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# ***Leveraging Behavioral Simulation to Enhance the Four Percent Rule***

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# Introduction

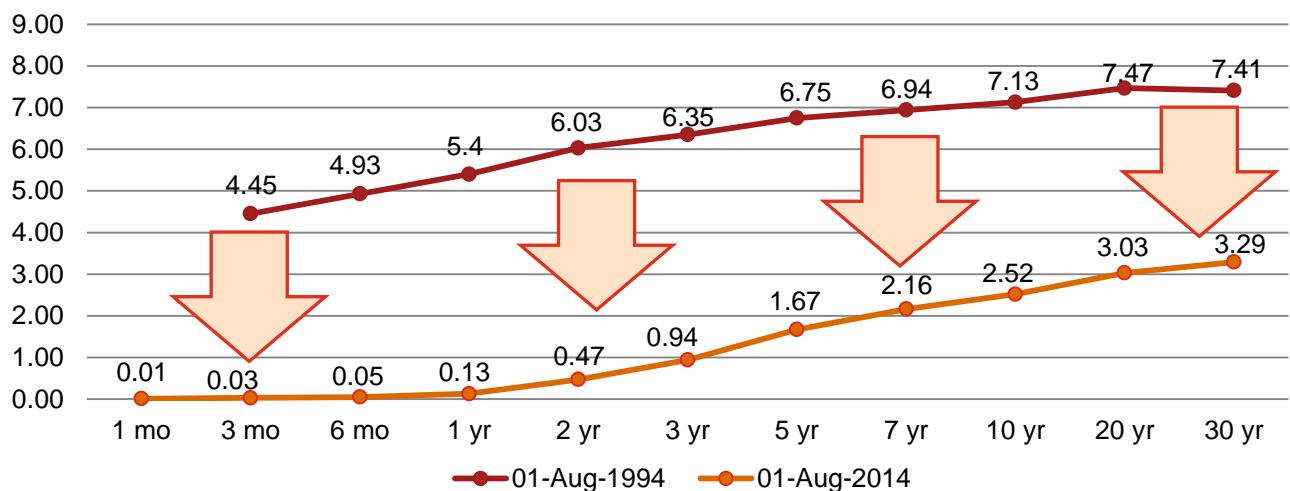
*The “4% rule” is a popular asset withdrawal rule of thumb that has historically helped guide retirement planning. While it served us well in the past, new external data sources and techniques can substantially enhance retirement planning until and through retirement. In this paper we highlight a number of detailed insights on retirement readiness and provide a comparative analysis using different methods.*

One of the most prominent questions new retirees face is how much they can safely withdraw from their accumulated retirement savings each week, month or year. The practical issue for advisors is rooted in their clients’ financial situations and subsequent behaviors. Clients generally need to supplement their retirement incomes (primarily Social Security) with withdrawals from their accumulated savings in order to continue living their pre-retirement lifestyle into their retirement years. Advisors have been trained to address this client behavior by assuming that their clients will withdraw assets in much the same way as they accumulated them—systematically and in a structured way. Clients used a contribution rate to accumulate assets. They therefore must use a withdrawal rate to access their asset. Determining the “right” amount of money to safely access devolves to an exercise of determining the appropriate rate of withdrawal from a specified pool of assets.

Bill Bengen’s seminal study in the October 1994 *Journal of Financial Planning*, “Determining Withdrawal Rates Using Historical Data”, helped usher in the modern area of retirement withdrawal rate research, by providing an answer to this question [1].

Bengen examined every 30-year retirement period since 1926, reconstructing market conditions and inflation. He identified 1969 as the worst year for retirees because a combination of low returns and high inflation had eroded the value of savings. Using that year as his worst case, he tested different withdrawal percentages to see which one would allow savings to last 30 years. At first, four percent worked, he writes, based on a portfolio with a 60/40 split between large-cap stocks and intermediate-term government bonds [2]. In due course, Bengen decided to add small-cap stocks to the mix and revised his recommendation to 4.5 percent. However, the four percent name persisted - and eventually the “Four Percent Rule” was born.

**Fig. 1 - Treasury Yield Curve Rates (%) - Aug 1994 vs. Aug 2014**



**Source:** Treasury Department Website ([www.treasury.gov](http://www.treasury.gov)), PwC Analysis

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More recently, the assumptions underlying the Four Percent Rule have been called into question. In their paper “The 4% Rule is Not Safe in a Low-Yield World”, Finke et al. note that the Four Percent Rule does not acknowledge the new economic reality of prolonged low returns<sup>[3]</sup>. Bengen’s paper was published almost two decades ago, when the rate environment was significantly different. In Fig. 1 above, we compare the term structure of U.S. treasury instruments in 1994 against that of 2014 to illustrate this difference.

As shown in Fig. 1, yields have dropped almost 400 – 500 bps along each point of the treasury yield curve since Bengen’s research was published. The implication of the current low-yield environment on current and future retirees is profound. In fact, Finke et al.<sup>[3]</sup> suggest that the success of the Four Percent Rule in the United States was probably a historical anomaly. In an age where investors in inflation protected treasury bonds (TIPS) accept a negative real return on bond investments for shorter dated maturities, few question the fact that financial planners and future retirees need a more robust planning framework.

At their very core, such frameworks ought to take two components into consideration. The first is the “sequence of returns” risk, which Bengen first drew attention to in his paper<sup>[1]</sup>. To better understand this concept, consider the well-known fact that stocks do not earn their average real return each year. Some years they go up, and in others they go down. For a retiree who is withdrawing from their savings, the sequence of returns matters. If the market value of one’s assets falls in the early retirement period, then withdrawals will dig a further hole. Climbing out of this hole becomes increasingly difficult even if a subsequent recovery arrives. In simple terms, this is what we mean by sequence of returns risk.

