CENTER for RETIREMENT RESEARCH at BOSTON COLLEGE

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# WHAT RISKS DO NEAR RETIREES AND RETIREES FACE FROM INFLATION, AND HOW DO THEY REACT?

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## Introduction

In June 2022, U.S. inflation peaked at 8.9 percent – a dramatically high level after nearly three decades of relatively stable prices.[1] The question is how such an inflation shock affects retirement security. This paper explores that question in four steps. First, it summarizes what is known about inflation's impact on household finances from previous studies. Then, it draws on these insights to illustrate how a bout of high inflation affects older households' standard of living, modeling the path of consumption and wealth for near retirees and retirees under different macroeconomic scenarios. Next, it considers how older households respond to inflation by presenting new survey evidence on labor supply, saving, and investment allocation. Finally, incorporating this response into the scenario analysis shows the overall impact of inflation on retirement security.

The results show that high inflation generally harms older households, but the magnitude of the impact depends on two offsetting factors: 1) the extent to which income and investments keep pace with rising prices; and 2) the amount of fixed-rate debt held by the household, which declines in real terms as inflation rises. These two factors lead to varying risk across the age and wealth distribution. For example, inflation harms retirees more than near retirees because – outside of Social Security – retiree income is less indexed to prices, and retirees hold less debt. Similarly, top-wealth households see a smaller reduction in financial assets than their lower-wealth counterparts because they are more heavily invested in equities and business that grow with inflation; however, they ultimately end up with a bigger drop in consumption than lower-wealth households living off Social Security.

Additionally, older households react to rising inflation in ways that both harm and help their retirement security. On the negative side, budget pressures reduce new saving and increase withdrawals from existing accounts – households effectively shift future consumption into the present. On the positive side, a few near retirees delay their planned retirement, giving them time to build up their savings and a shorter retirement for those savings to support. Interestingly, older households do not adjust their asset allocation in response to inflation to any meaningful extent.

The rest of this paper is organized as follows. The first section summarizes what we know to date about the impact of an inflation shock on household finances. The second section describes the baseline scenario analysis (without incorporating household responses). The third section introduces the survey of older households and explains the methodology for identifying the impact of inflation. The fourth section incorporates households' behavioral responses into the scenario analysis. The final section summarizes the findings and offers some strategies that older households might adopt to protect their finances from the impact of inflation.

## Prior Research on the Impact of an Inflation Shock on Household Finances

Previous studies provide useful insights for assessing inflation's impact on retirement security. This literature – which reflects a range of time periods, geographies, and analytical methods – addresses two issues: 1) the direct effect of an inflation shock on household income and wealth;

[1] Inflation here is measured by 12-month rolling average growth in the Consumer Price Index (CPI-U).

and 2) how households react to inflation, in terms of consumption, saving, investment allocation, and the decision to retire.[2]

*A Brief Overview of the Literature*

Studies of inflation's impact on retirement security generally fall into two camps: pre- and post-COVID-19. Prior to the pandemic, the United States and many Western European countries had not seen a major rise in price levels since the late 1970s and early 1980s. Thus, researchers interested in this question used statistical analysis to relate small changes in inflation and interest rates during the 1990s and 2000s to the real value of household income, assets, and debt.[3] Given that the inflation fluctuations during this period were very small, one should exercise caution extrapolating these results to 2022. Nevertheless, the pre-pandemic literature confirmed a key insight: that inflation impacts households differently based on the specific source of their income, the allocation of their assets, and their exposure to fixed-rate mortgage debt.

More recently, the rapid rise in inflation that began in 2022 has sparked a flurry of research activity. Several post-pandemic studies maintain the spirit of previous literature, assessing the change in household well-being given the observed evolution of wages, financial assets, and real estate prices.[4] However, these studies can be difficult to interpret, as inflation coincided with a host of other events – the pandemic, supply chain disruptions, and war in Ukraine – that also impacted financial markets. Moreover, governments responded with a combination of monetary policy and fiscal stimulus that directly affected household balance sheets. Consequently, the impact of inflation on household finances is hard to isolate from these other factors.

In parallel, an interesting new body of work tackles a different question: how households respond to inflation pressures.[5] These analyses either ask households directly about their experiences, or use randomized control trials to assess how households behave when educated about the impact on inflation. Because this literature is so new, a great deal of room remains for future research to make innovative contributions.

As noted, the existing literature sheds light on two important questions.

*How Does an Inflation Shock Affect Household Income and Wealth?*

As previously discussed, many studies consider how an inflation shock affects the real value of income and wealth. On the income side, households approaching retirement face the risk that labor earnings do not keep pace with rising prices. Since wages and salaries are often negotiated

[2] We also reviewed a vast literature on the macroeconomic determinants of inflation as well as how households and firms set their inflation expectations, but this literature is outside the scope of our analysis and so is not summarized.
[3] Adam and Tzamourani (2016); Albanesi (2007); Auclert (2019); Bach and Stephenson (1974); Crawford and Oldfield (2002); Doepke and Schneider (2006a, 2006b, and 2006c); Erosa and Ventura (2002); Gurer and Weichenrieder (2020); Hottman and Monarch (2020); Hobijn and Lagakos (2005); Jaravel (2021); Kaplan and Schulhofer-Wohl (2017); Lee, Macaluso, and Schwartzman (2021); McGranahan and Paulson (2005); and Yang (2022). A few post-pandemic papers also take this approach; for example, see Bartscher et al. (2022); Del Canto et al. (2023); Lauper and Mangiante (2021); McKay and Wolf (2023); Orchard (2022); and Wolff (2023).
[4] See, for example, Cardoso et al. (2022) and Pallotti et al. (2023).
[5] The third section provides references to specific papers in this literature.

on a set schedule (typically once per year), earnings tend to lag inflation. And unemployment poses a significant risk if the Federal Reserve's response to inflation triggers a recession. Similarly, many retirees still rely on defined benefit pensions, which often do not keep pace with inflation (although these plans are increasingly rare for private sector workers).[6] On a more positive note, most retirees also receive inflation-indexed income from Social Security.

Regarding wealth, the direct impact of inflation depends on the household's portfolio and the nature of the shock. For example, financial models predict that fixed-income holdings suffer from sudden price increases. Equities fare better, so long as the Federal Reserve avoids a recession.[7] And while house prices rise with inflation, this growth may be offset by shrinking demand if rising interest rates make it harder for prospective buyers to take out a mortgage.[8] On the other hand, households that already hold mortgage debt benefit from inflation because the real burden of the debt goes down.[9] Hence, inflation redistributes resources from older generations (who are typically lenders) to younger generations (who are often borrowers).

*How Does an Inflation Shock Affect Consumption, Saving, Investment Allocation, and the Decision to Retire?*

Meanwhile, a growing number of studies link households' inflation concerns to their consumption, saving, investment allocation, and retirement decision. As expected, inflation reduces consumption due to lower real income and wealth, but the problem can be compounded by household misperceptions. For example, households often forget that inflation reduces the burden of mortgage debt; once informed about this channel, they feel wealthier and loosen their belts.[10] Similarly, households often assume that rising inflation will soon trigger a recession, so they reduce consumption and engage in precautionary saving while they still can.[11]

In addition to the research on consumption, several recent studies survey households about how current inflation has impacted their saving and investment behavior.[12] These studies report that 25 to 45 percent of households have reduced their retirement saving because of inflation, and many are also considering shifts in their asset allocation. Although equities perform relatively well in inflationary environments, households seem to prefer more conservative investments. For instance, one recent study shows that a surprising 49 percent of retirees consider cash to be the best protection from inflation – possibly due to fears of a recession.[13]

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[6] While most private sector pensions do not provide any inflation adjustments to benefit payments, a majority of state and local government pensions provide adjustments that account for a portion of the rise in prices.
[7] Specifically, the concern here is whether the Federal Reserve takes overly aggressive action that triggers a recession. Cieslak and Pflueger (2023) provide a nice overview of these models.
[8] Glaeser, Gottlieb, and Gyourko (2010).
[9] Since most U.S. households hold fixed-rate mortgages, the monthly mortgage payment stays constant even as household income rises with inflation.
[10] Schnorpfeil, Weber, and Hackethal (2023). Malmendier and Nagel (2016) also note that households who lived through past periods of high inflation are more likely to take on fixed-rate mortgage debt.
[11] Bachmann, Berg, and Sims (2015); Binder (2017); Botsch and Malmendier (2020); Coibion et al. (2019); Coibion, Gorodnichenko, and Weber (2022); and Vellekoop and Wiederholt (2020).
[12] Allianz Life (2022); Nationwide (2022); and Yakoboski, Lusardi, and Hasler (2023).
[13] Franklin (2023). Most of the retired households in this study identify equities and inflation-indexed bonds as the best hedges, but still prefer to reallocate their savings towards cash. A survey fielded by MFS Investment

Lastly, these recent surveys also ask whether respondents have updated their expected retirement date.[14] Unsurprisingly, they find that workers expect to retire later because of inflation, but the amount of delay expected by workers in these surveys seems implausibly large.[15]

*Unanswered Questions*

Although the existing research is helpful for understanding inflation's impact on retirement, many questions remain. For instance: how vulnerable were older households to the recent inflation shock, given their income, investment allocation, and debt holdings? Were certain households more vulnerable than others? What is the impact of inflation on labor supply – retirement age and hours worked? How has inflation impacted the level of household saving? And, have households meaningfully changed their investments in response to inflation?

## How Vulnerable Are Older Households to an Inflation Shock? A Scenario Analysis

As mentioned previously, our analysis begins with a simple exercise to assess the vulnerability of older households to the recent bout of high inflation. Because inflation has been so low over the past 30 years, past experience does not offer much practical insight. Instead, we use economic theory to model the finances of six hypothetical households – of different ages and wealth levels – under a range of possible macroeconomic conditions.

Before diving into the analysis, this section defines the metrics we use to assess inflation's impact on retirement security, introduces the hypothetical households featured in our illustration, and lays out the stylized macroeconomic scenarios.

*How Do We Measure Inflation's Impact on Retirement Security?*

Intuitively, the amount of non-housing goods and services that households can consume each year depends on their income, prevailing price levels, and the extent to which they have recurring fixed expenses such as a home mortgage. For working households, this intuition can be expressed with a simple equation:

$$P * C = I - M - S \quad (1)$$

Where $P$ denotes the price of goods and services (we assume a single price for illustrative purposes, such as the CPI-U); $C$ reflects the amount of non-housing goods and services consumed; $I$ represents income; $M$ is the fixed mortgage payment; and $S$ reflects any saving that households are doing to build a stock of wealth.[16]

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Management (2023) similarly finds that households have adopted more conservative investment strategies due to inflation.

[14] Nationwide (2022) and MFS Investment Management (2023).

[15] For instance, Nationwide (2022) finds that older workers (ages 45+) expect to retire three years later, on average, due to financial pressures from inflation.

[16] Note that saving can be negative if households draw down their existing assets or take on additional debt. Households also pay income and consumption taxes that reduce the amount of disposable income. While income tax brackets are indexed for inflation, households might shift brackets as a result of inflation (both because mortgage

The math is very similar for retired households, who receive income ($I$) from external sources – such as Social Security or an employer pension – and also fund consumption by drawing down their stock of wealth:

$$P * C = I + dW - M \quad (2)$$

Where ($d$) represents the drawdown rate of wealth ($W$). From one year to the next, inflation impacts the quantity consumed ($C$) directly through the price level ($P$) and indirectly through the growth of income and wealth.[17]

Hence, our scenario analysis focuses on two metrics. First, we look at the real change in current consumption ($C$) from the beginning of our analysis period to the end.[18] Second, we also consider potential future consumption by evaluating the stock of household wealth at the end of the period. Since the ultimate goal of this exercise is to understand the impact of recent inflation, we model consumption and wealth from 2021 to 2025, with all values expressed in 2021 dollars.

*A Financial Profile of Older Households*

The analysis considers two groups of hypothetical households whose starting levels of income and wealth are designed to reflect actual households in the 2019 *Survey of Consumer Finances* (SCF):[19]

1. *Near retirees:* for households in this group, the survey-designated "household head" is 55 to 62 in 2021 and employed full-time. Sixty-two percent of these households are married, and we stipulate that the spouse is not yet receiving Social Security or pension income. In practice, most of the spouses are employed.[20]

2. *Retirees:* households in this group have a head age 62 or over. Both the head and spouse self-identify as retired (46 percent of these households are married); and the household receives Social Security income.

