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ABSTRACT

The shift to defined contribution savings plans means that more retirees must fund spending from savings. Prior studies find that there appears to be a behavioral resistance to spending down savings after retirement in a manner that is consistent with life cycle models. We explore how lifetime income, wage income, capital income, qualified savings, and nonqualified savings are used to fund retirement spending. We find that retirees spend far more from lifetime income than other categories of wealth. Approximately 80% of lifetime income is consumed, on average, versus only approximately half of other available savings and income sources. Overall, the analysis suggests that converting savings into lifetime income could increase retirement consumption significantly, especially for married households.

RETIREES SPEND LIFETIME INCOME, NOT SAVINGS

DAVID BLANCHETT AND MICHAEL FINKE

INTRODUCTION

The shift from defined benefit to defined contribution savings plans means that retirees must decide how much to spend from savings. Estimating how much income can be withdrawn from investments in retirement, particularly when paired with limited financial knowledge, an unknown lifespan, and an array of available financial resources to consider, including Social Security, pension, wages, and investment assets inside and outside of retirement accounts, is far more complex than the consumption decision of younger households who rely primarily on wages. This complexity may lead retirees to spend less than life cycle theory would suggest, resulting in reduced well-being and higher unintended bequests.

Differences in a retiree's willingness to consume from various categories of financial assets may help explain the observed "retirement consumption puzzle," in which retirees spend far less than they could safely withdraw from assets to fund spending if they do not have a strong bequest motive. Lifetime income sources such as Social Security, pensions, and private annuities remove both the uncertainty of longevity and the complexity of estimating a safe withdrawal rate from investment assets. This can explain why retirees spend far more when they hold a larger share of total wealth in lifetime income than if they hold wealth in investment assets (Blanchett and Finke, 2024).

Retirees should optimally spend less from non-annuitized assets because they must account for the possibility of living longer than average, which is a source of idiosyncratic risk (Mitchell, Poterba and Washawsky, 1999). However, retirees appear to spend significantly less from non-annuitized savings than economic theory would predict. Lower spending rates from investment assets may be a behavioral phenomenon that arises from aversion to uncertainty and complexity and the tendency to view a withdrawal from savings as a loss (Brown et al., 2013, Shu and Shu, 2018). This ambiguity aversion may be attenuated by low rates of financial lit-

eracy (Dimmock et al., 2016), resulting in a lower level of spending that reflects a behavioral response to the risk of asset depletion.

There appears to be a puzzling tendency to avoid decumulating investment assets after retirement. For example, Olafsson and Pagel (2024) find that individuals often avoid liquidation of assets after retirement despite a drop in income, and Coile and Milligan (2009) find that financial assets increase as a share of wealth after retirement. Love, Palumbo and Smith (2009) find that wealth measured as an annualized expected consumption value rises on average, and rises more rapidly for higher-income retirees, indicating lower spending than life-cycle theory would predict. The decrease in spending after retirement, also known as the retirement consumption puzzle, has been explained as a result of increased home production of goods like meals and reduced spending on work-related expenses (Aguiar and Hust, 2013), but cannot explain variation in rates of spending among categories of wealth.

Shefrin and Thaler (1988) point out that the assumption that investors are capable of estimating the welfare maximizing annual consumption from an investment asset given an unknown lifespan is unrealistic, and instead, that people tend to violate the principle of asset fungibility by spending wealth in the form of investment assets held in retirement accounts differently than wealth in the form of income, which is more likely to be consumed today. While the behavioral life cycle hypothesis attributes the tendency to consume more readily out of income as the result of effort needed to avoid the temptation to spend, it is also possible that the effort to consume an appropriate amount out of investment assets, or assets held in a qualified account framed as illiquid, may reduce the amount a retiree chooses to spend from this category of wealth. There is evidence that RMDs do increase retirees' willingness to spend from qualified accounts that they may otherwise frame as illiquid and not a source of ready consumption (Brown, Poterba and Richardson, 2017).

This paper explores how households use their available resources to fund consumption in retirement using data from the Health and Retirement Study (HRS) to evaluate whether retiree spending among categories of retirement assets varies by source. We also evaluate spending by qualified versus non-qualified accounts to see whether spending from non-annuitized wealth can be altered through mandatory distributions that allow retirees to reframe savings as income in order to explore the fungibility of savings.

Two broad categories of available financial resources (or assets) are considered: income and savings. Income is separated into three groups: lifetime income (Social Security retirement benefits, pension benefits, and annuity income benefits), earnings (wages and salaries), and capital income (which includes income from businesses, rental property, dividends and interest, and trust funds or royalties), while savings are broken out into qualified (defined contribution balances, IRAs, etc.) and nonqualified monies held in taxable accounts. We only include households with at least $100,000 in total financial assets (in 2019 dollars) in the analysis. A total of 7,498 observations across ten HRS waves are included. The relatively large sample makes it possible to control for age, which is especially important given how the composition of resources, and expected duration of retirement, changes at older ages.

The analysis provides relatively compelling evidence that retirees leverage resources differently to fund spending. Lifetime income sources appear to be the most effectively used, where approximately 85% of the income amount is spent, on average, among all households. In contrast to the more effective utilization of lifetime income, on average only about half of wages and capital income are spent by retirees, and spending levels decline as household financial assets increase.

Savings are spent at levels that would generally be considered less than optimal. For example, observed spending (i.e., withdrawal) rates from savings were only approximately 2.1% for 65-year-old married households (versus 1.9% for single households). This is significantly less than general guidance on portfolio withdrawal rates (e.g., the "4% Rule" for a 65-year-old couple) or the income that could be generated from an annuity. Savings appear to be generally used at levels that are roughly similar to wages and capital income, whereby only around half of the monies are consumed. Note, this less-than-optimal consumption rate further declines in utilization at older ages, especially for nonqualified savings (which are not subject to RMDs).