The second component, the “sequence of consumption” risk, is equally important. Sequence of consumption risk exists both during the accumulation and decumulation phases. During the accumulation phase, households must recognize that financing current consumption represents an opportunity cost in saving for retirement. Households may find themselves perched precariously during retirement, if they fail to actively manage their discretionary spending during the accumulation phase.

Managing the sequence of consumption during retirement is even more critical. Despite the fact that the Four Percent Rule implies that consumption in retirement follows a straight line (adjusted for inflation), recent research suggests that this is not the case. In the paper “Estimating the True Cost of Retirement”, Blanchett proposed the existence of the retirement spending smile; consumption starts high and then decreases in real terms for retirees throughout retirement, before finally increasing toward the end<sup>[4]</sup>. As a result, unplanned consumption in the earlier stages of retirement may impair the ability to finance expenses in later stages of retirement.

While we are on the subject of the later stages of retirement, it is important to point out that many rules of thumb such as the Four Percent Rule and the 80 Percent Rule are based on mortality assumptions that are undergoing constant revision. The Four Percent Rule makes the assumption that households spend 25 years in retirement. However, *The Economist* reports that life expectancy in wealthier nations has been revised upwards by about 2.5 years every decade for the past 50 years<sup>[5]</sup>. In the developed world, at least, it is therefore reasonable to doubt whether 25 years will continue to be an appropriate upper bound of household longevity.

Seasoned advisors understand that the Four Percent Rule is simply an opening bid – retirement planning requires greater sophistication and detailed client profiling. However, they should be asking some important questions – given current advances in technology and availability of data, how have retirement planning frameworks and tools evolved? Are there ways to formulate more accurate retirement projections based on new sources of data and driven by granular segmentation and modeling techniques? In this paper, we provide a comprehensive framework to measure and continuously monitor retirement readiness, which has profound implications for manufacturers, distributors, plan sponsors and future retirees.

# *A New Way of Measuring and Projecting Retirement Readiness*

We began this paper by characterizing the current state of finding the “right” withdrawal amount as an exercise in determining the appropriate withdrawal rate. Focusing advisors on withdrawal rate infuses a certain level of comfort into the planning process. Practitioners using this rule of thumb can overlay an analytic rigor on their client’s complex affairs, and then patiently explain to the client all the pitfalls that attend living a life that requires higher than proscribed withdrawals. It then becomes the clients’ obligation to fit themselves in this Four Percent lifestyle, somehow smoothing into that band all the bumps, peaks and dips that will occur in their retirement years.

Retirees will need to be disciplined in their financial lives in order to maintain their assets. However the key question becomes whether the Four Percent Rule is the correct constraint on retiree’s lifestyles. Does it neatly fit the contours of retirees’ financial lives? Can it be applied to every retiree irrespective of their personal situation and financial well-being? Is it one dimensional or multi-faceted? We think that using a version of the client’s balance sheet is a better structure around which to evaluate and regulate their lifestyle.

In collaboration with Strategic Business Insights (SBI), the Retirement Income Industry Association (RIIA) has developed the Household Balance Sheet (HHBS) framework, wherein household assets appear on one side of the balance sheet; and liabilities and net worth appear on the other <sup>[6]</sup>. On the assets side, the present value (PV) of Human Capital (i.e. work in retirement), PV of Social Capital (Social Security, Pensions, Trust Income, etc.), Financial Capital and other hard assets such as homes and vehicles are included. Liabilities include the PV of expected consumption, debt, and desired amount to earmark for bequest. Household net worth is defined as household assets less household liabilities. The Household level view also features an income/expense statement that is used to project the cashflows for the PV calculations in the Household Balance Sheet.

**The RIIA Household Balance Sheet**

<b>Assets</b>	<b>Liabilities</b>
Present Value of Human Capital (i.e. work in retirement)	Present Value of Expected Consumption
Present Value of Social Capital (i.e. Social Security, Medicare, Pensions, Trust Income, etc.)	Debts
Financial Capital and other hard assets such as homes and vehicles	Earmarked amounts for bequests
Total Assets	Total Liabilities
<b>Net Worth (Assets minus Liabilities)</b>	

Note that the RIIA Balance Sheet has present value formulas that recognize and account for important assets and liabilities of the household. Present value formulas express today’s dollar value for flows of money coming in or going out of the household over time. Examples of money coming into a household are the dollars that one or more household heads earn from working in the coming years; those dollars are the present value of Human Capital. The

present value of Social Capital represents payments to the household over time from Social Security and other government programs as well as income from trusts. On the other hand, the present value of expected consumption represents the dollars leaving the household to pay for food and other items that the household will consume.

In order to project household balance sheets and income/expense statement over time, PwC has developed the Retirement Income Model (RIM). The model is a sophisticated cradle-to-grave simulation of how individuals and households manage their finances through different life stages and life events under different market and economic scenarios. The model takes advantage of the PwC Behavioral Economics framework, which captures how households make saving and consumption decisions based on behavioral preferences. The RIM combines data from multiple publicly available and proprietary sources (including HHBS) to create a synthetic population that represents 128 million U.S. households. Once the synthetic population is created, we model the financial behavior of each individual in a household as a separate decision-making entity (technically called a “software agent” or just “agent”). The individuals or households make financial decisions based on rational, emotional, and social preferences<sup>[7]</sup>. Calibrated against data from multiple sources, we can model how members in each household make health & wellness decisions, financial planning and savings decisions, etc. This introduces greater granularity and richness to the RIM and better reflects the decisions that households make and how they make them.

