Retiree Out-of-Pocket Healthcare Spending: A Study of Consumer Expectations and Policy Implications

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CONTENTS

Even though most American retirees benefit from Medicare coverage, a mounting body of research predicts that many will face large and increasing out-of-pocket expenditures for healthcare costs in retirement and that many already struggle to finance these costs. It is unclear, however, whether the general population understands the likely magnitude of these out-of-pocket expenditures well enough to plan for them effectively. This study is the first comprehensive examination of Americans' expectations regarding their out-of-pocket spending on healthcare in retirement. We surveyed over 1700 near retirees and retirees to assess their expectations regarding their own spending and then compared their responses to experts' estimates. Our main findings are twofold. First, overall expectations of out-of-pocket spending are mixed. While a significant proportion of respondents estimated out-of-pocket costs in retirement at or above expert estimates of what the typical retiree will spend, a disproportionate number estimated their future spending substantially below what experts view as likely. Estimates by members of some demographic subgroups, including women and younger respondents, deviated relatively further from the experts' estimates. Second, respondents consistently misjudged spending uncertainty. In particular, respondents significantly underestimated how much individual health experience and changes in government policy can affect individual out-of-pocket spending. We discuss possible policy responses, including efforts to improve financial planning and ways to reduce unanticipated financial risk through reform of health insurance regulation.

I. INTRODUCTION

Our current system for retiree healthcare relies on seniors to finance a significant portion of their own healthcare expenditures in retirement. Even though most will benefit from Medicare coverage, Medicare pays for only about 60% of retiree healthcare costs[1] and, on its own, has no limit on "out-of-pocket" spending (premiums and direct payments for cost sharing and uninsured care).[2] Supplemental insurance is available to cover what Medicare does not, but it can be expensive and still leave some coverage gaps.[3] Recent studies estimate that the median Medicare beneficiary spends about 16% of his or her income on out-of-pocket healthcare spending,[4] and some spend as much as one-third of their annual income on such costs.[5]

Retirees' role in managing healthcare expenditures will only grow as the cost of medical care increases, employer-sponsored retiree healthcare disappears, and insurance shifts in form from defined benefit to defined contribution. Experts project healthcare spending will consume a larger share of retirees' disposable income,[6] as much as 50% of post-tax income for some retirees by 2030,[7] even without major changes to Medicare or Medicaid in response to federal budget constraints.[8]

Even under current conditions, prior studies, based on various measures of financial distress, show that retirees are already struggling in the face of large, uncertain, and increasing out-of-pocket costs,[9] but it is unclear why. One reason

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[1] PAUL FRONSTIN ET AL., EMP. BENEFIT RESEARCH INST., NO. 351, ISSUE BRIEF: FUNDING SAVINGS NEEDED FOR HEALTH EXPENSES FOR PERSONS ELIGIBLE FOR MEDICARE 3 (2010), *available at* http://www.ebri.org/pdf/briefspdf/EBRI_IB_12-2010_No351_Savings3.pdf.

[2] Katherine Baicker & Helen Levy, *The Insurance Value of Medicare,* 367 NEW ENG. J. MED. 1773, 1773 (2012).

[3] FRONSTIN ET AL., *supra* note 1, at 4 (citing variation in Plan F premium amounts across states).

[4] JULIETTE CUBANSKI ET AL., HENRY J. KAISER FAMILY FOUND., MEDICARE CHARTBOOK 72 (4th ed. 2010) [hereinafter KFF CHARTBOOK].

[5] ELIOT FISHMAN ET AL., COMMONWEALTH FUND, MEDICARE OUT-OF-POCKET COSTS: CAN PRIVATE SAVINGS INCENTIVES SOLVE THE PROBLEM? viii (2008) (discussing low-income retirees, retirees in fair or poor health, or those over eighty-five years old.).

[6] RICHARD W. JOHNSON & CORINA MOMMAERTS, URBAN INST., RETIREMENT POLICY PROGRAM, WILL HEALTHCARE COSTS BANKRUPT AGING BOOMERS? 1-2 (2010) (reporting that by 2040 half of adults over sixty-five will spend 19% of income or more on healthcare, up from 10% in 2010); s*ee also, e.g.*, ALICIA H. MUNNELL ET AL., CTR. FOR RET. RESEARCH BOS. COLL., No. 8-3, HEALTHCARE COSTS DRIVE UP THE NATIONAL RETIREMENT RISK INDEX 4 (2008); Jonathan Gruber & Helen Levy, *The Evolution of Medical Spending Risk,* 23 J. ECON. PERSP. 25, 40 (2009).

[7] JOHNSON & MOMMAERTS, *supra* note 6, at 1-2.

[8] Healthcare spending comprises an increasing share of the Gross Domestic Product (GDP) and of federal budget dollars. CONG. BUDGET OFFICE, HEALTH CARE AND THE BUDGET: ISSUES AND CHALLENGES FOR REFORM 2-3 (2007), *available at* http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/82xx/doc8255/06-21-healthcarereform.pdf.

[9] Studies report savings shortfalls, healthcare costs as exacerbating retirement risk (defined as a substantial and detrimental decrease in standard of living) or healthcare costs consuming a large portion of household assets. *See* ALICIA H. MUNNELL ET AL., CTR. FOR RET. RESEARCH BOS. COLL., NO. 9-7, LONG-TERM CARE COSTS AND THE NATIONAL RETIREMENT RISK INDEX 6 (2009) (including long-term care and healthcare in calculations of national retirement risk increased estimates of those at risk from 44% to 61% for the overall population); ALICIA H. MUNNELL ET AL., *supra* note 6, at 5; JACK VANDERHEI, EMP. BENEFIT RES. INST., NO. 10, NOTES: RETIREMENT SAVINGS SHORTFALLS FOR TODAY'S WORKERS 2 (2010) (estimating average retirement savings shortfall of over $47,000 per individual for both basic living expenses and out-of-pocket healthcare costs, not including nursing home and home healthcare costs which, if added, increase the average shortfall by an additional $32,000 for the average man and by $46,000 for the average woman); Amy S. Kelley et al., *Out-of-Pocket Spending in the Last Five Years of Life,* J. GEN. INTERNAL MED., Sept. 5, 2012, at 4. Some studies link healthcare spending to bankruptcy for seniors in particular. *See generally* JOHNSON & MOMMAERTS, *supra* note 6. Others find the same, looking at the entire population. *See* David Dranove

individuals might be unprepared for retiree healthcare spending could be a failure to understand the magnitude of future healthcare costs.[10] Awareness of costs is a necessary (albeit insufficient) condition of planning for future spending. We know Americans care deeply about accessing healthcare when they need it, and studies show that anticipated healthcare expenditures motivate savings by the elderly, even more than the bequest motive does.[11]

It is unclear, however, how much people know about their likely expenditures and to what degree ignorance might impede successful retirement planning for some individuals. Compared to deciphering credit card terms or mortgage options, estimating individual retiree healthcare costs is much more complex, as anyone who has tried to puzzle through the options for supplemental coverage knows well. The few studies that examine perceptions of some of the components that affect spending, such as potential future insurance coverage, suggest confusion exists. For example, one study found more workers expect to receive retiree health benefits through a current employer than is likely.[12] Prior studies suggest that individuals have only low to moderate levels of understanding about Medicare, the foundation of most Americans' retiree healthcare.[13] Another study reported workers' projections of their total needs for retirement seem not to take healthcare costs into account and, despite such an omission, nearly half say they are confident that they will have enough money to pay for medical expenses in retirement.[14]

Financial literacy research has shown that one driver of inadequate *overall* retirement savings is a knowledge gap[15] and that people with more complete information[16] and adequate financial literacy to interpret that information[17] plan

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& Michael L. Millenson, *Medical Bankruptcy: Myth Versus Fact*, 25 HEALTH AFF. W74, W79 (2006) (reporting medical bills as a contributing factor in 17% of bankruptcies); David U. Himmelstein et al., *Medical Bankruptcy in the United States, 2007: Results of a National Study*, 122 AM. J. MED. 741, 743 (2009) (finding that medical bills contribute to a majority of bankruptcies). Jennifer Prah Ruger suggests that these methods for measuring financial insecurity and health expenditures underestimate adverse consequences. Jennifer Prah Ruger, *An Alternative Framework for Analyzing Financial Protection in Health*, 9 PLOS MED., no. 8, 2012, at 1, 5.

[10] *See, e.g.*, Jonathan Starkey, *Financial Literacy: Health Care's Big Bite,* NEWS J., Nov. 8, 2012, http://www.delawareonline.com/article/20111023/BUSINESS10/110230328/Financial-Literacy-Health-care-s-big-bite?gcheck=1&nclick_check=1; Paul Sullivan, *Planning for Retirement: Don't Forget Health Care Costs,* N.Y. TIMES, Oct. 5, 2012, http://www.nytimes.com/2012/10/06/your-money/planning-for-retirement-dont-forget-health-care-costs.html?pagewanted=all.

[11] Mariacristina De Nardi et al., *Why Do the Elderly Save? The Role of Medical Expenses*, 118 J. POL. ECON. 39, 72-73 (2010) ("[W]e find that out-of-pocket medical expenditures, and the way in which they interact with the consumption floor, go a long way toward explaining the elderly's saving decisions and should be accounted for when considering old-age policy reforms.").

[12] *See* PAUL FRONSTIN ET AL., EMP. BENEFIT RES. INST., NO. 317, ISSUE BRIEF: SAVINGS NEEDED TO FUND HEALTH INSURANCE AND HEALTH CARE EXPENSES IN RETIREMENT: FINDINGS FROM A SIMULATION MODEL 23 (2008).

[13] *See* BANKERS LIFE & CASUALTY CO., CTR. FOR SECURE RET., RETIREMENT HEALTHCARE FOR MIDDLE-INCOME AMERICANS 18-21 (2012) (showing that middle-age Americans and near retirees are largely unaware of the benefits and coverage available in the Medicare program and what is not covered, including vision, dental, and most long-term care benefits); Lauren McCormack et al., *Health Insurance Literacy of Older Adults*, 43 J. CONSUMER AFF. 223, 240 (2009).

[14] *See* RUTH HELMAN ET AL., EMP. BENEFIT RES. INST., NO. 355, ISSUE BRIEF: THE 2011 RETIREMENT CONFIDENCE SURVEY: CONFIDENCE DROPS TO RECORD LOWS, REFLECTING "THE NEW NORMAL" 10 (2011).

[15] Annamaria Lusardi, *Household Saving Behavior: The Role of Financial Literacy, Information, and Financial Education Programs* 11-13 (Nat'l Bureau of Econ. Research, Working Paper No. 13824, 2008) (describing financial literacy studies that show that lack of information impedes financial planning).

[16] *E.g.,* James J. Choi et al., *Small Cues Change Savings Choices* 2-3 (Nat'l Bureau of Econ. Research, Working Paper No. 17843, 2012) (showing use of education about 401k savings limits leads

better for retirement. This research has motivated legal reforms to require better financial education or disclosure,[18] as well as support for regulatory approaches that use default rules or incentives to induce people to save more, despite imperfect knowledge and financial literacy shortcomings.[19]

This study is the first to examine what people understand about their likely future healthcare spending, and, impliedly, to what degree ignorance might impede retirement planning. We asked over 1700 individuals in the Rand American Life Panel, who are approaching or already in retirement, to estimate out-of-pocket healthcare expenditures they are likely to face in retirement and compared their estimates to experts' estimates, which we used as benchmarks. We sought to identify both whether respondents' estimates deviated from the experts' benchmarks and, if so, what aspects of respondents' estimates deviated more or less from these benchmarks. Our starting hypothesis was that individual estimates of retiree healthcare out-of-pocket costs would, in general, fall well beneath expert estimates. We were wrong, at least in some regards.

Our main findings, reported in Part III, are twofold. First, with respect to estimating total out-of-pocket expenditures, we saw a bimodal distribution of responses. On one hand, some answers approximated expert benchmarks. Almost 40% of respondents' estimates of monthly out-of-pocket expenditures were at or above the median expert benchmark for annual out-of-pocket spending.[20]

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to increased savings for members of a defined-contribution plan of a large technology company); Gopi Shah Goda et al., *What Will My Account Really Be Worth? An Experiment on Exponential Growth Bias and Retirement Saving* 3 (Nat'l Bureau of Econ. Research, Working Paper No. 17927, 2012) ("[P]roviding income projections along with general plan information and materials assisting people through the steps of changing contribution rates resulted in a 29 percent higher probability of a change in contributions relative to a control group over a six-month period . . . and increased their annual contributions by $85 more than the control group . . . .").

[17] Annamaria Lusardi & Olivia S. Mitchell, *Financial Literacy and Retirement Planning in the United States*, 10 J. PENSION ECON. & FIN. 517, 523 (2011) ("[I]t appears that financial literacy does drive retirement planning"); Annamaria Lusardi & Olivia S. Mitchell, Financial Literacy and Retirement Planning: New Evidence from the Rand American Life Panel 19 (Oct. 2007) (unpublished manuscript) (on file with authors) ("By every measure, and in every sample we have examined, we conclude that financial literacy is a key determinant of retirement planning.").

[18] For example, section 1013(g) of the Dodd-Frank Act for Wall Street Reform and Consumer Protection calls for the creation of an Office of Financial Protection for Older American with a charge that includes research into best practices to educate about long-term savings and planning for retirement and long-term care. Dodd–Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act), Pub. L. No. 111-203, 124 Stat. 1376 (2010) (to be codified as amended in scattered sections of U.S.C.). Governmental agencies, including the Department of Health and Human Services, have invested in improving financial and health literacy. ELIZABETH FRENTZEL ET AL., AM. INSTS. FOR RESEARCH, CONSUMER EDUCATION INITIATIVES IN FINANCIAL AND HEALTH LITERACY 3 (2010) ("These challenging times have created an increasing awareness that a lack of financial and health literacy can serve as a major barrier to the well-being of individual families and communities . . . a number of agencies have attempted to improve financial and health literacy.").

[19] *See, e.g.*, RICHARD H. THALER & CASS R. SUNSTEIN, NUDGE (2008); John Beshears et al., *The Importance of Default Options for Retirement Savings Outcomes: Evidence from the United States* 6 (Nat'l Bureau of Econ. Research, Working Paper No. 12009, 2006) (describing that default enrollment in defined-contribution savings plan increases participation in savings plans); *see also* John Beshears et al., *Public Policy and Savings for Retirement: The "Autosave" Features of the Pension Protection Reform Act of 2006*, in BETTER LIVING THROUGH ECONOMICS (John J. Siegfried, ed. 2010) (reviewing economic evidence underlying auto-enrollment rules); On Amir & Orly Lobel, *Liberalism and Lifestyle: Informing Regulatory Governance with Behavioural Research,* 1 EUROPEAN J. OF RISK REG. 17, 20 (2012) ("[B]ehavioural insights can help policy improve individual decisions-making processes as well as identify *limits* of the corrective solutions to cognitive failures.").

[20] Most of these responses were near the benchmark estimate ranges, but some were high outliers, as discussed below.

Furthermore, respondents estimated certain components that affect costs, including likely future insurance coverage, premiums, and life expectancy at levels surprisingly close to what experts predict. These results suggest that a significant portion of respondents understand approximate future resources needed to sustain typical healthcare expenses and that lack of understanding, alone, does not explain financial planning challenges.[21] On the other hand, a significant portion of responses deviated from the expert benchmarks. More than 50% of respondents' estimates of monthly out-of-pocket expenditures fell below experts' projections for the twenty-fifth percentile of retiree out-of-pocket spending. Our median response was over a quarter below the expert median benchmark. Some subgroups' estimates deviated relatively further from benchmarks.[22] For example, younger cohorts tended to offer estimates similar to those of older cohorts, raising potential concerns that younger respondents may not be anticipating the increases in healthcare expenditures that experts predict for the coming decades.[23] Women respondents projected 50% lower lifetime expenditures ($30,000 median estimate) than their male counterparts ($60,000 median estimates), despite experts' estimates that the typical woman will spend 50% more over her retirement on healthcare costs than the typical man.[24] These findings suggest the possibility that ignorance may impede successful planning for some.

Second, we saw broad misperceptions with regard to the uncertainty of future healthcare spending. Spending uncertainty arises from three main sources: unpredictable individual health experience, unexpected medical cost growth, or policy instability. The distribution of medical spending among retirees is highly skewed and largely unpredictable.[25] Someone with extensive medical needs or the fortune to live a long life may spend two to three times as much as the typical retiree.[26] Further, future out-of-pocket exposure, even for the typical retiree, depends on the rate of future healthcare inflation, which has outpaced economic growth for a number of years[27] and may continue to do so.[28] Finally, the future of policies regarding Medicare, Medicaid, and private retiree insurance coverage is in flux and the effects of the 2010 health reform law, the Patient Protection and Affordable Care Act and the Health Care and Education Reconciliation Act of 2010 (collectively

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[21] In this study, we did not explore the important related question of whether individual expectations correlate to actual savings for those expenses.

[22] In analyzing our survey results, we attempted to explore the extent to which respondent estimates correlated with factors that experts have found to be associated with higher retiree healthcare costs and found mixed results. Such demographic factors can predict about 20% to 25% of the variance in spending among members of a population. Joseph P. Newhouse, *Reimbursing Health Plans and Health Providers: Efficiency in Production Versus Selection*, 34 J. ECON. LITERATURE 1236, 1256 (1996). Respondent estimates of costs corresponded as experts would predict with some factors, including household income levels (which experts associate with higher expenditures, as discussed below), some financial literacy proxies, and anticipated insurance coverage. In contrast, women in our survey estimated lower lifetime spending than men, contrary to what experts report.

[23] Interpretation of this result is ambiguous, as discussed below.

[24] FRONSTIN ET AL., *supra* note 1, at 9 fig.2.

[25] Marc L. Berk & Alan C. Monheit, *The Concentration of Health Care Expenditures, Revisited*, 20 HEALTH AFF. 9, 9 (2001).

[26] See *infra* notes 120-23 and accompanying text.

[27] CONG. BUDGET OFFICE, THE LONG-TERM BUDGET OUTLOOK 1, 27 (2010) (reporting that from 1975-2008, excess cost growth in Medicare was 2.5%, in Medicaid was 2.0%, in all other forms of health insurance was 1.8%, and overall was 1.9%).

[28] This inflation is often called "excess cost growth," defined as the increase in healthcare spending per person over the growth of GDP per person, adjusted for demographic changes in the population that might affect healthcare spending. *See id.* at 10.

referred to herein as "PPACA")[29] on out-of-pocket spending are uncertain. In contrast to the mixed findings above, our respondents consistently did *not* seem to understand spending uncertainty and the potential impact it could have on their individual spending. They failed to differentiate between the three aforementioned sources of uncertainty, which pose very different levels of risk. Furthermore, they underestimated the potential effect of individual health experience, which can result in an individual having double to triple expenditures of the typical retiree;[30] only a fifth of all respondents estimated that adverse health experience could lead to a more than 50% increase in out-of-pocket costs. To oversimplify, some people know costs; few know risk.

While our findings do not point to any one particular solution, they help to sharpen the problem definition, prioritize future research, and identify what solutions might be most promising. As discussed in Part IV, our findings elucidate two different problems. The first is that, while our current healthcare policies rely on individuals to finance significant out-of-pocket spending, only some individuals anticipate this future spending. Because ignorance may impede successful financial planning, we discuss potential interventions to help individuals plan better and avoid being unprepared for unanticipated spending in retirement. The second problem we found, namely a pervasive and significant misapprehension of spending uncertainty, is equally a problem of insurance regulation and a problem of inadequate knowledge. We discuss why this shortcoming may be best addressed by regulatory and policy reforms aimed to ensure that retiree health insurance provide financial security in the face of spending uncertainty, even when retirees fail to grasp the magnitude of this uncertainty themselves.

II. WHAT WE KNOW ABOUT RETIREE OUT-OF-POCKET HEALTHCARE EXPENDITURES

A. BACKGROUND ON OUT-OF-POCKET EXPENDITURES

Retiree out-of-pocket healthcare expenditures include any amount the retiree pays directly for healthcare.[31] These expenditures include two categories of costs: (1) premium costs for insurance coverage (Medicare and supplemental insurance policies) and (2) expenditures for services or items paid for directly by the insured, which includes cost-sharing (deductibles, co-payments, and coinsurance required by Medicare or a supplemental policy) and expenses for care that is not covered by insurance (e.g., dental care under many policies).[32]

Retirees must determine how to piece together Medicare coverage and supplemental coverage to best meet their needs, which requires navigating a complex landscape of coverage options and tradeoffs. Medicare finances over half of total healthcare costs[33] for about 39 million eligible individuals age sixty-five and

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[29] Patient Protection and Affordable Care Act of 2010, Pub. L. No. 111-148, 124 Stat. 119, *amended by* Health Care and Education Reconciliation Act of 2010, Pub. L. No. 111-152, 124 Stat. 1029 (to be codified primarily in scattered sections of 42 U.S.C.).

[30] See *infra* notes 120-23 and accompanying text.

[31] KFF CHARTBOOK, *supra* note 4, at 70 fig.7.2.

[32] *See id.* at 71 fig.7.3 (Bar graph shows breakdown of out-of-pocket expenditures between premiums and services in 2006).

[33]*See also id.* at 70 (reporting that Medicare finances 48% of total costs of healthcare for Medicare fee-for-service beneficiaries, who will have a lower portion of their costs financed than Medicare Advantage beneficiaries).

older.[34] Original, or "fee-for-service," Medicare is composed of two parts: Part A for hospital and inpatient care, as well as some home healthcare, and Part B Supplementary Medical Insurance primarily for outpatient care. For most, enrollment in Part A is automatic and free.[35] Beneficiaries pay a monthly premium to enroll in Part B, which began at $115.40 in 2011 for the standard premiums and increased on a sliding scale based on income.[36] Low-income enrollees (under 133% of the federal poverty level (FPL)) with limited assets are eligible for the Medicare Savings Program (MSP), which defrays all or part of their Medicare premiums and cost-sharing obligations, and assistance with prescription drug costs through the Low-Income Subsidy (LIS) program.[37] While an estimated 3.6 million are eligible for MSPs,[38] less than one-third of those eligible enroll, which we return to in Part IV below.

Medicare leaves enrollees vulnerable to potentially high out-of-pocket spending for using medical care and has no out-of-pocket spending limits.[39] For example, in 2013, Part A includes a deductible of $1184 per hospitalization.[40] For hospital stays longer than 60 days, beneficiaries have cost sharing of $296 per day for days 61 to 90, $592 per day for days 91 to 150, and no coverage after 150 days.[41] For outpatient care, beneficiaries pay a $147 deductible and 20% coinsurance for most services.[42]

Ninety percent of all retirees obtain supplemental insurance coverage, from one of four main sources, to help fill in these gaps.[43] For those without supplemental

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[34] Dahlia K. Remler & Sherry A. Glied, *What Other Programs Can Teach Us: Increasing Participation in Health Insurance Programs*, 93 AM. J. PUB. HEALTH 67, 68 (2003) (reporting that 99% of eligible persons take up Medicare Part A and 95.5% Medicare Part B).

[35] KFF CHARTBOOK, *supra* note 4, at 22. Part A is premium-free if an individual or spouse worked forty or more quarters of Medicare-covered employment where they contributed Medicare payroll taxes. *Medicare Part A*, EXTENDHEALTH.COM, https://www.extendhealth.com/medicare/part-a (last visited Dec. 14, 2012).

[36] KFF CHARTBOOK, *supra* note 4, at 22.

[37] GRETCHEN JACOBSON ET AL., HENRY J. KAISER FAMILY FOUND., THE ROLE OF MEDICARE FOR PEOPLE DUALLY ELIGIBLE FOR MEDICARE AND MEDICAID 9-10 (2011) (describing how Medicaid defrays premiums or cost sharing for Qualified Medicare Beneficiaries (QMBs), who must earn under 100% of the FPL to receive assistance with Medicare premiums and cost-sharing; Specified Low-Income Medicare Beneficiaries (SLMBs), who have incomes between 100% and 120% of the FPL and are eligible for assistance with Medicare Part B premiums; and Qualified Individuals (QIs), who earn between 120% to 135% of the FPL and receive assistance with premiums in limited circumstances. To qualify for any of these programs, a beneficiary must have assets at or below $6880 for an individual or $10,020 for a couple in 2011. For reference, in 2012, the FPL was just over $11,000 for an individual and just over $15,000 for a couple. *2012 HHS Poverty Guidelines*, ASPE, http://aspe.hhs.gov/poverty/12poverty.shtml (last updated Feb. 9, 2012).