We find that households with higher lifetime income benefits tend to have higher portfolio withdrawal rates. Additionally, using a relatively simple model we estimate consumption could increase by approximately 80% for retirees if assets were converted to lifetime income streams, where the improvement rates are significantly higher for joint households.

Overall, these findings have important implications for the current and future state of retirement in the United States given the rise of defined contribution (DC) plans as a more prevalent funding source for retirement. DC plans are principally focused on growing assets and typically are not explicitly focused on generating/funding income. Therefore, unless steps are proactively taken to ensure retirees effectively use savings to fund spending, this analysis suggests households are likely to continue underconsuming in retirement, potentially at even greater levels noted in this analysis (and past research) as the importance of personal savings for retirement increases.

LITERATURE REVIEW

Given the rising use of defined contribution (DC) plans, such as 401(k)s and 403(b)s, workers are increasingly responsible for funding their own retirement. This is in contrast to the declining use of private defined benefit (DB) plans, where the responsibility for funding retirement falls primarily on the plan sponsor. DC plans provide an investor a lump sum at retirement that households must not only determine how to invest, but also much can be spent annually. Determining an appropriate spending level requires a number of relatively complicated assumptions, such as how long someone is going to live, what future market returns will be, etc.

Given the uncertainties associated with using savings to fund retirement, it is not surprising that retirees tend to underspend. Research supports this. For example, Browning et al. (2016) find a "retirement consumption gap" ranging from 8% to over 50% depending on household wealth levels, and that the effect persists even after considerations such as spending risks and bequests are factored in.

De Nardi, French, and Jones (2010) note that retired U.S. households, especially those with higher income levels, decumulate their net worth at a slower rate than that implied by a basic life-cycle model in which the time of death is known. Poterba, Venti, and Wise (2010) explore the "potential additional annuity income" that households could purchase given their holdings of non-annuitized financial assets at the start of retirement, finding that 47% of households between the ages of 65 and 69 in 2008 could increase their life-contingent income by more than $5,000 per year. They note the effect is especially pronounced at the upper end of the wealth distribution.

Banerjee (2018) notes that while most retirees do spend down their assets in the first 18 years following retirement, about one-third of all sampled retirees had increased their assets over that period. It is not entirely clear why some households seem averse to accessing savings to fund consumption. The Society of Actuaries (2020) interviewed retirees and noted that most respondents wanted to maintain or increase asset levels and only 18% indicated a desire to spend down assets.

There are a variety of potential reasons to explain why some retirees under-consume, such as the desire to leave a bequest, uncertain medical expenses (especially late in retirement), uncertain life expectancy, etc. However, research suggests that a consumption gap persists even after controlling for these effects. For example, only 25% of retirees cited an explicit bequest motive (Browning et al. 2016), while medical expenses were not large enough to justify preserving such a large percentage of assets (Nordman et al. 2016). Spending cutbacks to self-insure against the tail risk associated with medical costs or advanced age is clearly suboptimal when products exist to pool these risks. The aversion to decumulation in Olafsson and Pagel (2024) cannot be attributed to the fear of future health expenses because the Icelandic population analyzed receives comprehensive public healthcare.

Most research on the benefits of annuities is based on the economic efficiency of pooling longevity risk. There may be additional behavioral benefits from increasing a retiree's share of wealth allocated to guaranteed income. For example, Blanchett and Finke (2024) find that households with higher shares of total economic wealth tend to spend more of their available assets in retirement, i.e., that guaranteed lifetime income provides retirees with a "license to spend."

One explanation for lower than optimal spending is the general dislike of spending down wealth during retirement. For example, while research commonly assumes retirees will spend down savings in retirement, research from EBRI (2023) notes that only 7% of retirees plan to spend down their assets, while 49% are going to try to maintain their asset level, 27% are going to try to increase their asset level, and 17% either didn't know or had no assets.

The persistence of the apparent underspending of retirement wealth even after considering a range of rational life-cycle explanations may be supported by mental accounting. Individuals tend to view money held in savings accounts differently than wealth held in the form of income. For example, Brown et al. (2008) find that the percentage of subjects who preferred to annuitize increased from 21% to 72% simply by framing the goal of retirement savings as income rather than accumulated wealth. This finding is consistent with the concept of choice bracketing. Rather than viewing choices that interact with one another to impact utility as separate and unrelated, individuals appear to instead exhibit narrow bracketing in which only choices are viewed as separate, without fully considering the consequences of interaction (Read et al., 1999). For example, individuals may focus on avoiding loss or increasing the value of saving without fully considering that investments can only be used to either fund consumption while alive or passed on to others after death.

Retirees who are behaviorally resistant to spending down savings may better achieve their lifestyle goals by increasing the share of wealth allocated to annuitized income. This could take the form of delayed claiming of Social Security retirement benefits, choosing a job with an employer-sponsored pension, or purchasing an income annuity. Annuities not only can reduce the risk of an unknown lifespan, but they can also allow retirees to spend their savings without the discomfort generated by seeing one's nest egg get smaller.

Despite decades of research on the potential benefits and value of annuities, few retirees purchase them. The widespread failure to annuitize despite clear theoretical benefits is referred to by economists as the "annuity puzzle" (Benartzi, Previtero and Thaler, 2011).

This paper aims to add to the literature by specifically evaluating how different household resources (or assets) are used to fund consumption in retirement. We hypothesize that retirees who bracket investment wealth differently than wealth held as annuitized income will spend a higher percentage of wealth from annuitized assets. In order to evaluate whether policy can reduce underconsumption of investment assets that arise from narrow bracketing, we explore differences in spending from qualified savings increases when retirees are forced to make annual withdrawals that are taxed as income.