## PwC’s Retirement Income Model (RIM)

### Modeling Approach

- **Agent-based modeling** – produces a “system” where numerous “agents” (e.g. individuals, households, distributors, firms, etc.) interact with each other as well as the external “environment” (e.g. GDP growth, public policy)
- **Dynamic input-output relationships** – allows users to create scenarios based on custom input choices

### Benefits

- **Understand the future Household Balance Sheet (HHBS)** – households and segments
- **Test hypotheses using scenario analysis** – “Will my client’s retirement savings be sufficient if inflation increases from three to five percent in the next decade?”
- **Rapidly adjust retirement planning when “facts on the ground” change** – e.g. Dotcom bust, 2008 housing crisis, changes to healthcare policy

In this paper, we use the RIIA Household Segmentation Typology to classify households in the following manner:

RIIA’s Household Segmentation Typology	
Life Stage	Wealth
<b>Starters</b> – under 35 years old	<b>Marginal</b> – Bottom 30% of each stage
<b>Builders</b> – 35 to 50 years old	<b>MassMarket</b> – Middle 50% of each stage
<b>PreRetired</b> – 50 to 65 years old	<b>Affluent</b> – Next 15% of each stage
<b>Retired</b> – 65 + years old	<b>Wealthy</b> – Top 5% in each stage

As far as measuring retirement readiness is concerned, RIIA has three broad definitions that are applicable to different household segments:

1. C/FC – Defined as ratio of a household's (or individual's) expected, average annual consumption in retirement to their financial capital. A low C/FC indicates that the household (or individual) may be able to live on income from financial capital alone where as a high value of the ratio means that the household (or individual) may have to rely on social capital or tap into non-liquid assets to meet the consumption needs.
2. A/L – Utilizes the balance sheet as a tool to assess the adequacy of funding. The ratio of assets to liabilities compares the total assets including the financial capital as described above, social capital (value of one's social circle) and human capital (value due to expertise, education and skills), to the present value of consumption in retirement (includes expense needs, any debts and other obligations). If assets exceed liabilities by a specific ratio, the client may be adequately funded.
3. Salary Replacement Ratio (commonly known as the 80 Percent Rule of Thumb) – suggests that if the annual estimated retirement income of a household (or individual) is equivalent to 80 percent of their final salary (last salary before retirement), the household (or individual) should be able to live their retirement comfortably.

Based on these definitions the households may fall into one of the following three segments defining the retirement funding adequacy called fundedness –

- a. Overfunded – An overfunded household can lead a comfortable retirement and is considered to be financially well prepared. These households can self-insure with diversified risk.
- b. Constrained – A constrained household may have the risk of falling short on their financial needs during the retirement. Such households need to protect a lifestyle floor with safe assets.
- c. Underfunded – In most circumstances, an underfunded household lacks the financial resources to keep up with their lifestyle. The underfunded household needs to budget for more savings while protecting a basic lifestyle through safe assets.

The three definitions for retirement readiness are applicable to different segments based on their fundedness and wealth levels. Wealthy households only need to focus on their financial assets and consumption in retirement, so they can use the C/FC measure. Less wealthy households need to include all of their assets (including home equity) in their fundedness calculation and compare their assets to all claims against those assets in the future; therefore they use a measure of fundedness called Assets over Liabilities (A/L). Finally households with modest assets need rules of thumb on consumption and guidelines on budgeting in order to live within their means.

For the A/L measure, RIIA has suggested that households be segmented in the following manner <sup>[5]</sup>:

When the ratio of household assets to household liabilities (A/L) is:	Retirement Funding Status is:
Less than 95%	Underfunded
Between 95% and 105%*	Constrained
Greater than 105%*	Overfunded

\* Real life examples suggest that the threshold between constrained and overfunded may be greater than 105% - feedback from practicing RMA® graduates indicates that it should be in the order of 125% or even 130%

The RIM model uses a specific instantiation of the RIIA A/L definition to measure retirement readiness:

$$\text{Retirement Fundedness (RF)} = \frac{\text{Expected Retirement Savings (eRS)}}{\text{Expected Retirement Expenses (eRE)}}$$

The calculation for Expected Retirement Savings (eRS) is very similar to that for household assets, with the following exceptions:

- **Hard assets such as the primary home and vehicle of retirees are not included unconditionally**, since they may be basic prerequisites to lead a dignified life and moving may not be a viable option, as the years advance. If however, unprecedented hardships force households to liquidate these assets, the proceeds will immediately be included in the eRS.
- **The cash value of life insurance policies are not included until the actual payout occurs** (i.e. the insured individual passes away). Owing to the sophistication of the RIM, we are able to include the cash value at the exact point in time when it is realized, negating the need to predict the timing of the payout.

In addition, Social Security estimations are based on methods suggested by Munnell, et al. [8]. The authors created a table containing the percentage of earnings replaced by Social Security through retirement that are published by the Social Security Trustees for low, medium, high and maximum earners.

The calculation for Expected Retirement Expenses (eRE) in the RIM is very similar to RIIA's methodology used to determine household liabilities, with the following exception:

- **The desired amount to earmark for bequest is excluded**, since such decisions may change due to evolving preferences and circumstances, and the technology employed by the RIM allows us the luxury to wait until the point of realization. Unutilized household assets will automatically be bequeathed, as household members pass away.

Due to the modifications made to the definition, we adjust the segment thresholds in the following manner:

When Retirement Fundedness (RF) is::	Retirement Funding Status is:
Less than 105%	Underfunded
Between 105% and 145%	Constrained
Greater than 145%	Overfunded

