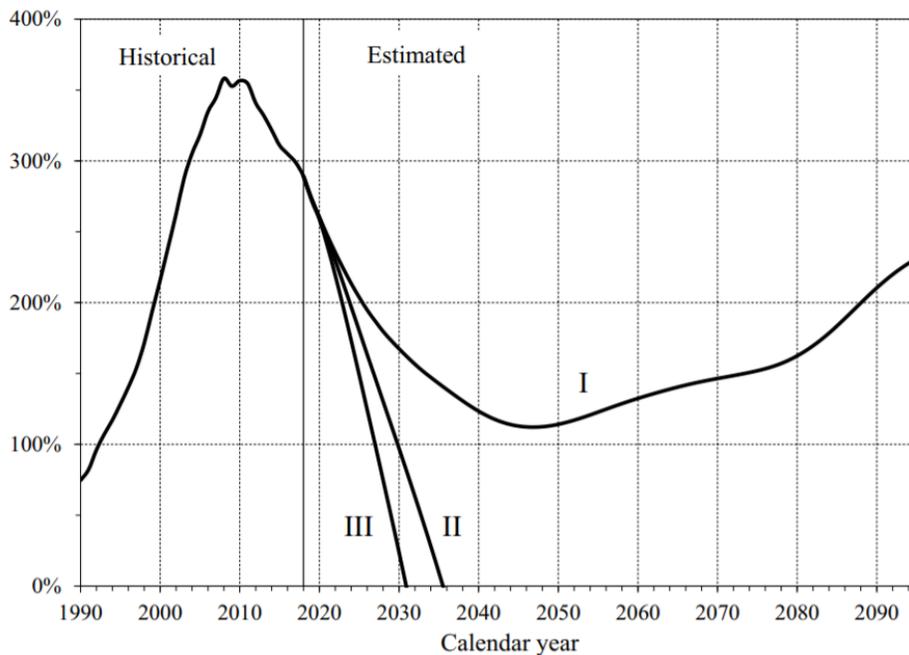


Figure 1. Long Range OASI and DI combined trust fund ratios under alternative scenarios from the 2019 Trust Report (SSBT, 2019)

This means that after 2034, according to the intermediate projection - “Alternative II” - Social Security would have to either cut benefits to all recipients by 23% or increase the payroll

tax to account for that missing income or a combination of both. There are also open questions as to Social Security's effect on personal saving, which research suggests to be negative. According to studies such as Feldstein's (Feldstein, 1979), Kotlikoff's (Kotlikoff, 1996), and the CBO's own literature review (Congressional Budget Office, 1998) all find that albeit inconsistent and challenging empirical analysis (especially in time-series and cross-country estimates), Social Security seems to have a negative impact on the individual's propensity to save.

The current system Social Security is not particularly progressive. While a basic analysis with Gini coefficients and annual income may show high progressivity, when the definition of income is expanded the rosy picture of Social Security's progressiveness slowly crumbles away. For example, once one considers the different life span probabilities of people with differing incomes, then the Social Security system no longer seems as progressive as "the rich live longer and collect benefits longer" (Coronado et al, 2000). This analysis is carried on in Brown's chapter in the NBER volume on tax policy titled, "Is Social Security Part of the Social Safety Net?" This chapter finds in their model which uses potential labor earnings that Social Security has "virtually no overall impact on inequality" for the overall population. Even for the narrower portions of the population that it does redistribute income to, the redistribution "is not efficiently targeted" due to many higher income households "receiving net transfers" and poorer households "paying net taxes" (Brown et al, 2008).

To be direct, it's hard to justify a 20th century system that puts people's retirement at risk of 23% reductions due to demographic trends' absent political action, while also disincentivizing further savings. This is especially amplified by the fact that Social Security does not seem to have a redeeming value in reducing inequality.

There are about a dozen of different kinds of tax advantaged savings plans in the U.S., and each often has subcategories and specializations. There are 401(a) accounts, individual retirement accounts (IRA's), regular 401(k)'s, 403(b)'s, Roth IRA's, Solo 401(K)'s, and Roth 401(k)'s, to name a few. Each of these accounts have their own rules and stipulations. For example, Roth IRA's are taxed on deposit, but tax-free during withdrawals, while 401(k)'s are just taxed on withdrawal. Looking at all these plans and their rules, there is a lot of complexity, which increases the mental transaction cost of choosing how much to contribute to retirement, where to contribute, and what to expect in the future. All while some are also being faced with the financial turmoil of debt and low income, its no wonder why these people may be reluctant to start saving now. And they are reluctant, for example, Northwestern Mutual found that 1 in 3 Baby Boomers had less than \$25,000 in private retirement savings (Northwestern Mutual, 2018).

One key study that could help combat the lack of personal savings was conducted by Beshears, Laibson, Choi, and Madrian from the National Bureau of Economic Research (Beshears et al, 2006) finds that a company offering enrollment at preselected contribution rates and allocations increased plan enrollment “by 10 to 20 percentage points” in a normal opt-in plan. They concluded this was due to a reduction in mental transaction cost, which was accomplished through collapsing “a multidimensional problem into a binary choice.” It's clear that if collapsing a choice between rates and allocations into a yes or no decision increases plan enrollment, then decreasing the number of tax advantaged retirement plans and their complexity would likely decrease procrastination in saving for retirement. In fact, this is exactly what recent behavioral science literature is finding in 401(k) plans, epitomized by the study, “How Much choice is Too Much?” by Iyengar, Huberman, and Jiang, which found that 401(k) plans that offered a higher choice of different complicated funds lowered the probability of enrollment (Iyengar et al, 2004).