Table 1 shows the components underlying consumption for households near and in retirement, by wealth tercile.[21] Most of the near retirees have few sources of income beyond labor earnings. Those in the top wealth tercile also have investment income and income from "other" sources such as businesses. Additionally, a modest number of working households already receive an

payments are tax deductible and because household income might not fully keep pace with inflation). We do not model this shift because it is complex and – for most households – has a relatively small impact on average tax rates.

[17] See Appendix A for two examples involving working households.

[18] Conceptually, the real change in consumption accounts for the rise in the price level over time.

[19] We use the 2019 SCF because the most recent 2022 data reflect households' experience in 2021, which was still an unusual pandemic year with significant (and transitory) federal stimulus transfers.

[20] Specifically, 70 percent of spouses are also employed.

[21] The terciles are based on total wealth excluding Social Security and defined benefit pensions but including housing.

employer pension. Importantly, the average household must spend a portion of its income on debt obligations, particularly mortgage payments.[22]

Table 1. *Average Annual Income and Debt Payments, by Retirement Status and Wealth Tercile, 2018*

| | Near retirees | | | Retirees | | |
|---|---|---|---|---|---|---|
| | Bottom tercile | Middle tercile | Top tercile | Bottom tercile | Middle tercile | Top tercile |
| Income | $53,606 | $78,100 | $230,800 | $30,300 | $48,400 | $113,900 |
| Labor earnings | 50,700 | 71,900 | 198,500 | 1,400 | 2,700 | 7,600 |
| Capital income | 6 | 300 | 14,100 | 100 | 500 | 19,200 |
| Social Security | 0 | 0 | 0 | 16,800 | 23,100 | 30,000 |
| Employer pension | 1,200 | 2,800 | 4,100 | 7,900 | 16,500 | 24,600 |
| DC withdrawals | 200 | 200 | 800 | 1,800 | 3,000 | 17,800 |
| Other | 1,500 | 2,900 | 13,300 | 2,300 | 2,600 | 14,700 |
| Debt payments | 8,300 | 12,400 | 24,400 | 2,500 | 4,500 | 7,200 |
| Mortgage | 4,400 | 8,400 | 16,400 | 1,500 | 3,000 | 4,800 |
| Other | 3,900 | 4,000 | 8,000 | 1,000 | 1,500 | 2,400 |

Notes: Capital income includes non-taxable investments such as municipal bonds, other interest, and income from dividends. Other income includes business, farm, rental, alimony, and government transfers.
*Source:* Authors' calculations from the *Survey of Consumer Finances* (2019).

Retirees, meanwhile, receive most of their income from Social Security and defined benefit pensions. Those in the top wealth tercile also make significant withdrawals from their defined contribution plans (which include IRAs) and have notable income from capital and "other" sources. Retirees are much less likely to be making mortgage payments than near retirees.

Similarly, Table 2 shows the components of wealth by retirement status and wealth tercile.[23] Housing is the primary asset for all households. However, those in the top tercile also have significant non-housing wealth in the form of stock and bond holdings (primarily through employer-sponsored defined contribution plans), cash (which includes certificates of deposit), and "other" assets (including businesses, annuities, vehicles, and life insurance). On the liabilities side of the balance sheet, most households have mortgage debt, although – as noted earlier – this debt is less important for wealthier households and retirees.

[22] The average mortgage payment amount in Table 1 includes households who no longer have a mortgage (i.e. their mortgage payments are zero).
[23] A particular group of interest is households with $100,000 to $250,000 in liquid financial assets. These households typically do not have enough resources to self-insure against financial shocks, but also must make meaningful decisions about how to invest for retirement. In practice, working households with this level of assets have a financial profile that strongly resembles the middle wealth tercile for near retirees, while retired households with this level of assets have finances that resemble the top wealth tercile for their age group.

Table 2. *Average Assets and Liabilities, by Retirement Status and Wealth Tercile, 2019*

| | Near retirement | | | Retired | | |
|---|---|---|---|---|---|---|
| | Bottom tercile | Middle tercile | Top tercile | Bottom tercile | Middle tercile | Top tercile |
| Assets | $111,800 | $351,500 | $3,639,400 | $72,600 | $308,000 | $2,151,300 |
| Real estate | 75,500 | 216,600 | 1,055,200 | 53,200 | 212,500 | 723,500 |
| Bonds | 7,300 | 40,800 | 381,100 | 1,000 | 11,800 | 294,500 |
| Stocks | 6,100 | 35,800 | 731,700 | 1,600 | 18,500 | 585,800 |
| Cash | 5,000 | 23,200 | 187,000 | 5,700 | 31,000 | 164,100 |
| Other | 18,100 | 35,100 | 1,284,400 | 11,100 | 34,200 | 383,400 |
| Liabilities | 61,500 | 97,700 | 255,000 | 27,300 | 38,600 | 69,700 |
| Mortgage debt | 41,700 | 74,200 | 181,800 | 18,600 | 30,900 | 50,000 |
| Other debt | 19,800 | 23,500 | 73,200 | 8,700 | 7,800 | 19,700 |

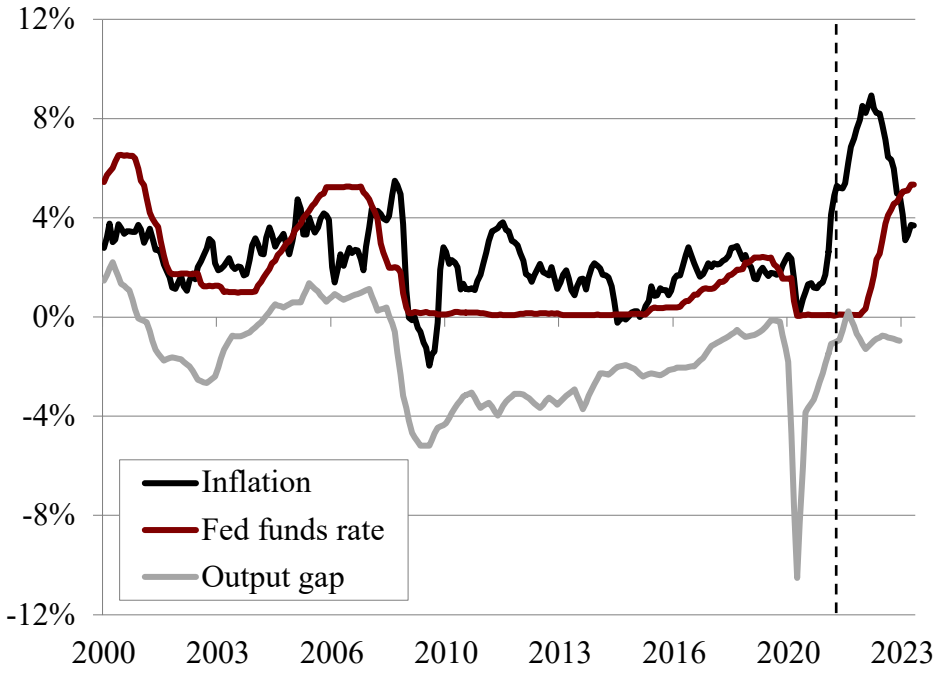
Notes: Total assets and liabilities may not add to the sum of their components due to rounding.[24]
*Source:* Authors' calculations from the *Survey of Consumer Finances* (2019).

*Four Macroeconomic Scenarios*

The next step is to determine how inflation impacts the various components of income and wealth. Our analysis runs from January 2021 through December 2025. Inflation and interest rates were still low at the beginning of 2021, reflecting a long period of loose monetary policy (see Figure 1). Although the economy had largely recovered from the brief but severe pandemic recession, the output gap (actual versus potential GDP) was still significantly negative.

[24] In Table 2, the items are defined as follows. Real estate: value of the primary residence + other residential real estate + net equity in non-residential real estate. Bonds: bonds, savings bonds, (1/2) of combination mutual funds, tax-free mutual funds, govt. bond mutual funds, other bond mutual funds, other mutual funds, and non-stock holdings in DC and IRA accounts. Stocks: stocks, stock mutual funds, (1/2) of combination mutual funds, and stocks in DC and IRA accounts. Cash: checking, saving, money market accounts, call accounts at brokerages and certificates of deposits. Other: cash value of whole life insurance, prepaid cards, other financial assets, cash value of annuity and other managed accounts, vehicles, businesses, and other non-financial assets.

Figure 1. *Inflation, Federal Funds Rate, and Output Gap, Jan. 2000-Dec. 2023*




Notes: Inflation measures the year-over-year change (June to June) in the CPI-U. The output gap measures the percentage difference in real GDP from real potential GDP as estimated by the Congressional Budget Office. *Sources*: Congressional Budget Office (2023); Federal Reserve Bank of St. Louis (2000-2023a); and U.S. Bureau of Labor Statistics (2000-2023).

Inflation can have different effects depending on the Fed's policy response. For this reason, we consider four hypothetical scenarios:

*No inflation.* In this baseline scenario, the economy gradually emerges from the long period of below-potential growth and achieves zero output gap by December 2025. To maintain target inflation of 2 percent with no output gap, the Fed incrementally raises interest rates to 4 percent (2 percent above inflation) by December 2025.[25]

*Permanent shock.* In this (rather unrealistic) scenario, the "no inflation" scenario is modified so that inflation suddenly spikes at 4 percent in May 2021 – as was actually the case – and remains at that level thereafter. Importantly, under this scenario, the Fed accepts the higher rate of inflation as its new target, and steadily raises the Federal Funds Rate to 6 percent to maintain 4-percent inflation and achieve a zero-percent output gap by December 2025.

*Soft landing.* This third scenario considers a more realistic trajectory for the economy. Inflation takes off in May 2021 and the Fed effectively uses monetary policy to reach its target of 2 percent with zero output gap by December 2025 – without triggering a recession. Specifically,

[25] The Taylor Rule is an equation specifying the optimal level of the Federal Funds Rate (r) given a level of inflation (p) and output gap (y). Bernanke (2015) demonstrates that the specification: $r = p + y + 0.5(p-2) + 2$ best fits the Fed's decision-making in practice.

this scenario mimics actual macroeconomic conditions from 2021 to 2023 – inflation climbing to 9-percent, a jump in the Federal Funds Rate to over 5 percent, and a subsequent decline in inflation to just over 3 percent – and then projects a smooth path forward to 2-percent inflation, a zero-percent output gap, and a 4-percent Federal Funds Rate by December 2025.

*Recession.* The last scenario envisions a recession following aggressive Fed policy to tamp down inflation. As in the "soft landing," this scenario mimics actual macroeconomic conditions from 2021 to 2023. But, rather than a smooth return to normal by 2025, inflation begins to rise again in 2024. The Fed responds by aggressively raising interest rates with the Federal Funds Rate peaking at 8 percent in January 2025. Ultimately, such a high rate triggers a recession (about half as severe as the Great Recession) and an immediate downward trend in inflation. Realizing the costly effects of overly aggressive policy, the Fed quickly brings rates back down; however, the economy does not fully recover by the end of the analysis period.

Conceptually, the first scenario represents a benchmark against which to measure the overall impact of inflation. The next two scenarios show how inflation impacts retirement security without the confounding influence of a recession; and the last scenario shows the combined effects of inflation plus a recession.

*Projecting Income and Wealth Under Different Scenarios*

To illustrate the impact on consumption and wealth, we must make assumptions about how different types of income and assets evolve in our macroeconomic scenarios between 2021 and 2025.

*Wages:* Matching the typical experience of workers over age 50 (and consistent with prior literature), the first three scenarios assume that wages lag inflation by one year with no real growth.[26] In the last scenario ("recession"), wages lag inflation until the recession occurs, after which they freeze as a result of the economic downturn.

