

Living Too Frugally? Economic Sentiment & Spending Among Older Americans

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Executive Summary

Innovations in medicine and technology have extended human life by over 30 years since 1900. This has helped to double the amount of time the average adult now spends in retirement compared to several decades ago. But, the benefits of longer lives and retirement may be limited if older households curb their consumption or investment in preventive health measures because they are overly pessimistic about their future financial health. Overly negative viewpoints toward the future may also create self-fulfilling economic problems if it leads to an overly aggressive fixed-income portfolio. To assess these possibilities, we analyze consumer sentiment and spending data from the University of Michigan that was commissioned by the Social Security Administration and U.S. Commerce Department, among other federal agencies. We find:

Adults become less optimistic about future economic growth and financial health as they age. In 2014, for instance, adults over the age of 64 were over 40 percent less optimistic about their future financial health, over 30 percent more skeptical about future economic growth, and 40 percent less convinced of future stock market increases – compared to adults under the age of 35.

Declining financial optimism as adults age has accelerated as longevity has increased. The gap in economic optimism between younger and older Americans, for instance, has increased by 3 percent for every 1 year added to the life expectancy of the average U.S. adult.

Sentiment about future stock market growth becomes overly conservative as adults age. The average older adult felt like the stock market had less than a 50 percent chance of increasing every year between 2002 and 2014 – even though most major stock market indexes increased in all but two of those years. By contrast, every other age group felt like the stock market had more than a 50 percent chance of increasing in most of those same years.

Concerns about declining personal financial well-being also become overstated as adults age. We find that wealth and investments generally grow in value as people age. Similarly, the average retired adult who dies in their 60s leaves behind \$296k in net wealth, \$313k in their 70s, \$315k in their 80s, and \$238k in their 90s.

Perhaps as a reaction to declining financial optimism, the average adult 60 years or older will trim their spending by about 2.5 percent every year, or by about 20 percent over a 10-year period. We also find that spending drops faster for people in their 80s compared to those in their 60s and 70s, falling by about 30 percent, on average, over a 10-year time-period. In addition, spending volatility grows as we age -- increasing from an average of 6 percent variance for adults in their 60s to 9 percent for people in their 70s or older.

Longer lives and retirements have ushered in an extraordinary opportunity for older adults to live out life-long dreams, embark on second careers, or use their experience and knowledge to give back to the next generation. Yet, our confidence about future economic growth and our own financial wellbeing wanes as we age and in some cases overly so, which may be one reason why spending deaccelerates for aging households as they seek to maintain wealth at the expense of income preservation. For advisors, these data signify that special care needs to be taken to educate age cohorts about their biases to avoid investment portfolios and financial plans that are too conservative and become self-fulfilling prophecies of economic problems. For policymakers, these data indicate that how much people spend as they age is an issue that deserves attention alongside of the broad efforts to increase savings for retirement. Policymakers could start by improving the scope of current surveys to better cover issues related to consumer finance decisions and profiles of older Americans.

Introduction

Innovations in medicine and technology have extended human life to its furthest point in human history. Compared to just 100 years ago, for instance, the average American now lives an additional 30 years.¹ That trend has helped to foster an even more startling demographic phenomena: the number of people in the U.S. over 85 years old is now growing seven times faster than the population under 10 years old.² That older population is also healthier than previous generations. The percentage of individuals over the age of 65 that report they are in poor or fair health, for instance, fell by 26 percent between 2000 and 2013.³ During the same period, the percentage of self-reported ill-health among individuals aged 64-75 fell by nearly one-third.⁴

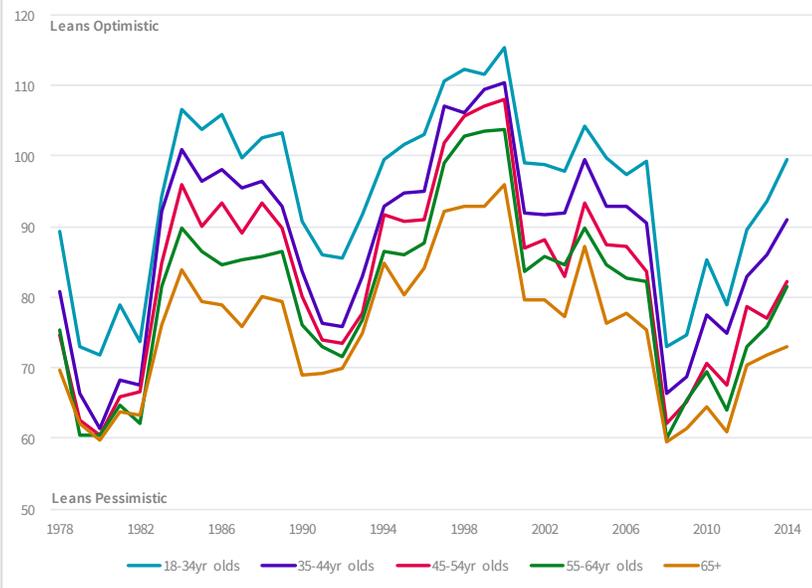
But, the benefits of longer lives and retirement may be curbed if older households become overly cautious about investing and spending as they age.⁵ Overly negative views about future stock market growth, for instance, may also limit the financial longevity of savings – since it may lead to portfolios that overinvest in fixed-income products that have no or low growth potential.⁶ In addition, since consumer spending is correlated with sentiment, older adults may lead more insular lives because they may feel relatively less free to travel and spend money on entertainment.⁷ This more limited lifestyle can curb their mental health and, eventually, physical health.⁸ More generally, consumer sentiment among older Americans may also have macroeconomic consequences, since households over 50 years old own 80 percent of investable assets and about 70 percent of spending power.⁹ Since consumer sentiment is a leading indicator of economic growth, economic negativity among older Americans may limit spending, which would curb economic growth.¹⁰

To address these questions, we use two different datasets from the University of Michigan to assess consumer sentiment and finances as people age. The first is the University of Michigan's monthly survey of consumer sentiment. The questionnaire is phone-based and is conducted monthly on a random sample of the U.S. population (using random digital dialing of cellular phone numbers) and a sample of individuals contacted in the previous month's survey. Each survey contains approximately 50 questions on personal finances, business conditions, and buying conditions. Data from the survey contributes to the Leading Indicator Composite Index published by the Bureau of Economic Analysis in the U.S. Department of Commerce. The second dataset is the University of Michigan Health and Retirement Study, which is sponsored by the Social Security Administration (SSA) and the National Institute on Aging (NIA). The survey is a longitudinal panel study based on a sample of approximately 20,000 people, which allows us to assess how overall wealth and investable asset wealth varies over time through different economic cycles.

Using these data, we begin our analysis with an assessment of how consumer sentiment about the economy and personal finances varies by age. We look at overall perspectives about how the economy, stock market, and personal financial health will change in the future, as well as specific questions about attitudes related to the sufficiency of retirement savings to cover future retirement spending. We consider how this sentiment changes during economic cycles and stock market cycles. We also evaluate how economic outlook across different age groups varies by demographic variables, including household income, education, and gender.

We then consider the validity of the self-reported economic sentiments among older Americans from various perspectives. First, we assess the validity of stock market sentiment by studying how stock

FIGURE 1. Consumer Sentiment About Current and Future Economic and Personal Financial Health, by Age



markets perform after older adults are asked about their expectations for future performance. Second, we look at how finances change as we age to assess sentiment validity about whether consumers think they will be better or worse off financially in the future. Third, we look at concerns about running out of money in retirement by assessing estate values. Importantly, there are numerous studies that assess savings sufficiency more directly by examining the percentage of older Americans that are expected to run out of money in their life.¹¹ But, much of this literature relies on major assumptions about spending, investment portfolios, market performance, and longevity.¹² We therefore rely on this less direct measure that looks at how estate sizes change by age of death. If households do not have sufficient savings, we should

expect to see median values depleted over time; conversely, if they do, we should see these values be maintained or increase in value.¹³ Finally, we consider how changes in economic sentiment as people age affects spending, since consumption is highly correlated with economic sentiment.¹⁴ To do this, we look at spending levels over a 12-year period for households in their 60s and older. Although we cannot comment directly on whether spending changes are warranted by changes to wealth, we do find that spending declines rapidly over time (regardless of wealth).