This is certainly not encouraging workers to cleanly save for retirement in their employer sponsored plans.

Furthermore, if the government adds another type of tax advantaged retirement plan to the mix, not only will there be behavioral effects involved, but most of the money that individuals contribute to that plan will not even be new funds. Most of the money going into that plan will just be reallocated funds from a different account rather than a true increase in savings, which is exactly what John Friedman found in his paper “Tax Policy and Retirement Savings.” In fact, he finds if there is an increase in savings, chances are it won’t come from the savers with “the greatest savings inadequacy” but from people who are adept at saving and saving well (Friedman, 2015). Therefore, consolidation of the current set of tax advantaged retirement plans is needed, not just another plan thrown into the already complicated mix.

Core Policy Objectives

Our core policy objectives are to increase retirement savings in a way that is flexible, reduces economic inequality, and reduces poverty in retirement. We propose to achieve this through a 50-year overhaul of the American retirement system, including a significant restructuring, ending in the elimination of the current Social Security program.

People are currently not saving enough for retirement. For example, the entire gig economy leaves many without employer matched 401(k) plans as a means of saving for retirement. The “Basic Plan” allows policy makers the flexibility to change a variety of aspects including the NIT rates and bracket to adapt to changes in investment behavior. Social Security also has projected funding shortfalls which could be circumvented if it were more flexible.

The current system also does not consider the wealth inequality of those involved. Social Security gives money to the old from the young regardless of socioeconomic standing which is not particularly progressive. The “Basic Plan” uses the progressive nature of the NIT to take money that the wealthy do not as readily need for their retirement and gives it to the poor for their retirement.

In addition, we expect that our policy recommendation will also have minimal market distortions. For example, we do not expect it to move the prices of stocks in ways that can be exploited. Most of the money that will be invested from the “Basic Plan” will be done in a manner similar to a market-wide ETF. More money may enter the financial sector but it will be evenly spread. People can choose to be riskier with money given beyond the minimum contribution but investments such as penny stocks will still be off limits. But these investments will not

systematically subsidize any businesses because there will be no trying to ‘beat the benchmark’ by investing in ‘winning’ stocks, at least not in the automatically invested minimum distribution portion of the fund.

The “Basic Plan” will accomplish all these goals with minimal distortions to the current market. In order to achieve this, the proposal must be politically viable. A part of that political viability is having a policy that has a minimal effect on existing markets and reasonable net changes in taxation, while also ensuring that people keep what they are currently owed in Social Security and pensions. Requirements must also be put in place to prevent people from abusing the system as it has great potential for harm if corrupted.

Social Security Reform

Social Security is a social insurance program that started in 1935 (Legal Information Institute, 2019) and is now currently managed by the Social Security Administration (S.S.A.), which is an independent agency of the U.S. federal government. Social Security provides retirement income for retirees and disability income for those who are deemed unable to work.

The benefit amount received is based on overall contributions during working years. A beneficiary can start receiving this life-long retirement income as early as age 62, but once they begin collecting benefits, the amount received is locked in at constant level, only being adjusted for cost of living increases afterwards. But before its locked in the future level of monthly benefits, it will increase for each year that its start is delayed, up to a max recipient age of 70. Delaying the start of collecting benefits increases both the amount of time had to pay into the principal amount as well as the yield of the annuity. There's one caveat to the payoff lock in, if you qualify for survivor benefits that are greater than your current payoff, you'll instead receive those payoffs. Survivor benefits are, as the name suggests, benefits gained for being the survivor of a marriage (i.e., a widow or widower), or a surviving dependent. For example, if you're a 14-year-old whose single parent passes away then that 14-year-old would likely qualify to receive the benefits (at 25% reduction) of what the parent would have received, until the child is of age.

Social Security retirement benefits, a guaranteed life-long retirement income for every working citizen, which is a liability on S.S.A.'s books, has caught up to us though. According to the Social Security Board of Trustees, we're now running on an expected actuarial balance deficit for the remainder of its life (S.S.A 2018). That is, the fund is now paying out more money than it's

taking in, and this isn't expected to change unless Congress either increases the Social Security tax rate or decreases the Social Security pay out benefits (or allows for higher return investments but this is unlikely because of the increased risk). While a potential actuarial deficit has been talked about for some time, its realization is a relatively new turn of events, only having started in 2010 (S.S.A 2018) Some factors that have turned the tide for the worst are, rising life expectancies, a decreasing worker-to-beneficiary ratio, stagnant real income, and record-low bond yields. (S.S.A 2018) The net result? The Social Security Fund, in the most likely contingency, is expected to run out of money in 2034 (Social Security Board of Trustees, 2019). This means that in 2034 the principal component of the Social Security fund will be completely depleted and the paid-out benefits will have to be decreased. This also implies that there will be decreasing returns (in terms of aggregate monetary amounts) for the funds that citizens are supposedly paying into their retirement fund. The money you get back in the future likely won't even match the nominal amount of money you paid in, let alone the inflation adjusted value.

This impending shortfall isn't due to a bloated or mismanaged system, as the current iteration of S.S.A is quite efficient. Its administrative overhead is already at an all-time low of about 0.7% (Social Security Administration, 2018). There's unlikely to be a tangible reduction here but where there is headway to be made is in the investment process. Currently the Social Security portfolio consists solely of special issue federal bonds, which have an annual yield of around 2.847% (Williams 2019). While a large allocation into consistent low-default-risk bonds may make sense for people at retirement age, this strategy makes less sense for a 20-year old, whose retirement portfolio will have a lot of time to ride out market highs and lows.

