Journal of Economics and Public Finance
ISSN 2377-1038 (Print) ISSN 2377-1046 (Online)
Vol. 3, No. 3, 2017
www.scholink.org/ojs/index.php/jepf

Navigating Uncertainties in Accumulation and Decumulation of Retirement Portfolios

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Received: August 12, 2017 Accepted: August 23, 2017 Online Published: August 30, 2017

doi:10.22158/jepf.v3n3p470 URL: http://dx.doi.org/10.22158/jepf.v3n3p470

Abstract

Individuals face many challenges when developing a retirement plan. Hurdles arise at different stages of the retirement planning lifecycle. In the pre-retirement period, a significant obstacle arises when individuals must save for retirement to maximize their utility in retirement. The question of how much to save along with where to save impacts the amount the individual has in retirement. Post-retirement individuals must overcome the obstacle of how to optimally withdraw from their retirement savings to mitigate sequence risk and longevity risk to reduce the chance of portfolio failure. Individuals in post-retirement must develop strategies that not only mitigate these risks but also allow them to enjoy the retirement they have envisioned.

Keywords

Retirement planning, savings, withdrawal rates, spending, accumulation, decumulation

1. Introduction

Saving for retirement involves trade-offs. Individuals must balance the desire for utility maximization in the present to maximize future utility in retirement. These intertemporal choices are influenced by age, income, health, rates of return yet developing an optimal savings rate is impacted by the variations of these influences (Benartzi & Thaler, 2007). The intertemporal optimization model assumes individuals anticipate declining income at retirement and thus save to offset that change (Lusardi, 2003).

Economic theories of saving imply rational assumptions that individuals save and spend to maximize utility, they have the cognitive ability to solve their optimization problem and they have the willpower to execute the plan (Benartzi & Thaler, 2007). However, the literature has shown that individuals make less than optimal choices and subject themselves to hyperbolic discounting, where they increasingly choose a smaller, sooner reward to a larger, later reward (Redden, 2007).

In the US individuals typically have four sources of retirement income: Social Security, defined-benefit

pensions, defined-contribution plans, and individual savings (Beshears, Choi, Madrian, & Laibson, 2006). However, more individuals cannot rely on employer provided defined-benefit pensions (Ervin et al., 2009). Social Security's stability remains in question with the current Trustees' Report showing total reserve depletion in 2034 (SSA.gov).

Saving for retirement is becoming more the responsibility of clients. More employers are shifting from Defined-Benefit (DB) pension plans in favor of Defined-Contribution (DC) plans (Martin & Finke, 2012). Defined-Benefit pensions are plans where the employer funds and bears the investment risk for the employee's retirement security. Employers with DB plans have the responsibility to choose how the pension money is invested and are responsible for adequately funding the plan if assumed rates of return were not met. Defined-contribution plans are plans where the employee bears nearly all the risk for their retirement security. Employees must choose where to invest their money and are responsible for how much they must have for retirement. Unlike DB plans where a guaranteed defined benefit was paid monthly to the retired employee, DC plans leave an account balance based on whatever the employee has saved, any employer contributions, and the earnings on the savings.

Additionally, some clients don't have access to any employer-sponsored retirement plans. These individuals may be stay-at-home parents, part-time employees, or employees where the employer doesn't offer a plan. These individuals must plan and use other vehicles to save for retirement such as IRAs, non-qualified savings, and annuities. Both employees and non-employees must also consider the impact their Social Security benefits will have on their retirement.

Clients have an enormous responsibility to save for their retirement. In addition, they must also decide where to save their money and how. For example, once a client has decided that they will save to their employer's 401(k) or to an IRA they must now decide how to allocate that savings. Clients face several decisions on where to place their money. Employer-sponsored plans may have many or very few investment options. Another question the client faces is how to divide their money to achieve an appropriate asset allocation that provides an adequate return while saving for retirement.

After retirement, clients face the obstacle of how to appropriately spend down their accumulated retirement savings to maintain their current standard of living while mitigating sequence and longevity risk. Several questions they must consider are how their retirement assets will be allocated, how much they can withdraw each year while reducing or eliminating portfolio failure, when to file for Social Security benefits, and the tax impact of their withdrawals in retirement.

Saving for retirement and spending in retirement are also impacted by clients' behavior. That is, even though they may have access to savings plans, have the income to save, and have the tools to optimize their retirement spending, many clients behave differently. In other words, many clients choose less optimal decisions that may impact their retirement savings and spending.