DATASET

Data for this analysis is from the Health and Retirement Study (HRS), more specifically the RAND HRS v1 Longitudinal File 2020 dataset and the RAND HRS CAMS Data 2019 dataset.[1] The HRS is a longitudinal household survey conducted by the Institute for Social Research at the University of Michigan that surveys a representative sample of approximately 20,000 people in America over the age of 50, supported by the National Institute on Aging (NIA U01AG009740) and the Social Security Administration. It has been administered on a biennial basis since 1992.

This analysis uses income, assets, and demographic data specifically from the RAND HRS Longitudinal File and spending (i.e., consumption) from the RAND Consumption and Activities Mail Survey (CAMS) Spending Data. The RAND HRS Longitudinal File is a user-friendly version of a subset of the HRS and the RAND CAMS is a user-friendly version of Part B of the CAMS survey.

The analysis considers HRS waves five (2000) through 14 (2018). The HRS wave five was conducted in 2000 and the first CAMS survey wave was conducted in 2001. When matching the spending from the CAMS dataset to the income and assets data from the HRS, the previous year is used (i.e., the 2001 consumption values would be matched against the 2000 HRS values). The last year of

1. Access the HRS data here: https://hrsdata.isr.umich.edu/data-products/rand.

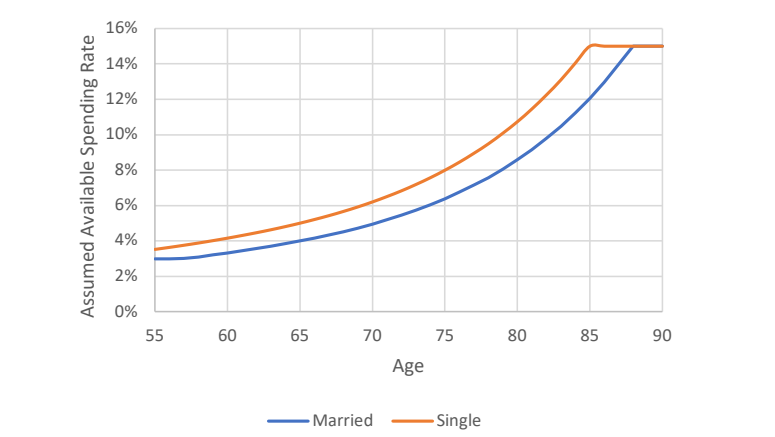


EXHIBIT 1. *Base Assumed Available Spending Rates from Savings*

Source: *Authors' Calculations*

available CAMS data is 2019, which is why the 2020 HRS data is not included. Each wave is effectively considered as an independent observation for the analysis (i.e., the panel aspect of the HRS is not).

In order to be included in the analysis the household must have total consumption (which is the proxy used for spending) greater than $10,000 (in 2019 dollars; all calculations are converted to 2019 dollars) and total financial assets greater than $100,000 (also in 2019 dollars). Two broad categories of resources (or assets) are considered: income and savings. Income is separated into three groups: lifetime income (e.g., Social Security retirement benefits, pension benefits, and annuity income benefits), earnings (i.e., wages and salaries), and capital income (which includes income from businesses, rental property, dividends and interest, and trust funds or royalties), while savings are broken out into qualified (e.g., defined contribution balances, IRAs, etc.) and nonqualified monies. The combined income from lifetime income, wage income, and capital income must be within 5% of the total household income, as estimated by the HRS.

Furthermore, the household must be spending within some reasonable level given its resources. Assets are converted into potential income using a variation of the "RMD rule" based on male life expectancies in the Social Security Administration's Period Life Table,[2] 2019. The initial estimated withdrawal rates (which is simply one divided by the life expectancy, by age) are further

INSTANCES	COUNT
1	823
2	474
3	373
4	264
5	205
6	150
7	103
8	69
9	36
10	3
UNIQUE	**2,500**
TOTAL	**7,498**

EXHIBIT 2. *Test Households*

Source: *2020 Health and Retirement Study, Accessed March 22, 2024, Authors' Calculations.*

2. Access the 2019 Social Security Administration's Period Life Table here: https://www.ssa.gov/oact/HistEst/PerLifeTablesHome.html

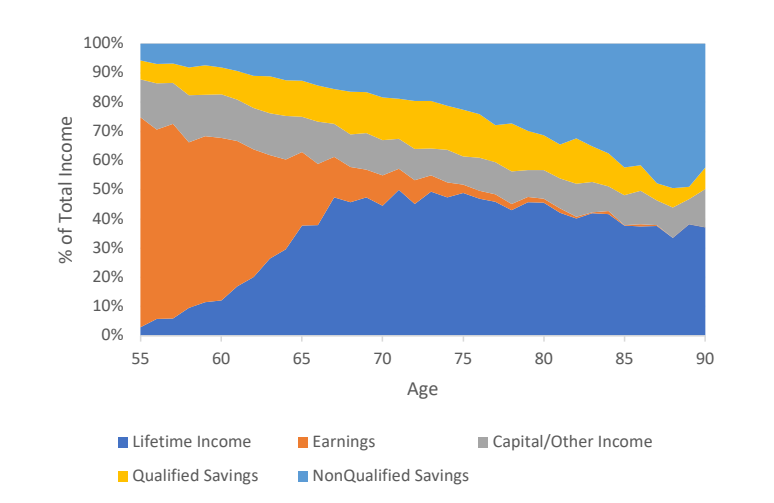


EXHIBIT 3. *Resources to Fund Retirement Spending, by Age*

Source: *2020 Health and Retirement Study, Accessed March 22, 2024, Authors' Calculations.*

adjusted by a constant factor (.723) so that the implied withdrawal rate for a 65-year-old married couple was 4%, consistent with the "4% Rule" commonly noted by the media. The implied withdrawal rates for a single individual are calibrated so that the implied withdrawal rate for a 65-year-old would be 5% (which required an adjustment factor of .905). A minimum 3% and maximum 15% withdrawal rate are also assumed. The respective withdrawal rates between ages 55 and 90 are included in Exhibit 1 for reference purposes.