Equity markets vary a lot overtime, but the commonly accepted average long-term yield on equity assets in the stock market is around 5.5%. This can be easily seen by comparing the S&P

500 price of today to S&P 500 price of 50 years ago as an equity market return proxy (Appendix, 2). This is notably much more than the current 2.847% yield of the Social Security Trust Fund, especially when compounding interest is considered. For example, a sinking fund over 40 years at a 2.847% yield will have a nominal multiplier of around 1.8. That same sinking fund at 5.5% yield would have a nominal multiplier of around 3.4 (Appendix, 1). That is, you'd expect to have around 1.9-fold the retirement savings if you invested in equity vs. low yield bonds. Of course, that is making a lot of assumptions, like equal contribution payments through one's life and a constant asset allocation of 100% in equity. A more likely scenario would be to see payments increase with age (the largest portions of the nominal principal would have the least time to accumulate compound returns) and for the portfolio's asset allocation to gradually reach a high proportion of fixed income by retirement age. Even with these conservative estimates though, this would still be around 1.4-fold increase in retirement savings. This switching to an individual retirement plan where each person is rewarded for by their own portfolio's performance would move liabilities away from the government, vastly increase savings efficiency, and create a much more promising future for today's workforce.

Because of this, we propose a restructuring and eventual phaseout of the current Social Security system. Starting upon ratification, individual's old payroll tax would be decoupled into subcomponents. The Disability Insurance portion would remain unchanged, but individual's Social Security portion would be replaced with a new similar tax that would instead support the new "Basic Plan", and this new tax would also be increased to a 10% rate, at least for individuals who make more than \$25,000. This is a large change, so to prevent financial displacement of those who've not had adequate time to plan around this change, current beneficiaries who are at least 50 years of age, and those who would qualify for their survivor benefits, would be grandfathered into

the current Social Security System. These near retirement beneficiaries will still receive their earned lifelong benefit based on their current contributions to the fund. And if they have not yet started their retirement benefits, they will also be able to opt into still making contributions into Social Security via the old style of payroll tax. Those who are younger than 50 would no longer be able to make contributions to Social Security, only to the new system. The money they had already paid-in would be paid back to them with 20-year “Freedom-Bonds”. These would be non-marketable, inflation adjusted, one-time issuances from the U.S. Treasury with monthly coupons and no redemption value.

The main drawback here is that it may require the federal government to foot some of the bill for the money already owed to beneficiaries. The cost here is substantial, the current annual cost of benefits is around 828 billion (Social Security Administration, 2018 January), and we’ve estimated it would take at least 45 years to phaseout Social Security. In all, by our rough estimations, this would cost the U.S. Tax payers 24.5 Trillion but this is money already owed so this ‘debt’ isn’t going away regardless of the type of reform (Appendix, 3). To pay for the already money owed, and the general expenses of a massive legislative undertaking, we suggest that a temporary progressive Value Added Tax (VAT) be levied. It was estimated that a 5% Progressive VAT, that is on non-essential goods and services, would yield an annual \$221 Billion (Toder, Eric, and Joseph Rosenberg, 2010). If this was increased to 20%, ignoring any reduction in the demand for discretionary goods and services, the Social Security Trust Fund could expect an additional \$884 billion of income to help offset its cost of benefits. After about 15 years this VAT could be gradually reduced to 0% as the pool of beneficiaries starts to shrink.

Another potential source of income to help support the phaseout could come from the employers’ 6.2% payroll tax (I.R.S., 2019). This can be seen as a mandatory contribution matching

for Social Security, as it does not come out of an employee's wage and equally matches the employee's own 6.2% tax. We've estimated that each 6.2% payroll tax results in \$420 billion of annual income for Social Security. To come to this estimate we took 6.2% of the summed aggregates, provided by the S.S.A., for each of the wage brackets, capping income at \$127,200, which was the wage base in 2017 (Social Security Administration, 2017). Repurposing this to temporarily help pay for the phaseout does make a lot of sense, but we'll actually later be recommending that the employer's payroll tax instead be allocated towards the subsidization of low-income individuals' now higher payroll tax, which we'll be referring to as a 'minimum contribution' from now on. The main reason for this choice being that it makes more sense to tie an indefinite series of taxes to an indefinite series of expenses, where the Social Security phaseout has a foreseeable time horizon.

While the phaseout cost is not ideal, there's no question that the Social Security system has become an antiquated system. Many young workers fear they will never see a dime of their hard-earned contributions. Though they'll likely see some of it, it is hard to argue that the Social Security program still offers the same certainty and security that it once did. These young workers will get older, and these voters will expect Social Security reform from their legislative representatives. A reform will happen eventually, people want to be assured that their Social Security taxes were not paid in vain. And with technology already providing lower opportunity costs to invest more efficiently, it would be best for everyone's sake to start now while there's still time for meaningful wealth accumulation.

