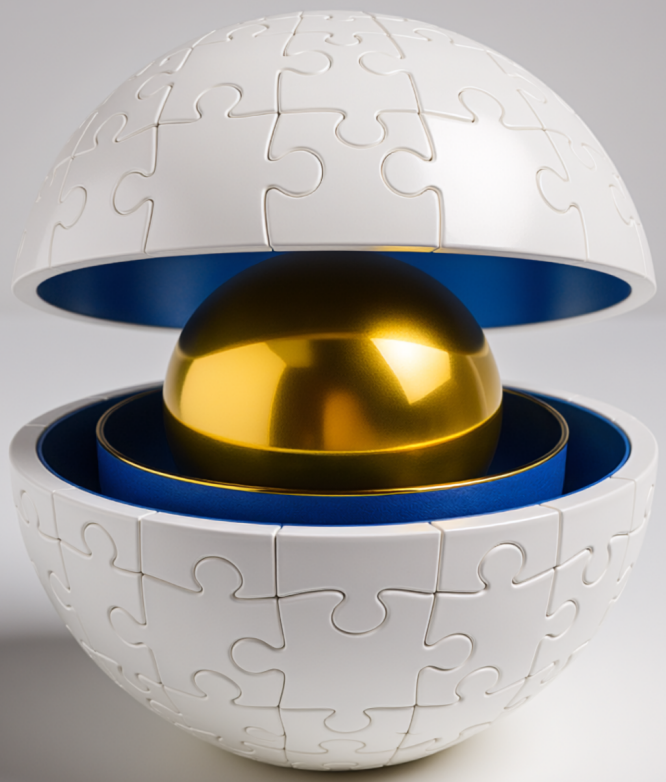
PGIM

DC SOLUTIONS

THE VALUE OF PERSONALIZED ADVICE IN RETIREMENT



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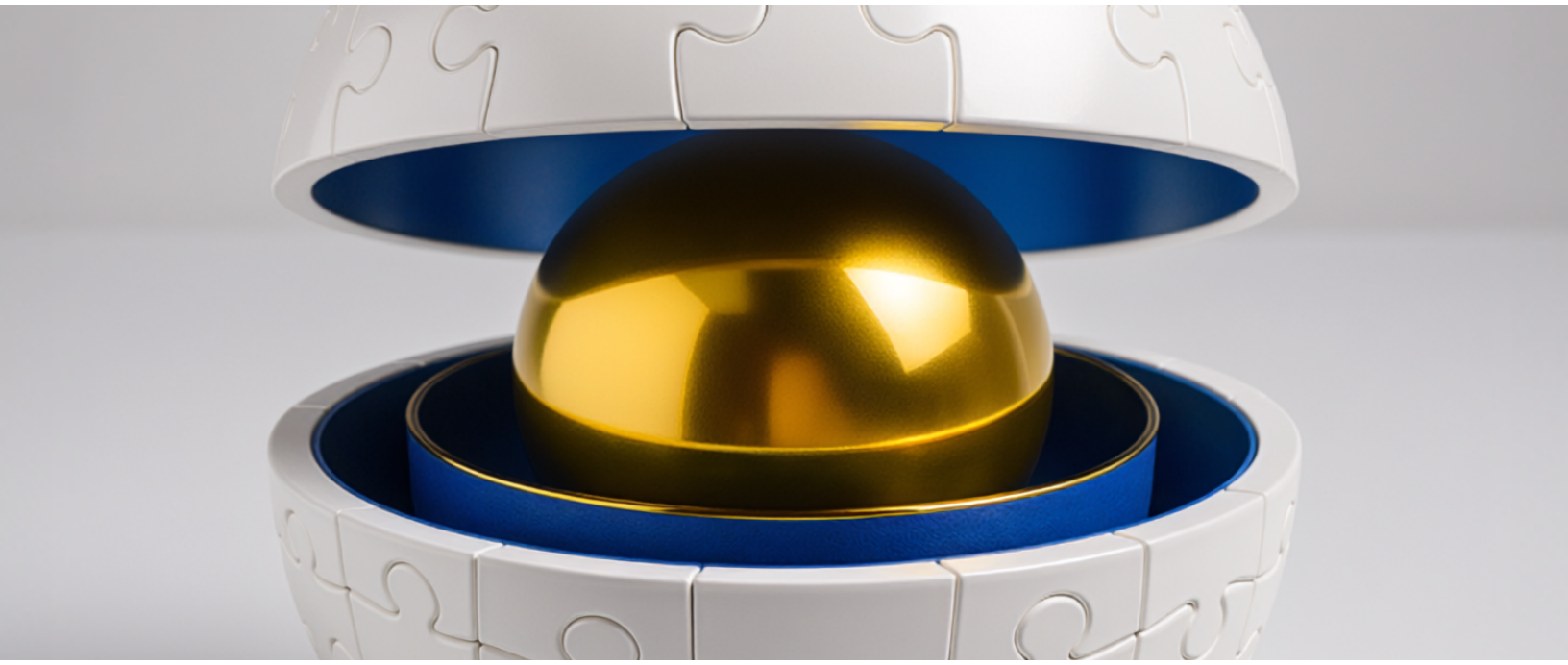