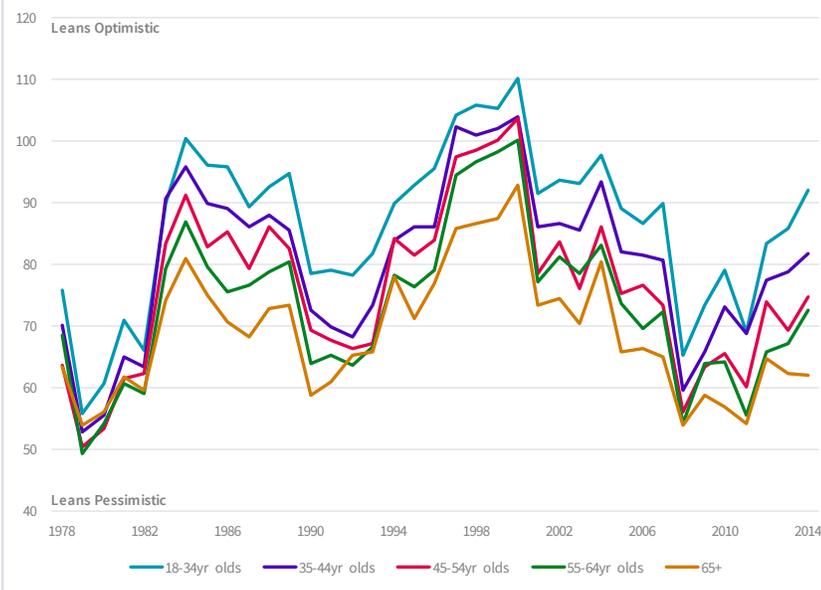
We conclude with recommendations for financial advisors and policymakers. Our analysis finds that people become less financially optimistic as they age – and, at times, overly so. This may be one reason why we find a sharp reduction in spending among households 60 years or older. The declining financial optimism may also explain the relative maintenance of financial wealth over time and estate values. For advisors, these data signify that special care needs to be taken to educate age cohorts about their sentiment biases to avoid investment portfolios and financial plans that are too conservative and become self-fulfilling prophecies of economic problems. For policymakers, these data indicate that how much people spend as they age is an issue that deserves attention alongside of the broad efforts to increase savings for retirement. Policymakers could start by improving the scope of current surveys to better cover issues related to consumer finance decisions and profiles of older Americans.

Findings

Adults become less optimistic about future economic growth and financial health as they age. In 2014, for instance, adults over the age of 64 were over 40 percent less optimistic about their future financial health, over 30 percent more skeptical about future economic growth, and 40 percent less convinced of future stock market increases – compared to adults under the age of 35.

To evaluate how our economic optimism evolves as we age, we begin by assessing consumer sentiment, which is a composite of numerous variables that measure views about the current economy and

FIGURE 2. Consumer Expectations About Future Economic and Personal Financial Health, by Age



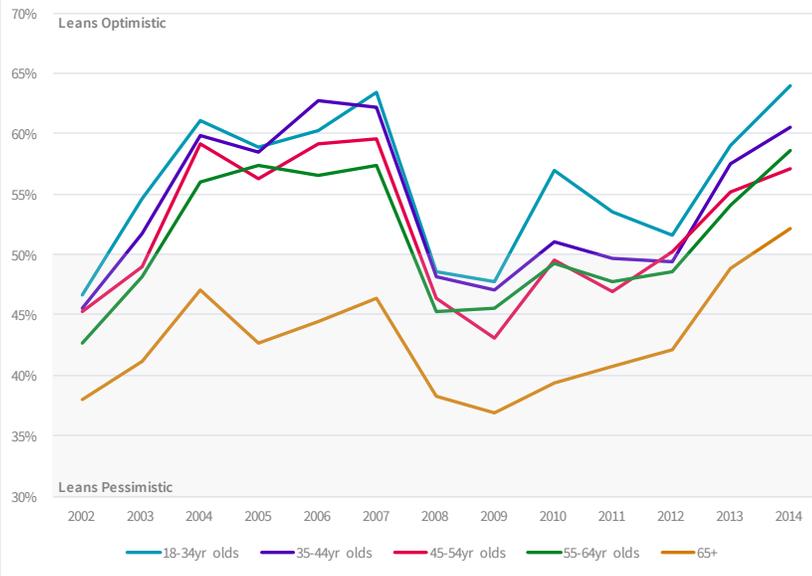
financial health.¹⁵ Specific components include a survey respondent’s evaluation of changes to their financial wellbeing over the past year, expectations for changes in their financial health over the next year, views on the prospect for business growth in the next year, assessments about economic changes to come over the next five years, and durable product pricing expectations. This aggregate measure of consumer sentiment is used as a leading indicator of economic growth.¹⁶ But, the University of Michigan also decomposes these data by the socio-economic profile of the respondent, which gives us an opportunity to look at how sentiment evolves as we age. These data are available for every year between 1978-2014.

We find in Figure 1 that respondents become less optimistic about future economic growth and financial health as they age, even though households tend to become happier overall as they age.¹⁷ The average consumer sentiment of respondents over 65 was between 17 and 37 percent less optimistic about the overall economy than respondents ages 18-35, for example. Similarly, in nearly every year between 1978-2014 the level of optimism about the economy and personal financial health was negatively correlated with age. This optimism gap persisted between younger and older Americans even when we control for income, educational attainment, and gender. For instance, the economic expectations of low-income consumers over 65 were 30 percent less optimistic compared to low-income consumers between 18-35 years old. Similarly, older consumers with college educations were 23 percent less optimistic compared to younger, college-educated consumers.

Since the consumer sentiment index considers both the past and future, we also examined in Figure 2 the consumer expectations index, which just looks at the future economic changes respondents are anticipating. Components in this more focused index include a survey respondent’s expectations for changes in their financial health over the next year, views on the prospect for business growth in the next year, and assessments about economic changes to come over the next five years. We find that, here too, confidence about future economic and household financial health deteriorates as we age. Respondents over 65 were between 3 and 33 percent less optimistic about future economic prospects compared to respondents ages 18-35 during the 36 years of the annual survey data. Similarly, respondents ages 55-64 were between 5 and 20 percent less optimistic compared to 18-35 year olds through this time-period. This difference between younger and older Americans persisted even after controlling for socio-economic variables.

Like consumer sentiment and expectations, we also find in Figure 3 that confidence in future stock market growth deteriorates as we age.¹⁸ In the 12 years this question was asked (between 2002 and 2014), older Americans were between 16 and 40 percent less confident in their stock market outlooks compared to their younger counterparts. For instance, in 2014, the average respondent older than 65 felt like the stock market had better than a 52 percent chance of increasing; the average respondent between 18-34 felt like there was a 64 percent chance of growth. We also find that the average respondent over 64 years old felt in only one of the 12 years of the survey that the market had better than a

FIGURE 3. Percentage of Adults That Believe the Stock Market Will Grow in Value Over the Next 12 Months, by Age



50 percent chance of increasing. Their younger counterparts, in contrast, felt in 10 out of the 12 years that the market was more likely to grow in value than retract. Like the sentiment and expectations measures, stock market expectation gaps also held up even after controlling for the income, education, and gender of the respondent.

These data suggest that economic confidence moderates as we age. While we cannot assess directly whether these changes are rational, we can look at how spending and wealth changes over time as we age. Since sentiment is correlated with spending, we expect to see spending reduce as people age. Similarly, we expect wealth to reduce in value as people age, given their declining confidence in their prospects for future improvements to their financial health. Both

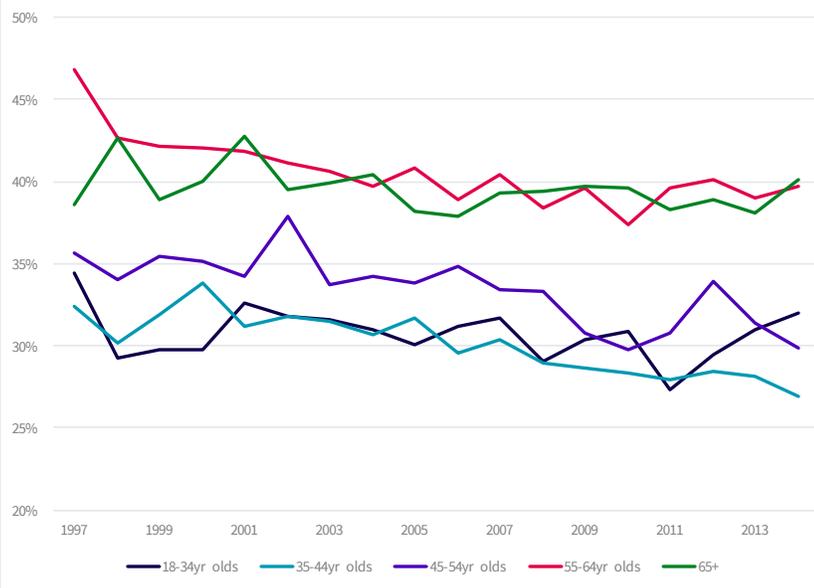
expectations are assessed in later findings. We also consider whether the stock market expectations are directionally accurate by considering how stock market indexes performed in the year following the survey that queried consumer expectations.

Personal Financial Health Expectations

The initial consumer financial opinion data that we considered probed overall sentiment and expectations about economic and stock market growth. In this section, we consider self-evaluations regarding financial health. Like the indexes and questions that assess overall opinions, these variables can be decomposed by the respondent's age, which gives us the opportunity to assess how these responses vary as people age. We begin with a question about the confidence respondents have that income from Social Security and job pensions will maintain their living standards, which has been asked annually since 1997.¹⁹ Importantly, this question does not capture the full universe of assets a worker can use to cover the costs of retirement, like brokerages and savings accounts, along with other financial assets, like home equity. In addition, maintaining current living standards in retirement may not be a goal held by all respondents, since their current living costs may not resemble their preferences for spending in retirement. Nonetheless, the question does provide a directional indication of the relative perception of retirement security across different age groups.