“Basic Plan” Description

Our replacement of Social Security, the “Basic Plan”, would be similar to the current Thrift Savings Plan, a government managed equity fund. But there’s a key difference, the “Basic Plan” would be constructed to encompass the entire population; working and non-working. As mentioned earlier, a new mandatory payroll tax would replace the old Social Security portion of the payroll tax. This new tax would have two parts, a minimum contribution portion and a negative income tax portion. These would be carefully balanced to achieve a payroll tax that would decrease to 0 at some sub-poverty-line threshold. In our most aggressive contingency, we show that every individual who makes less than \$25,000 could have their entire minimum retirement contribution paid for by the negative income tax portion. That is, Americans living below the poverty line would still receive minimum contributions into their personal retirement fund, without having to give up as much of their low income.

Another key plank of our proposal is that the “Basic Plan” would not only replace the current Social Security Trust Fund, but would also replace 401(k)’s, defined contribution plans, and other tax advantaged savings vehicles. The goal here is to create a government managed account that is tied to the person, not the job. People are much more mobile in their employment than they have been in the past, the percentage of workers who are engaged in “alternative work arrangements” has grown 5.7% between 2005 and 2015 (Katz and Krueger, 2016). The current retirement system as it stands now is not very capable of dealing with this e.g., Uber doesn’t match 401(k) contributions so those workers will be forced into opening their own IRA’s, a process most will likely avoid. By consolidating all of those IRA’s and 401(k)’s (and their variants) into one

single system, we can avoid the complexity of having our savings fragmented across many accounts. Making retirement simpler, and less daunting to the average Joe.

With our “Basic Plan”, employers would still have the option to match the retirement contributions of their employees. Whether the matched contribution would be deposited into an external fund or into the employee’s “Basic Plan” Fund would be determined on an individual contract basis but the option would be there. We expect that employers would also welcome the “Basic Plan” as simple and hassle-free option over having to deal with a private fund. For those contracts already stipulating employer-matched contributions into one of the types of IRA that are being rolled into the “Basic Plan”, the employer would still be required to match those contributions.

This centralization would concurrently create a more effective policy lever for policymakers to adjust the incentivization for saving, especially in combination with a supporting app and website. For instance, from behavioral economics we could implement some of the ideas recently evaluated by the think tank Ideas42 (Fertig et al, 2018). In the latter paper the authors review the effects of a host of behavioral programs used in Mexico, including punch cards as a reward for contributing to a retirement plan, the effect of reading different stories on retirement, and the effect of an aging selfie filter on retirement contributions. For dealing with financial education, we suggest adopting the punch card lottery program that Mexico implemented to increase retirement contribution rates (though by a modest 0.11%), given that this initiative could also lead to complementary and positive externalities such as the betterment of an individual’s financial literacy. The website and App associated with the “Basic Plan” could also contribute to augment financial literacy by promoting massively open online courses (OOC) in financial education, and through punch cards that give a lottery for a new laptop computer if you

successfully attend and complete a certain number of approved OOC courses. This way we can promote financial literacy at minimal cost to the taxpayer. To get people to save more, we can also include in the app the selfie filter that ages the person's face. This filter was shown to increase total personal savings by 54% (Fertig et al 2018)!

One thing we must be careful of is how the “Basic Plan” would be constructed, as it shouldn't hinder market efficiency. In fact, we expect our proposal to increase societal welfare, that is, its benefits to outweigh the costs. In relation to its impact on the financial sector e.g., private pension funds, we do not expect any additional negative externalities given that the core purpose of our “Basic Plan” is similar to the current Social Security program. Individuals will continue to have the need to supplement government-based benefits with private savings if they wish for more than basic standards of living upon retirement. Ultimately, the private financial sector may even experience positive externalities if our “Basic Plan” is implemented given that its goal is to increase the welfare of retirees, and therefore also increase their consumption, hence contributing to economic growth. Secondly as long as we're careful not to overly invest in any particular equity or equity market the “Basic Plan” should avoid unfairly propping up otherwise lackluster investments or incidental subsidies.

Thus, we propose a government constructed market-wide equity fund, held at market-cap weights, be the equity portion the “Basic Plan”. This equity fund would be the backbone for the higher long-term returns we expect to observe in the citizen's new government-managed portfolio. The overall portfolio though would also contain fixed income derivatives to reduce risk and create a more leveled payoff in retirement. The proportion of fixed income in an individual's portfolio would increase with age, always containing at least some equity and some fixed income – a proposal for its implementation is depicted in Figure 2. The important takeaway here is that market

risk is concentrated in the early years of one’s income generating life, where market ups and downs have enough time to smooth out. As the person gets older, the resulting returns are slowly locked into place with fixed income, giving the person financial security as they face retirement.

