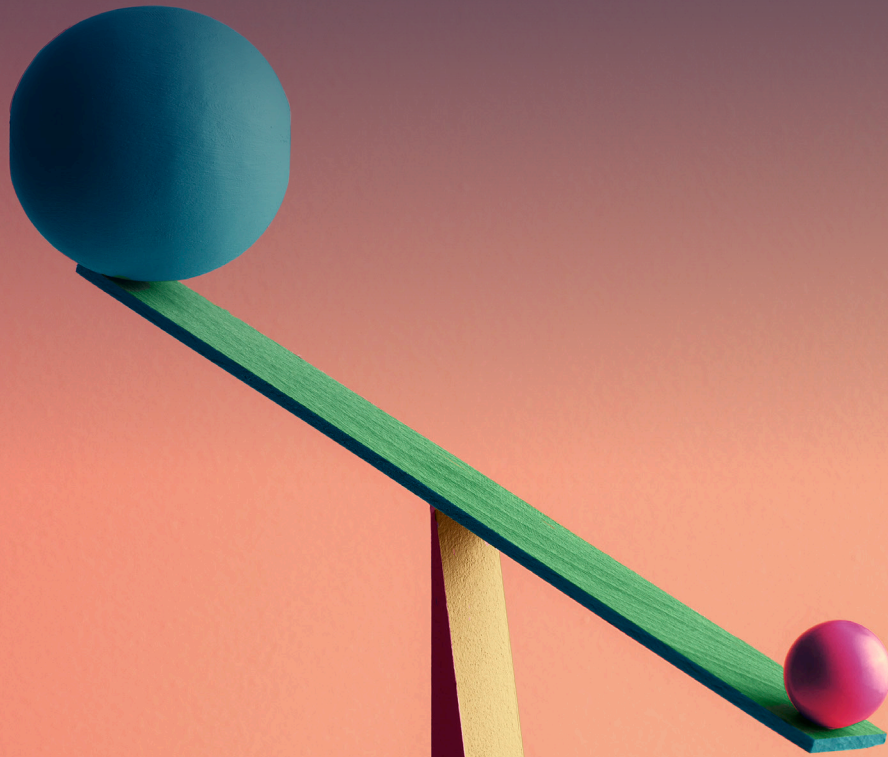


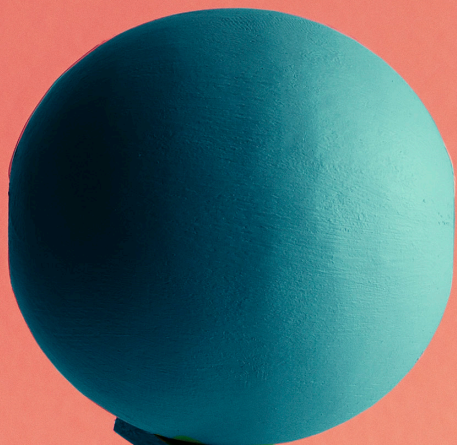


SPENDING IN RETIREMENT

How you just might find what you want and what you need



For Professional Investors only. All investments involve risk, including possible loss of capital.



INTRODUCTION

As the defined contribution (DC) industry recognizes the need to shift its focus from accumulation to more holistic strategies designed to provide lifetime income, the challenge of portfolio decumulation and providing sustainable income through retirement needs to be thoughtfully addressed. In doing so, having a strong understanding of the retirement spending objectives for workers is the critical component.

Historically, most investment solutions have been designed under the assumption that retirement spending is the same for all individuals, but the reality is the characteristics of retiree expenses vary greatly. For solutions to be successful in providing retirement income, they will need to better address the different types of spending workers will experience after they leave the workforce.

We believe plan sponsors should evolve their DC plans to be more supportive of lifetime income, including more outcome-focused asset allocation, technology customized to the individual, institutional investments including non-guaranteed liability-driven investments, and guaranteed income solutions.¹ In this paper, we focus on better understanding expenses in retirement and discuss the idea of using a “Needs and Wants” framework for designing income-oriented investment solutions. It is our view that this type of approach to how spending in retirement is viewed may be able to provide better solutions and outcomes for workers.