The household must be spending at least 25% and not more than 400% of the resources available (jointly considering income and assets) to be included in the analysis. This eliminates households that are significantly over or under consuming (i.e., the outliers).

A total of 2,500 households met the required constraints, resulting in a total of 7,498 observations (since some households could be included more than once). Exhibit 2 includes the number of instances for the analysis.

Appendix 1 includes a breakdown in terms of total observations by age and marital status. For married individuals, the assumed age is the average of the spouses.

Breaking out households into individual ages is important given how the composition of household resources changes by age, as demonstrated in Exhibit 3, which includes the average income available across sources for all households. Income available from savings is determined using the factors provided in Exhibit 1.

Earnings are clearly the predominant resource to fund spending for individuals who are age 60 or younger; however, by the age of 85, earnings represent less than 1% of available resources, on average. The change in the composition of resources to fund consumption is likely to affect retirees differently, especially since the uncertainties around things like future lifespan and market concerns has different implications for different types of resources.

REGRESSION MODEL

The analysis largely relies on a series of ordinary least squares (OLS) regressions where the dependent variable is consumption, which we use as a proxy for total spending. While there is a separate total spending variable available in the HRS, we leverage the consumption

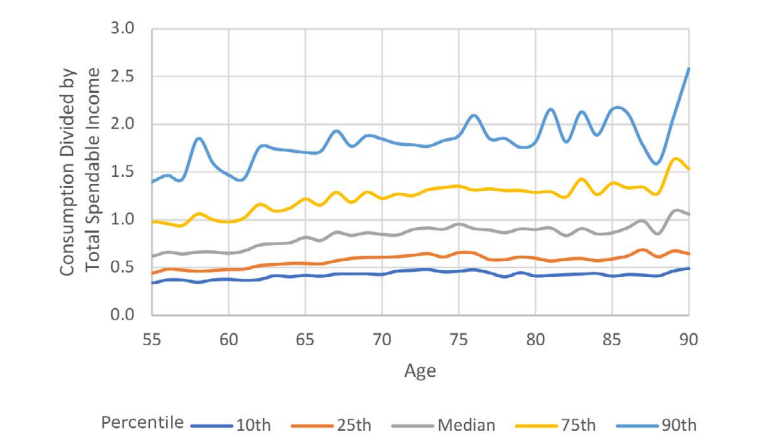


EXHIBIT 4. *Spending Efficiency*

Source: *2020 Health and Retirement Study, Accessed March 22, 2024, Authors' Calculations.*

variable because it amortizes the potential utility from spending on consumer durables, where the purchase occurs in a single period, but the benefits are also realized in future periods.

The independent variables for the regressions are the respective resources available to fund spending, which are income and savings. These components are considered either individually (e.g., lifetime income, wages, and capital income) or pooled (all income sources), depending on the particular model.

For each OLS regression, the intercept is assumed to be zero. This is because we are attempting to determine how each resource is used to fund spending and the spending must have a source (the money must come from somewhere!). Regressions are generally performed separately for individual ages (or potentially similar groups of ages), as well as by marital status, so that the only independent variables included in the regressions are the resources to fund the respective consumption. While other household attributes are likely related to spending, such as education and health status, for example, we are solely focused on the assets that drive spending. All regressions include weights.

Coefficients are relayed graphically in the main body of the text so they can more easily be interpreted, although the actual regression coefficients and information about statistical significance are included in the Appendices. We are generally more interested in the trend of coefficients across ages versus a single individual regression, though.

OVERALL SPENDING EFFICIENCY

Before exploring how retirees are using their different individual resources to fund spending, we first explore how total spending compares to total available resources, which is the sum of all income plus the potential income that could be generated from savings, using the withdrawal rates noted in Exhibit 1.

The percentage of total spending (i.e., consumption) divided by the total available income is called "spending efficiency." A household with a spending efficiency value of one would generally be assumed to be spending at a rate that is consistent with available resources. A household with a spending efficiency value above one would be spending at a rate that is above available resources (i.e., potentially unsustainable long term unless future reductions are made), while a household with a spending efficiency value less than one would be underspending. Research has largely noted retirees underspend on average (i.e., the "retirement consumption puzzle") and address this potential issue first.

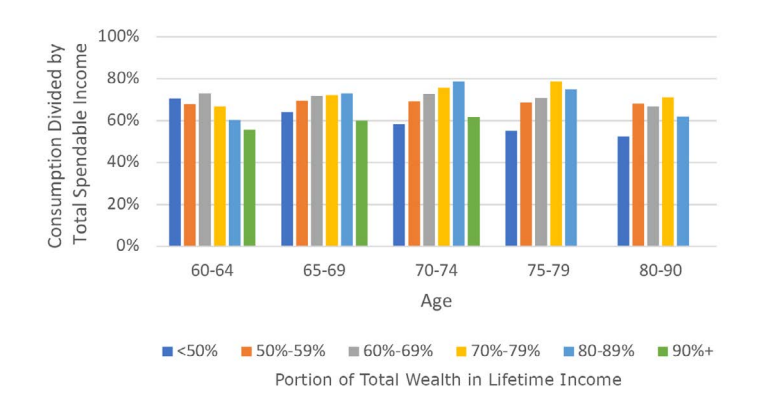


EXHIBIT 5. *How Spending Efficiency Varies by Age and the Portion of Total Wealth in Lifetime Income*