*Social Security:* Social Security benefits are fully indexed for inflation.[27]

*Defined benefit pensions:* Most private defined benefit plans do not provide cost-of-living (COLA) adjustments, whereas government plans typically grant a COLA equal to the CPI up to a cap of 3 percent.[28]

*Capital and other income:* Capital income is projected to grow with GDP. Other income includes business, farm, rental, alimony, and government transfers. Business, farm, and rental

[26] In our initial scenario analysis, we assume that workers do not work more or less due to inflation, so the growth in annual earnings is determined by employer wage-setting behavior.

[27] Although this adjustment is made instantaneously in our model, Social Security cost-of-living (COLA) adjustments actually occur with a one-year lag. Additionally, Social Security's COLA reflects average inflation nationwide, which might deviate from the local inflation experienced by each household.

[28] Munnell, Aubry, and Cafarelli (2014). In the SCF, just over half of households with pension income report receiving COLA adjustments, and the share with a COLA is increasing over time. These trends are consistent with private defined benefit plans becoming less available. Consequently, we assume that 60 percent of pension income receives an adjustment, with the COLA capped at 3 percent.

income are presumed to grow with GDP; alimony and government transfers remain at current levels.[29]

*Saving rate for working households:* Based on data in the 2019 SCF, the analysis assumes that 34, 64, and 73 percent of working households in the bottom, middle, and top terciles participate in a defined contribution retirement plan, respectively. Participating households contribute varying percentages of their labor earnings each year depending on their wealth tercile.[30]

*Drawdown rate for retired households:* A growing literature suggests that households use rules of thumb – such as the 4-percent rule or the Required Minimum Distribution (RMD) Schedule – to withdraw a set percentage of their retirement accounts each year.[31] For our baseline analysis, we assume that retirees take RMDs (which are designed to slowly deplete balances in defined contribution plans over an average lifespan) according to the schedule for 2022 tax returns.[32]

*Wealth:* Predicting the path of wealth under each macroeconomic scenario is much more challenging. Mechanically, the change in wealth from one year to the next depends on the growth rate of the various assets held by the household, the share of the portfolio allocated to each asset class, and the decline in debt outstanding.[33] We make a simplifying assumption that all debt has a fixed interest rate, so the decline in debt is determined solely by a pre-determined payment schedule.[34] Hence, the challenge is how to relate the growth of each asset class to macroeconomic conditions.[35] Appendix B provides a detailed description of our methodology for each asset class.

[29] For the lowest wealth terciles, we presume that other income is 100 percent alimony and government transfers. For the middle and top terciles, we presume 95 and 25 percent, respectively.

[30] The employee and employer contribution rates are set according to data in Vanguard (2022). We assume that these contributions are split between bonds and stocks as implied by the wealth holdings in Table 2.

[31] Munnell, Wettstein, and Hou (2020) and citations therein.

[32] See https://www.irs.gov/publications/p590b#en_US_2022_publink100089977. This assumption is consistent with a growing body of empirical work suggesting that RMDs have become the default drawdown strategy for many retirees (see, for example, Brown, Poterba, and Richardson 2023).

[33] Technically, assets in the second period can be written as a function of assets in the first period and the previous year's saving or drawdown: $A_{t+1} = (A_t + S_t) * \sum_c (a_{c,t+1} * g_{c,t+1})$ where $S_t$ denotes saving (negative values indicate drawdown) and $\sum_c (a_{c,t+1} * g_{c,t+1})$ reflects an average of the growth rates of the various asset classes from year *t* to *t+1* weighted by the share of the portfolio held in each class ($a_{c,t+1}$).

[34] The mortgage terms are based on the *Survey of Consumer Finances* (2019). All households pay between 4 and 5 percent interest on their mortgages, and all retiree households have 5 years remaining on their mortgage. Near retirees in the lowest wealth tercile have 6 years remaining on their mortgage while those in the middle and top terciles have 10 years remaining.

[35] Researchers and practitioners have developed complex stochastic models to simulate the future performance of various asset classes based on initial market conditions (see Jakhria et al. 2019 for a review of these models). However, we adopt a much simpler approach both for transparency and to avoid overstating the degree of confidence in our illustration.

*Results of the Scenario Analysis*

Ultimately, we are interested in two outcomes – the cumulative change in real consumption from 2021 to 2025 and wealth in 2025 – for two types of households – near retirees and retirees – across four macroeconomic scenarios.[36] Throughout, we are mindful that in the real world, other events that also affected household finances coincided with inflation. To avoid comparing our illustration to real-world outcomes, we present all results relative to the baseline scenario of no inflation.

Table 3 shows the difference in the growth rate of real consumption, relative to the "no inflation" baseline, where two points stand out. First, near retirees experience a smaller decline in consumption than retirees, even enjoying real consumption gains in the "soft landing" scenario. This outcome is due to the real decline in mortgage payments relative to earnings.[37] Retirees have less erosion of real debt, and often also lose real income as employer pension benefits are only partially indexed to inflation, while those relying on private savings must contend with a drop in real wealth.

Table 3. *Cumulative Change in Growth Rate of Real Consumption Relative to the "No Inflation" Scenario, by Wealth Tercile, 2021-2025*

| Economic scenario | Near retirees | | | Retirees | | |
|---|---|---|---|---|---|---|
| | Lower third | Middle third | Top third | Lower third | Middle third | Top third |
| Permanent shock | -1.6 ppt | -1.5 ppt | -1.4 ppt | -3.0 ppt | -3.6 ppt | -4.2 ppt |
| Soft landing | 0.4 | 0.5 | 0.3 | -3.4 | -3.9 | -2.2 |
| Recession | -4.6 | -4.5 | -4.0 | -4.2 | -5.0 | -5.5 |

*Source:* Authors' estimates from the *Survey of Consumer Finances* (2019).

Second, the impact of inflation varies across the wealth distribution. Near retirees in the top wealth tercile fare better than same-age households with fewer resources because they derive more of their income from businesses that have real growth. Conversely, retirees in the bottom wealth tercile typically fare best because they are more reliant on Social Security, which is fully indexed for inflation.

Turning now to financial (non-housing) wealth in 2025, we see that inflation has an unambiguous negative impact (see Table 4). Top-wealth households, however, always lose less than their lower-wealth counterparts, because they invest in equities, businesses, and other assets that grow with inflation.

[36] Recall that consumption equals monthly income less saving and debt payments. Wealth, meanwhile, equals financial and housing assets minus outstanding debt. We compare the growth in these outcomes to the rise in price levels to understand whether households maintain their standard of living. Put simply, if consumption and/or wealth grow more slowly than inflation, a household is worse off.

[37] Since we assume that wages lag inflation, they decline in real terms when inflation is rising, then grow in real terms when inflation abates.

Table 4. *Financial Wealth Relative to the "No Inflation" Scenario, by Wealth Tercile, 2025*

| Economic scenario | Near retirees | | | Retirees | | |
|---|---|---|---|---|---|---|
| | Lower third | Middle third | Top third | Lower third | Middle third | Top third |
| Permanent shock | -12.2% | -12.0% | -6.1% | -9.2% | -8.4% | -5.4% |
| Soft landing | -8.1 | -6.6 | -3.0 | -9.5 | -7.7 | -2.9 |
| Recession | -10.1 | -9.0 | -5.2 | -11.6 | -9.8 | -5.1 |

*Source:* Authors' estimates from the *Survey of Consumer Finances* (2019).

Table 5 illustrates the impact of inflation on housing wealth in 2025, relative to the "no inflation" scenario. Unlike financial wealth, inflation does not have much impact on housing wealth. On the one hand, home prices decline as rising real interest rates weaken demand; on the other hand, inflation erodes the real burden of mortgage debt. For this reason, near retirees often come out slightly ahead of retirees because they are still paying down their mortgage.

Table 5. *Housing Wealth Relative to the "No Inflation" Scenario, by Wealth Tercile, 2025*

| Economic scenario | Near retirees | | | Retirees | | |
|---|---|---|---|---|---|---|
| | Lower third | Middle third | Top third | Lower third | Middle third | Top third |
| Permanent shock | 2.5% | 2.8% | 1.1% | 0.1% | 0% | 0% |
| Soft landing | 1.2 | 2.1 | 0.4 | -0.9 | -0.7 | -0.7 |
| Recession | 0 | 1.5 | -0.2 | -2.0 | -1.6 | -1.6 |

*Source:* Authors' estimates from the *Survey of Consumer Finances* (2019).

In summary, most older households lose real consumption and wealth after an inflation shock. The magnitude of the loss depends on the nature of the shock, the real growth of income and assets, and the household's exposure to fixed-rate debt. The next question is how households react to inflation and what consequences their actions have for their retirement security?

**How Have Households Reacted to Recent Inflation?**

Surprisingly, economic theory is ambiguous about how older households should react to inflation. Rising prices harm investment performance and may trigger a recession (if the Fed intervenes aggressively); yet they also push up nominal wages and reduce the real value of debt. Some of these channels may be more salient to households than others. Moreover, even if households understand all the implications of inflation, economic theory is still ambiguous about their reaction. For example, a budget-constrained working household might delay retirement because they can no longer save; or they might retire early because work has become less financially advantageous.[38]

[38] Economists refer to these competing forces as "wealth" and "substitution" effects.

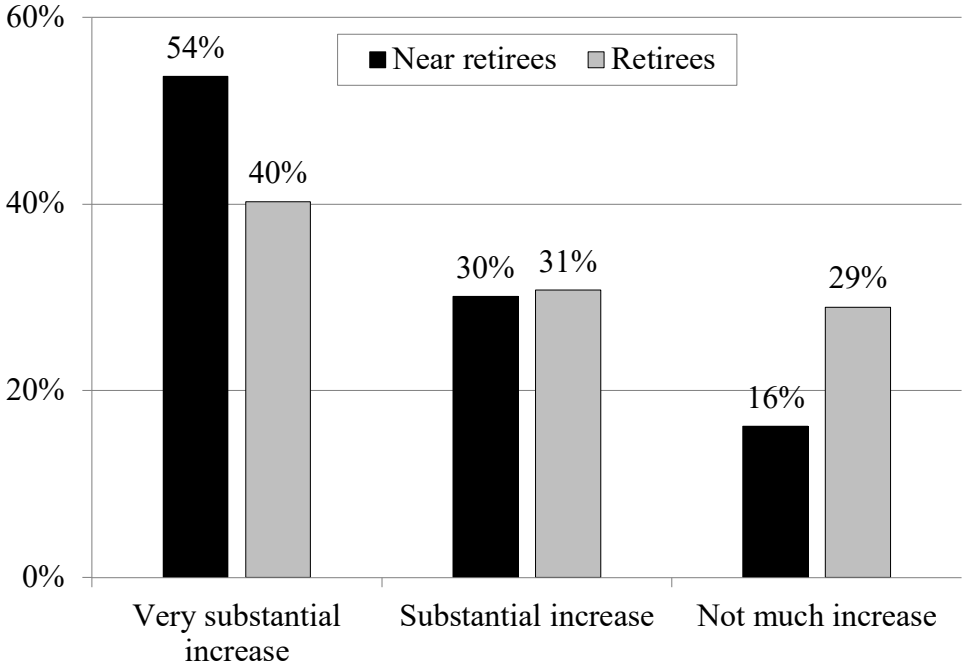
Hence, this report uses a new survey of older households, conducted by Greenwald Research, to explore how inflation impacted behavior between 2021 and 2023. The survey was fielded in November 2023 and includes 1,501 respondents ages 55-85.[39] To align with the scenario analysis, as noted above, we focus on two groups: near retirees, who are under age 62 and working full time in 2021;[40] and retirees, who are 62 or older and retired from their primary career in 2021, with a spouse also retired (if married).[41] Ultimately, 322 respondents in the survey meet our definition of near retirees and 630 meet our definition of retirees. [42]

*Setting the Stage*

To provide context for the main analysis, the survey asked a series of questions about respondents' cost of living, the growth in their income and assets (relative to the change in prices), and their economic outlook. Figure 2 shows the share of respondents reporting a change in their cost of living between 2021 and 2023. Fifty-four percent of near retirees and 40 percent of retirees rate the increase as "very substantial," and another 30-31 percent rate it "substantial."[43]

[39] Respondents were eligible to take the survey if they are at least somewhat responsible for financial decision making in their household.
[40] Additionally, their household did not receive any pension or Social Security income in 2023.
[41] Moreover, retired households received Social Security income in 2023.
[42] See Appendix Table C1 for a derivation of the sample. Notably, our categorizations exclude a third group of households who are either under age 62 and retired in 2021, or above age 62 and still working at that point. Appendix Table C2 shows that our samples of near retirees and retirees are similar, in terms of demographic and financial characteristics, to the SCF households used for our scenario analysis.
[43] The survey question asked: "Since the start of 2021, is it your impression that prices of the goods and services **your household uses** (i.e. your cost of living) has: […]" Respondents could select either: "Gone up very substantially;" "Gone up substantially;" "Gone up somewhat;" "Gone up a little;" or "Have hardly gone up at all." Due to low response, we combine the last three options into one category: not much increase.