¹ From Savings to Income: The Next Evolution of Defined Contribution Plans

ADOPTING A LIABILITY MINDSET

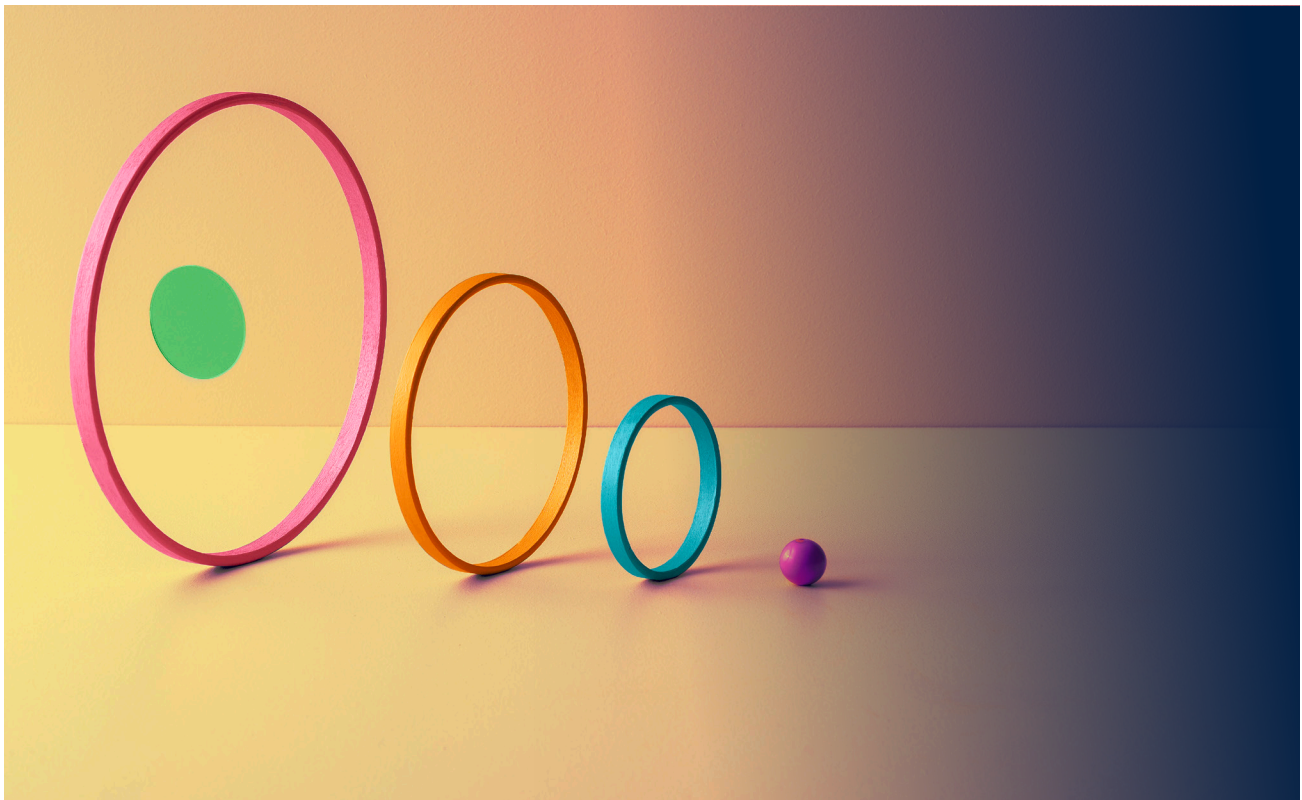
In order to design solutions that can effectively provide a stream of income in retirement - instead of just focusing on the accumulation of assets - adopting a liability-oriented mindset is essential. Most institutional investors are trying to meet a liability; for participants in a DC plan, the “liabilities” are the expenses they will face in retirement. The best way to make certain plan participants are positioned to meet these future spending liabilities, we believe, is to have investment solutions that are designed to provide the income necessary to do so.