Contrary to the overall measures of economic sentiment, we find in Figure 4 that confidence in retirement income sufficiency grows as we age. Respondents over the age of 65 were an average of 29 percent more confident than respondents under the age of 34 about the sufficiency of their work-sponsored retirement accounts and Social Security income. Similarly, respondents between 55-64 years old were an average of 32 percent more confident than their younger counterparts during this time-period. In contrast, respondents under the age of 45 were the least confident that these assets would maintain their living standard in retirement. But, there is not a single year in the survey where the average person in any age cohort felt like their retirement income had better than a 50 percent chance of covering their current living standards. Respondents younger than 45 during between 1997 and 2014 felt like there was just a 30 percent chance their living standards would be maintained, which increased to 40

FIGURE 4. Percentage of Adults That Believe Social Security and Work-Sponsored Retirement Accounts Will Provide Sufficient Retirement Income, by Age



percent for those over 54 years old. While age is correlated with retirement savings confidence, it is generally not something any age cohort is confident about.

Next, we consider how expectations about financial wellbeing vary by age, or whether respondents think that they will be better off financially five years from the time that they were interviewed for the survey. This is a component of the indexes assessed above, but the University of Michigan makes it available as a stand-alone variable that can be decomposed by age cohort between 1979-1985 and 2011-2014.²⁰ Like the retirement income sufficiency question, this variable is not without limitations. Unlike wealth or stock market performance, there is no commonly accepted definition of financial wellbeing, so it is not clear respondents had the same

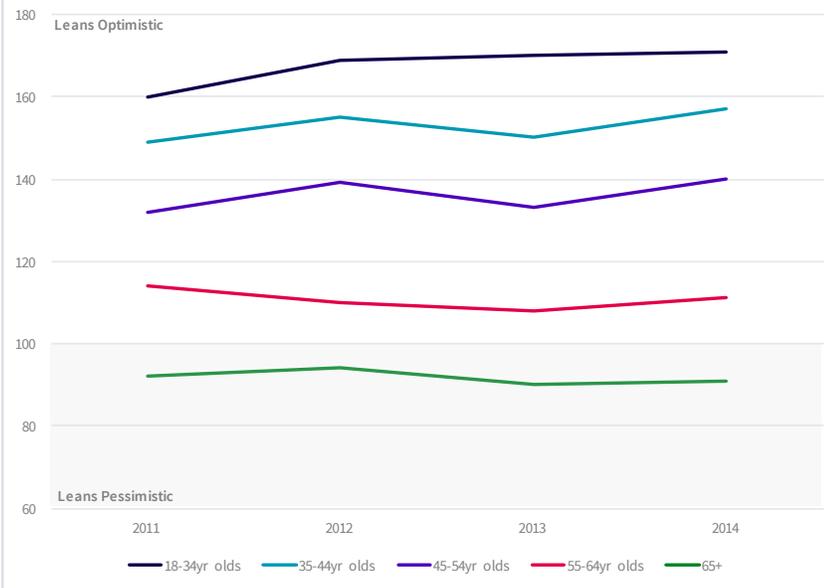
definition in mind when they were responding to the question.²¹ The respondent, for instance, may interpret being “better off financially” as a measure of wealth, their ability to meet spending needs, their human capital, or something else. Nonetheless, the question does provide a directional indication of relative household financial confidence about the future (across all age groups).

We find in Figure 5 that confidence about future financial wellbeing erodes with age, even if confidence about the sufficiency of retirement income expands. Respondents over the age of 65 were an average of 44 percent less confident about their future financial health over the next five years compared to respondents under the age of 34. Similarly, respondents between 55-64 years old were an average of 36 percent less confident than their younger counterparts during this time-period. In contrast, respondents under the age of 35 were the most confident about their future financial health prospects (across all age groups).²² Just as important, fewer than 50 percent of the respondents older than 64 felt that their finances would improve over the next five years in every year they were asked that question. In contrast, more than half of respondents younger than 35 felt like their finances would improve in the next 5 years in every year of the survey.

Like the responses to questions about overall economic expectations, we cannot directly observe whether expectations about future financial wellbeing are accurate. We don’t have enough data about the finances of the individual respondents to assess that question. Even if that data was available, the concept of financial wellbeing is too vague to know which component of their financial profile that they were referring to. But, we can conclude from these data that, in general, our confidence about both our own and the overall economy’s future health deteriorates as we age. We also can conclude that these differences across age groups persist through bull and bear cycles in the economy, and even after controlling for other demographic variables, including educational attainment, race, and wealth.

In addition, we can assess indirectly whether the change in household financial sentiment as we age is valid. We should see, for instance, that wealth and asset values deteriorate for the median older household, for instance, since most of this population feels like their finances will become worse. We also

FIGURE 5. Expectation Among Adults That They Will Be Financially Better-Off in 5 years, by Age



may see that estate sizes shrink in value as we age, given that our self-assessed prospects dim as we age. Both expectations are assessed in later findings. We first assess how these changes in economic sentiment evident as we age have changed over time as life has extended.

The gap in economic optimism between younger and older Americans has increased by 3 percent for every 1 year added to the life expectancy of the average U.S. adult. When the average life expectancy was 73 years old in 1979, for instance, adults over 65 were 20 percent less optimistic about the prospects for future economic growth and financial health compared to adults younger than 35. In 2014, when average life

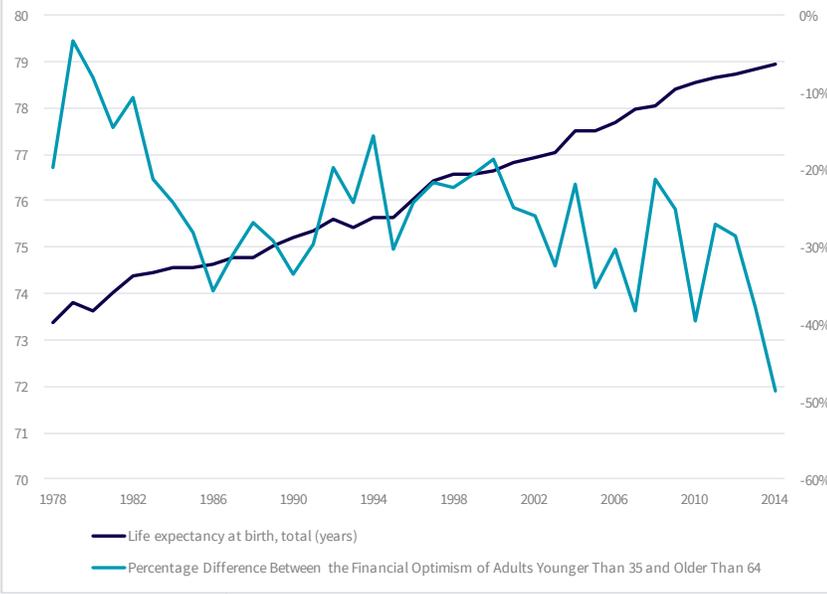
expectancy had increased to 79, that gap between age groups had swelled to a nearly 50 percent difference in the level of optimism, reinforcing the finding that economic optimism reduces as we age.

In the preceding section, we found that economic optimism generally retracts as we age, which we found by comparing the point-in-time estimates of different aged respondents for each year between 1978-2014. But, the average life expectancy of U.S. adults increased from about 73 to about 79 years old during this 37-year period.²³ This means that the population of respondents 65 years and older likely grew older during this period, as their life extended. If the trend we observe in the previous section is accurate, we should expect this gap in economic optimism across age groups should increase as life was extended. In other words, as we extend human life to ever larger numbers we should expect our optimism to continue eroding as we age, which will expand this confidence gap across generations.

To look at whether this has occurred, we use the University of Michigan’s consumer expectations index described above, which measures the future expectations about both the economy and the respondent’s own finances. Because of the way that the index is constructed, we cannot comment on the percentage of older and younger adults that are optimistic about the economic future. But, we can compare the relative sentiment across age groups, since the index has a constant range across age groups, varying from a low value of 2 to a high value of 147. A value of 2 would indicate that 100 percent of the respondents have a negative view about the future; a value of 147 would indicate 100 percent have a positive view.²⁴

We find in Figure 6 that older Americans have become steadily less optimistic about their own and the overall economy’s future economic prospects relative to their younger counterparts.²⁵ In particular, we found that older Americans, relative to their younger counterparts, became about 3 percent less optimistic for each additional year that life expectancy increased. When the average life expectancy was 73 years old in 1979, for instance, adults over 65 were 20 percent less optimistic about the prospects for future economic growth and financial health compared to adults younger than 35. In 2014, when

FIGURE 6. The Relationship Between Life Expectancy and The Financial Optimism Gap Between Young and Old



average life expectancy had increased to 79, that gap between age groups had swelled to a nearly 50 percent difference in the level of optimism, reinforcing the finding that economic optimism retracts as we age.