Figure 2. *Perception of the Growth in Cost of Living, by Retirement Status, 2021-2023*

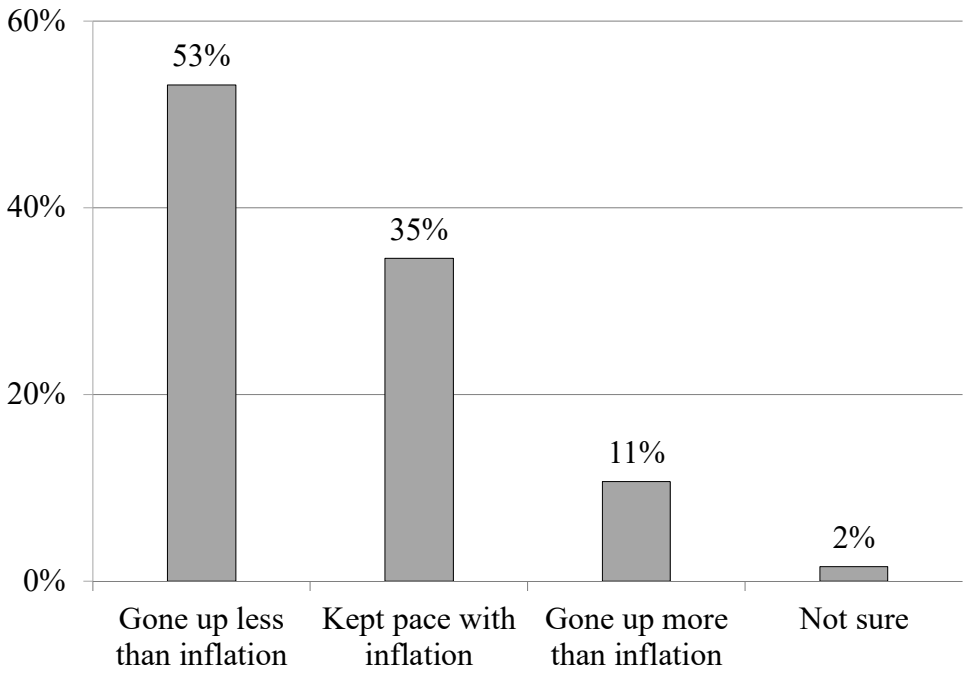



*Source:* Authors' calculations from survey data provided by Greenwald Research (2023).

Meanwhile, Figure 3 shows the share of near retirees who report that their household's work income kept pace with inflation over this period.[44] Over half report that their earnings have gone up less than inflation, 35 percent report that earnings kept pace with inflation, and only 11 percent of each group experienced real wage growth.[45] This pattern aligns with the Atlanta Fed's *Wage Growth Tracker*, which reports that the annual wage growth of workers ages 55+ rose more slowly than inflation through 2022.[46]

[44] This question was only asked of households working in 2023.
[45] Moreover, this figure likely overestimates real wage growth for the near retirees since around one-third retired before 2023, and these retiring workers probably had lower real wage growth, on average, than their counterparts who continued to work.
[46] Since wage growth for older workers typically lags inflation, and inflation is starting to decline, we have now entered a period of real wage growth.

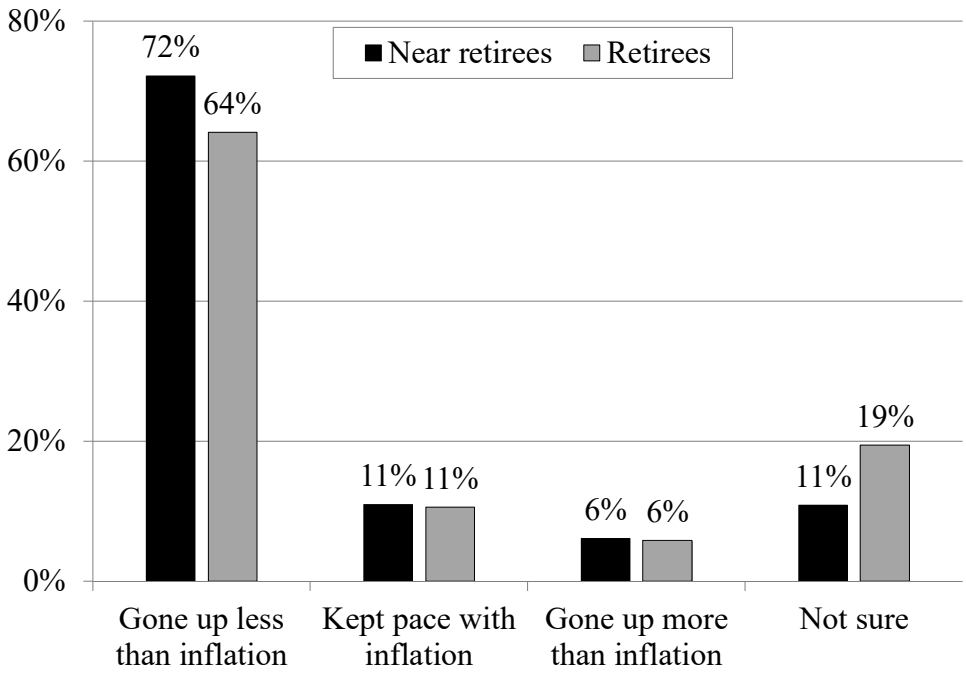
Figure 3. *Earnings Growth Relative to Price Levels, Near Retirees Still Working in 2023, 2021-2023*




*Source:* Authors' calculations from survey data provided by Greenwald Research (2023).

Similarly, Figure 4 shows how household investments performed between 2021 and 2023, relative to price levels. Seventy-two percent of near retirees and 64 percent of retirees state that their investments grew less than inflation, 11 percent report that investments tracked inflation, and only 6 percent saw real growth.

Figure 4. *Growth in the Value of Investments Relative to Inflation, by Retirement Status, 2021-2023*




*Source:* Authors' calculations from survey data provided by Greenwald Research (2023).

Moreover, these perceptions of burden are correlated with more concrete metrics. For example, the survey also asked respondents to estimate the dollar increase in their monthly cost of living between 2021 and 2023 as a percentage of 2023 household income.[47] This question measures the extent to which prices rose faster than income for each household. Although these dollar values are subject to recall error (and are top-coded at 8 percent of income), we can determine whether expenses rose 5 percent faster than income or more, and how that excess price growth correlates with respondents' perceptions of inflation. As expected, 34 percent of respondents experiencing "very substantial" inflation report that their monthly expenses rose at least 5 percent faster than income, compared to 11 percent of respondents in the "substantial" group, and only 2 percent of respondents in the "not much" group.

Unsurprisingly given these experiences, many older households are pessimistic about the trajectory of the economy. Fifty-three percent of near retirees and 43 percent of retirees have a negative outlook for 2024 (see Table 6).[48] Additionally, 60 percent of near retirees and 52

[47] Specifically, the question asked: "What is your estimate of how much the general rise in prices has increased your own household's cost of living since the beginning of 2021?" Respondents were shown a drop-down menu of possible increases (including "reduced cost of living" and "no change in cost of living") that were designed to reflect percentages of monthly income but were shown as dollar values relative to the respondent's own self-reported household income.

[48] Specifically, the survey asked: "Over the next year, do you think the U.S. Economy will get: […]" Then respondents were shown a menu with the following options: "stronger than it is now;" "weaker than it is now;" "the strength of the economy will not change;" and "not sure." The survey then followed up with: "Do you think the rise in prices over the past year will contribute to: […]" with possible responses including: "a stronger economy over the

percent of retirees believe that last year's inflation will contribute to a weaker economy over the coming year.

Table 6. *Impact of Inflation on Economic Outlook, Near Retirees and Retirees, 2023*

| | Share of near retirees | Share of retirees |
|---|---|---|
| Anticipate a weaker economy over the next year | 53% | 43% |
| Inflation will weaken the economy over the next year | 60 | 52 |

*Source:* Authors' calculations from survey data provided by Greenwald Research (2023).

*Methodology for Estimating the Impact of Inflation*

The next step is to look at how respondents' experience with, and perceptions of, inflation affected their behavior. The survey asked respondents whether they had made changes since 2021 along the following four dimensions: 1) labor supply (retirement age and hours worked); 2) saving rate; and 3) withdrawals from savings; and 4) asset allocation. These questions allow us to estimate how inflation impacted behavior using two complementary approaches.

The first approach has respondents tell us how inflation affected their behavior. We refer to this approach as the "self-reported impact of inflation." Specifically, for respondents reporting a change in behavior, the survey had them rank their motivations in order of importance.[49] For example, working respondents who extended their planned retirement age were asked:

*Please indicate which of the following, if any, are reasons you are planning to retire later than you planned. Please rank up to the top three reasons from most to least important.*

- ***You couldn't save as much as planned due to rising prices***
- ***You had to withdraw money from your savings because of rising prices***
- ***Because rising prices increased your cost of living, you have to save more money than you thought you needed***
- *You don't have enough money saved for retirement*
- *Your retirement savings declined due to the stock market*
- *You are concerned about a future market crash*
- *You would not be able to have the lifestyle you wanted in retirement*
- *You or a family member had a large health related expense*
- *You want to avoid tapping into your retirement accounts during an economic downturn*
- *[if married/partnered] Your spouse/partner lost their job so you need to work longer to make up for the loss of income*
- *None of the above*

next year;" "a weaker economy over the next year;" "will neither weaken nor strengthen the economy over the next year;" and "not sure."

[49] The order of the possible responses was randomized across respondents. Appendix Tables C3 through C8 show the share of respondents citing each motivation listed in the survey for changing their labor supply, saving, or withdrawals.

We attribute a change in behavior to inflation if the respondent cited rising prices as their primary motivator.[50] So, in the above example, we focus on respondents who checked any of the first three items listed. We then create a variable equal to the change in the respondent's actual or planned retirement age (in years) specifically due to rising prices.[51]

The main advantage of this approach is that it is easy to interpret and allows us to separate the impact of rising prices from the influence of all the other motivations listed in the survey. One can also benchmark these results against the findings from previous industry studies. The main disadvantages are that respondents might not have an accurate assessment of their motivations, and priming respondents to think about inflation's impact on their finances could nudge them to overstate its importance.

Moreover, eliciting and analyzing respondents' motivations requires decisions on our part that could affect the results. For instance, some of the motivations in the survey do not specifically reference inflation but might still reflect it in practice. In the retirement-age example above, ambiguous motivations include: *"you don't have enough money saved for retirement;" "you would not be able to have the lifestyle you wanted in retirement;"* and *"you are concerned about a future market crash"* (the Fed's policy response).[52] In addition, we focus on respondents' primary motivation – should we also consider motivations they ranked second? Lastly, the inflation-related motivations assume respondents experienced declining real income and wealth – is this assumption reasonable?[53]

Hence, we also test the validity of our main estimates with regression analysis. Specifically, we estimate how the perceived growth in a respondent's cost of living between 2021 and 2023 is associated with a change in their behavior, all else equal. In essence, the regression approach infers how perceptions of inflation affected behavior without relying on respondent self-assessments.

The equation is specified as follows:

$$Outcome_r = \alpha + \beta_1(Substantial\ inflation_r) + \beta_2(Very\ substantial\ inflation) + \beta_3(Demographic\ control\ variables_r) + \varepsilon_r \quad (3)$$

The dependent variable is the outcome of interest – labor supply, saving, withdrawals, and investment allocation – for respondent *r*. Growth in cost-of-living is captured by the three-category perception variable (has the increase in your cost of living been "very substantial;"

[50] Thus, we measure partial equilibrium versus general equilibrium effects.