[38] Stan Dorn & Boaping Shang, *Spurring Enrollment in Medicare Savings Programs Through a Substitute for the Asset Test Focused on Investment Income,* 31 HEALTH AFF. 367, 368-70 (estimating 3.6 million eligible for the three MSP programs and under a third enrolled in each). The authors explain low enrollment as due in part to the application process, including a "burdensome" asset test and recommend replacing the asset test with an investment income test. *Id.* at 368-69.

[39] *What Are the Medicare Premiums and Coinsurance Rates for 2013?*, U.S. DEP'T OF HEALTH & HUMAN SERVS., http://answers.hhs.gov/questions/3006. (last visited Jan. 13, 2012).

[40] *Medicare Costs at a Glance*, MEDICARE.GOV, http://www.medicare.gov/your-medicare-costs/costs-at-a-glance/costs-at-glance.html (last visited Dec. 9, 2012).

[41] *Id.*

[42] *Id.* There is also significant cost sharing and limited coverage for skilled nursing. *Id.*

[43] KFF CHARTBOOK, *supra* note 4, at 60. While we use this data on supplemental coverage as a benchmark, it does not perfectly reflect frequency of forms of supplemental coverage among retirees for two reasons. First, it includes non-elderly disabled on Medicare. Second, KFF only listed one form of supplemental coverage for each individual according to the following hierarchy: "1) Medicare Advantage, 2) Medicaid, 3) Employer, 4) Medigap, 5) Other public/private coverage, 6) No supplemental coverage. Individuals with more than one source of coverage were assigned to the

coverage through an employer, choosing a supplemental policy among the many options is complex and has high stakes because out-of-pocket spending can vary significantly, based on the supplemental coverage an individual has.[44] About one-third of Medicare beneficiaries currently have supplemental employer-sponsored insurance (ESI) for retirees, usually subsidized by the employer.[45] ESI generally provides comprehensive coverage at a relatively low cost to retirees,[46] but it is becoming less frequently available as employers drop retiree coverage.[47] Another one-quarter of beneficiaries enroll in Medicare Advantage (also known as Medicare Part C), instead of fee-for-service Medicare (Medicare Parts A and B).[48] They elect approved private insurance policy that combines the benefits of Part A and B, usually Part D prescription drug coverage, and sometimes dental or vision coverage.[49] In 2011, the Centers for Medicare and Medicaid Services (CMS) limited the out-of-pocket spending on Medicare Advantage plans to $6700.[50] An additional

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category that appears highest in the ordering." *Id.* This methodology will underestimate forms of supplemental coverage lower in the hierarchy, such as "other public/private coverage." *Id.* As an example, 22% of Medicare Advantage enrollees have an additional form of coverage (10% self-purchased private coverage; 10% employer-sponsored; 1% both self-purchased and employer-sponsored). HENRY J. KAISER FAMILY FOUND., EXAMINING SOURCES OF COVERAGE AMONG MEDICARE BENEFICIARIES: SUPPLEMENTAL INSURANCE, MEDICARE ADVANTAGE, AND PRESCRIPTION DRUG COVERAGE 17 exhibit 3.9 (2008).

[44] Those with Medigap supplemental coverage face the greatest total out-of-pocket exposure (even more than those with no supplemental coverage, who are spared premium costs and may consume less care than they would otherwise). Dana P. Goldman & Julie M. Zissimopoulos, *High Out-of-Pocket Care Spending by the Elderly*, 22 HEALTH AFF. 194, 198 (2003). In contrast, those with Medicaid are likely to spend much less out-of-pocket, due to the low premiums and cost-sharing obligations and possibly also due to consumption constraints. *Id.* at 198-99; *see also* KFF CHARTBOOK, *supra* note 4, at 78. Including residential long-term care, Kaiser reports average out-of-pocket spending in 2006 of $5066 for a beneficiary with supplemental Medigap, $4275 with supplemental ESI, $3979 with no supplemental coverage, $3518 with Medicare Advantage, and $2843 with Medicaid. KFF CHARTBOOK, *supra* note 4, at 78. Another study, based on 2005 MCBS data (prior to Medicare Part D) and also including long-term care spending, reports median spending of $3819 for a beneficiary with supplemental Medigap, $2909 with ESI, $2258 for Medicare Advantage, $1864 with no supplemental coverage, and $490 with Medicaid. TRICIA NEUMAN ET AL., HENRY J. KAISER FAMILY FOUND., REVISITING 'SKIN IN THE GAME' AMONG MEDICARE BENEFICIARIES: AN UPDATED ANALYSIS OF THE INCREASED FINANCIAL BURDEN OF HEALTH CARE SPENDING FROM 1997 TO 2005 2 (2009). This variability persists with regard to total lifetime spending. FRONSTIN ET AL., *supra* note 1, at 9 (estimating median spending of $65,000 for a man with wraparound Medicare coverage, $66,000 for ESI coverage that an employer subsidizes, and $109,000 for unsubsidized ESI coverage).

[45] *See* KFF CHARTBOOK, *supra* note 4, at 60.

[46] *See id.* at 72 (reporting average premiums of $2000 in 2006).

[47] *See* FRONSTIN ET AL., *supra* note 12, at 14. The percentage of private-sector employers offering coverage to Medicare-eligible retirees decreased from 21.6% in 1987 to 12.7% in 2005. *Id.* at 12. Some attribute this decline to a 1990 rule by the Financial Accounting Standards Board that required employers to report retiree health liabilities in annual reports. *See id.* at 11. Even when employers offer ESI, it has become more expensive and less widely available among retirees. *See id.* at 14; *see also* HENRY J. KAISER FAMILY FOUND. & HEWITT, FINDINGS FROM KAISER/HEWITT 2006 SURVEY ON RETIREE HEALTH BENEFITS 19-20 (2006) (listing survey results on ESI changes that affected under sixty-five and over sixty-five retiree health benefits).

[48] *See* KFF CHARTBOOK, *supra* note 4, at 60.

[49] *Medicare Advantage Plans,* MEDICARE.GOV, http://www.medicare.gov/navigation/medicare-basics/medicare-benefits/part-c.aspx (last visited June 3, 2011). Some pay an additional monthly premium on top of the Part B premium; others plans are "zero premium." The average premium in 2011 was forty-three dollars, based on the cost of plans with prescription drug coverage. Medicare Advantage providers often receive government rebates, based on plan cost savings over traditional Medicare, which they can use to provide additional services or reduce premiums. *Id.*

[50] MARSHA GOLD ET AL., MEDICARE ADVANTAGE 2012 SPOTLIGHT: PLAN AVAILABILITY AND PREMIUMS 1 (2011).

17% of beneficiaries buy a supplemental "Medigap" policy from a private insurer.[51] Medigap plans are standardized by plan type, organized alphabetically from A to N. Although these plans often have high premium costs, most offer first-dollar coverage of many or all of the costs not covered by Medicare.[52] Premiums vary by plan type and by state and can range from under $100 to over $400 per month.[53] The most popular plans (Plans C and F)[54] cover nearly all costs that Medicare does not;[55] some Plan F beneficiaries opt for a "high deductible" option where they pay the first $2000 in expenditures,[56] after which the Medigap plan covers all costs. Finally, about 15% to 16% of Medicare beneficiaries are "dually eligible" for Medicaid if they are disabled or meet the income and assets thresholds, which differ state by state, [57] in which case they pay little or no premiums and cost-sharing. While variable across states, these thresholds are low across the board,[58] which means that Medicaid coverage only protects a subset of the poorest retirees against significant out-of-pocket exposure.

Ninety percent of Medicare enrollees also have a source of supplemental prescription drug coverage, mostly under the Medicare Part D prescription drug benefit,[59] which took effect in 2006 as established by the Medicare Prescription Dug, Improvement, and Modernization Act of 2003.[60] In 2012, after $4700 in out-of-pocket spending on prescription drugs, a beneficiary has "catastrophic coverage," in which the plan pays 95% of additional costs.[61]

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[51] KFF CHARTBOOK, *supra* note 4, at 60. Medigap policies typically do not cover long-term care, vision, dental, hearing aids, or private nursing care. *See id.* at 20.

[52] *See* Baicker & Levy, *supra* note 2, at 1773-74.

[53] See *Medigap Policy Search*, MEDICARE.GOV, http://www.medicare.gov/find-a-plan/questions/medigap-home.aspx (last visited May 31, 2011). Premiums were calculated based on information provided by the search feature on May 31, 2011.

[54] AM.'S HEALTH INS. PLANS, MEDIGAP: WHAT YOU NEED TO KNOW 3 (2011), *available at* www.ahip.org/MedigapWhatYouNeedtoKnow/ (reporting 17% of beneficiaries enrolled in Plan C and 45% in Plan F in 2009).

[55] *See* KATHRYN LINEHAN, NAT'L HEALTH POLICY FORUM, NO. 845, RECENT PROPOSALS TO LIMIT MEDIGAP COVERAGE AND MODIFY MEDICARE COST SHARING, NAT'L 5 (Feb. 24, 2012), http://www.nhpf.org/library/issue-briefs/IB845_MedigapandCostSharing_02-24-12.pdf.

[56] *Id.*

[57] *See* JACOBSON ET AL., *supra* note 37, at 3 (reporting that 21% of Medicare eligibles were dual-eligibles for Medicaid, just over three-quarters of whom are "fully" eligible for Medicaid benefits).

[58] For example, a majority of states are required by Federal Medicaid participation rules to provide full Medicaid dual eligibility to those who meet the Supplemental Security Income (SSI) Program income and asset limits, which for an individual is income under 75% of the FPL and assets under $2000. *Id.* at 8. Some states, known as "209(b) states," may set lower eligibility levels. *Id.* Even if not fully eligible for Medicaid, some Medicare beneficiaries are eligible for Medicaid assistance with all or some of their Medicare premiums and cost sharing through MSPs, as discussed above. *Id.* at 2-3. Most states provide full Medicaid benefits at slightly higher income and asset levels than required or for non-mandatory populations, including the "medically needy," nursing home residents, or others in community-based long-term care under a waiver program. *Id.* at 8.

[59] *Id.* The average monthly Part D plan premium is just over forty dollars. JACK HOADLEY ET AL., HENRY J. KAISER FAMILY FOUND., MEDICARE PART D SPOTLIGHT: PART D PLAN AVAILABILITY IN 2011 AND KEY CHANGES SINCE 2006 2 (2010), *available at* http://www.kff.org/medicare/upload/8107.pdf (estimating 2011 premium weighted by enrollment, based on 2010 enrollment). In 2010, about 60% had a Medicare Part D plan for prescription drugs, nearly 20% had coverage through an ESI retiree plan, and 13% had some other coverage. KFF CHARTBOOK, *supra* note 4, at 34 fig.3.1.

[60] Pub. L. No. 108-173, 117 Stat. 2066 (2003).

[61] JACK HOADLEY ET AL., HENRY J. KAISER FAMILY FOUND., ANALYSIS OF MEDICARE PRESCRIPTION DRUG PLANS IN 2012 AND KEY TRENDS SINCE 2006 exhibit 1 (2012) (depicting cost sharing in Part D plans including $4700 "True Out-of-Pocket Spending" or "TROOP," which triggers catastrophic coverage).

Even with supplemental insurance for medical and prescription drug expenses, retirees still face out-of-pocket expenses for cost-sharing obligations, when they use care covered by their policies, and for items or services not covered by Medicare or supplemental coverage. Of course, they are also subject to premiums for Medicare and supplemental coverage, as described above. According to one study, the major components of out-of-pocket spending in 2006 were: premiums (39%), long-term care (19%), medical providers and supplies (15%), prescription drugs (14%), dental (6%), and inpatient and outpatient hospital costs (5%).[62] Excluding long-term care costs from this data, premiums are nearly 50% of total costs, medical providers and supplies are 19%, and prescription drugs are 17%.[63] Out-of-pocket exposure to prescription drug costs—a cost highly variable among retirees—will decrease under PPACA, as discussed below,[64] but will nonetheless remain a major component of retiree expenditures, especially for intensive users of prescription drugs.[65]

B. MEASURING OUT-OF-POCKET EXPENDITURES

There is no single obvious benchmark for retiree out-of-pocket spending. Previous research on retiree out-of-pocket expenditures has yielded a range of different estimates of spending,[66] depending on what data source is used or what particular categories of spending are included or excluded, as discussed below. Acknowledging the lack of a single definitive savings target, we designed our survey questions so that we could obtain data in a manner congruent with leading studies, in which experts estimate costs in two main ways: annual cost and the net present value (NPV) at age sixty-five of total lifetime healthcare spending throughout retirement.

1. Two Methods of Estimating Out-of-Pocket Expenditures

a. Annual Estimates

One common way to measure and project retiree out-of-pocket healthcare expenditures is on a periodic basis, such as average monthly or annual expenditures. We rely on a 2010 Urban Institute study by Johnson and Mommaerts for benchmarks for respondents' monthly spending estimates (Table One) because it is the most recent comprehensive set of estimates. This study reports estimates on an individual basis at decade intervals from 2010 to 2040 for each quartile of the

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[62] KFF CHARTBOOK, *supra* note 4, at 70. On average, across all forms of supplemental coverage, the costs of premiums tend to comprise between 40% and 60% of total out-of-pocket expenses and cost-sharing and costs of uncovered healthcare make up the rest. *Id.* at 72.

[63] Author's analysis of data in Figure 7.2 in *id.* at 70 (on file with the authors).

[64] *See infra* note 136.

[65] FRONSTIN ET AL., *supra* note 1, at 9.

[66] *See, e.g.*, FRONSTIN ET AL., *supra* note 1; Michael D. Hurd & Susann Rohwedder, *The Level and Risk of Out-of Pocket Healthcare Spending* (Univ. of Mich. Ret. Research Ctr., Working Paper No. 2009-218, 2009); Anthony Webb & Natalia Zhivan, *How Much Is Enough? The Distribution of Lifetime Healthcare Costs* (Ctr. for Ret. Research Bos. Coll., Working Paper No. 2010-1, 2010); *see also* Goldman & Zissimopoulos, *supra* note 44, at 194; *Fidelity Investments Estimates Health Care Costs for Couples Retiring in 2011 Will Drop to $230K in One-Time Reduction*, FIDELTY.COM (Mar. 31, 2011), http://www.fidelity.com/inside-fidelity/individual-investing/2011-rhcce [hereinafter *Fidelity Investments Estimates Health Care Costs*]; *Retirees Face Estimated $240,000 in Medical Costs,* FIDELITY VIEWPOINTS (May 16, 2012), https://www.fidelity.com/viewpoints/retirees-medical-expenses.

spending distribution and excludes long-term care spending.[67] It projects that a retiree will spend on average $3278 in 2010 and at the median will spend $2583 in 2010, $3284 in 2020, $4569 in 2030, and $6214 in 2040—all in constant 2008 dollars—as reported in Table One.[68] For someone at the seventy-fifth percentile of the spending distribution, among all retirees, Johnson and Mommaerts estimates $3934 in 2010, $4959 in 2020, $6855 in 2030, and $9455 in 2040.[69] Based on these figures, the share of adults who spend more than one-fifth of household income on healthcare will grow to 45% in 2040, from 18% in 2010.[70]

Table One: Annual Spending Benchmarks				
	25th Percentile Annual Estimate (Monthly)	Median Annual Estimate (Monthly)	75th Percentile Annual Estimate (Monthly)	90th Percentile Annual Estimate (Monthly)
2010	$1909 ($159)	$2583 ($215)	$3934 ($330)	$5854 ($488)
2020	$2453 ($204)	$3284 ($274)	$4959 ($413)	$7272 ($606)
2030	$3398 ($283)	$4569 ($381)	$6855 ($571)	$10,053 ($838)
2040	$4595 ($383)	$6214 ($518)	$9455 ($788)	$13,971 ($1164)
Source: RICHARD W. JOHNSON & CORINA MOMMAERTS, URBAN INST., RETIREMENT POLICY PROGRAM, WILL HEALTHCARE COSTS BANKRUPT AGING BOOMERS? (2010).				
Note: Expressed in constant 2008 dollars. Excludes long-term care spending. Uses Medicare Boards of Trustees 2009 intermediate growth rate of 2.8%. Estimates generated using Urban Institute DYNASIM3 micro simulation model and healthcare spending data in MEPS.				

Other studies that have estimated annual costs are less useful as benchmarks for our purposes, because they are less comprehensive (e.g., don't include estimates at different percentiles of spending), are older, or include long-term care, but they triangulate roughly with and validate the reasonableness of relying on the Johnson and Mommaerts' figures as benchmark estimates.[71] None of these studies, including Johnson and Mommaerts, considers changes to spending that will result from PPACA. This means that for some retirees, spending could be as much as 20% to 30% lower than these estimates, based on reductions to out-of-pocket prescription drug spending under Medicare Part D and adjustments to the terms of Medigap Plan F, as explained below.[72] For others, it will remain similar.[73] On the other hand, all of

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[67] JOHNSON & MOMMAERTS, *supra* note 6 (using the Urban Institute DYNASIM3 model to simulate insurance coverage and project spending as a function of insurance coverage and 2006 Health and Retirement Survey (HRS) data on insurance coverage and 2006 MEPS data, which only includes community-dwelling individuals, on out-of-pocket costs. They exclude the costs of long-term care and indicate that they use a 2009 intermediate growth rate of 2.8% for medical cost growth, which they say they have based on Medicare Trustees' projections).

[68] *Id.* at 11.

[69] *Id*.

[70] *Id.* at 13.

[71] A Kaiser Family Foundation analysis of 2006 MCBS data, which includes long-term care costs, reports average per capita cost in 2006 of $4241; no medians are available. KFF CHARTBOOK, *supra* note 4, at 70. Long-term care costs were 19% on average, which means average annual out-of-pocket spending was just over $3400 when excluding long-term care, slightly more than $100 higher than Johnson and Mommaerts' average ($3278). *Id.*; JOHNSON & MOMMAERTS, *supra* note 6, at 11. CMS estimated average annual out-of-pocket spending of $3800 for an individual retired in 2007, again with no medians reported. MUNNELL ET AL., *supra* note 6, at 3.

[72] This estimate is based on comparing EBRI's estimated median spending for a man and a woman with wraparound Medicare coverage from 2009, before PPACA, to their estimate in 2010, after PPACA. FRONSTIN ET AL., *supra* note 1, at 9 (estimating costs after PPACA); *see also* PAUL FRONSTIN ET AL., EMP. BENEFIT RES. INST., NO. 6, SAVINGS NEEDED FOR HEALTH EXPENSES IN RETIREMENT: AN EXAMINATION OF PERSONS AGES 55 AND 65 IN 2009 2 (2009), *available at* http://www.ebri.org/pdf/notespdf/EBRI_Notes_06-June09.HlthSvg-RetFndg1.pdf (estimating costs in 2009, before PPACA).

these studies are at least several years old and would be higher if updated to 2012 spending levels.

While the effect of PPACA could mean that the Johnson and Mommaerts longer-range estimates are too high, this study nonetheless projects that the typical retiree will spend in excess of $200 a month on healthcare costs now and a good deal more than that a decade or more down the road.

b. Lifetime Spending

A second way to estimate retiree healthcare expenditures is based on lifetime spending, or the net present value at age sixty-five of spending throughout retirement. This estimate is particularly important for retirees who will finance expenditures mostly out of savings, rather than out of cash flow. As a lump-sum benchmark, we rely on a 2010 Employee Benefit Research Institute (EBRI) report by Fronstin et al., summarized in Table Two, which we chose both because it was the only study we found that incorporates the effects of PPACA on retiree out-of-pocket spending and it generates estimates at different percentiles of spending.[74] This study reports estimated median lifetime retiree healthcare costs of $65,000 for a man and $93,000 for a woman ($158,000 for a couple) retiring in 2010, not including long-term care expenses and using Medicare Boards of Trustees excess cost growth estimates.[75] For someone retiring in 2020, the estimates are considerably higher ($109,000 median estimate for a man and $156,000 for a woman and seventy-fifth percentile estimate of $198,000 for a man and $230,000 for a woman).[76] These estimates are based on individuals with median drug expenditures and "wraparound" Medicare coverage (i.e., Parts A, B, D and Medigap Plan F).[77] The EBRI estimates are similar for an individual with supplemental ESI, whose employer contributes to coverage, but nearly 70% higher in the case of no employer contribution.[78] Because, as noted above,[79] beneficiaries with supplemental Medigap spend more out-of-pocket than those with most other forms of supplemental coverage (or with no coverage), some of our respondent population would have expected spending lower than these benchmarks.

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[73] *Id.* (estimates for retirees with employment-based supplemental coverage vary less, showing a decrease of 3% to 10%).

[74] FRONSTIN ET AL., *supra* note 1, at 9. This benchmark study uses MEPS data, which excludes institutionalized patients (i.e., those in residential nursing home care) who tend to be more expensive, which could make the EBRI estimates lower than they would be if the entire population were considered.

[75] *Id.* Authors don't indicate the figure they are using for excess cost growth, but the 2011 Medicare Trustees report assumed excess cost growth of 1.4% for Medicare Parts A and B and 2.5% for Part D for the first ten years and assumes growth of GDP plus one after year seventy-five. Estimates for years ten to twenty-five are based on linear interpolation between year ten and twenty-five. BDS. OF TRS., FED. HOSP. INS. & FED. SUPPLEMENTARY MED. INS. TRUST FUNDS, 2011 ANNUAL REPORT OF THE BOARDS OF TRUSTEES OF THE FEDERAL HOSPITAL INSURANCE AND FEDERAL SUPPLEMENTARY MEDICAL INSURANCE TRUST FUNDS 12 [hereinafter BDS. OF TRUSTEES 2011], *available at* https://www.cms.gov/ReportsTrustFunds/downloads/tr2011.pdf.

[76] *Id.*

[77] FRONSTIN ET AL., *supra* note 1, at 7.

[78] *Id.* at 9 (median estimate of $109,000 for a man and $146,000 for a woman and seventy-fifth percentile estimate of $165,000 for a man and $192,000 for a woman retiring in 2010 with unsubsidized ESI).

[79] *See* KFF CHARTBOOK, *supra* note 4, at 72.

Table Two: Lifetime Spending Benchmarks			
	Median Estimate	75th Percentile Estimate	90th Percentile Estimate
Man retiring in 2010	$65,000	$118,000	$187,000
Woman retiring in 2010	$93,000	$137,000	$213,000
Man retiring in 2020	$109,000	$198,000	$313,000
Woman retiring in 2020	$156,000	$230,000	$357,000

Source: PAUL FRONSTIN ET AL., EMP. BENEFIT RESEARCH INST., NO. 351, ISSUE BRIEF: FUNDING SAVINGS NEEDED FOR HEALTH EXPENSES FOR PERSONS ELIGIBLE FOR MEDICARE (2010).
Note: Excludes long-term care spending and uses Medicare Boards of Trustees intermediate growth rate. Based upon an individual with wraparound Medicare (Medicare Parts A, B, D, and Medigap Plan F). The Median Estimate is for someone with median drug spending saving enough to have a 50/50 chance of covering healthcare out-of-pocket costs. The 75th percentile is their estimate for someone with 75th percentile drug spending saving for 75% chance of coving healthcare out-of-pocket costs. The 90th percentile is their estimate for someone with 90th percentile drug spending saving for 90% chance of coving healthcare out-of-pocket costs.

The 2010 EBRI estimates are 20% to 30% lower than their own 2009 estimates,[80] due mostly to PPACA reforms that reduce Medicare Part D out-of-pocket expenses.[81] Other studies, most of which estimate costs for an intact couple, not individuals, are within 10% to 20% of the EBRI estimates.[82]

c. Limitations of Expert Studies as Benchmarks

There are limitations in relying on expert studies as benchmarks. First, studies of retiree out-of-pocket spending rely on a mix of Medicare claims data and survey data that capture self-reported out-of-pocket spending. Researchers disagree on which survey data is most accurate[83] among the three main datasets, each of which captures data differently and focuses on a different population: the Health and Retirement Survey (HRS),[84] the Medical Expenditure Panel Survey (MEPS),[85] and the Medicare Current Beneficiaries Survey (MCBS).[86]

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[80] *See supra* note 72 and accompanying text.