The specific index values are more difficult to interpret, for the reasons discussed above. For instance, the consumer expectation value in 2014 was 62 among respondents over 64; the value for respondents under the age of 25 was 91. Unlike the previous measures, this does not mean that 62 percent of respondents had a positive or negative economic viewpoint. It instead means that in a range between 2-147, where 2 is the least optimistic and 147 is the most optimistic, older respondents tended to score in the less optimistic area of the range, whereas younger

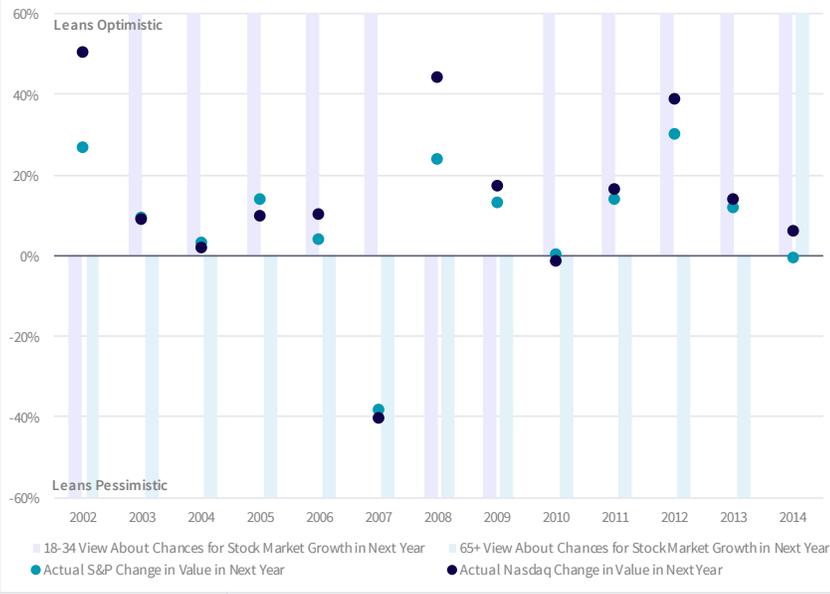
respondents tended to score in the more optimistic area of the range. Over time, this gap between young and old has increased as life has extended, which may further collaborate our finding in the previous section that economic optimism erodes as we age. We might expect this trend to continue as life stretches out to even greater numbers in the years to come.

However, lengthening lives may not be the only reason why we see the gap between young and old increase. Older adults today watch more television than older adults did in the 1970s and watch much more than this generation of younger adults, which may mean they are more exposed to the intraday and inter-week turbulence of markets.²⁶ Another reason for this growing generation optimism gap could be a growing inability to relate to the primary drivers of growth as we age – since much of the marketing in the U.S. economy is geared toward younger audiences.²⁷ Without more data, unfortunately, we cannot see the precise driver of these comparative trend lines. But, we can see the trend and it is unmistakable. In the next section, we begin to assess the empirical validity of declining economic optimism as we age.

The average older adult felt like the stock market had less than a 50 percent chance of increasing every year between 2002 and 2014 – even though most major stock market indexes increased in all but two of those years. By contrast, every other age group felt like the stock market had more than a 50 percent chance of increasing in most of those same years. This suggests that we may develop overly negative feelings about future stock market performance as we age, which could lead to excessively conservative portfolios.

In this section, we begin to assess whether deteriorating economic optimism associated with aging is warranted by the economic facts. In some cases, we need to assess that question indirectly. But, we can directly assess predictions about stock market performance. As a reminder, we found that the average respondent over 64 years old felt in only one of the 12 years of the University of Michigan consumer survey that the market had better than a 50 percent chance of increasing in value. Their younger counterparts, in contrast, felt in 10 out of the 12 years that the market was more likely to grow in value than retract. To assess the validity of these stock market expectations we considered the performance

FIGURE 7. Consumer Expectations for Stock Market Growth in Next Year and Actual Stock Market Performance, by Age



the chance they felt that the stock market had to grow in the next 12 months. We then plotted the average views of the opposite ends of the age spectrum, indicating whether the viewpoint was that the market was likely to grow in value (a better than 50 percent chance) or unlikely to grow (less than a 50 percent chance). During this period, the S&P 500 Index grew in value in 10 out of the 13 years that followed the survey, or 77 percent of the time; and the Nasdaq grew in value 11 out of the 13 years, or 85 percent of the time. Looking at the expectations, we see that younger respondents leaned optimistic about the prospects for stock market growth 85 percent of the time; whereas older respondents leaned optimistic just 7 percent of the time. These data indicate that the accuracy of stock market expectations declines as we age, or at the very least, is tempered, as we become more cautious and risk averse.

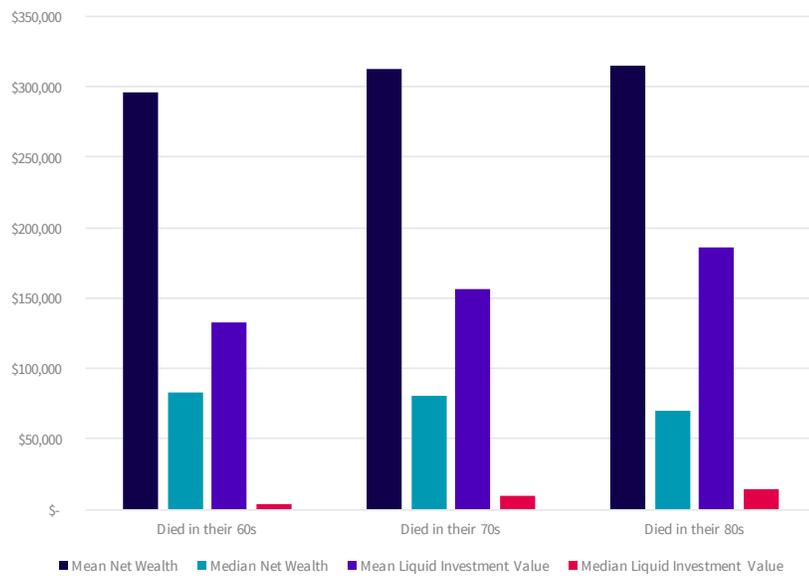
Importantly, both indexes suffered the largest declines in value during this period since the Great Depression, as well as one of the largest one-year gains. In addition, the survey question about stock market expectations was launched on the heels of the tech bubble bursting and the September 11, 2001 terrorist attacks in the United States, which caused large short-term market losses. While this volatility did smooth out, the effects of it may have affected the generations of surveyed respondents differently. For older respondents, the sharp downturns may have created a halo effect through this period by recalling past volatile periods where markets took longer to recover. For younger respondents, it may have been more easily shaken off. Since older respondents spend much more time watching television compared to younger respondents, they also may be more exposed to negative news cycles, which could have amplified those emotions.

While we need a longer time series to see how these expectations vary through economic cycles with less volatility, the thirteen years of data here do suggest that our grasp on future stock market performance slips as we age. This may have important consequences for the financial health of aging adults if they convert that pessimism into portfolios that are over-weighted with lower risk investments, since these assets may not generate the growth potential needed to cover future retirement expenses. Similarly, it may lead to an under-consumption of assets in retirement, which may unnecessarily limit lifestyles. This more limited lifestyle can curb the mental health of retirees and, eventually, physical health.²⁸ In the next section, we begin to take-up these questions by looking at how wealth and liquid investment values change as we age.

of the S&P 500 and Nasdaq Index in the calendar year that followed the respondent's forecast. Since respondents were interviewed at different times in a year, we also tested how the market performed two years after the survey year. This allowed us to control for the different response times among the survey respondents, although it is by no means a perfect representation of an exact 12-month period following their response.

The results provide further support for our finding that economic optimism declines as we age. But, in the specific case of stock market expectations, the reliability of those expectations seems to fade as well. To see this, we charted in the year-over-year changes in the S&P 500 and Nasdaq Indexes in every year that the survey asked respondents for their opinion about the

FIGURE 8. The Relationship Between Age of Death and Financial Wealth



Adults generally die with a similar amount of wealth regardless of what age they die. For example, the average retired adult who dies in their 60s leaves behind \$296k in net wealth, \$313k in their 70s, \$315k in their 80s, and \$238k in their 90s. We also find that older Americans have been leaving increasingly larger estates over time. Estate values grew by 130 percent between 2000-2002 and 2010-2012, although the growth in investable asset value size was just 20 percent. These data suggest that wealth preservation may be more important than income preservation for retirees – perhaps because financial optimism

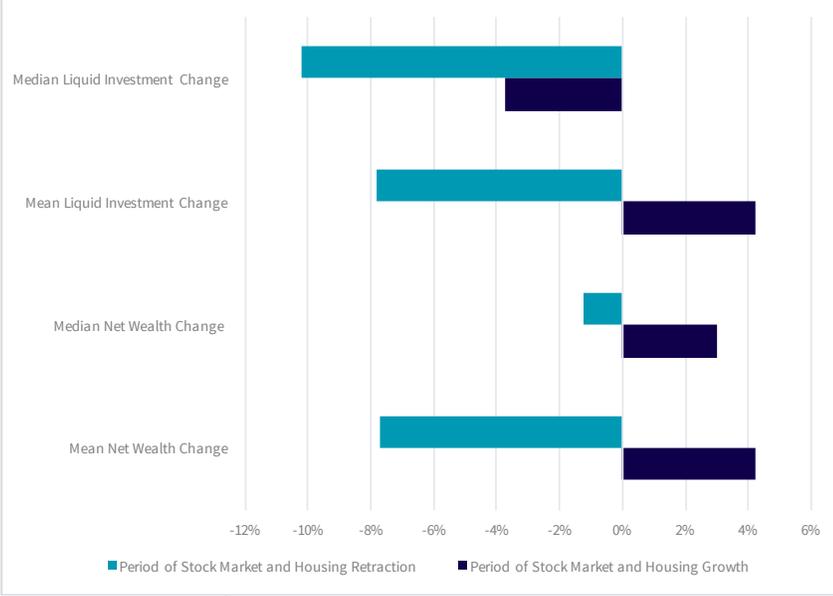
declines as we age.