The author chose these reasons due to the enormous impact saving for retirement and spending in retirement have on clients, academia, and the financial planning practitioner community. Arguably the biggest reason individuals hire financial planners is to develop a plan to save for and eventually spend

in retirement. Focusing on plausible solutions to each hurdle can help advance the research and work necessary for clients to achieve the best optimal outcomes in their savings and retirement strategies.

The author has outlined two hurdles that clients face in retirement planning. The first hurdle, in pre-retirement planning, is the strategy of saving for retirement. The second hurdle, in post-retirement planning, is optimally withdrawing retirement savings to mitigate sequence and longevity risk to reduce the likelihood of portfolio failure. The author attempts to explain how the complexity of these hurdles can be overcome by explaining potential solutions clients may consider. The author first addresses the savings hurdle by addressing savings rates, behavioral impacts and remedies, and the potential beneficial effect of savings rates when working with a financial planner. The author then addresses the spending hurdle by addressing withdrawal strategies, income floors, and taxation. The author concludes with a brief explanation of government intervention on the hurdles and ethical guidelines on their remedies.

2. Strategies to Overcome the Savings Hurdle

Individuals are saving for retirement at different ages and with different incomes. Based on these parameters, individuals must develop a savings rate for retirement. Individuals may benefit from guidelines to help them choose the savings rate they need to have enough funds for retirement. Ibbotson et al. (2007) provide examples of different savings rates needed for gross income replacement levels of 60 and 80 percent based on income and age, assuming no past savings. For example, according to Ibbotson et al. (2007) a 40-year-old client earning $100,000 annually would need to save 19.8 percent and 31 percent to replace 60 and 80 percent of his income respectively. Pfau (2011) introduces a safe savings rate designed to remove focus from the safe withdrawal rate introduced by Bengen (1994). Pfau (2011) shows replacement rates of 50 and 70 percent of final salary and the corresponding safe savings rates according to accumulation and retirement durations. Tezel (2006) shows that for an 80/20 stock and bond portfolio an individual needs to save 17 percent of income over 30 years to achieve a 70 percent replacement ratio. Both Ibbotson et al. (2007) and Pfau (2011) demonstrate the beneficial impact saving early in an individual's lifetime has on retirement outcomes.

Most Americans don't know how much they should save for retirement (Martin & Finke, 2012). Additionally, many Americans are unaware of how their retirement savings should be invested to have enough accumulated for retirement. Furthermore, some individuals are not driven to save (Thaler & Benartzi, 2004). Many savers choose the default options and some believe the defaults to be analogous to advice (Madrian & Shea, 2001).

Ervin et al. (2009) give some guidance on appropriate savings rates and asset allocations in conjunction with whether Social Security is included. They find that a savings rate of 15 (20) percent is necessary to sustain pre-retirement income levels of 80 (100) percent assuming Social Security is factored in and equity allocations are at least 50 percent. If Social Security is not accounted for in savings rate then the client must save 20 percent of income for 30 years with a 75 percent allocation to equities. At minimum,

the author recommends saving at least 15 percent of gross income if the client is in their early 20s with an aggressive (75 percent allocation to equities) asset allocation. Thus, the impact of a severe investment loss is negligible in accordance to their total capital (Bernstein, 2012). The older a client is, the more they should be saving (assuming they started saving late). The author recommends a higher savings rate of 25 percent to 50 percent, depending on their need and ability to save. This allows for smoothing of oncome in retirement over an individual's life (Ervin et al., 2009).

Ideally, a client will take it upon himself to save for retirement. In a perfect world, the client proactively participates in their employer's retirement plan, systematically saves in additional vehicles such as IRAs, and takes a proactive approach to monitoring their retirement saving strategy. Unfortunately for many households, this is not the case. Lusardi (2003) shows that approximately 36 percent of households close to retirement have not done any planning. Of those that may be saving, some choose naïve strategies where they maintain a "1/n" approach to investing. That is, investing an equal percentage in each of the available investment options. Benartzi and Thaler (2001) show how this strategy, while not entirely faulty, may expose an individual to more risk especially if most funds in the employer plan are stock funds. Additionally, Ibbotson et al. (2007) find that employees at firms offering only DC plans contribute nothing, very little, or don't fund their plans to take advantage of the full employer match. Glover (2006) reports a study by Hewitt Associates that shows 30 percent of American workers with access to a 401(k) don't participate in the plan.

