



ESTIMATING THE TRUE COST OF RETIREMENT

David Blanchett, PhD, CFA, CFP®
Head of Retirement Research
PGIM DC Solutions

February 21, 2023

THE PURSUIT OF OUTPERFORMANCE

For Financial Professional use only. Not for use with the public.

PGIM DC Solutions is not currently registered with the Securities and Exchange Commission as an investment adviser.

1060134-00002-00

The Cost of Retirement



For illustrative purposes only.

Confidential – Not for Further Distribution

Two Sides of the Equation



Assets



Liabilities

For illustrative purposes only.

The “4% Rule” (=25x Rule)



For illustrative purposes only.

The Key Inputs to Estimate the Cost of Retirement

1. Portfolio returns (Assets)
2. Retirement spending (Liability)
3. Length of retirement (Liability)

PORTFOLIO RETURNS

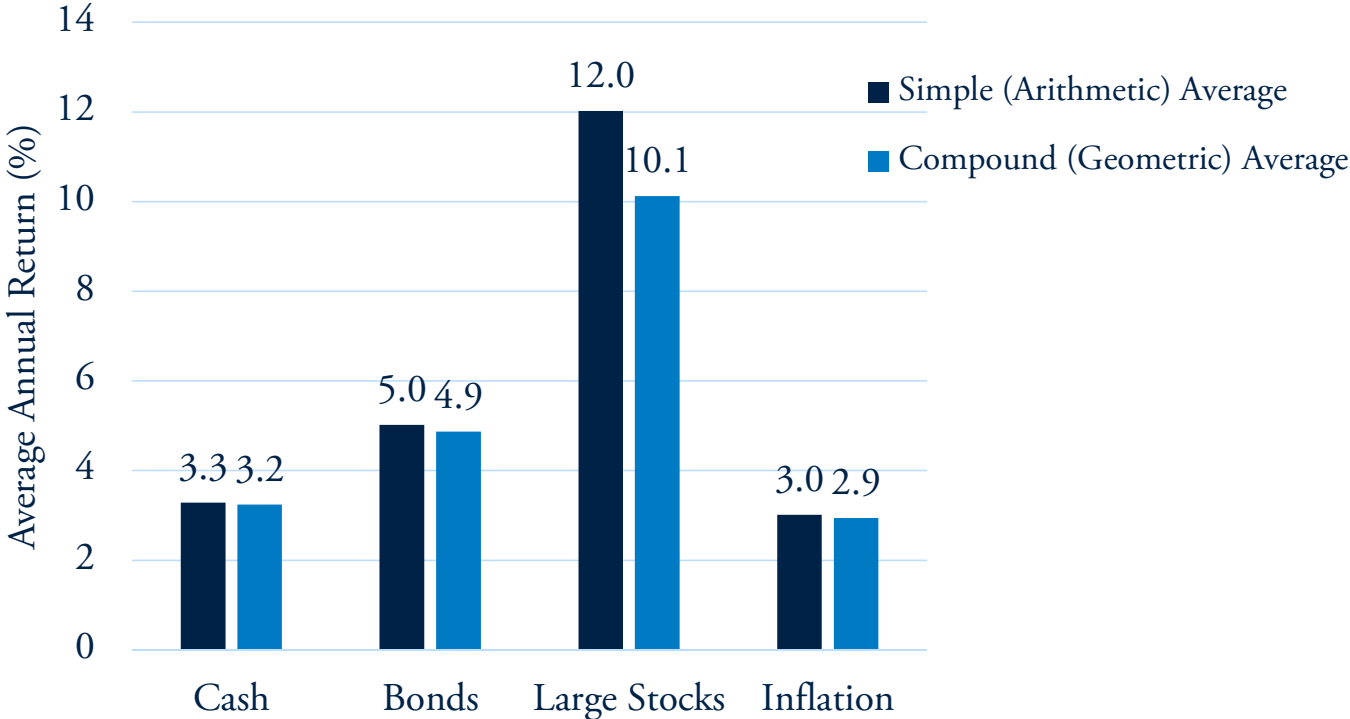
The Past as a Guide



For illustrative purposes only.

Confidential – Not for Further Distribution

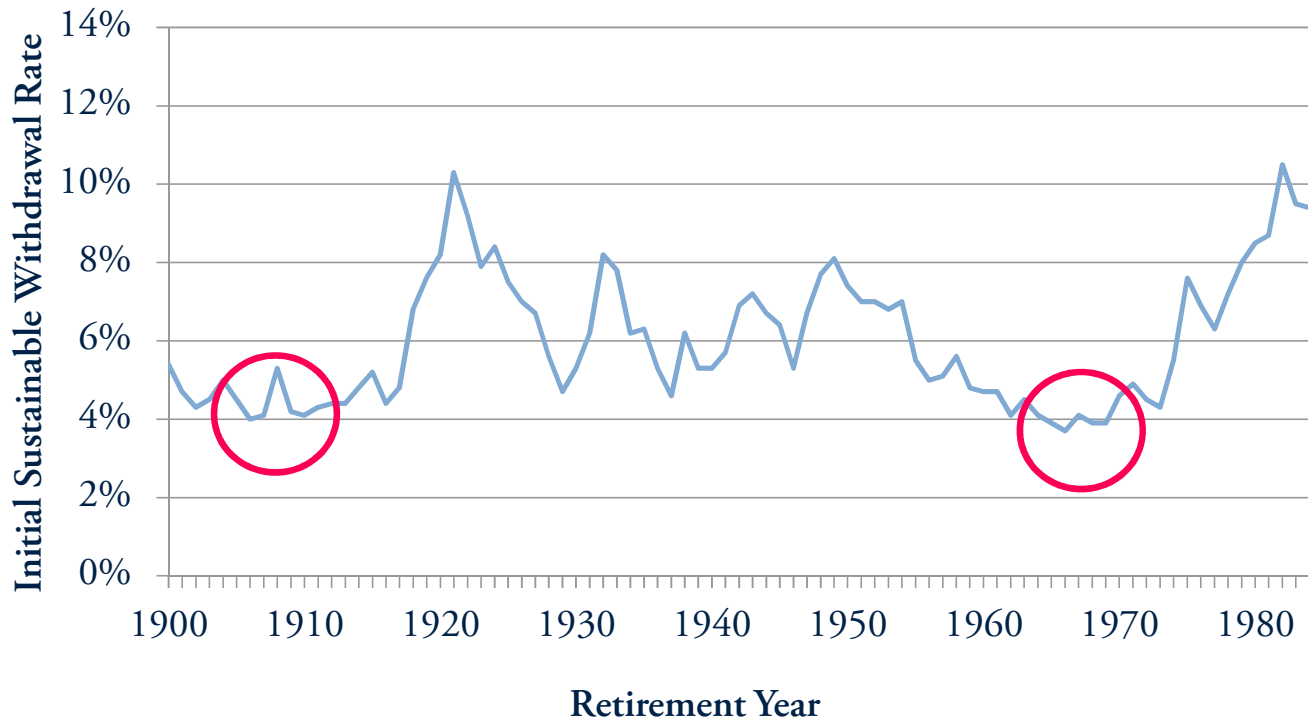
Historical US Asset Returns: 1926-2022



Source: SBBI data series

Confidential – Not for Further Distribution

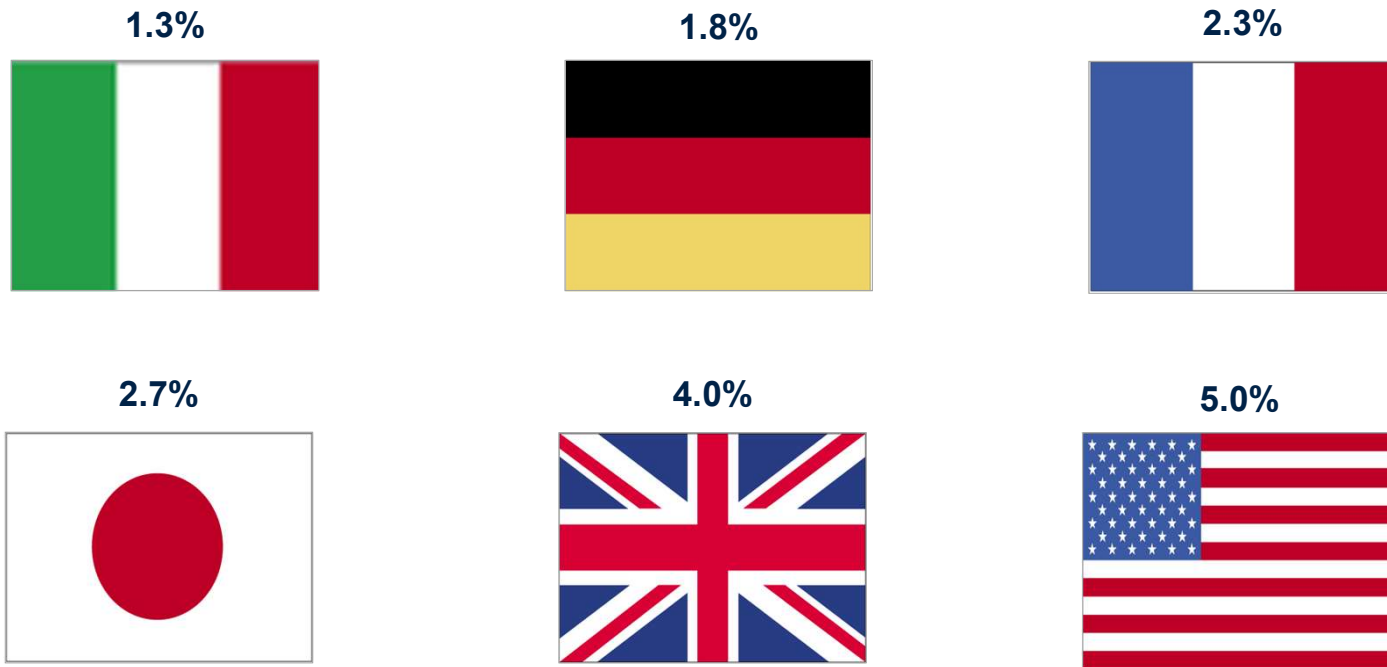
Where the 4% Rule Comes From... Historical U.S. Data



Source: DMS data, return of 60% equity/40% bond portfolio, US stocks and US bonds, 1900-2020