In previous sections, we found that both optimism in the economy and personal finances declines as we age, and that we become overly skeptical of future stock market growth. In this section, we begin to consider the validity of financial health sentiments among older Americans. First, we look at how (inflation adjusted) estate values vary by when people die in retirement to assess, albeit indirectly, the validity of fears about running out of money. If households do not have sufficient savings, we should expect to see these values depleted by the time they are converted into estate transfers; conversely, if their resources are sufficient, we should see estate values maintain or increase in value.²⁹ We then consider whether the validity of the concerns held by most older households that they will be worse off financially in the next five years. Unfortunately, we cannot observe how the finances of these specific respondents change over this time. But, we can look at another sample of older households to see how their finances change over time. If the broadly held concerns about being worse off financially are valid, we should see the value of the median household’s liquid investments and overall wealth decline over time; conversely, if their concerns are overwrought, we should see these values maintained or grow over time.

Estate Sizes

To look at the value of estates, we took a sample of the individuals that died in their 60s or later from the more than 10,000 people surveyed in the 20 years that the University of Michigan survey has been administered. We dropped about 18 percent of that sample because they reported their wealth more than two years prior to their death (though including that portion of the sample did not substantively change the results). For instance, one respondent died in 1998 and was last surveyed about their finances in 1994; we considered this to be too long of a time lapse to serve as a proxy for estate size. For the remaining 82 percent of the sample, though, we could assess their financial value within two years of their reported death date. Next, we considered two different measures of wealth. The first was a total net wealth estimate, which took the value of all assets (e.g., housing, retirement accounts) and subtracted out the value of all debt (e.g., mortgages, credit card).³⁰ The second is a measure of the value of their liquid investments (e.g., brokerage accounts, retirement accounts).

FIGURE 9. Average Two-Year Percentage Change in Financial Wealth for Adults 60 Years or Older, by Market Cycle



Since the survey was taken over a multi-decade period, we adjusted the financial data by inflating all values to correspond with the value of 2017 dollars. This creates a comparable benchmark to evaluate changes over time.

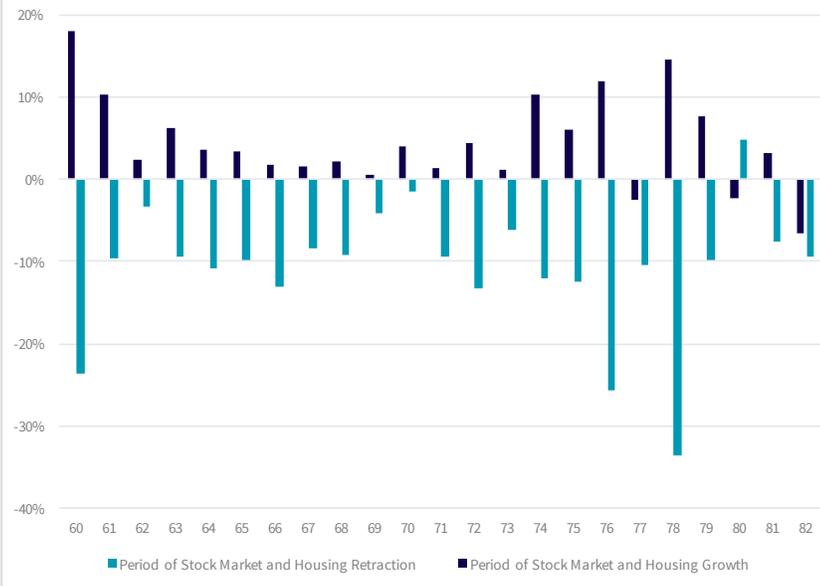
We find in Figure 8 that retired adults generally die with the same amount of savings and overall wealth regardless of whether they die younger or older in retirement. Looking at the median respondent, we find that the net wealth of respondents that died in their 60s was about \$83,000. Respondents that died in their 70s had about \$81,000 in net wealth; and in their 80s, it was \$71,000. Liquid investments were also very similar in value across different death ages. The median respondent that died in their 60s had about \$3,000 in liquid investments within two

years of their passing, which increased to \$10,000 for respondents that died in their 70s and \$15,000 for those that died in their 80s. In both cases, medians among respondents that died in their 90s was much higher at about \$140,000, but this sample of former respondents was very small. We also found that parity in average wealth and investment value across different death ages. The average retired adult died with about \$296k in net wealth in their 60s, \$313k in their 70s, \$315k in their 80s, and \$238k in their 90s. Similarly, the average adult that dies in their 60s has about \$133k in liquid investments, \$156k in their 70s, \$186k in their 80s, and \$143k in their 90s.

We also find that estate values have been growing in value over time. We found this by assessing the financial profile of respondents that died between 2000-2002 or 2010-2012. We find that the average near-death value of estates grew by 130 percent between 2000-2002 and 2010-2012, which is particularly notable given the large retraction in both stock and housing market values in 2009. We also broke these data up by the age of the deceased respondent to see how the value of the estate was affected by the length of time the estate could either grow or retract in value. Like the overall sample, we find that the value of estates left to heirs has grown, regardless of whether the year of death was in the 60s, 70s, 80s, or even 90s. The increase in the value of near-death estates over this period is particularly striking given the large deflationary effect of the market retraction in 2009 and the housing markets in 2009-2011.

These data indicate that the typical households over the age of 60 will die with wealth, albeit of a low value. In addition, the average household will die with quite a bit of wealth, and seems to be dying with progressively larger estates over time, helped-out by the fact that the top 25th percentile of respondents owns most of the wealth in the U.S. population. But, these data provide no visibility into the quality of life prior to death, so we cannot conclude from these data alone whether retirement savings were sufficient for these households. In addition, the median values are quite low, which indicates that most older households would have to live fairly spartan lives with a dependency on income outside of their financial accounts. Given that, it is possible that respondents just depleted their funds earlier in their retirement and had adjusted their lifestyles. To assess this potential, we analyze in the next section how financial wealth varies as we age.³¹

FIGURE 10. Average Two-Year Percentage Change in Net Wealth, by Age of Adult at Beginning of Survey



Changes in Wealth and Investable Asset Values

While the near-death value of estates is similar for the median and average respondent over different death ages, we could not conclude from that analysis alone the validity of negative expectations held by the average older adult about their future financial wellbeing. To assess this question, we looked at how the net wealth and investable asset value changed in a sample of adults 60 years and older that were surveyed between 2000-2012. If concerns are justified, we should see the value of these financial numbers decline over time.

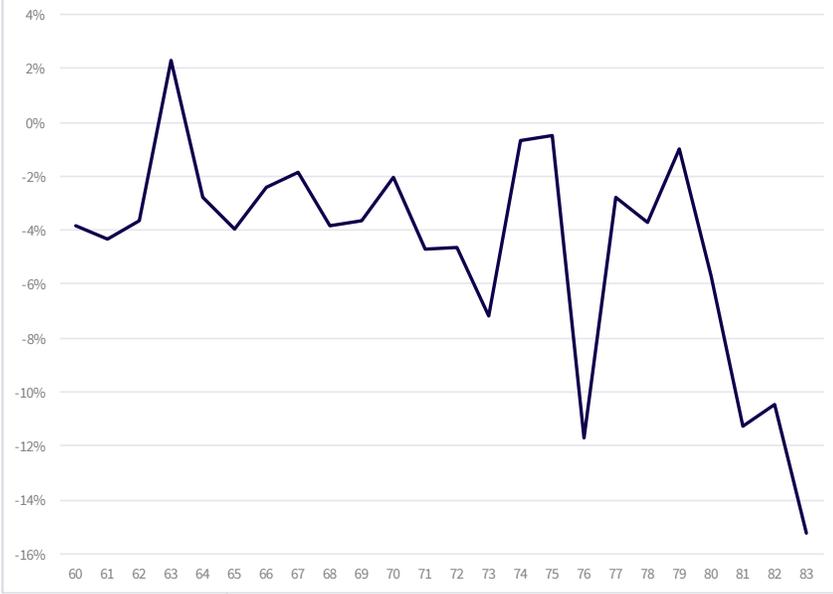
We find in Figure 9 that the validity of expectations about being better or worse off financially are highly dependent on the broader markets.