It is evident clients need to save for retirement. However, most savings plans require an active election by the employee to participate (Beshears et al., 2006). Several studies show the beneficial impact of automatic enrollment in employer-sponsored plans. Madrian and Shea (2001) find that 401(k) participation is significantly higher in auto enrollment plans. Additionally, they find that the default savings rate and allocation strongly impacted saving behavior. In other words, participants were much likelier to stay with the default choices and continue to save. Additionally, Madrian and Shea (2001) show that increasing the default savings rate had negligible impact on employees opting out of the plan. This may be evidence that increasing the default rate to 15 percent (as recommended above) may not have much of an impact on employees participating. This may be further compounded by any employer match. That is, employees may be less likely to opt out of a higher contribution default when they are receiving an employer match (Beshears et al., 2006).

According to a recent Vanguard study participation rates more than doubled under automatic enrollment. Additionally, the Vanguard study shows success in plans that have automatic annual increases in savings where an employee's contributions are increased by a certain percentage and then capped at a specific rate. Beshears, Choi, Laibson and Madrian (2010) find that public sector DC plans benefit from the behavioral impacts of automatic enrollment with mandatory employee contributions and non-contingent employer contributions.

Sunstein and Thaler (2003) show that automatic enrollment and allocating a portion of future wages increases to savings had a significant impact on plan participation and increases in savings rates. This

libertarian paternalism is a way for both public and private institutions to influence savings behavior while still allowing employees to maintain their freedom of choice (Sunstein & Thaler, 2003). The author presumes that as more employers adopt this type of strategy, the need for government intervention decreases.

Thaler and Benartzi (2004) developed their Save More Tomorrow™ plan in an effort to increase retirement savings while reducing the impact of loss aversion. In other words, to minimize regret the authors created a plan where employees agree in advance to contribute pay increases to their retirement. Thus employees aren't seeing a pay cut by manually increasing their contributions after the raise. The employee benefits from not only the increased savings, but also behaviorally by inertia and status quo bias. Additionally, this helps mitigate and control hyperbolic discounting as the employee chooses the better outcome since it's further into the future.

The need for government intervention in retirement savings is not necessary; at least not yet. Outside of its current role in Social Security, ERISA and tax law public policy regarding retirement savings need not be changed. As long as employers continue to implement the strategies mentioned above to increase employee participation in retirement savings and increase the amount employees are saving for retirement there is little need for government intervention. The author does however, recommend that employers offering plans limit or reduce the number of fund choices available. Botti and Iyengar (2006) show that companies offering only two fund choices had the highest participation rates. As fund offerings increased, rates of participation dropped (Botti & Iyengar, 2006). Increasing complexity in decision making leads to procrastination (Madrian & Shea, 2001).

However, should "nudges" not work or in the case of employees without access to a retirement plan there may be a need to implement a mandatory retirement plan. Statman (2013) argues for a mandatory DC plan that increases savings by replacing self-control with outside control. Davis (2007) shows that automatic IRAs could encourage more individuals to save for retirement. Ghilarducci (2007) argues for a Guaranteed Retirement Account (GRA) where participation is mandatory and the plan is managed by the government. A mandatory, universal plan may reduce or eliminate the complexity and difficult choices individuals must make among the many retirement plans available.

In 2015 the United States Treasury implemented the myRA. The myRA is designed to be a retirement plan for individuals without access to an employer sponsored pan (myRA.gov). The myRA allows after-tax contributions from employee paychecks to be directly deposited into an account guaranteed by the US Treasury (myRA.gov). Working similarly to a Roth IRA, the myRA allows contributions of up to $5,500 for individuals under age 50. Individuals age 50 and over are allowed an additional $1,000 catch-up contribution.

Several questions remain regarding its effectiveness. Employees still must opt in to the plan through work and are required to roll the myRA to a Roth IRA when the account accumulates $15,000 (myRA). Additionally, employees can get the nearly the same benefits from simply starting a Roth IRA. While considered a "nudge" in the right direction, more time needs to elapse before an accurate assessment of

this change in policy will be effective.

3. Strategies to Overcome the Spending Hurdle

One of the main hurdles in post-retirement is the optimal way to withdraw retirement income while mitigating the risks of longevity, sequence of returns and portfolio failure. Mitigating these risks can involve strategies and combinations of assets to achieve an optimal outcome. Additionally, the use of risk management to shift longevity risk can be explored.