[51] This variable is coded as zero for all respondents who either: 1) did not change their retirement age; or 2) changed their retirement age for reasons other than rising prices. We proceed similarly for other outcomes such as saving, where this variable equals the additional dollar amount saved or dissaved due to rising prices.

[52] Respondents with a greater increase in cost-of-living are also more likely to report a loss of real earnings and assets, and are more pessimistic about the economy. Additionally, respondents withdrawing less from their savings were not able to select an inflation-related motivation for doing so.

[53] For example, respondents who decreased their saving could select *"you couldn't save as much as planned due to rising prices"* (declining real income), while those who increased their saving could select *"you had to save more money due to rising prices"* (declining real wealth). However, some households could see positive changes from rising wages and a declining real debt burden, and their experiences are not captured by the survey.

"substantial;" or "not much").[54] In the retirement-age example, a positive $\beta_1$ suggests that respondents experiencing "very substantial" inflation delay their retirement by $\beta_1$ years, on average, relative to those with "not much inflation."[55] The regression includes controls for respondent health in 2023 and demographic characteristics such as age, gender, and race.

If we assume that inflation had no impact on behavior for the "not much" group, then we can use $\beta_1$ and $\beta_2$ to derive the overall impact in our sample. Mechanically, we simply take an average of the coefficients, weighted by the share of respondents in each inflation category:[56]

$$Overall\ impact = (0 * share\ not\ much) + (\beta_1 * share\ substantial) + (\beta_2 * share\ very\ substantial) \quad (4)$$

We then confirm the reliability of our main findings by comparing the overall impact of inflation estimated in equation (4) with the self-assessed impact provided by the respondents.

*Results: Labor Supply*

Table 7 considers the impact of inflation on labor supply, beginning with self-assessments.[57] The first row shows the share of (working) respondents who report that either they or their spouse worked more hours in 2023 than in 2021 due to inflation. A full 40 percent of near retirees report an increase in labor supply (column 1), while 29 percent attribute this shift to inflation (column 2).[58] Similarly, the second row shows the share of near retirees changing their planned or actual retirement age. Whereas 34 percent of near retirees altered their plans during this period, only 4 percent did so because of inflation. Among those reacting to inflation, the next row shows an average expected delay of 4 years.

[54] To enhance statistical precision, we took "substantial inflation" as the omitted category; for clarity, the exposition proceeds as if "not much inflation" were the omitted group. Ultimately, the choice of omitted category does not affect the results.

[55] Mechanically, we can also interpret this finding as 2 percentage-points additional inflation leading to $\beta_1$ additional years of work, since respondents with "very substantial" inflation report 2 percentage points higher cost-of-living growth, on average, than everyone else.

[56] Standard errors are derived from a linear combination of the regression coefficients, weighted by the relevant shares.

[57] Regression analysis (with robust standard errors) was used to determine whether the self-assessed impacts are statistically different from zero. See Appendix Tables A2 and A3 for the reasons respondents gave for shifting their planned retirement age.

[58] Specifically, this question asked: "Since the start of 2021, have you made any of the following changes?" Among other options, working respondents could select: "sought to earn more money by working more hours or taking on other work" and the same for their spouse. The survey then asked: "To what extent was the general rise in prices a reason for you making each change?" We attribute an increase in hours to inflation if the respondent selected "A major reason." Of course, the elasticity of labor supply – particularly on the intensive margin – may be higher among households who regularly complete market research surveys.

Table 7. *Impact of Inflation on the Labor Supply of Near Retirees, 2021-2023*

| | Self-assessed impact | | Regression-estimated impact |
|---|---|---|---|
| | Overall | Because of inflation | |
| Share of households where the respondent or spouse works more hours than in 2021 | 40%*** | 29%*** | 24%*** |
| Share changing their retirement age | 34%*** | 4%*** | 6% |
| Among those changing retirement age: | | | |
| Mean shift (years) | -2 *** | 4 *** | 1 |

Notes: Stars indicate that the finding is statistically different from zero. ***(p<0.01).
*Source:* Authors' calculations from survey data provided by Greenwald Research (2023).

The third column of Table 7 shifts over to the regression estimates.[59] The results are consistent with the self-reports. Twenty-four percent of near-retiree households took on more work because of inflation, but only 6 percent changed their retirement age. Among the few who did, retirement was delayed by around 1 year on average. For context, 1-to-4 years of delay is similar to results from previous studies, but we find many fewer individuals choosing to delay at all.[60] One explanation is that previous surveys interviewed respondents at the height of inflation in 2022, whereas we fielded our survey in November 2023.

*Results: Saving and Withdrawals*

Turning now to financial wealth, this section reports the impact of inflation on new saving (for near retirees) and withdrawals from existing assets (for near retirees and retirees).[61] Thirty-nine percent of near retirees claim to have changed their saving because of inflation (column 2 of Table 8). Among those primarily motivated by inflation, average annual saving in 2023 was $4,065 less than in 2021, or 4 percent of annual household income in 2023. Column 3 of Table 8 shows the corresponding regression estimates, which are nearly identical.[62] In this measure, 30 percent of near retirees changed their saving because of inflation, by $-4,366 on average (or 4 percent of 2023 household income).

[59] Appendix Table C9 contains the full regression results.
[60] Nationwide (2022) finds that 40 percent of workers ages 45+ plan to retire later due to inflation.
[61] The survey did not ask retirees about new saving, the assumption being that retirees draw down their assets.
[62] See Appendix Table C10 for full regression results.

Table 8. *Impact of Inflation on the Saving Behavior of Near Retirees, 2021-2023*

| | Self-assessed impact | | Regression-estimated impact |
|---|---|---|---|
| | Overall | Because of inflation | |
| Share changing their saving since 2021 | 65%*** | 39%*** | 30%*** |
| Among those making changes: | | | |
| Mean shift (nominal dollars) | $-1,128* | $-4,065*** | $-4,366 *** |
| Mean shift (percentage of 2023 income) | -2%*** | -4%*** | -4%** |

Notes: Stars indicate that the finding is statistically different from zero. ***(p<0.01); **(p<0.05); *(p<0.1).
*Source:* Authors' calculations from survey data provided by Greenwald Research (2023).

Additionally, rising prices caused both near retirees and retirees to dip into their savings. Table 9 combines the results for both groups because they are quite similar. We find that 23 percent of respondents changed their withdrawals because of inflation (column 2), and those making changes withdrew an additional $3,620 in 2023 than in 2021, on average (or 5 percent of 2023 household income). However, since the survey questionnaire did not allow respondents who *reduced* their withdrawals to select an inflation-related motivation for doing so, we expect these self-assessments to overstate the amount withdrawn. This hypothesis is borne out in the regression estimates (column 3 of Table 9), which find a roughly similar share of respondents changing their behavior, but a smaller conditional increase in withdrawals (only $1,879 on average, or 3 percent of household income).[63]

Table 9. *Impact of Inflation on the Withdrawal Behavior of Near Retirees and Retirees, 2021-2023*

| | Self-assessed impact | | Regression-estimated impact |
|---|---|---|---|
| | Overall | Because of inflation | |
| Share changing their withdrawals since 2021 | 44%*** | 23%*** | 16%*** |
| Among those making changes: | | | |
| Mean shift in withdrawals (nominal dollars) | $-2,519*** | $-3,620*** | $-1,879*** |
| Mean shift in withdrawals (percentage of 2023 income) | -4%*** | -5%*** | -3%*** |

Notes: Stars indicate that the finding is statistically different from zero. ***(p<0.01).
*Source:* Authors' calculations from survey data provided by Greenwald Research (2023).

[63] See Appendix Table C11 for full regression results.

*Results: Asset Allocation*

Very few households changed their asset allocation in response to inflation. The survey did not elicit motivations for changes in asset allocation, so Table 10 reports shifts overall and then uses the regression to find the impact of inflation. As for withdrawals, the results for near retirees and retirees are combined because the patterns are so similar.

While 35 percent of all households changed their allocation between 2021 and 2023 (column 1), the magnitude of the shift is small – less than 3 percent of investable assets. To the extent that shifts occurred, households moved away from equities and toward fixed income.[64] The change in asset allocation – such as it is – coincides with a rise in interest rates for fixed-income products, a decline in the stock market, and general pessimism about the U.S. economy. Households' personal experiences with inflation predict these shifts somewhat (column 2), but the impact is economically small and statistically insignificant.[65]

Table 10. *Changes in the Investment Allocation of Near Retirees and Retirees, 2021-2023*

| | Overall | Regression-estimated impact of inflation |
|---|---|---|
| Share making any change since 2021 | 35%*** | 18% |
| Among those making changes: | | |
| Mean change in equities (percentage point) | -2 *** | -2 |
| Mean change in fixed income (percentage point) | 3 *** | 0.2 |
| Mean change in alternatives (percentage point) | 0 | 0.1 |
| Mean change in annuities (percentage point) | 1 * | -0.7 |

Notes: Percentages do not sum due to reporting imprecision and rounding. Stars indicate that the finding is statistically different from zero. ***(p<0.01); **(p<0.05); *(p<0.1).
*Source:* Authors' calculations from survey data provided by Greenwald Research (2023).

**Implications for Retirement Security**

The next step in our analysis is to incorporate households' behavioral responses into the scenario modeling. For this exercise, we focus on the changes in saving and withdrawals reported in the survey results.[66] Specifically, near retirees are assumed to change their saving and withdrawals. For each near-retiree household in the survey, we calculate the total reduction in saving (the reduction in new saving plus the increase in withdrawals between 2021 and 2023). On average, this reduction in saving equaled about 4 percent of 2023 income. However, the survey did not ask about household behavior in 2022. For our scenario model, we annualize the 4-percentage-point drop to 2 percent per year – a conservative assumption similar to assuming that households did not react at all in 2022 – and view the results as a lower-bound of the true impact. We

[64] Franklin (2023) and MFS Investment Management (2023) find similar patterns across asset classes.
[65] See Appendix Table C12 for full regression results.
[66] We do not consider labor supply responses for two reasons. First, very few near retirees change their retirement age, and that delay occurs after our analysis period ends. Second, although near-retiree households took on more work in response to inflation, we do not know how much their earnings increased.

likewise assume that retirees increase their annual withdrawals by 2.5 percent of income (annualizing the 5-percent change reported in the survey for 2021-2023).[67] For simplicity, we assume that households across the wealth distribution respond similarly and that the annualized rates of change start in May 2021 and persist through December 2025.[68]

Table 11 shows the difference in the growth rate of real consumption, from 2021 to 2025, relative to the "no inflation" scenario once we incorporate behavioral responses reported in the survey. Unsurprisingly, households are able to close much of the inflation-consumption gap by tapping into their savings. The positive percentages for near retirees even indicate that these households *increase* their real consumption relative to no inflation, more than offsetting the short-term pain from rising prices.[69]

Table 11. *Cumulative Change in Growth Rate of Real Consumption – Incorporating Behavioral Responses – Relative to the "No Inflation" Scenario, by Wealth Tercile, 2021-2025*

| Economic scenario | Near retirees | | | Retirees | | |
|---|---|---|---|---|---|---|
| | Lower third | Middle third | Top third | Lower third | Middle third | Top third |
| Permanent shock | 6.0 ppt | 4.3 ppt | 3.7 ppt | -1.8 ppt | -1.1 ppt | -1.7 ppt |
| Soft landing | 8.1 | 6.4 | 5.7 | -2.2 | -1.4 | 0.3 |
| Recession | 2.7 | 1.1 | 1.0 | -3.0 | -2.6 | -3.0 |

*Sources:* Authors' estimates from the *Survey of Consumer Finances* (2019) and survey data provided by Greenwald Research (2023).

This short-term gain, however, comes at the expense of future consumption. Table 12 compares real financial wealth in 2025, with behavioral responses, to the "no inflation" scenario.[70] As expected, reduced saving and increased withdrawals compound the direct impact of inflation on investment returns.