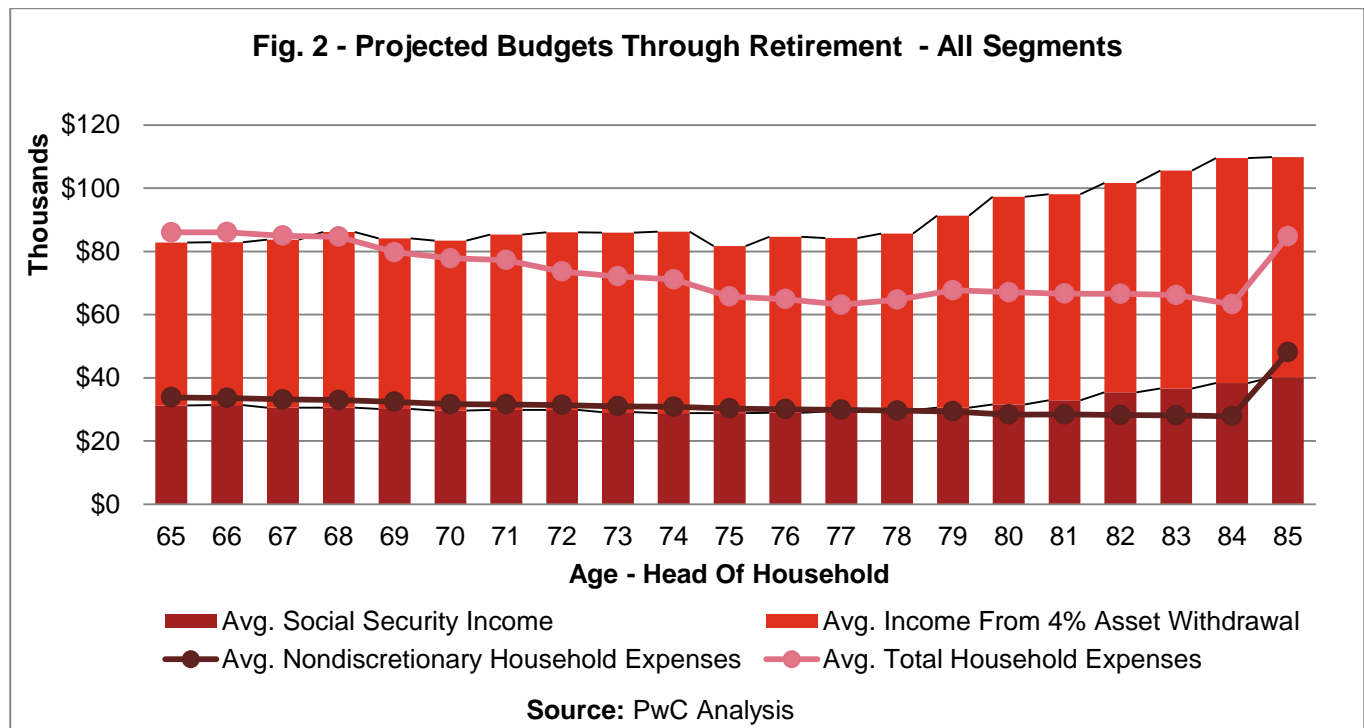
For the purposes of this paper, we use the RIM to project the balance sheets of several households. By projecting household expenses for multiple wealth segments, we will test whether the combined income from Social Security and four percent asset withdrawals are sufficient to cover household expenses. To dive deeper into how households fare, we will be differentiating between non-discretionary and discretionary expenses to determine exactly how successful households are in maintaining their standard of living through retirement. In so doing, we will attempt to determine whether the Four Percent Rule is an appropriate rule of thumb for households across the wealth spectrum.



# Household Behavior and the Sequence of Consumption

As we have already pointed out, there is plenty of research to suggest that four percent asset withdrawals are not sustainable during retirement in a depressed yield environment. A key question we must ask is whether household assets grow sufficiently to retirement in the current environment, so that members of the household can continue to enjoy their desired standard of living through retirement after withdrawing four percent of their assets. In addition, what behavioral levers are available to households to guarantee themselves a comfortable standard of living in retirement? In other words, can households alter their sequence of consumption to ensure better outcomes in retirement?

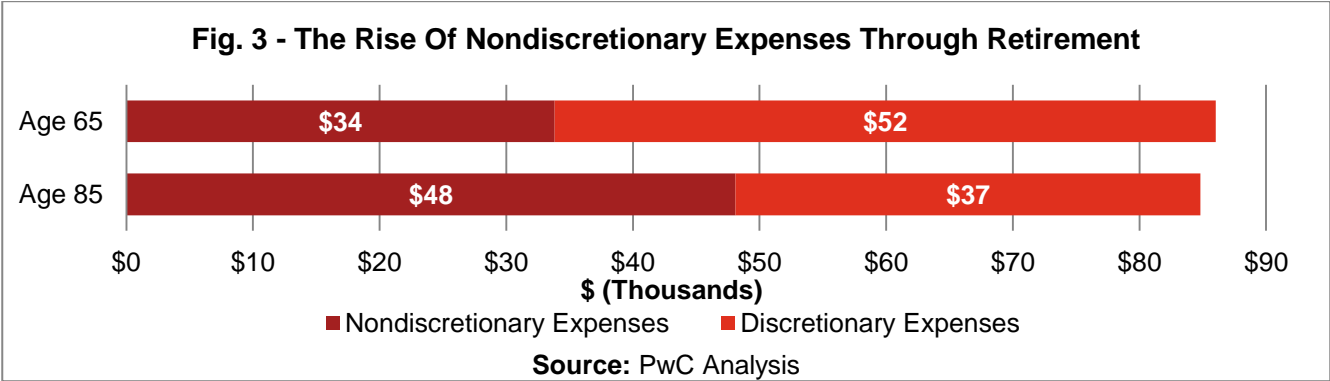
Taken across the entire spectrum of retiree households, projections of household finances from the RIM supply some of these answers. Assuming that households withdraw four percent of assets every year in retirement, we attempt to determine if the resulting household income is sufficient to cover household expenses in retirement. The RIM harnesses a forward looking macroeconomic environment with evolving household behavioral patterns to project income and expenses during retirement. Isolating households that are nearing retirement, we project nondiscretionary and total expenses for all wealth segments and present the results in Fig. 2.