INTRODUCTION

Plan sponsors are increasingly focused on helping defined contribution (DC) participants not only get to, but get through, retirement.

When it comes to accumulation, advice around investing and saving is relatively generalized, with target-date funds serving as the most common default investment and plans with automatic enrollment relying on a single default savings rate for the entire plan. This perspective carries over into some retirement income solutions, such as managed payout funds, or the retirement income vintage of a target-date series, where there is a single allocation and assumed spending level for all invested participants of any age.

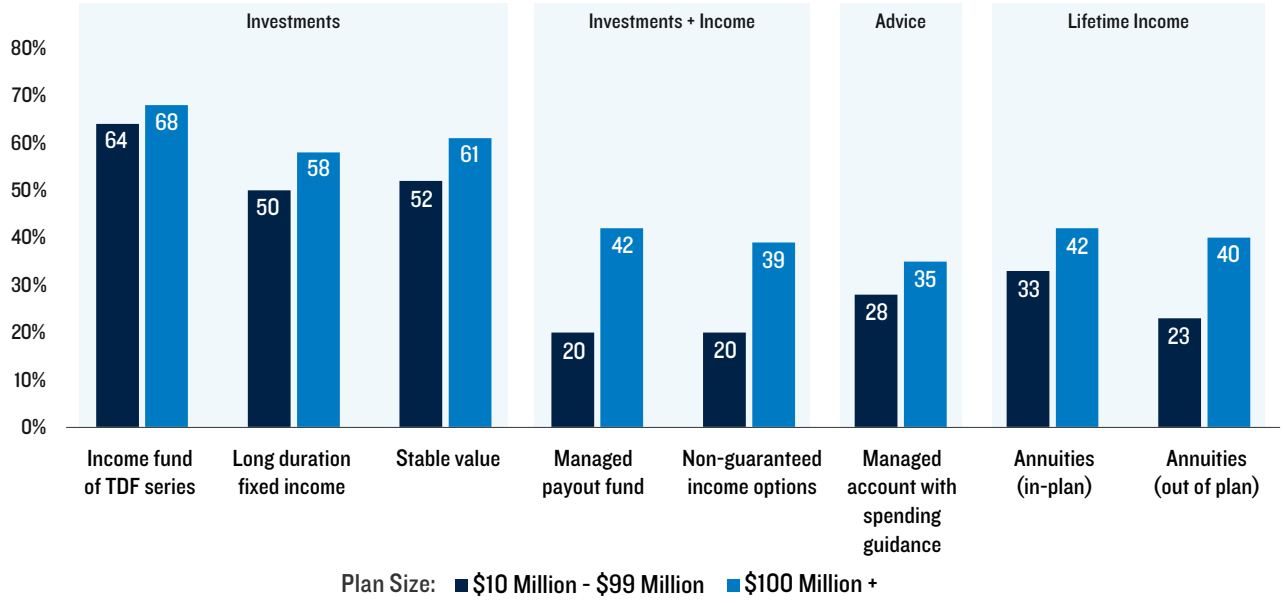
We think personalization becomes increasingly important as someone moves through the lifecycle, especially in retirement. Providing personalized advice around optimal portfolio risk levels and spending (i.e., portfolio withdrawal) amounts can notably improve expected retirement outcomes for participants. This is not intended to suggest that DC plans should necessarily stop offering commonly used retirement income solutions, such as Stable Value or some type of multi-asset retirement strategy (e.g., the retirement income vintage in a target-date series). Rather, DC plan sponsors should consider making a suite of options available to participants, allowing individuals to personalize their retirement journey based on their unique situation and preferences, if or when they wish to engage.