So how does one define the liability? Historically this has been thought of in the context of a ‘replacement rate’ or ‘replacement ratio.’² Put simply, a replacement rate is the proportion of a participant’s after-tax income needed in retirement relative to their gross income pre-retirement.

While the concept is easily understood and explained, it has unfortunately oversimplified how spending in retirement is viewed. This approach helps to identify how much income is needed in retirement, but treats all types of spending equally when we know this is not the case.

For instance, should a monthly rent or mortgage payment be treated the same as a summer vacation expense? For retirement income solutions to be effective, understanding and accounting for the different types of retiree expenses is imperative.

However, the replacement rate concept is still valuable in determining the overall retirement income goal that any holistic solution seeks to achieve. It is also important that the income replacement rate goal be adjusted based on a participant’s pre-retirement income level. Figure 1 shows



² The concept of a replacement ratio was first popularized by AON in a series of research studies.

that the proportion of post-retirement after-tax spending relative to pre-retirement gross income varies widely based on the level of pre-retirement income.

As we see from Figure 1, lower income earners spend a greater percentage of their pre-retirement income in retirement. And as the level of pre-retirement income increases, we see spending rates in retirement as a function of pre-retirement income decline materially. This makes sense because a portion of spending in retirement is more fixed in nature. Also, variable retirement spending does not tend to increase at the same rate of the increments between pre-retirement income cohorts. However, the most significant driver of the variation in replacement rates across income levels is the result of savings and marginal tax rates. Research shows that higher income workers typically save more and pay higher tax rates pre-retirement, naturally resulting in lower after-tax income replacement rates in retirement.

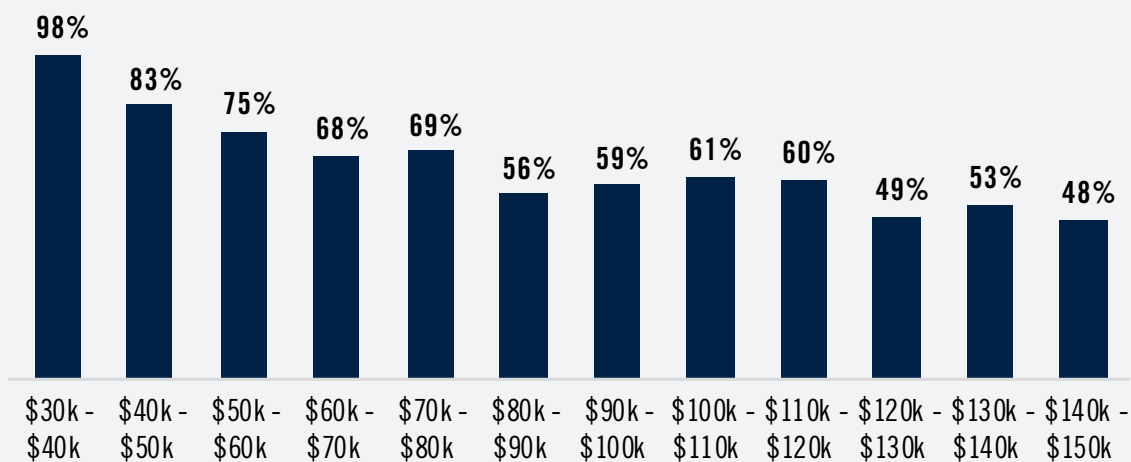
The large dispersion of actual income replacement rates highlights the importance of using income-based replacement rate assumptions in investment solutions.

This contrasts with popular solutions today which rely on a one-size-fits-all assumption, such as an 80% replacement rate. For instance, a low-income worker whose investment strategy assumes a replacement rate of 80% is likely to end up with a sizeable shortfall of income relative to what is needed to fund their retirement expenses. And for middle- and high-income earners, the reverse is true as portfolios may have unnecessary levels of risk due to overestimating the income needed in retirement. While the effect of being underfunded for retirement is much worse than being overfunded, neither is optimal.

