The Impact of Inflation on Retirement – Call for Essays

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Introduction

The Society of Actuaries (SOA) Research Institute Aging and Retirement Strategic Research Program is pleased to present this collection of essays that explores the impact of inflation on retirement and retirement-related issues. With the impact of inflation having wide-ranging reach, the goal of this effort was to address the topic from one or more perspectives and approaches.

1st PLACE PRIZE WINNER: *Inflation and Retirement – Thoughts* by Sam Gutterman
The first prize-winning essay discusses the shortcomings of the simplicity of the consumer price index. The author first addresses the various inflation measures that have been developed over the years, moving into a discussion of the heterogeneity between a countries' CPI and the real effect of inflation on an individual. The author also considers wage differentials for pre-retirees saving for retirement, vulnerabilities both pre-retirees and retirees may face, and the uncertainty of inflation requiring the need for a contingency plan in retirement.

2nd PLACE PRIZE WINNER: *Right-Sizing Inflation Concerns Among Pre-Retirees* by Colin Jarrett
The 2nd prize-winning essay aims to answer two questions: How well-founded is the recent increase in concern about inflation in retirement among American pre-retirees (those who may retire soon)? And what steps are appropriate for pre-retirees in response to high-inflation periods and to address concerns about inflation more generally? To answer these questions, the author investigates the sources of income retirees will have in retirement and the expenses they can expect to have.

Impact of Inflation on Retirees by Anna M. Rappaport
In this essay, the author provides a summary of SOA Research Institute work addressing some of the issues facing retirees and providing her own thoughts and opinions on how these issues intersect with inflation and affect retirees.

Planning for Inflation in Retirement by Kenneth Steiner
This essay presents a process for developing a retirement plan using an actuarial model. The author provides an example and discusses various considerations such as changing assumptions to account for inflation, increasing investment in non-risky assets to cover inflation, and decreasing spending to avoid a significant decrease in savings due to greater-than-expected inflation.

The SOA Research Institute's Aging and Retirement Strategic Research Program would like to thank the following individuals for their input throughout this project:

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Inflation and Retirement - Thoughts

Sam Gutterman

Inflation is often thought of as being the change in the consumer price index (CPI) of a country. But in the real world, many aspects of this simple formula present critical issues for both those preparing for and those in retirement. Although this index may adequately serve as an aggregate measure for an entire country or a theoretical 'average' person, it may not accurately describe the change in the cost of consumption or living for you, me, or any particular individual or household. The purpose of this essay is to discuss these shortcomings.

But first, if such an index is only a theoretical construct without much relevance to a person, why is there so much interest in it? My answer is that it does have several useful and legitimate purposes, including serving as a signaling tool for decision-makers regarding the overall rate of change in the nation's prices, input to wage discussions, term premia for fixed financial instruments, basis for an aggregate inflation-adjusting mechanism such as annual changes in U.S. Social Security benefits[1], something for the media to highlight each month, a topic to complain about over dinner with friends, and, for those planning for retirement – how much savings should be accumulated to achieve a desired standard of living.

People are really affected by the actual cost of the goods and services they purchase every day. For instance, I have recently stared at the rolling digital pump readout moving from $60 to $100 while filling my car's tank of gas and my hot chocolate at Starbucks increased from $4.19 to $4.39 last week. I don't react emotionally to the latter so much, as I simply tap my card against a small screen, impervious to the 5% increase. But both types of change can make a big impact on many tight household budgets.

Inflation Measures

There has been a great deal written about what is the best technical measure of inflation – among the contenders have included:

- *CPI-W* (for urban wage earners and clerical workers)
- *C-CPI-U* (chained CPI) that more directly reflects substitution effects
- *CPI-E* (for the elderly), based on relatively small samples of people, with items not necessarily representative of where those aged 62 and older shop with, according to critics, not properly tracking widespread senior discounts
- *Elder Index*, a measure of the income that those over age 65 need to meet their basic needs and age in place with dignity

[1] This and subsequent references to U.S. Social Security benefits assume that the U.S. government 'fixes' the future financial position of the Social Security trust funds in a timely manner without a reduction in benefits.

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- *Core inflation*, which excludes the cost of food and energy, prices of which can be volatile
- *Trimmed mean inflation*, which eliminates a percentage of both the smallest and largest price changes, sometimes 8% of them
- *Supercore inflation*, which excludes the cost of shelter; and
- *Median inflation*, developed by the Cleveland Federal Reserve Board, excludes extreme price movements of any kind, representing the change in prices of the good or service whose expenditure weight is in the 50th percentile of price changes

Each measure relates to price patterns that affect the theoretical average person who purchases the same market basket of goods and services every month. The change in their values can be looked at on a monthly, quarterly, or annual basis—the choice being a function of its application and the desired tradeoff between stability and responsiveness to different conditions. The indices that strip away extreme or unusual values have sometimes been used to attempt to indicate the embedded rate of price changes (also referred to as the self-perpetuating, entrenched, or persistent measure), although they do not consider changes resulting from the external environment, such as changes in Federal Reserve Board interest rate actions. Depending on the circumstances, they can result in similar or quite different values.

The CPI includes a relatively small substitution effect, that is, if the price of a good or service is greater than that of a similar or related good or service available at a lower price, the tendency of people is to purchase a less expensive good or service instead. This is reflected, to some extent, in the CPI-W, but to a greater extent by the chained CPI. Nevertheless, such substitutions only reflect broad averages—a household can make more or fewer substitutions than the average. It doesn't reflect the change in resources/income created by adapting to the changes affecting a particular individual's life cycle, for example, the reduction in cost from downsizing or moving to an apartment from a larger house, an unexpected dental bill, or needed major repairs to one's home.

Heterogeneity

In any case, there are very few 'average' people who buy the same market basket every month, and their prices can differ significantly depending on when and where they are purchased. The change in a household's cost of living from month to month is not the same as a country's inflation, no matter which index is used to measure the theoretical national average. The true cost of living relates to the individual, reflecting their particular needs, desires, and resources. Just like a person's discount rate is not necessarily the same as that observed in a financial market.

This heterogeneity is the result of several factors, including where the person lives, and how large the person's income, wealth, health, and frugality are. Key characteristics include:

1. *What a household consume*s.

   Indices measure the cost of goods and services[2] from a constant basket of similar quality across time, with or without substitution effects. But the content of a household's basket of goods and services can differ widely from time to time and from household to household. For example, differences between the family structure and consumption habits and those hypothesized in the index can differ enormously. No

[2] They are updated from time to time.

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aggregate index can address the differences in the number, composition, or changes in a household or its needs that dictate the availability, amount, and use of its resources.

They also do not reflect the effect of such items as taxes[3], one-time purchases such as vacations, upsizing/downsizing, a new roof, or a medical emergency. Which measure to use will depend on the application – is it for a national policy decision or to assess how well (or poorly) a particular household is faring against its weekly budget or life cycle goals?

2. *The amount paid for each item*.

   Where you shop and your attitude toward how much you are willing to pay, influenced by peers and your socioeconomic status, affect the prices and quantity of the goods and services you consume. The economic concepts of local supply and demand can be consistent or inconsistent to national factors. Local conditions and peer pressures can play a role in the composition of a household's basket each period.

   The cost of living and its rate of change can differ dramatically by location. For example, the Elder Index indicates that the average cost of meeting the daily needs of those over age 65 represents 90% of the cost of living in rural West Virginia but just 38% in San Francisco. These costs and their changes over time can also differ dramatically by the individual household.

   A significant share[4] of a household's total costs relates to housing – usually a far greater share for those with limited income than for those with a high income. Rising housing costs especially affect those who rent (about a third of American households rent[5]). But most renters have leases, which means that their rent largely reflects the state of the rental market sometime in the past, so the official rent measures lag behind market rent changes, possibly by a year.

   The annual cost of owning a home is very different than the cost of renting one, although some costs are similar, particularly those either paid by the owner or implicitly passed through the rent charged. In the early fall of 2022, asking rent increased by 12% nationally and by more than 20% in the southern and western parts of the United States. Most American mortgages are fixed[6], rather than the variable nature of mortgage interest in many other countries, resulting in an even longer lag in many cases.

3. *Current or future consumption and saving*.