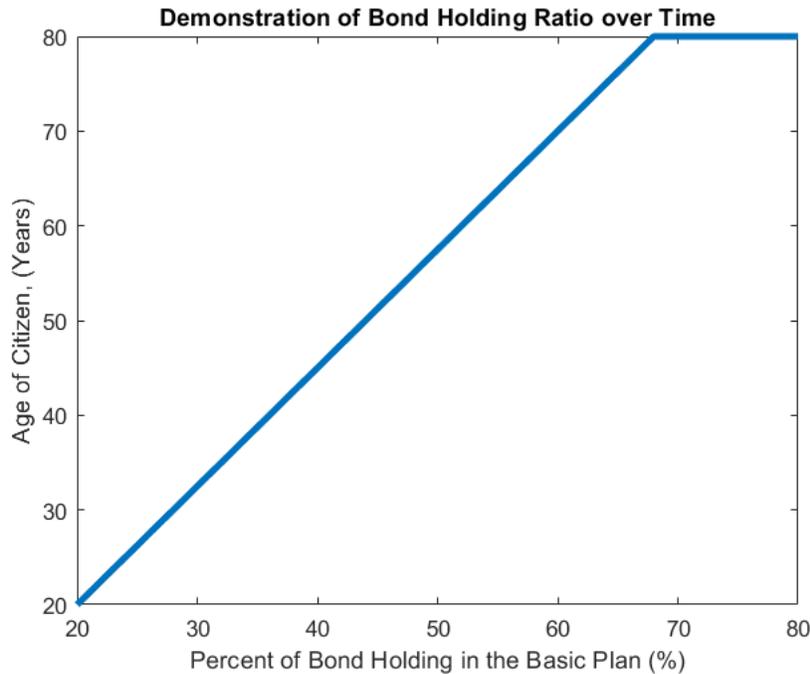


Figure 2: Visualization of the effect of the bond holding ratio for a single citizen over time

The fixed income portion of the portfolio could be comprised of either a market weight split of “low-risk” corporate bonds (A grade and above) or the same special issue bonds that were being utilized by Social Security before. Corporate bonds would obviously have a higher yield but might reduce market efficiency, as corporate bonds with an A grade would have even higher demand and therefore be overpriced. Perhaps a market-cap mix of A grade bonds with some proportion being invested in riskier bonds could mitigate this inefficiency though.

Another major difference of our proposed plan relative to Social Security is how the benefits would be paid out. The “Basic Plan” would still offer a varying retirement age at the beneficiary’s choice but it would have an associated tax advantage for delaying distribution instead

of the increased annuity yield that Social Security had. Once the distribution begins, the accumulated wealth would be redistributed back to the citizen in a varying annuity payment structure. Each payment would be calculated as an annuity payoff for 1.5 times the individual's remaining life expectancy (these expectancies would be the same for everyone, set by age only). For example, if someone was 70 and the life expectancy for a 70-year-old was deemed to be 15 years then that payment would be calculated as an annuity equivalent to their remaining investment principal over the next $1.5 \times 15 = 22.5$ years. This payment would be paid monthly and be recalculated annually. This style of distribution would slightly frontload the benefit towards the earlier years of one's retirement, while still guaranteeing a modest payoff in the later years for those who are especially long lived.

What we've discussed so far is only the default investment and distribution process. The supporting app and website for the "Basic Plan" would also offer current and future beneficiaries some deviations from the standard protocol. By default, the portfolio is invested and distributed in a very conservative manner. This is intended for those with the bare minimum invested for retirement, and guarantees everyone a basic standard of living. After all, our main goal here is to provide security for the old, but there will be many who save in excess of this basic standard of living who could benefit from a more aggressive portfolio strategy. Similar to the privatization of Social Security that was championed the Bush campaign and administration, we suggest that everyone's portfolio's will be partitioned into two accounts. An account for the portion of their retirement savings required to supply a basic standard of living (likely based on the minimum distribution), and a secondary account for the voluntary contributions beyond the minimum. To assure adequate funds remained, beneficiaries would not be able to alter the investment or distribution process of the basic standard of living account. Using the app or website though they

would have a large amount of control in how their voluntary contributions account is invested and distributed. For example, being able to invest in an individual stock or take out a large distribution but would likely be restricted from certain risky markets and positions, such as the futures market, options trading and private equity. The Basic Plan’s website would also allow them the option to prepay their income taxes on contributions as is done with the current Roth IRA. Another difference between the voluntary contributions and minimum contributions accounts would be that the voluntary contributions would be inheritable like any normal asset, but the minimum contributions wouldn’t be. The minimum contribution account would follow the current survivor benefits rules of Social Security.

A voluntary contributions account is necessary for the “Basic Plan” to be a true replacement of other tax advantaged plans. And similar to those accounts, the “Basic Plan” would have a limit to the amount of annual voluntary contributions that could be made. We’d recommend 10% of annual income. Of course, people will still be able to invest in private funds for their retirement but they simply won’t be tax advantaged. Also, those private funds wouldn’t be protected from creditors in lawsuits and bankruptcy, where both types of contribution accounts would be under the “Basic Plan”. Thus the “Basic Plan” will offer should also be seen as a strong alternative to the current private retirement system. Individuals who want to invest more towards their retirement but are too intimidated by the nature of competitive markets, or don’t want to deal a fragmented and complex system, will simply be able to put money into their “Basic Plan” and immediately start reaping a fair but low-risk return.

Negative Income Tax Description

The negative income tax (NIT) is a concept that has had a lot of bipartisan political support. The concept has been promoted by notably right leaning economists and activists such as Milton Friedman (Friedman 1964), as well as supported under the name of the Universal Basic Income (the two are functional equivalents under a progressive income tax (Bowman, 2014)) by a whole host of activists across the political aisle. The NIT is simply a means of calculating a subsidy to individuals of different incomes. The idea is the same as the taxes that you pay each year to the IRS. The way that the subsidy is calculated is relative to a set bracket of income, negatively taxed at a certain percentage, following this equation,

Eqn. 1
$$\textit{Subsidy} = (\textit{Bracket} - \textit{Income}) \times \textit{Rate}$$

For the Basic Proposal we look at varying income with a bracket fixed at \$25,000 (approximately the poverty line for a family of 4), with a 10% negative tax rate. If you made \$12,500 per year, then you would be eligible to receive a subsidy equal to \$25,000 minus \$12,500 times 10%, that is, a subsidy of \$1,250 dollars each year. You can see how this works below in Table 1 and also in Figure 3 which shows how the NIT tops off income and contributes to an individual's retirement contributions.