[81] FRONSTIN ET AL., *supra* note 1, at 7.

[82] In 2011, Fidelity actuaries estimated $230,000 lifetime out-of-pocket spending for the average couple saving to achieve 75% certainty of sufficiency (comparable to the above-cited EBRI estimate of $255,000 for a couple). *See Fidelity Investments Estimates Health Care Costs, supra* note 66; *see also Putting a Price on Health*, FIDELITY VIEWPOINTS (May 20, 2010), https://guidance.fidelity.com/viewpoints-workplace/putting-a-price-on-health-pr. A 2010 study by Webb & Zhivan estimates $197,000 in 2009 dollars for an average couple (most comparable to the EBRI $158,000 median) with a high school education and free of chronic disease at age 65, excluding long-term care expenses. Webb & Zhivan, *supra* note 66, at 37. This study uses a 4.2% rate of inflation-adjusted cost growth, based on 1960-2007 experience. Using a lower rate of 3.2%, based on CMS projections from 2007, they calculate an NPV that is 11% lower. This study excludes Medicaid-eligible households, those with long-term care insurance, and those with zero medical expenses and assumes that households are not subject to spending constraints, focusing on those who will finance most out-of-pocket spending on their own. *Id.* at 4.

[83] For example, Hurd & Rohwedder caution that the data in the HRS study is higher than the other two surveys by as much as 50% at the mean. Hurd & Rohwedder, *supra* note 66, at 17 tbl.6. In contrast, Samuel Marshall, Kathleen McGarry and Jonathan Skinner disagree that the HRS numbers are inflated, even if higher. Samuel Marshall et al., *The Risk of Out-of-Pocket Healthcare Expenditures at End of Life,* (Nat'l Bureau of Econ. Research, Working Paper No. 16170, 2010). They argue the detailed questions in the HRS elicit data that respondents may omit in other studies. *Id.* HRS also conducts "exit interviews" with relatives of deceased participants to capture spending in the last year of life and uses "unfolding brackets" to reduce non-response, both of which increase estimates and, perhaps, accuracy. Webb & Zhivan, *supra* note 66, at 8.

[84] HRS is a long-running biennial panel survey that is broader than healthcare and collects data from about 20,000 individuals fifty-one or older. Hurd & Rohwedder, *supra* note 66, at 4. This survey

Second, studies are inconsistent in what out-of-pocket costs they capture in estimates, particularly with regard to costs for treatment not covered by insurance, such as dental care and vision care, and the costs of long-term care. For example, some studies exclude institutional long-term care costs (e.g., assisted living facility or nursing home),[87] which generally include little medical care costs, when estimating healthcare costs on the theory that most people do not (and perhaps should not) save for long-term care costs in light of the availability of Medicaid as a safety net.[88]

Finally, estimating future medical costs—both for experts and for untrained individuals—is an uncertain science because of the unpredictable nature of medical cost inflation and policy uncertainty, as discussed further below.[89] Researchers have to make assumptions about both of these factors that, at times, feel like little more than a shot in the dark. Medical care costs have been growing at a faster rate than the rest of the economy for some time now. From 1975 to 2008, Medicare spending grew on average 2.5 percentage points faster per year than the GDP, and overall medical spending grew on average 1.9 percentage points faster than the GDP.[90] It is difficult to predict to what extent this level of growth will and can persist going forward. Most studies we cite rely upon projections of future cost growth made by the Medicare Boards of Trustees, calculated annually by the Office of the Actuary (OACT). OACT statistically models costs for the first ten years into the future and economically models the last fifty-one years of the seventy-five year projection period, using a linear interpolation to connect year ten to year twenty-five.[91] Until

asks about all categories of out-of-pocket spending, including prescription drugs but focuses less on such inquiries than other studies do. *Id.*

[85] MEPS is a two-year household panel survey of community-dwelling individuals (i.e. excludes nursing home residents), which has a smaller sample of the older population than HRS and thus lower expenditures per person on average. *See* GARY ENGELHARDT & JONATHAN GRUBER, CTR. FOR RET. RESEARCH BOS. COLL., NO. 11-8, DOES MEDICARE PART D PROTECT THE ELDERLY FROM FINANCIAL RISK? (2011), *available at* http://crr.bc.edu/wp-content/uploads/2011/06/IB_11-8-508.pdf. MEPS triangulates data from the patient survey with a provider survey. Some believe the data to be better quality. Hurd & Rohwedder, *supra* note 66, at 4.

[86] MCBS is a rotating four-year panel survey of people enrolled in Medicare, who may reside in either community or long-term care facilities, and asks participants to keep health spending diaries to capture data in more detail and more accurately. *Id.* at 4-5.

[87] *See* KFF CHARTBOOK, *supra* note 4, at 68-73. Because long-term care takes many forms, some studies do, however, pick up some long-term expenditures for non-institutional patients, including short term nursing home stays, home-based care, or post-acute care, especially when financed by Medicare.

[88] Hurd & Rohwedder, *supra* note 66, at 3.

[89] John N. Friedman, *Predicting Medicare Cost Growth, in* IMPROVING HEALTH CARE COST PROJECTIONS FOR THE MEDICARE POPULATION: SUMMARY OF A WORKSHOP 83, 83 app. A (Gooloo S. Wunderlich rapporteur, 2010), *available at* http://www.ncbi.nlm.nih.gov/books/NBK52808/ pdf/TOC.pdf (describing the different methodologies used to calculate Medicare cost growth and the limitations of each); *see also* BDS. OF TRS., FED. HOSP. INS. & FED. SUPPLEMENTARY MED. INS. TRUST FUNDS, 2012 ANNUAL REPORT OF THE BOARDS OF TRUSTEES OF THE FEDERAL HOSPITAL INSURANCE AND FEDERAL SUPPLEMENTARY MEDICAL INSURANCE TRUST FUNDS 12-20 (describing the complex methodology used to project Medicare cost growth); Memorandum from John D. Shatto & M. Kent Clemens, Ctrs. for Medicare & Medicaid Servs., Office of the Actuary, on Projected Medicare Expenditures Under Illustrative Scenarios with Alternative Payment Updates to Medicare Providers (May 18, 2012) (on file with authors) (explaining generally the difficulty in deciding on Medicare cost growth projections under PPACA).

[90] CONG. BUDGET OFFICE, *supra* note 27, at 27.

[91] *See* IMPROVING HEALTH CARE COST PROJECTIONS FOR THE MEDICARE POPULATION: SUMMARY OF A WORKSHOP, *supra* note 89, at 7-8 (describing OACT's methodologies for projecting Medicare expenditures). OACT projects each category of spending for the first ten years into the future, using "demographically-adjusted extrapolations of past cost growth." *Id.* OACT then uses a

2012, OACT has assumed that for the final fifty-one years, long-term cost growth will be GDP plus 1%, based on an assumption that one of several forces will serve as a brake on long-term cost growth to slow down the rate over time.[92] Despite considerable efforts made to project long-term medical cost growth, these estimates involve significant guesswork and can have a large impact on study results.[93] This means that even as we use the Johnson and Mommaerts and EBRI estimates as a proxy for likely future spending, we acknowledge that they are necessarily an imperfect proxy and actual spending may differ from these estimates.

2. A Note on Demographics and Spending Variation

While most spending variation is uncertain, as discussed further in Part C below, certain observable factors hold predictive value and together explain an estimated 20% to 25% of spending variation on a population basis.[94] Predictive factors include income, sex/longevity, and health status.

Higher income or wealth corresponds to greater out-of-pocket expenditures, reflecting that to some extent retiree healthcare spending is discretionary, especially if long-term care costs are included.[95] A 2010 study by Marshall et al. reports median expenditures of $5061 in the last year of life ($11,618 on average), but those in the highest income quintile have median spending of $6761 ($14,269 on average), as compared to median spending of $2689 for the lowest quintile ($9046 on average).[96] This differential means that the median retiree in the top quintile of income spends nearly 2.5 times more in the last year of life than the median retiree in the lowest. Wealth matters even more than income, with median spending in the top quintile in the Marshall study ($8381) four times that in the bottom ($2013), due to higher spending in all categories, including insurance, drugs, and home care.[97] This study concludes that higher-income retirees are buying independence, which the authors assert could be one way that wealth buys health.[98] Other studies show that spending is also higher for higher-income retirees in years prior to the last year

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Computable General Equilibrium Model (CGE) to forecast years twenty-five to seventy-five and fill in the median timeframe through linear interpolation between year ten and twenty-five. *Id.* This method benefits from capturing "endogenous growth reduction" as healthcare consumes more of income, but does not take into account heterogeneity of preferences and assumes that healthcare operates as a standard good, not dealing with issues of moral hazard, adverse selection, or supply-side incentives for use of care. *Id.* at 7.

[92] The model does not specify how such slowdown would occur, but it might occur in theory though increased supply and decreased demand as more of income is taken up by out-of-pocket costs or due to policy changes. *Id.* at 8. Parties disagreed over the appropriate assumption for long-term medical cost growth in 2012 in light of the policy changes enacted by PPACA. Memorandum from Shatto & Clemens, *supra* note 89, at 1.

[93] Other governmental offices use different methods and, for example, the Congressional Budget Office's (CBO) estimates are higher than the OACT estimates because the only brake on cost growth that CBO assumes is that non-healthcare consumption will not decline. *See* IMPROVING HEALTH CARE COST PROJECTIONS FOR THE MEDICARE POPULATION: SUMMARY OF A WORKSHOP, *supra* note 89, at 8.

[94] Newhouse, *supra* note 22.

[95] Goldman & Zissimopoulos, *supra* note 44, at 197 exhibit 2 (reporting spending for low, middle and high income earners with increasing out-of-pocket spending as income increases); Marshall et al., *supra* note 83, at 4 (finding that spending in the last year of life is greater at higher income quartiles). Low incomes is defined as less than $12,600, middle as $12,600 to $38,860, and high income as above $38,860, all in 1998 dollars); De Nardi et al., *supra* note 11, at 53 fig.3 (modeling average medical expensive by permanent income quintile from age 74 to 100 and showing increased spending at each income quintile, including nursing home costs).

[96] Marshall et al., *supra* note 83, at 25.

[97] *Id.*

[98] *Id.* at 4.

of life, with spending for those above 400% of the FPL nearly twice of those below 100% of the FPL.[99]

Another major determinant of total lifetime spending is gender, due to longevity and the fact that women less often have employer-sponsored supplemental retiree coverage and buy expensive Medigap policies instead.[100] For those turning sixty-five in 2007, the average life expectancy for a man was eighty-two and for a woman was eighty-five.[101] As noted above, the 2010 EBRI study estimates lifetime out-of-pocket spending of $65,000 to $118,000 for a man at the fiftieth to seventy-fifth percentile and $93,000 to $137,000 for a woman,[102] which means women retiring in 2010 are expected to spend 43% more than men at the median and 16% more at the seventy-fifth percentile. Studies also indicate that women have higher average *annual* out-of-pocket spending.[103]

Some factors, such as health status and age, have less straightforward effects. While *annual* expenditures are more for those identifying as in poor health, they live shorter lives and have lower *total lifetime* out-of-pocket expenditures. An individual's health in any one year affects the out-of-pocket costs she will incur in that year and to a limited degree may predict costs in a future year.[104] One study indicates that an individual with self-reported poor health spent as much as 30% to 40% more in 2006 ($5030) than someone reporting very good ($3744) or excellent ($3542) health.[105] On the other hand, another study by Sun et al. shows that the healthier retirees spend more in total over their retirement years because they live for and incur costs over more years.[106] While this study concurs that healthier retirees spend less on average annually,[107] the authors estimate that for a couple turning sixty-five in 2009, the average lifetime cost is $220,000, where one or both suffer from chronic disease, as compared to $260,000 for a couple free of chronic disease.[108] These estimates suggest the healthy spend nearly 20% more over a lifetime than those with chronic disease.[109] Those in poorer health also have less

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[99] *See*, *e.g.*, NEUMAN ET AL., *supra* note 44, at 2 (reporting mean spending of $2761 under 100%, $4001 at 100% to 199%, $4406 from 200% to 300%, and $4997 above 400% of FPL, including long-term care spending).

[100] FRONSTIN ET AL., *supra* note 1.

[101] *Actuarial Life Table, 2007,* SOC. SEC. ADMIN. (Apr. 10, 2012), http://www.ssa.gov/OACT/STATS/table4c6.html. Twenty-five percent of men would live to eighty-seven and women to ninety, and 10% of men would live until ninety-one and women to ninety-five. *Id.*

[102] FRONSTIN ET AL., *supra* note 1, at 9. These are the estimates for beneficiaries with wraparound Medicare coverage.

[103] *See, e.g.* NEUMAN ET AL., *supra* note 44, at 2 (reporting a mean spending of $4281 for a woman and $3765 for a man and median spending of $2908 and $2532, all for 2005 and including long-term care). Because this study included long-term care expenditures, it is less useful to us as a benchmark.

[104] Hurd & Rohwedder, *supra* note 66, at 9 (describing persistence of bad health/high spending and good health/low spending as present but not perfect); *see* NEUMAN ET AL., *supra* note 44, at 2 (finding health to be an important factor for high annual costs); Webb & Zhivan, *supra* note 66, at 15 (concluding that "current good health provides only a very limited guarantee of future good health").

[105] KFF CHARTBOOK, *supra* note 4, at 71 fig.7.3 (including long-term care costs).

[106] WEI SUN ET AL., CTR. FOR RET. RESEARCH BOS. COLL., NO. 10-8, DOES STAYING HEALTHY REDUCE YOUR LIFETIME HEALTHCARE COSTS? (2010).

[107] *Id.* at 2 (reporting that in 2009, excluding nursing home care, a household where the husband is age seventy to seventy-four and in good health will spend $6000 on average compared to $7416 for a household with a husband not in good health—defined as having ever been diagnosed with a chronic disease).

[108] *Id.* at 1 (including home health and nursing home costs, but not costs of assisted living facilities or long-term care insurance premiums).

[109] *See id*.

asset accumulation, both because of depletion and because of slower asset accumulation, which could explain lower spending.[110]

Likewise, it is not clear what effect, if any, advancing age has on annual out-of-pocket costs, except that proximity to death corresponds with higher annual healthcare costs.[111] Marshall et al. found average expenses in the last year of life of $11,618 with out-of-pocket spending as high as $29,335 at the ninetieth percentile and $94,310 at the ninety-ninth percentile, including long-term care.[112] Average annual healthcare costs do increase with cohort age[113]—for the average cohort member—but studies suggest this increase largely reflects increased probability of death and high end-of-life costs, due to chronic disease and long-term care costs, that are more common for any one member of a cohort at older ages.[114] For example, Hurd and Rohwedder report median annual spending for care (excluding premiums) for a non-institutionalized sixty-five to sixty-nine year old of $720, seventy-five to seventy-nine year old of $880, and an over eighty-five year old of $950, based on HRS data.[115] Thus, studies show a slow upward incline of average spending for cohorts at older ages. But age may be unreliable for predicting individual spending, unless used to gauge proximity to death.

In sum, we know certain factors are predictive of higher healthcare spending, including sex (women spend as much as 40% more than men, excluding long-term care), higher income or wealth (can more than double spending), poor health status (higher for annual spending but lower by as much as 20% for lifetime spending), and proximity to death. We consider below whether respondents' answers vary as expert studies report actual spending does based on these demographic factors.

C. UNCERTAINTY IN HEALTHCARE COSTS

To a large degree, any one individual's future costs are unpredictable. The median benchmark estimates, discussed above, belie the variability in costs among retirees and over time, based on three major sources of uncertainty: the skewed distribution of costs among retirees based on individual health experience, unexpected excess healthcare cost growth, and policy uncertainty.

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[110] James M. Poterba et al., *The Asset Cost of Poor Health* 18-19 (Nat'l Bureau of Econ. Research, Working Paper No. 16389, 2010).

[111] *See generally* Marshall et al., *supra* note 83, (finding that "out-of-pocket expenditures are often elusive" and represent a large drain on financial resources, especially for households nearing death). *See also* Webb & Zhivan, *supra* note 66, at 7; Meena Seshamani & Alastair M. Gray, *A Longitudinal Study of the Effects of Age and Time to Death on Hospital Costs*, 23 J. HEALTH ECON. 217, 230 (2004) ("Average hospital costs increased seven-fold in the last three years of life, compared to a 30% increase from age 65-80.").

[112] Marshall et al., *supra* note 83, at 2. This study uses data from HRS exit interviews and normalizes spending to a twelve month period. The authors seek to omit outliers that might be erroneous. A large part of this spending, particularly at the high ends of the distribution, is for long-term care, which is beyond the scope of this study.

[113] Micah Hartman et al., *U.S. Health Spending by Age, Selected Years Through 2004,* 27 HEALTH AFF. W2 (Nov. 2007) (with respect to total expenditures, insured and out-of-pocket, showing a doubling from cohorts ages sixty-five to seventy-four to ages seventy-five to eighty-four, and a tripling between ages sixty-five to seventy-four and over eighty-five); *see also* Webb & Zhivan, *supra* note 66, at 7 (reporting increasing out-of-pocket spending by age). *But see* Susan T. Stewart, *Do Out-of-Pocket Health Expenditures Rise with Age Among Older Americans?*, 44 GERONTOLOGIST 48, 50-51 (2004) (reporting generally no increase in out-of-pocket costs when long-term care spending is excluded and certain costs, including hospital costs, decrease).

[114] Webb & Zhivan, *supra* note 66, at 2, 22.

[115] Hurd & Rohwedder, *supra* note 66, at 17. Their mean and median estimates based on MCBS and MEPS data are lower. *Id.*

1. Individual Health Experience

The distribution of healthcare costs is notoriously skewed with a long, expensive tail for some.[116] The top 5% of Medicare beneficiaries account for 43% of total spending, and the top 25% account for 85% of spending.[117] The demographic factors discussed above only predict 20% to 25% of variability in spending,[118] which means there is significant unpredictable spending variability among retirees.

Studies suggest that more intensive users of healthcare—those at the seventy-fifth or ninetieth percentile of spending among retirees—can easily spend two to three times the amount the typical retiree spends. Johnson and Mommaerts estimate, for example, annual out-of-pocket costs in 2010 that range from $1909 at the twenty-fifth percentile to $2583 at the median to $5854 at the ninetieth percentile (see Table One).[119] Studies that include estimates at the ninety-ninth percentile report annual out-of-pocket spending of over $20,000 for the very highest spenders.[120] With regard to total lifetime retiree spending, the EBRI study estimates *median* lifetime retiree healthcare costs of $65,000 for a man retiring in 2010 with wraparound Medicare coverage.[121] At the seventy-fifth and ninetieth percentile of spending, the estimates increase to $118,000 and $187,000—a near doubling to tripling of costs above the median.[122] For a woman, the variability is slightly less, ranging from median spending of $93,000 to $213,000 at ninetieth percentile, which still represents over a doubling.[123] For the most part, it is impossible to know in advance which individuals will have more or less intensive needs, posing a challenge for individual retirement planning.

2. Healthcare Cost Growth

Uncertainty with respect to medical care cost growth also complicates estimating future out-of-pocket exposure. As discussed above, while the Medicare Trustees' long-term projection of Medicare cost growth has been GDP plus 1% in recent years,[124] historical excess healthcare cost growth has been over 2% in recent decades—2.5% for Medicare and 1.9% overall from 1975 to 2008.[125] For excess cost growth to be closer to 1% or less in the future, a number of the Trustees' assumptions must prove true, including the questionable assumption that Congress

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[116] Marc L. Berk & Alan C. Monheit, *The Concentration of Health Care Expenditures, Revisited*, 20 HEALTH AFF. 9 (2001).

[117] *See* James D. Reschovsky et al., *Following the Money: Factors Associated with the Cost of Treating High-Cost Medicare Beneficiaries,* 46 HEALTH SERVICES RES. 998 (2011).

[118] Newhouse, *supra* note 22, at 1256.

[119] JOHNSON & MOMMAERTS, *supra* note 6, at 11.

[120] Hurd & Rohwedder, *supra* note 66, at 17 (explaining that based on HRS data for a retiree in the sixty-five to sixty-nine age bracket, they estimate $720 at the median and $21,950 at the ninety-ninth percentile; for those eighty-five and older, spending is $950 at the median to $25,150 at the ninety-ninth percentile).

[121] FRONSTIN ET AL., *supra* note 1, at 9.

[122] *Id.*

[123] *Id.* For a couple turning sixty-five in 2009, one study estimated a doubling of expenditures from $260,000 on *average* to $570,000 at the ninety-fifth percentile, including nursing home care but excluding the costs of assisted living facilities. Webb & Zhivan, *supra* note 66, at 20. Excluding all nursing home care, the average and ninety-fifth percentile estimates were $197,000 and $311,000— still an over 50% increase from the mean to the ninety-fifth percentile. *Id.*

[124] BDS. OF TRUSTEES 2011, *supra* note 75, at 202-04.

[125] CONG. BUDGET OFFICE, *supra* note 27, at 27 (reporting that from 1975-2008, excess cost growth in Medicare was 2.5%, in Medicaid was 2.0%, in all other was 1.8%, and overall was 1.9%).

does not override policies that limit increases in the physician fee schedule.[126] In addition, PPACA created a new entity, known as the Independent Payment Advisory Board (IPAB), tasked with managing Medicare expenditure to keep cost growth to under GDP plus 1%,[127] but it faces constraints that might impede its ability to accomplish this goal,[128] assuming it survives Congressional attempts at repealing it.[129]

If healthcare costs were to grow at GDP plus 2% instead of GDP plus 1%, the out-of-pocket costs of an average retiree would increase on the order of 10% over the lifetime of a typical retiree with an additional increase of approximately 10% for every additional percentage point by which out-of-pocket costs exceed GDP growth. This unexpected medical care cost growth is unlikely to have as dramatic effects as intensive individual medical care needs, but it is significant nonetheless.

3. Policy Instability

Finally, policy changes, especially those made to the Medicare program, will shape future retiree costs in significant and unpredictable ways. With Medicare costs escalating as a percent of the total federal budget, from just over 2% a decade ago to 3.6% in 2010,[130] Medicare reform is a priority for policymakers in both parties.

Some reform proposals, including that in Representative Paul Ryan's "Path to Prosperity" fiscal year 2013 budget plan that the House of Representatives passed in March of 2012,[131] attempt to curb future federal budget spending on healthcare by converting Medicare from a defined-benefit to a defined-contribution program.[132] This approach fixes federal government spending to the amount of a "premium support payment" per retiree, which retirees can use to buy a private insurance plan. If premium support payments grow more slowly than healthcare costs over time,[133] as anticipated, their relative value will decrease. Many retirees will be able to afford only less comprehensive insurance plans and will face greater risk of high exposure in any one year.

As one potential indicator of how significant such changes might be, the Congressional Budget Office in 2011 estimated (admittedly with quite stylized assumptions) that Representative Ryan's Medicare reform proposal could more than

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[126] *See* Bruce C. Vladeck, *Fixing Medicare's Physician Payment System*, 362 NEW ENG. J. MED. 1955 (2010).

[127] Henry Aaron, *The Independent Payment Advisory Board – Congress's "Good Deed,"* 364 NEW ENG. J. MED. 2377 (2011).

[128] *Id.* at 2378-79.

[129] Editorial, *We Thought They Were Worried About Costs*, N.Y. TIMES, Mar. 9, 2012, at A30.

[130] KFF CHARTBOOK, *supra* note 4, at 79.

[131] H.R. Con. Res. 112, 112th Cong. (2012) (proposing to replace Medicare with a "premium support" program); *see also* HENRY J. KAISER FAMILY FOUND., PROPOSED CHANGES TO MEDICARE IN THE "PATH TO PROSPERITY" 1 (April 2011) (summarizing terms of Paul Ryan plan).

[132] PAUL RYAN, HOUSE BUDGET COMM., THE PATH TO PROSPERITY: A BLUEPRINT FOR AMERICAN RENEWAL 52-55 (2012), *available at* http://budget.house.gov/fy2013prosperity/. Several plans, including Representative Ryan's and legislation introduced by Senators Lieberman and Coburn in 2011, also propose to increase the Medicare eligibility age to sixty-seven. *Id.*; *see also* Rick Unger, *The Coburn-Lieberman Medicare Proposal - The Good, the Bad and the Ugly*, FORBES (June 29, 2011, 12:46 PM), http://www.forbes.com/sites/rickungar/2011/06/29/the-coburn-lieberman-medicare-proposal-the-good-the-bad-and-the-ugly/.