THE DC RETIREMENT INCOME CHALLENGE

DC plans were historically designed for wealth accumulation, not wealth decumulation. With DC plans emerging as the preeminent way Americans save for retirement, with roughly $14 trillion in assets,[1] many plan sponsors are asking what role they can play in helping participants use savings to fund consumptions in retirement. Plan sponsors are increasingly leaning into the idea of helping participants optimally use savings with a variety of potential approaches and perspectives.

In PGIM's latest DC Landscape Survey, we asked plan sponsors what retirement income solutions they offered. There are notable differences in the availability of options by plan size, where larger plans are significantly more likely to offer more options, as indicated in the following exhibit.

Exhibit 1: Retirement Income Solutions Currently Being Offered



Source: PGIM 2025 DC Plan Sponsor Landscape Survey.

We can see that for each solution, there is a higher probability that it is offered in a plan with $100 million or more in assets versus $10 million to $99 million. This suggests larger plans can help participants achieve a better retirement. DC plan sponsors appear to view retirement income solutions today from the lens of single investment options, with Stable Value funds, long duration fixed income, and income funds in a target-date fund series being the three most identified options currently offered to support decumulation.

We believe that while more investment products, such as Stable Value, long-duration fixed income, and multi-asset products (e.g., risk-based portfolios), can serve as important components of a retirement income strategy, participants' differing needs require solutions that are personalized based on that participant's unique situation.

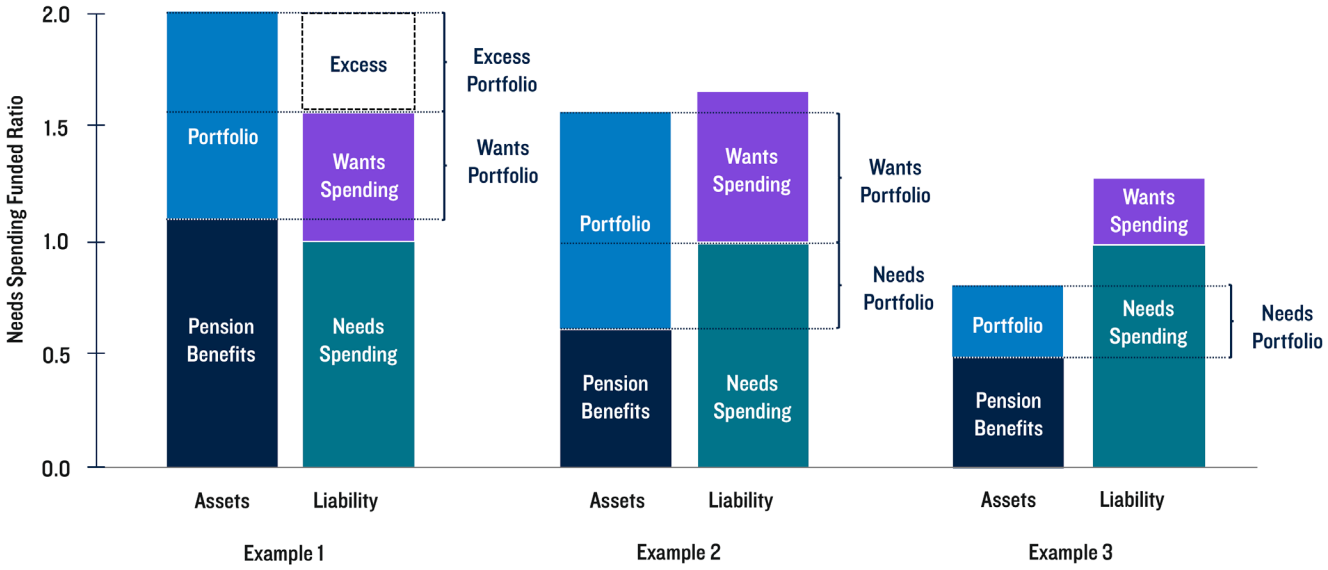
1 *ICI Statistical Report Release: Quarterly Retirement Market Data, Third Quarter 2025* | Investment Company Institute. Available at: https//www.ici.org/statistical-report/ (Accessed: February 2026).