   Continuing with the housing example, neither renters nor owners have complete control over housing costs. Owners typically bear the brunt of the cost of a new roof or a new furnace, while both owners and renters are affected by changes in the cost of utilities. Some of these costs are uniform over the entire country, while others are very dependent on location. Those who rent tend to have a lower income than the owner, and in retirement may rely on Social Security benefits – but that program's benefits respond to annual changes in the CPI-W, which can offset some of these cost increases, even though not tailored to the individual. And the timing of furniture purchases is far from uniform over the life of the home, let alone over a year.

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[3] Taxes do have an indirect effect, as it affects everything from consumption, productivity, and take-home wages.
[4] It has been estimated that, on average, housing costs constitute about 32% of total costs and 40% of core costs.
[5] Just under 40% of those under age 35 own their homes, while at least 75% of those older than 55 do.
[6] About 37% of those who own a home do not have a mortgage.

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The market basket of goods and services can also differ by an individual's risk and cost tolerances, as well as their socioeconomic/sociodemographic profile. For example, whether one's roof gets repaired can depend on how close a person is to selling it.

Changes in the cost of consumed goods and services can differ widely between those saving for retirement and those who are in retirement. It is generally accepted that, on average, retirees tend to spend relatively more of their income on health care and housing than those of working age, while spending less on food, beverages, and transportation. Between 1983 and 2003, the change in the CPI-E was running at about 0.4% greater than the CPI-W (for urban workers), but since then the difference has only been 0.05%. But premiums for Part B for Medicare are usually deducted from Social Security benefits, which usually increases more than CPI-W – although not in 2023 when Social Security benefits will increase by 8.7%, while the cost of Part B will decrease somewhat. And in both 2021 and 2022, the change in CPI-E has been less than CPI-W[7].

Inflation expectations over various periods can be quite important to society, its institutions, and individual households. For example, these expectations strongly influence the relative importance of current versus delayed consumption and savings, both regarding societal and personal decision-making.

- Societal expectations can, for example, affect economic growth, rates of savings and consumption—both their type and timing, investment returns, and discount rates. They also can indicate to the monetary authority the needed type, level, or duration of monetary policy changes.
- Personal expectations affect the level and type of personal consumption and savings, influenced by a person's experience, as well as what their favorite news source and friends think. Near retirement age, it can affect whether to continue working, take on a second or part-time job, or retire. And it can serve as an early warning signal to the pre-retiree as to how much needs to be saved and the extent to which retirees need to reduce their costs to achieve a desired standard of living.

Wage Inflation and Income

Although changes in income, especially in wages, may not be thought of as being relevant to a discussion of price inflation, it is important to not only recognize the pressure that changes in wages have on price levels, but also their effect on the ability to pay for goods and services. Sources and amounts of income include wages and other sources of income, including changes in the value of owned assets, such as equities and homes. The value of all of these can be volatile and can differ dramatically during a person's life and work cycle, as well as between people.

The real wage differential, the difference between the changes in wages and the change in price inflation over the same period, is an important concept in assessing the effects of inflation, wage-related income, and savings for retirement. In a macro sense and under 'normal' conditions, improvements in productivity and marketplace demand for a person's labor will result in a positive real wage differential, although sometimes with a lag. This is especially

[7] The 2023 Cost of Living Adjustment (COLA) is 8.7%, more than the corresponding 8% rise in the CPI-E. In 2022, the COLA was 5.9%, also greater than the 4.8% increase in the CPI-E. On average, those in their 60s and older devote more to medical care and housing and less to transportation, while the CPI-W had relatively limited weight for medical care. But over the past two years, transportation costs, largely gasoline, contributed disproportionately to inflation, with medical care less so.

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applicable when inflation (or deflation) is surging. Real wages can deteriorate, at least temporarily, during which those actively working will see a reduction in their real wages – when inflation is often discussed in the media.

But this concept only relates to those working—for retirees, other than other sources of income, their standard of living is primarily affected by their expenditures on goods and services. It behooves those attempting to accumulate funds for use during their retirement to keep this in mind.

Conditions during periods of higher inflation can differ considerably for retirees and their families. Three situations might arise: (1) those retirees who depend primarily on fixed-income pension benefits or investment earnings will be financially challenged if the cost of their consumption increases, (2) those who are fortunate to have an adequate investment nest egg, including the value of their owned home, with a return greater than the rate of their inflation, will be in a favorable situation, and (3) if their retirement income primarily depends on Social Security benefits with its COLA for their retirement income, they will be in a neutral position if their cost of living changes in a manner consistent with CPI-W, although with a lag. In any case, if personal inflation is greater than that expected in retirement savings goals, then additional belt-tightening or other actions will be necessary.

The Vulnerable

Within any group, the income and other resources of many people and households won't be able to keep up with their costs. There has been and will continue to be at least some, and possibly a lot, of inequality and poverty.

Although I usually think about inflation in the context of those around me, who can 'afford' some inflation, have a decent retirement income, and can afford the services of a financial planner, those with a smaller amount of current income and resources often have a difficult time financially and may be forced to live a downsized lifestyle, especially as their marginal propensity to consume (to borrow economic terminology) is often greater than that of those with more income and resources. As James Baldwin said, "Anyone who has ever struggled with poverty knows how extremely expensive it is to be poor." It has to be remembered that it is the net of income less the cost of their goods and services that count for a standard of living, and many retirees have limited net income.

If inflation just increases a household's costs with no corresponding increase in their income, their financial position will inevitably deteriorate. Those without a contingent source of savings will be especially affected. While many of pre-retirement age face and meet the challenge of developing a way to save enough for a comfortable, or at least adequate, retirement, other retirees will be unable to work and will experience a challenging retirement. Despite this, most will somehow learn to adapt, downsize, and scrape by, possibly by working a part-time job. After rent, utilities, other daily necessities, and maybe having something available for a rainy day or funeral arrangements, there may be little left for food for one person, let alone a family. Some who live in a marginalized situation may end up going to bed hungry at night and skimp on even what is thought to be necessities, possibly even becoming homeless. This is the catastrophic side of inflation.

The cumulative effect of inflation can devastate the adequacy of planned savings for retirement, if any, without supplemental help.

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Government Actions

In some cases, governments can offset some of the increase in the cost of living through subsidies[8], especially for the basics of living, such as gasoline (petrol) for cars, healthcare, bread, or milk. Although such subsidies might be greatly appreciated by less well-off individuals, they may at the same time mess up supply or demand for the products subsidized, possibly wreaking havoc on economies and finances, and when curtailed, can have a significant political effect. These tradeoffs are usually considered in public policy making.

Even though many societies are currently in the middle of a significant bout of high inflation (the fall of 2022), price pressures are, in most countries, unlikely to continue at current levels (above 7%) over a long period. Actuaries may have to confront the question of what the best long-run expectation of aggregate inflation is. Although unlikely to be flat and will certainly be influenced by perturbations and cycles, overall, it will probably, on average, be close to what the monetary authorities want it to be, as they normally have the power and the challenging responsibility to influence inflation through various monetary tools[9]. Although it is easy to assume that government will ride to the rescue, that is not guaranteed. Government decisions can play a crucial role in many people's future financial condition.

Uncertainty

Inevitably and importantly, future inflation and its components carry with them an inherently significant amount of uncertainty. It is good personal practice, at least to the extent it can be afforded, to accumulate some type of contingency fund – for the unexpected, which can include the cumulative effects of increases in the cost of living. And immediately after a one-time need is met, one needs to attempt to build up savings again, as compound costs and cascading risks have a habit of recurring. Although the extent of uncertainty differs by individual, the more fragile their finances are and the less margin has been provided for in the form of accumulated savings, the greater the need for additional funds.

To the extent that financial support is fragile, i.e., without adequate back-ups from either personal, family, community, or government sources – household finances will remain a challenge and a source of personal tension and stress.

"… an explosion of food and energy prices for those that are better off is inconvenience—for the poor people, tragedy."[10]

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[8] In some cases, such decreased prices are only available to those with lower income, while in others they are available to everyone.
[9] At least to the extent that you believe that, at least in large part, the amount of 'money' (whatever definition is used) is a primary driver of overall inflation, as Milton Friedman did.
[10] Kristalina Georgieva, International Monetary Fund Managing Director. September 2022.

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Right-Sizing Inflation Concerns Among Pre-Retirees

Colin Jarrett

Introduction

This essay addresses two questions:

How well-founded is the recent increase in concern about inflation in retirement among American pre-retirees (those who may retire soon)?

What steps are appropriate for pre-retirees in response to high-inflation periods and to address concerns about inflation more generally?