[133] RYAN, *supra* note 132, at 53.

double a typical retiree's share of healthcare costs by 2022 with further increases in the following decade.[134]

The fate of current policies that limit retiree out-of-pocket spending, including Part D and PPACA, will also greatly affect future exposure. PPACA is expected to reduce retiree out-of-pocket expenditures on net.[135] Most importantly, it will decrease out-of-pocket spending for prescription drugs under Medicare Part D by $43 billion over ten years, by closing the so-called "donut hole," a gap in Part D coverage of prescription drug spending.[136] An EBRI estimate suggests that while PPACA has little impact on someone with *median* prescription drug expenditures, it decreases out-of-pocket spending for someone in the ninetieth percentile of spending by as much as one-third.[137] Other PPACA policies eliminate cost-sharing for preventive care[138] and intend to slow Medicare cost growth overall, such as through the creation of the IPAB, discussed above, and through delivery reforms.[139] Uncertainties exist regarding whether these policies will actually save money and, if they do, whether they will reduce out-of-pocket costs or simply lower federal outlays, preserving current levels of out-of-pocket spending.

On the other hand, certain PPACA policies could increase out-of-pocket expenditures for retirees. For example, PPACA reduces the rates Medicare will pay to private Medicare Advantage plans, which were historically compensated at rates about 10% higher than what the government spent for Medicare fee-for-service beneficiaries.[140] CBO estimates that this reduction will cause enrollment in Medicare Advantage plans to drop to 9.1 million enrollees in 2019 (compared to a pre-reform estimate of 13.9 million).[141] Since these plans can protect retirees relatively well against out-of-pocket exposure, their reduction would likely result in higher expenditures for some beneficiaries. Over time, PPACA might hasten the already ongoing erosion of ESI retiree supplemental plans,[142] through policies including the

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[134] See CONG. BUDGET OFFICE, LONG-TERM ANALYSIS OF A BUDGET PROPOSAL BY CHAIRMAN RYAN (2011), *available at* http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/121xx/doc12128/04 -05-ryan_letter.pdf.

[135] ROBERT BERENSON & JOHN HOLOHAN, ROBERT WOOD JOHNSON FOUND. & URBAN INSTIT., HOW WILL THE PATIENT PROTECTION AND AFFORDABLE CARE ACT AFFECT SENIORS?: TIMELY ANALYSIS OF HEALTH POLICY ISSUES 1-2 (2010).

[136] *Id.* at 2. Part D led to a reduction of $180 in annual out-of-pocket costs for the median participant and $800 at the ninetieth percentile. ENGELHARDT & GRUBER, *supra* note 85, at 3-4. Prior to PPACA, after just over $3000 in spending, retirees would enter the so-called "donut hole" in coverage where they had to pay 100% of the next $3610 in spending before reaching the "catastrophic coverage" level ($6440 in 2010), after which Medicare and the plan together pay 95% of the costs. A beneficiary would spend $4550 total out-of-pocket on cost-sharing before qualifying for catastrophic coverage. HENRY J. KAISER FAMILY FOUND., MEDICARE PRIMER 7 (2010).

[137] PAUL FRONSTIN ET AL., EMP. BENEFIT RES. INST., NO. 8, NOTES: THE IMPACT OF REPEALING PPACA ON SAVINGS NEEDED FOR HEALTH EXPENSES FOR PERSONS ELIGIBLE FOR MEDICARE 3 (2011), *available at* http://www.ebri.org/pdf/notespdf/Notes.Aug11.PPACA-Final.pdf.

[138] *See* Patient Protection and Affordable Care Act of 2010, Pub. L. No. 111-148, §§ 4104–4108, 124 Stat. 119, *amended by* Health Care and Education Reconciliation Act of 2010, Pub. L. No. 111-152, 124 Stat. 1029 (to be codified in 42 U.S.C. §§ 1395–1396).

[139] *See* BERENSON & HOLAHAN, *supra* note 135, at 2-4 (discussing PPACA efforts to reduce provider payment rates through the IPAB, Accountable Care Organizations, and other delivery reform policies).

[140] *Id.* at 2.

[141] CONG. BUDGET OFFICE, COMPARISON OF PROJECTED ENROLLMENT IN MEDICARE ADVANTAGE PLANS AND SUBSIDIES FOR EXTRA BENEFITS NOT COVERED BY MEDICARE UNDER CURRENT LAW AND UNDER RECONCILIATION LEGISLATION COMBINED WITH H.R. 3590 AS PASSED BY THE SENATE (2010), *available at* http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/113xx/ doc11379/macomparisons.pdf.

[142] *See supra* note 47.

so-called "Cadillac Tax," an excise tax on high-cost employer-sponsored health coverage.[143] Starting in 2018, benefits worth more than $10,200 for an individual retiree or $27,500 for two or more individuals will be subject to a 40% excise tax.[144] While this tax may not have a large effect at first because of high thresholds (set even higher for retirees than for employees), these thresholds will grow more slowly than healthcare costs so that a larger portion of benefits are taxed over time.[145] The result might be increased cost-shifting to retirees or decreased availability of ESI for retirees.

The effect of potential policy changes range from small to considerable. Certain policy changes, including the plan proposed by Representative Ryan, might rival the risks an individual retiree faces of spending more if she incurs individual medical expenses at the seventy-fifth percentile of spending, which can result in double median expenses.

III. SURVEY RESULTS

A. SURVEY SAMPLE AND TREATMENTS

The goal of our survey was to explore how well individual expectations regarding out-of-pocket healthcare expenditures and spending uncertainty match the views of experts summarized in Part II of this paper. An abbreviated version of the survey questions appears in the Appendix.[146] The survey was conducted in February and March 2012 through Rand Corporation's American Life Panel, an internet-based vehicle designed to survey representative samples of the national population.[147] Of 2116 respondents solicited, 1704 returned completed surveys, which is a response rate of over 80%. Our survey sample was structured to consist of eight age-based cohorts from ages forty to eighty. Five groups were under the age of sixty-five, principally those pre-retirement, and three groups were sixty-five and older, principally those in retirement. The older age cohorts were smaller based on the composition of the American Life Panel. As explored below, the segmentation of our sample into age cohorts allowed us to explore the extent to which older respondents offered different cost estimates than younger respondents.

Table Three reports basic demographics about the weighted sample, which was 52% female, 83% white, with an average age of fifty-six years old, an

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[143] *See* Patient Protection and Affordable Care Act of 2010, Pub. L. No. 111-148, § 9001, 124 Stat. 119, *amended by* I.R.C. § 49801(b) (West 2010) (codified as amended in scattered sections of 42 U.S.C.). Other policies could have a similar effect. For example, starting in 2013, the subsidy to employers who offer retiree drug coverage will also be taxed, eliminating an exemption created under the Medicare Modernization Act and costing employers an additional $233 per retiree on average that must be reported as a liability in annual reports. PAUL FRONSTIN, EMP. BENEFIT RES. INST, NO. 338, ISSUE BRIEF: IMPLICATIONS OF HEALTH REFORM FOR RETIREE HEALTH BENEFITS 12 (2010), http://www.ebri.org/pdf/briefspdf/EBRI_IB_01-2010_No338_Ret-Hlth.pdf.

[144] *See* Patient Protection and Affordable Care Act § 9001.

[145] *Id.*

[146] In an effort to validate the form of the survey, we circulated preliminary versions to a number of experts and conducted a small pilot survey to ensure that questions were comprehensible and answers appropriate. In light of comments received in this process, we revised the survey and attempted to reduce the complexity of the questions to tenth grade reading comprehension level or lower.

[147] For additional information on the Rand American Life Panel, see *Panel Composition*, RAND AM. LIFE PANEL, https://mmicdata.rand.org/alp/index.php?page=panelcomposition (last updated Sept. 6, 2012).

unemployment rate of 7.1%, and a mean educational achievement level of 10.6, equivalent to some college but without obtaining a degree. Table Three also reports basic demographic data on key subsamples discussed below based on gender, age cohorts, and income quintiles. Unless otherwise indicated, the survey results reported in this paper were weighted to be representative of the national population in the age cohorts we surveyed.[148]

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[148] For purposes of the analysis presented here, our survey responses were uniquely weighted to ensure that our cohort samples are representative of the national population for non-institutionalized individuals over the age of forty. Rand weights are generated using an iterative raking algorithm adjusting for gender, education, age, and income. For a general overview of the Rand weights, see *Panel Weighting*, RAND AM. LIFE PANEL, https://mmicdata.rand.org/alp/index.php?page=weights (last visited Dec. 14, 2012).

Table Three: Basic Demographics of Total Sample and Key Subsamples							
(weighted data)							
	N	Age	Female	Married	Income Levels*	Unemployment Rate	White	Highest Educational Achievement**
Total Sample	1704							
Mean		56.5	0.52	0.67	10.9	0.07	0.83	10.6
Standard Deviation		10.5	0.50	0.47	4.2	0.26	0.38	2.4
Gender								
Male	736							
Mean		56.2	0.00	0.74	11.3	0.08	0.84	10.6
Standard Deviation		10.0	0.00	0.42	3.9	0.26	0.35	2.3
Female	968							
Mean		56.6	1.00	0.60	10.6	0.06	0.82	10.5
Standard Deviation		11.0	0.00	0.51	4.4	0.25	0.40	2.5
Age Cohort								
40-44	210							
Mean		41.9	0.51	0.71	10.8	0.11	0.76	10.5
Standard Deviation		1.3	0.45	0.41	3.6	0.28	0.39	2.0
45-49	218							
Mean		47.2	0.51	0.66	11.1	0.11	0.76	10.1
Standard Deviation		1.2	0.45	0.42	4.0	0.28	0.38	2.2
50-54	237							
Mean		52.0	0.51	0.68	10.9	0.10	0.76	10.6
Standard Deviation		1.3	0.46	0.43	4.3	0.28	0.39	2.1
55-59	249							
Mean		57.0	0.52	0.66	11.5	0.07	0.85	11.0
Standard Deviation		1.4	0.50	0.48	4.0	0.26	0.36	2.2
60-64	258							
Mean		61.8	0.52	0.69	11.2	0.05	0.87	10.9
Standard Deviation		1.6	0.55	0.50	4.6	0.24	0.37	2.7
65-69	255							
Mean		66.9	0.60	0.64	11.0	0.03	0.92	10.8
Standard Deviation		1.7	0.56	0.54	4.4	0.20	0.30	2.8
70-74	168							
Mean		71.8	0.50	0.57	10.2	0.00	0.92	10.3
Standard Deviation		1.5	0.55	0.54	4.0	0.06	0.30	2.7
75-80	109							
Mean		77.2	0.53	0.65	9.4	0.00	0.90	10.0
Standard Deviation		1.7	0.54	0.51	3.9	0.00	0.32	2.8
Income Quintile***								
First Quintile	354							
Mean		56.8	0.56	0.41	4.6	0.13	0.68	9.3
Standard Deviation		10.6	0.48	0.47	1.9	0.33	0.45	1.9
Second Quintile	438							
Mean		57.9	0.56	0.58	9.6	0.07	0.81	9.8
Standard Deviation		11.8	0.50	0.50	1.2	0.26	0.39	2.2
Third Quintile	267							
Mean		56.4	0.51	0.77	12.5	0.06	0.84	10.7
Standard Deviation		10.6	0.51	0.43	0.5	0.24	0.38	2.2
Fourth Quintile	451							
Mean		55.5	0.50	0.80	14.4	0.05	0.91	11.4
Standard Deviation		9.5	0.50	0.40	0.5	0.21	0.29	2.2
Fifth Quintile	191							
Mean		54.6	0.43	0.92	16.3	0.03	0.93	12.6
Standard Deviation		8.9	0.50	0.28	0.5	0.17	0.26	2.2

* Under the American Life Panel income classification system. 4 represents household incomes of $10,000 to $12,499; 5 represents $12,500 to $14,499; 6 represents $15,000 to $19,999; 7 represents $20,000 to $24,999; 8 represents $25,000 to $29,999; 9 represents $30,000 to $34,999; 10 represents $35,000 to $39,999; 11 represents $40,000 to $49,999; 12 represents $50,000 to $59,999; 13 represents $60,000 to $74,999; 14 represents $75,000 to $99,999; 15 represents $100,000 to $124,999; 16 represents $125,000 to $199,999; and 17 represents $200,000 or more.

** Under the ALP education classification system, 9 reflects a high school graduate; 10 reflects some college but no degree; 11 reflects an associate degree in a college occupational/vocational program; 12 reflects an associate degree in a college academic program; and 13 reflects a bachelor's degree.

*** Respondents in the first income quintile had household incomes of less than $25,000; those in the second quintile household incomes between $25,000 and $49,999; those in the third quintile household incomes between $50,000 and $74,999; those in the fourth quintile household incomes between $75,000 and $124,999; and those in the fifth quintile household incomes $125,000 and higher.

Our survey questions focused on respondents' evaluation of their own out-of-pocket healthcare costs in retirement and the components that determine those costs.[149] We asked all respondents to estimate their monthly expenditures for out-of-pocket healthcare costs in retirement. We also asked each respondent to estimate how much someone like himself or herself would need to save by age sixty-five in order to have enough money to cover all out-of-pocket healthcare costs during retirement. The first of these measures was intended to solicit estimates of an average monthly budget for out-of-pocket healthcare expenditures in retirement, while the second measure was an attempt to solicit a lump sum estimate of total out-of-pocket expenditures throughout retirement. As discussed above, experts employ similar approaches to measuring out-of-pocket expenditures, with our monthly budget estimates tracking expert estimates of annual costs and our lump sum estimates being analogous to the experts' measure of the NPV of total lifetime healthcare spending from age sixty-five to the end of life. Among other things, we were interested in exploring whether the quality of individual estimates of out-of-pocket expenditures would differ based on whether the estimates were expressed in terms of monthly budgets or lump sum costs. We also asked some of our respondents to estimate the separate components that determine these costs, such as likelihood of insurance coverage and premiums for Medicare and supplemental insurance coverage. Our goal was to ascertain whether respondents were more or less attuned to any of the component parts that together determine total out-of-pocket spending. We asked respondents to exclude long-term care costs when estimating out-of-pocket costs for consistency with the benchmark studies.[150]

In the last section of the survey, we included a module on risk assessment, where, using two separate formulations, we asked respondents to assess the potentially important sources of variation in individual retiree healthcare costs discussed above: individual health and medical needs in retirement, unanticipated healthcare cost growth during their retirement, and changes in policy affecting Medicare and other government programs.

To facilitate our analysis of results, we included a few preliminary questions about respondents' self-assessments of their own current health status, familiarity with financial planning and insurance coverage of health costs in retirement, and life expectancies. Towards the back of the survey, we also included several questions about long-term healthcare services, which we report in a separate paper.

Finally, to ascertain how sensitive responses on out-of-pocket retiree healthcare costs might be to how our questions were framed, we divided our respondents into

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[149] In our survey, we offered respondents the following guidance about the kinds of costs we were interested in:

"In this survey, we want to find out how much you expect to pay for healthcare in retirement. We are interested in your out-of-pocket costs. Out-of-pocket costs are any expenses that you pay yourself. In addition to any direct payments, these costs include insurance premiums for government programs and other health insurance plans. Out-of-pocket costs also cover deductibles and co-pays. Out-of-pocket costs do not include payments made on your behalf or reimbursed by government programs or other insurance plans. In all cases, we are asking about your own personal healthcare costs in retirement. Do not include healthcare costs of other members of your household. Unless otherwise indicated, please do not include in your estimates the cost of long-term residential health-care services (such as extended stays in nursing homes) or premiums for long-term healthcare insurance. Some questions ask for estimates about costs in the future. Please do not attempt to adjust your estimates to reflect price increases from overall inflation. Just make your estimates using the value of money today."

[150] For survey instructions with regard to excluding long-term care cost, see *supra* note 149.

three basic treatment groups with varying levels of anchoring information. In Treatment A, respondents answered a straightforward set of three questions about out-of-pocket healthcare costs: How much did they expect to spend on average each month for out-of-pocket costs in retirement? How much did they expect to spend per month on out-of-pocket costs during the final year of their lives? How much did they think someone like them would need to save by age sixty-five in order to have enough money to cover all out-of-pocket healthcare costs throughout retirement? In the two additional treatments, the hypothesis we hoped to explore was whether respondents' assessments of out-of-pocket cost might be affected—and presumably increased—by prompting them to think about several different components of healthcare costs. To that end, we asked Treatment B respondents several additional questions about their expectations regarding the type of health insurance coverage they anticipated having during retirement and also about the monthly insurance premiums they expected to pay for that coverage. We also asked Treatment B respondents to estimate monthly out-of-pocket costs in retirement at three separate ages: sixty-five, seventy-five, and eighty-five, as well as the final year of their lives. Finally, in Treatment C, we asked respondents the same additional questions as we asked of Treatment B respondents and also provided additional information about average life expectancies, typical insurance premiums, ordinary ratios of premiums to out-of-pocket expenditures on medical care, and projected increases in medical healthcare costs above inflation to see whether such anchoring would influence respondents' assessments of their own out-of-pocket costs. As we discuss below, these treatments had a modest effect in some places but less overall effect than we had hypothesized.

B. ESTIMATING OUT-OF-POCKET RETIREE EXPENDITURES

1. Estimates of Components of Cost (Insurance Coverage and Premiums)

Future out-of-pocket spending can depend in part on future insurance coverage and insurance premiums. We begin with an overview of our respondents' expectations with regard to these insurance components.

a. Insurance Coverage

We examined respondents' expectations regarding insurance coverage in retirement to test the hypothesis that unrealistic expectations regarding coverage might lead to underestimation of out-of-pocket obligations and found that expectations align roughly with expert estimates of coverage levels with a few exceptions noted below. We asked respondents to estimate the likelihood that particular insurance programs would provide the respondent coverage for "at least a portion of your healthcare expenses at some point in retirement."[151] Table Four presents a summary of responses overall and also by age cohort.[152]

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[151] The survey introduction to these questions read as follows:
"Many different government programs and insurance plans can cover healthcare expenses of retirees. With all these choices, many people are confused which plans and programs will provide them coverage. The next questions ask how likely you think it is that particular government programs and insurance plans will cover at least a portion of your healthcare expenses at some point in retirement. If you are certain that you will be covered, you should click the ruler on 100%. If you are certain that you will not be covered, you should click the ruler at 0%. If you think you may be covered but are not

Table Four: Retiree Health Insurance Coverage Expectations by Cohort and All Respondents								
(estimated likelihood of coverage under various insurance programs; estimates in percentages)								
		Medicare		Medicaid		Employer-Sponsored		Medigap	
	N	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age Cohort									
40-44	128	55	29	40	32	33	32	25	26
45-49	157	61	30	44	35	24	32	26	31
50-54	156	68	29	45	34	29	34	26	27
55-59	173	74	22	47	34	35	38	32	30
60-64	158	82	26	30	37	36	43	32	37
65-69	176	89	22	26	37	41	46	29	41
70-74	106	88	24	25	38	33	46	34	43
75-80	75	92	22	28	41	29	44	35	46
All Respondents	1154	73	29	38	36	32	38	29	34
Coverage from Literature Review		95 percent		15 percent*		33 percent *		17 percent*	
* Reflects Percentage of Coverage of Medicare Beneficiaries.									

In general, overall responses to these coverage questions reflected actual coverage levels. Respondents correctly identified Medicare as the program with the highest expected coverage levels (with a mean response of 73%, as compared to 95% in fact).[153] Among the other categories, expectations regarding ESI coverage (mean response of 32%) were close to the 33% of Medicare beneficiaries reported in the literature review to have employer-sponsored supplemental coverage. In contrast, the mean responses for Medicaid (38%) and Medigap (29%) both were in a range of close to double actual reported coverage levels from our literature review (15% and 17%, respectively).[154]

The younger age cohorts' estimates of expected Medicare coverage were much lower than current levels of participation in the program.[155] For the forty to forty-

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sure, click on the scale on the point on the ruler that best reflects your assessment of the likelihood that you may be covered or type the number reflecting that likelihood in the box below."

[152] We also surveyed respondents about their expectations regarding coverage from Veterans Administration programs but do not report those results in this analysis.

[153] The mean response can be interpreted as the expected coverage level across all respondents because we asked each respondent to report the likelihood of personal coverage.

[154] While the benchmarks in the literature review might be slightly low, especially with regard to Medigap for reasons discussed above, any underreporting of Medicaid or Medigap coverage would be small at most.

[155] Here, and elsewhere throughout this Article, we make comparisons between responses of younger and older cohorts. Where differences are noted, we tested for statistical significance using a Hodges-Lehman non-parametric estimator for the median differences across groups, incorporating

four age cohort, the average estimate of Medicare coverage was just over 55%. In contrast, respondents sixty-five and over estimated a nearly 90% or higher likelihood of coverage, quite close to actual current coverage levels (95%). In contrast, the younger cohorts over-estimated the likelihood of Medicaid coverage (at over 40% likelihood) as compared to actual current coverage levels (15%) and the expectations of older respondents (at under 30% likelihood). The responses of younger cohorts might reflect some pragmatic assessment about the availability of Medicare in the future[156] or confusion on the part of younger respondents about the differences between Medicare and Medicaid, notwithstanding the definition of Medicare included in our survey. Even for respondents over sixty-five, expectations regarding the likelihood of Medicaid coverage (in excess of 25%) substantially exceeded actual coverage levels for retirees (15%).[157]

Our respondents expressed stable expectations across age cohorts regarding coverage from ESI programs, even though most industry experts assume that levels of employer-sponsored coverage will decline over time. As discussed below, a persistent feature of our survey responses with respect to comprehensive measures of retiree healthcare costs was the tendency of young cohorts to give quite similar responses as older respondents, suggesting that younger respondents may not be anticipating predicted changes in costs or coverage in the coming decades.

Overall, our findings here suggest that respondents' expectations with regard to future insurance coverage are not so far off as to drive large scale misestimation of future out-of-pocket spending.

b. Premium Costs of Insurance

Where respondents from Treatments B and C indicated they expected to maintain a form of insurance coverage, we also asked what premium cost they anticipated paying to maintain such coverage in retirement. As above with regard to insurance coverage, we found that estimates of premiums roughly approximated actual premiums for both Medicare and supplemental insurance coverage. Table Five reports the respondent expectations for total Medicare premiums, Medigap premiums, and ESI premiums. Here and elsewhere below, we report results in terms of key percentiles of responses (the tenth percentile, twenty-fifth percentile, median, seventy-fifth percentile, and ninetieth percentile), as well as mean and standard deviation. The use of percentiles is helpful in interpreting results because responses

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probabilistic weighting of data. We used non-parametric tests because in many instances the distributions of responses were skewed. Unless otherwise indicated, the differences were significant at the 99% confidence level.

[156] On the other hand, as discussed below, the younger cohorts do not estimate consistently higher levels of out-of-pocket expenses than other cohorts of the sort that one would expect if younger cohorts were consciously anticipating less generous Medicare coverage in the future.

[157] For those respondents in Treatment B and C who indicated that they thought there was some probability that they would maintain Medicare coverage at some point in retirement, we asked whether they expect to maintain Part D Prescription Drug Coverage or to participate in Medicare Advantage. Respondents overwhelming reported that they expect to maintain Part D Prescription Drug coverage (quite consistent with the 60% coverage levels reported in the expert literature). Of respondents giving definitive answers, over 75% indicated that they expected to have Part D coverage (611 of 814). Respondents reported greater uncertainty about Medicare Advantage participation, with nearly half of all respondents reporting that they did not know or had not decided about the issue. Those giving a firm answer to the question reported a good deal higher level of Medicare Advantage take-up (281 of 640 or nearly 44%) than the literature review indicates is currently the case (25% of current Medicare beneficiaries). The figures reported in this footnote are not weighted.

to questions that allowed open-ended estimates of dollar amounts resulted in some high outliers that skew sample means and inflate standard deviations.[158]

Table Five: Insurance Premiums Estimates for Respondents in Treatments B and Treatment C*									
	N	p10	p25	Median	p75	p90	Mean	SD	Ranges Suggested in Anchoring for Treatment C**
Treatment B									
Total Medicare Premiums	573	$30	$98	$ 120	$250	$500	$211	253	*n.a.*
Medigap Premiums	568	$0	$0	$50	$150	$206	$106	173	*n.a.*
Employer-Sponsored Premiums	566	$0	$0	$55	$200	$450	$149	255	*n.a.*
Treatment C									
Total Medicare Premiums	562	$50	$100	$135	$200	$350	$259	1019	*$96 to $115 for typical basic Medicare premium plus an average of $40 for typical Part D Prescription Drug Coverage*
Medigap Premiums	229	$25	$50	$100	$185	$250	$135	141	*Considerable variation in policy types, but majority of monthly Medigap premiums range between $50 and $200*
Employer-Sponsored Premiums	342	$0	$80	$165	$200	$330	$300	1579	*Average participant costs for those over 65 roughly $167*
* Estimated Requested Only for Respondents Who Indicate Some Possibility of Maintaining Insurance Coverage at Some Point in Retirement.									
** See Appendix for Additional Detail on Anchoring.									