While participants could benefit from advice on a variety of topics, this piece focuses on two broader decisions: optimal portfolio risk levels and optimal spending rates.

First, when it comes to the optimal portfolio, we think it is essential that the portfolio's risk profile considers the entire structure of the participant's assets and liabilities. We not only define assets as savings amounts (e.g., the 401 (k) balance), but also as other sources that can be used to fund the retirement income goal, such as Social Security retirement benefits and/or a defined benefit (DB) plan (i.e., pension benefits). With respect to the liability, we think decomposing the retirement goal based on spending flexibility is important since the disutililty of failing to achieve the overall goal varies depending on the respective shortfall. For example, if we generalize the retirement income goal into two components: "needs" spending and "wants" spending, a shortfall in the "needs" category is going to be significantly more painful than a shortfall for the "wants" spending.

Once we have a better idea of the participant's respective assets and liabilities, we can arrive at a better determination of the optimal portfolio. We illustrate this point in Exhibit 2 for three hypothetical participants.

Exhibit 2: Creating Portfolios to Target Specific Spending Goals



Source: PGIM. For illustrative purposes only.

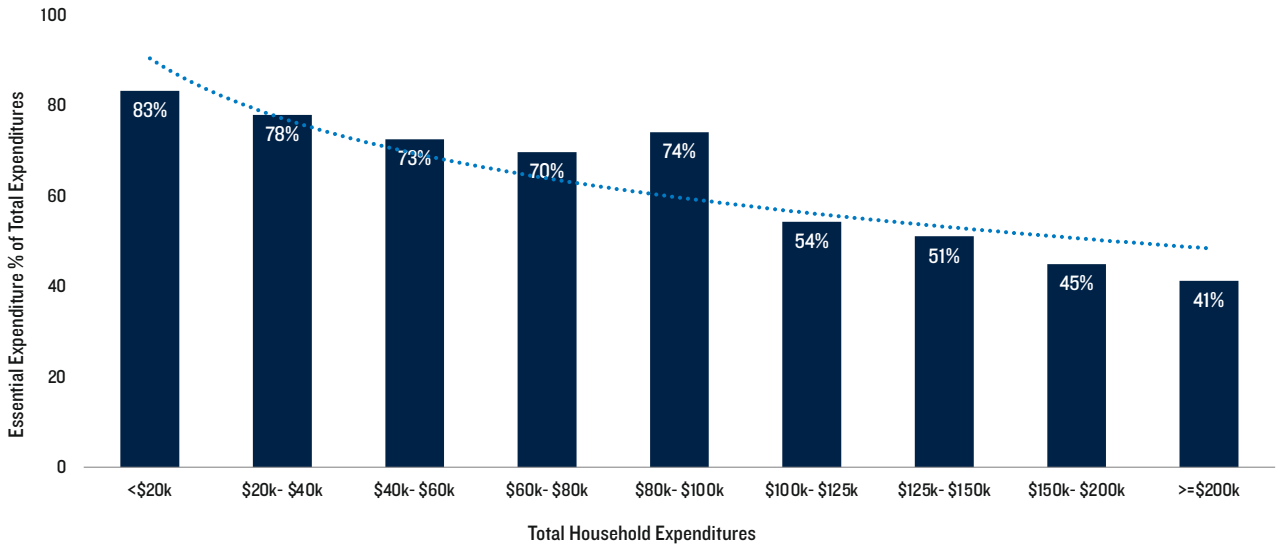
Exhibit 2 demonstrates how the underlying objective of a portfolio should vary depending on its role when it comes to funding that retiree's spending goal. Some participants may need their DC balances to fund more essential (i.e., "needs") expenditures, while other participants may have monies allocated to fund more flexible (i.e., "wants") expenditures. A "one-size-fits-all approach," such as using the retirement income vintage of a target-date series (or similar single multi-asset fund), would be unlikely to capture these differences.