[67] For retirees in the bottom wealth tercile, we assume that withdrawals only increase by 1.2 percent of income, since any greater change would deplete the assets in their retirement accounts before the end of our analysis period.
[68] Appendix Table C13 shows that saving and withdrawal behavior is similar across the 2023 income distribution.
[69] Of course, the precise impact on consumption is difficult to determine since the behavioral responses are based on real-world macroeconomic experiences, whereas our scenario analysis projects consumption and wealth under hypothetical conditions.
[70] The figure excludes housing wealth because saving and withdrawals do not have any effect on home value or mortgage debt in our illustration.

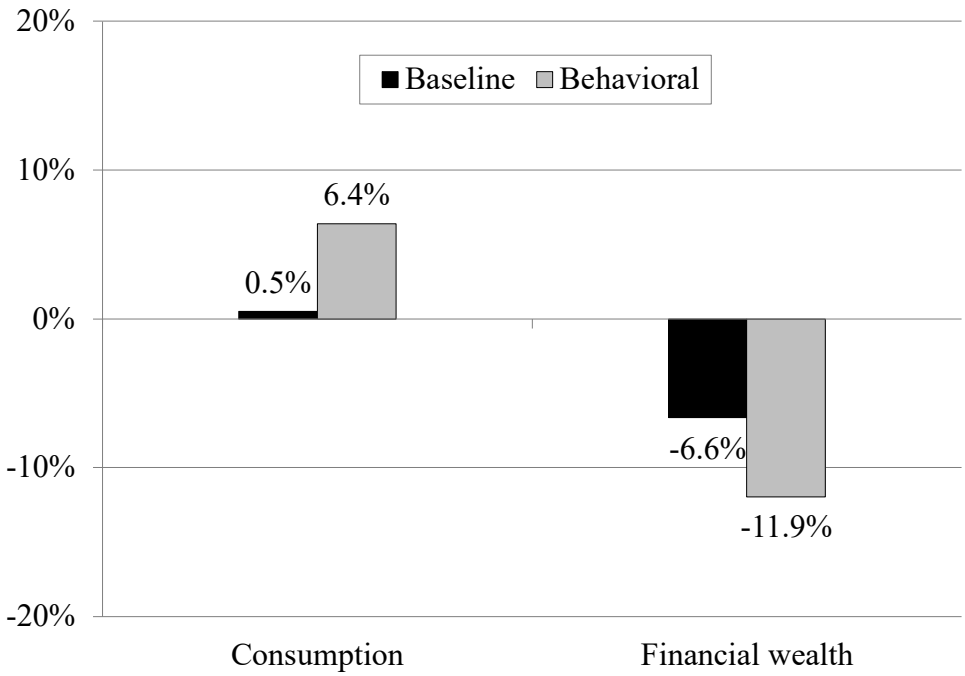
Table 12. *Financial Wealth – Incorporating Behavioral Responses – Relative to the "No Inflation" Scenario, by Wealth Tercile, 2025*

| Economic scenario | Near retirees | | | Retirees | | |
|---|---|---|---|---|---|---|
| | Lower third | Middle third | Top third | Lower third | Middle third | Top third |
| Permanent shock | -24.2% | -16.7% | -6.8% | -17.7% | -14.3% | -6.7% |
| Soft landing | -21.7 | -11.9 | -3.9 | -18.8 | -14.2 | -4.3 |
| Recession | -24.1 | -14.5 | -6.1 | -21.4 | -16.6 | -6.5 |

*Sources:* Authors' estimates from the *Survey of Consumer Finances* (2019) and survey data provided by Greenwald Research (2023).

To clearly illustrate this trade-off between current and future consumption, Figure 5 compares the results incorporating the behavioral responses to the original baseline analysis for one type of household: near retirees in the middle wealth tercile under the "soft landing" scenario. Recall that, in the original model, real consumption grew half a percentage point more than in the "no inflation" scenario (due to the real decline in mortgage debt). After households reduce their saving, real consumption grows 6.4 percentage points more than in "no inflation." However, whereas the initial model found a 6.6-percent reduction in financial wealth compared to "no inflation," the results incorporating behavioral responses create an 11.9-percent drop. This same trade-off holds across all age groups, wealth terciles, and macroeconomic scenarios.

Figure 5. *Cumulative Change in Growth Rate of Real Consumption and Change in Wealth for the Middle-Third Near-Retiree Household under the "Soft Landing" Scenario*




Note: The change in consumption reflects a percentage-point difference in cumulative growth rates between 2021 and 2023; whereas the change in financial wealth reflects the percent difference in 2025.
*Sources:* Authors' estimates from the *Survey of Consumer Finances* (2019) and survey data provided by Greenwald Research (2023).

## Conclusion

Older households have just had a sharp reminder that inflation may not be stable throughout retirement. Experiencing a bout of high inflation later in life is generally harmful to financial well-being, but the impact varies depending on the household's specific financial profile: the extent to which income and assets grow with (or lag) inflation, and the amount of debt outstanding. So the question becomes, what could older households do to mitigate the risk of a future inflation shock?

Households that are still working when inflation hits have the most flexibility to improve their situation. The biggest risk they face is that wages will not keep pace with inflation. But, since wages tend to lag prices, this risk declines the longer households stay in the workforce: eventually, workers are likely to see real wage gains. Working longer allows households to compensate for reduced saving at the height of inflation, and also shortens the retirement period over which savings must spread. In practice, many households cut back their saving and increased withdrawals when inflation spiked in 2022, but very few are compensating by working longer.

Retired households have less opportunity to earn inflation-adjusted income. Many are still reliant on defined benefit pensions (although Social Security is fully indexed for inflation). And

retirees tend to invest more conservatively in fixed-income products that lose value during inflation. However, retired households can still take a few protective steps. For instance – to the extent possible – they can re-invest the assets held in fixed-income when inflation hits, rather than making withdrawals that lock in large losses.

Of course, this study is only a first look at a very broad topic, and much room remains for additional research. In particular, a key lesson from this paper is that an inflation shock is worst for retired households with defined benefit pensions and fixed-income investments. Exposure to these sources of income will shift dramatically in the coming years, as the Baby Boomers increasingly rely on defined contribution plans that are still heavily invested in equities. Additionally, the behavioral impacts estimated in this paper pertain to a period when inflation was at a peak. If households reverse course as inflation moderates, saving more and withdrawing less, they may be able to rebuild their stock of wealth. We leave these and other questions for future research.

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## Appendix A: An Example of Inflation's Impact on Consumption

Consider a working household that earns $100,000, pays $10,000 per year towards the mortgage, and saves 6 percent of its earnings in a 401(k). Using equation (1), expenditures in the first year can be written:

$$P_1 C_1 = 100{,}000 - 10{,}000 - 6{,}000 = 84{,}000 \tag{3}$$

In the second year, assume that prices and earnings each grow by 4 percent, the mortgage payment stays constant, and the household maintains its 6-percent saving rate.[71] Then, expenditures become:

$$(1.04)P_1 C_2 = (1.04)100{,}000 - 10{,}000 - (1.04)6{,}000 = 87{,}760 \tag{4}$$

While expenditures increase in the second year, prices have also risen. However, even after adjusting for the new price level, the household consumes more goods and services – equivalent to spending an additional $385 in the first year:

$$C_2 - C_1 = \frac{87{,}760}{1.04} - 84{,}000 = 385 \tag{5}$$

Intuitively, the household has more purchasing power because prices and earnings rise in lockstep, but the required mortgage payment stays constant.

Conversely, assume instead that prices grow by 6 percent while earnings only grow by 4 percent. Then, the household must reduce its consumption by $1,208 (in year-one dollars):

$$C_2 - C_1 = \frac{87{,}760}{1.06} - 84{,}000 = -1{,}208 \tag{6}$$

Here, the declining importance of the mortgage payment is not enough to compensate for the fact that earnings lag prices.

[71] 6 percent was the median employee contribution rate to Vanguard defined contribution plans in 2021 (Vanguard 2022).

## Appendix B: Methodology for Projecting Wealth in the Scenario Analysis

Our wealth projection begins with the 10-year Treasury bond, which is a key instrument in the valuation of most financial assets.[72]

*Projecting the 10-year Treasury bond:* We model the price of Treasuries as the present discounted value of future cash flows (coupon payments and return of principal). The key parameter is the yield, or discount rate. The market yield on Treasuries depends on three factors: 10-year inflation expectations, expected real GDP growth, and investors' taste for risk (which together determine the real return).

For the "permanent shock" scenario, inflation expectations slowly trend up from just over 2 percent in May 2021 to 4 percent by December 2025 (as the market takes time to integrate the fact that the Fed's inflation target has shifted). At the same time, the yield on the 10-year TIPS – a measure of the real long-term risk-free rate – increases from negative 1 percent to 1 percent. This results in an upward trend in the 10-year Treasury rate from about 1 percent in May 2021 to 5 percent by December 2025.

The "soft-landing" scenario uses actual market conditions from 2021 to 2023 – tracking the reported monthly yields for 10-year TIPS and 10-year Treasuries over that period, and calculating expected inflation as the difference between the yield on Treasuries and the yield on TIPS. Expected inflation is then projected to trend from December 2023 levels to the Fed's 2-percent target by December 2025. The yield on 10-year TIPS trends from December 2023 levels to 1 percent by December 2025. Ultimately, this results in the yield for 10-year Treasury going from December 2023 levels to 3 percent by December 2025.

As with the soft-landing scenario, the "recession" scenario uses actual market conditions from 2021 to 2023. We presume that – before the recession hits – inflation expectations continue to rise from 2023 levels to 3 percent, as the market begins to price in higher inflation. Similarly, the yield on 10-year TIPS stays elevated at 2 percent, producing a peak 10-year Treasury yield of 5 percent before the recession hits. Once a recession is triggered in December 2024, inflation begins to decline, and expectations slowly trend back down to the Fed's 2-percent target by December 2025. Similarly, the 10-year TIPS rate trends downward from peak to just over 1 percent, which results in the 10-year Treasury rate declining from peak to just over 3 percent.

*Projecting households' fixed-income investments:* Once we have the Treasury yield, projecting the value of households' fixed-income investments is relatively simple. We assume fixed income investments are held in a bond fund similar to Vanguard's Total Bond Market Index Fund (which is the largest fixed-income component of Vanguard's Target Date fund). As noted above, the aggregate holdings of Vanguard's index closely resemble the features of a 10-year

[72] Most major bond indices hue closely to the maturity and duration of the 10-year Treasury. Stock valuations often rely on the 10-year treasury yield to construct discount rates to value future earnings and dividends. And, the yield on the 10-year Treasury is used as a base for mortgage rates, impacting home values.

Treasury bond.[73] Hence, we model the change in the value of the index as if it were the change in the value of a 10-year Treasury.[74]

*Projecting the value of households' stock holdings:* We use the standard Gordon formula to project the value of stock holdings over time:

$$P_t = \frac{D_{t+1}}{(R-G)} \quad (7)$$

Where $P_t$ denotes the price of a stock in time $t$, $D_{t+1}$ is the expected dividend in the following period, $R$ captures the expected long-term rate of return on stocks, and $G$ is the expected growth rate of earnings.

We assume that the expected return on stocks ($R$) equals the nominal yield on 10-year Treasuries plus a risk premium of around 4 percent. In theory, the risk premium should vary depending on expected dividend growth: periods of high expected growth generally follow recessions when investors are also highly uncertain about the future. However, investors' taste for risk is hard to predict, so we simply assume that dividends track GDP and investors require a relatively constant risk premium relative to the 10-year Treasury.[75]

*Projecting house prices:* Glaeser, Gottlieb, and Gyourko (2010) simulate how a one percentage-point increase in the real interest rate impacts house prices.[76] The paper suggests that a one-percentage-point change in the real interest rate would reduce real house prices by between 7 and 11 percent, with metropolitan areas that have limited supply and high demand showing greater interest rate sensitivity.[77] For this analysis we assume that house prices have an interest rate sensitivity of 9 percent.

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[73] For example, in August 2023, Vanguard's fund had an average maturity of 8.9 years and duration of 6.5 years (compared to 7 for the 10-year Treasury). See https://investor.vanguard.com/investment-products/mutual-funds/profile/vbtlx#portfolio-composition.