Adjusting for cost of living, the Four Percent Rule suggests that household expenses through retirement follow a linear path. We have previously alluded to Blanchett's work <sup>[4]</sup> suggesting the existence of the "retirement spending smile", whereby expenses decrease for retirees throughout retirement and then increase toward the end. Our projections of total household expenses appear to decrease through retirement and then increases towards the later stages (which generally aligns with Blanchett's research<sup>[4]</sup>). Furthermore, due to total household expenses being relatively high during the earlier stages of retirement (ages 65 – 69), we observe that four percent asset withdrawals

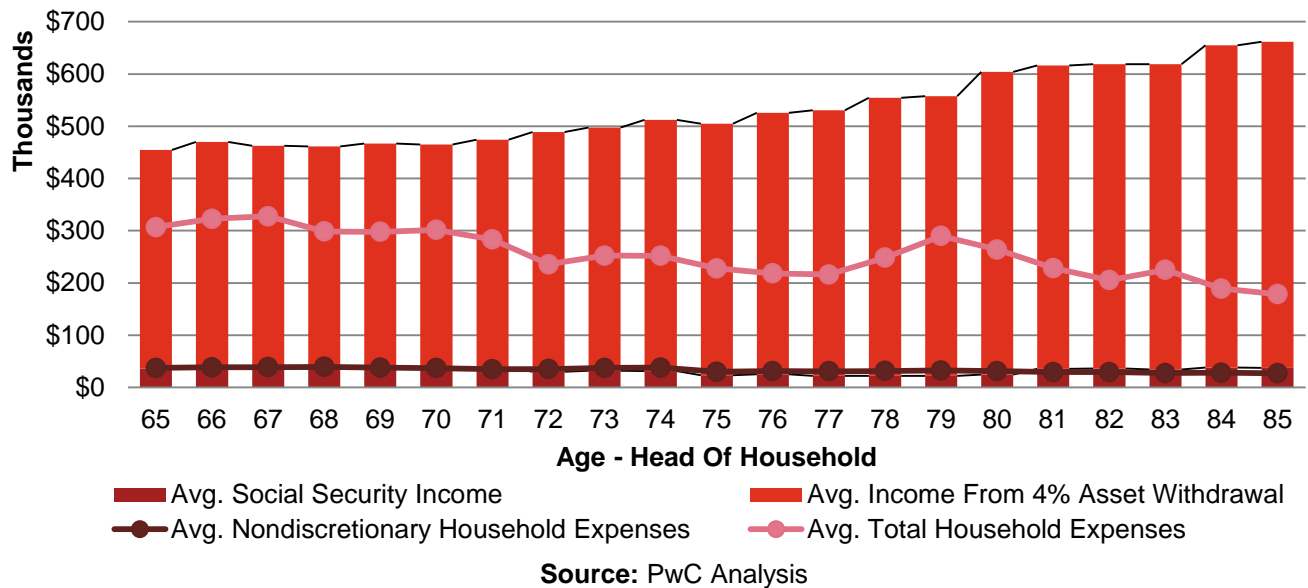
and Social Security checks do not generate enough income during the initial stages to cover total household expenses.

In addition, higher levels of consumption towards the beginning and end of retirement follow fundamentally different paths. It is worth noting that discretionary spending is greatest during the early stages of retirement, when households may still be adapting to the fact that their sources of income have diminished. In addition, some retirees may choose to indulge in pastimes such as luxury travel, that were not feasible due to professional commitments while they were working. Over time we notice that the spread between nondiscretionary expenses and total expenses narrows, which indicates that discretionary expenditure typically reduces as households make their way through retirement (see Fig. 3). That is why it is important to note that the rise in total expenses at the end of retirement corresponds with a rise in nondiscretionary consumption, suggesting that some of these expenses may be attributable to healthcare or assisted living.



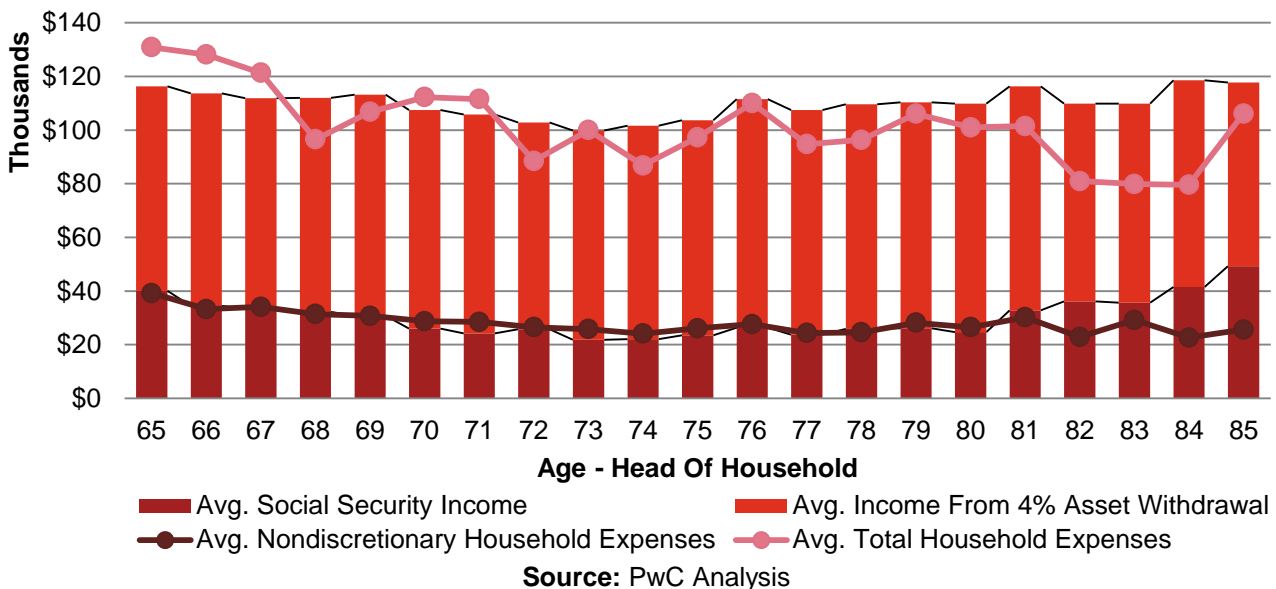
However, it is important to recognize that the ability of households to successfully manage their finances is greatly nuanced and varies by segment. For the most part, wealthy households retire in relative comfort and four percent asset withdrawals generate enough income to withstand unexpected shocks (refer to Fig. 4). Many wealthy households harbor relatively low debt and few have outstanding mortgage obligations. Generally speaking, they also usually have access to better quality healthcare and benefit from superior preventive care. As expected, wealthy households are usually better prepared for retirement owing to comfortable levels of asset ownership and the fact that their nondiscretionary expenses tend to be remarkably low. As a result, their total expenses follow a trend which differs significantly from that exhibited by the blended sample across all wealth segments (per Blanchett’s research<sup>[4]</sup>).