The composition of a participant's assets and liabilities affects optimal withdrawal rates in a similar fashion to optimal portfolios. Research commonly assumes retirement is a single goal where outcomes are defined through the lens of the probability of success (or failure). The probability of success is a relatively poor outcomes metric because it ignores the magnitude of failure within a given run (or trial) when the retiree does not accomplish their goal. In reality, the impact of shortfall needs to be captured when considering the optimal safe withdrawal rate.

Additionally, retiree spending is not static, since households have the ability to change spending levels based on how their circumstances evolve during retirement. We would expect this to be especially true for expenditures that are more flexible in nature. This contrasts with today's financial planning tools, which overwhelmingly assume the retirement goal is effectively static, increasing only with inflation.

Our research on retiree spending suggests that retirees typically have some amount of flexibility around spending, with higher income households enjoying significantly more flexibility. We demonstrate this effect in Exhibit 3, which includes the percentage of total household expenditures that are estimated to be essential (i.e., "needs"), by total expenditure level, based on data from the Consumer Expenditure Survey.[2]

Exhibit 3: Essential Spending as a Percentage of Total Household Expenditures



Source: Consumer Expenditure Surveys (2024).

Flexible spending can have a significant impact on withdrawal rates, especially when the portfolio is viewed on the margin, where it funds consumption in addition to any type of guaranteed income sources. As we'll demonstrate in the next section, two relatively similar households can have notably different portfolio withdrawal rates; for example, households with higher pension benefits can have higher withdrawal rates (and more aggressive portfolios) because the magnitude of failure (should the portfolio be depleted) is lower.

2 *Consumer Expenditure Surveys* (2024) *U.S. Bureau of Labor Statistics.* Available at: https://www.bls.gov/cex/ (Accessed: July 2024).

THE POTENTIAL BENEFITS OF PERSONALIZED ADVICE

Our analysis explores the potential benefits of personalization around both optimal portfolios and withdrawal rates. In order to demonstrate the potential benefits of personalization with respect to portfolio assignment, we contrast the benefits of two commonly used retirement investment options: a Stable Value fund and the retirement income vintage of a target-date series, to one of three portfolios that is "matched" to the participant using an optimizer. The assumed allocations for each of these strategies are included in Exhibit 4.

Exhibit 4: Test Portfolio Allocations

	Asset Class	Stable Value	TDF Retirement Income Vintage	Retirement Portfolio		
				Level 1	Level 2	Level 3
Equity	U.S. Large Cap	0%	18%	14%	20%	26%
	U.S. Mid Cap	0%	0%	2%	2%	4%
	U.S. Small Cap	0%	0%	0%	2%	3%
	Intl Developed	0%	8%	4%	8%	12%
	Emerging Markets Equity	0%	4%	0%	0%	3%
Bonds	Tips	0%	10%	15%	9%	4%
	High Yield Bond	0%	0%	2%	2%	3%
	Emerging Market Debt	0%	0%	0%	2%	3%
	Long Duration Bond	0%	10%	4%	6%	4%
	Core Bond	0%	40%	26%	15%	7%
	Short Duration Bond	0%	10%	14%	6%	0%
	Stable Value	100%	0%	0%	0%	0%
Non-Traditional	Commodities	0%	0%	3%	5%	6%
	Private Real Estate	0%	0%	10%	12%	11%
	Global REIT	0%	0%	0%	3%	5%
	Private RE Debt	0%	0%	4%	4%	5%
	Global Infrastructure	0%	0%	3%	4%	5%
	Total	100%	100%	100%	100%	100%
	Equity	0%	30%	20%	32%	48%
	Bonds	100%	70%	60%	40%	20%
	Non-Traditional	0%	0%	20%	28%	32%
	Total	100%	100%	100%	100%	100%

Source: PGIM as of September 2025.

The analysis leverages a Monte Carlo tool* that assumes the respective participant would be allocated to the same portfolio for the duration of retirement.

With respect to spending, we assume the retiree either spends a constant 5% of the balance of the Stable Value or retirement income target-date vintage, or the retiree uses the optimal withdrawal rate determined by PGIM's methodology. The former is generally consistent with a managed payout structure, whereas the latter uses an expected utility model based on prospect theory and assumes withdrawal amounts will be adjusted over time using a dynamic spending model based on the funded ratio.