To answer, the essay investigates the sources of income retirees will receive and the types of expenses they can expect to incur. There is no universal answer to how concerned pre-retirees should be about inflation, but rather various factors that affect the extent of appropriate concern for each individual. Following exploration of these factors, a general prognosis and recommendations will be provided.

Level of Concern

Inflation has become a focal point of individuals' financial worries over the past year. In April 2022, an annual Gallup survey asked Americans,[1] "What is the most important financial problem facing your family today?" The most common response by far (32%) was "high cost of living/inflation", with those closer to retirement age more concerned about inflation than younger age groups. For comparison, in the five prior years, inflation was the answer for under 10% of participants.

In a separate Gallup poll taken in April 2022, 63% of Americans responded that they are very worried or moderately worried about having enough money in retirement, up 7 percentage points from 2019 (both pre-pandemic and before high inflation).[2]

[1] https://news.gallup.com/poll/392162/personal-finance-ratings-slide-amid-rising-prices.aspx

[2] Note that in April 2022 the S&P 500 was down less than 10% from its January 2022 high, and still up 50% from April 2019, so any increased worry would seem more likely to be from higher inflation rather than decreased assets. https://news.gallup.com/poll/392432/americans-financial-worries-tick-past-year.aspx

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In an FGLife survey conducted in May 2022[3], 80% of Americans age 50+ stated that they are worried about inflation in retirement (up 7 percentage points from the prior year), with pre-retirees (84%) more concerned than retirees (76%).

Effect of Inflation on Retirement Income Sources

The first income source to explore is Social Security, due to its high usage and inflation-indexing. Social Security retirement benefits will increase 8.7% in 2023 following a 5.9% increase in 2022. Over a quarter of 65+ retirees receive at least 90% of their income from Social Security, a third receive at least 75%, and a little over half (53%) receive at least 50%[4]. Evidently, many Americans heavily rely on Social Security, and for them the inflation protection is quite substantive. Concerns about the longevity of Social Security and the feasibility of inflation-linked benefits continuing indefinitely may counteract this reassurance about inflation protection. Exploring those concerns is beyond the scope of this essay but is a valuable topic for further research.

Beyond Social Security, in 2014 (the latest data available from the SSA) the income of those 65 or older broke down as follows[5]:

- about 15% received a government employee pension, which typically include cost-of-living adjustments (COLAs)
- almost 40% received a private pension or annuity, which usually do not contain COLAs
- 60% received income from assets, which has the potential for inflation protection

While the comparison during retirement is straightforward (COLA is preferable to no COLA), the pre-retirement period is more complicated: how the benefit is determined will dictate how exposed a participant is to inflation. Considering the private sector, while only 14% of Fortune 500 employers offered defined benefit plans to new hires in 2014, almost half (46%) of these companies employed workers who actively accrued benefits[6]. Frozen benefits are eroded by inflation over time, but for those accruing, most companies have a formula that helps offset effects of inflation.

Among defined benefit plan sponsors, 71% offered a cash balance plan, and 18% offered a traditional final average pay plan. The cash balance plan should offset inflation with higher returns during times of higher inflation. The final average pay plan protects participants against inflation to the extent their wages increase along with inflation, unlike a career average pay plan where higher wages a few years before retirement has a minimal offsetting effect due to many years of lower wages.

Like the longevity of Social Security, wages keeping up with inflation is an important caveat both for final average pay plans and for workers to be able to save sufficiently for retirement expenses when reliant on defined contribution plans. Given the importance of the issue, further research and exploration of this link and its effects on workers' ability to retire would be useful. The extent to which inflation might outpace wages would also be relevant

[3] https://www.fglife.com/news/retirement-survey-2022.html
[4] https://www.ssa.gov/policy/docs/workingpapers/wp116.html
[5] https://www.ssa.gov/policy/docs/statcomps/income_pop55/2014/sect02.pdf
[6] https://www.wtwco.com/en-US/Insights/2020/06/retirement-offerings-in-the-fortune-500-1998-2019

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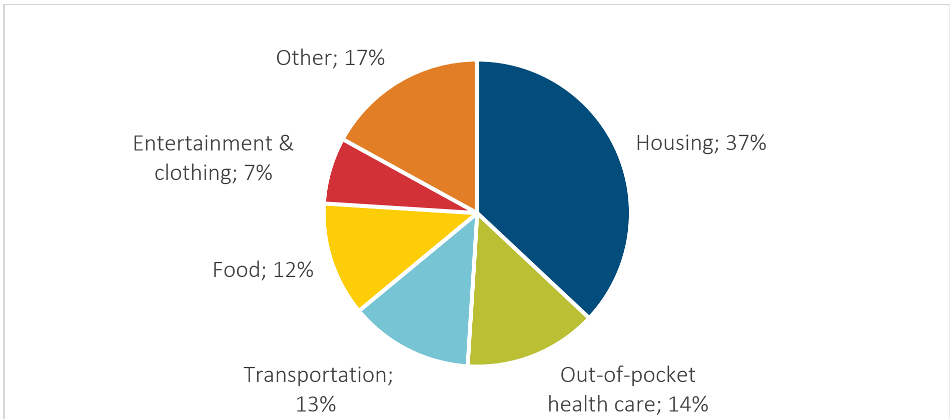
to incorporate in research on the future of Social Security, as outflows from the program would grow faster than inflows.

Finally, considering income from assets, a classic 60/40 stock/bond split, for example, is somewhat vulnerable to inflation: the only negative 10-year real returns for this portfolio from 1900 to 2015 have occurred when inflation was over 5%. One explanation for the poor returns during high inflation is that investors "avoid being tied to fixed-income payments when interest rates [are] rising…But they also [demand] a bigger discount rate on equities, so both asset classes [decline]."[7]

Effect of Inflation on Retirement Expenses

Moving to retirement expenses that income needs to cover, Figure 1 shows the mean distribution of expenses for those over age 65.

Figure 1
MEAN PERCENTAGE PERSONS OVER 65 ALLOCATE TO COMPONENTS OF TOTAL EXPENDITURES[8]



For housing, in terms of ongoing costs, 55% of persons 65 or older own with no mortgage, 25% have a mortgage, and 20% are renters. The mean percentage allocated to housing expenditures follows intuitively: about a third of expenses are allocated to housing for those without a mortgage, about 40% for those who have a mortgage, and almost half for those who rent. Considering the effects of inflation on these groups:

Owners with no mortgage are relatively sheltered from housing inflation, although rising property taxes and insurance premiums could pose a burden.

Mortgage holders are mostly protected as their loan repayments are static regardless of the housing market rapidly inflating.

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[7] https://www.alliancebernstein.com/sites/library/Instrumentation/DCI-7213-0615.pdf
[8] https://www.ssa.gov/policy/docs/chartbooks/expenditures_aged/2020/exp-aged-2020.pdf

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Renters are the most exposed to housing inflation. While the available SSA data does not crystallize the link, most retired renters likely receive much of their income from Social Security, so while their rents might rise rapidly, hopefully their income would rise to offset this increase.

Health care expenses have a combination of inflationary effects on retirees: medical costs continue to rise faster than broader inflation and retirees have increasing medical care needs as they age, giving this inflation time to compound. Specifically, the SSA expenditure data shows that for 55- to 64-year-olds, the median allocation of their spending to out-of-pocket health care costs is 7%, while it jumps to 13% for 65- to 74-year-olds and to 16% for those 75 or older. Even if a retiree's income is entirely inflation protected (e.g., 100% of income is from Social Security), assuming they retired and began benefits 10 years ago at age 65, their income will have increased by only 28% while medical costs will have increased 33%[9] from inflation alone (i.e., not considering increased costs associated with aging).

For transportation, the CPI for Transportation has roughly tracked inflation in the economy[10], although with a little more volatility. Fortunately, transportation expenditures tend to decrease as retirement progresses: the median allocation to transportation is 12% for the age group 55- 64, 10% for those 65-74, and 6% for those 75 or older. As a result, inflation in this category primarily affects expenditures in the first few years of retirement, so there is minimal compounding effect.

Prognosis and Recommendations

The simplest conception of the prognosis and therefore recommendation for soon-to-be retirees regarding inflation in retirement is that they *should not be overly concerned, but should be aware and take prudent, non-drastic steps to address the risk*.