Another factor in understanding the retirement income liability or replacement rate is how it changes throughout retirement. Using the same HRS spending data, we find that real spending in retirement declines between 1-2% each year. When comparing real spending declines in retirement by income level, we find that lower-income retirees experience smaller decreases in real spending relative to higher-income retirees. This effect is largely a result of lower-income groups having a greater portion of the retirement expenditures being more fixed in nature.

For our research on spending in retirement relative to pre-retirement income, we analyzed data from the University of Michigan Health and Retirement Study (HRS) which is supported by the National Institute on Aging and the Social Security Administration. The HRS is a longitudinal panel study (meaning survey respondents are repeatedly paneled over periods of time) of 20,000 Americans designed to provide information around how an individual's spending changes as they age. Spending data can be analyzed based on the demographic data of the individual participants.

Figure 1: Income Replacement Rate by Pre-Retirement Income Level



Source: University of Michigan Health and Retirement Study (HRS). After-tax spending in retirement as a percentage of pre-retirement gross income across the 2008-2016 HRS waves.

COMPONENTS OF THE RETIREMENT INCOME LIABILITY – NEEDS AND WANTS

After establishing the overall income-based replacement rate, the next step in understanding the retirement liability is to determine the different types of expenses that retirees will face. Fortunately, today there are robust data sources for consumer spending behavior which provide insight and detail into all the various types of retirement spending.

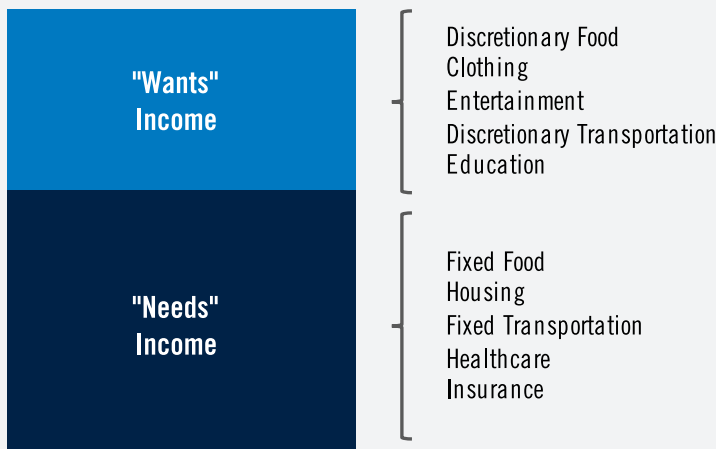
In looking at all the types of expenses, we found that they can be best categorized into two main groups: “Needs” and “Wants.” Expenses that fall into the Needs category are going to be more inflexible and recurring in nature. Retirees will have little to no discretion over the level or frequency of these specific expenditures. This includes more essential kinds of spending such as housing, basic food and transportation, as well as any traditional health and insurance-related expenses. Inability to meet these (often) monthly liabilities is likely to have a serious impact on one’s quality of life.

Conversely, expenses that fall into the Wants category are going to be more flexible and irregular in nature. Retirees will have some discretion in both the level and frequency of these specific expenditures. Examples of Wants spending include non-essential clothing, entertainment, travel, discretionary food and transportation, as well

as education and gifting. Inability to meet these more variable liabilities may have a temporary impact on overall lifestyle but likely will not be detrimental to everyday living.

As we did with the replacement rate research, we analyzed changes in the ratio of Needs to Wants expenses throughout retirement. In the beginning of retirement, we find that the split between Needs and Wants remains relatively static, but over time Wants spending begins to decrease at a greater rate than Needs expenditures. Again, this was not a surprising result given the more fixed nature of Needs spending, particularly housing. One other scenario to consider is that for a small group of retirees, large unexpected healthcare-related expenses can have a meaningful impact on the ratio of Needs and Wants, where Needs spending grows considerably as a proportion of overall spending.

Figure 2: Components of the Retirement Income Liability



Source: PGIM, Bureau of Labor Statistics (BLS) Consumer Expenditure Surveys.
For illustrative purposes only.