In his seminal article on withdrawal rates, Bengen (1994) showed that a 4 percent withdrawal rate was safe using an allocation of at least 50 percent to equities and "as close to 75 percent as possible". In other words, an individual employing such a strategy would have a very low probability of running out of money in retirement. Cooley, Hubbard and Walz (1998) (colloquially known as the Trinity Study) show that withdrawal rates of 3, 4, and 5 percent are possible depending on time horizon and allocation to equities.

However, much of the financial climate has changed over the last 20 years. Finke, Pfau and Blanchett (2013) find that a 2.5 percent real withdrawal rate resulted in a 30-year failure rate of 10 percent. Pfau (2013) explains that failure rates in withdrawal strategies ignore other financial assets such as Social Security, defined-benefit pensions and annuities. Pfeiffer, Salter and Evensky (2013) show that reverse mortgages in low interest rate environments with high home equity can increase withdrawal rate between 5 and 6.75 percent. In addition, failure rates ignore the magnitude of failure (failing is failing whether $1 or $1M) (Pfau, 2013). Finally, Pfau (2013) also showed that research on portfolio success is based heavily on US history since 1926. In other words, different starting points may be apt for different clients.

Recent research has shown the benefits of combinations of strategies. Thus, the retirement income planning process can be optimized based on client needs (Pfau, 2013). Milevsky (2013) shows how annuities are related to DB pensions in that they provide an income one cannot outlive. Additionally, Milevsky (2013) discusses how to optimally allocate wealth among systematic withdrawals using Single-Premium Immediate Annuities (SPIA) and variable annuities with guaranteed riders. These combinations of strategies can help reduce sequence and longevity risk. Sequence risk is defined as withdrawing regularly from a portfolio when the assets have declined in value. This "negative compounding" is the opposite of dollar cost averaging (Pfau, 2015).

Sequence and longevity risk can also be mitigated by creating income floors. Zwecher (2010) describes optimal consumption by an individual as their specified minimum lifestyle plus some fraction of discretionary wealth. All economic models of retirement income emphasize the importance of some floor (Zwecher, 2010). Examples of floors include Social Security, annuitization of assets, and defined-benefit pensions. Ideally, a client would want a floor to at least meet minimum necessary expenses. Pfau (2013) explains the inputs for a flooring target are Social Security benefits and a client-defined minimum spending level. Social Security, DB pensions and annuities provide income

guarantees for the life of the client. Social Security also provides Cost Of Living Adjustments (COLA) while some DB pensions and annuities may not provide COLAs.

While many clients appreciate the benefits of Social Security or a DB pension, many do not choose to annuitize a portion of their wealth. Brown, Kling, Mullainathan and Wrobel (2008) discuss this "under-annuitization puzzle" from a behavioral framing point of view. In their study 70 percent of individuals would annuitize to obtain $650 of "monthly spending" for life while only 21 percent would annuitize to receive a "guaranteed monthly return" for life. Clearly, how choices are presented determine the optimality of their decisions.

Pfau (2013) showed the benefits of providing some flooring with single-premium immediate annuities. Individuals that may annuitize some of their wealth in retirement and live longer than others in the risk pool benefit from "mortality credits". "Mortality credits" are the excess money paid to individuals in the annuity pool who outlive their annuitant counterparts (Kitces, 2015).

Social Security provides another income floor for retirement. Clients must weigh the decision of when to file to receive reduced benefits as early as age 62, or delay until after full retirement age to receive benefits; optimally waiting until age 70. By delaying benefits until age 70 an individual receives delayed retirement credits and receives an annual increase of 8 percent to their primary insurance amount. Spouses who either did not work or earned significantly less than their partner may take advantage of spousal benefits. That is, they may receive up to half of higher-earning spouse's primary insurance amount. In addition, working one more year or not taking Social Security withdrawals has the benefit of increasing Social Security benefits (Woerheide, 2000).

Finally, there are some individuals that may find that income from Social Security and retirement savings may not be enough. In addition to annuitizing at least some of their wealth, these individuals may also choose to continue to work to sustain needed levels of spending. Some may need to consider a reverse mortgage. While not entirely optimal if a client is forced to work, the additional income may at least help meet necessary minimum expenses. Munnell, Soto and Aubry (2007) find that individuals' lack of retirement preparation, reliance on DC plans and having a mortgage are likely to tap home equity to cover living expenses in retirement.