First, the largest step one could take in response to inflation concerns: delaying retirement by continuing to work longer. A 2020 NBER paper[11] found that the financial effect of eliminating a 3% COLA in a pension plan is offset by the participant delaying retirement by 4.5 months and for a 5% COLA working 7 months would offset the lost benefit. For comparison, the worst 30-year period of inflation in the United States was 5.40% (from 1965-95 and 1966-96), so even if all a retiree's income would be from sources not linked to inflation, they would only need to work part of a year to offset the effect of the worst retirement-length inflation the US has experienced. Certainly, a pre-retiree may want to continue working full-time longer or shift to part-time before fully retiring for asset accumulation and cash flow reasons generally, but *delaying retirement for long primarily due to inflation risk is not necessary for potential retirees.*

Second, those considering retirement can take an inflation-protecting step without continuing to work by *delaying beginning Social Security payments*. Given that many retirees receive much of their income from Social Security, this is potentially a highly impactful strategy. Some strategies to use savings to delay Social Security benefits include higher initial withdrawals from 401(k) accounts or IRAs, early commencement of pension benefits, and reverse

[9] This comparison uses the CPI-W and CPI for Medical Care increases over the last 10 years.
[10] Consumer Price Index for All Urban Consumers: Transportation in U.S. City Average vs Consumer Price Index for All Urban Consumers: All Items in U.S. City Average
[11] https://www.nber.org/sites/default/files/2020-11/NB20-13%20Fitzpatrick%2C%20Goda.pdf

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mortgages. A 2017 study[12] from the Stanford Center on Longevity found that "using savings to enable delaying Social Security benefits increases total retirement incomes (including Social Security) for the test cases in this study by amounts ranging from [3% to 18%]." As the authors state, "Social Security's current delayed retirement credits were designed when interest rates were higher and life expectancies were shorter, compared to today. In addition, Social Security added an automatic adjustment of benefits to address inflation. The adjustment factors for delayed retirement would be less generous if they reflected these two factors." These factors mean that retirees can generally increase their Social Security benefit by more than the amount that it is costing them in lost payments and not only protect themselves well against inflation but also increase their expected retirement income in the process.[13]

Third, to the extent possible, *a pre-retiree should fund a Health Savings Account and use it for medical expenses in retirement as needed*[14]. The tax benefits of an HSA and its investment earnings can partly offset growth in health care costs.

Fourth, pre-retirees and retirees expecting significant income from assets should *invest some assets in classes that perform well in times of higher inflation*. These include I Bonds, TIPS, REITs, and commodity stocks. From 1990 to mid-2014, the average annualized performance for a 1% rise in inflation for various asset classes was: -0.2% for a 60-40 stocks/bonds portfolio, 1.1% for TIPS, 4.8% for REITS, and 6.7% for commodity stocks.[15] TIPS match inflation almost exactly, but given that many investors choose to seek a higher return so will not only hold TIPS, it is relevant that TIPS do not offset stock and bond downturns, whereas other asset classes can because they "either cause the inflation (like certain commodities) or they're quickly able to pass through rises in inflation by hiking rent prices (like real estate)."[16]

[12] https://longevity.stanford.edu/wp-content/uploads/2017/11/Optimizing-Retirement-Income-Solutions-November-2017-SCL-Version.pdf
[13] In some situations, delaying may not be optimal. The SSA calculator can help with modeling different scenarios.
[14] From a tax-minimizing standpoint, it is preferable to drawdown from taxable or tax-deferred accounts (like 401(k)s) before pulling any money from HSAs. Due to HSAs not taxing withdrawals if used for medical purposes, allowing further asset growth within HSAs is preferable. Receipts from medical expenses can be saved for later reimbursement.
[15] https://www.alliancebernstein.com/sites/library/Instrumentation/DCI-7213-0615.pdf
[16] https://www.alliancebernstein.com/sites/library/Instrumentation/DCI-7213-0615.pdf

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Conclusion

The effect of inflation on any individual's retirement will depend partly on specific sources of income and types of expenditures. For most Americans, inflation does not pose an extreme concern but rather one that should be addressed with relatively minor careful changes. Table 1 provides a guide to summarize how major items in an individual's situation lead to varying levels of inflation protection or exposure.

Table 1

INFLATION IMPACT OF TYPICAL ATTRIBUTES OF RETIREES' FINANCES

Note: the number of arrows in each direction indicates the level of impact. For example, 3 up arrows indicates that a retiree has a much-increased ability to withstand high inflation, while 2 down arrows would be a moderately decreased ability.

Projected Attribute	Effect on Retiree's Ability to Withstand High Inflation	Rationale
High percentage of retirement income from Social Security	⬆⬆⬆	Much of the retiree's income increases along with CPI-W
Own a home (with or without a mortgage)	⬆⬆	Housing costs are mostly static; potential increases are taxes and insurance premiums, which are small relative to rent
High expected health care expenses (e.g., expensive health condition at retirement)	⬇	Health care costs have increased faster than general inflation, so if this continues a high need for medical services might result in spending outpacing income increases
High percentage of non-SS retirement income from a non-COLA pension that accrued until retirement*	⬇	Part of income does not increase with inflation at all; effect depends in part on how large pension is relative to Social Security
High percentage of non-SS retirement income from a non-COLA pension that stopped accruing long before retirement	⬇⬇	Like the accruing-until-retirement pension, but inflation eroded the pension before retirement even began, leading to lower initial replacement ratio and loss of purchasing power in retirement
High percentage of non-SS retirement income from invested assets	⬆	Depends on how assets are invested, but unless the sole investment goal is inflation protection, there will be some vulnerability to inflation

*Assuming the plan is Final Average Pay or Cash Balance. For a long service participant, a Career Average Pay formula with high inflation occurring immediately before retirement would be more like the pension that stopped accruing.

Typically, a potential retiree will have some projected attributes with positive effects on their ability to withstand inflation and others with negative effects. Pre-retirees should consider whether the effects generally offset or are mostly unidirectional. For example, were a retiree to have most of their retirement income from a non-COLA pension that has been frozen for many years and they did not own a home but rather rented, this would be a relatively concerning situation for inflation effects and call for some protectionary changes. Conversely, owning a home and most retirement income coming from Social Security would be a comfortable situation inflation-wise and

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require few changes. Each person approaching retirement or in retirement should similarly gauge their own exposure to inflation, by considering their sources of income and distribution of expenses, and then determine how they should act to mitigate their personal level of inflation risk. Delaying retirement long is likely unnecessary, delaying Social Security is typically prudent, funding an HSA can help with increased medical costs, and investing in inflation-responsive assets can help income from assets rise with prices.

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Impact of Inflation on Retirees

Anna M. Rappaport

After many years of low inflation, inflation rates have risen to much higher levels in the last year. Salaries and wages are also rising in response to a labor shortage, but that does not affect retirees. The stock market has declined after a period of increasing values in 2021. Retirees in the U.S. generally have income from Social Security once they claim benefits, and that income is indexed for inflation. A decreasing number of retirees also have income from defined benefit pension plans. However, except for retirees covered by public employee pensions, most of these plans do not provide for indexing income for inflation.

Many retirees have lower resources than are ideal for retirement, and lower than what is called for by commonly accepted retirement planning models. Society of Actuaries Research Institute (Institute) research provides insights into how retirees have managed over the last twenty years, and how they have viewed their situation. The more than 20 years of research includes a biannual survey of Post-Retirement Needs and Risks (Risk Survey) and focus groups with recently retired individuals and with individuals retired 15 years and more, as well as a multi-faceted study of individuals aged 85 and over.

The ideas in this paper are my ideas. They are heavily influenced by some earlier Institute research including the report *Spending Patterns and Debt*[1], a special issue-based report from the 2015 Risk Survey. The supplemental data in this report includes information on spending by age group from two different sources, and information about transfers between older adults and their children. My views are also influenced by some of the questions in the Institute Age 85+ survey[2] which included a number of questions on high age spending. Issues from that survey included how spending compared to income, how expenses changed over time, and what expenses caused difficulty to individuals in that age group. They were also influenced by the comments in Institute sponsored focus groups that indicated retirees preferred to cut spending and not spend down assets, and that they seemed quite satisfied with being frugal.

The ideas in the papers were also influenced by my personal observations of and discussions with older individuals. I have talked to many people and noticed that a number of them no longer want to acquire more stuff. Rather they say they are trying to get rid of stuff, and it is unusual for them to buy more clothing or things for their households. I have observed people who could afford to spend more reluctant to do so, and this issue has been discussed in some committee project discussions. My understanding is that older persons in the UK and Australia are also reluctant to spend as much as they can afford to spend. I also believe that the COVID 19 period caused people to change their behavior temporarily, but at the same time, some people rethought their values and that this reflects their current and likely future behavior. My ideas in this essay are based on a synthesis of these influences.