When it comes to selecting the portfolio, we also overlay a risk tolerance metric approach to ensure the benefit of moving to a more aggressive portfolio is worth the additional risk (subject to the higher potential withdrawal rate).

For the analysis, we create 20 participant scenarios, where the amount of savings, pension benefits (where the benefit amount is assumed to increase annually with inflation, consistent with the benefit structure of Social Security retirement benefits), and target amount of essential spending is varied. We test three retirement periods: 25 years, 30 years, and 35 years, for a total of 60 scenarios. The scenarios are intended to capture a reasonable distribution of retirees, especially across the lines of the available monies being used to fund retirement (either savings or pension income) as well as the level of assumed flexibility around spending. The analysis incorporates taxes and assumes the retiree is currently 65 years old.

The respective participant scenarios are included in Exhibit 5, along with the corresponding optimal initial withdrawal rate, as determined through our optimization approach.

* IMPORTANT: The projections or other information generated by the Monte Carlo analysis regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results and are not guarantees of future results.

Exhibit 5: Optimal Withdrawal Rates for Test Scenarios

				Initial Withdrawal Rate		
#	Assets ($0,000s)	Soc Sec/DB Benefit ($0,000s)	Needs ($0,000s)	25 Year Retirement Period	30 Year Retirement Period	35 Year Retirement Period
1	$250	$10	$10	6.02	5.33	4.86
2	$250	$50	$35	6.62	6.06	5.69
3	$250	$50	$60	6.46	5.87	5.46
4	$250	$90	$35	6.85	6.40	6.06
5	$250	$90	$60	5.05	4.59	4.35
6	$500	$10	$10	5.54	4.95	4.53
7	$500	$50	$10	5.74	5.21	5.04
8	$500	$50	$35	5.72	5.15	4.76
9	$500	$50	$60	5.46	4.89	4.53
10	$500	$90	$10	5.66	5.14	4.76
11	$500	$90	$35	5.66	5.15	4.96
12	$500	$90	$60	5.18	4.62	4.24
13	$1,000	$10	$10	4.94	4.39	4.01
14	$1,000	$10	$35	4.90	4.35	3.98
15	$1,000	$50	$10	4.98	4.46	4.08
16	$1,000	$50	$35	5.00	4.49	4.11
17	$1,000	$50	$60	4.80	4.28	3.92
18	$1,000	$90	$10	4.82	4.31	3.93
19	$1,000	$90	$35	4.83	4.33	3.97
20	$1,000	$90	$60	4.82	4.30	3.92

Source: PGIM as of September 2025.

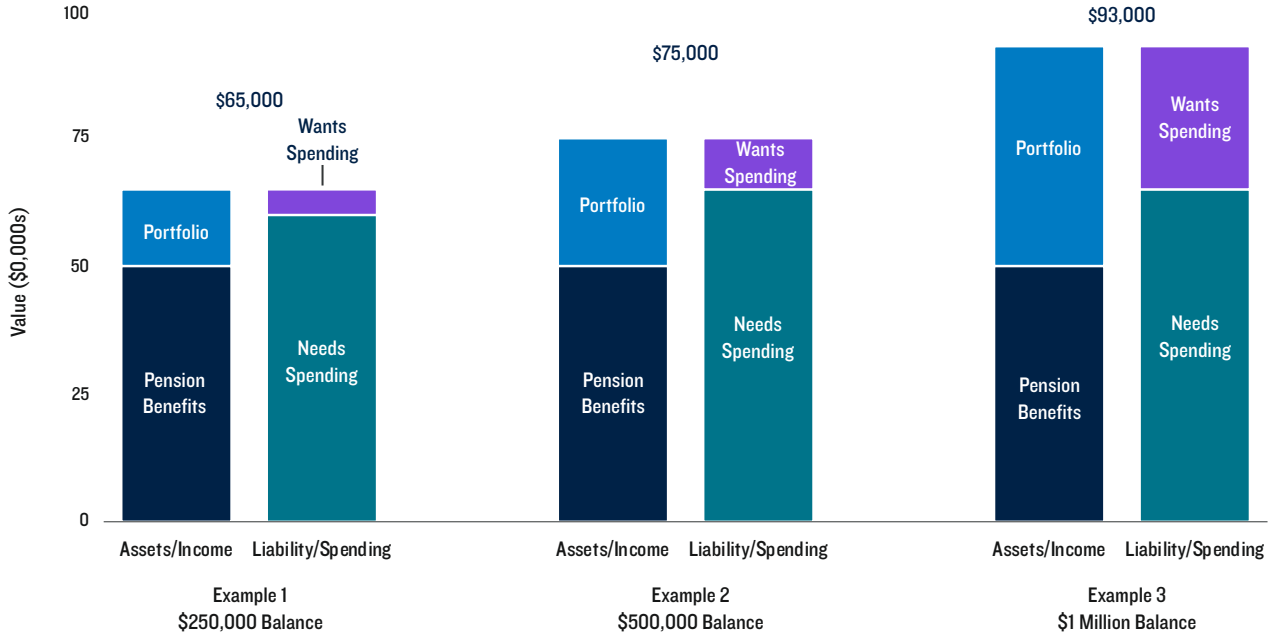
There is notable variation in optimal withdrawal rates across scenarios in Exhibit 5. For example, while the average initial withdrawal rate across the 60 scenarios is approximately 5%, the optimal withdrawal rates vary from approximately 4% to 7%, depending on the participant scenario. The noted withdrawal rates may seem relatively high compared to past research on safe initial withdrawal rates, which has largely relied on outcomes metrics, like the probability of success, due to key differences in how outcomes are measured. There is also variation in the optimal portfolios, although less extreme than the variation in optimal withdrawal rates.