Source: *2020 Health and Retirement Study, Accessed March 22, 2024, Authors' Calculations.*

Exhibit 4 includes the distribution of spending efficiency values across ages in the analysis (pooling married and single individuals). Percentiles are included to provide some context as to the distribution of spending levels. For reference purposes, the 10th percentile in Exhibit 4 (for a given age) would be the spending efficiency value for the lowest 1 in 10 households while the 90th percentile would be the spending efficiency value for the highest 1 in 10 households. For example, the 10th percentile spending efficiency value at age 65 is .47. This means the household only spent approximately 47% of the income potentially available.

The values in Exhibit 4 suggest households are underspending on average, given the fact the median spending efficiency is consistently below one. These findings are generally consistent with the notion of a "retirement consumption puzzle." There is evidence that households spend more efficiently as they move through retirement, though, since the spending efficiency value increases with age, albeit persistently remaining below one.

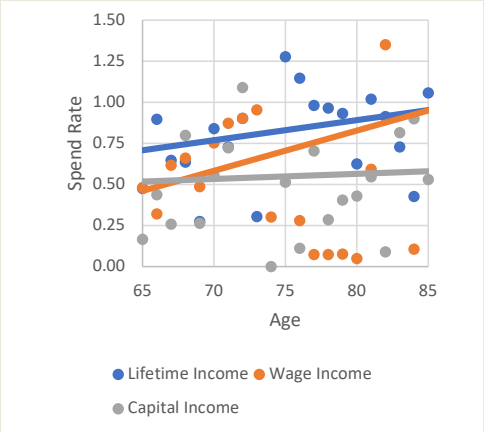
Note, the spendable income estimate used in the spending efficiency is not adjusted for taxes. Additionally, individuals who are working may be saving for retirement. This is likely at least a partial explanation for why the spending efficiency value is less than one for respondents in their 50s.

Exhibit 5 provides context for how spending efficiency changes by age and depending on the percentage of total wealth that is derived from income, which would include lifetime income, wage income, and capital income. For this calculation, the total income is divided by the total available resources, which is the total income plus the income that could be derived from savings (using the values from Exhibit 1).

We can see in Exhibit 5 there is no meaningful relation in terms of how spending changes, as higher fractions of wealth are likely from income (versus assets) still being earned for those under the age of 65. Individuals under the age 65 would generally be working and not using financial assets for consumption (i.e., they are being saved for retirement); therefore, these results are not necessarily surprising.

There is a clear effect, though, whereby households that have a larger portion of wealth in income are spending more at older ages. For example, if we just focus on households between the ages of 70 and 74, the spending efficiency value is only approximately 60% for households with less than 50% of total resources in income while spending efficiency is roughly 80% for households with 80-89% of total resources in income.

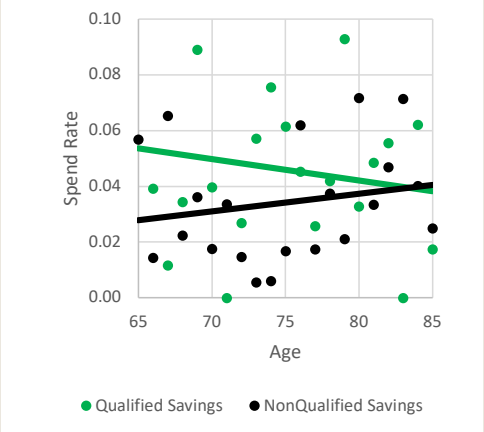
PANEL A: SINGLE HOUSEHOLDS



PANEL B: MARRIED HOUSEHOLDS

EXHIBIT 6. *Income Subgroup Spend Rates, All Households*

PANEL A: SINGLE HOUSEHOLDS



PANEL B: MARRIED HOUSEHOLDS

EXHIBIT 7. *Asset Subgroup Spend Rates, All Households*

Source: *2020 Health and Retirement Study, Accessed March 22, 2024, Authors' Calculations.*

ANALYSIS RESULTS

In this section we provide context as to how households are leveraging resources to fund consumption in retirement based on a series of OLS regressions. As a reminder, the dependent variable in the regression is total consumption and the independent variables vary depending on the respective test.

Exhibits 6 and 7 break out the spending rates at more granular levels. Exhibit 6 includes spend rates for lifetime income, wage income, and capital income for single households and married households in Panels A and B, respectively, by age. Exhibit 7 includes the spend rates for qualified and nonqualified savings for single households and married households in Panels A and B, respectively, from the ages of 65 and 85 (we only in-