Starting with Treatment B respondents, the median expected total premium estimates were $120 for total Medicare premiums, $50 for Medigap premiums, and $55 for ESI premiums. Current typical premium costs (shown in the right hand column of Table Five) for total Medicare costs (basic coverage plus Part D) is currently $136 to $155, which means median respondents' estimates were at most a quarter lower than the typical current premiums. Twenty-five percent of respondents

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[158] For purposes of this and similar tables below, we have not attempted to eliminate outliers in the data. *See* discussion *infra* note 191.

thought their total Medicare premiums would be $98 or lower, and a similar number estimated $250 or higher. Because low-income Medicare beneficiaries can benefit from premium subsidies through Medicare Savings Programs, described above,[159] and higher income beneficiaries pay more on a sliding scale (as much as $250 or higher), these estimates might reflect a reasonable distribution of estimates—a possibility that seems plausible based on regression results that show that premium estimates were positively correlated with income.[160] On the other hand, to the extent responses do not align with likely personal expenses, the accuracy at the median could communicate the "wisdom of crowds" but might obscure possibly substantial ranges in either tail of the distribution for individual respondents.[161]

Treatment C responses, where respondents were prompted with basic information about actual pricing comparable to the information shown in the right hand column, were higher than Treatment B responses.[162] In all cases, the median Treatment C estimates of premium costs moved up and closer to levels suggested in the anchoring information and—perhaps even more pronouncedly—the range of variation in responses, as measured by high and low percentiles tightened around the medians in almost all cases. So, for example, where the distance between the tenth and ninetieth percentiles on the Treatment B responses for total Medicare premiums was $470, the distance between the same percentiles on the Treatment C responses was only $300.[163] Anchoring information provided to Treatment C respondents had especially pronounced effects on estimates for Medigap and ESI premiums, suggesting that public understanding of the costs of these supplemental policies may be less accurate than the knowledge about Medicare premiums.

Premium estimates also varied by age cohort. Figure One shows distributions of expectations for total Medicare premiums by age cohorts for respondents from Treatments B and C. As shown in Figure One, the median response (the lower number) and ninetieth percentile response (the higher number) both trend downward with increasing cohort age. Also, the range between the twenty-fifth and the seventy-fifth percentile estimates (vertical bar) narrows. This narrowing of ranges with increasing age is consistent with the greater confidence and knowledge that older participants have about healthcare costs in retirement as they begin to experience these costs. The higher median responses of younger cohorts may suggest expectations that their Medicare premiums are likely to be higher than those of current retirees, but these higher premium estimates do not translate into higher expectations of total out-of-pocket cost for younger cohorts, as discussed below.

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[159] *See* discussion *supra* Part II.A.

[160] As discussed below, cost estimates among respondents are positively correlated with income levels, and this is also true of total Medicare premium estimates, where the median estimate of respondents in the top income quintile was $250, whereas the median estimate of those in the bottom quintile was $100. These figures are based on a combination of respondents in Treatments B and C.

[161] Note also that mean estimates for these monthly costs skew high, pulled up by a handful of respondents who tend to "high-ball" their estimates, perhaps reflecting unwillingness or possibly an inability to respond to our estimation requests.

[162] Additional information on our anchoring information is available from the authors.

[163] Whether the difference in medians between Treatment B and Treatment C is meaningful for policy purposes is an interesting question. As noted below, Treatment B and Treatment C estimates for total out-of-pocket costs were surprisingly similar both to each other and to the estimates of Treatment A respondents. So however one judges the difference in median estimates about premiums, those differences largely disappear when respondents were asked to estimate overall costs.

Figure One: Medicare Premium Expectations by Age Cohort
Note: Vertical lines run from responses at the 25th to the 75th percentile; numbers indicate median and 90th percentile responses.
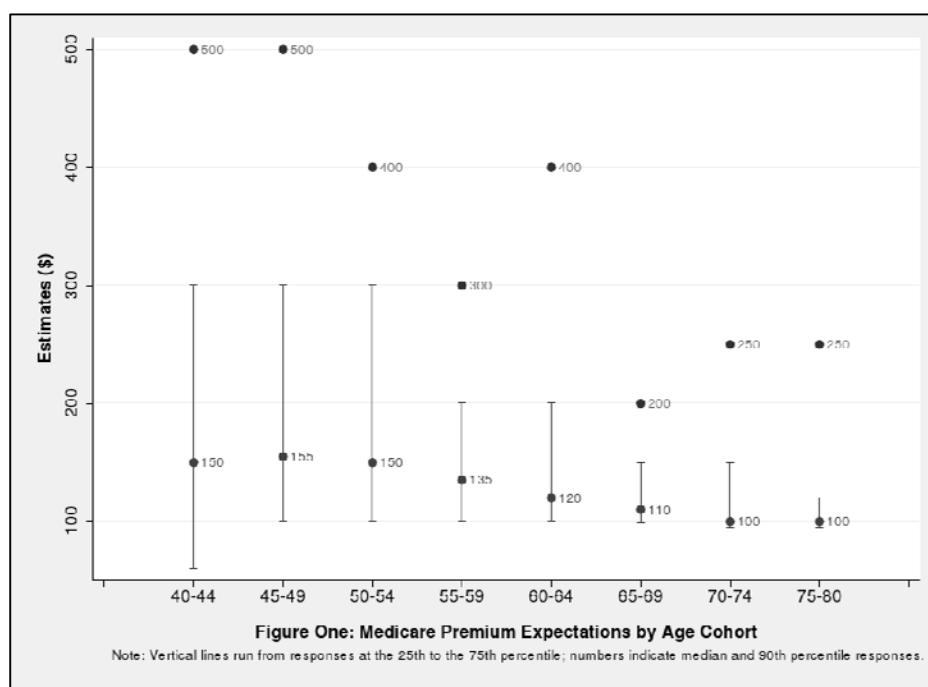
2. Estimates of Total Out-of-Pocket Expenditures

We examined two different approaches to measure out-of-pocket retiree healthcare costs: average monthly estimates and lump sum estimates. Since much of our analysis is based on comparisons to expert benchmarks, we begin by explaining how we compare estimates with benchmarks. When evaluating all responses, combining all age cohorts, we have chosen to benchmark against expert estimates for 2020, on the grounds that 2020 approximates the age of retirement of our median respondent (who is 56.5 years old).[164] In analyzing monthly cost estimates, we also had expert benchmarks for several other future years. Accordingly, in our next layer of analysis, we divided our age cohorts into four groups (the forty-year olds, the fifty-year olds, the sixty-year olds, and the seventy-year olds) and compared the responses for these subsamples to the benchmark that best approximates the midpoint of the years the average cohort member will be in retirement (2040, 2030, 2020, and 2010, respectively), as described in more detail below. For our lump sum measures of total costs, we have benchmark estimates only for those retiring in 2020 and 2010, distinguishing male and female costs, and so we evaluated respondent estimates of lump sum costs using gender-based subsamples and gender-based benchmarks for 2020. As noted above, in comparing the distribution of our survey

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[164] One alternative benchmark for these purposes is the 2010 benchmark as the closest reflection of current costs, and at several points we refer to that alternative benchmark for illustrative purposes, but it is less appropriate for the typical respondent. Yet another approach would have been to use the 2030 benchmark on the grounds that our average respondent would spend much of retirement in years beyond 2020 with higher costs. We discuss below how using the 2030 benchmark would affect the analysis in certain respects but decided on 2020 as the primary benchmark, both because our benchmarks do not incorporate likely reductions in spending from PPACA (and thus are all arguably high) and also because, as also discussed above, it is possible that our instruction to estimate spending in present day dollars might have dissuaded respondents from considering growth in healthcare costs.

results to these benchmark estimates, we do not mean to suggest that the individual respondents were correctly estimating where on the distributions their actual individual healthcare expenditures will fall. Rather, we look at how well the distribution of our responses aligns with what experts' estimates suggest is likely to occur in the overall population. The likely relationship between individual estimates and actual cost experience is a topic we take up in Section 3 below.

a. Estimating Monthly Out-of-Pocket Costs

Our basic findings with respect to monthly expenditures are presented in Table Six, which reports average monthly cost estimates for all respondents, followed by two key subsamples—first age cohorts and then treatment groups.[165] In the right hand column of Table Six, we summarize benchmark ranges discussed earlier.

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[165] Treatment A respondents were asked a single question about average monthly costs during retirement and for these respondents we used that single estimate in Table Four and accompanying figures. Respondents in Treatments B and C were asked to give different monthly estimates for age sixty-five, seventy-five, and eighty-five. Respondents who were sixty-five or older were first asked for their current average monthly estimates and then also asked to estimate average monthly expenses at seventy-five (if they were not yet seventy-five) and eighty-five. For respondents in Treatment B and C, average monthly costs is the average of estimates of all of their monthly estimates.

Table Six: Average Monthly Cost Estimates									
	N	p10	p25	Median	p75	p90	Mean	SD	Benchmark Ranges from Literature Review
All Respondents	1677	$27	$83	$200	$400	$700	$441	4011	*2020 Benchmarks: $204 at 25th percentile; $274 at the Median; $413 at the 75th percentile; and $606 at the 90th percentile.*
By Age Cohort									
40-44	204	$45	$83	$200	$417	$900	$366	467	*2040 Benchmarks: $383 at 25th percentile; $518 at the Median; $788 at the 75th percentile; and $1164 at the 90th percentile.*
45-49	213	$27	$90	$225	$500	$770	$560	2071	
50-54	232	$25	$85	$200	$450	$700	$336	474	*2030 Benchmarks: $283 at 25th percentile; $381 at the Median; $571 at the 75th percentile; and $838 at the 90th percentile.*
55-59	247	$43	$100	$225	$467	$700	$927	10213	
60-64	255	$20	$92	$200	$400	$700	$299	358	*2020 Benchmarks: $204 at 25th percentile; $274 at the Median; $413 at the 75th percentile; and $606 at the 90th percentile.*
65-69	253	$27	$72	$155	$300	$505	$279	464	
70-74	164	$15	$50	$150	$305	$500	$235	356	*2010 Benchmarks: $159 at 25th percentile; $215 at the Median; $330 at the 75th percentile; and $488 at the 90th percentile.*
75-80	109	$35	$98	$217	$350	$600	$291	394	
By Treatment									
Treatment A	535	$20	$75	$200	$400	$700	$598	6917	*See 2020 Benchmarks Above*
Treatment B	577	$33	$83	$200	$417	$717	$345	467	
Treatment C	565	$30	$98	$217	$400	$633	$389	1440	

i. Monthly Estimates Compared to Benchmarks

Our key finding with respect to these results concerns the relationship of these estimates to the expert benchmarks. The median monthly estimate of all respondents was $200, which is not that far beneath the expert benchmark's estimate of $274 for the median retiree healthcare costs in 2020. A closer inspection, however, reveals that our survey responses show something of a bimodal distribution in comparison to the expert benchmarks. A significant portion of respondent estimates lie above the expert median and an even larger portion lie well below.[166]

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[166] The left hand column of Figure Two A indicates what share of the responses were below the 2020 expert benchmark for the twenty-fifth percentile of expenditures; in the next column the share that fell between the twenty-fifth percentile and the median; in the next column the share between the median and the seventy-fifth percentile; in the next column the share between the seventy-fifth percentile and the ninetieth percentile; and in the final column the share above the ninetieth percentile.
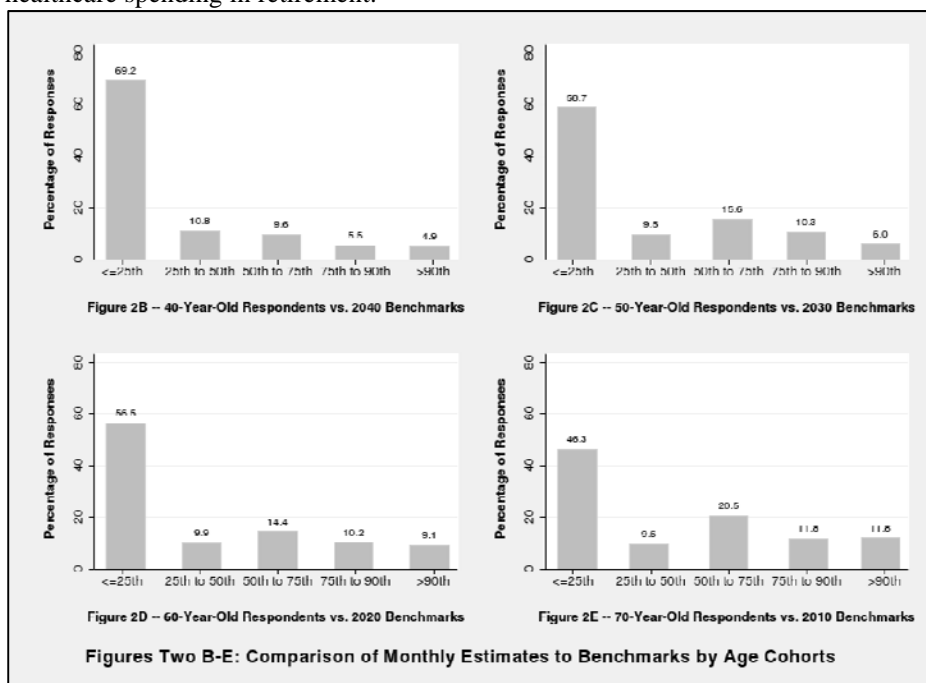
Figure Two A illustrates this recurring pattern of responses. At the right hand side of the distribution—reflecting respondents with higher cost estimates—our survey responses track relatively closely the 2020 expert benchmark estimates of monthly costs. In Figure Two A, almost a quarter of respondents (24.5%) report monthly estimates at or above the expert estimate of spending for someone at the seventy-fifth percentile of retirees, with more than 12% of respondents providing estimates above the benchmark's ninetieth percentile. Almost 40% of respondents had estimates above the benchmark median of $274. The distributions diverge below the benchmark median. Less than 9% of the respondents had monthly estimates in the twenty-fifth to fiftieth percentile ranges, which left more than 50% with estimates beneath the twenty-fifth percentile of the benchmarks. This bimodal distribution of respondent estimates, as measured against the 2020 benchmark, suggests that while the median responses of our survey may not fall too substantially beneath the benchmark medians, many more of our respondents reported monthly cost estimates in the bottom quartile of the benchmark distributions than would be consistent with expert views.[167]

Figure Two A -- Average Monthly Cost Estimates Versus 2020 Benchmarks
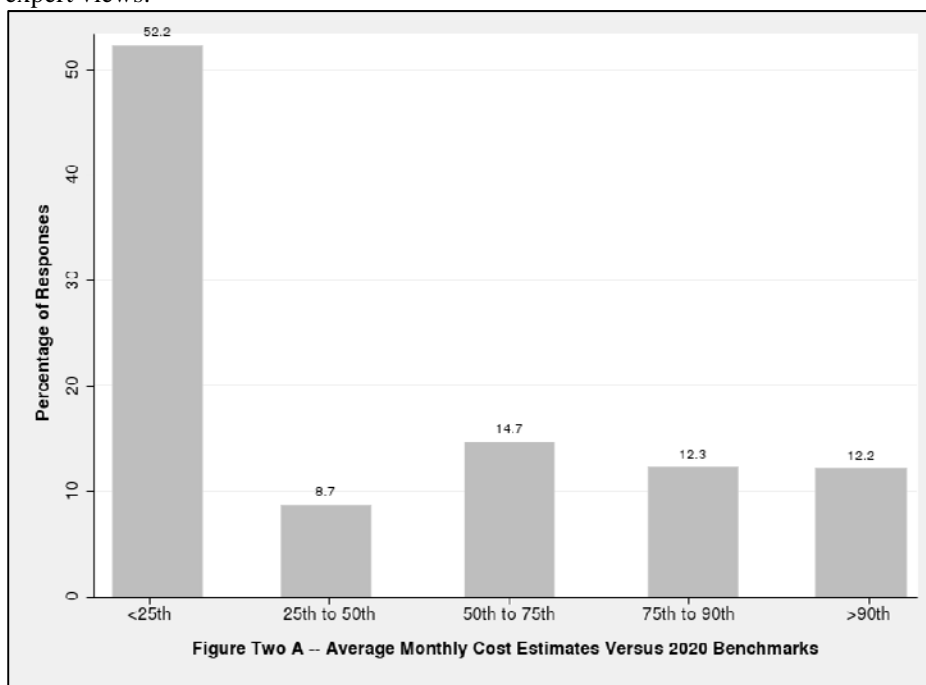
In the unlikely event that our respondents' estimates perfectly matched this expert benchmark, the first three columns of the histogram would equal 75% of respondents and the final two columns would sum to 25% (with 15% in the fourth column and 10% in the fifth).

[167] If one were to use the 2010 benchmarks rather than the 2020 benchmarks to make these comparisons, similar, though somewhat less pronounced results would be produced. With the 2010 benchmark, respondents' median estimate of $200 was only marginally below the benchmark median of $215. Slightly over 32% exceeded the seventy-fifth percentile of the 2010 benchmark with 20.4% above the ninetieth percentile. On the left hand side of the distribution, 41.9% of respondents had estimates below the twenty-fifth percentile. In short, while our survey responses track more closely the 2010 benchmarks, the lower end of the survey distribution is still substantially over-represented in the bottom quartile of the benchmark. Were one to employ the 2030 benchmark, which had a median estimate of $381, only 14.5% of survey responses were above the seventy-fifth percentile and only 6.2% above the ninetieth percentile. Measured against the 2030 benchmarks, more than 60% of respondents had estimates beneath the twenty-fifth percentile.

Because monthly expenses will differ based on when a respondent retires, we also broke our respondents into four decade-long age groupings and compared responses against the Johnson and Mommaerts estimates for 2010, 2020, 2030, and 2040, based on the year that best approximates the midpoint of when the cohort's members will be in retirement. (See Table Six.) For example, we compared the answers of respondents in their fifties to the 2030 benchmarks. The respondent in the midpoint of this grouping would be fifty-five and would retire in 2022 (if he or she retired at age sixty-five) and live until about 2040. This makes 2030 a rough midpoint of the respondent's years in retirement. For similar reasons, we compared answers from respondents in their forties to the 2040 benchmarks, those in their sixties to the 2020 benchmarks, and those in their seventies the 2010 benchmarks. The results are summarized in Figures Two BCDE. While each of the histograms in this figure has the same basic structure—with the largest share of responses located in the bottom quartile of the respective benchmark—the combined picture of the histograms demonstrates that the younger respondents fall further behind their respective benchmarks than do the older cohorts. So, while 46.3% of seventy-year old respondents had average monthly estimates in the bottom quartile of the 2010 benchmark, 69.2% of the forty-year olds had responses in the bottom quartile of the 2040 benchmark. Similarly, the number of younger respondents at or above the benchmark median (as well as the seventy-fifth or ninetieth percentiles) declines with decreasing age cohorts. While these responses are subject to various interpretations, including the fact that respondents misunderstood the instruction not to adjust estimates to reflect overall inflation, younger respondents do not seem to have been making upward adjustments in their estimates to match the higher healthcare costs that experts predict. The results thus raise potential concerns that a significant percentage of those in younger cohorts are underestimating their likely healthcare spending in retirement.

Figure 2B – 40-Year-Old Respondents vs. 2040 Benchmarks

Figure 2C -- 50-Year-Old Respondents vs. 2030 Benchmarks

Figure 2D – 60-Year-Old Respondents vs. 2020 Benchmarks

Figure 2E -- 70-Year-Old Respondents vs. 2010 Benchmarks

Figures Two B-E: Comparison of Monthly Estimates to Benchmarks by Age Cohorts

ii. Monthly Estimates by Age Cohorts

The distribution of monthly cost estimates across age cohorts, as illustrated in Figure Two F, offers another perspective on estimates by age cohorts. In contrast to responses discussed above with respect to future Medicare premiums, the median respondents in their forties are projecting almost the same average monthly costs as those just on the eve of retirement, suggesting that younger respondents are not projecting cost increases (or, alternately, might not understand the implications of real cost growth in healthcare costs[168]). While the median estimates of the younger cohorts are somewhat higher than those of the oldest cohorts, the differences are relatively small. As the extent of those increases is expected to be substantial, these responses may suggest an important source of consumer confusion, or at least misapprehension about likely healthcare costs in retirement. There does, however, seem to be somewhat greater uncertainty about retiree healthcare expenditures for at least some of younger cohorts. While the spread between the twenty-fifth and seventy-fifth percentiles does not widen markedly with the younger cohorts, the ninetieth percentile responses do, suggesting that at least a fraction of respondents in the younger cohorts are estimating substantially higher healthcare costs than their counterparts in the older cohorts.

Figure Two F: Average Monthly Cost Estimates by Age Cohort
Note: Vertical lines run from responses at the 25th to the 75th percentile; numbers indicate median and 90th percentile responses.

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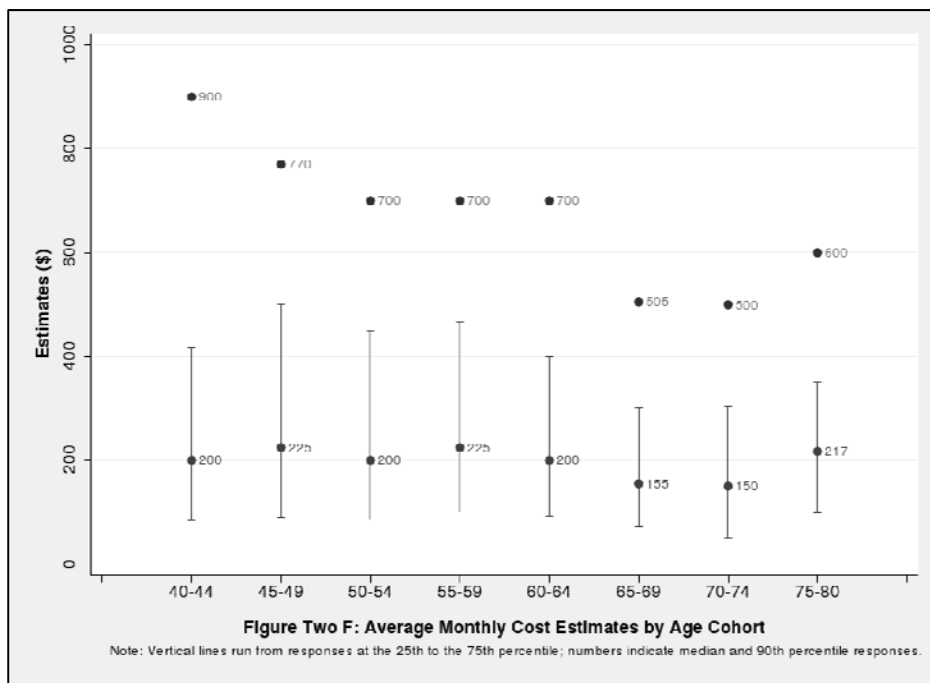
[168] An alternative interpretation is that respondents may have understood our instructions to express answers in terms of current dollars and not to adjust for general inflation as guidance that they should avoid any source of increase in out-of-pocket costs, whether from excess medical care cost growth or the reduction of government insurance programs. In this case, our responses might reflect confusion regarding general inflation versus other economic or cost growth.

iii. Other Features of Monthly Estimates

In contrast with the premium estimates discussed above, respondent estimates are relatively stable across treatment groups. As reported in Table Six, while Treatment C responses showed a modest narrowing in distribution similar to the narrowing noted above for their estimates of premiums, the treatment groups provided similar estimates, regardless of whether they were posed as simple questions about out-of-pocket costs in Treatment A or given a good deal of additional framing and anchoring in Treatments B and C. Median responses did not differ greatly across treatments.