Confidential – Not for Further Distribution

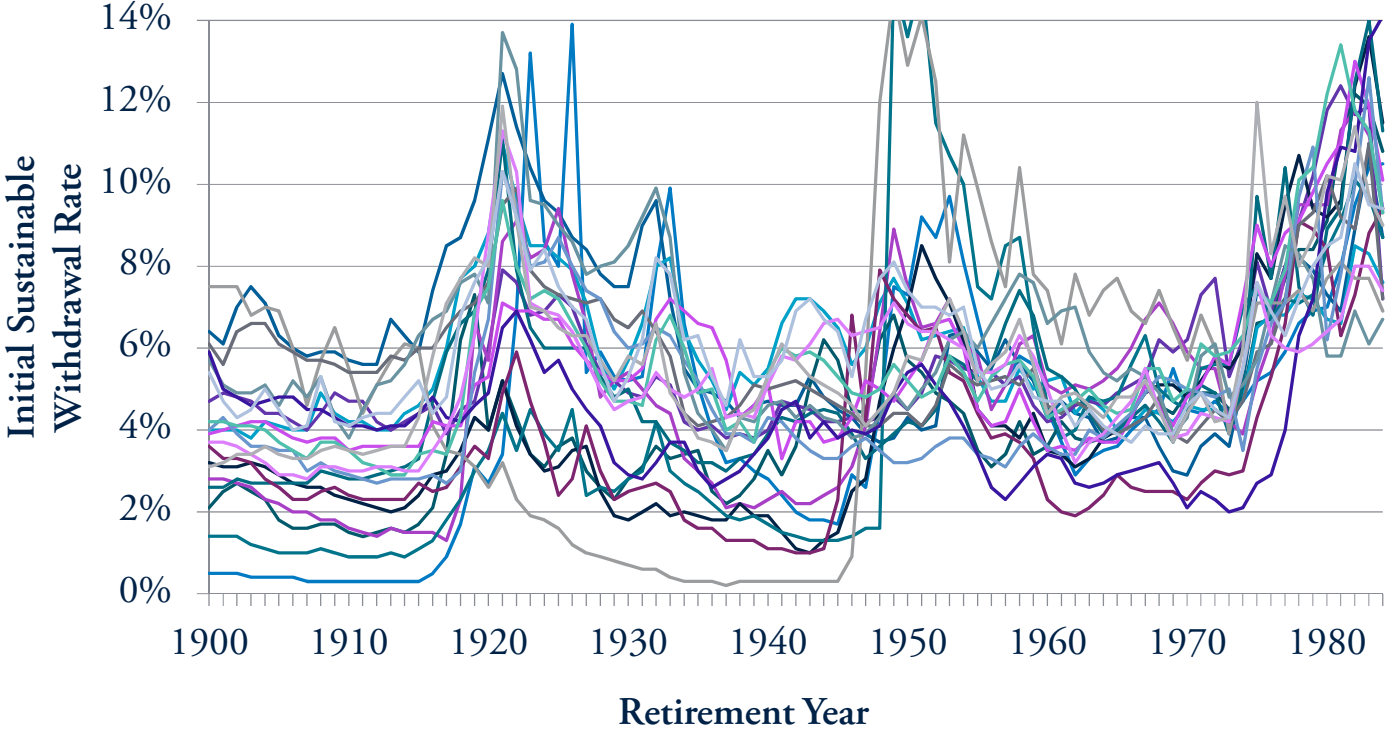
An International Perspective on Historical Returns



Average annual compounded real return for a 60% stock, 40% bond portfolio: 1900 – 2020.
Source: Dimson, Marsh, and Staunton, Morningstar DirectSM

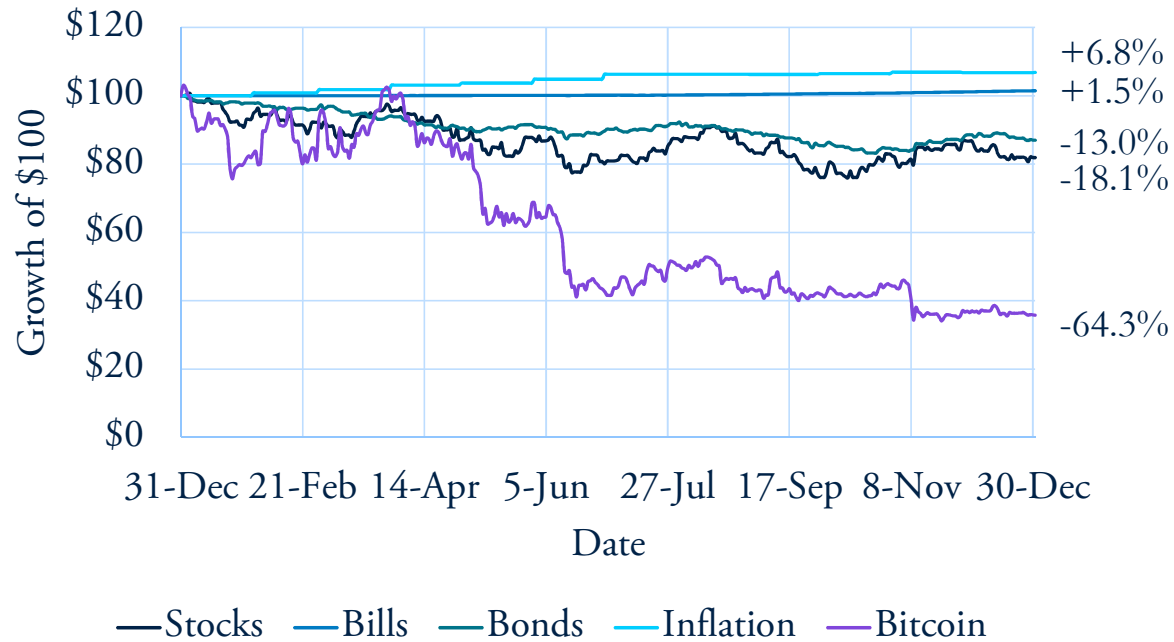
Confidential – Not for Further Distribution

Historical “Safe” Withdrawal Rates



Source: Dimson, Marsh, and Staunton, Morningstar Direct

SBBI 2.0: Returns Stocks, Bonds, Bills, Bitcoin, and Inflation in 2022



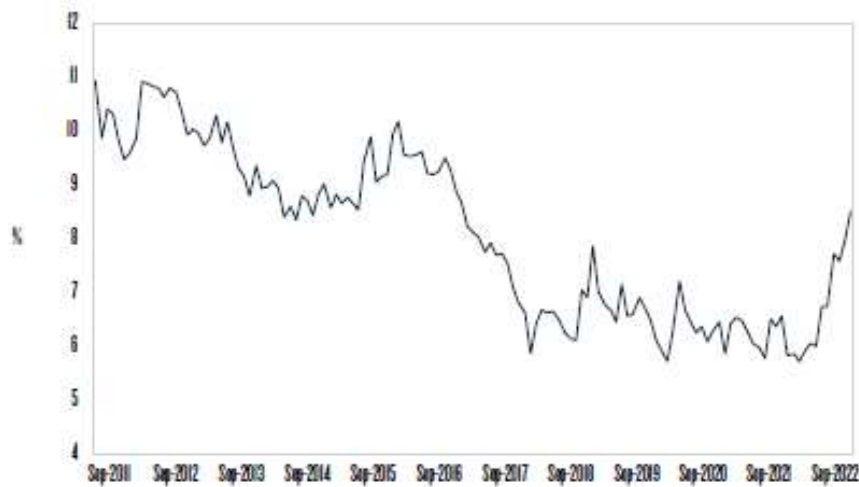
Source: Morningstar Direct, <https://finance.yahoo.com/quote/BTC-USD/>

For Financial Professional use only. Not for use with the public.

Confidential – Not for Further Distribution

Updated Return Forecasts Reflecting the Updated Market Environment

Global Equities



Global Aggregate Bonds



Source: PGIM Quantitative Solutions. Capital market assumptions are subject to change. PGIM Quantitative Solutions' capital market assumptions (i.e., long-term risk and return expectations for each of the asset classes) are based on our analysis of long-term historical performance numbers, current market conditions, and fundamental and economic factors.

For Financial Professional use only. Not for use with the public.

Confidential – Not for Further Distribution

PGIM Q4 2022 Capital Market Assumptions: Near Term and Long Term (Steady State)

Asset Class	Next 10 Years		Steady State	
	Geometric	Arithmetic	Geometric	Arithmetic
US Cash	1.46	1.46	3.90	3.90
US Agg Bonds	4.66	4.95	4.72	4.88
US Large Cap Equity	8.95	10.95	7.76	8.93
US Small Cap Equity	9.45	12.68	8.26	10.19
nonUS Equity	7.63	9.08	10.04	11.30

Doesn't include the impact of fees or taxes, so realized returns will be lower... potentially much lower

Source: PGIM Quantitative Solutions. Capital market assumptions are subject to change. PGIM Quantitative Solutions' capital market assumptions (i.e., long-term risk and return expectations for each of the asset classes) are based on our analysis of long-term historical performance numbers, current market conditions, and fundamental and economic factors.

For Financial Professional use only. Not for use with the public.

Confidential – Not for Further Distribution

RETIREMENT SPENDING

What Drives Retiree Spending?