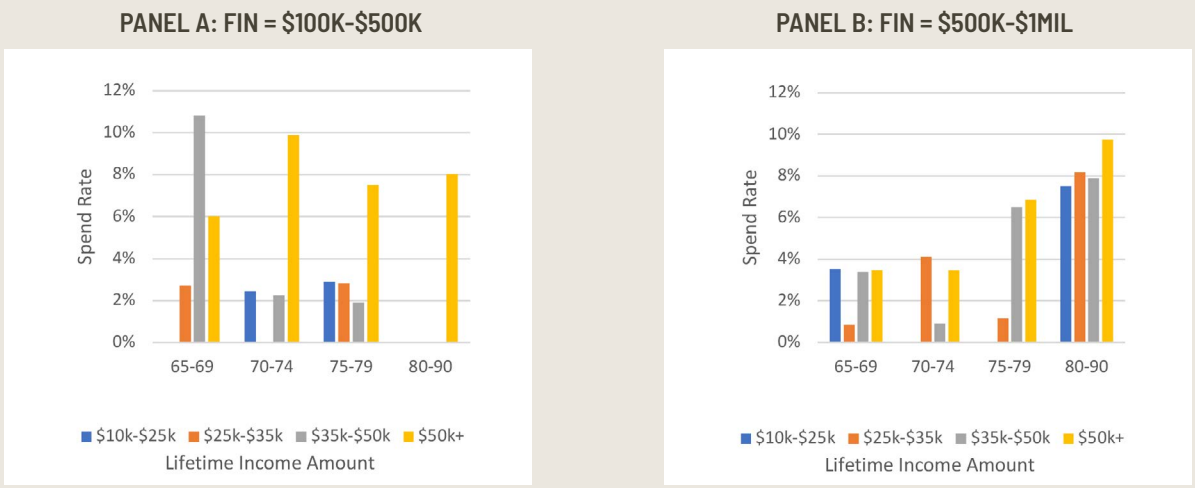


EXHIBIT 8. *Spend Rates for Qualified Savings by Level of Lifetime Income and Age Group*

Source: *2020 Health and Retirement Study, Accessed March 22, 2024, Authors' Calculations.*

clude respondents 65 and older since these individuals are most likely to be retired). The detailed coefficients for Exhibits 6 and 7 are included in Appendices 2 and 3, respectively.

Utilization of income sources is relatively consistent between single versus married households, and across ages, but there is a notable difference in spending from lifetime income sources versus wage income and capital income. Lifetime income sources have a much higher spend rate than wage income or capital income. For example, roughly 80% of lifetime income is spent, while only approximately half of wage income and capital income are spent (when considering both married and single households). The lower utilization of wage income could be related to things like withholdings, or even saving for retirement, while the lower utilization for capital income could be due to its uncertainty.

With respect to assets, utilization of either money-type is well below what would generally be considered optimal. For example, there is a relatively large body of research on the "4% Rule," originally noted by Bengen (1994), which suggests that a 4% withdrawal rate would be reasonable for a married couple age 65 (i.e., planning for a 30-year retirement period). The spend rate from qualified and nonqualified savings is only about 2% for a 65-year-old couple (Exhibit 9, Panel B), though, which is only roughly half of the target withdrawal rate, although spending rates are higher for single individuals, which is consistent with economic theory.

While the spend rates from both types of assets increase by age, the increase in the spend rate for qualified savings (i.e., slope) is higher, which can likely be attributed to required minimum distributions (RMDs). While RMDs technically only require a distribution from a qualified account, not that the withdrawal itself be spent, this analysis does provide evidence that RMDs may in fact encourage spending. One potential issue with RMDs is the distribution age is scheduled to increase to age 75 by 2033 based on the SECURE 2.0 Act, suggesting future spending levels may be lower than those exhibited in the past (where the distribution age was largely 70 and a half).

Overall, the analysis for this section clearly suggests that resources are used differently by households to fund spending in retirement. In particular, retiree households are more likely to consume lifetime income than any of the other four sources considered.

	SINGLE		MARRIED	
	QUAL	NONQUAL	QUAL	NONQUAL
60	3.67%	3.13%	1.36%	1.73%
65	3.91%	3.24%	1.98%	2.11%
70	4.14%	3.35%	2.60%	2.49%
75	4.38%	3.46%	3.22%	2.87%
80	4.62%	3.57%	3.84%	3.25%

EXHIBIT 9. *Assumed Spend Rates from Assets for Households with $100,000 or More of Financial Assets*

Source: *2020 Health and Retirement Study, Accessed March 22, 2024, Authors' Calculations.*

DO ASSET SPEND RATES VARY BY LIFETIME INCOME LEVELS?

The analysis so far demonstrates that households with higher levels of income tend to spend more of their available resources, especially at older ages (Exhibit 5) and that lifetime income is effectively used for spending (Exhibit 8). Lifetime income could also potentially be related to portfolio spend (i.e., withdrawal) rates. A retiree with a higher base of income may be more comfortable spending down a portfolio given the assurance of income for life.

To test whether the level of lifetime income benefits is related to portfolio spend rates, we group households based on age and the amount of lifetime income benefits. Since we are specifically focused on how lifetime income affects portfolio spending levels, we limit the analysis to two respondent groups: those with between $100,000 to $500,000 in financial assets and those with between $500,000 and $1 million in financial assets. Only married respondents are included because the sample pool is larger.

We focus on qualified savings and report the spend rates in Exhibit 8. The regression coefficients are included in Appendices 4 and 5.

There is a relatively clear relation where households with more lifetime income tend to have higher spend rates from their qualified savings. For example, the average spend (withdrawal) rate for households from the ages of 65-69 with between $100,000 and $500,000 in total financial assets with lifetime income levels between $25,000 and $35,000 had a spend rate of 2.7% versus 6.0% for those with lifetime income exceeding $50,000 per year. While a 6.0% spend rate may sound high, assuming a median asset level of $300,000 (halfway between $100,000 and $500,000), this would only represent a withdrawal amount of $18,000, which is likely to be less than a third of lifetime income. In other words, retirees with higher levels of lifetime income typically have a greater capacity to withdraw from their portfolio, as they appear to be doing.

TRANSFORMING SAVINGS TO INCREASE SPENDING

In this section, we attempt to provide some context around the potential spending benefits that could be realized if (more) savings were converted into lifetime income.