For our research on the types of consumer spending in retirement, we analyzed data from the Consumer Expenditure Surveys published by the Bureau of Labor Statistics (BLS). These surveys are designed to gather detailed information and provide large data sets for analysis of consumer spending, broken out by types of expenditures, income, and demographics such as age.

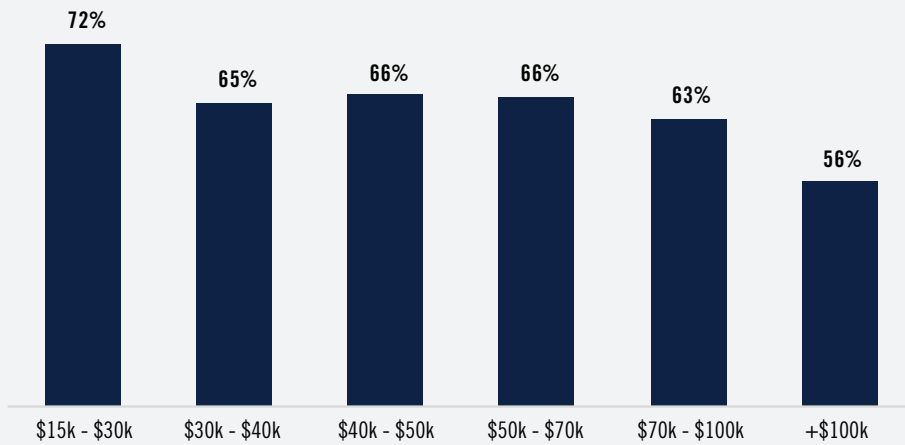
EFFECTS OF INCOME LEVEL ON NEEDS AND WANTS SPENDING

Similar to our research on overall income replacement rates, when looking at the ratio of Needs to Wants spending in retirement, we also find notable differences in results based on the level of income in retirement (Figure 3). And given the dispersion in the results, it will be important for successful retirement income investment strategies to account for these income-specific differences.

For lower income retirees, a greater percentage of overall spending is on Needs expenses. But for those with higher levels of income in retirement, notably above \$70,000, we find that Needs is a smaller proportion of total spending. Again, this intuitively makes sense as some of the Needs

expenses are a fixed cost that one must spend regardless of income. Thus, we cannot assume a single approach for all DC participants when it comes to building portfolios designed to meet retirement income goals.

Figure 3: Needs Expenses by Income Level



Source: Bureau of Labor Statistics (BLS) Consumer Expenditure Surveys. Needs expenses in retirement as a percentage of total retirement spending by gross income.



BUILDING PORTFOLIOS TO MEET NEEDS AND WANTS

To fund Needs and Wants spending in retirement effectively, investment strategies must account for the specific characteristics of each of these types of expenses.

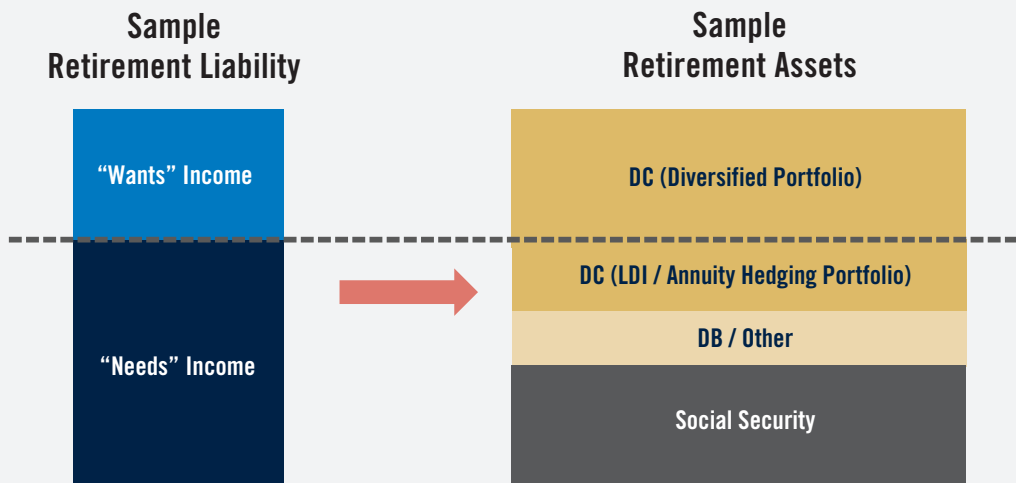
Needs expenses are going to be more frequent, and likely, with little change in value over time. Additionally, retirees are going to have a high aversion to not being able to meet the expenses. In this case, assets with greater investment return predictability are going to be more appropriate for funding Needs expenses. Outside of DC plan investments, these assets should include guaranteed payments from Social Security, defined benefit (DB) plans, and any existing annuities an individual may own.