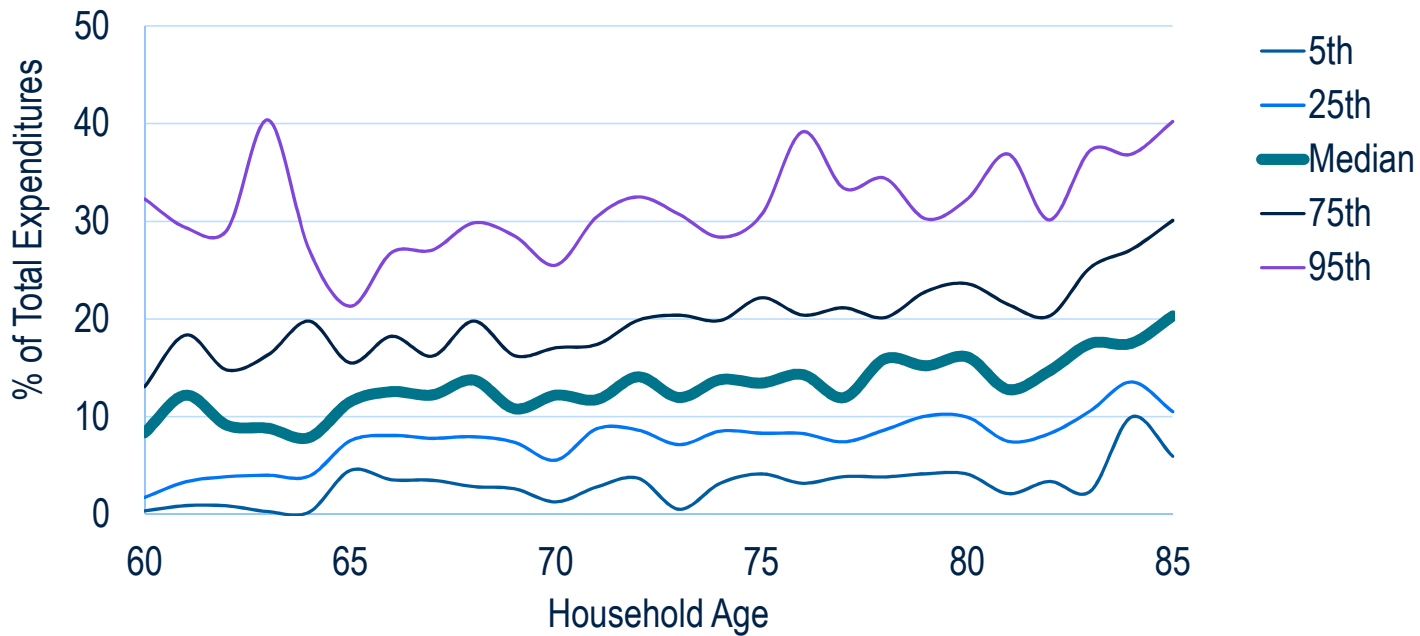


What They Buy



How Much They Spend

Health Expenditures as a Percentage of Total Expenditures Increase with Age

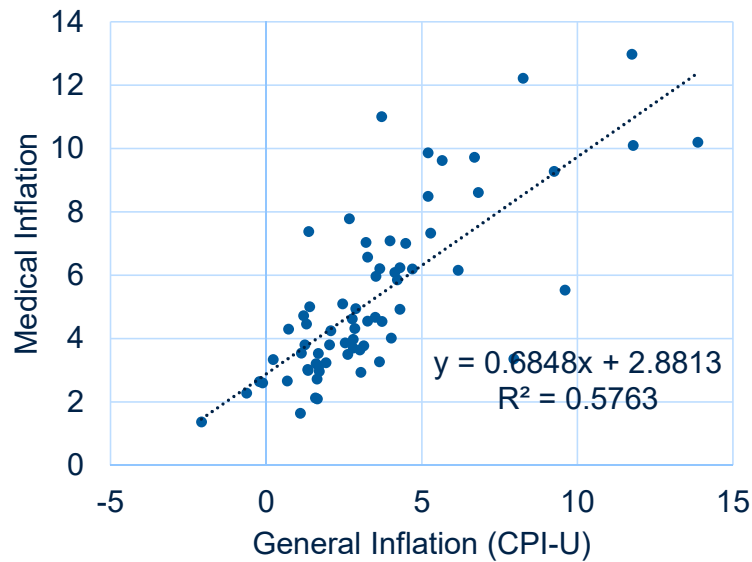


Source: "The Impact of Health Shocks on Retirement Spending" by David Blanchett, *Journal of Retirement*

Confidential – Not for Further Distribution

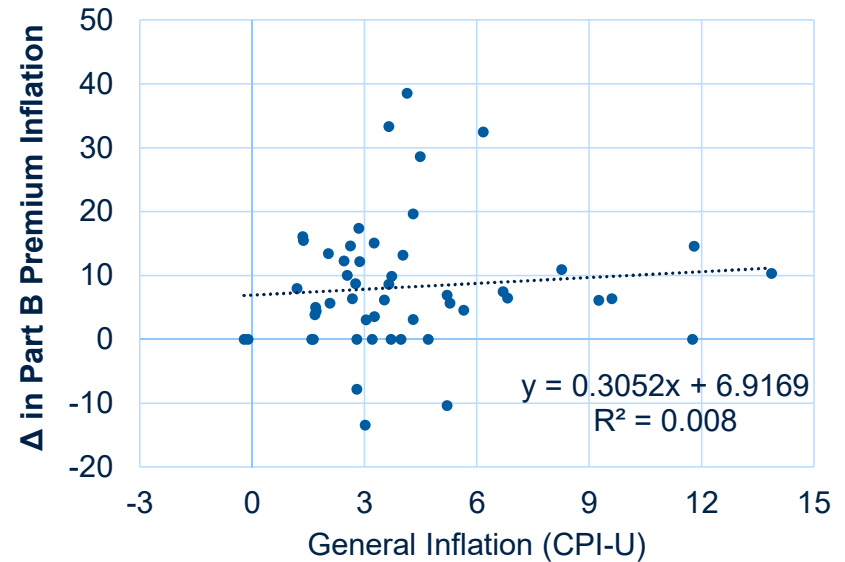
General Inflation (CPI-U) vs. Medical Inflation

Medical Inflation vs. General Inflation



5.3% versus 3.6% (~2% Higher)

Medicare Part B Premiums vs. General Inflation



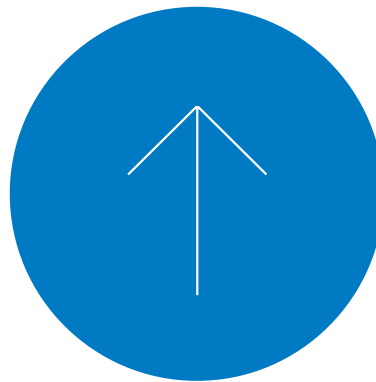
~6% versus ~2% (~4% Higher)

Base Expectation of Retiree Spending



Healthcare is an increasing component of total retiree spending

+



Healthcare expenses increase faster than inflation

=



Retiree spending increases faster than inflation

Inflation Risk: The Three “Stages” of Retirement



Go-Go: Retirees maintain lifestyle, travel, the group that does not consider themselves "old".

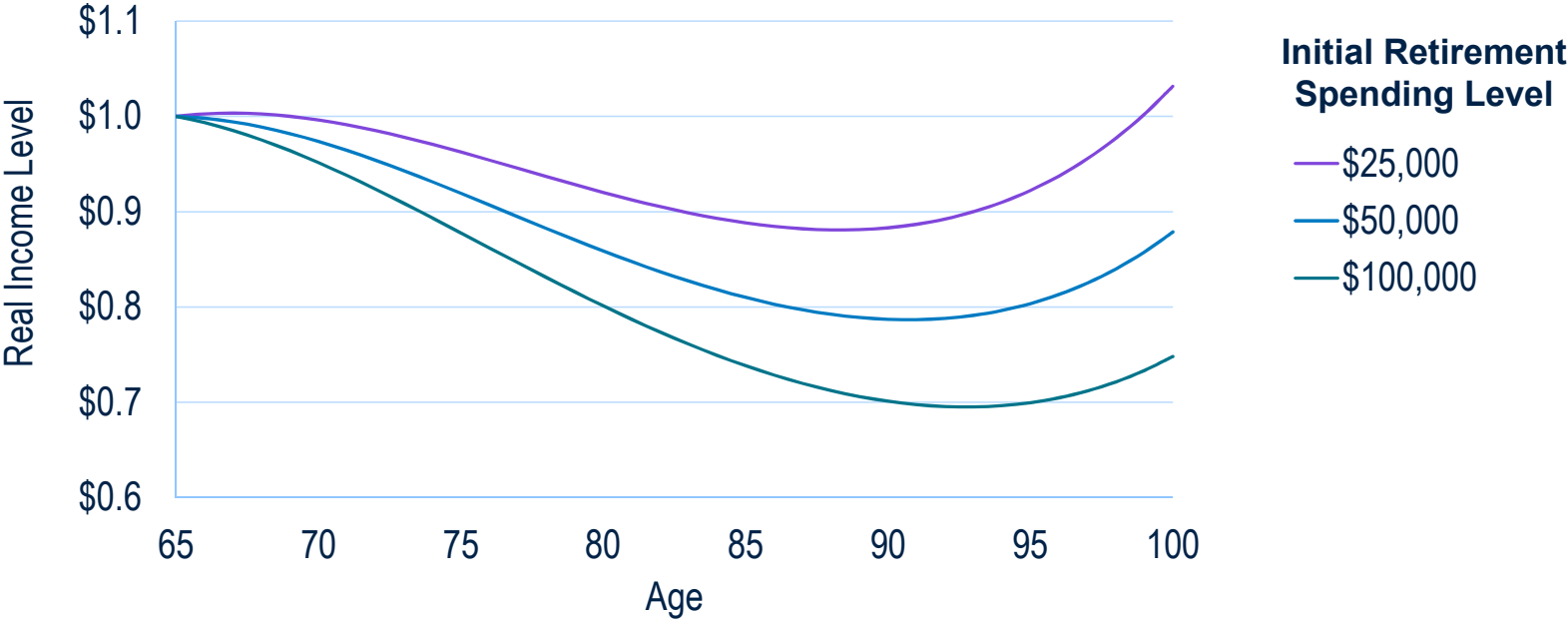


Slow-Go: Between the ages of 70 and 84, brought on by the body saying “Slow Down,” 20%-30% budget decline.



No-Go: 85+, significant changes in retirement lifestyle is generally brought on by health issues.

Inflation-Adjusted Spending for a Age 65 Retiree



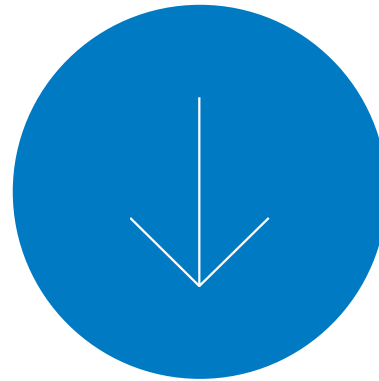
Source: "Exploring the Retirement Consumption Puzzle" by David Blanchett, *Journal of Financial Planning* (2014)