[74] Specifically, at the start of the projection period (January 2021) we presume the index consists of a single 10-year Treasury bond with a coupon payment equal to the market yield on 10-year Treasuries as of January 2021. In the next period, we presume the change in the value of the index is equal to the change in the value of the bond due to the new prevailing interest rate. We also presume the index sells the existing bond at the new value and uses the proceeds to buy a new 10-year bond with a coupon payment equal to the prevailing interest rate. Then, this new bond is used to calculate the change in the index over the next period.

[75] The Congressional Budget Office provides long-run estimates of potential GDP. We estimate GDP by applying the output gap to projected potential GDP. R is based on the monthly long-term expected return for the S&P 500 from Damodaran (2023). G is then solved for by combining R with the S&P 500 index value and the index's notional dividend. Ultimately, R and G averaged 8 percent and 3.5 percent, respectively, since 2008. The average R and G serve as the baseline expectation for investors and only shifts in the recession scenario, where we presume that R trends to 8.5 percent prior to the recession (to account for higher expected nominal returns and risk premiums by investors) and then back down to 8 percent after the recession.

[76] The canonical user-cost model (Poterba 1984) shows how the ratio of rent to house price depends on the mortgage interest rate. Unfortunately, however, empirical studies have long noted that prices are much less sensitive to interest rates than predicted by the model (see Liu et al. 2021 for a review). One issue is that the canonical model ignores homebuyers' forward-looking expectations about future interest rates. Glaeser, Gottlieb, and Gyourko (2010) propose an extension to account for this issue.

[77] Importantly, the paper concludes that interest rate changes can only explain about 10 percent of the observed change in house prices. Other research suggests that the strength of the labor market also determines demand for housing. See, for example, Baffoe-Bonnie (1998) and Sommer, Sullivan, and Verbrugge (2012).

*Projecting cash and "other" assets:* Cash is assumed to have zero growth. For the top wealth tercile, "other" assets are presumed to be mostly business assets that grow with projected GDP. For the bottom two terciles, "other" assets are presumed to be mostly non-business assets that have zero growth.[78]

[78] Specifically, the analysis presumes 100 percent of "other" assets are miscellaneous for the bottom tercile, 95 percent are miscellaneous for the middle tercile, and 25 percent are miscellaneous for the top tercile.

## Appendix C: Additional Survey Results

This appendix presents supplemental information for the survey analysis. First, Tables C1 and C2 derive our analysis sample and summarize their demographic and financial characteristics. Next, we outline the key survey questions used to determine the self-reported impact of inflation. For three of the main outcomes studied – retirement age, saving, and withdrawals – Tables C3 through C8 show the share of respondents identifying each possible motivation as the primary driver of their behavior. [79] Then, Tables C9 through C12 present full regression results for the association between "very substantial" inflation and a change in behavior. And lastly, Table C13 shows the impact of inflation on saving and withdrawals by 2023 income tercile, to justify the assumptions in our behavioral scenario modeling.

*Sample Derivation and Summary statistics*

Table C1. *Derivation of the Analysis Sample*

| | Number of observations | Percentage of survey sample (weighted) |
|---|---|---|
| Total sample | 1,501 | 100% |
| *Near retirees* | | |
| Respondent under age 62 in 2021 | 487 | 36 |
| Respondent under age 62 and working full-time in 2021 | 340 | 25 |
| *Final sample:* respondent under age 62 and working full-time in 2021; household does not receive Social Security | 322 | 24 |
| *Retirees* | | |
| Respondent age 62+ in 2021 | 1,014 | 64 |
| Respondent 62+; respondent and spouse retired by 2021 | 659 | 43 |
| *Final sample:* respondent 62+ in 2021; household retired by 2021 and receives Social Security in 2023 | 630 | 41 |
| *Unclassified respondents* | | |
| Respondent under age 62 in 2021, but is not working full-time at that point and/or the household receives Social Security in 2023 | 165 | 12 |
| Respondent 62+ in 2021, but the household is not retired at that point, and/or not receiving Social Security in 2023 | 384 | 23 |

*Source:* Authors' calculations from survey data provided by Greenwald Research (2023).

[79] The other two outcomes studied – hours worked and investment allocation – are not included because the survey did not ask respondents to list their motivations for changing behavior. In the case of hours worked, the survey instead asked "To what extent was the general rise in prices a reason for you making [this] change?" We attribute an increase in hours to inflation if the respondent selected "A major reason."

Table C2. *Mean Characteristics of Near Retirees and Retirees, 2023*

| Variable | Near retirees | Retirees |
|---|---|---|
| Age | 59 | 75 |
| Married household | 61% | 59% |
| Female | 46 | 43 |
| College degree or higher | 34 | 37 |
| White | 62 | 82 |
| Hispanic | 17 | 7 |
| 2023 household income (median) | $87,500 | $62,500 |
| Receives DB income | 16% | 59% |
| Will receive DB income | 37 | 1 |
| Homeowner | 71 | 77 |

*Source:* Authors' calculations from survey data provided by Greenwald Research (2023).

*Survey Questions Pertaining to Labor Supply*

*Retirement Age*
**[If working in 2023]** "Since the start of 2021, have you adjusted your target retirement age?" [if yes, "What was your prior target age and what is your new target age?"]

**[If retired in 2023]** "Did you retire earlier or later than you planned to retire?" [if yes, "Please indicate what your target retirement age was and when you actually retired."]

Table C3. *Share of Near Retirees Citing Various Motivations for Reducing Their Planned or Actual Retirement Age, 2021-2023*

| Motivation | Share of near retirees |
|---|---|
| You can/could afford to retire earlier than you planned | 24%*** |
| You have/had a health problem or a disability | 20*** |
| There are/were changes at your company | 15*** |
| You have/had to care for a spouse or another family member | 6** |
| You will be old enough to take Social Security retirement benefits/you became eligible for Social Security benefits and this made stopping work feasible | 19*** |
| The strain of saving due to rising prices/ increased cost of living | 1 |
| You were laid off due to the reduction in the workforce | 9** |
| Your employer is offering/offered an incentive to retire | 4 |
| Other | 2 |

Notes: Stars indicate that the share is statistically different from zero. ***($p<0.01$); **($p<0.05$).
*Source:* Authors' calculations from survey data provided by Greenwald Research (2023).

Table C4. *Share of Near Retirees Citing Various Motivations for Extending Their Planned or Actual Retirement Age, 2021-2023*

| Motivation | Share of near retirees |
|---|---|
| You don't/didn't have enough money saved for retirement | 20%*** |
| Your retirement savings declined due to the stock market | 17** |
| You are/were concerned about a future market crash | 0 |
| You would not be able/have been able to have the lifestyle you wanted in retirement | 17** |
| You couldn't save as much as planned because of rising prices | 8* |
| You had to withdraw money from your savings because of rising prices | 3 |
| You or a family member had a large health-related expense | 0 |
| You want/wanted to avoid tapping into your retirement accounts during an economic downturn | 6 |
| **[If married/partner]** Your spouse/partner lost their job so you need/needed to work longer to make up for the loss of income | 0 |
| Because rising prices increased your cost of living, you had to save more money than you thought you needed | 24*** |
| Other | 5 |

Note: Stars indicate that the share is statistically different from zero. ***(p<0.01); **(p<0.05); *(p<0.1).
*Source:* Authors' calculations from survey data provided by Greenwald Research (2023).

*Hours Worked*

**[If working in 2023]** "Since the start of 2021, have you made any of the following changes?" […] "Sought to earn more money by working more hours or taking on other work" […] "Your spouse/partner sought to earn more money by working more hours or taking on other work."

[if yes,] "to what extent was the general rise in prices a reason for you making each change?

- Major reason
- Minor reason
- Not a reason
- Not sure"

*Survey Questions Pertaining to Saving*

**[If working in 2023]** "Compared to 2021, two years ago, has the amount of money you **[**and your spouse/partner**]** saved in the past 12 months been higher, lower, or the same? Please include any money saved in a company retirement plan, in which employees can make their own contributions."

[If respondent reports an increase/decrease in saving] "Using your best estimate, how much more/less has your household saved in the past 12 months than in 2021?

- Less than $1,000
- $1,000 to $1,999
- $2,000 to $2,999
- $3,000 to $3,999
- $4,000 to $5,999
- $6,000 to $7,999
- $8,000 to $9,999
- $10,000 to $11,999
- $12,000 to $13,999
- $14,000 to $15,999
- $16,000 to $17,999
- $18,000 to $19,999
- $20,000 or more
- Not sure"

Table C5. *Share of Near Retirees Citing Various Motivations for Reducing Their Saving, 2021-2023*

| Motivation | Share of near retirees |
|---|---|
| You were concerned about a future market crash | 3%** |
| You couldn't save as much as planned due to rising prices | 69*** |
| You or a family member had a large health expense | 9*** |
| You or a family member had a large non-health expense | 9*** |
| **[If married/partner]** Your spouse/partner lost their job so you had to save less to make up for the loss of income | 6*** |
| Other | 3* |

Notes: Stars indicate that the share is statistically different from zero. ***(p<0.01); **(p<0.05); *(p<0.1).
*Source:* Authors' calculations from survey data provided by Greenwald Research (2023).

Table C6. *Share of Near Retirees Citing Various Motivations for Increasing Their Saving, 2021-2023*

| Motivation | Share of near retirees |
|---|---|
| You didn't have enough money saved for retirement | 6% |
| Your investments declined due to the stock market | 12* |
| You were concerned about a future market crash | 6 |
| You would not be able to have the lifestyle you wanted in retirement | 21*** |
| **[If married/partner]** Your spouse/partner lost their job so you had to save more to make up for their previous saving | 7 |
| You were concerned about future health expenses | 13** |
| You had to save more money due to rising prices | 26*** |
| Other | 10* |

Notes: Stars indicate that the share is statistically different from zero. ***(p<0.01); **(p<0.05); *(p<0.1).
*Source:* Authors' calculations from survey data provided by Greenwald Research (2023).

*Survey Questions Pertaining to Withdrawals*

**[All]** "Since the start of 2021, has the amount of money you are withdrawing from your savings to meet your living expenses…

- Gone up a lot
- Gone up a little
- Stayed the same
- Gone down
- Withdrawals are irregular, no clear pattern
- Not sure"

[If the respondent reports a change in withdrawals] "Using your best estimate, how much of your savings did you withdraw in 2021 and 2023?

a. 2021 withdrawal amount: _____(example: $1,000)
b. 2023 withdrawal amount: _____(example: $1,000)"

Table C7. *Share of Near Retirees and Retirees Citing Various Motivations for Withdrawing Less from Savings, 2021-2023*

| Motivation | Share of respondents |
|---|---|
| Your investments declined due to the stock market | 11%** |
| You were concerned about a future market crash | 4 |
| You would not be able to have the lifestyle you wanted in retirement | 11** |
| **[If married/partner]** Your spouse/partner lost their job so you needed to save more to make up for their saving | 0 |
| **[If married/partner]** Your spouse/partner started working so you had more income | 4 |
| You were concerned about future health expenses | 12** |
| You were worried that you would not be able to maintain prior levels of spending | 13** |
| Your household expenses declined | 28*** |
| Other | 16*** |

Notes: Stars indicate that the share is statistically different from zero. ***(p<0.01); **(p<0.05).
*Source:* Authors' calculations from survey data provided by Greenwald Research (2023).

Table C8. *Share of Near Retirees and Retirees Citing Various Motivations for Withdrawing More from Savings, 2021-2023*

| Motivation | Share of respondents |
|---|---|
| You have enough saved to support a higher standard of living | 5%*** |
| Your investments performed well | 2** |
| You had a large health-related expenditure | 9*** |
| You had a large non-health expenditure | 13*** |
| You were concerned about a future market crash | 1** |
| **[If married/partner]** Your spouse/partner lost their job so you needed to make up for the loss of income | 1* |
| You had to withdraw more money due to rising prices | 67*** |
| Other | 1** |

Notes: Stars indicate that the share is statistically different from zero. ***(p<0.01); **(p<0.05); *(p<0.1).
*Source:* Authors' calculations from survey data provided by Greenwald Research (2023).