Currently, public policy and government intervention cannot be ignored. Social Security provides a guaranteed income stream in retirement. Additionally, most DC plans and traditional IRAs have Required Minimum Distributions (RMDs) to force the clients to take withdrawals (the client doesn't have to spend the money). RMDs are calculated based on the prior year's account balance divided by a distribution period from the IRS's Uniform Life Table (IRS.gov). However, RMDs are no good if a client is not saving for retirement. One solution may be in addition to a mandatory savings plan, clients are then forced to annuitize that plan to guarantee income in retirement. A similar proposal is outline by Ghilarducci (2007). Such a proposal may offer additional retirement income that complements Social Security.

4. Tax Implications of Saving and Spending for Retirement

Clients must also explore the tax implications of their withdrawal strategies. Generally, most DB and DC plans allow contributions to grow tax-deferred and then distributions at retirement are taxable. Roth IRAs and Roth 401(k) options allow initial contributions to be made on an after-tax basis with withdrawals at retirement received tax-free.

Depending on the client's goals he may have a desire to leave a sizeable tax free estate to heirs in which case Roth IRAs and Roth 401(k)s may be used. Clients expecting to be in a lower tax bracket in retirement may consider choosing tax deferred vehicles while saving to be taxed at a lower percentage in retirement.

Among the many uncertainties clients face in retirement, changes in tax law are among them. Individuals will face decisions of how to save, what vehicles to save in, and in what ways do they withdraw funds to maximize tax efficiency. It is difficult to ascertain what tax law will be in the future, however individuals can still plan.

One strategy is to use both tax-deferred and tax-free savings vehicles. From a behavioral point of view, this is similar to the "1/n" strategy regarding fund selection in retirement plans. In retirement, the client can then choose from which account they want to take their distribution depending on their tax bracket, size of the need and account balance.

In many of the withdrawal strategies mentioned above, tax implications are often ignored. Further research warrants the inclusion of taxation strategies and implications, yet this may be difficult to do since there are many possible combinations of assets in addition to the differences in state taxation of retirement income.

5. How Financial Planners Can Aid Saving and Spending for Retirement

Professional financial planners can also add value and assist clients saving and spending in retirement. Martin and Finke (2012) show households that use a comprehensive financial planner are more likely to use a tax-advantaged account, have an increased likelihood of calculating a retirement need and have increased retirement savings.

Planners can also assist clients in choosing which retirement vehicles to save in and how to allocate their assets. This may help alleviate the decision problem mentioned in Iyengar and Lepper (2000) which showed that individuals purchased *less* when given *more* choices. Financial planners may also assist clients in their decision making by providing objective advice from an outside perspective.

6. Ethical Considerations

From an ethical standpoint, financial planners and plan sponsors must maintain ethical guidelines when "nudging" employees to participate and using inertia in their plans. For example, nudging employees to participate via automatic enrollment increases plan participation and assets, but fees and expenses need to be kept at a minimum. In other words, encouraging employees to participate cannot come at the

expense of high plan fees and fund expenses. Advisers to such plans must adhere to a strict fiduciary standard keeping the best interests of the client in mind when providing advice and service.

Additionally, when financial planners are working with clients they are in a position of trust and professionalism. Many clients rely on the planner's advice when discussing was to save for and spend in retirement. Planners making recommendation can assist clients with these decisions, but must remember that clients are in a vulnerable position and potentially stressed when thinking about the complexity of retirement planning. Planners must be transparent, ethical and make recommendations in the best interests of their clients. Thaler (2015) describes helping influence clients to make good decisions as "nudging for good".

7. Conclusion

The author has outlined two hurdles clients face when developing a retirement plan. During their working lives clients must save enough to maximize their utility in retirement. In retirement, they must choose the right strategies to manage the risks of longevity risk and sequence risk. The author outlined solutions presented in the academic literature that can assist clients and their planners in choosing the optimal savings rates in pre-retirement and withdrawal rates in post-retirement. The author briefly discusses how financial planners can assist clients with these decisions and the ethical considerations planners and companies must consider when assisting clients saving and spending in retirement. The author also recommends future research is warranted regarding the tax impacts on withdrawal strategies in retirement.

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