[1] https://www.soa.org/49387b/globalassets/assets/files/research/projects/research-2016-spending-patterns-debt.pdf
[2] https://www.soa.org/493464/globalassets/assets/files/resources/research-report/2018/post-retirement-experiences-85.pdf

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This research offers insights that are useful in understanding where retirees were when the recent inflation started. Some highlights of the findings from the Institute include:

- Concerns about inflation have been in retirees' top three risk concerns consistently in the eleven risk surveys.
- Overall, the retirees were generally resilient and reducing expenses was a major method of risk management. The individuals retired for a number of years often had been reducing expenses to adjust to their situations.
- There are often gaps in planning, and some of the people who plan say their planning is primarily focused on short-term cash flows.
- Health care costs have increased more rapidly than inflation, and Medicare related premiums have often gone up more than Social Security benefits.[3]
- Average retiree household spending declines with increasing age, except for medical care.[4]
- Retirees were often able to deal with a variety of shocks, but the areas that were flagged as not manageable included a major long-term care event requiring paid long-term care, helping family over a longer-term and divorce after retirement. Multiple shocks were a much bigger problem than a single shock.
- Housing costs are the largest area of spending for retirees.[5]
- Retirees seemed to accept being frugal.
- When retirees were asked how they wished to generate regular income or spend down their assets over time, the response generally was that they wished to retain the assets and reduce their spending.

All of the Institute research can be found on the Aging and Retirement website within the SOA website. The risk survey and focus group findings are summarized in a 2021 report on *The Journey Through Retirement*, and the age 85 and over research is summarized in a 2019 report titled *Retirement Experiences of people age 85 and Over*. See Tables 1 and 2 below for information on spending by age group and type of expense.

Social Security and Medicare

Social Security is indexed for inflation and Medicare premiums are also increased each year. In general Medicare premiums and health care costs have risen more rapidly than overall inflation. The increase in Medicare premiums can more than offset the rise in Social Security benefits. There is a safe harbor when this would happen based on the announced premiums which limits the increase so that net Social Security benefits do not decrease.[6] The safe harbor does not apply to the additional Medicare premiums based on income. The net result of the Medicare premium increases is that Social Security benefits after being reduced for Medicare premiums may not go up for

[3] 2022 was different and Medicare premiums did not go up.
[4] See Table 1 below. Data is reinforced by data in Table 2 which shows declines in spending in most areas and also by responses to the Institute's survey of individuals aged 85 and over.
[5] See questions on pages 12 and 13 and tables on page 31 and 32 of *Spending Patterns and Debt*. https://www.soa.org/49387b/globalassets/assets/files/research/projects/research-2016-spending-patterns-debt.pdf. The questions on pages 12 and 13 and the quotes from focus groups documents retirees saying that spending decreases. The tables on pages 31 and 32 offer two sources that both show spending decreasing with age.

[6] https://www.aarp.org/retirement/social-security/questions-answers/ss-decrease-medicare-premium-increases.html

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other purchases or the increase is greatly slowed down. To say it another way, many retirees who are heavily dependent on Social Security have very little income increase to offset increasing costs for food, housing, and other expenses. Also, some retirees have income sources that do not last throughout retirement so that their household income may be reduced by various other changes in income.

COVID-19, Financial Well-Being, and Retiree Spending

COVID-19 had a major impact on the lives of Americans in 2020 to 2022. During the pandemic, individual Americans and businesses made changes to adapt to the new circumstances. The pandemic influenced the financial well-being of many people. The inflation which heated up in 2021 and increased in 2022 was layered on top of COVID-19. It remains to be seen which of these changes will influence well-being, behavior, and decisions in the long run. My view is that when we think about inflation at this point in time, it is layered on top of the impact of COVID-19 and interacts with the longer-term effects of COVID-19.

Institute research found that more people were worse off financially than better off during COVID-19. The largest group was not financially affected.[7]

The people most likely to be worse off financially were those who had job problems and were the younger generations. The oldest generations who were generally retired indicated that the largest number were not affected financially, a few were better off financially, and some were worse off financially. Retirees who had substantial assets were most likely to be better off financially, at least until the market declined.

During the initial period of COVID-19, individuals who were older and in customer facing jobs were particularly likely to be laid off due to safety concerns. Older individuals working in such jobs often also left them voluntarily.

Retiree spending for entertainment and travel was sharply curtailed during the earlier parts of the pandemic.

More retirees were probably called on to help adult children as they were laid off or as their child-care arrangements collapsed. I do not have data on how many of the people who were hurt financially recovered and how many are still worse off. While government aid helped many Americans, such help is now over, and in addition, many small businesses went out of business.

Of the people who were infected and got COVID-19, some will have continuing problems, i.e., long-COVID. The extent of long-COVID and what it may cost is not known. It appears likely that people could have long-COVID even if their initial episode of COVID-19 was not severe.

It seems very likely that some retiree households will have longer term adverse outcomes from COVID-19's effect on them or other family members. It will take some time before data on these topics is available. Note that the databases that provide insights into individuals' income and expenditures take time to collect and release data, and then more time is needed to analyze it.

[7] The Institute included retirement linked COVID-19 content in the most recent Generations and Post-Retirement Risk Surveys, and in special reports. The retirement linked COVID-19 content is summarized in the report *COVID Aging and Retirement Research: What's Been Done and What's to Come*, https://www.soa.org/498e14/globalassets/assets/files/resources/research-report/2022/covid-aging-retirement.pdf

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Focusing on Different Kinds of Spending

This section and the following section reflect my opinion. That opinion is influenced by information about the spending patterns of seniors by age and by the Institute research on individuals at different points during retirement. It is particularly influenced by some of the responses to the survey of individuals aged 85 and over. When asked about what forces had a significant impact on their finances in the last five years, the top-ranking response was increases in utility costs (see Table 4 below). That indicates to me that relatively small increases in mandatory costs can have a big influence, particularly among a group of people who have been gradually reducing spending over a period of years. I found this response to be surprising but also generally consistent with the responses in the age 85 and over research and the earlier focus groups about being frugal and reducing expenses so that they could preserve assets.

Housing: Housing is the largest expenditure for retirees.[8] There is a lot of variation in individual household situations. Many retirees are homeowners, some with houses paid off and others with mortgages. Some are renters and some retirees live with other people, or in special retirement communities.

Homeowners with fully paid off houses still have maintenance, real estate taxes, insurance, utilities and energy costs to pay[9]. Homeowners with mortgages also have payments to make and if the mortgage has an adjustable rate, interest costs will rise. Renters are faced with rapidly rising rents in some areas as well as a decreasing supply of rental units.

Some homeowners will downsize and may substantially reduce their housing costs. It should be noted that there are huge variations in housing cost by area, and housing costs can be reduced by moving to a less expensive area. The impact of inflation on housing costs is that it will generally increase costs except for people who downsize, go to a less expensive area, or move in with someone.

Retiree homeowners can also reduce their net out-of-pocket current housing costs by using a reverse mortgage. Reverse mortgages allow homeowners to increase monthly income by gradually borrowing on their home. They generally do not require repayment until the homeowner leaves the home. The reverse mortgage can be used for regular monthly payments, one-time payments, or drawn down as needed. They can be incorporated into various financial strategies.

Food: Food costs are rising pretty rapidly[10]. A first line of defense is to shift to less expensive food items, but many retirees have already done that. Increases in food costs may cause difficulty for retirees with lower resources. Food insecurity is a huge issue in the United States, and it increased during COVID-19.[11]

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[8] See Tables 1 and 2 below for an indication of the magnitude of housing costs compared to other costs.

[9] The data from the Age 85 and Over survey as shown in Table 4 below indicates that the expenses experienced by homeowners with paid off mortgages had a significant impact on their finances in the last five years in a period of low inflation. The impact will probably be greater in a period with more inflation.