Yet for many workers, non-DC sources of guaranteed income will likely fall short of Needs spending levels, in which case the DC plan will be relied on to support the Needs income gap. Annuities such as immediate and deferred fixed annuities as well as Guaranteed Lifetime Withdrawal Benefit (GLWB) variable annuities are optimal in terms of maximizing the certainty of payments and thus should play a role. However, liquidity

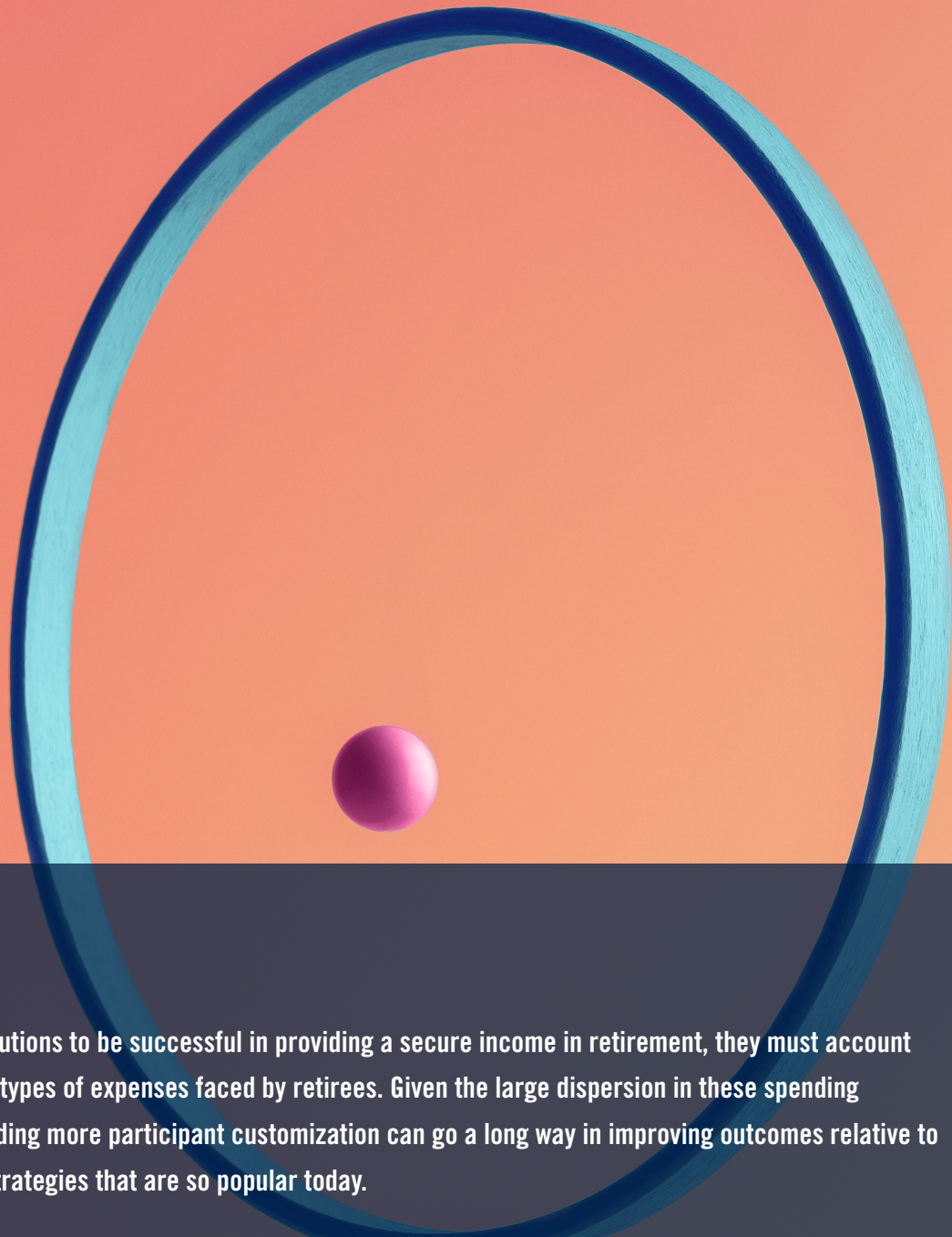
and flexibility are also important for many, in which case certain non-guaranteed investments can be effective. This includes strategic allocations to various duration or cash flow matching bond strategies, similar to the liability-driven investment (LDI) approach used in corporate DB and insurance general account portfolios.