During periods of stock market growth, the average household over 60 years old saw their net wealth increase by 4 percent over an average two-year period; the median household saw their wealth increase by 3 percent.³² But, fortunes reversed during periods of stock market retraction. We found that the average household over 60 lost an average of nearly 8 percent of their net wealth over two years; whereas the median household saw their wealth decrease by about 1 percent. The same trends were evident when we considered how the value of investable assets change over time. Like the trend in overall wealth, the average household over 60 saw the value of their liquid assets increase during periods of stock market growth by about 4 percent over the average two-year period, while the median household saw their liquid asset value decrease by 3 percent over a comparable period. But, investable asset values reversed heavily during periods of stock market retraction: the average household over 60 lost nearly 8 percent of their liquid account balance over an average two-year period; whereas the median household saw their wealth decrease by about 10 percent.

In Figure 10, we decompose the data further by considering how the average person 60 years or older fared over two-year time periods by each age between 60-83.³³ We do this because it's possible that people in their 60s fare better financially than people in their 70s or 80s, since they may have relatively more opportunities to generate wealth. Inheritances might be more likely in this younger cohort, for instance. There also may be more relative opportunities to go back to work and make additional money. Together, these factors may bias the data on how the financial value of respondents 60 years and older changes over time. Similarly, respondents in their 80s may face higher out-of-pocket healthcare costs, like long-term costs, which could more rapidly deplete their wealth compared to younger respondents. However, we find that that changes in wealth and liquid investment values over time are largely independent of age. Respondents at every age between 60-83 saw their liquid investable account balances grow over an average two-year period during periods of stock market growth; and drop during corrections. In fact, there is almost no correlation between the age of the respondent and the size of the gain or drop in their account balances. Instead, these average trends largely persist at every age after 60 years old.

These data indicate that our declining optimism as we age about our own financial fortunes is

FIGURE 11. Average Two-Year Percentage Change in Spending Between 2000-2012, by Age of Adult at Beginning of Survey



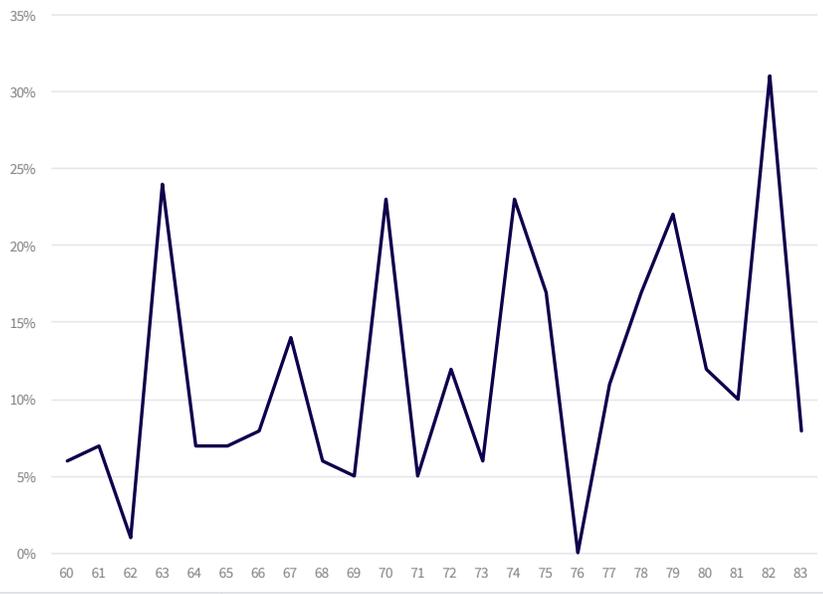
generally not warranted. Absent a major stock market and housing market correction like we experienced in 2008-2009, older households tend to be modestly better off financially as they age; or, at the very least, don't see big swings in the value of their assets over time.³⁴ This suggests that just like we found our stock market expectations may become overly conservative as we age, we also might become too pessimistic about our own financial prospects as well. This could lead to under-consumption for some households. While the median household does not have much money to deaccumulate over time, higher asset households do have capital.³⁵ Their declining financial confidence may lead these households to live overly insular lives because they may feel relatively less free to travel and spend money on entertainment, or socialize with friends over meals out. In time, these socially constricting behaviors can hasten mental and physical problems.³⁶

The average adult 60 years or older will trim their spending by about 2.5 percent every year, or by about 20 percent over a 10-year period. We also find that spending drops faster for people in their 80s compared to those in their 60s and 70s, falling by about 30 percent, on average, over a 10-year time-period. These trends may be attributable to the weakening confidence that households have about their financial well-being as they age.

To evaluate how spending changes as we age, we rely on the University of Michigan Health and Retirement Study, described above. Other studies have also relied on these data to assess spending.³⁷ Our approach differs from existing literature in a few areas. First, we consider how spending varies for the sample of households that were 60 years or older during the first panel survey that inquired about spending. Second, we limit the sample to the households where spending data is available for the entire 12-year sample period between 2000-2012.³⁸ All of the existing studies that we could find limit their analysis to a shorter time period, such as all 2-year spending changes (regardless of the time period). We are instead interested in seeing how spending changes over as long a period as possible. In addition, an important limitation of a smaller window of time is that it ignores the exogenous effect of economic and market cycles, which influence spending decisions. Extending out the study period to cover boom and bust cycles, and focusing on the same set of households that went through each, gives us visibility into how these factors influence spending trends. Longer time periods also have a relatively more expansive view into how spending changes as we age, which, we find, is of importance to money managers and policymakers.

We find that the average adult 60 years or older will trim their spending by about 2.5 percent every year, or by about 20 percent over a 10-year period. Similarly, when we look at the mean spending for each age in the sample, we find in Figure 11 that – except for the 63 year olds – the average household between 60 and 85 years old at the beginning of the sample period reduces their spending over the next

FIGURE 12. Average Two-Year Standard Deviation in Spending Between 2000-2012, by Age of Adult at Beginning of Survey



12-years, ranging from a low of an 8 percent reduction for 63 and 75 year olds to a high of 66 percent reduction for the 83 year olds. Average annual spending across the sample population is around \$50,000 for people in their 60s – compared to about \$35,000 for people in their 80s. However, for those in the 90s, average spending begins to climb again, although the sample size for this group is very limited.

We also find in Figure 12 that spending volatility increased as people age. Biannual variation in spending for the population in their 60s was about 6 percent during this period, which means that the average household saw their annual spending vary by this much during a two-year period. This volatility becomes more extreme as people age: for the cohort in their 70s and 80s, we

saw average biannual spending vary by an average of 9.5 percent.³⁹ The probability of spending shocks also seems to increase with age, reflected by the fact that older households are much more likely than younger households to see large, non-incremental increases in spending over a two-year frame. Increasing out-of-pocket health expenses (e.g. long-term care costs not covered by Medicare, Medicaid, or private insurance) is certainly one contributor to this increased volatility.⁴⁰ Another is housing expenses, although survey questions about those costs may be picking-up some of the long-term care expenses.

We lack enough data to conclude that declining optimism causes declines in spending as we age. Consumers may have more of their expenses covered by public insurance as they age, which would happen independently from any changes in consumer sentiment. Similarly, consumers may just value consuming earlier in their life more compared to later in life. They also may face fewer expenses as they age, with a mortgage paid off and children that are economically independent. Nominal income sources untethered to inflation adjustments may also create reduced buying power for consumers as they age. But, the strong relationship between consumer sentiment and spending does suggest that our declining financial optimism as we age likely does contribute to the decline in spending that we observe.⁴¹ For some consumers, this dynamic will create under-consumption as they age.

Conclusion & Recommendations

This paper looks at two different surveys administered by the University of Michigan to assess how economic attitudes and consumer finance behaviors evolve as we age. We found that financial optimism declines as we age, and that this trend persists through periods of economic growth and retraction. We also found that older adults can be overly pessimistic about both the economy's and their own financial health. As a group, older households generally feel like the stock market is more likely to retract than grow, even though this is rarely the case. In addition, we found that the value of financial assets estates is generally maintained as people age, except for during major market corrections. Finally, for people in their 60s and older, spending levels typically fall, perhaps as a reaction to decreasing financial optimism; although spending also becomes more volatile as we age.

For advisors and financial planners, these findings offer several insights. First, assumptions that spending is linear in retirement are wrong and can be dangerous. These assumptions overstate the amount of money clients need in retirement, sometimes by a wide margin, which can lead to under-consumption that could carry health consequences for clients. Second, these data indicate products that guarantee a fixed-income in exchange for a fee need to be carefully used in planning. Spending falls for the typical household as they age, so the cost of insuring current consumption may be suboptimal relative to a more flexible vehicle that can adapt to spending needs as they change. On the other hand, non-discretionary expenses, like out-of-pocket medical costs and housing expenses, tend to rise, which means an insured foundation for retirement spending needs can make sense in some scenarios for some of a retiree's spending liability and if available at a reasonable price. Third, these data signify that households need guidance about their cognitive biases as they age, which may lead to excessively conservative portfolios and lifestyles, which can become self-fulfilling prophecies of economic problems. Finally, these data indicate that volatility in annual spending grows with age, in part, because of uninsured long-term care costs. Advisors need better tools to manage this volatility for clients.