[10] See this department of Agriculture website for food price increase data. https://www.ers.usda.gov/data-products/food-price-outlook/summary-findings/. An article posted by CNBC provided a table showing cost increases for a variety of different expenses by retirees. It compared the increase for 2022 with price increases. Konish, Lorie, "Average Social Security retirement benefit fell short by 46% in 2022." This article showed the costs that went up the most. https://www.cnbc.com/2022/12/20/average-social-security-retirement-benefit-fell-short-by-46percent-in-2022.html

[11] https://www.feedingamerica.org/hunger-in-america

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Health costs: Health costs have increased more rapidly than inflation over many years and this seems likely to continue. In addition, individuals often need more health care as they age. Some households will have added costs due to long-COVID. While this is not an inflation related expense, it will interact with inflation related expense increases. Medicare defines what it will pay for various Medicare covered health services and how much the patient may be billed. Health care costs are likely to be particularly challenging if services are used that are not covered by Medicare or if someone in the household has a particularly expensive drug with limited coverage under Medicare. Most long-term care is not covered by Medicare. Individuals not yet eligible for Medicare have much more severe problems.

Energy costs: Energy costs can be a big factor in inflation, depending on home heating and air conditioning costs and the energy component of transportation. Relatively recent retirees are more likely to go places than older retirees, so transportation related energy cost increases overall will affect them more. The impact of energy costs on housing costs varies depending on the situation.

Clothing and other purchases: My view is that older retirees buy fewer and fewer tangible items as they age. Many people are trying to downsize rather than acquire more things. An exception to this is retirees remodeling homes or moving or some who do a lot of travelling. For older retirees, inflation affects food costs, utility costs and transportation costs. They probably do not buy items such as cars, clothing, household furnishings or furniture very often.

Helping family: One of the areas of retiree expenditure is financial help to adult children. Some retirees are providing such help on a regular basis. Inflation could have a big effect here as the gap between the income and needs of the person being helped may grow a lot due to recent inflation.[12]

How Retirees Are Likely to Be Impacted

Retirees are in very different situations and how inflation will impact them depends on their specific situation and how it interacts with their spending pattern. It likely affects the financial situation of everyone, but the groups that experience difficulty in managing are more limited and are more likely to be individuals who spend all of their income.[13] My expectations are as follows with regard to different groups:

Lower resourced retirees dependent primarily on government benefits: These benefits are a mixture of Federal and state benefits and vary by state. Often such benefits do not keep up with inflation. I would expect that this group will have a difficult time. Food and housing insecurity will likely increase for them.

Retirees with relatively low financial assets who are frugal: These retirees, particularly those who have been retired for a few years or more may now have a hard time because they were managing on a slim margin. Some of them may move from a situation of managing well to having a very hard time. Depending on how much they had already cut expenses, they may find that there is little left to cut without more serious consequences. Some may move in

[12] EBRI discusses family transfers in *Intra-Family Cash Transfers in Older American Households*, Issue Brief 415, June 2015. The EBRI report shows that 38% to 45% of older households make cash transfers to younger family members. On the other hand, only 4% to 5% of older households receive transfers from younger family members. The cause of the transfer is not identified. The older households are age 50 and older, and analysis covers 1998 to 2010. The HRS was the underlying source of the data. This data is cited in the SOA Research Institute *2015 Retirement Risk Survey Report: Spending Patterns and Debt*.

[13] Note that some households regularly withdraw money from their assets and use those withdrawals to support their spending. Their financial picture will probably be affected, but they will not have difficulty unless their spending reaches levels that affect the resources that can be prudently spent. This group may well have a number of areas of spending where they can cut spending by changing behavior.

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with other family members to reduce expenses. It would not be surprising to find more multi-generational households.

Retirees with better resources: These retirees may need to adjust some of their spending but, they are much less likely to be in trouble. Many of them spend less than their income giving them some margin. Their assets and financial situation are likely to have been affected, and depending on how much margin they had, they may be challenged. Those with long-COVID may have a lot of problems.

Conclusion

I believe that it is very likely that many retirees, particularly those who are financially fragile or who are spending available income and have relatively limited assets, will have an adverse impact from inflation. Some have income that is not inflation indexed, and some have income that covers daily regular expenses, but not items such as home and car repairs, larger dental bills, etc. Some will move from managing to not being able to manage, and some will still be able to manage, but not on the same basis. Some have more resources than they are using, and while inflation may impact their financial picture, it will not push them into changing their lifestyle. As data on the population emerges, it will be possible to do much more analysis to estimate how many are in various groups and how serious the impact on retirees is.

The question was raised about whether retirees would be more or less affected by inflation than younger generations. Financial fragility is a big problem in the U.S., and it has been examined as part of the Institute's Generations Research. My view is that the financially fragile are likely to be hit hard by inflation in that they are likely to experience a lot of difficulty. According to Institute research, there are more financially fragile individuals at younger ages.

Changes in asset values have the most impact on those with the most assets. This essay does not provide any answer about the relative impact of inflation on retirees vs. younger generations. This is a question for more research and exploration, and it will likely require data that will emerge over time.

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Appendix A: Supplementary Data Tables and Information

Tables 1 and 2 provide information on spending by age group. They are from the Institute's 2015 Retirement Risk Survey report *Retirement Risk Survey Key Findings and Issues: Spending Patterns and Debt*[14] and are shown in the analysis of spending at the end of the report (pages 31 and 32). Both of these tables are based on analysis of major Federal databases by very reliable researchers.

Table 1
HOUSEHOLD SPENDING BY AGE GROUPS – AGE 65 AND OVER
MEAN AND MEDIAN HOUSEHOLD SPENDING IN 2011 ADJUSTED TO 2013 DOLLARS

	Age 65-74 Mean	Age 65-74 Median	Age 75-84 Mean	Age 75-84 Median	Age 85+ Mean	Age 85+ Median
Home	$18,720	$12,642	$14,732	$10,805	$13,111	$8,781
Food	4,526	3,982	3,994	3,228	2,520	2,152
Health	4,383	3,104	4,624	3,109	6,603	2,814
Transport	5,169	4,025	3,666	2,794	1,972	1,241
Clothing	1,311	724	950	569	888	434
Entertainment	4,300	2,380	3,277	1,655	1,609	714
Other	3,583	1,148	3,565	1,034	3,188	734
Total	$42,805	$34,036	$35,315	$29,884	$30,610	$22,263

Source: *Retirement Risk Survey Key Findings and Issues: Spending Patterns and Debt*, Data from Figure 2 of EBRI notes, Sept. 2014, *How Does Household Expenditure Change with Age for Older Americans?* EBRI analysis used data from the Health and Retirement Survey (HRS), a major national longitudinal database. That database has data on the same households collected every two years.

[14] https://www.soa.org/49387b/globalassets/assets/files/research/projects/research-2016-spending-patterns-debt.pdf

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Table 2
ESTIMATED ANNUAL HOUSEHOLD EXPENDITURES FOR SELECT AGE GROUPS
GAO ANALYSIS OF BUREAU OF LABOR STATISTICS CONSUMER EXPENDITURE SURVERY FOR 2013

Expenditure Type	Mid-Career 45-49	Young Retirees 65-69	Mid-Retirees 75-79	Older Retirees 80+
Housing	$18,400	$15,200	$11,400	$11,300
Transportation	10,200	7,900	5,900	3,600
Food	8,500	6,900	5,600	4,800
Personal insurance and pensions	7,800	4,100	1,300	900
Health	3,500	4,900	4,800	4,700
Entertainment	3,000	2,400	1,400	1,100
Apparel	1,400	900	500	400
Other	5,600	4,500	3,600	4,700
Total	$58,500	$46,800	$34,700	$31,400

Source: *Retirement Risk Survey Key Findings and Issues: Spending Patterns and Debt*, Data from Table 2, page 11 of the *GAO Report 16-242: Better Information on Income Replacement Rates Needed to Help Workers Plan for Retirement.* The GAO analyzed the 2013 BLS consumer expenditure data. Note that the age of greatest spending is mid-career. Average household sizes are 2.9 for mid-career, 2.1 for young retirees, 1.7 for mid-retirees and 1.5 for late retirees.

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Table 3
SPENDING RELATIVE TO INCOME
BASED ON SURVEY OF INDIVIDUALS AGED 85 AND OVER
QUESTION: THINKING ABOUT YOUR SPENDING EACH MONTH, WOULD YOU SAY THAT YOU SPEND,,,,

	Total Respondents	Respondents with less than $50,000 in assets	Respondents with more than $50,000 in assets
A lot more than your income	3%	4%	2%
A little more than your income	11	13	8
All of your income, but no more	19	20	16
A little less than your income	47	47	49
A lot less than your income	16	14	24
Don’t know/no response	2	3	-

Source: Question 21 of the Institute’s telephone survey of individuals aged 85 and over. Note that the question has frequently arisen whether people are spending less at higher ages because they must or whether it is a choice. Since 63% in this group say they are spending less than their income, many respondents are making a choice to spend less rather than being forced to spend less. Note that the period covered by this survey was a period of low inflation. Note the survey population does not include higher net worth individuals. The maximum financial assets of respondents were $400,000.