Our approach not only captures the magnitude of failure if there is a shortfall, but it also captures the expected dissatisfaction associated with shortfall (whereby a shortfall in essential spending would be considered more painful than a shortfall in more flexible spending). This can lead to notably higher initial withdrawal rates, especially for retirees who have a higher portion of their retirement assets in guaranteed income and more flexibility around their retirement goal.

We can use the portfolio mapping concept introduced in Exhibit 2 to demonstrate how safe withdrawal rates vary for a few of the scenarios. For example, in Exhibit 6 we include information about how optimal withdrawal rates vary for different scenarios with different levels of pension benefits and liabilities.

Each of these cases has the same assumed pension benefit ($50,000 per year) and the same needs income goal ($60,000 per year), where the only difference is the initial balance ($250,000, $500,000, and $1 million, respectively). The resulting safe initial withdrawal rates vary as well, at 5.9%, 4.9%, and 4.3%, respectively, across the three examples.

Exhibit 6: Optimal Asset/Liability Structure for the Three Sample Scenarios



Source: PGIM. For illustrative purposes only.

We can see in Exhibit 6 that while total spending increases as the balance increases, the amount of spending increases at a decreasing rate (i.e., lower withdrawal percentage) due to the portfolio's varying role with respect to funding expenditures in retirement. The more the retirement income goal is funded through guaranteed income, the higher the portfolio withdrawal rate tends to be, on average.

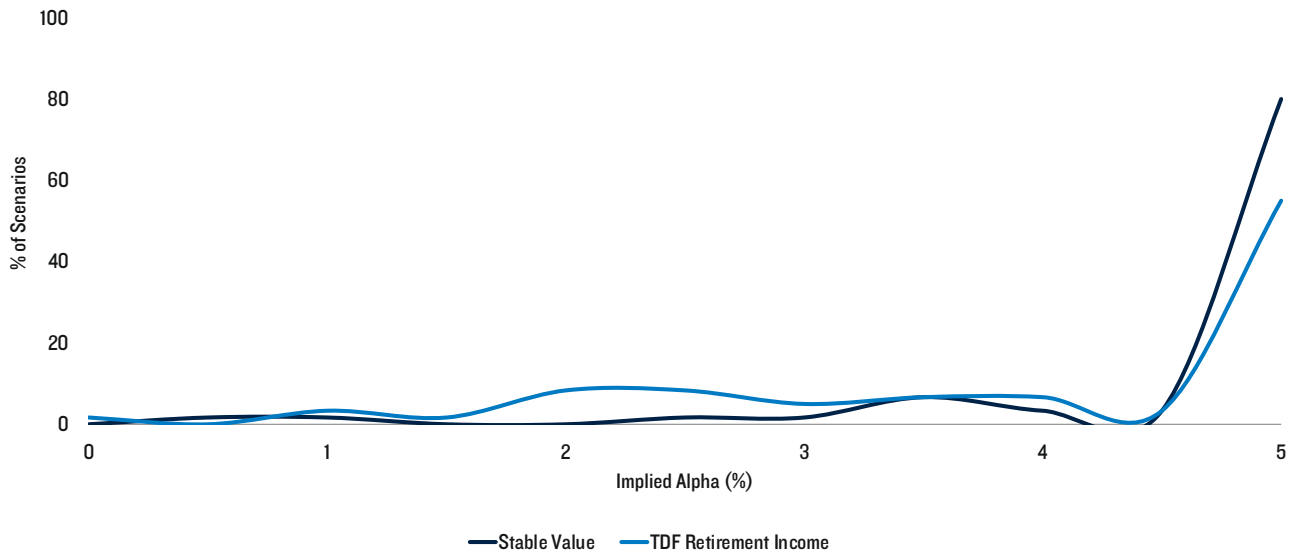
This example demonstrates how a retiree with a relatively similar fact pattern, but a different level of savings, could get different guidance around safe withdrawal rates from a solution that is personalized versus something that provides a more "one-size-fits-all" approach.