Our survey questions on monthly cost estimates also included two extensions that explored the extent to which respondents expected their monthly costs to vary over the course of retirement. First, we asked all respondents to make separate monthly cost estimates for the last year of their lives. Respondents overwhelmingly estimated that they would have higher monthly costs in their final year.[169] The median estimate was $350 as compared with a median estimate for average monthly costs of $200 for all respondents. We also calculated the ratio of individual responses on this question to their average monthly cost estimates and determined that the median ratio was 1.46 or nearly 50% higher than the average monthly cost estimate. This is similar to, though not as extreme as, estimates based on expert data of a ratio of two, or nearly 100% higher.[170]

For respondents in Treatments B and C, we also compared individual respondent estimates of monthly costs at age eighty-five as opposed to monthly costs at age sixty-five to gauge their understanding of how costs are likely to change toward the end of their lives. While one quarter of respondents projected monthly costs at eighty-five at or below levels at age sixty-five, the median response indicated a projected increase of 33%, which is in line with the ratio of cost increases reported above in our literature review for costs experienced by the average member of an eighty-five-year old cohort, as compared to the average member of a sixty-five-year old cohort.[171] So, again on this dimension, the typical response was consistent with expert views. These results—in conjunction with the findings on overall monthly estimates above—suggest that at least some people do have some understanding of future healthcare expenditures, more so than we hypothesized we would find.

b. Lump Sum Estimates

As an alternative measure of retiree healthcare costs, we asked all respondents to estimate the amount of money that a person similar to the respondent would need to accumulate by the age of sixty-five in order to save enough money to pay for their total expected out-of-pocket costs for healthcare in retirement.[172] Our goal here was

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[169] There is a risk of demand effect, namely that inquiring about last year costs suggests that such costs will be higher. Even if demand effect is occurring here, it is nonetheless interesting that the magnitude of estimates is close to experts' estimates and that, when prompted, people intuit higher costs in their final year.

[170] This expert ratio is calculated based on the estimate in the Marshall study of the median last year of life ($5061) divided by the overall median annual estimate in the Johnson and Mommaerts study ($2583). Marshall et al., *supra* note 83, at 37; *see also* JOHNSON & MOMMAERTS, *supra* note 6, at 11.

[171] A comparable increase of 33% can be seen in the median estimates from the Hurd & Rohwedder study of $720 for a sixty-five to sixty-nine year old and $950 for an over eighty-five year old. *See* Hurd & Rohwedder, *supra* note 66.

[172] The actual question read as follows:

to solicit savings targets that the respondents would associate with the amount needed on the eve of retirement to cover expected healthcare costs in retirement.[173]

Many different factors could affect an estimate of lifetime spending: estimates of monthly spending, projections of life expectancy, and ability to toggle between monthly and lifetime estimates, considering real cost growth. Even if a respondent estimates monthly spending well, she might underestimate her life expectancy and the number of years of future spending. Further, recent financial literacy research illustrates that people have difficulty translating between periodic and lump sum payments, suggesting that our respondents might similarly struggle.[174] Accordingly, in designing our survey, we hypothesized that respondents' estimates of lump sum costs might be significantly further from expert views than their monthly cost estimates. As described below, while the lump sum responses were lower than monthly estimates compared to expert benchmarks, the overall structure of lump sum responses—and the bimodal distribution identified above—were similar to the responses for monthly costs

Survey responses on lump sum estimates are reported in Table Seven with results for all respondents on the top line, followed by responses broken out by age cohort and then treatment. The median lump sum estimate for all respondents was $50,000, with the twenty-fifth and seventy-fifth percentiles of responses ranging from $10,000 to $150,000.

"In planning for retirement, some individuals like to think in terms of how much money they would need to save by the time they turn 65 in order to have enough money to cover out-of-pocket costs in retirement. Imagine that you were asked to give advice to someone with similar preferences and health characteristics as your own. If such a person wanted to have enough money to cover a reasonable estimate of their total out-of-pocket costs for health care in retirement, how much do you think they would need to have set aside? Please give your answer in terms of the total amount of dollars needed at age 65."

[173] It is possible—as one reader noted—that respondents could interpret this question to mean how much they would need to have saved to avoid bankruptcy or significant retirement risk, rather than to cover all out-of-pocket costs. In this case, retirees' estimates would be lower than their expectations of total costs, in which case their expectations of total costs would be even closer to experts' estimates than we report herein.

[174] *See generally* Jeffrey R. Brown et al., *Framing and Claiming: How Information-Framing Affects Expected Social Security Claiming Behavior* (Nat'l Bureau of Econ. Research, Working Paper No. 17018, 2011) (showing that individuals' choices on when to claim Social Security benefits, from ages sixty-two to seventy, vary based on how this claiming decision is framed); Jeffrey R. Brown, et al., Do Consumers Know How to Value Annuities? Complexity as a Barrier to Annuitization (June 7, 2012) (unpublished manuscript) (on file with authors) (showing difficulty among survey respondents in valuing annuities).
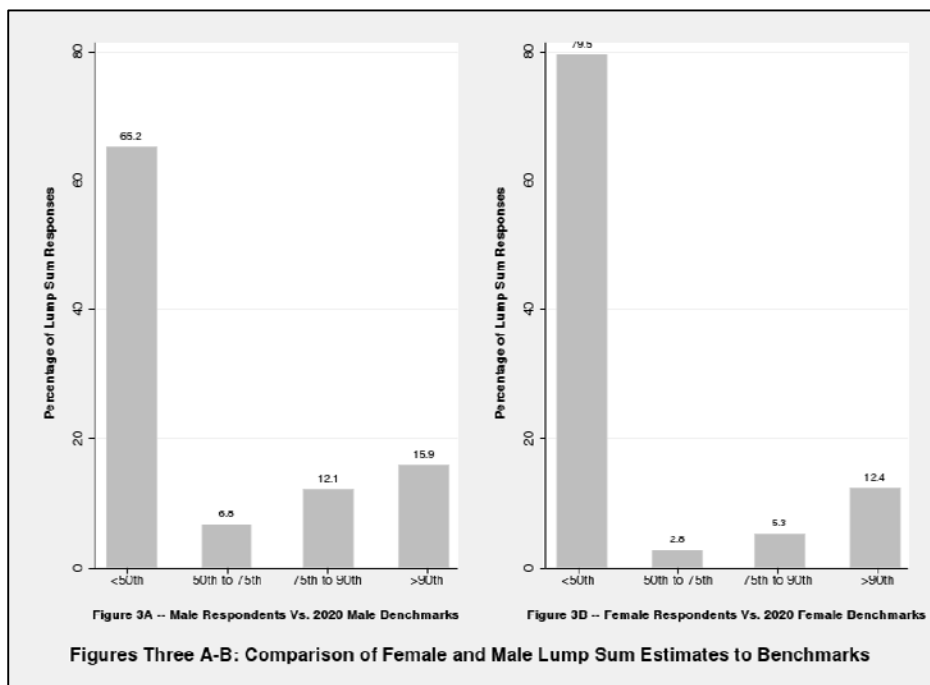
	N	p10	p25	Median	p75	p90	Mean	SD	Suggested Ranges from Literature Review
Table Seven: Lump Sum Estimates									
All Respondents	1660	$500	$10,000	$50,000	$150,000	$500,000	$1,384,054	49,818,364	*2020 Benchmarks for Men: $109,000 at the Median; $198,000 at the 75th percentile; and $313,000 at the 90th percentile.*
By Age Cohort									
40-44	201	$1,200	$10,000	$50,000	$150,000	$600,000	$262,927	1,156,264	
45-49	211	$900	$5,000	$35,000	$200,000	$750,000	$659,895	6,283,426	*2020 Benchmarks for Women: $156,000 at the Median; $230,000 at the 75th percentile; and $357,000 at the 90th percentile.*
50-54	229	$600	$7,000	$45,000	$150,000	$500,000	$233,590	787,712	
55-59	246	$500	$10,000	$50,000	$150,000	$500,000	$6,907,215	129,215,115	
60-64	253	$300	$5,000	$50,000	$150,000	$400,000	$224,266	1,264,231	
65-69	250	$350	$7,500	$30,000	$150,000	$425,000	$169,440	579,634	*2010 Benchmarks for Men: $65,000 at the Median; $118,000 at the 75th percentile; and $187,000 at the 90th percentile.*
70-74	163	$200	$10,000	$50,000	$150,000	$500,000	$1,543,706	13,883,700	
75-80	107	$50	$5,000	$50,000	$150,000	$500,000	$135,410	267,179	
By Treatment									*2010 Benchmarks for Women: $93,000 at the Median; $137,000 at the 75th percentile; and $213,000 at the 90th percentile.*
Treatment A	531	$650	$10,000	$50,000	$200,000	$500,000	$3,489,643	87,689,268	
Treatment B	568	$500	$10,000	$45,000	$150,000	$500,000	$294,073	3,122,465	
Treatment C	561	$500	$7,000	$50,000	$150,000	$500,000	$493,404	6,339,326	

i. Lump Sum Estimates Compared to Benchmarks

Our comparison of respondent estimates with expert estimates again center on 2020 benchmarks. As these benchmarks vary by gender, we distinguish between projected spending for male and female respondents. Figures Three A-B presents histograms of responses for male and female subsamples against their respective 2020 benchmarks. Our benchmark EBRI study does not include a twenty-fifth percentile estimate, so the left hand column of these figures reports the share of responses beneath the benchmark median. As with the comparable histograms for average monthly costs, Figures Three A-B shows that responses from both men and women again produced a bimodal distribution with a healthy share of respondents making lump sum estimates above the seventy-fifth percentile of the relevant benchmark (28.0% for men and 17.7% for women) and a disproportionate share of both subsamples reporting responses beneath the benchmark median (65.2% for men and 79.5% for women). While the general structure of these histograms is similar to analogous charts for average monthly cost estimates,[175] the women's responses fall

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[175] The absence of a twenty-fifth percentile benchmark for lump sum estimates makes it harder to identify the extent to which our lump sum responses gravitate to the left hand side benchmark distributions. However, for our full sample as well as both male and female subsamples, the twenty-fifth percentile response was $10,000, very far below median lump sum benchmarks for either men ($109,000) or women ($156,000). Thus, it appears quite likely that our lump sum responses were also skewed to lower end estimates.

further beneath benchmark metrics than the men's do. This is particularly true if one focuses on median responses. Whereas the men's median response of $60,000 is over 50% of the benchmark median for men of $109,000, the women's median response of $30,000 is less than a fifth of the benchmark median of $156,000 for women.[176] We discuss this gender differential in more depth in Section 3 below.

Figure 3A -- Male Respondents Vs. 2020 Male Benchmarks

Figure 3B -- Female Respondents Vs. 2020 Female Benchmarks

Figures Three A-B: Comparison of Female and Male Lump Sum Estimates to Benchmarks

ii. Lump Sum Estimates by Age Cohorts

Results broken down by age cohort were also reminiscent of those we obtained for estimates of average monthly costs: The median responses of all age cohorts were at or close to $50,000, and the distance between the twenty-fifth and seventy-fifth percentile responses was also highly consistent across age cohorts, although the ninetieth percentile responses did tend to drift upward for younger cohorts, again suggesting greater uncertainty about future costs. See Figure Three C. On average, the younger cohorts seemed to be making lump sum estimates quite similar to those of older cohorts on the eve of retirement or in retirement.[177]

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[176] One sees similar differentials if survey lump sum responses are measured against the 2010 benchmarks. The 2010 benchmark median for women is $93,000, which is almost three times our actual median female estimate of $30,000, whereas the 2010 benchmark median for men is $65,000, which is actually quite close to the median male estimate of our respondents: $60,000.

[177] As noted below, respondents did slightly underestimate the likelihood that they would survive to ages sixty-five and seventy-five, when compared with expert assessments, which could explain one of the reasons why respondents' lump sum estimates fall a bit further beneath expert estimates than was the case with respondents' average monthly cost estimates.

Figure Three C: Lump Sum Estimates by Age Cohort
Note: Vertical lines run from responses at the 25th to the 75th percentile; numbers indicate median and 90th percentile responses.
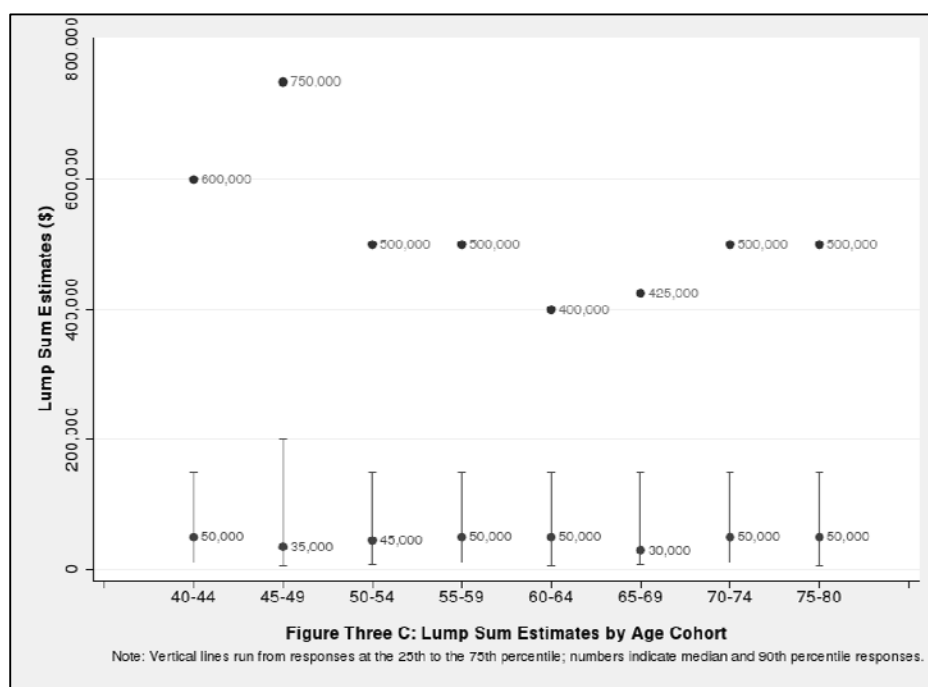
Interpreting responses of younger cohorts on these lump sum questions is difficult. Some respondents might have interpreted the question to solicit estimates of savings targets for someone reaching sixty-five today in which case adjustment for future real increases in healthcare costs would not have been appropriate.[178] It is also possible that respondents had difficulty in making adjustments to savings targets to reflect real increases in future healthcare costs. In this case, it is troubling that younger cohorts generally did not project high savings targets, especially if these projections influence retirement planning for individuals several decades away from retirement.[179] While there are undoubtedly complexities in interpreting responses of younger cohorts with respect to these savings targets, the fact that younger respondents did not estimate materially higher savings needs than older cohorts strikes us as a potentially important finding and worthy of further study.[180]

iii. Implied Lump Sum Estimates

One of the hypotheses that we wanted to explore with our lump sum estimates was whether respondents might do a relatively good job estimating monthly costs but then make some sort of systematic error in mental math that led them to make unreasonably low lump sum estimates. Such a cognitive error would be significant because it could lead individuals to set their targeted savings for retirement

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[178] For the wording of our survey question, see *supra* note 172.

[179] One hypothesis suggested by a workshop participant is these responses reflect an expectation of younger respondents that political forces will not allow out-of-pocket costs to increase above $50,000 in current dollars. Under this view, respondents collectively might have a more accurate view of future out-of-pocket costs than experts focusing primarily on past trends and without accounting for political constraints.

[180] Conclusions with respect to younger cohort responses are probably best drawn from a complete review of survey response. We attempt such a summary in the conclusion of this paper.

healthcare spending at too low levels, even if they did a relatively good job at estimating what their average monthly expenditures for retiree healthcare might be. To some degree, such errors may have occurred as the lump sum estimates reported above do fall further from expert benchmarks than did respondents' monthly cost estimates.

To explore whether this reduction in lump sum estimates might be the product of errors in respondents' expectations regarding their own life expectancies, we asked all respondents a series of questions about their own assessment of their life expectancies.[181] In reviewing responses to these questions, we found that respondents' estimates were reasonably close to SSA projections on life expectancy. Our median respondents reported an 80% likelihood of living past sixty-five, a 70% likelihood of living past seventy-five, a 50% likelihood of living past eighty-five, and a 10% likelihood of living past ninety-five. These responses underestimate the likelihood of surviving to sixty-five and seventy-five (which Social Security actuaries currently put at approximately 92% and 75%) by 10% to 15%, but somewhat overestimate the likelihood of living beyond eighty-five (which Social Security actuaries estimate in the range of 43%).[182] Thus, it does not appear that our respondents were systemically underestimating their life expectancies in a material way.

We further analyzed the relationship between respondents' monthly cost estimates and their lump sum estimates by generating for each respondent an "implied lump sum estimate," based on the monthly cost estimates that each respondent provided, his or her final year monthly cost estimates, and his or her reported self-assessed life expectancy. Using this information, we projected an expected cost cash flow for the person and then discounted that cash flow back to a valuation at age sixty-five, which represents the amount of money the person would need to exactly cover his or her self-reported expected monthly costs. We made these calculations using several different discount rates; the results reported here employ a 1.5% real discount rate.[183]

Rather than excessively discounting their lump sum estimates, respondents appear to have modestly adjusted upward their lump sum estimates as compared to implied lump sum estimates. The implied lump sum estimates, at least as we
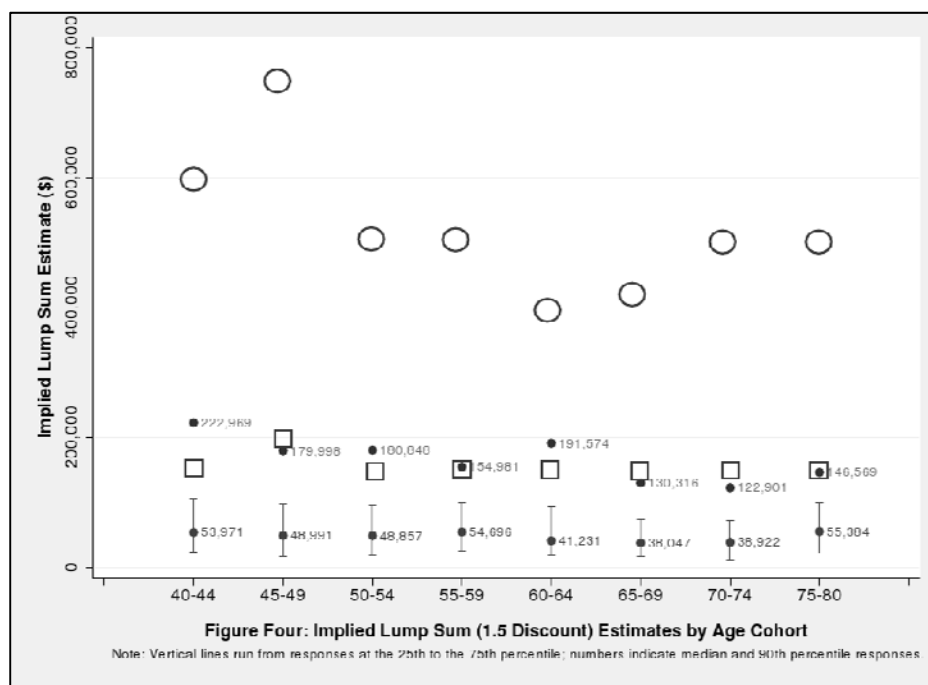
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[181] Framing of the questions of life expectancy can have an effect on responses, as reported in a recent study in John W. Payne et al., *Life Expectancy as a Constructed Belief: Evidence of a Live-to or Die-by Framing Effect* (Columbia Bus. Sch. Research, Paper No. 12-10, 2012). Questions framed as the probability of "living to" a particular age generate higher average estimates than those framed in terms of "dying by" that same age. *Id.* at 5. When compared with estimates of life expectancy, based on SSA data and adjusted to each respondent's age and gender, the "living to" frame produced subjective estimates closer to the actual estimates than the "dying by" frame at ages sixty-five and seventy-five, equally accurate at eighty-five, and less accurate at ninety-five, when both frames lead to overly optimistic responses. *Id.* at 9 fig. 3a.. For purposes of our survey, we adopted a "living to" frame to survey respondents' anticipated life expectancy.

[182] See *Actuarial Life Table*, *supra* note 101. Our median responses for surviving past ninety-five closely match expert views (9%). Respondents were directionally accurate in reporting longer life expectancies for women than for men.

[183] As respondents were instructed to estimate future monthly costs in terms of current dollars, a real (as opposed to nominal) discount rate was employed. As a robustness check, we recalculated respondents' implied lump sums using both a 3.0% and a 0% discount rates. With the 3.0 % discount rate, median response for cohorts range between $35,000 and $45,000 with an overall median of about $10,000 lower than actual lump sum estimates. With a 0% discount rate, the median response for cohorts ranged from $45,000 to $75,000 with an overall median about $8000 higher than actual lump sum estimates. These results crudely suggest that respondents may be using a mental discount rate closer to 1.5%.

calculated them, were about 6% lower than respondents' actual lump sum estimates taken as a group ($47,000 median implied lump sum, as compared to $50,000 median actual estimated lump sum). Conceivably, respondents may have been adding a modest cushion of additional savings to make sure they would have enough for unanticipated costs. While these results are sensitive to our assumed discount rate, the results do not suggest significant downward errors in lump sum calculations as compared with monthly costs adjusted for self-reported life expectancies.[184]

Figure Four: Implied Lump Sum (1.5 Discount) Estimates by Age Cohort
Note: Vertical lines run from responses at the 25th to the 75th percentile; numbers indicate median and 90th percentile responses

In fact, we see some evidence of erroneous inflation of lump sum estimates when looking at the distribution of implied lump sum estimates by age cohort, as shown in Figure Four. The distribution of percentiles is much narrower in this figure than in the comparable figure (Figure Three C) for actual lump sum estimates. In particular, the ninetieth percentile estimates of the implied lump sum calculations are much lower. (In Figure Four, we have superimposed circles indicating the ninetieth percentiles for actual lump sum estimates from Figure Three C and boxes to reflect the seventy-fifth percentile estimates.) For example, the ninetieth percentile estimate of implied lump sums for the forty-five to forty-nine year old age cohort is about $180,000 whereas the comparable ninetieth percentile actual lump sum estimate is $750,000. In other words, far from excessively discounting their lump sum estimates, our respondents in many cases were offering lump sum estimates that were substantially higher than the savings levels actually needed to match their own estimated monthly costs and self-assessed life expectancies.[185] A substantial number

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[184] Even with a 0% discount rate, the median implied lump sum estimate was just under $58,000.

[185] The upper range of actual lump sum estimates exceed implied lump sum estimates even when calculated using a 0% discount rate. So, for example, the ninetieth percentile implied lump sum of the forty-five to forty-nine age cohort calculated with a 0% discount rate is roughly $225,000 compared with the $750,000 ninetieth percentile estimate for actual lump sum for that age cohort.

of respondents appear to have been engaging in mental math that suggested an unobtainably high savings target, rather than engaging in mental math that set unrealistically low savings needs. Such high targets could create a barrier to saving due to a sense of futility, as discussed further below.

iv. Other Notable Features of Lump Sum Estimates

As reported in Table Seven above, lump sum estimates showed extremely modest variation across treatments, with all three treatments having a median estimate of approximately $50,000 and only a modest narrowing of distributions from Treatment A to the other two treatments. So, as was true of monthly cost estimates, framing and anchoring had negligible effects on responses.