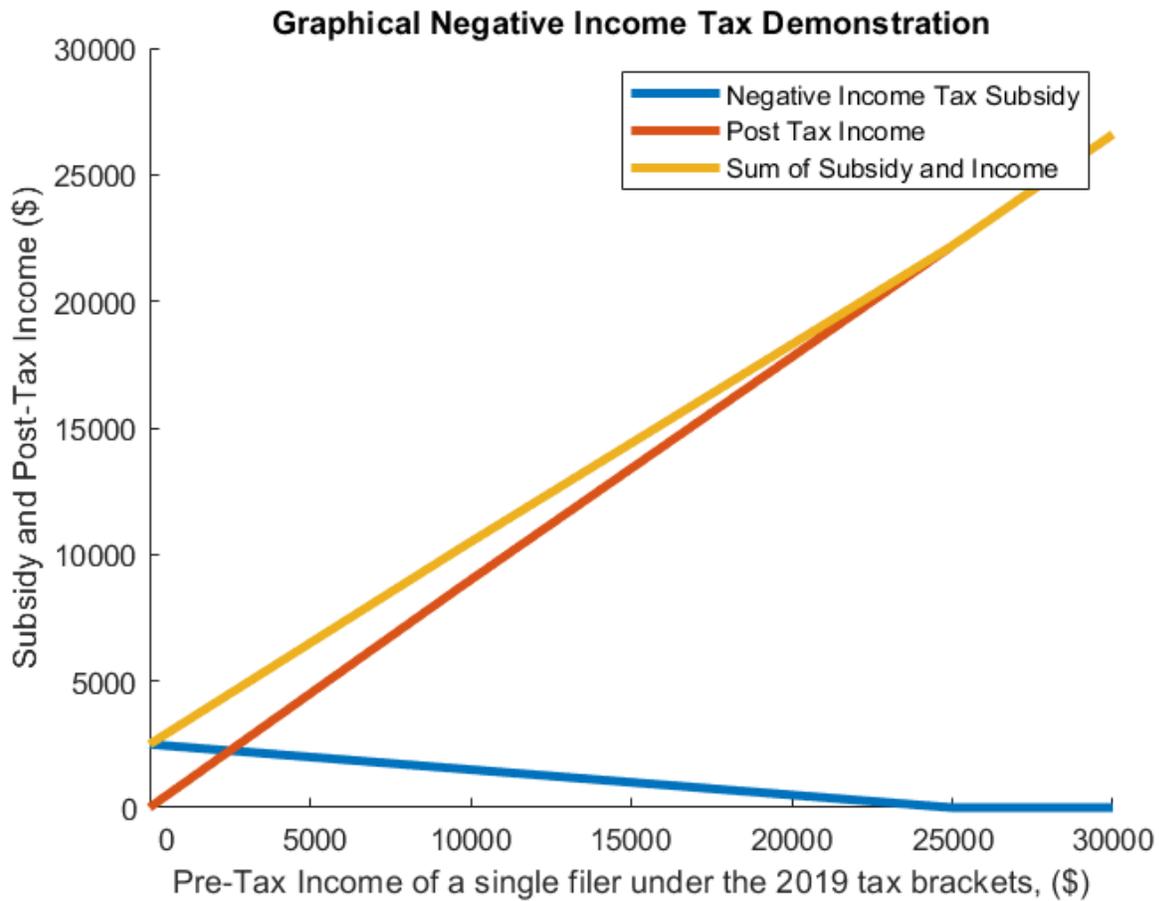


Figure (3): Visualization of the effect of pre-tax income growth on subsidy size, post-tax income, and total-tax income of a single filer

Table 1: Tabular Demonstration of the NIT and “Basic Plan” Combination

| Income | Subsidy each year | Minimum Contribution to “Basic Plan” | After-Tax Income (only including federal income tax) | Sum of Subsidy and Income | Amount deposited in “Basic Plan” at 10% minimum contribution |
|-----------|-------------------|--------------------------------------|--|---------------------------|--|
| \$0 | \$2,500 | \$0 | \$0 | \$3,200 | \$2,500 |
| \$10,000 | \$1,500 | \$1,000 | \$8,994 | \$10,494 | \$2,500 |
| \$15,000 | \$1,000 | \$1,500 | \$12,864 | \$13,864 | \$2,500 |
| \$25,000 | \$0 | \$2,500 | \$22,194 | \$22,194 | \$2,500 |
| \$50,000 | \$0 | \$5,000 | \$43,142 | \$43,142 | \$4,000 |
| \$100,000 | \$0 | \$10,000 | \$81,826 | \$81,826 | \$8,000 |

The original purpose of a negative income tax was primarily as a welfare program (Friedman 1964), one that allocates money straight into the pockets of the poor, without any qualifications like work requirements. However, the concept also has applicability to retirement programs as well. Policymakers can view the negative income tax and minimum contribution rate as setting a minimum yearly contribution for retirement. Combining this with the “Basic Plan” gives a way to ensure a minimum amount for citizens to retire on, regardless of income.