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Table 4

IMPACT OF VARIOUS EXPENDITURES ON FINANCES OF INDIVIDUALS AGED 85 AND OVER
QUESTION: HOW BIG AN IMPACT HAS EACH OF THE FOLLOWING HAD ON YOUR FINANCES IN THE LAST FIVE YEARS?

	Major Impact	Minor Impact	No Impact	NA
Housing Related Expenses				
Repairs on your home or condo fee assessments	13%	35%	45%	7%
Increases in real estate taxes	12	22	59	7
Increases in utilities	23	27	45	4
Health related expenses				
Medical expenses	19	32	47	1
Dental expenses	13	27	58	2
Needing assisted living	4	18	67	7
Transfers to family members				
An adult child in need of financial support	7	17	69	7
Giving gifts to children and grandchildren	7	34	52	7
Other				
Death of a spouse	21	8	54	16
Car repairs	5	24	60	10

Source: Question 15 of the Institute's telephone survey of individuals aged 85 and over. Note that the period covered by this survey was a period of low inflation. Note the survey population does not include higher net worth individuals. The maximum financial assets of respondents were $400,000. Note that the housing related expenses apply to homeowners regardless of whether they have a mortgage. The relatively large number of people who indicated that increases in utilities had a major or minor impact (50% in total) indicated that relatively small increases in expenses could have a big impact on how people saw their finances.

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Planning for Inflation in Retirement

Kenneth Steiner

A robust personal retirement plan will suggest actions relating to spending and investing that should be considered whenever actual experience in retirement is more or less favorable than assumed. The recent unexpected increase in consumer prices (inflation) is an example of experience generally considered to be less favorable than assumed. This essay discusses how a personal retirement plan developed using basic actuarial and financial economic principles can suggest actions that retired and near-retired households should consider in light of recent unexpected inflation (and possibly negative investment or spending experience) during 2022, and includes an example.

The intended audience for this essay includes financial advisors, retirement academics and retired and near-retired households who are interested in developing more robust retirement plans and are not intimidated by having to enter a few numbers into an actuarial model.

Actuarial Balance Sheet

A basic building block of a robust personal retirement plan is the actuarial (or household) balance sheet. In his 2016 Advisor Perspectives article, "Eight Core Ideas to Guide Retirement Income Planning", noted retirement academic and expert Dr. Wade Pfau discusses his core retirement income planning precepts. In his core principle #7, he says,

> **"7. Start with the household balance sheet**. A retirement plan involves more than just financial assets. The household balance sheet is the starting point for building a retirement income strategy. This has been a fundamental lesson from various retirement frameworks, such as Jason Branning and M. Ray Grubbs' Modern Retirement Theory, Russell Investments' Funded Ratio approach and the Household Balance Sheet view of the Retirement Income Industry Association. **At the core of these different methodologies is a desire to treat the household retirement problem in the same way that pension funds treat their obligations**. **Assets should be matched to liabilities with comparable levels of risk** [emphasis added]. This matching can either be done on a balance sheet level, using the present values of asset and liability streams, or it can be accomplished on a period-by-period basis to match assets to ongoing spending needs. Structuring the retirement income problem in this way makes it easier to keep track of the different aspects of the plan and to make sure that each liability has a funding source. This also allows a retiree to more easily determine whether they have sufficient assets to meet their retirement needs, or if they may be underfunded with respect to their goals. **This organizational framework also serves as a foundation for deciding on an appropriate asset allocation and for seeing clearly how different retirement income tools fit into an overall plan** [emphasis added]."

The following five-step process outlines how an actuarial balance sheet developed using basic actuarial and financial economic principles can be used to develop a retirement plan that will suggest changes in the household retirement plan, when necessary, by focusing on the size of the household Rainy-Day Fund (or funded status).

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Step 1. Determine your desired spending in retirement. Such spending will normally include recurring spending, non-recurring spending, essential expense spending and discretionary expense spending.

Step 2. Check the desired spending plan developed in Step 1 for feasibility (and generate an actuarial balance sheet) by inputting the desired spending plan, retirement assets, personal data and relevant assumptions about the future into an actuarial model. Relevant assumptions about the future may include:

- Expected investment returns on household non-risky assets/investments (Floor Portfolio)
- Expected investment returns on household risky assets/investments (Upside Portfolio)
- Expected annual rates of inflation
- Expected increases in future spending (if different from expected increases in inflation)
- Expected lifetime planning period(s)

Step 3. Match the present value of planned essential expense spending with the present value of household non-risky assets/investments. This step may involve delaying commencement of Social Security benefits, election of a lifetime payment option from a defined benefit pension plan or purchase of a lifetime annuity.

Step 4. Maintain your Rainy-Day Fund (the excess of the present value of total household assets over the present value of total household spending liabilities) at a comfortable level. This step involves managing spending and investments so that the present value of retirement assets exceeds the present value of expected (or unexpected) spending.

Step 5. Revisit the above steps at least annually.

Example – How Much Should Bill's Rainy-Day Fund Be?

Bill was a single male aged 65 as of January 1, 2022. His retirement assets consisted of the following:

- An immediate Social Security benefit of $18,000 per annum
- An immediate lifetime pension benefit of $15,000 per annum
- $800,000 in accumulated savings invested 52% in non-risky investments and 48% in risky investments

His desired spending plan included the following recurring expenses:

- $41,000 per annum increasing with inflation in essential expenses
- $3,000 per annum increasing with inflation in discretionary expenses
- $5,000 per annum decreasing by 2% per year in discretionary expenses

His spending plan included the following non-recurring expenses:

- $0 in long-term care expenses (assumed to be funded by his home equity)
- Present value of $25,000 for unexpected expenses
- Annual home mortgage repayments of $20,000 per year for 5 years (considered an essential expense)
- A new car assumed to be purchased when Bill is 70 for $30,000 increased with inflation (considered 50% essential and 50% discretionary)
- Annual travel expenses of $10,000 per year increased with inflation for the next 20 years (considered to be discretionary).

His 2022 assumptions about the future included:

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- 3% annual investment return on non-risky assets/investments
- 6% annual investment return on risky assets/investments
- 2% per annum annual inflation increases
- Lifetime planning period based on Actuaries Longevity Illustrator for healthy non-smoking males, 25% probability of survival - 29 years

Entering the above data in an actuarial model[1] produced the following actuarial balance sheet for Bill as of January 1, 2022:

Exhibit 1

BILL'S ACTUARIAL BALANCE SHEET AS OF JANUARY 1, 2022

PV Social Security benefits	$456,875	PV Recurring essential expenses	$1,040,660
PV Fixed lifetime benefits	$296,462	PV Non-recurring essential expenses	$127,317
PV Other non-risky investments/assets	$416,000		
Total Floor Portfolio	$1,169,337	Total PV Essential Expenses	$1,167,977
PV Risky investments/assets	$384,000	PV Recurring discretionary expenses	$112,889
		PV Non-recurring discretionary expenses	$175,194
Total Upside Portfolio	$384,000	Total PV Discretionary Expenses	$288,082
		Rainy-Day Fund	$97,277
Total Assets	$1,553,337	Total Liabilities	$1,553,337

[1] The actuarial model used for this example is the Actuarial Financial Planner for Single Retirees and is available in the Spreadsheets section at How Much Can I Afford to Spend in Retirement? Amounts in the exhibits may not add to the total due to rounding.