3. Estimates and Demographic Spending Variation

One of the complexities in interpreting respondents' answers is uncertainty about whether those reporting low or high estimated costs are, in fact, individuals who will actually incur below or above median healthcare costs in retirement. To tease out this question, we segmented our sample into a series of subgroups based on income, gender, self-reported health status, and financial sophistication (based on self-reported information on financial planning and familiarity with budgeting and healthcare insurance, as well as self-reported consultations with financial planners). We then analyzed whether this partitioning of the data produced differences in average monthly cost estimates or actual lump sum estimates that were consistent with expert evaluations of the relationships between these categories and out-of-pocket retiree healthcare costs. The results, which are summarized in Table Eight for average monthly costs, are mixed. [186]
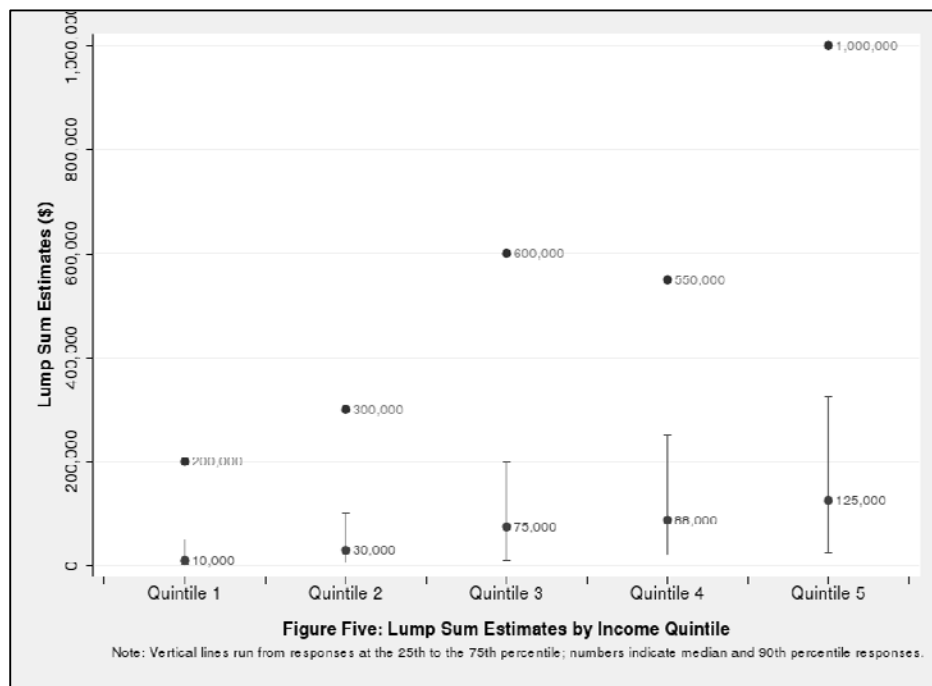
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[186] We focus here on findings that the regression analysis, discussed below, suggests are significant. Monthly estimates increased with higher levels of self-reported health status of respondents, as reported in Table Eight, but the regression analysis below suggests this effect may simply reflect interactions with income or education level.

Table Eight: Average Monthly Cost Estimates by Gender, Health Status, Income Quintiles and Financial Sophistication								
	N	p10	p25	Median	p75	p90	Mean	SD
By Income Quintile								
Quintile 1	345	$0	$30	$100	$200	$392	$455	5267
Quintile 2	432	$35	$83	$200	$350	$600	$503	6240
Quintile 3	263	$43	$100	$250	$450	$700	$341	371
Quintile 4	447	$50	$125	$283	$500	$750	$392	540
Quintile 5	187	$100	$200	$350	$633	$1,005	$525	542
By Gender								
Male	729	$25	$90	$217	$467	$758	$436	1268
Female	948	$30	$80	$190	$361	$600	$445	5431
By Health Status (self reported)								
Excellent	151	$40	$100	$300	$500	$1,000	$451	664
Very Good	646	$40	$100	$220	$400	$667	$619	6536
Good	601	$33	$90	$200	$400	$658	$324	485
Fair	222	$10	$45	$150	$361	$650	$291	431
Poor	56	$0	$33	$150	$417	$767	$353	618
By Self-Assessed Familiarity with Government Programs and Insurance Plans								
Low Familiarity	545	$23	$83	$200	$417	$667	$572	6584
Medium	507	$45	$100	$200	$413	$700	$427	1455
High Familiarity	625	$20	$75	$200	$392	$700	$308	427
By Self-Assessed Attention to Monthly Healthcare Costs and Other Expenses								
Low Familiarity	511	$20	$50	$167	$375	$650	$474	5538
Medium	412	$40	$100	$217	$400	$667	$417	1605
High Familiarity	754	$35	$100	$210	$433	$700	$430	3628
By Self-Reported Consultations with Financial Planner About Retirement								
Yes	578	$50	$140	$300	$517	$800	$474	5538
No	1074	$20	$67	$175	$350	$600	$417	1605
Don't Know	25	$50	$150	$233	$300	$500	$430	3628

Variations by income levels tracked expert evaluations. As discussed above, higher income individuals tend to pay more for retiree healthcare and also live longer, thereby increasing overall retiree healthcare costs. Our survey respondents seemed to be quite attuned to this effect. So, as reported in Table Eight, the median expected monthly cost of the lowest quintile respondents was just $100, whereas the median response for the highest quintile of respondents was $350. As shown in Figure Five, this differential was even more pronounced with respect to lump sum estimates where median estimates of the lowest income quintile were $10,000, as compared to $125,000 for the highest quintile. In terms of the effect of income on retiree healthcare costs, respondents' intuitions were directionally aligned with expert views, even if perhaps showing a stronger effect than experts might suggest is likely.[187]

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[187] Wealthier respondents also gave higher estimates of total Medicare premiums. *See supra* notes 95-99.

Figure Five: Lump Sum Estimates by Income Quintile

Note: Vertical lines run from responses at the 25th to the 75th percentile; numbers indicate median and 90th percentile responses.

We observed the opposite with regard to gender. As a result of having longer life expectancies and more expensive supplemental coverage, a typical woman retiring in 2010 has 40% higher expected out-of-pocket healthcare costs in retirement than a typical man[188] and higher expected annual costs.[189] Nevertheless, as reported in the second section of Table Eight, women largely estimated lower average monthly costs than men with a median estimate of $190 for women as compared to $217 for men. This difference was even more pronounced for lump sum estimates, where women's median estimate was $30,000 versus $60,000 for men. Thus, women underestimated average monthly healthcare costs as compared to men and compounded that underestimation in producing lump sum estimates, making their actual reported median estimates substantially below the benchmark median estimates for women, as drawn from our literature review.

Finally, we explored whether self-reported financial sophistication might be correlated with survey responses. We asked all respondents three questions to gauge financial sophistication. The most pronounced effect on monthly estimates came from our third question on financial sophistication: whether respondents had consulted with a financial planner about retirement.[190] The median estimate among respondents who reported a consultation with a financial planner was $300, as compared to $175 for respondents who said they had not. While one must treat self-reported responses of this sort with caution, these results do raise the possibility that

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[188] *See supra* note 102 and accompanying text.

[189] *See supra* note 103.

[190] Responses to questions regarding familiarity with government programs and the level of attention they pay to monthly healthcare costs and other expenses showed little or no effect on estimates. Although familiarity does not appear to be strongly associated with differences in respondent estimates, older respondents reported a much higher degree of familiarity on these dimensions than did younger respondents.

personal interventions with respect to retiree healthcare costs may be effective in raising individual estimates of retiree healthcare costs.

In an effort to explore the interactions between these various correlates and respondents' estimates, we conducted a series of regression analyses. Table Nine A reports summary results for four rudimentary models examining the correlates of monthly cost responses. The first three columns of Table Nine A are quantile regressions (at the twenty-fifth percentile, median, and seventy-fifth percentile) and the fourth column is a trimmed Ordinary Least Squared (OLS) log formulation.[191] For each regression, we included gender, a dummy for age cohorts younger than fifty-five, income quintiles, health status, educational achievement, and a dummy representing consultations with financial planners as independent variables. While explaining only a small fraction of overall variation in monthly costs, all four models show consistent, statistically significant coefficients for the dummy for younger cohorts, income quintiles, educational attainment, and the financial planner dummy, suggesting that all of these variables are correlated with estimates of monthly costs. The coefficients for these variables also were intuitively coherent, with higher income quartiles having larger coefficients than lower income quartiles, and the magnitude of the coefficients for the financial planner dummy and educational attainment increasing for higher percentile regressions. The models also suggest that, once other factors are controlled for, respondents from younger cohorts do offer somewhat higher estimates of monthly costs than do the older cohorts, although the magnitude of those differences (on the range of $17 to $82 in the quantile regressions) do not equal the projected increases in future health costs that experts predict.[192] While the female dummy has a negative coefficient in two of the models, in only one model is the coefficient statistically significant, casting some doubt on earlier results suggesting that women were making lower estimates across the board for monthly costs than men (once controls for educational attainment and household income are included).

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[191] We utilized these functional forms to limit the influence of outliers on the analysis. As noted earlier, some respondent estimates—especially with respect to lump sum estimates—seemed unreasonably high, suggesting that perhaps some responses may have been protest bids in response to inherently difficult questions or for some other reason providing implausible answers. In prior sections of our analysis we have relied on median and percentile analysis to limit the impact of these outliers. As compared to traditional OLS regression, quantile regressions serve a similar function. The log form of the fourth model also reduces the influence of outliers as does our trimming of the top 1% of observations, which eliminates survey responses with average monthly costs over roughly $2500.

[192] When we segmented the sample into male and female subsamples and re-ran our regressions, the coefficient for the younger cohort variables remained statistically significant for only the male subsample, suggesting that men were driving the higher cost estimates from younger cohorts reported in the text.

Table Nine A: Examining the Correlates of Average Monthly Cost Estimates with Quantile Regressions and Trimmed and Log OLS			
	(1) 25th Percentile	(2) Median	(3) 75th Percentile	(4) Log OLS Trimmed
Female	3.556 (7.876)	-13.077 (13.271)	-61.248*** (21.524)	-0.016 (0.079)
Younger Three Age Cohorts	17.685** (8.083)	36.154*** (13.621)	82.438*** (22.091)	0.172** (0.082)
Second Income Quintile	44.333*** (12.780)	74.359*** (21.535)	148.657*** (34.926)	0.879*** (0.139)
Third Income Quintile	53.333*** (12.139)	89.744*** (20.455)	169.752*** (33.175)	1.053*** (0.156)
Fourth Income Quintile	80.796*** (13.583)	115.641*** (22.889)	208.905*** (37.122)	1.081*** (0.157)
Fifth Income Quintile	104.370*** (13.420)	177.949*** (22.613)	253.286*** (36.675)	1.410*** (0.156)
Health Status	4.056 (4.395)	12.821* (7.406)	12.886 (12.012)	-0.034 (0.056)
Educational Attainment	6.519*** (1.967)	8.205** (3.315)	12.686** (5.376)	0.027 (0.022)
Consultation with Financial Planner	31.611*** (8.788)	64.359*** (14.807)	116.914*** (24.015)	0.276*** (0.078)
Constant	-57.796** (28.104)	-23.333 (47.357)	29.962 (76.805)	3.821*** (0.303)
Observations	1673	1673	1673	1654
Adjusted R^2/Pseudo R^2	0.026	0.031	0.032	0.143
F				18.447

Standard errors in parentheses
Models One to Three utilize Quantile Regressions to estimate the coefficients; Model Four utilizes OLS. Quantile Regressions utilize unweighted data.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table Nine B presents similar regressions for lump sum estimates.[193] While most of the results were similar to those for average monthly cost estimates, the female dummy did, however, behave differently in the lump sum regressions, with consistently negative coefficients in all four regressions and statistically significant coefficients for three quantile regressions. So, negative effects of gender on cost estimates identified early seem to reemerge with these lump sum regressions, suggesting that women's estimates are more likely to fall short of men's when dealing with lifetime costs as opposed to monthly budgets. The financial planner dummy was again consistently significant in all models. The coefficients for income quintiles and younger cohorts were not as consistently statistically significant as

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[193] Trimming of the top 1% of lump sum estimates eliminated responses with estimates in excess of $3.0 million on the fourth model.

with the monthly cost regressions, but they still retained the same basic structure as the analogous coefficients in the monthly cost regressions.

	(1) 25th Percentile	(2) Median	(3) 75th Percentile	(4) Log OLS Trimmed
Table Nine B: Examining the Correlates of Lump Sum Estimates with Quantile Regressions and Trimmed Log OLS				
Female	-10007.407*** (2602.090)	-14545.455* (7534.554)	-49946.667*** (16920.906)	-0.094 (0.177)
Younger Three Age Cohorts	3709.259 (2673.710)	7272.727 (7741.934)	57005.714*** (17386.635)	0.199 (0.172)
Second Income Quintile	157.407 (4231.914)	8181.818 (12253.835)	64171.429** (27519.343)	0.903*** (0.280)
Third Income Quintile	7261.111* (4012.512)	34090.909*** (11618.539)	78556.190*** (26092.613)	1.443*** (0.358)
Fourth Income Quintile	5000.000 (4494.106)	32727.273** (13013.032)	149893.333*** (29224.329)	1.612*** (0.285)
Fifth Income Quintile	28231.481*** (4425.940)	66363.636*** (12815.652)	214144.762*** (28781.058)	1.682*** (0.366)
Health Status	-2261.111 (1452.695)	3636.364 (4206.390)	14251.429 (9446.601)	-0.055 (0.111)
Educational Attainment	-485.185 (651.335)	4090.909** (1885.991)	7139.048* (4235.510)	0.183*** (0.043)
Consultation with Financial Planner	11842.593*** (2900.927)	35454.545*** (8399.860)	57192.381*** (18864.187)	0.529*** (0.177)
Constant	18896.296** (9302.138)	-26818.182 (26935.062)	-49786.667 (60490.062)	7.004*** (0.612)
Observations	1656	1656	1656	1637
Adjusted R^2/Pseudo R^2	0.001	0.003	0.004	0.123
F				16.914
Standard errors in parentheses Models One to Three utilize Quantile Regressions to estimate the coefficients; Model Four utilizes OLS. Quantile Regressions utilize unweighted data. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$				

The regression models presented in the preceding tables should be viewed with some caution. To begin, survey responses on cost estimates are difficult to model as they skew towards higher numbers with a fairly large number of outliers. While quantile regressions, trimming, and log transformations of dependent variables are all designed to mitigate those complexities, these adjustments may not offer complete solutions. In addition, the explanatory power of the models is limited, with quite low adjusted R-Squares and Pseudo R-Squares in all cases. That said, the correlations with income, use of financial planners, and educational achievement

seem reasonably robust.[194] Our survey responses, taken as a whole, did reflect the reality that wealthier respondents will likely spend more on healthcare costs in retirement as a result of a combination of progressive insurance premiums, higher consumption of healthcare services by the more affluent, and greater longevity. The strong performance of the financial planner dummy suggests that this kind of financial education may be associated with higher estimates of retiree healthcare costs, although causation here is unclear. While the negative correlation between the female dummy and cost estimates was not robust across all our regressions, the negative coefficients on female lump sum estimates were often statistically significant, and we certainly did not find any evidence that women were estimating higher healthcare costs than men, as experts suggest they should. On balance, our results suggest the possibility that women may well fail to appreciate that they face higher healthcare costs in retirement and, indeed, may be systemically underestimating costs as compared to men, at least with respect to their lump sum estimates.

C. ESTIMATING UNCERTAINTY: HEALTH, MEDICAL INFLATION, POLICY CHANGE

In the final module of our survey, we divided all respondents into two separate groups and asked each group a series of questions designed to elicit their assessment of three sources of potential risk for out-of-pocket healthcare expenses in retirement: variation in individual health experience, unanticipated medical cost growth, and changes in government policies with respect to Medicare and other government programs. As discussed earlier in our literature review, all three of the risks could be material. Variations in individual health experience could double to triple individual out-of-pocket costs above median levels, and government policy changes could as much as double them. Respondents across the board did not identify individual health and policy changes as the most salient risks, nor did they appreciate the extent to which these risks could increase their out-of-pocket spending for healthcare in retirement. Thus, we found that while respondents' understanding of typical out-of-pocket spending is variable, their understanding of uncertainty is pervasively low.

### 1. Group One: Assessments of Concern and Severity

For half of our respondents, we asked them to make a qualitative assessment of the risk that each form of uncertainty poses to future spending. First, we asked respondents in this group to evaluate on a four-point scale how concerned they were about each of the risks. Second, we asked them if the risk should materialize, how much more they would need to budget for out-of-pocket healthcare costs if they wanted to be "highly confident" of having sufficient resources to cover the costs.

In this formulation, respondents seemed to identify policy changes and medical inflation as being the greater sources of risk, but they underestimated the potential magnitude of both. In terms of level of concern, summarized in Figure Six, these two risks dominated across age cohorts. Again, this response is inconsistent with expert perceptions of the relative risk, which would clearly rank variations in individual

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[194] In other regression runs not reported here, we found the relationship between respondents' estimates and expectations regarding health insurance coverage were generally consistent with expert estimates of the relationship between supplemental coverage and total out-of-pocket costs. For example, respondents reporting higher expectations of having Medicaid coverage made lower estimates of out of pocket costs, while those expecting Medigap coverage estimated higher spending.

health experience, and probably also policy uncertainty, as a more significant risk than unanticipated medical inflation, especially for those at or near retirement for whom any inflation will have limited impact.

Figure Six: Self-Reported Concerns with Respect to Risks
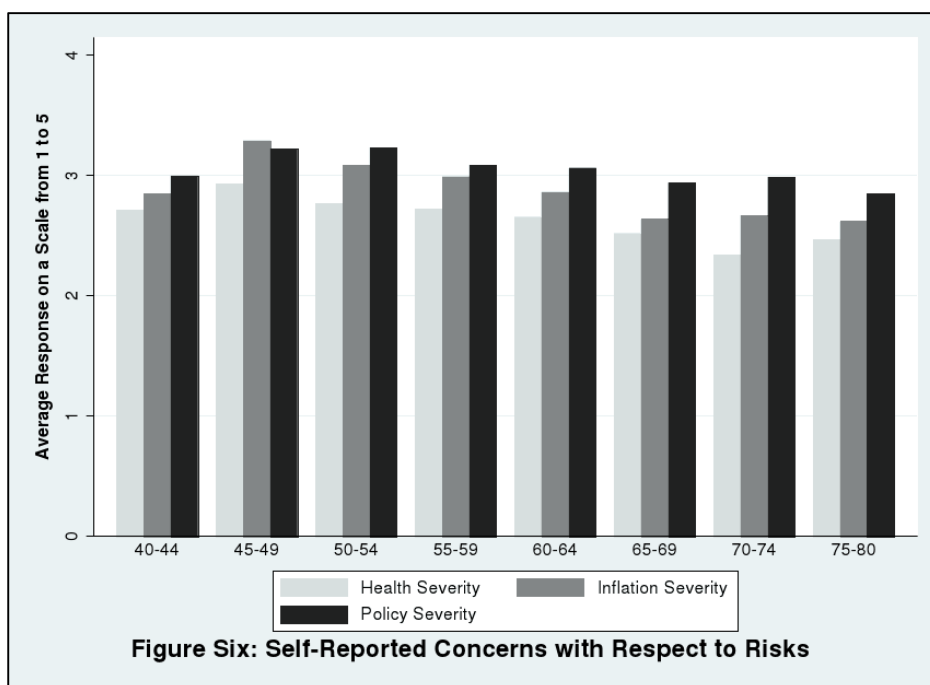
On the issue of how large of a financial impact respondents estimated that the risks could pose to their budgets, nearly all respondents underestimate the magnitude of these risks, especially with regard to individual health experience risk. Figure Seven reports responses for Individual Health Experience (on the left) and Policy Changes (on the right). For example, only a fifth of all respondents estimated that adverse individual health experience could lead to a more than 50% increase in out-of-pocket costs, although expert opinion suggests those who end up in the seventy-fifth or ninetieth percentile of out-of-pocket costs are likely to spend double to triple that of someone at the median.[195] Similarly, less than a third of respondents reported that they would need at least 50% more in financial resources to compensate for adverse changes in government policy, even though expert views are that some current reform proposals for Medicare could have a much larger effect.[196]

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[195] *See supra* note 121 and accompanying text.

[196] *See supra* note 134 and accompanying text. It is possible that our respondents chose a middle option out of the five multiple choice responses. Nonetheless, such random selection would suggest ignorance. Furthermore, answers with regard to individual health experience were skewed more toward the second choice and policy uncertainty toward the third, which confirms less concern with individual health experience than with policy uncertainty.

Figure Seven: Expected Budget Increases to Mitigate Health and Policy Risks
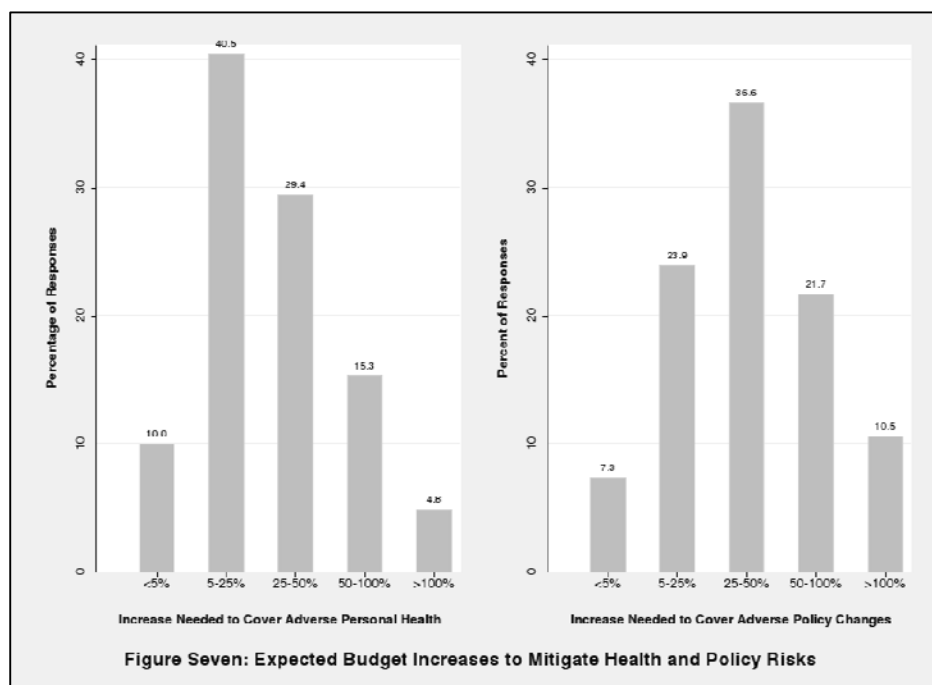
2. Group Two: Willingness to Pay

To gain an alternative perspective on the topic of risk, we posed questions to the other half in terms of their willingness to pay to be free of each of these specific risks.[197] As reported in Table Ten, the median respondent was willing to pay a monthly insurance premium of about $150 to be relieved from the risk of higher out-of-pocket costs from individual health experience. While it is difficult to know if this specific estimate is actuarially sound, what is most interesting is that the willingness to pay responses for each of these three questions were roughly similar. While the medians for responses on willingness to pay for protection against medical inflation and willingness to pay for protection against policy changes were a bit lower ($125 and $120, respectively) than the health experience analog ($150), the distributions were roughly comparable. Certainly, there is no indication in this data that respondents overall were especially concerned about individual health experience or policy changes; indeed the latter had the lowest median and distribution ranges of the three.[198] Nor was there strong evidence in our results that younger workers were particularly wary about risking healthcare costs. Responses to the other two willingness to pay questions suggest that younger respondents placed a

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[197] An illustrative question here read as follows: "Research suggests that health care expenses in retirement can vary considerably from individual to individual based on differences in the health of individuals and their medical needs. As a result, out-of-pocket costs for some individuals can be much higher than those of the average retiree. How much would you be willing to pay each month for an insurance policy that fully protected you from incurring out-of-pocket costs higher than those of the average retiree, regardless of your own health or medical needs?"

[198] The cohort on the eve of retirement, ages sixty to sixty-four, did, however, skew somewhat higher at the top end of the distribution in their willingness to pay for insurance against policy changes and against high individual healthcare costs.

higher value on protection against bad individual health experience and policy changes than did older respondents, but even there the trends were not especially strong. Thus, our primary takeaway from this inquiry into risk assessment is that respondents did not sharply distinguish across type of risks nor were younger workers markedly more concerned about unanticipated inflation or even policy changes than older respondents.

Table Ten: Willingness to Pay for Protection Against Three Risks								
	N	p10	p25	Median	p75	p90	Mean	SD
Protection Against High Costs from Individual Health Experience	834	$30	$75	$150	$300	$600	$574	4510.7
Protection Against High Costs Unanticipated Inflation in Medical Costs	833	$20	$50	$125	$250	$500	$341	1364.6
Protection Against High Costs form Adverse Policy Changes	833	$10	$50	$120	$250	$500	$442	3434.2

To be sure, there are considerable complexities in interpreting individual assessments of financial risks, but the responses to this module of our survey suggest to us that our respondents had difficulty distinguishing among sources of risk and may in some areas substantially underestimate the extent of the potential risk, in particular with regard to their own individual health experiences.