Furthermore, we can use the NIT to address inequality by taxing the well-off using the Basic Plan’s tax system, and then using that income to subsidize the least well-off with the NIT. The great thing about the negative income tax proposal is that it boosts the income of the poorest citizens, while being funded by a mix of the progressive income tax of the “Basic Plan”. This gives the subsidy a durable framework because policymakers have multiple levers they can adjust. A policymaker could adjust the bracket level, the negative income tax rate (NITR), and the traditional tax brackets, all to bring about an equitable and fair distribution of income, or even set the tax rates flat if so desired. The exact tax rates do not matter as much as the framework for adjusting policy. Additionally, the minimum amount that goes into the “Basic Plan” depends on the policy tools of the minimum contribution rate (MCR) and the NITR. If they are equal, as they are in Table 1, then the amount per year put into the “Basic Plan” is constant, if the MCR is greater than the NITR then the amount in the plan will increase, and vice versa. This allows policymakers a wide degree of flexibility with their policy tools.

For our plan, we assume \$2,500 per year to be the guaranteed minimum retirement contribution each citizen will have deposited into their retirement fund from age 20 to 68. The expected aggregate cost of this subsidy can be quickly calculated by using census data. The U.S. Census bureau found that on average a household has 2.58 people (Census Bureau 2018). So, we

can make an extremely conservative cost estimation by assuming that all the income in a household is made by one person, which is at the bottom of the bracket and the 1.58 other persons in the household make nothing and would receive the full subsidy into their “Basic Plan”. For example, the census data for households with between \$15 and \$25 thousand dollars of income would have 1.58 people getting the full \$2,500 subsidy into their account and one person getting a partial subsidy of 1 thousand dollars into his account according to this calculation. Since this bracket has 11.6 million households, the cost for this bracket would be \$4,950 per household or 57.4 Billion. Summing the calculation from all brackets up to \$25 thousand dollars of income yields the result of 130 Billion U.S. dollars.

An alternative calculation that yields a more conservative result would be to assume that all people in all households who received SNAP, Social Security supplemental income, and public assistance will have an income of zero, and get a full subsidy each year. This calculation yields 157.8 Billion U.S. dollars. An even more conservative estimate can be achieved using wage statistics provided by S.S.A. in 2017, and population statistics provided in 2016. Here we first see that around 70% of the U.S. population is working age, which we’ve defined to be between 15 and 70, that’s around 230 million Americans. Of these 230 million, as reported by the S.S.A, 165 million have filed forms W-2 (Social Security Administration, 2017). Assuming there’s a negligible amount of people working outside the 15-70 age bracket, the difference of these two estimates indicates that there’s around 65 million people in the working age populace without any job, of which around 5 million would be too young or old to fall under the “Basic Plan” (US Census Bureau, 2016). A full \$2,500 subsidy for these people would then cost an aggregate \$150 billion annually. Continuing with the S.S.A.’s wage statistics we see there’s 68.9 million W-2 filers who are below the \$25,000 net compensation level. With the progressive subsidy, as mentioned

earlier, an expected subsidy of ~\$1,250 would then cost would be \$86 billion. Thus, we'd expect for the Basic Plan's subsidies to annually cost at most \$236 billion. This cost could then be reduced by eliminating eligibility for those who already have a large net wealth despite having a low income, or by also barring eligibility for those who already receive a large amount of support from the government.

Even at face value though this annual \$236 billion figure is notably smaller than the earlier estimated annual \$420 billion of proceeds produced from employers' current payroll tax. Thus, we'd recommend that the current employer payroll tax be redirected towards payment of the minimum contribution subsidies. In fact, those proceeds are well in excess of the projected cost, so it's quite reasonable that the "Basic Plan" would be able to employ an even more aggressive subsidy strategy than what we initially discussed. An example how this could be used, is that for only another \$86 billion the "Basic Plan" could fully subsidize all workers who make less than \$25,000. Then for another \$56 billion, this per person \$2,500 subsidy could then be partially continued on for the 45 million workers who make between \$25,000 and \$50,000 (Social Security Administration, 2017). Where the subsidy would start at \$2,500 for those who make \$25,000 and then linearly decrease to 0 for those that make \$50,000. This would result in a grand total cost of \$380 billion, which would still leave \$40 billion on the table for overhead.

But what does an annual \$2,500 contribution buy a retiree? Assuming that long-run bond yields are 3% and that equity yields are 5.5%, which are very conservative yield rates, and the variable age-based equity to fixed income portfolio allocation mentioned earlier (see Figure 2) we can estimate an expected yield of 4.5% over the accumulation phase of one's retirement account (Appendix, 2). This then can be used to calculate, accounting for the time value of money, that a retiree who contributes only the bare minimum of \$2,500 per year will accumulated a total of

\$403,970 by age 68 (Appendix, 4). Assuming a 3.5% yield over the distribution phase of their account would allow for annual distributions for \$21,964 over a time period of 30 years. This is well above the poverty line income of \$12,140 for a household of 1 (US Department of Health and Human Services, 2019). That is, implementing this plan would guarantee that even the poorest could afford a basic standard of living in retirement.

Conclusion

The Basic Plan's core policy objectives are to increase retirement savings in a way that is flexible, reduces economic inequality, while minimally distorting the market. This is achieved through an overhaul of the American retirement system, including a complete 50-year phaseout plan of Social Security. Current retirees, soon to be retirees, and their qualifying survivors will be grandfathered into the current Social Security system, while the others will be ushered into the easier to use and more financially efficient "Basic Plan". This "Basic Plan" will consolidate all tax advantaged retirement accounts into one government managed fund. Automating the investment process for those who are too intimidated effectively save for retirement and simplifying jungle of retirement options for those who wish to have a bit more control. The centralization will also allow policymakers the flexibility to use a host of behavioral economics tools in the accompanying websites or apps to better incentivize financial responsibility. But the real pith of the proposal is a progressive negative income tax which will be deposited straight into "Basic Plan" accounts of those who are simply too poor to save otherwise. These protected accounts will accrue interest over a beneficiary's life, guaranteeing a minimum standard of retirement for all citizens.