Bill noted that given his asset allocation of 52% invested in non-risky assets/investments, his total Floor Portfolio matches the present value of his desired essential spending. He also noted that his Rainy-Day Fund is positive. He could have increased his spending for 2022, but he decided that he was comfortable with this level of Rainy-Day fund. The model also shows him that:

- His spending budget for 2022 was $79,000 ($41,000 recurring essential expenses + $8,000 recurring discretionary expenses + $30,000 non-recurring expenses)

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- His expected end of year accumulated savings would be $787,600 if all assumptions were realized during the year and he spent exactly his budget, and
- He would need to withdraw $46,000 from his accumulated savings to supplement his Social Security and pension if he spent exactly his budget during 2022

Bill understands that if all assumptions about the future are realized, he can expect to increase his inflation-sensitive spending in 2023 and each year in the future by the annual increase in inflation. Unfortunately, the assumptions Bill made about future experience at the beginning of 2022 will probably not be realized. Interest rates have risen, inflation is higher than expected, Bill has suffered losses on his investments, and his spending for 2022 will probably exceed his spending budget. Exhibit 2 below shows Bill's projected Actuarial Balance sheet for January 1, 2023 based on the following assumptions:

- No changes in assumptions about the future (including future inflation) from those used on January 1, 2022
- His actual end-of-2022 accumulated savings are equal to his expected assets as of that date of $787,600
- His Social Security benefit will increase by 8.7% in 2023, and
- His inflation-sensitive plan expenses will increase in 2023 by 8.7% rather than his assumption of 2%

Exhibit 2

BILL'S PROJECTED ACTUARIAL BALANCE SHEET AS OF JANUARY 1, 2023 UNDER OPTIMISTIC PROJECTION ASSUMPTIONS

PV Social Security benefits	$481,734	PV Recurring essential expenses	$1,097,284
PV Fixed lifetime benefits	$289,905	PV Non-recurring essential expenses	$130,026
PV Other non-risky investments/assets	$456,808		
Total Floor Portfolio	$1,228,448	Total PV Essential Expenses	$1,227,310
PV Risky investments/assets	$330,792	PV Recurring discretionary expenses	$114,694
		PV Non-recurring discretionary expenses	$185,042
Total Upside Portfolio	$330,792	Total PV Discretionary Expenses	$299,736
		Rainy-Day Fund	$32,194
Total Assets	$1,559,240	Total Liabilities	$1,559,240

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Bill notes that in order to match the present value of his essential expenses with the present value of his non-risky assets under the Exhibit 2 scenario, he should increase his allocation of his accumulated savings in non-risky assets from 52% to 58% (which has been done in the Exhibit).

Bill also notes that under this projection scenario, his projected Rainy-Day fund is expected to decrease from $97,277 to $32,194. The model under this scenario also shows:

- His spending budget for 2023 under this scenario would be $83,598 ($44,567 for recurring essential expenses + $8,161 for recurring discretionary expenses + $30,870 for non-recurring expenses)
- His expected accumulated savings as of December 31, 2023 under this scenario would be $770,078 if he spent his 2021 spending budget and all assumptions about the future were realized during the year, and
- He would need to withdraw $49,032 from his accumulated savings during 2023 if he spent his spending budget

Exhibit 3 below shows Bill's projected Actuarial Balance sheet for January 1, 2023 based on the following slightly more realistic assumptions:

- Same assumptions for inflation-sensitive expenses, 2022 spending and Social Security benefit increase as used for Exhibit 2
- Investment return assumption on non-risky assets/investments increased from 3% per annum to 4.5%
- Investment return assumption on risky assets/investments increased from 6% per annum to 7.5%, and
- -10% investment return on accumulated savings during 2022

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Exhibit 3

BILL'S PROJECTED JANUARY 1, 2023 ACTUARIAL BALANCE SHEET UNDER SOMEWHAT MORE REALISTIC ASSUMPTIONS

PV Social Security benefits	$482,608	PV Recurring essential expenses	$1,099,273
PV Fixed lifetime benefits	$246,770	PV Non-recurring essential expenses	$126,650
PV Other non-risky investments/assets	$393,588		
Total Floor Portfolio	$1,122,965	Total PV Essential Expenses	$1,225,923
PV Risky investments/assets	$285,012	PV Recurring discretionary expenses	$108,619
		PV Non-recurring discretionary expenses	$184,902
Total Upside Portfolio	$285,012	Total PV Discretionary Expenses	$293,521
		Rainy-Day Fund	$(111,467)
Total Assets	$1,407,977	Total Liabilities	$1,407,977

Bill is obviously not pleased with the more realistic results shown in Exhibit 3 as he may have to reduce the allocation of his accumulated savings assets to approximately 27% to achieve the desired matching of his Floor Portfolio and the present value of his essential expenses, and his Rainy-Day Fund is significantly more negative under this scenario. What can/should he do?

In response to recent higher-than-expected levels of inflation, higher spending and less than expected asset returns, Bill or any other hypothetical retired (or near-retired) household that employs basic actuarial and economic principles to fund their retirement spending liabilities should consider some or all of the following actions:

- Using existing Rainy-Day Funds to fund some or all of the losses from unfavorable experience
- Reclassifying essential expenses as discretionary expenses
- Changing some or all assumptions regarding the future
- Increasing investments in non-risky assets to match expected increases in essential spending liabilities
- Increasing household assets to be used for retirement purposes, and
- Decreasing discretionary (or essential) spending, if necessary

Some of Bill's options are discussed below.

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Changing Assumptions about the Future

The big questions for determining the effects of future inflation on personal retirement plans are:

- By how much will prices increase above "normal" levels of inflation in the future?
- And, for how long?

The Federal Reserve Board appears to be tackling the problem of higher-than-desired levels of inflation by aggressively raising federal funds interest rates, but it is unclear how successful their efforts will be at this time. The 2022 OASDI Trustees Report provides some guidance with respect to assumptions about future inflation. While the Trustees underestimated the rate of inflation in 2022, they assume (under the Intermediate Assumptions) that the real rate of return on the special issue government bonds held in the trust will increase to over 1% after 5 years, over 2% after 8 years and ultimately reaching a rate of 2.3% after 10 years.

Bill assumes a real rate of return of 1% on his non-risky portfolio. He hopes that this is equivalent to assuming a higher nominal rate than 3.5% for the next few years and a higher real rate in future years.

Increasing Investment in Non-Risky Assets

If Bill increases his estimated future essential expense spending, he may also wish to increase his investment in non-risky assets to cover such increase and match his increased expected essential expense liabilities. There are certain non-risky investments that are tied to the CPI index, such as I-bonds or TIPS that may be attractive for this purpose. In addition, it would certainly be helpful if one or more insurance companies in the U.S. reinstituted sales of inflation-indexed life annuities or similar products.

On the other hand, Bill may not be comfortable with reducing investment in risky assets and may decide to reclassify some of his essential expenses as discretionary.

Note that there are some retirement experts who will advise the household to increase investment in risky assets rather than non-risky assets as they believe risky assets tend to be a better hedge against inflation. However, this action could result in an undesirable mismatch between non-risky assets and essential spending liabilities.

Increasing Household Assets to Be Used for Retirement Purposes

Household assets to be used for retirement expense funding may be increased during retirement in a number of ways, including:

- Deferral of Social Security benefits
- Purchase of life annuities
- Going back to work on a part-time or full-time basis
- Sharing living arrangements or tapping into home equity
- Selling assets not previously intended for retirement
- Inheritances or other family support

Bill may also determine that his assumption that possible long-term care expenses will be covered by his home equity is too conservative and include some estimate of the proceeds of a future house sale in his assets.

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Decreasing Spending

If Bill's Rainy-Day Fund become significantly negative from greater-than-expected inflation (or other experience) and he does not find other sources of assets, he may need to decrease his discretionary or essential spending. He may do this by decreasing his current discretionary spending budget or by assuming lower increases in future planned discretionary spending (by assuming such spending does not increase with future inflation, for example). There have been several recent studies that indicate it is not uncommon for discretionary spending to decrease in real-dollar terms as households age, so this may be a reasonable approach for Bill, but he already assumes that some of his discretionary spending will decrease in nominal dollars over time. Taking on a roommate, or house sharing is another option for Bill.

Summary

An actuarial model developed using basic actuarial principles can be used to generate an actuarial balance sheet that is very effective in comparing household assets with household spending liabilities by focusing on the Rainy-Day Fund balancing item. The Rainy-Day Fund is a summary statistic measurement of a retired household's funded status. An actuarial model can also be used to develop annual spending budgets that automatically adjust for actual experience over time. Such models are available on the internet for free. The actuarial model I used for the example calculations in this essay may be found at How Much Can I Afford to Spend in Retirement?

More conservative (risk-averse) retirees and near retirees will want to build up a large Rainy-Day Fund while less conservative retirees and near retirees will be more comfortable ignoring small or negative Rainy-Day Funds on the assumption that future more favorable experience will bail them out. And that is fine. Different retiree households will have different risk tolerances. Instead of having clients complete a complicated risk tolerance questionnaire, financial advisors can simply ask, "How big do you want your Rainy-Day Fund to be?"

While using an actuarial model may seem like a daunting prospect for the general public, it doesn't have to be. A good model will calculate the required present values and provide default assumptions about the future, so generally, all that is required from the user is entry of household desired expenses and personal asset data.

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