**Fig. 4 - Projected Budgets Through Retirement - Wealthy Households**



Similarly, affluent households typically glide towards a comfortable retirement, although our projections revealed that a notable percentage (approximately 14 percent) suffer significant wealth downgrades. When we isolated households that started off in the affluent category, but were subsequently downgraded to mass market or marginal, we found that four percent asset withdrawals were not able to cover their expenses all the way through retirement (refer to Fig. 5).

**Fig. 5 - Affluent HHs That Suffer Wealth Segment Downgrades**

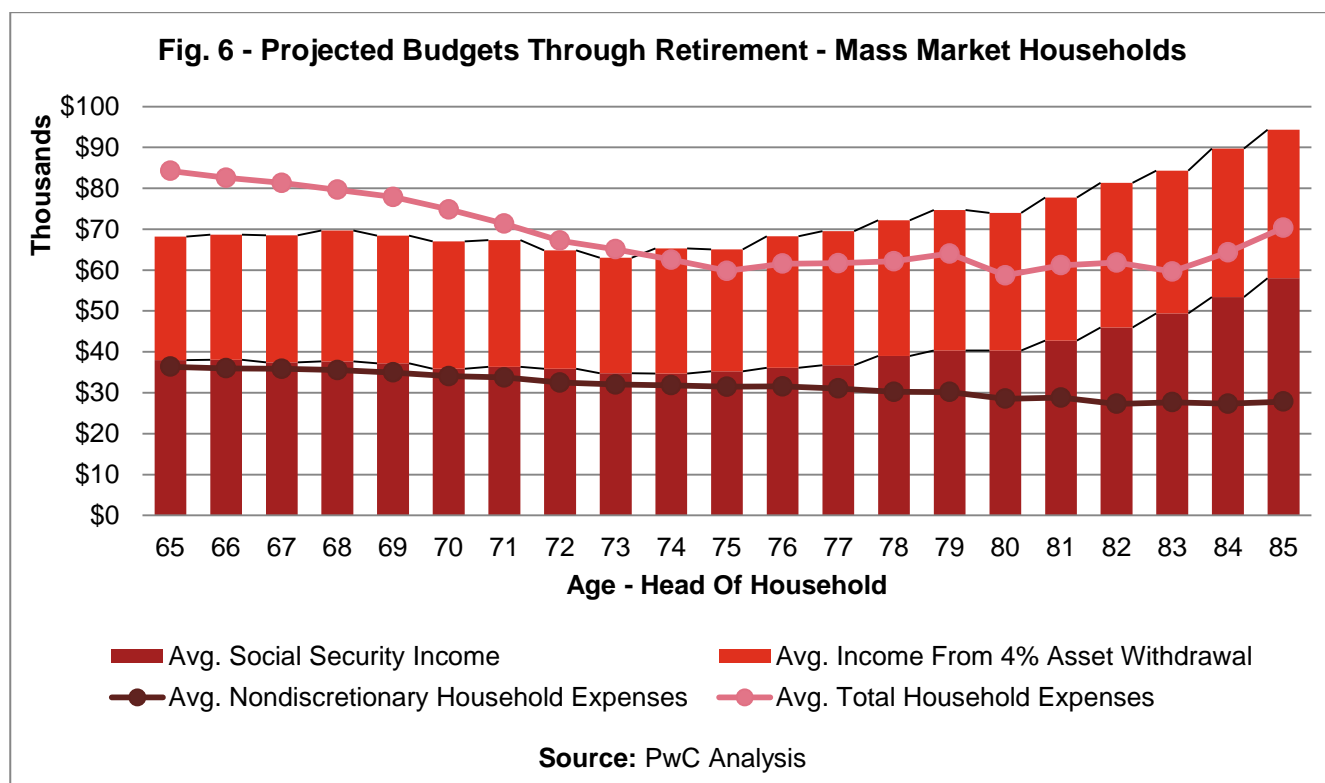


This raises an important question. For a household to be considered affluent, we can safely assume that it must have enjoyed access to considerable wealth. Surely, such households would have had ample opportunities to equip themselves for a comfortable retirement. So what could have possibly gone wrong?

One may have correctly surmised that the culprit is indiscriminate spending levels within these households at inopportune times. This is what we mean when we say that the sequence of consumption is a critical consideration for households – current consumption always carries an opportunity cost. And that cost has amplified implications down the line, especially when depressed asset returns fail to compensate for reduced accumulation levels.

The problem is even more acute for mass market households. We observe that, in mass market households with limited financial means, there is a notable decrease in longevity. As a result, households where the head survives past their seventies tend to be relatively affluent within their segment (refer to Fig. 6). Although Fig. 6 offers the illusion that household income rises in later stages of retirement among mass market households, this phenomenon may be explained by the survival of fewer more affluent households during the later years of retirement.

That being said, four percent asset withdrawals are clearly insufficient to cover household expenses during the early part of retirement (when all households in this segment are active). This brings the sequence of consumption back into focus. During the accumulation phase, mass market households will do well to exercise greater prudence and defer a greater portion of their income into retirement savings accounts. Furthermore, a keen eye on discretionary consumption must continue through retirement to ensure that mass market households are better able to withstand unforeseen financial shocks.