Actual Retiree Spending



What retirees spend
money on costs more

+



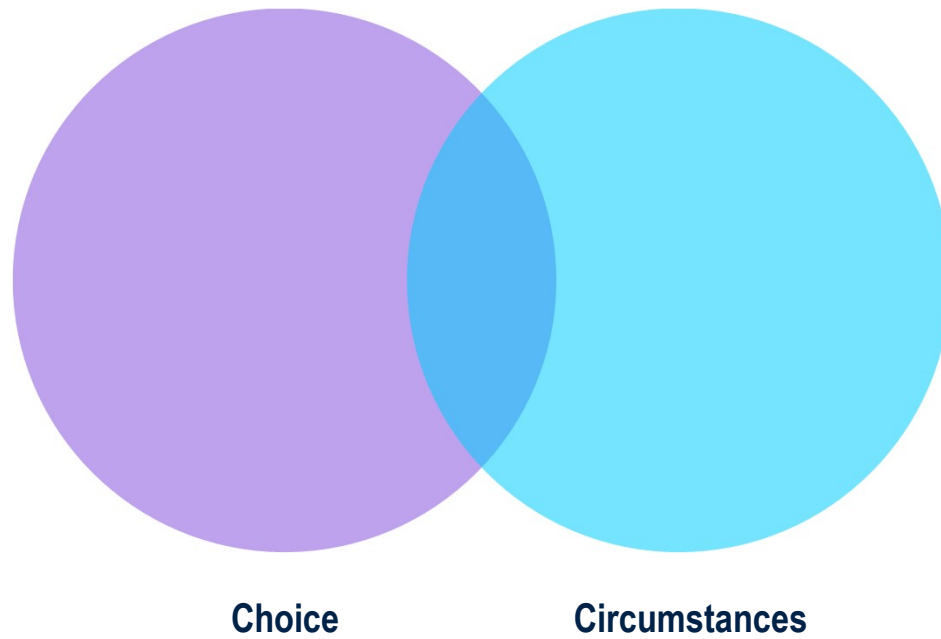
But they actually
spend less

=



Spending declines...
on average

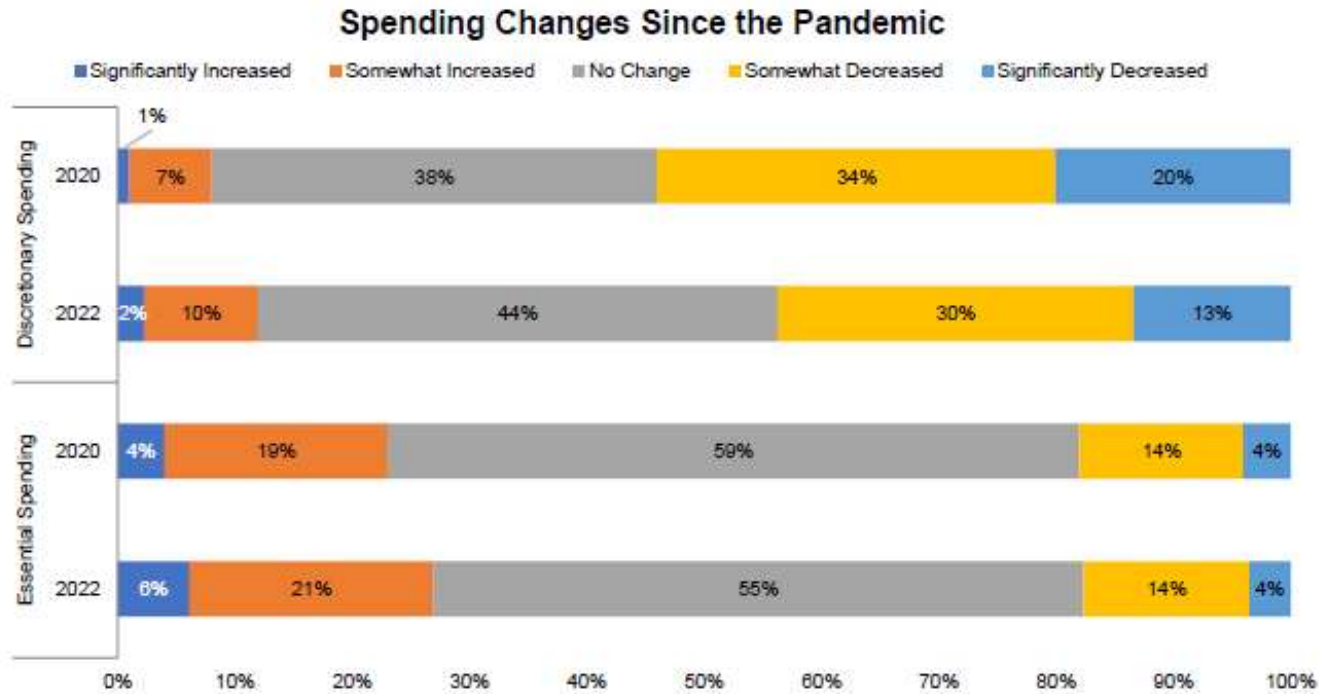
Spending Less: Why?



For illustrative purposes only.

Confidential – Not for Further Distribution

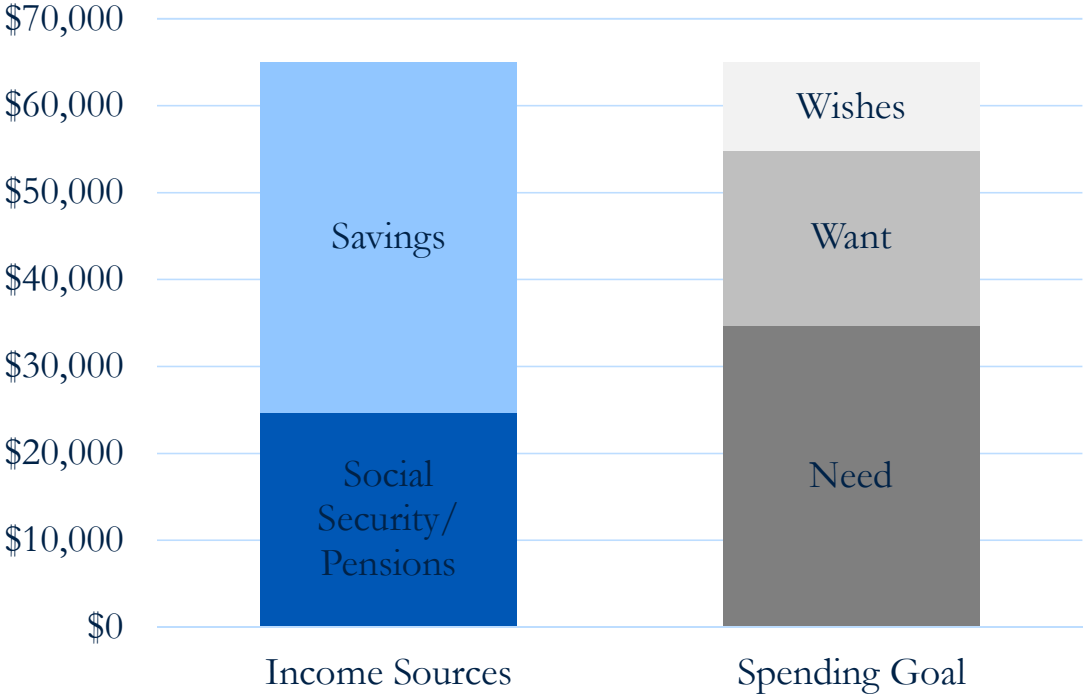
Spending Adjustments by Perceived Flexibility



Source: "2022 Spending in Retirement Survey: Understanding the Pandemic's Impact" by Bridget Bearden. EBRI White Paper. Available here: https://www.ebri.org/docs/default-source/ebri-issue-brief/ebri_ib_572_spendinginret-6oct22.pdf?sfvrsn=bba5382f_6.

Confidential – Not for Further Distribution

Matching Income and Assets



Source: "2022 Spending in Retirement Survey: Understanding the Pandemic's Impact" by Bridget Bearden. EBRI White Paper. Available here: https://www.ebri.org/docs/default-source/ebri-issue-brief/ebri_ib_572_spendinginret-6oct22.pdf?sfvrsn=bba5382f_6.

THE LENGTH OF RETIREMENT

The Length of Retirement

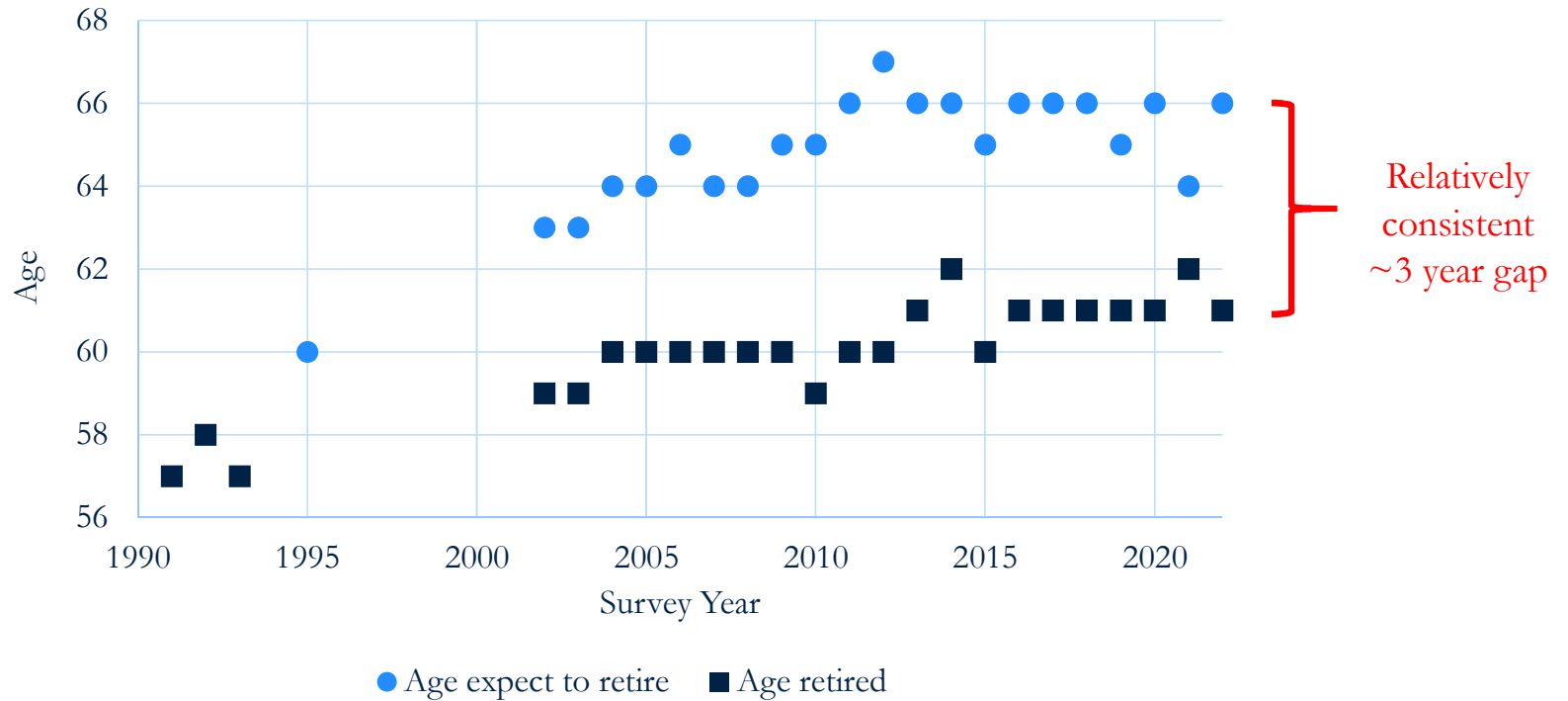


For illustrative purposes only.