In the case of funding Wants spending, which is less frequent, more variable, and more discretionary in nature, the investment strategy can handle more volatility. Here, a more traditional balanced allocation to growth and diversifying investment strategies can provide a relatively predictable source of income over the long term, with the potential for upside return. Liquidity is also a critical component here for addressing the potential for large unexpected expenses retirees can face, such as healthcare-related spending.

Figure 4: Funding Needs and Wants in Retirement



Source: PGIM. For illustrative purposes only.



CONCLUSION

For DC investment solutions to be successful in providing a secure income in retirement, they must account for both the level and types of expenses faced by retirees. Given the large dispersion in these spending characteristics, providing more participant customization can go a long way in improving outcomes relative to the one-size-fits-all strategies that are so popular today.

The Needs and Wants framework discussed herein may be a good starting point as our industry begins to think more holistically about investment solutions and providing a secure stream of income in retirement. While we focus more on the spending liability in this paper, the next paper in our series on retirement income will take a deep dive into how an investment strategy can be designed to solve for both Needs and Wants income liabilities.

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Matt Perna is a Director in the Institutional Relationship Group (IRG) focused on supporting PGIM's large defined contribution (DC) clients. His responsibilities include producing thought leadership on a variety of topics across investments, plan design, and regulatory change. Prior to joining PGIM, Matthew was an investment consultant with Bellwether Consulting where he worked with defined contribution and defined benefit plan sponsors. He received a BS in Business Administration from Villanova University and is a CFA charterholder.



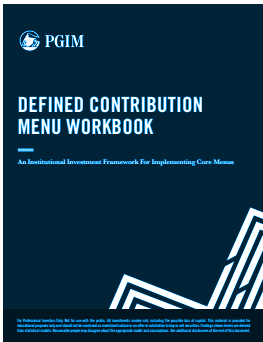
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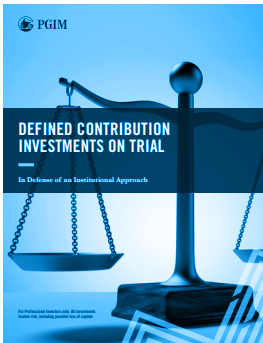
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Defined Contribution Menu Workbook

Our workbook pulls together the full breadth and depth of PGIM’s institutional Defined Contribution insights and capabilities to help plan sponsors enhance their plan menu design. The result? Better participant outcomes.



Defined Contribution Investments on Trial

There is significant debate as it relates to the appropriate investment approach for defined contribution plans. Here we make four compelling cases to support the claim that adopting an institutional mindset is imperative to driving successful outcomes for participants from an investment, fiduciary, wellness, and fairness perspective.



Five Areas of Focus for Defined Contribution Plans

In this paper, we look at the five key areas plan sponsors and their advisors should focus on to help plan participants meet their retirement liabilities and manage key risks.

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