These data also have implications for policymakers and market leaders. The need for more extensive, richer data on aging households is one place to start, as the population continues to live longer, more productive and healthier lives. Generalizable public information about the investment and insurance behavior of households is almost non-existent, making it impossible to draw general conclusions about the efficacy of portfolios, coverage and decision-making. These consumer finance details become particularly critical in retirement – when many stop earning paychecks and rely heavily on the success of their financial products and decisions. Similarly, we know very little about the attitudes of older households and how these attitudes affect their spending, investment, and insurance behaviors. This paper has relied on two different datasets to look at general trends across age groups, but it is impossible to link these two groups of people together to see the individual effects of attitudinal differences. Finally, the linear spending assumption used in many financial planning and advice engines is wrong and can lead to punishing financial consequences for households. This assumption can unnecessarily scare households about the future and even may lead them to overinvest in low-performing financial products. More attention should be given to this issue among market leaders and policymakers.

Notes

- 1 Center for Disease Control, National Center for Health Statistics.
- 2 United States Census Bureau - Population by Age, Sex, Race, and Hispanic or Latino Origin for the United States: 2000, 2010. Another interesting finding from demographers is that the population over 65 is projected to grow 10x faster than the population under 18 between 2014-2060. For more information, see Sandra L. Colby and Jennifer M. Ortman. 2015. "Projections of the Size and Composition of the U.S. Population: 2014 to 2060." U.S. Department of Commerce, Economics and Statistics Administration.
- 3 "Health, United States, 2014." U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics.
- 4 Ibid. Also see: Linda G. Martin, Robert F. Schoeni, and Patricia M. Andreski. 2010. "Trends in Health of Older Adults in the United States: Past, Present, Future." *Demography*. 47 (Supplement): S17-S40.
- 5 This is not to suggest that older adults are more pessimistic generally than younger households. For a thoughtful analysis of the general well-being of older adults, please see Laura L. Carstensen. 2009. *A Long Bright Future: Happiness, Health, and Financial Security in an Age of Increased Longevity*. New York: Public Affairs.
- 6 This impact may be further exacerbated by the fact that a growing number of consumer assets are held in employer-sponsored target-date-funds, which automatically reduce the equity premium in investor accounts as people age.
- 7 For some examples of this literature, see: Maude Toussaint-Comeau and Daniel DeFranco. "Trends in consumer sentiment and spending." The Federal Reserve Bank of Chicago, Chicago Fed Letter. Number 262; Michelle L. Barnes and Giovanni P. Olivei. 2013. "The Michigan Surveys of Consumers and Consumer Spending." Public Policy Briefs, No. 13-8; C.D. Carroll, J.C. Fuhrer, and D.W. Wilcox. 1994. "Does consumer sentiment forecast household spending? If so, why?" *The American Economic Review*, 84(5), 1397-1408. Jason Bram and Sydney Ludvigson. 1998. "Does Consumer Confidence Forecast Household Expenditure? A Sentiment Index Horse Race?" Federal Reserve Board of New York, Economic Policy Review. Note that this later study finds that the University of Michigan consumer sentiment data only has weak value at forecasting future consumer expenditures, but other consumer sentiment data is more strongly correlated with those data trends.
- 8 Numerous sources and others are covered at length in Laura L. Carstensen. 2009. *A Long Bright Future: Happiness, Health, and Financial Security in an Age of Increased Longevity*. New York: Public Affairs. Also see E. McAuley, B. Blissmer, D. Marquez, G. Jerome, A. Kramer, and J Katula. 2000. "Social relations, physical activity, and well-being in older adults." *Preventive Medicine*, 31(5), 608-617; or M.G. Ragheb and C.A. Griffith, C. A. 1982. "The contribution of leisure participation and leisure satisfaction to life satisfaction of older persons." *Journal of Leisure Research*, 14(4), 295; and A. Stathi, K.R. Fox, and J. McKenna. 2002. "Physical activity and dimensions of subjective well-being in older adults." *Journal of Aging and Physical Activity*, 10(1), 76-92.
- 9 Bureau of Labor Statistics; Federal Reserve Board of Governors.
- 10 Similarly, economic performance has long been known to drive electoral outcomes. It is possible that overly negative views of the economy could lead to a bias toward candidates or parties that are deemed to be pro-business or focus on economic growth above other issues. For instance, see Michael S. Lewis-Beck and Mary Stegmaier. 2000. "Economic Determinants of Electoral Outcomes," *Annual Review of Political Science*. Vol. 3:183-219.
- 11 United States General Accountability Office. 2015. "Retirement Security: Most Households Approaching Retirement Have Low Savings." GAO-15-419, a report to the Subcommittee on Primary Health and Retirement Security, Committee on Health, Education, Labor, and Pensions, United States Senate; Securities and Exchange Commission. 2016. "Perspectives on Retirement Readiness in the United States: A White Paper," prepared by the SEC's Office of the Investor Advocate; Alicia H. Munnell. 2015. "Falling Short: The Coming Retirement Crisis and What to Do about It," Center for Retirement Research at Boston College, Issue in Brief No.15-7; Jack VanDerhei. 2015. "Retirement Savings Shortfalls: Evidence from EBRI's Retirement Security Projection Model." Issue Brief, No. 410; Aon Hewitt. 2012. "The Real Deal: 2012 Retirement Income Adequacy at Large Companies – Highlights."
- 12 It's important to point out that while there is an active debate on this issue, it is not a debate that the asset value of house-

holds under 54-years-old has been shrinking over time, whereas the asset value of households over 55 has been growing (although liquidated asset value is more uneven). The clearest data on this issue is Federal Reserve data, which indicates, for instance, in 1989 the median asset value of households younger than 35 was \$36k, which had shrunk to \$29.6k by 2013. This trend was also apparent in 35-44 year-olds and 45-54 year-olds. By contrast, the median asset value of older households grew during this period. The fast growth was observed for households aged between 65-74, which saw their median asset value grow from \$152k to \$304k during this period. This provides at least suggestive evidence that there is an asset wealth gap growing between generations, which may leave younger generations less prepared for generations compared to their older counterparts. However, it is an open question whether people want to or should maintain their pre-retirement lifestyle as they age. As we find in this paper, most people retract their consumption by quite a lot as they age. We do not know if that is by choice or not; but, the asset preservation we observe in the data suggest that households shift their consumer finance preferences as they age from income generation to wealth preservation. We have more to say on this in the findings section.

- 13 This is by no means a perfectly clear empirical relationship. For instance, more wealthy individuals are known to live longer than less wealthy individuals, which may mean that the median asset value is just pulled-up by wealthier individuals outliving their less wealthy counterparts. Nonetheless, the consideration of medians will moderate this effect; so will an analysis of near-death estates over multiple decades.
- 14 See note #7. To see how consumer sentiment also is related to political outcomes and possibly outcomes, see S. De Boef, S. and P.M. Kellstedt, P. M. 2004. "The political (and economic) origins of consumer confidence." *American Journal of Political Science*, 48(4), 633-649.
- 15 This is a similar analysis to the literature that considers how risk aversion evolves as we age. See, for instance: Steven M. Albert and John Duffy. 2012. "Differences in Risk Aversion between Young and Older Adults." *Neurosci Neuroecon*. (1):10.2147; and Rui Yaoa, Deanna L. Sharpe, Feifei Wang. 2011. "Decomposing the age effect on risk tolerance." *The Journal of Socio-Economics*. 40: 879-887. Importantly, as the authors point out in this later article, the age effect has three components – (a) aging effects, or the declining investment horizons as we age and the depreciation of our human capital as people age; (b) a generational effect, or socioeconomic environments that influence different generations and do not change with age (e.g., the Great Depression); and (c) the period effect, or socioeconomic environments that influence individuals of all ages over time (e.g., the 2001 stock bubble/burst).
- 16 See note #7.
- 17 See, for instance: U.G. Gerdtham and M. Johannesson. 2001. "The relationship between happiness, health, and socioeconomic factors." *Journal of Socio-Economics*, 30(6), 553-557. Also see Carstensen (2015) cited above.
- 18 The specific question is "Suppose that tomorrow someone were to invest one thousand dollars in a type of mutual fund known as a diversified stock fund. What do you think is the percent chance that this one thousand dollar investment will increase in value in the year ahead, so that it is worth more than one thousand dollars one year from now?"
- 19 For a more robust measure of retirement savings sufficiency, see Lisa Greenwald, Craig Copeland, and Jack VanDerhei. 2017. "The 2017 Retirement Confidence Survey: Many Workers Lack Retirement Confidence and Feel Stressed About Retirement Preparations." Employee Benefits Research Institute, Issue Brief #431. They, too, find that older adults are the most confident out of any age group about the sufficiency of their retirement savings.
- 20 The specific question is "And 5 years from now, do you expect that you (and your family living there) will be better off financially, worse off, or just about the same as now?"
- 21 For a discussion of financial health, see Matt Fellowes. 2014. "Financial Wellness — The Future of Work." Washington, DC: HelloWallet Inc.
- 22 This is a somewhat surprising finding, given the evidence that older populations are relatively more confident than younger generations about the sufficiency of their retirement savings, which both EBRI work (cited earlier) and this University of Michigan survey support. But, it could be that older populations think their financial health will decrease, but perhaps generally are more optimistic that they will not decrease to the point of not having sufficient capital to cover their costs.
- 23 The relationship between demographic variables and life expectancy is well-studied. See, for instance, Kenneth G. Manton and Eric Stallard. 1991. "Cross-sectional estimates of active life expectancy for the US elderly and oldest-old populations." *Journal of Gerontology* 46.3S170-S182; R.G. Rogers. 1992. "Living and dying in the USA: sociodemographic determinants of

death among blacks and whites.” *Demography*: 29(2), 287-303.