Confidential – Not for Further Distribution

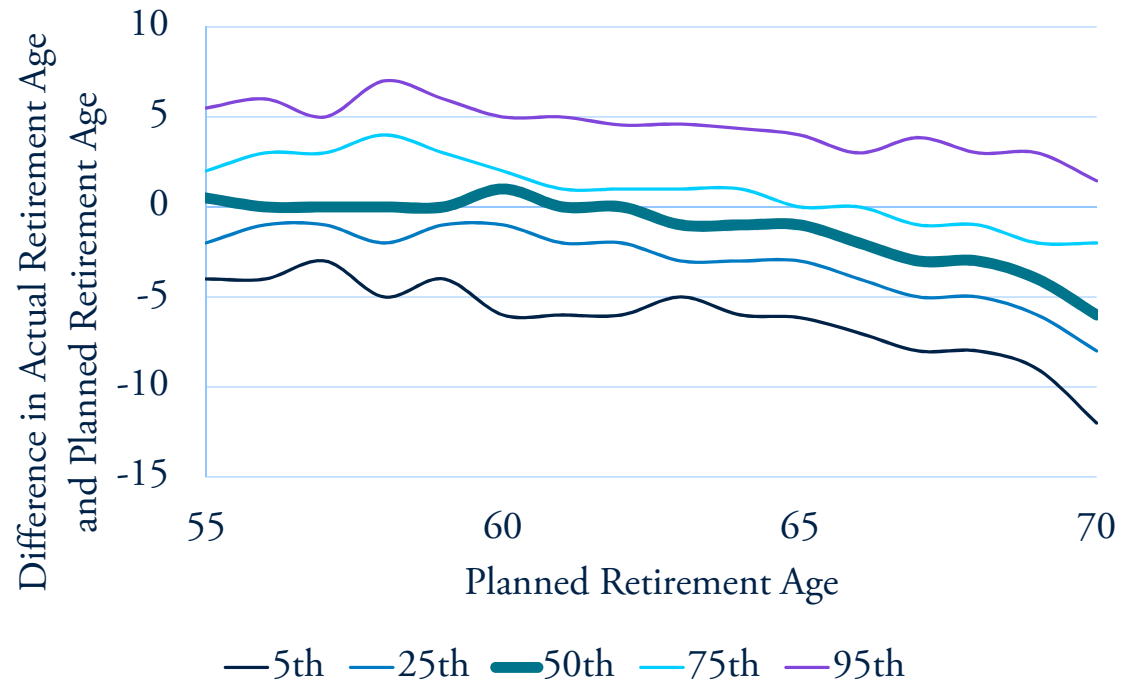
WHEN RETIREMENT STARTS

Retirement Expectations vs Reality



Source: <https://news.gallup.com/poll/394943/retiring-planning-retire-later.aspx>

Difference in Actual Retirement Age and Planned Retirement Age



Source: "The Impact of Retirement Age Uncertainty on Retirement Outcomes" by David Blanchett. *Journal of Financial Planning*.

Confidential – Not for Further Distribution

The Rule of 61

Individuals targeting a retirement:

- **before** age 61 tend to retire later (e.g., someone targeting to retire at age 57 will actually retire around age 58)
- **at** age 61 tend to retire approximately at that age,
- **after** age 61 generally retire approximately a half a year early for each additional year planned to work past age 61 (e.g., an investor targeting a retirement age of 69 would actually retire around age 65).

Planning for an Uncertain Retirement Age

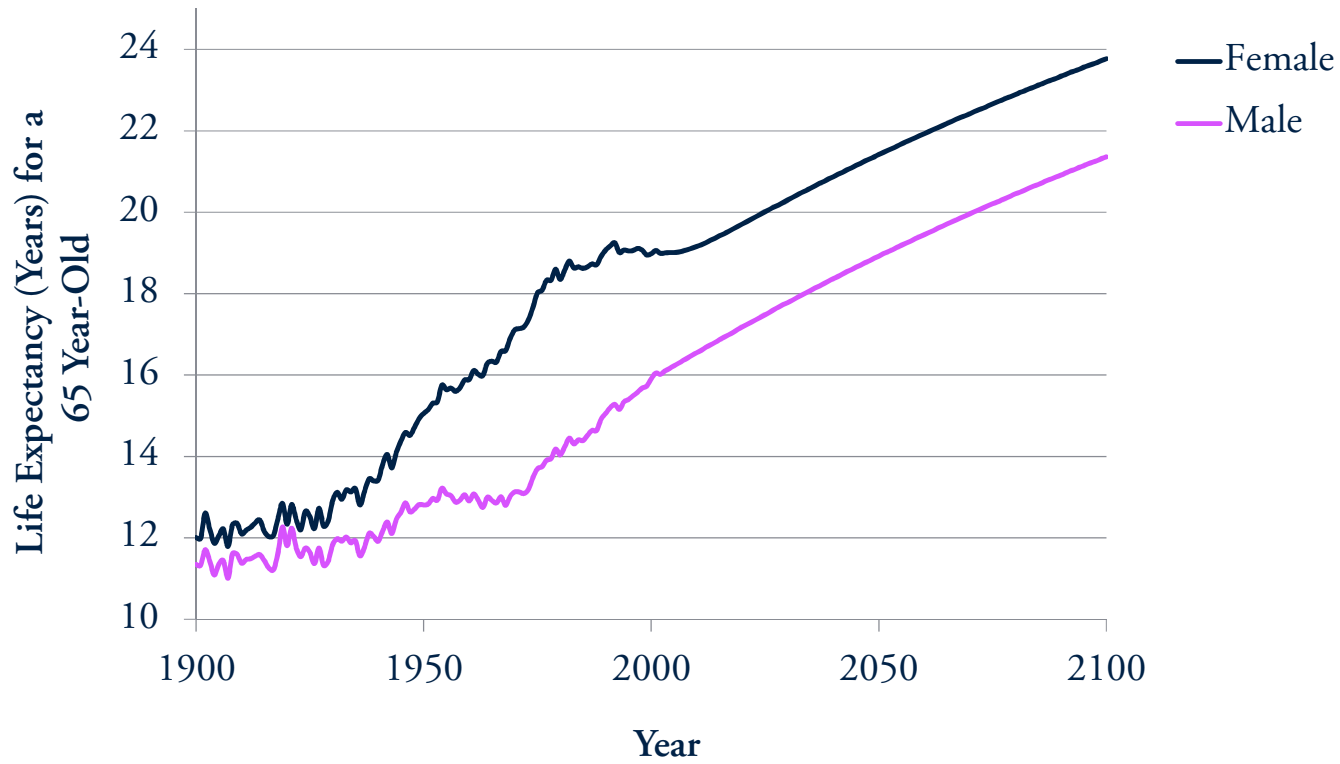


Source: "The Impact of Retirement Age Uncertainty on Retirement Outcomes" by David Blanchett. *Journal of Financial Planning*.

Confidential – Not for Further Distribution

WHEN RETIREMENT ENDS

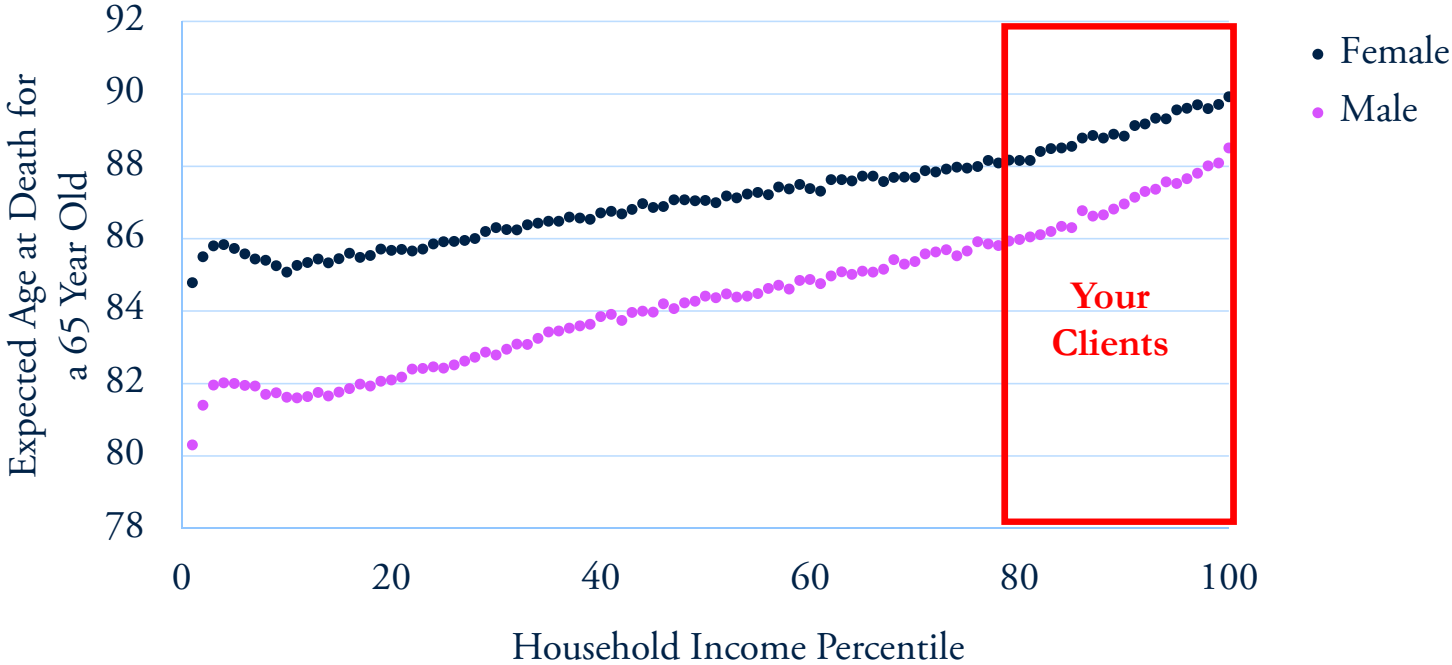
Life Expectancies Continue Increasing



Source: Social Security Administration. https://www.ssa.gov/oact/NOTES/as116/as116_V.html