*Survey Questions for Asset Allocation*

**[All]** "Since the start of 2021, have you made any changes in the types of investments you have put money in or your asset allocation?

- Yes, bought a type of investment you did not own before 2021 or totally dropped a type of investment you owned before 2021
- Yes, made changes in asset allocation
- Yes, made changes to both the type of investments and asset allocation
- No, did not change investments or asset allocation"

[If respondent made changes] "Which of the following do you [if married/partner and your spouse/partner] now own? Please include any money in your employer retirement plan. Please check all that apply.

- Stocks, stock mutual funds, and stock ETFs. Include variable annuities that do not have guaranteed lifetime income riders.
- Fixed investments, including bonds, bond mutual funds, fixed annuities and treasuries.
- Alternative investments, such as commodities and real estate investment trusts.
- Annuities that have guarantees, such as fixed income annuities, registered index linked annuities and variable annuities that have guaranteed lifetime income riders."

**[All]** "For each type of investment or account, is the proportion of all your [if married/partner and your spouse's/partner's] money in that investment account higher, lower, or the same as it was at the start of 2021?"

[If the respondent reports a change in investments] "How much have you increased the percentage of all your assets that is in [stocks/bonds/alternatives/fixed income]?

- Less than 5 percentage points
- 5 to 9 percentage points
- 10 to 14 percentage points
- 15 to 19 percentage points
- 20 to 24 percentage points
- 25 to 29 percentage points
- 30 to 34 percentage points
- 35 percentage points or more
- Not sure"

*Full Regression Results*

Table C9. *Regression Results for the Change in Labor Supply, 2021-2023*

| Variables | (1) Shift retirement age (binary) | (2) Shift in retirement age (continuous) | (3) Household works more hours (binary) |
|---|---|---|---|
| Not much inflation | -0.08 | 0.45 | -0.25*** |
| | (0.08) | (1.38) | (0.08) |
| Very substantial inflation | -0.01 | 3.30*** | 0.06 |
| | (0.06) | (0.99) | (0.08) |
| Very good/good health | 0.03 | -0.83 | -0.03 |
| | (0.08) | (1.10) | (0.09) |
| Fair/poor health | 0.18 | -2.06 | 0.18 |
| | (0.11) | (1.49) | (0.13) |
| Ages 62-70 | 0.29*** | -0.13 | -0.13 |
| | (0.07) | (0.91) | (0.09) |
| Married | 0.04 | 2.80*** | 0.03 |
| | (0.05) | (0.97) | (0.07) |
| Female | 0.10** | -0.84 | -0.01 |
| | (0.05) | (0.92) | (0.07) |
| Non-Hispanic White | 0.08 | -2.93* | -0.13 |
| | (0.07) | (1.58) | (0.08) |
| Hispanic | -0.07 | -0.31 | -0.08 |
| | (0.08) | (1.57) | (0.10) |
| College degree or higher | -0.00 | 1.81* | -0.18** |
| | (0.06) | (1.04) | (0.07) |
| Self employed | 0.53*** | -0.83 | -0.29 |
| | (0.11) | (1.99) | (0.20) |
| Constant | 0.11 | -2.07 | 0.65*** |
| | (0.12) | (1.86) | (0.13) |
| Observations | 322 | 109 | 248 |
| R-squared | 0.15 | 0.28 | 0.14 |

Notes: Robust standard errors in parentheses. ***(p<0.01); **(p<0.05); *(p<0.1).
*Source:* Authors' estimates from survey data provided by Greenwald Research (2023).

Table C10. *Regression Results for the Change in Saving, 2021-2023*

| Variables | (1) Change saving (binary) | (2) Change in saving (nominal dollars) | (3) Change in saving (percentage of income) |
|---|---|---|---|
| Not much inflation | -0.20** | 4,017** | 0.04** |
| | (0.10) | (1,737) | (0.02) |
| Very substantial inflation | 0.25*** | -560 | -0.01 |
| | (0.07) | (1,274) | (0.01) |
| Very good/good health | 0.13 | 449 | -0.02 |
| | (0.08) | (1,615) | (0.02) |
| Fair/poor health | 0.25** | 882 | -0.02 |
| | (0.11) | (2,360) | (0.02) |
| Ages 62-70 | 0.08 | -2,589*** | -0.01 |
| | (0.09) | (980) | (0.01) |
| Married | 0.06 | -1,171 | 0.00 |
| | (0.07) | (1,029) | (0.01) |
| Female | -0.06 | -898 | -0.00 |
| | (0.06) | (1,042) | (0.01) |
| Non-Hispanic White | -0.04 | 1,329 | -0.00 |
| | (0.09) | (1,324) | (0.02) |
| Hispanic | 0.11 | 836 | -0.01 |
| | (0.09) | (1,148) | (0.02) |
| College degree or higher | 0.11 | 317 | 0.02 |
| | (0.07) | (1,307) | (0.02) |
| Self employed | -0.43** | -1,276 | -0.05 |
| | (0.21) | (1,398) | (0.05) |
| Saving change top-coded | | 22,334*** | 0.06*** |
| | | (1,510) | (0.02) |
| Saving change bottom-coded | | -16,664*** | -0.13* |
| | | (1,006) | (0.07) |
| Constant | 0.38*** | -2,041 | -0.01 |
| | (0.12) | (2,159) | (0.03) |
| Observations | 248 | 153 | 153 |
| R-squared | 0.17 | 0 | 0.19 |

Notes: The dependent variable in column (2) equals the level change in saving divided by 2023 household income. Robust standard errors in parentheses. ***(p<0.01); **(p<0.05); *(p<0.1).
*Source:* Authors' estimates from survey data provided by Greenwald Research (2023).

Table C11. *Regression Results for the Change in Withdrawals, 2021-2023*

| Variables | (1)<br>Change withdrawals (binary) | (2)<br>Change in withdrawals (nominal dollars) | (3)<br>Change in withdrawals (percentage of income) |
|---|---|---|---|
| Not much inflation | -0.16*** | -923 | -0.02 |
| | (0.05) | (981) | (0.01) |
| Very substantial inflation | 0.09** | 2,044** | 0.02** |
| | (0.04) | (899) | (0.01) |
| Very good/good health | 0.06 | -5,128 | -0.01 |
| | (0.07) | (4,138) | (0.02) |
| Fair/poor health | 0.14* | -5,790 | -0.00 |
| | (0.08) | (4,121) | (0.02) |
| Ages 62-70 | -0.10 | -113 | -0.01 |
| | (0.09) | (1,856) | (0.02) |
| Ages 71-79 | -0.11 | -420 | -0.02 |
| | (0.11) | (2,132) | (0.02) |
| Ages 80+ | -0.07 | -406 | -0.02 |
| | (0.11) | (2,289) | (0.03) |
| Married | -0.04 | 93 | -0.01 |
| | (0.04) | (986) | (0.01) |
| Female | -0.02 | -65 | -0.01 |
| | (0.04) | (1,091) | (0.01) |
| Non-Hispanic White | -0.05 | 849 | 0.01 |
| | (0.05) | (787) | (0.02) |
| Hispanic | 0.04 | 75 | 0.01 |
| | (0.07) | (874) | (0.02) |
| College degree or higher | -0.06 | 2,836*** | 0.02* |
| | (0.04) | (931) | (0.01) |
| Self employed | 0.09 | 305 | 0.00 |
| | (0.17) | (1,236) | (0.02) |
| Near retiree | -0.01 | -413 | -0.02 |
| | (0.09) | (1,626) | (0.02) |
| Constant | 0.53*** | 5,345 | 0.05 |
| | (0.13) | (4,620) | (0.04) |
| Observations | 878 | 392 | 392 |
| R-squared | 0.08 | 0 | 0.04 |

Notes: The dependent variable in column (2) equals the level change in withdrawals divided by 2023 household income. Robust standard errors in parentheses. ***(p<0.01); **(p<0.05); *(p<0.1).
*Source:* Authors' estimates from survey data provided by Greenwald Research (2023).

Table C12. *Regression Results for the Change in Allocation, 2021-2023*

| Variables | (1) Change portfolio (binary) | (2) Percentage-point change stocks | (3) Percentage-point change fixed income | (4) Percentage-point change alternatives | (5) Percentage-point change annuities |
|---|---|---|---|---|---|
| Not much inflation | -0.06 | 2.13 | -0.03 | -0.85 | 1.03* |
| | (0.04) | (1.76) | (1.83) | (0.74) | (0.57) |
| Very substantial inflation | 0.02 | -0.63 | 0.32 | -1.15 | 0.29 |
| | (0.03) | (1.38) | (1.33) | (0.88) | (0.53) |
| Very good/good health | -0.14** | 3.21 | -2.25 | 0.17 | -1.81 |
| | (0.07) | (2.49) | (1.70) | (0.50) | (1.34) |
| Fair/poor health | -0.15** | 4.84* | -2.78 | -0.43 | -0.12 |
| | (0.07) | (2.58) | (2.58) | (0.87) | (2.07) |
| Ages 62-70 | -0.04 | -2.41 | 1.00 | 0.85 | 0.56 |
| | (0.04) | (1.73) | (1.54) | (0.88) | (0.99) |
| Ages 71-79 | -0.12*** | -2.01 | 0.60 | -0.18 | 0.33 |
| | (0.04) | (1.59) | (1.51) | (0.79) | (0.66) |
| Ages 80+ | -0.15*** | -1.30 | -1.45 | -0.39 | -0.36 |
| | (0.05) | (2.59) | (2.19) | (0.58) | (0.89) |
| Married | 0.11*** | 0.55 | 1.31 | -0.86 | 0.08 |
| | (0.03) | (1.53) | (1.60) | (0.93) | (1.11) |
| Female | -0.08*** | 1.42 | -3.61*** | -0.53 | 0.88 |
| | (0.03) | (1.32) | (1.17) | (0.72) | (0.66) |
| Non-Hispanic White | 0.08** | 1.58 | 1.96 | -1.55 | 0.51 |
| | (0.04) | (1.90) | (2.33) | (1.51) | (1.26) |
| Hispanic | 0.03 | -2.86 | -1.46 | -3.96* | -1.44 |
| | (0.05) | (3.01) | (3.30) | (2.29) | (1.68) |
| College degree or higher | 0.16*** | -0.55 | -1.31 | 1.21 | -0.60 |
| | (0.04) | (1.26) | (1.27) | (0.76) | (0.57) |
| Self employed | -0.01 | 0.79 | -2.27 | -3.24 | -0.88 |
| | (0.15) | (1.25) | (1.74) | (2.02) | (0.81) |
| Constant | 0.33*** | -5.66 | 3.90 | 2.64 | 0.96 |
| | (0.08) | (3.63) | (2.97) | (2.32) | (1.84) |
| Observations | 952 | 262 | 262 | 262 | 262 |
| R-squared | 0.11 | 0.05 | 0.07 | 0.08 | 0.06 |

Notes: Robust standard errors in parentheses. ***(p<0.01); **(p<0.05); *(p<0.1).
*Source:* Authors' estimates from survey data provided by Greenwald Research (2023).

Table C13. *Impact of Inflation on the Total Saving of Near Retirees and Retirees, by Income Tercile, 2021-2023*

| | Bottom tercile | Middle tercile | Top tercile |
|---|---|---|---|
| *Panel A: Near Retirees* | | | |
| Change saving or withdrawals | 58% | 51% | 43% |
| Among those making changes: | | | |
| Mean shift in saving and/or withdrawals (nominal dollars) | $-3,147 | $-4,171 | $-11,467 |
| Mean shift in saving and/or withdrawals (percentage of 2023 income) | -9% | -4% | -4% |
| *Panel B: Retirees* | | | |
| Change withdrawals | 26% | 24% | 11% |
| Among those making changes: | | | |
| Mean shift in withdrawals (nominal dollars) | $-1,531 | $-3,018 | $-8,161 |
| Mean shift in withdrawals (percentage of 2023 income) | -6% | -5% | -5% |

Notes: The sample includes near-retiree households still working in 2023. A negative dollar value for withdrawals indicates an increase in withdrawals (a reduction in saving).
*Source:* Authors' estimates from survey data provided by Greenwald Research (2023).