While the income that can be spent from a guaranteed lifetime income source, such as Social Security retirement benefits, is relatively straightforward, there is significantly more ambiguity when it comes to spending rates from portfolios. Estimates of appropriate withdrawal rates vary from approximately 2% (Anarkulova et al. 2023) to 8% (Rekenthaler 2023).

AGE	SINGLE	JOINT
60	4.83	4.83
65	5.33	5.33
70	6.00	5.97
75	6.89	6.71
80	8.01	7.49

EXHIBIT 10. *Annuity Payout Rates (%)*

Source: *CANNEX, Accessed March 27, 2024, Authors' Calculations.*

	SINGLE		MARRIED		
AGE	QUAL	NONQUAL	QUAL	NONQUAL	AVG
60	5%	23%	184%	123%	**84%**
65	9%	32%	115%	102%	**64%**
70	16%	43%	83%	92%	**59%**
75	26%	59%	67%	87%	**60%**
80	39%	80%	56%	84%	**65%**
Avg	**19%**	**47%**	**101%**	**97%**	

EXHIBIT 11. *Potential Improvement in Consumption*

Source: *2020 Health and Retirement Study, Accessed March 22, 2024, Authors' Calculations.*

For this analysis, we first extract general withdrawal rates for different household types, based on marital status, age, and savings type (i.e., whether it is qualified or nonqualified monies) based on a linear regression of the actual withdrawal rates, and include these values in Exhibit 9.

Next, we obtain payout rates for immediate income annuities from CANNEX, an independent research and analytics business that provides an online marketplace for annuities both in the U.S. and Canada, on March 27, 2024. A female is used to represent the single individual, since payout rates would be lower than that of a male, and the joint couple is assumed to be a male/female couple. Both life annuities include a cash refund provision and a 2% fixed COLA (cost of living adjustment), as a proxy future inflation adjustment. The respective payout rates are noted in Exhibit 10.

We assume only 80% of the lifetime income benefit will be spent, based on the previous results. The potential improvement in income by test cohort is included in Exhibit 11, which is based on the annuity rates in Exhibit 10 divided by the withdrawal rates in Exhibit 9.

There is a clear potential benefit of converting savings to lifetime income, where married households would potentially increase spending by approximately 100% versus single households, who would spend approximately one third more. The potential benefits for married households are clearly greater at younger ages.

CONCLUSIONS

We test whether underspending in retirement can be explained by the tendency to frame investments differently than wealth held in the form of lifetime income by comparing spending rates from income to rates from a reasonable estimated annual decumulation rate from investment assets. Retirees spend a much higher percentage of their annuitized income and spend about half the amount that they could safely spend from non-annuitized wealth. However, after the government requires distributions from qualified retirement savings accounts, individuals increase their rates of spending from qualified investments compared to non-qualified savings.

Our results provide evidence that retirees bracket wealth held in investments differently than wealth held as income and consequently spend less than would be optimal in a life-cycle model. Differences in retirement spending by assets after retirees must withdraw savings from qualified investment accounts suggests that policy can counteract the tendency to underspend from savings.

Spending from savings is complex. Less knowledgeable and risk-averse retirees may be particularly prone to underspending since out of fear of depleting wealth. A comparison of spending from qualified and non-qualified accounts shows that exogenous required minimum distribution rules unrelated to uncertainty related to longevity and asset returns appears to cause retirees to frame distributions as income resulting in increased consumption. This suggests that policy can significantly raise rates of spending among retirees resulting in increased welfare and higher aggregate consumption among older Americans. For example, policies that incentivize or default the annuitization of retirement wealth could significantly increase spending among retirees.

Financial institutions who are aware of the tendency to bracket investment decisions differently than lifetime income can focus on reframing wealth as income or automatically liquidate investments to create the appearance of income. For example, managed payout funds designed to distribute a percentage of wealth each year can help retirees frame saving as income. Likewise, policies designed to provide lifetime income illustrations of wealth in retirement savings statements can alter perceptions that result in suboptimal narrow bracketing.

A possible explanation for differences in spending rates among asset categories may be that some assets, particularly non-qualified investment assets with substantial capital gains, may be more efficiently transferred at death than qualified assets or annuitized wealth. A data set with more information on capital gains would allow researchers to investigate the extent to which embedded gains create a disincentive to save.

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APPENDICES

AGE	SINGLE	MARRIED	TOTAL
55	45	141	186
56	65	163	228
57	55	181	236
58	56	191	247
59	54	196	250
60	67	208	275
61	47	206	253
62	54	197	251
63	55	220	275
64	69	217	286
65	64	207	271
66	79	232	311
67	64	229	293
68	91	203	294
69	71	226	297
70	78	194	272
71	76	223	299
72	79	205	284
73	76	221	297
74	81	192	273
75	72	201	273
76	80	164	244
77	65	179	244
78	76	136	212
79	62	110	172
80	76	93	169
81	61	92	153
82	58	63	121
83	55	57	112
84	56	43	99
85	55	40	95
86	43	22	65
87	38	30	68
88	31	9	40
89	25	9	34
90	15	4	19
Total	**2,194**	**5,304**	**7,498**

APPENDIX 1: *Test Population by Age and Marital Status*

Source: *2020 Health and Retirement Study, Accessed March 22, 2024, Authors' Calculations.*