This brings us back to the Four Percent Rule. Can it be used to make assumptions about retirement? The correct answer is that it depends. Households that have accumulated considerable wealth may use the Four Percent Rule as a conservative yardstick. For most households, however, the Four Percent Rule is simply an opening bid. Retirement readiness is too complex to be codified by a simple rule of thumb. This is why it is critical for advisors and client households to rely on precise frameworks such as RF for measuring current and future retirement readiness in charting the path towards a comfortable and dignified retirement.

# Formulating a Responsible Withdrawal Strategy

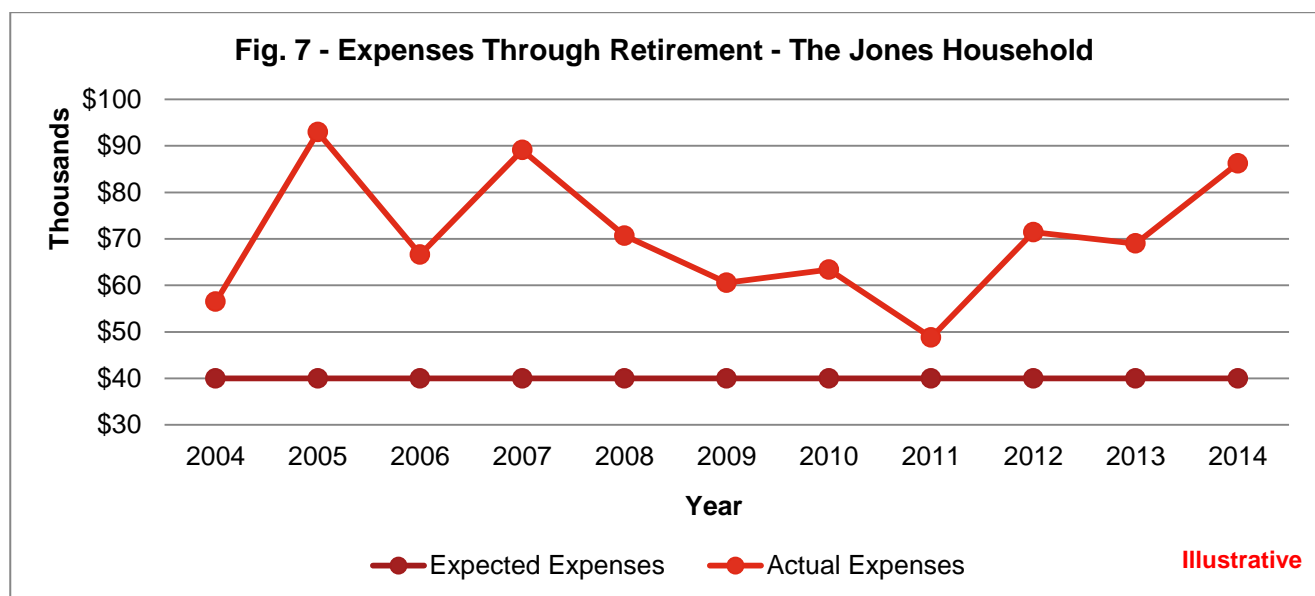
As we have demonstrated, it is important for future retirees and their advisors to rely on a sophisticated framework that takes accumulation, consumption and withdrawal into consideration. In order to make decisions that best serve the needs of their clients, advisors must be provided the ability to simulate hypothetical scenarios and perform what-if analyses. Retirement DIYers armed with rules of thumb such as the Four Percent Rule assume considerable risk for themselves and their families. To understand this better, consider the following example:

*The downward spiral began five years ago. Trent and Maureen Jones, a couple in their early 70s, had budgeted that they would need \$40K a year in retirement. Based on the Four Percent Rule, they had planned towards a target of \$1 million in assets to see them through retirement. Trent had run a successful immigration law practice for several years and the household fitted comfortably within the affluent category.*

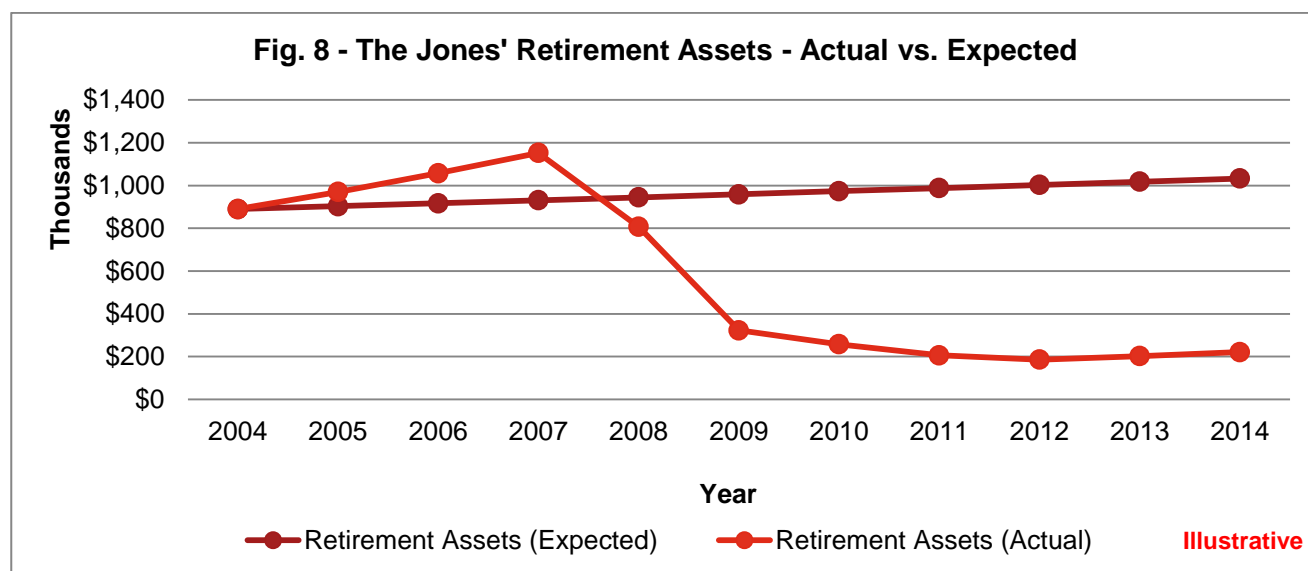
*A homemaker since their children were born, Maureen decided to earn some money by “flipping” homes ten years ago. Initially, this had worked out quite well – using a variable rate mortgage, Maureen would purchase properties taking advantage of a relatively low payment schedule. Before the rate was revised upwards, she would sell the home at a handsome profit. It was easy – time and persistence provided all the tailwind she could ever need.*