- 24 The index is calculated as $[(X1+X2+X3)/4.1134 + 2]$, where the variables are equal to the percent of respondents giving favorable replies minus the percent giving unfavorable replies, plus 100. In this model, X1 represents responses to this question: “Now looking ahead--do you think that a year from now you (and your family living there) will be better off financially, or worse off, or just about the same as now?” X2 represents responses to this question: “Now turning to business conditions in the country as a whole--do you think that during the next twelve months we’ll have good times financially, or bad times, or what?” X3 represents responses to this question: “Looking ahead, which would you say is more likely--that in the country as a whole we’ll have continuous good times during the next five years or so, or that we will have periods of widespread unemployment or depression, or what?”
- 25 Please see earlier citations that address the fact that older Americans are also generally happier than other generations. These literatures suggest that the happiest people also tend to be the most economically pessimistic, which is a subject for another paper.
- 26 To see how different groups of people spend their time, see The U.S. Department of Labor’s American Time Use Survey.
- 27 AARP.
- 28 Numerous sources are covered in Laura L. Carstensen. 2009. *A Long Bright Future: Happiness, Health, and Financial Security in an Age of Increased Longevity*. New York: Public Affairs. Also see E. McAuley, B. Blissmer, D. Marquez, G. Jerome, A. Kramer, and J Katula. 2000. “Social relations, physical activity, and well-being in older adults.” *Preventive Medicine*, 31(5), 608-617; or M.G. Ragheb and C.A. Griffith, C. A. 1982. “The contribution of leisure participation and leisure satisfaction to life satisfaction of older persons.” *Journal of Leisure Research*, 14(4), 295; and A. Stathi, K.R. Fox, and J. McKenna. 2002. “Physical activity and dimensions of subjective well-being in older adults.” *Journal of Aging and Physical Activity*, 10(1), 76-92.
- 29 Please see note #13.
- 30 This estimate does not include the value of Social Security income.
- 31 This question was also addressed in James Poterba, Steven Venti, and David A. Wise. 2015. “What Determines End-of-Life Assets? A Retrospective View.” National Bureau of Economic Research: Working Paper No. 21682. Using these same data, they found that the asset values of respondents were very similar at the beginning of the sample period and at the last sample before they died. This more recent work built on the findings in David A. Love, Michael G. Palumbo, and Paul A. Smith. 2008. “The Trajectory of Wealth in Retirement.” Finance and Economics Discussion Series, Divisions of Research & Statistics and Monetary Affairs, Federal Reserve Board, Washington, D.C.
- 32 The boom period for housing and stock markets is defined as 2000-2008; the bust period is 2008-2012. Although stock markets had started a full recovery by 2010, housing markets were still underwater through much of this period.
- 33 The sample size is small and becomes even more so after the age of 83.
- 34 See Love, Palumbo, Smith (2008).
- 35 The median value of financial assets for families with holdings and a head of household between 65-74 was \$72,000 in 2013 and \$28,000 for households headed by an adult 75 or older. Federal Reserve Board. 2013 Survey of Consumer Finances.
- 36 Numerous sources and others are covered at length in Laura L. Carstensen. 2009. *A Long Bright Future: Happiness, Health, and Financial Security in an Age of Increased Longevity*. New York: Public Affairs. Also see E. McAuley, B. Blissmer, D. Marquez, G. Jerome, A. Kramer, and J Katula. 2000. “Social relations, physical activity, and well-being in older adults.” *Preventive Medicine*, 31(5), 608-617; or M.G. Ragheb and C.A. Griffith, C. A. 1982. “The contribution of leisure participation and leisure satisfaction to life satisfaction of older persons.” *Journal of Leisure Research*, 14(4), 295; and A. Stathi, K.R. Fox, and J. McKenna. 2002. “Physical activity and dimensions of subjective well-being in older adults.” *Journal of Aging and Physical Activity*, 10(1), 76-92.
- 37 Sudipto Banerjee. 2015. “Change in Household Spending After Retirement: Results from a Longitudinal Sample.” Washington, DC: EBRI, Issue Brief 420; Emma Aguila, Orazio Attanasio, and Costas Meghir. 2011. “Changes in consumption at retirement: Evidence from panel data.” *Review of Economics and Statistics*, 93(3), pp. 1094-1099; Michael Hurd and Susan

Rohwedder. 2008. "The Retirement Consumption Puzzle: Actual Spending Change in Panel Data." NBER Working Paper No. 13929; David Blanchett. 2013. "Estimating the True Cost of Retirement." Chicago, IL: Morningstar Inc, White Paper.

- 38 Note that Hurd and Rohwedder (2008) provide guidance that spending categories were added in 2001 and 2003, so the spending estimates are not directly comparable with later periods. This may mean we underestimate spending reductions through this period, although we moderate this effect by looking at the biannual changes throughout this period. In addition, we find that the relative changes are not large.
- 39 This is similar to findings in Diana Farrell and Fiona Greig. 2017. "Coping with Costs: Big Data on Expense Volatility and Medical Payments." New York: JP Morgan Chase Institute.
- 40 U.S. Department of Health and Human Services, Center for Disease Control and Prevention, National Center for Health Statistics. 2016. "Long-Term Care Providers and Services Users in the United States: Data From the National Study of Long-Term Care Providers, 2013–2014." Vital and Health Statistics, Series 3, Number 38; Kemper, Peter, Harriet L. Komisar, and Lisa Alecxih. 2005. "Long-Term Care over an Uncertain Future: What Can Current Retirees Expect?" *Inquiry* 42(4): 335–50.
- 41 This is very well studied ground. For some samples, see: Maude Toussaint-Comeau and Daniel DeFranco. "Trends in consumer sentiment and spending." The Federal Reserve Bank of Chicago, Chicago Fed Letter. Number 262; Michelle L. Barnes and Giovanni P. Olivei. 2013. "The Michigan Surveys of Consumers and Consumer Spending." Public Policy Briefs, No. 13-8; Jason Bram and Sydney Ludvigson. 1998. "Does Consumer Confidence Forecast Household Expenditure? A Sentiment Index Horse Race?" Federal Reserve Board of New York, Economic Policy Review.



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About the Author

Matt Fellowes is the founder and CEO of United Income. Prior to founding United Income, Matt was the Chief Innovation Officer at Morningstar and the founder and CEO of HelloWallet, an award-winning financial guidance software company acquired by Morningstar Inc. in 2014. Earlier in his career, Matt was a Fellow at the Brookings Institution and an adjunct professor of public policy at Georgetown University and George Washington University. He currently sits on the Board of Directors of Fellowes Inc. and the Advisory Board of the Stanford Center on Longevity. A native of Chicago, he holds a PhD from the University of North Carolina at Chapel Hill, an MPP from Georgetown University, and a BA from St. Lawrence University.

Acknowledgements

The author would like to thank Lara Langdon, Ben Samuel, and Penny Wu for their help with this paper, along with the peer-reviews provided by a panel of anonymous reviewers. He would also like to thank the Social Security Administration and the U.S. Department of Commerce for sponsoring these surveys, and the University of Michigan for making the data so easily accessible for external research.

About United Income

United Income is a money management solution that extends the life and potential of money to compliment the innovations that have extended human life. Our unified system of money management reflects a deeply held belief that financial decisions are interconnected. New data and technology allow us to observe and understand these relationships in new ways. We translate that unique understanding into powerful and personalized money management for our members that brings their retirement dreams to life.

Our team brings decades of experience leading the finance and technology markets. We have written or overseen the laws governing the retirement and financial markets in places like the White House and Department of Treasury, helped to invent technologies that have changed the world at places like Amazon and Tesla, and won awards like the Webby for the best financial software website in the world. We are all at United Income to pursue the ambitious goal of understanding how the consumer finance world works as a unified system. This unique understanding of how the world works allows us to bring hope, meaning, simplicity, and empowerment to our members.