THE ALPHA BENEFIT OF PERSONALIZATION

To better understand the costs of using a relatively generic strategy (i.e., allocating retirees to a Stable Value fund or the retirement income vintage of a target-date fund assuming a withdrawal rate that is 5% of the total balance), we conduct an additional analysis.

For the analysis, we estimate how much negative alpha must be imposed on the optimal strategy, which is defined as the initial withdrawal rate and respective portfolio, to generate the same level of utility as either the Stable Value or assumed target date retirement income strategy. In other words, this analysis captures the alpha-equivalent benefit of providing a personalized guidance strategy versus a more generic approach. The distribution of estimated alpha values for the 60 scenarios is included in Exhibit 7. Note, the highest considered fee level is 500 bps.

Exhibit 7: Alpha-Equivalent Benefit of Personalizing the Withdrawal Rate and Portfolio for 60 Test Scenarios



Source: PGIM as of September 2025. For illustrative purposes only.

The results are relatively staggering, with the alpha benefit of personalization in most scenarios exceeding 500 bps (80% of scenarios using Stable Value and 55% of scenarios using the retirement income portfolio). While this level of implied alpha for personalization may seem significant, it's important to note that initially spending only 5%, rather than 6%, is going to result in materially less income than would be optimal during retirement. Alternatively, spending 5% of the annual balance, when the initial spending rate should be 4%, is going to result in a significant level of income risk (i.e., potential to have a future income shortfall). In other words, relying on a generic withdrawal strategy carries the risk of being either too conservative or too aggressive, which can significantly impact lifetime utility.

CONCLUSION

Using savings to fund retirement income typically involves a series of relatively complicated decisions. While off-the-shelf strategies, such as the retirement income vintage of a target-date series or a managed payout fund, are viable solutions for relatively unengaged participants, those who wish to engage are likely to receive guidance that can vary notably from these "one-size-fits-all" options.

In this piece, we demonstrated that personalized advice and guidance on optimal spending and portfolio risk levels can vary notably based on relatively basic data points (i.e., total savings, total pension benefits, essential spending targets, and expected length of retirement). While one possibility is to provide this type of guidance through some type of financial advisor or professionally managed portfolio (i.e., retirement managed accounts), another solution would be to offer participants access to a guidance tool that could serve as a "bridge" between a relatively generic strategy (e.g., a managed payout fund) and a full-on financial plan, for those participants who wish to use it. Regardless, plan sponsors need to ensure that options exist to help participants who want to personalize their retirement journey.

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About DC Solutions*

As the retirement solutions provider of PGIM, we plan to deliver innovative defined contribution solutions founded on market-leading research and capabilities. Our highly experienced team partners with clients on customized solutions that seek to solve for current challenges facing DC participants. As of 12/31/2025, PGIM has $192 billion** DC assets under management.

* DC Solutions does not establish or operate pension plans.
** Reported data reflects the assets under management by PGIM and its investment adviser affiliates for defined contribution investment purposes only.

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