*Buoyed by Maureen’s success, Trent decided that he could afford to retire early and support his wife’s budding real estate business. After all, they were relatively close to their target of \$1 million in retirement assets (note that this included estimated market values for the properties on Maureen’s books).*

*Having stumbled upon this new source of income, Maureen decided that the two should spend every summer in France during retirement. She insisted on flying first class, staying at select luxury hotels and dining at the finest restaurants. In addition, their daughter had recently decided to go back to school after abandoning a faltering career in acting. Having exhausted all other credit lines, she had little choice but to lean on her parents to finance her education and living expenses.*



Five years ago, the economy took a turn for the worse. As home prices tumbled and access to credit tightened, the couple was suddenly forced to unload their properties at pennies on the dollar. Meanwhile, the economic crisis raged on, silently taking its toll on the rest of the Jones' retirement assets. To make matters worse, Trent's health recently took a turn for the worse, requiring him to avail of assisted living facilities at considerable expense. Suffering irreversible asset downgrades in the face of rising expenses, the household found itself catapulted into an uncomfortable financial position.



Could something have been done to prevent this? Retirement DIYers take on significant risk and are often forced to learn the hard way, especially when they don't possess specialized domain knowledge. A seasoned financial advisor equipped with industry leading tools such as RF and the RIM can guide households towards a responsible withdrawal strategy. Every household is fundamentally unique and RF can be periodically used to evaluate retirement readiness vitals and make appropriate adjustments. In addition, they can correctly align the sequence of consumption to ensure that households meet their retirement goals.

Crucially, the RIM takes household structure and behavioral preferences into consideration, which differentiates it from competing tools/methodologies. Households in the RIM enjoy considerable autonomy, but are ultimately bound by behavioral attributes that are unique to each household. Such capabilities help in driving decision making that is a more accurate representation of reality than the projections driven by straight line or Monte Carlo methods.

In addition, the RIM also reveals how households stack up in their retirement readiness against their peers. Rather than work towards a specific target, many households continue to save amounts that fit their comfort zones and worry about the consequences later. The RIM and RF can help advisors guide clients towards more responsible accumulation and withdrawal behavior, by demonstrating the dire consequences associated with inadequate retirement preparedness. Significantly, the insights from the RIM may be used to influence the sequence of client consumption.

The simulation capabilities featured in the RIM have become a reality owing to a number of important developments. First, granular data comprising household and individual preferences have become available, which forms the basis of our synthetic data sample. Second, RIJA's retirement planning innovations enables users to formulate household financial statements (balance sheets and income statements). And finally, new behavioral simulation techniques facilitate the modeling of individual and household decision making, which power the projections featured in the RIM.

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# Conclusion

The investment management industry is built around the assumption that most households are disciplined enough to follow systematic withdrawal strategies through retirement. Despite the fact that the Four Percent Rule has been used for years as a rule of thumb to guide retirement planning, non-linear consumption during retirement drives withdrawals that are far from systematic and vary dramatically by segment. We have proposed a new strategy in this paper that adapts deftly to diverse consumption behavior during retirement, based on the circumstances and behavioral preferences of that household. The use of RF in conjunction with the RIM has powerful applications in monitoring retirement readiness and offer considerable benefits for stakeholders across the retirement services value chain.

For financial institutions, RF can help with demand estimation of new products and services and estimate the effectiveness of existing ones. For example, final rules pertaining to longevity annuities being included in employer sponsored plans and IRAs were recently issued by the Treasury department <sup>[8]</sup>. Manufacturers wishing to enter this market may benefit by using the RIM to evaluate the needs of retirement plan participants, as well as, the effectiveness of competing products in helping participants prepare for retirement.

For distributors, the use of RF to measure retirement readiness and potential opportunities can prove to be extremely valuable. Advisory firms could leverage the industry leading projection methods featured in the RIM to equip their advisors/sales agents, who could then identify gaps within segments and match prospects and existing customers with appropriate products.

For financial advisors, RF provides a thorough solution to measure and actively monitor the “retirement readiness vitals” of clients and client segments. The RIM is sophisticated enough to handle the effect of major household events – such as marriage, childbirth, employment changes and deteriorating health – that have significant effects on retirement savings behavior and future drawdowns. At the same time it also offers an intuitive way of doing ‘what if’ analysis and introducing economic and healthcare shocks that customers can relate to.

For plan sponsors and group benefits administrators, the use of RF helps in the active monitoring of plan health and facilitates responsible fulfillment of fiduciary duties, well beyond expected standards. At a macro level, sponsors are able to evaluate if participants in their plan are on track and take corrective action, if necessary. The RIM may also be used to profile and compare participant households (e.g., “someone like you” comparisons) against other peer households to promote desirable savings habits, without explicitly offering advice. Early warning capabilities within the RIM may be used to identify “at-risk” participants and improve outcomes by prompting timely interventions.

Finally, plan participants and future retirees stand to benefit from the RF and the insights generated by the RIM. We have already pointed out that the RIM is capable of evaluating the effect of major life events, which can help individuals and families better assess their needs in retirement. By actively monitoring RF levels, households can plan towards a comfortable standard of living during their golden years.

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