Confidential – Not for Further Distribution

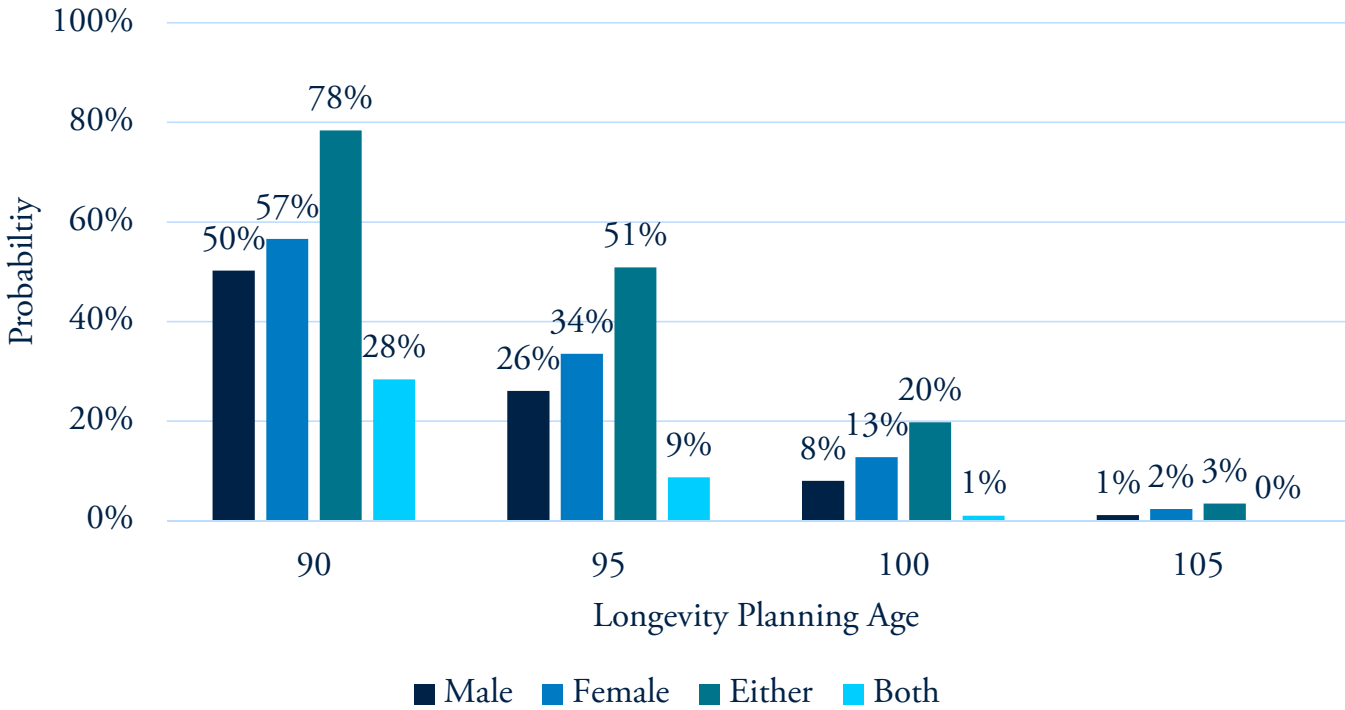
Life Expectancies by Income Level



Source: Health Inequality Project. <https://healthinequality.org>.

Confidential – Not for Further Distribution

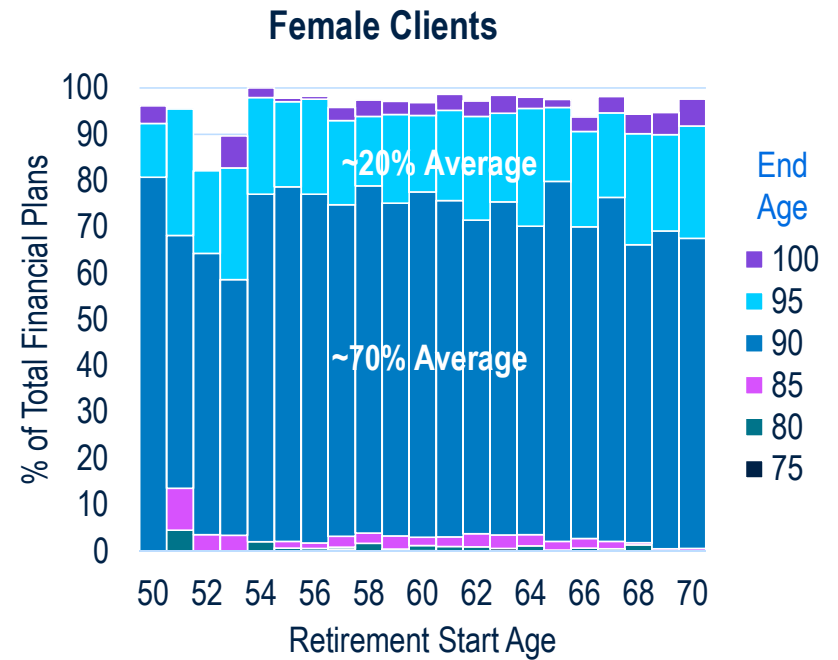
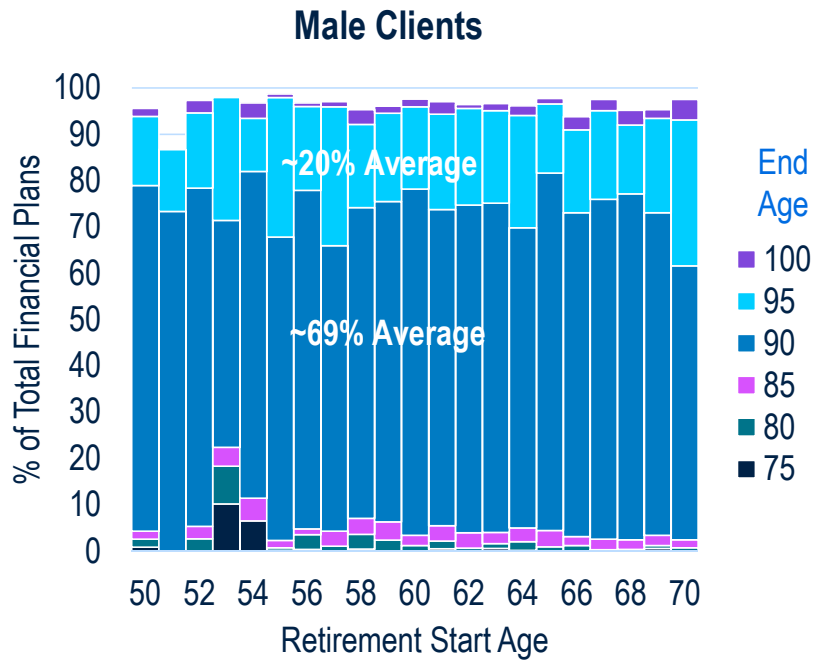
What the are Odds?... The Probability of a ~Healthy/Wealth 65 Year Old Living to Various Ages



Source: Society of Actuaries Individual Annuity Mortality (2012 IAM) Period Table with improvement to 2023

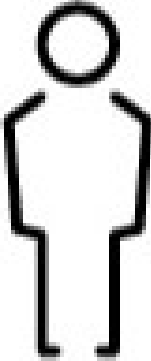
Confidential – Not for Further Distribution

Common Financial Planning Assumptions

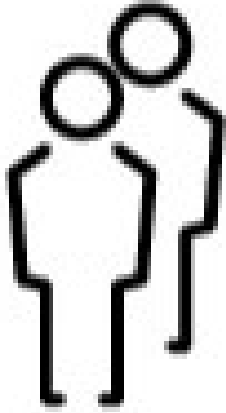


Source: "Estimating The End of Retirement" by David Blanchett. Morningstar Working Paper

Selecting “The End” of Retirement



~+5 years

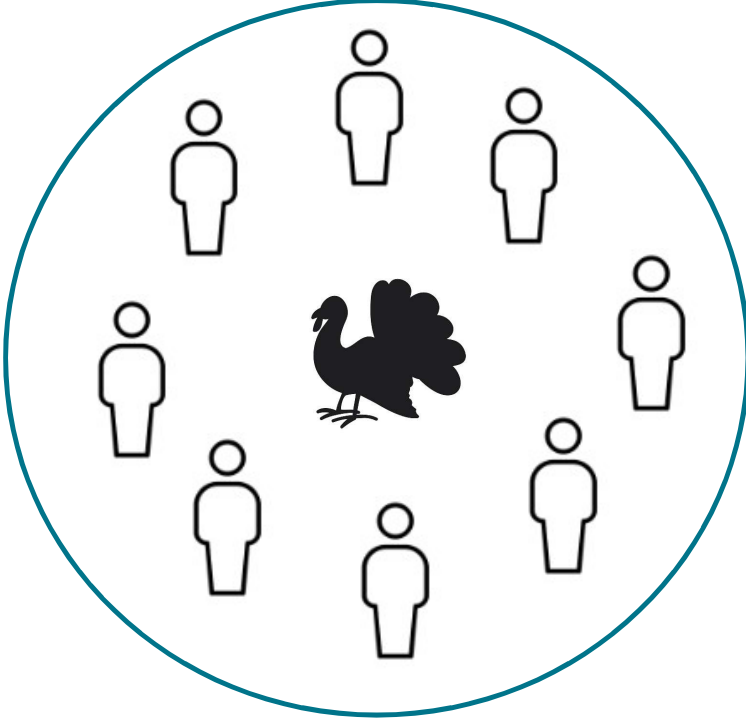


~+8 years if individual
+3 years if joint

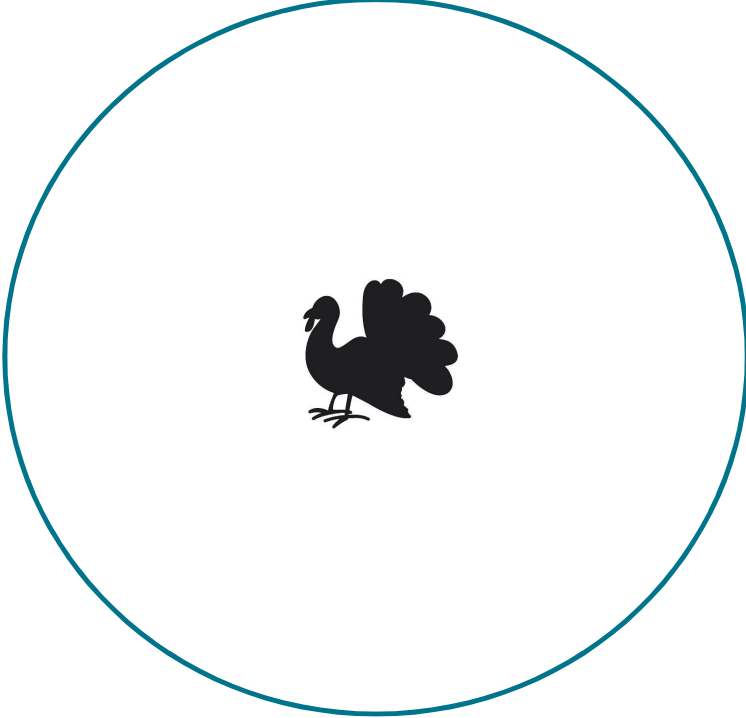
Source: *Estimating “The End” of Retirement* by David Blanchett (2021)

Inefficient Retirement Planning

Defined Benefit Plans



Defined Contribution Plans



For illustrative purposes only.