	INCOME			ASSETS	
AGE	LIFETIME	WAGE	CAPITAL	QUAL	NONQUAL
65	0.475	0.479***	0.163	0.107***	0.057**
66	0.896***	0.320***	0.437***	0.039	0.014
67	0.645***	0.616***	0.257	0.012	0.065**
68	0.635***	0.658***	0.798***	0.034	0.022***
69	0.274**	0.487***	0.263**	0.089***	0.036**
70	0.840***	0.753***	0.556	0.040	0.018
71	0.727**	0.872***	0.722	0.000	0.034
72	0.901***	0.901***	1.088***	0.027**	0.015
73	0.302	0.953***	1.889***	0.057**	0.006
74	1.648***	0.299	0.000	0.076***	0.006
75	1.278***	1.863***	0.512	0.061***	0.017
76	1.147***	0.279	0.111	0.045**	0.062***
77	0.981***	0.072	0.702***	0.026	0.017
78	0.963***	0.073	0.284**	0.042**	0.037***
79	0.931***	0.074	0.403	0.093***	0.021
80	0.624**	0.049	0.429	0.033	0.072

*** p < .001, ** p < .01, * p < .05

APPENDIX 2: *OLS Regression Coefficients for Single Households*

Source: *2020 Health and Retirement Study, Accessed March 22, 2024, Authors' Calculations.*

	INCOME			ASSETS	
AGE	LIFETIME	WAGE	CAPITAL	QUAL	NONQUAL
65	1.030***	0.401***	0.172**	0.019***	0.022***
66	0.826***	0.353***	0.403***	0.012***	0.021***
67	0.630***	0.239***	0.696***	0.034***	0.008
68	0.809***	0.192**	0.522***	0.028***	0.007
69	0.897***	0.176**	0.391***	0.012**	0.024***
70	0.819***	0.356***	0.465***	0.021***	0.009
71	0.773***	0.440***	0.419***	0.017***	0.028***
72	0.770***	0.303	0.503***	0.012	0.033***
73	0.554***	0.373**	0.260	0.034***	0.033***
74	0.792***	0.399	0.541***	0.020***	0.032***
75	1.052***	0.117	0.129	0.007	0.030***
76	0.779***	0.592	0.514***	0.031***	0.021**
77	0.863***	0.564	0.572***	0.039***	0.027***
78	0.838***	0.803	0.316	0.024***	0.018**
79	0.805***	0.011	0.859***	0.047***	0.016**
80	0.920***	0.590	0.898***	0.041***	0.008

*** p < .001, ** p < .01, * p < .05

APPENDIX 3: *OLS Regression Coefficients for Married Households*

Source: *2020 Health and Retirement Study, Accessed March 22, 2024, Authors' Calculations.*

		INCOME			ASSETS	
AGE GROUP	LIFETIME INCOME	LIFETIME	WAGE	CAPITAL	QUAL	NONQUAL
65-69	$10k-$25k	2.000***	0.321***	0.305**	0.000	0.000
65-69	$25k-$35k	1.526***	0.126	0.343***	0.027	0.000
65-69	$35k-$50k	0.924***	0.207	0.193	0.108***	0.056
65-69	$50k+	0.730***	0.000	0.166	0.060	0.047
70-74	$10k-$25k	2.000***	0.000	0.216	0.024	0.124**
70-74	$25k-$35k	1.550***	0.455***	0.710***	0.000	0.000
70-74	$35k-$50k	1.044***	0.233	0.412***	0.023	0.051
70-74	$50k+	0.439***	0.100	0.160	0.099***	0.106***
75-79	$10k-$25k	2.000***	0.256	0.249	0.029	0.035
75-79	$25k-$35k	1.618***	0.000	0.142	0.028	0.018
75-79	$35k-$50k	1.256***	0.183	0.354	0.019	0.000
75-79	$50k+	0.657***	0.000	0.000	0.075**	0.088***
80-90	$10k-$25k	2.000***	0.000	0.504	0.000	0.022
80-90	$25k-$35k	1.272***	0.000	0.398***	0.000	0.041
80-90	$35k-$50k	1.157***	2.000	0.445	0.000	0.040
80-90	$50k+	0.761***	0.000	0.237	0.080	0.032

*** p < .001, ** p < .01, * p < .05

APPENDIX 4: *OLS Regression Coefficients for Married Households, $100k-$500k Qualified Savings Group*

Source: *2020 Health and Retirement Study, Accessed March 22, 2024, Authors' Calculations.*

		INCOME			ASSETS	
AGE GROUP	LIFETIME INCOME	LIFETIME	WAGE	CAPITAL	QUAL	NONQUAL
65-69	$10k-$25k	2.000**	0.000	0.105	0.035	0.064**
65-69	$25k-$35k	1.939	0.000	0.664***	0.008	0.000
65-69	$35k-$50k	0.770	0.297**	0.389***	0.034	0.046
65-69	$50k+	0.721***	0.000	0.361***	0.035**	0.021
70-74	$10k-$25k	1.610	0.000	0.000	0.000	0.094
70-74	$25k-$35k	1.725	0.187	0.316	0.041	0.000
70-74	$35k-$50k	1.363***	0.245	0.020	0.009	0.019
70-74	$50k+	0.688***	0.000	0.213	0.035	0.051**
75-79	$10k-$25k	2.000	1.280	0.000	0.000	0.176
75-79	$25k-$35k	1.761	0.000	0.002	0.012	0.050
75-79	$35k-$50k	0.393	0.000	0.225	0.065	0.061
75-79	$50k+	0.447***	0.000	0.457	0.069***	0.057***
80-90	$10k-$25k	0.000	0.047	0.475	0.075	0.053
80-90	$25k-$35k	0.000	0.000	0.961	0.082	0.065
80-90	$35k-$50k	0.000	0.000	0.299	0.079	0.091
80-90	$50k+	0.502	0.000	0.000	0.098	0.038

*** p < .001, ** p < .01, * p < .05

APPENDIX 5: *OLS Regression Coefficients for Married Households, $500k-$1 million Qualified Savings Group*

Source: *2020 Health and Retirement Study, Accessed March 22, 2024, Authors' Calculations.*