Social Security is inflexible, not exceptionally progressive, and is an enormous amount of underutilized capital. Its current fiscal deficit is a certainly frightening prospect for our country's young generations and old generations alike. Unarguably this unsustainability has to be fixed, and perhaps there are less radical solutions that would temporarily staunch the financial hemorrhaging but these solutions can't keep an out dated system afloat forever. What we have argued is that this unsustainability is an opportunity to implement a modernized retirement system. One which reflects modern economic thought and takes advantage of current technology.

Mathematical Appendix

1. Calculations for Nominal Multipliers:

$$\begin{aligned} \text{Nominal Multiplier}(\text{Years} = 40, \text{Yield} = .02847) &= \frac{(1 + .02847)^{40} - 1}{.02847} / 40 = 1.82 \\ \text{Nominal Multiplier}(\text{Years} = 40, \text{Yield} = .055) &= (((1 + .055)^{40} - 1) / .055) / 40 = 3.42 \\ \text{Nominal Increase} &= \frac{\text{Nominal Multiplier}(\text{Years}=40, \text{Yield}=.055)}{\text{Nominal Multiplier}(\text{Years}=40, \text{Yield}=.02847)} = 1.875 \approx 1.9 \end{aligned}$$

2. Calculations for Expected Rates:

$$\begin{aligned} \text{Expected bond rate} &= .03 \\ \text{Expected equity return} &= \left(\frac{\text{S\&P Price on Jan 1 2019}}{\text{S\&P Price on Jan 1 1969}} \right)^{\frac{1}{50}} - 1 = \left(\frac{2607.39}{102.00} \right)^{\frac{1}{50}} - 1 = .06697 > .055 \\ &\hspace{15em} (\text{Multpl, 2019}) \\ \text{Average Expected Return During Distribution} &= \text{Expected equity rate} * \\ &.2 + .8 * \text{Expected Bond Rate} = .035 \\ \text{Average Expected Return During Accumulation} &= .2 * \\ \text{Expected equity rate} + .8 * \frac{\text{Expected bond rate} + \text{Expected equity rate}}{2} &= .055 * .2 + .8 * \\ \frac{.03 + .055}{2} &= .045 \end{aligned}$$

3. Calculations for NPV of owed Benefits Estimation:

$$\begin{aligned} \text{Future Value}(\text{Cost of Benefits}) &= 828,000,000 * 15 + \left(\sum_{i=1}^{30} 828,000,000 - \right. \\ & \left. (i * 27,600,000) \right) = 24,426,000,000 \approx 24.5 \text{ Trillion} \\ \text{Sinking Fund}(N = 45, \text{Yield} = .03847, \text{PMT} = 221,000,000) &= 221,000,000 * \\ \frac{(1 + .03847)^{45} - 1}{.03847} &= \$30,371,035,000 \end{aligned}$$

Here we're assuming that the expected annual COLA for the benefits will match the expected return of the special issue bonds at 2.847%, for a net expected return of 0%. In addition, we assume that the average retirement age is 65, so for the next 15 years the cost of benefits will be level, \$68,975,000 per month (Social Security Administration, 2018 January), but after that the pool of beneficiaries will start declining. Based on the 2010 population of 65-year-olds and older, I've estimated a uniform mortality rate with 100% living at 65, and 0%

living at 95. Thus, I arrive at a very generous 24.5 trillion over-estimate. To pay for this we suggest levying a progressive VAT in the U.S. At a level of 5% the VAT would yield an annual \$221 Billion (Toder, Eric, and Joseph Rosenberg, 2010), and if these proceeds were invested into a separate fund which would yield similarly to the current Social Security fund and an assumed 1% increase in consumer discretionary price levels per year, we'd get a similar value of \$30.3 Trillion. Though these calculations are both very rough, the main issue with this approach is that the current Social Security expenditure would be very frontloaded while the sinking fund's value wouldn't accumulate till later. Perhaps a better solution would be to have a higher initial VAT (say ~20%, which would yield ~\$884 billion) that immediately offset costs and decayed along with the cost of benefits to 0% in 45 years.

| Age | Population [1] | Percentage Distribution |
|----------|----------------|-------------------------|
| 65 to 69 | 12,435,263 | 30.9% |
| 70 to 74 | 9,278,166 | 23.0% |
| 75 to 79 | 7,317,795 | 18.2% |
| 80 to 84 | 5,743,327 | 14.3% |
| 85 to 89 | 3,620,459 | 9.0% |
| 90 to 94 | 1,448,366 | 3.6% |
| 95 to 99 | 371,244 | 0.9% |
| 100 | 53,364 | 0.1% |
| | 40,267,984 | 100% |

[1] (US Census Bureau, 2011)

4. Calculations for Minimum Retirement Distributions under Basic Plan:

$$\text{Sinking Fund}(N = 48, \text{Yield} = .045, \text{PMT} = 2500) = 2500 * \frac{(1 + .045)^{48} - 1}{.045} = 403969.75$$

$$\text{Annuity PMT}(N = 30, \text{Yield} = .045) = 403969.75 / \frac{1 - (1 + .045)^{-30}}{.045} = 21964.37$$

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