What About Annuities Personal Pensions?

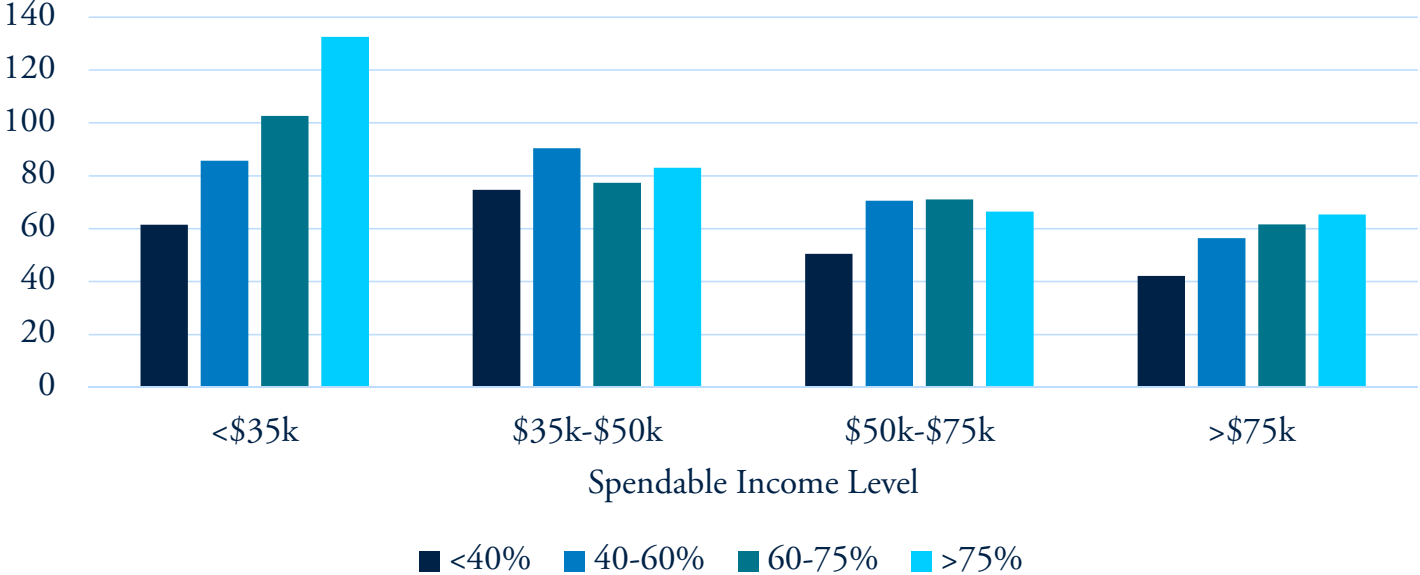


For illustrative purposes only.

Confidential – Not for Further Distribution

Guaranteed Income: A License to Spend in Retirement

Median Spending as a % of Spendable Income, by % of Wealth Held in Guaranteed Income and Spendable Income Level



Source: "Guaranteed Income: A License to Spend in Retirement" by David Blanchett and Michael Finke. Working Paper as of July 1, 2021.
 Confidential – Not for Further Distribution

The Best Place for Guaranteed Income Today

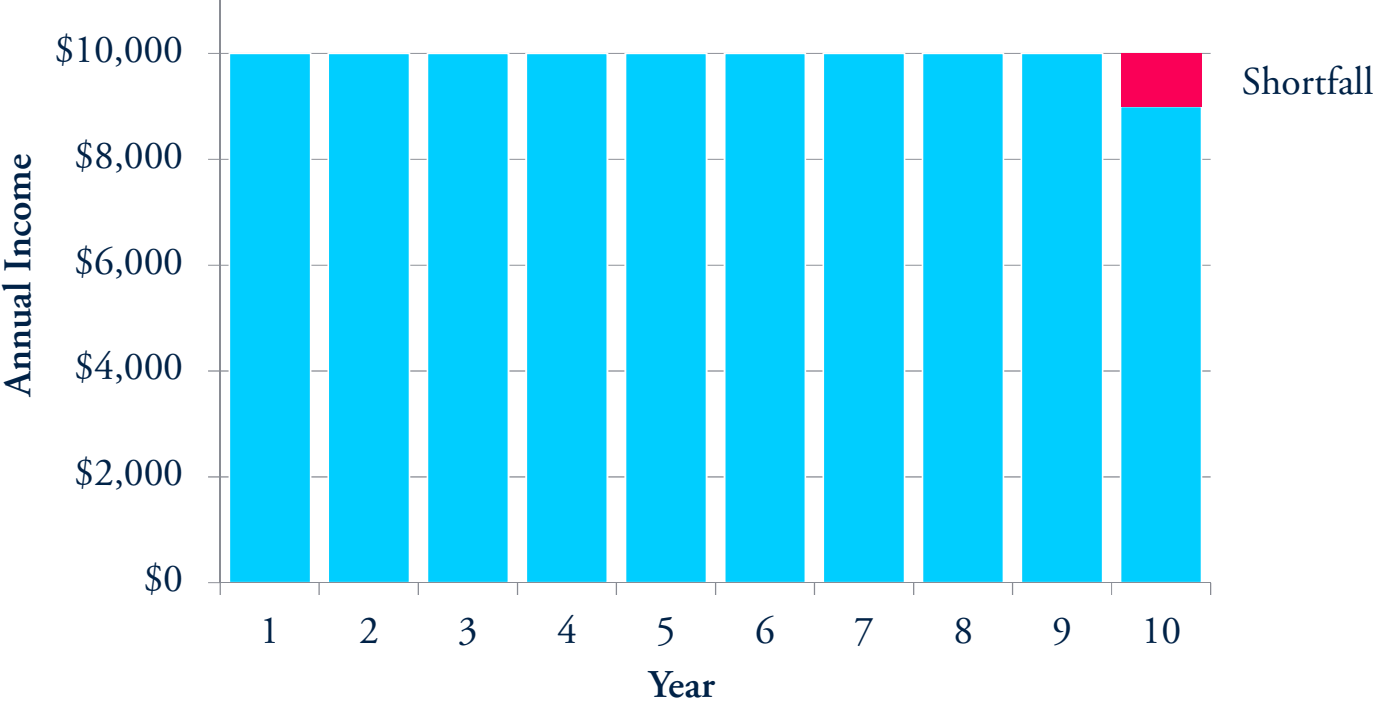


Source: Social Security Administration

Confidential – Not for Further Distribution

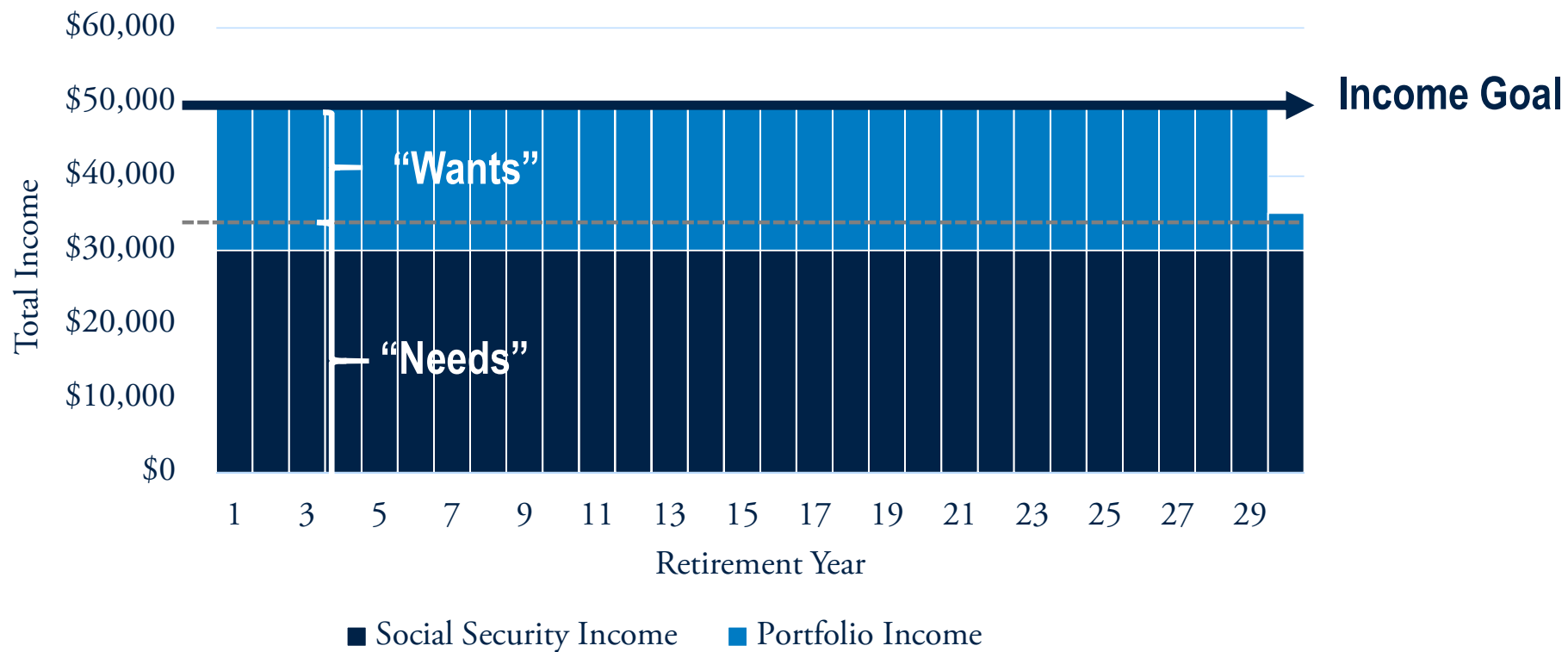
WHAT IS A “SAFE” INITIAL WITHDRAWAL RATE?

Failure... Oh My!



For illustrative purposes only.

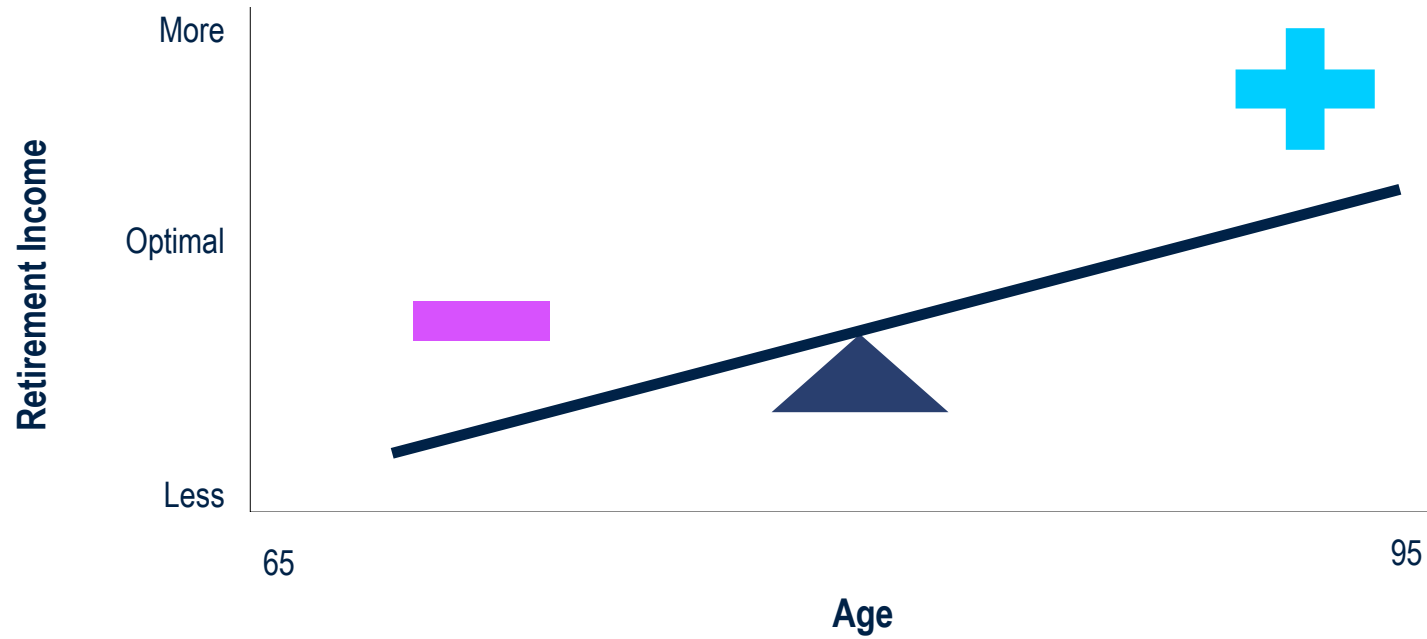
“Failure” in a Retirement Income Context



For illustrative purposes only.

Confidential – Not for Further Distribution

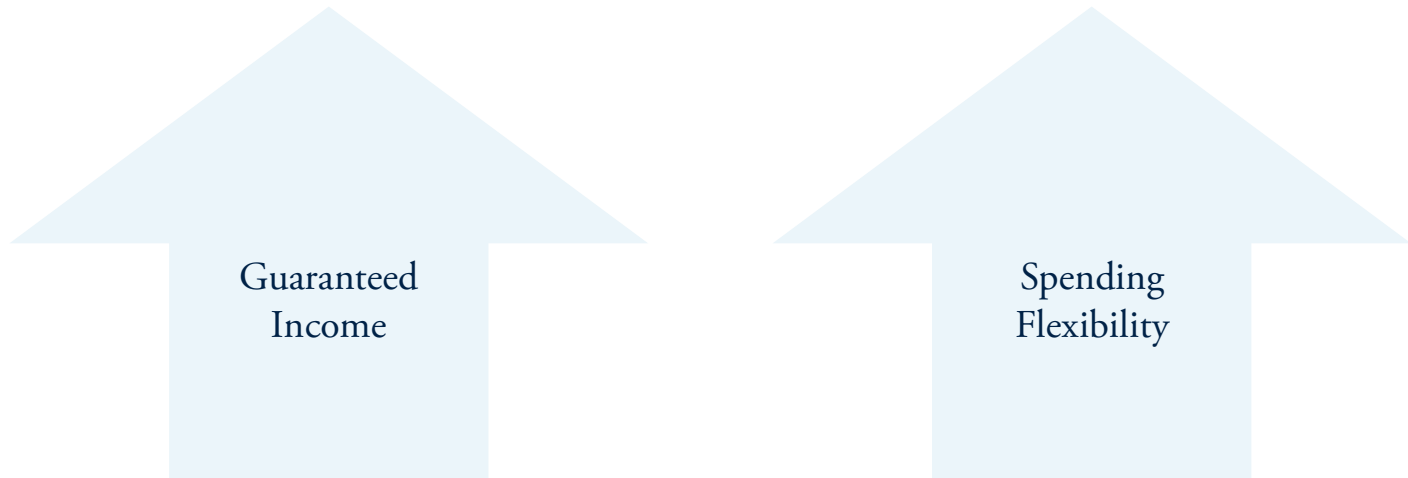
What About This?



For illustrative purposes only.

Confidential – Not for Further Distribution

What Drives True Safe Portfolio Initial Withdrawal Rates?

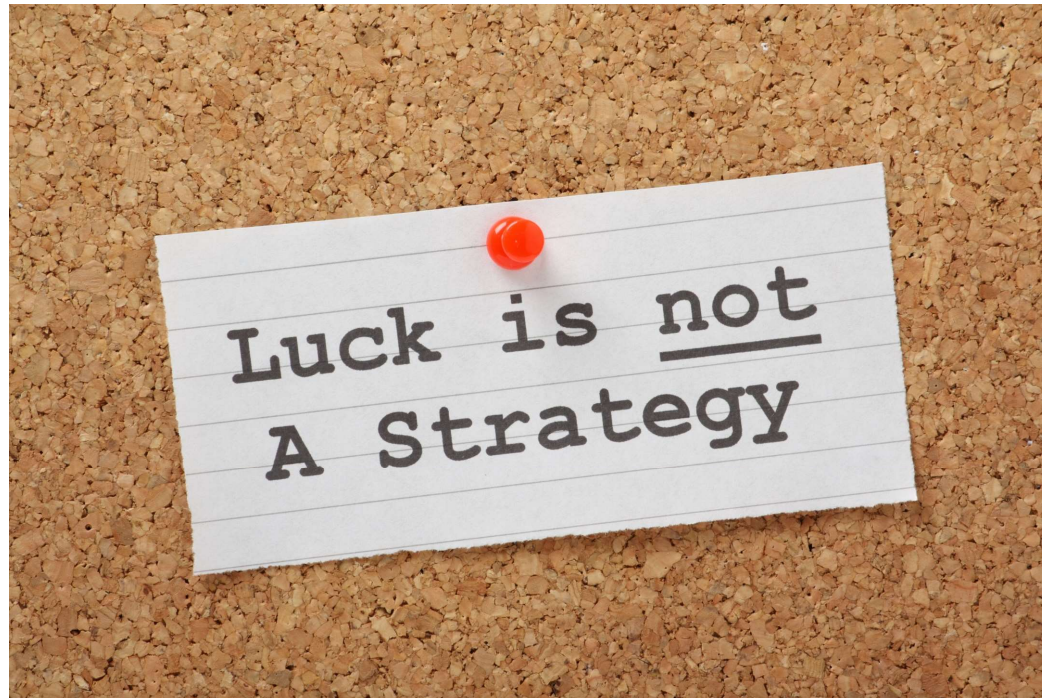


For illustrative purposes only.

Confidential – Not for Further Distribution

CONCLUSIONS

Some Perspective



For illustrative purposes only.

Confidential – Not for Further Distribution

Tips/Takeaways

- Use expected returns in forecasts, not historical... you can't buy the past
- The “4% Rule” isn't as “safe” as historical data suggests when using forward-looking projections (but that doesn't mean it's a bad starting place, I think 5% is probably more realistic today)
- Retirement spending doesn't increase by the full level of inflation, so it's probably ok to assume lower spending growth in retirement

Tips/Takeaways

- Retiree spending is flexible... this affects “safe” assumed spending levels
- Retirees who have savings generally aren’t “average” from a life expectancy perspective
- Different definitions of “failure” can lead to significantly different perspectives on “safe” withdrawal strategies

Disclosures



These materials are for financial professional use only and should not be further distributed by the recipient. Receipt of these materials by anyone other than the intended recipient does not establish a relationship between such person and PGIM DC Solutions LLC (“PGIM DC Solutions”) or any of its affiliates. **PGIM DC Solutions is not currently registered with the Securities and Exchange Commission as an investment adviser.** These materials are not intended as an offer or solicitation with respect to the purchase or sale of any security. The information presented is not intended as investment advice and is not a recommendation about managing or investing retirement savings. These materials do not take into account individual investment objectives or financial situations.

PGIM DC Solutions is a Delaware limited liability company and is a direct wholly owned subsidiary of PGIM Quantitative Solutions LLC and an indirect wholly-owned subsidiary of PGIM, Inc., the principal asset management business of Prudential Financial, Inc. of the United States of America (PFI). PFI of the United States is not affiliated in any manner with Prudential plc incorporated in the United Kingdom or with Prudential Assurance Company, a subsidiary of M&G plc, incorporated in the United Kingdom.

Annuities are issued by Pruco Life Insurance Company (in New York, by Pruco Life Insurance of Company of New Jersey), located in Newark, NJ (main office) and distributed by Prudential Annuities Distributors, Inc. located in Shelton, CT (main office).

These materials are for informational, illustrative and educational purposes only. This document may contain confidential information and the recipient hereof agrees to maintain the confidentiality of such information. Distribution of this information to any person other than the person to whom it was originally delivered is unauthorized, and any reproduction of these materials, in whole or in part, or the divulgence of any of its contents, is prohibited. The information presented herein was obtained from sources that PGIM DC Solutions believes to be reliable as of the date presented; however, PGIM DC Solutions cannot guarantee the accuracy of such information, assure its completeness, or warrant such information will not be changed. The information contained herein is current as of the date of issuance (or such earlier date as referenced herein) and is subject to change without notice.

These materials do not provide any legal, tax or accounting advice. These materials are not intended for distribution in any jurisdiction where such distribution would be unlawful. Certain information contained herein may constitute “forward-looking statements,” (including observations about markets and industry and regulatory trends as of the original date of this document). Due to various risks and uncertainties, actual events or results may differ materially from those reflected or contemplated in such forward-looking statements. As a result, you should not rely on such forward-looking statements in making any decisions. No representation or warranty is made as to future performance or such forward-looking statements.

© 2023 Prudential Financial, Inc. and its related entities. Prudential, the Prudential logo, the Rock symbol are service marks of Prudential Financial, Inc. and its related entities, registered in many jurisdictions worldwide.

PGIM DCS-DCS-20220523-45