IV. DISCUSSION AND RECOMMENDATIONS

This article offers a starting point for investigation of the timely and important issue of Americans' expectations about their likely out-of-pocket healthcare expenditures in retirement. The evolving structure of healthcare benefits and regulation aims to promote greater individual autonomy and decision-making and rests on the assumption that individuals can make good decisions. Our analysis suggests places where lack of knowledge could impede sound decision-making. In Part A of this final section, we discuss key takeaways from our research. In Part B, we consider ways to increase financial security for retirees through improved financial planning and greater insurance protection.

A. DISCUSSION OF FINDINGS AND FURTHER RESEARCH

1. Point One: Quality of Overall Estimates and Demographic Variation

a. Overall Estimates

One unexpected insight from this study was identifying instances in which many respondents' answers were similar to expert estimates. Many respondents' estimates of likely out-of-pocket healthcare expenditures in retirement accord with expert estimates of likely spending. A substantial fraction of respondents offered estimates of out-of-pocket expenditures in retirement that were at or above median expert estimates. This was true for both estimates of average monthly expenses and for lump sum estimates. In many instances, a quarter of respondents made cost estimates that were above the seventy-fifth percentile of expert projections. So, a substantial

share of respondents' estimates mapped onto the upper end of experts' predicted distribution of retiree healthcare costs. As emphasized above, we cannot be confident that the respondents who estimated higher retiree health costs are the individuals who will actually incur those costs. Still, the number of respondents giving relatively high out-of-pocket healthcare cost estimates was greater than we had anticipated, and even the median estimate for monthly costs was closer than we had expected to the median expert estimate. Overall, respondents offered sensible answers with regard to life expectancies and projections of increasing healthcare costs in the last year of life. Respondents' estimates about likely insurance coverage in retirement were not far from actual coverage levels, even if somewhat overly optimistic with regard to likelihood of future Medicaid or ESI coverage.

Notwithstanding the foregoing, there are aspects of our findings that raise concerns. While nearly 40% of the population estimated above expert median estimates for monthly spending, over half of our respondents' estimates were below the twenty-fifth percentile expert benchmarks. By definition, if the expert estimates are accurate, at least half of those estimating costs below the twenty-fifth percentile are underestimating future costs. With regard to lump-sum targets, median responses were a half to a fifth of expert median estimates for men and women, respectively, suggesting that a very large fraction of our respondents were seriously underestimating the amount of savings they would need to accumulate in order to cover healthcare costs in retirement, and a disproportionate number of men (65%) and women (79%) offered estimates below the median expert benchmark.[199]

On the other end of the distribution, respondents with the highest lump sum estimates might—if these outlier estimates are genuine—be engaged in overestimation that discourages actual savings. What is striking is the unexpected overestimation—often by substantial amounts—of reported lump sums, as compared to implied lump sums based on life expectancies and monthly projections. Some individuals may be radically *overestimating* their savings needs for retiree heath in a way that could discourage actual savings out of a sense of futility. This finding warrants additional work and suggests that there may be potential to show people that achieving sufficient savings might be more feasible than they imagine.

The degree to which younger cohorts' expectations are especially deficient in comparison to older cohorts is less clear but suggests an important area for further investigation. On some survey responses, younger cohorts did seem to expect higher costs, as in the case of future Medicare premiums, as experts project. However, in assessing average monthly costs of retiree healthcare and lump sum estimates of required savings, younger cohorts reported only slightly greater estimates than older cohorts. While interpretation of these responses is ambiguous, our results raise the possibility that younger cohorts are materially underestimating their out-of-pocket costs for healthcare in retirement. They might be particularly good targets for efforts to improve financial planning while at a point in the lifecycle—during their working

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[199] As discussed above, a number of reasons could explain why respondents fell somewhat further beneath expert benchmarks for their lump sum estimates than they did for monthly cost estimates. In part, the difference could be a result of respondents somewhat underestimating their likelihood of surviving to age seventy-five. In addition, respondents may have had difficulty in calculating what is essentially the NPV of expected healthcare costs, although, as noted above, our implied lump sum analysis suggests that at least some respondents erred in overestimating the NPV equivalent of their projected monthly costs discounted by self-reported life expectancies. In addition, some respondents may have misinterpreted our question about lump sum estimates. Finally, our benchmark studies are based on somewhat different assumptions and do not perfectly align with each other.

years—where it may still be possible for some individuals to plan successfully for future expenditures.

b. Demographic Variation

As discussed above, respondents' estimates varied appropriately and significantly according to only some of the factors that experts report are predictive of future spending. Regression analysis showed our respondents' estimates were directionally correct in some regards. For example, our higher income respondents estimated relatively higher out-of-pocket spending, consistent with expert studies of spending. In addition, respondents' expected levels of insurance coverage corresponded with variations in their estimates of out-of-pocket costs consistent with what experts report.[200]

The places where respondents seem least sensitive to the fact that demographic factors might cause them to have higher baseline spending suggest targeted opportunities for intervention. The women in our survey showed a dramatically less acute understanding of future out-of-pocket expenditures than the men in our survey with regard to lifetime spending estimates. Even similar estimates given by men and women would be reason for concern in light of the evidence that women spend significantly more than men on out-of-pocket healthcare over the course of retirement. Yet women offered lower *absolute* lifetime spending estimates than men, suggesting both less knowledge of spending and possible insensitivity to the fact that women spend more than their male counterparts.

Assuming our data is correct, it is difficult to know why this gender gap exists. Our women respondents may underestimate for the same reasons that women, even college-educated women, lag behind men on measures of financial literacy and numeracy, as evinced repeatedly in studies.[201] It is possible that many of these women have relied on another individual for household financial management. Regardless of the explanation, women are particularly financially vulnerable in retirement if they fail to anticipate this source of significant future costs.

This finding confirms the need to close the gender gap that leaves women behind in matters of mathematics and finances, a problem with roots much deeper than we can examine here. One more modest option is to focus efforts to improve financial planning on women, in particular, as examined in Part B.1 below. More ambitiously, we might reconsider the wisdom of an insurance system that leaves many women with little income in retirement but, even at the median, subject to 50% more spending than the typical man, even before factoring in long-term care costs.

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[200] *See supra* note 194.

[201] Annamaria Lusardi, *Financial Literacy: An Essential Tool for Informed Consumer Choice?* 2 (Nat'l Bureau of Econ. Research, Working Paper No. 14084, 2008) (explaining that financial "[i]lliteracy is widespread among the general population and particularly acute among specific demographic groups, such as women"); Dan Kadlec, *Women and Money: Even College Grads Flunk Personal Finance,* TIME (June 28, 2012), *available at* http://moneyland.time.com/2012/06/28/women-and-money-even-college-grads-flunk-personal-finance/ (describing a new study that reports low financial literacy scores for women); Annamaria Lusardi & Olivia Mitchell, *Financial Literacy and Retirement Planning: New Evidence from the Rand American Life Panel* 10 (Mich. Retirement Research Ctr., Paper No. WP 2007-157, 2007), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1095869; *see also* Annamaria Lusardi et al., *Financial Sophistication in Older Population* 11 (Nat'l Bureau of Econ. Research, Working Paper No. 17863, 2012).

c. Further Research

Our research suggests several important directions for further study. As a preliminary matter, based on what we learned in our literature review, we note the need for better collection of data on out-of-pocket healthcare costs and greater consistency in how these costs are defined and measured as a foundation for any of the approaches discussed. As healthcare costs continue to increase and politicians debate reform proposals, policymakers need to have better data on the current distribution of out-of-pocket cost for retirees and the implications of competing reform proposals on these costs. The lack of consistent, quality data makes it difficult to address a healthcare spending problem when there is disagreement on the definition and magnitude of the problem among the experts in this field.

While policy implications of this work, discussed below, focus on respondents who underestimate the magnitude of retiree healthcare costs and the risks associated with those costs, further study into the respondents with estimates of retiree healthcare costs above experts' median projections would also be valuable. While our survey design did not offer insight into how these respondents came up with their estimates, there are a number of reasons why a substantial portion of the population might have a "ballpark sense" of retiree out-of-pocket healthcare costs. At least in the case of monthly cost estimates, our respondents may merely offer a small, non-zero guess of a couple of hundred dollars in response to a question that implied the existence of some costs. Alternatively, as healthcare costs and premiums are pervasive throughout life, respondents could possibly be inferring retirement costs from their own prior and current experience. Or they might also have familiarity with parents' or acquaintances' experiences with Medicare and other forms of supplemental retiree coverage. Or, consistent with our finding that consultations with financial planners are positively correlated with cost estimates, some respondents may have benefitted from financial education. Understanding the thought processes of individuals who came up with cost estimates within the range of expert predictions would inform how to reproduce similar results with others.

Another important question to explore is the extent to which higher estimates of retiree healthcare costs are associated with higher levels of dedicated savings for these costs or other forms of financial planning that make these individuals better prepared to finance these expenditures in retirement. In other words, does specific knowledge of retiree healthcare costs make individuals better prepared to bear those costs? Similarly, it would be valuable to ascertain whether severe overestimation of retiree health costs dampens retirement savings on the grounds, suggested above, that overly high estimates provoke savings futility. In short, further study of the relationship between estimates of retiree healthcare costs and actual financial planning behavior would provide a crucial link for future reforms.

2. Point Two: Uncertainty and Risk

Our findings, while tentative here, suggest that people struggle to gauge the variability in spending they might face due to three key drivers of future spending uncertainty: (1) variation in individual health experience among retirees; (2) unanticipated medical cost growth; and (3) changes in government policies with respect to Medicare and other government programs that could increase out-of-pocket costs for some or all retirees. In other words, respondents did not understand the potential that they might face debilitating and unpredictable future spending.

Most—but not all—of our respondents identified all of these sources of uncertainty as causing concern, but they failed to effectively distinguish between the magnitude of each. In particular, it seems that our respondents underestimated the risk posed by relatively high individual health expenditures. While this risk is arguably the greatest of the three risks for anyone now nearing or in retirement, our respondents did not unambiguously identify it as greater than the others and underestimated the magnitude of variability in spending they might face if they were in the upper end of the spending distribution. They arguably also underestimated the magnitude of potential spending variability due to policy change, especially at a moment in time when Medicare is vulnerable to fundamental changes.

Failure to appropriately account for spending uncertainty would mean that even those retirees with responses similar to experts' median estimates might be unprepared to finance future costs if any of the above risks came to fruition. Furthermore, when making insurance selections and purchases, they might not accurately consider the risks against which they need to protect. For example, a retiree aware of and in a position to finance median out-of-pocket spending for someone like herself could nonetheless face financial crisis if she experiences a serious health problem or develops a chronic condition that propels her into the ninetieth percentile of spenders, leading to costs double what she planned to finance. Failure to comprehend the potential implications of policy reforms, such as major changes in Medicare and Medicaid programs, could also inhibit informed engagement in political debates on entitlement reform.

The difficulty that consumers face in comprehending and managing risk is a recurring theme in academic studies on cognitive processing and retirement planning, with work on the annuity puzzle being perhaps the most familiar example.[202] In light of this work, our findings on the inability of respondents to understand the potential levels of variability of future spending are hardly surprising. Retiree healthcare costs are, in essence, a negative annuity that depends on a host of imponderables including life expectancies, individual healthcare experience, policy changes, and changes in healthcare costs. It is surprising enough that many respondents were able to make plausible ballpark estimates of typical costs; it would have strained credulity had they also apprehended risks and uncertainty correctly. Still, these cognitive limitations have important implications for insurance design, regulation, and policy, as discussed below.

B. POLICY RECOMMENDATIONS

Our findings suggest two distinct problems that could hamper retirees' ability to finance out-of-pocket healthcare spending. Point One above addresses ways in which retirees fail to anticipate likely future expenditures, even for a typical retiree. The design of our current system for financing retiree healthcare costs implicitly assumes that most retirees will plan to finance these costs. Places where we observe underestimation suggest opportunities to improve knowledge of and/or financial planning for retiree healthcare expenditures, as discussed in the first section below.

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[202] For an overview of cognitive biases with respect to risk and uncertainty, see Christine Jolls & Cass R. Sunstein, *Debiasing through Law*, 35 J. LEGAL STUD. 199, 203-25 (2006). *See also* Howell E. Jackson, *Accounting for Social Security Benefits*, *in* BEHAVIORAL PUBLIC FINANCE 261, 271-75 (Edward J. McCaffery & Joel Slemrod eds., 2006). For an overview of the annuitization puzzle with a helpful review of the literature, see Jeffrey Brown*, Understanding the Role of Annuities in Retirement Planning*, *in* OVERCOMING THE SAVINGS SLUMP: HOW TO INCREASE THE EFFECTIVENESS OF FINANCIAL EDUCATION AND SAVINGS PROGRAMS 178-206 (Annamaria Lusardi ed., 2008).

Point Two discusses our finding of a widespread misapprehension of level of spending variability—a problem that may be best addressed with an insurance response, as discussed in the last section below.

1. Improving Financial Planning: Opportunities and Challenges

While our findings suggest that the overall financial literacy gap with regard to out-of-pocket costs may be smaller than we anticipated for at least some portion of the population, our results suggest some areas in which well-targeted efforts might help people better understand and plan for healthcare spending in retirement.

For example, targeting efforts at women may be productive in light of the fact that women live longer than men and will need to manage out-of-pocket spending for more years and, for those who outlive a spouse or partner, on their own. Likewise, efforts focused on younger working-age individuals might also be valuable during a time when they are in the best a position to save more. Especially if interest rates remain low and healthcare costs continue to outpace GDP growth, they may need to save considerably more than anticipated.

Our findings do not point toward any one particular approach to improve planning. A healthy debate exists in the literature over whether education or approaches that more directly shape behavior, based on defaults or incentives, are more welfare-promoting. One way to address a knowledge deficiency would be through financial education to bring individual expectations more in line with expert estimations. Especially to the degree people might be focused on accumulating sufficient savings for future healthcare needs,[203] priming them to consider the magnitude of this particular category of future costs could be an effective way to motivate more saving.[204] Supporters of financial education approaches argue that such an approach allows people to make decisions based on individual preferences, rather than presuming one-size-fits-all solutions (as savings defaults might do).[205] For educational efforts to be effective, consumers must be capable of understanding the information provided and able and willing to respond to it.[206]

Results of financial education programs undertaken by employers and the government have been mixed,[207] and there is healthy skepticism among some scholars of their value.[208] More information alone, for example, might not lead to greater understanding. The anchoring in our treatments, designed to simulate financial education, had surprisingly little effect on total monthly costs or lump sum

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[203] De Nardi et al., *supra* note 11, at 72-73 (describing the strong effect of future healthcare spending needs on savings).

[204] Of course, individuals do not need to be primed to save an amount sufficient to cover total retiree healthcare costs. *See generally* Barbara A. Butrica et al., *The Changing Impact of Social Security on Retirements Income in the United States,* SOC. SEC. BULLETIN, no. 3, 2003/2004, *available at* http://www.ssa.gov/policy/docs/ssb/v65n3/v65n3p1.pdf. As a result of social security, most American have some amount of annuity income in retirement and a portion of that income could be used to support monthly costs. *Id.* Thus, sensible financial planning for retiree healthcare costs might consist of a combination of precautionary savings and budgeted monthly costs.

[205] Amir & Lobel, *supra* note 19, at 20 ("[P]erhaps more than with some policy fields . . . health policy cannot be simply about directing healthy behavior but must aim for an understanding of how individuals reason and decide.").

[206] *See* Daniel Schwarcz, *Transparently Opaque: Understanding the Lack of Transparency in Insurance Consumer Protection* 9, 18-19 (Minnesota Legal Studies Research Paper Series, Paper No. 12-35, 2012), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2130908.

[207] Lusardi, *supra* note 15, at 20-23 (describing the mostly ineffective results of financial education programs).

[208] *See* Schwarcz, *supra* note 208, at 18-19.

estimates, which suggests that education would have to consist of more than simple reporting of typical costs. Furthermore, if the healthcare financial literacy gap we are observing is part of a larger innumeracy problem, especially for women, efforts to improve planning will require improving numeracy so that women have both the information and the tools to make good decisions.

To the extent it might be difficult or inefficient to improve financial security through education or among boundedly-rational consumers, more deliberate interventions might be more effective. For example, the use of choice architecture approaches could prompt increased savings. Such approaches have been shown to bolster overall retirement savings.[209] Alternatively, recent financial literacy work has suggested the effectiveness of an intermediate approach, using planning aids that guide people through financial decisions at critical decision moments, instead of using either generalized education seminars or strong defaults.[210] Further research would have to investigate which of these types of efforts could in fact increase savings for healthcare out-of-pocket spending without cannibalizing other retirement savings or necessary current consumption.

These approaches presume that at least some portion of the population that underestimates future spending needs could better plan for these costs if desired. A major limitation of any of these approaches is the degree to which those underestimating expenditures are unable to save more or much more than they currently do without undesirable tradeoffs, which is likely true for at least part of our respondent population. As noted above, we saw a correlation between lower estimates and lower income levels, and at least one study suggests that healthcare savings incentives have limited effect for some of the population because of income constraints.[211] Despite such limitations, if targeted efforts to improve financial planning for out-of-pocket healthcare spending have some positive effect,[212] they could reduce unanticipated financial insecurity, especially for particularly vulnerable subgroup populations, while also limiting avoidable reliance on healthcare safety nets, including Medicaid.

2. Improving Risk Protection: Implications for Insurance Design and Policy Reforms

Addressing respondents' deficiencies in understanding spending uncertainty is more complex. Studies have repeatedly shown that individuals systematically misperceive risk[213] and suggest that risk-education efforts can be an uphill battle.[214]

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[209] *See supra* note 19 and accompanying text; *see also* Lusardi, *supra* note 15, at 23-26 (discussing studies showing the effectiveness of default programs for savings, including the lauded Save More Tomorrow (SMarT) program devised by Richard Thaler and Shlomo Benartzi that increases default savings rates as employees' income increases).

[210] *See* Lusardi, *supra* note 15, at 26-20 (discussing efforts to simplify decisions to save, without using strong defaults).

[211] FISHMAN, *supra* note 5, at ix (reporting the effects incentives programs have on savings for low-income populations).

[212] *Id.*

[213] *See* THALER & SUNSTEIN, *supra* note 19, at 72 (describing cognitive biases that might produce undesirable results even in the face of perfect knowledge); Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics,* 88 CALIF. L. REV. 1051, 1084-85 (2000) (discussing studies showing individual biases in decision-making in the face of uncertainty).

[214] *See* Michael Bond, *Risk School,* 461 NATURE 1189, 1191 (2009) (describing debate over whether people can be taught to understand risk and make well-informed decisions based on it or whether it is more appropriate for regulators to guide consumers to better risk decisions through a "nudge approach"). *But see* Jeffrey J. Rachlinski, *The Uncertain Psychological Case for Paternalism*,

Furthermore, for many low- to middle-income Americans, knowledge that they might face future healthcare expenditures two or three times higher than median expenditures will do little to help them save for expenditures at these levels or to obtain sufficient insurance protection, especially in the current insurance marketplace. We briefly describe two possible approaches to improve risk protection in light of misperceptions of uncertainty.

a. Low Risk Insurance Policies: Promoting Transparency and Uptake

To the extent that insurance options that protect against catastrophic spending are available and affordable, there may be opportunities to help consumers better identify and choose supplemental insurance that offers more protection against spending variability.[215] A first step would be to increase enrollment among the two-thirds of the eligible population not enrolled in the Medicare Savings Programs and Low-Income Subsidy program for prescription drugs, discussed above, which limit Medicare premiums and cost-sharing for lower-income individuals.[216]

For others, one starting point might be requiring greater transparency with regard to spending variability in insurance options. Individuals must choose among Medicare options and supplemental insurance programs without meaningful guidance on how different options mitigate the risk of debilitating healthcare expenditures in retirement. The menu of choices is overwhelming for even a savvy consumer.

Regulatory reforms could make this choice easier. Insurance regulation requires disclosure of certain information, such as deductibles, co-pays, and annual and lifetime limits, but does not make transparent residual out-of-pocket payment risks that fall to policy holders at different levels of healthcare utilization.[217] This means that even astute, risk-averse individuals are unable to identify the lowest-risk policies. What consumers would need to understand to manage spending risk is the range of possible individual costs under various supplemental insurance options. For example, supplemental Medigap policies could provide a graph that illustrates the total out-of-pocket spending distribution (premiums plus direct costs) among all enrollees in a particular plan. The buyer could compare potential spending if he is at the twenty-fifth, fiftieth, seventy-fifth, and ninetieth percentile of enrollees in one plan against his exposure at the same levels of spending in another. Regulators could require the collection of this data and require that insurers disclose it in ways that

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97 Nw. U. L. Rev. 1165, 1206-19 (2003) (describing how understanding the heuristics that people use in decision-making can be the basis for policies to help them make better decisions).

[215] *See, e.g.,* On Amir & Orly Lobel, Risk Management for the Future: Age, Risk and Choice Architecture 19-23 (July 9, 2012) (unpublished manuscript), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2102541 (discussing use of choice architecture to help especially older people make more future-oriented, less risky choices).

[216] *See* Dorn & Shang, *supra* note 38 (discusses strategies for increasing MSP enrollment).

[217] PPACA attempts to address this shortcoming for working-age populations by requiring reporting on the actuarial value of policies that will be sold in the new health exchanges; despite good intentions, actuarial value may be too complicated a measure for most consumers to translate into likely personal spending. *See* Ryan Lore et al., Commonwealth Fund, Choosing the "Best" Plan in a Health Insurance Exchange: Actuarial Value Tells Only Part of the Story 6 (2012), *available at* http://www.commonwealthfund.org/~/media/Files/Publications/Issue%20Brief/2012/Aug/1626_Lore_choosing_best_plan_HIE_actuarial_ib_v2.pdf. Also pursuant to PPACA, the National Association of Insurance Commissioners (NAIC) developed a new form for summaries of coverage. *See* NAIC, Sample Completed Summary of Coverage (2012), *available at* http://www.naic.org/documents/committees_b_consumer_information_hhs_dol_submission_1107_soc_populated.pdf.

consumers can reasonably understand. If consumers understood and used this data as an important criterion when buying a policy, insurers might offer more policies that limit exposure to levels consumers prefer.

On the other hand, as noted above, work in psychology and behavioral law and economics suggests that risk is a concept that is generally not understood, and decisions with regard to uncertain future events are particularly prone to cognitive error.[218] Greater transparency may not increase uptake of lower-risk policies if consumers struggle to grasp and systematically underestimate the risk they face individually. To promote greater financial security in an uncertain and cognitively complex environment, regulatory approaches could guide consumers to adopt supplemental policies with more catastrophic risk protection. Medicare has recently begun to steer retirees toward higher-rated Medigap policies;[219] one could imagine using risk protection as a criterion for such steering.

b. Medicare Policy Reforms

Alternately, Medicare and supplemental insurance could be redesigned to simplify choices and to reduce spending risk across the board, rather than to trying shape insurance choices among problematic options. Such an approach would be especially attractive to the extent policymakers agree better risk protection would be universally beneficial. The EBRI benchmark study projects a 2020 retiree with wraparound Medicare (including supplemental Plan F "catastrophic" coverage) will spend over $300,000 over retirement if at the ninetieth percentile of spending. Getting to these high levels likely requires a combination of many sources of high out-of-pocket spending, including Part B, D, and Medigap premiums and significant spending on prescription drugs and services not covered by insurance. Few Americans, even if armed with perfect information and comprehension of that information, could manage such levels of out-of-pocket spending.

Regulators could redesign basic Medicare or Medigap policies to simplify coverage and reduce exposure to high out-of-pocket costs for those with intensive medical needs. For example, one proposal for "Medicare Extra" offers a simpler way to fill Medicare's gaps with a single "Medicare E" policy; the authors' analysis suggests their proposed approach would limit exposure with no increase to governmental or individual out-of-pocket spending.[220] Policies might also trade off a degree of first-dollar coverage for more catastrophic protection. Regulators would need to tread carefully in this space to avoid the fate of an earlier policy attempt to limit catastrophic exposure, the Medicare Catastrophic Coverage Act, which was repealed shortly after passage,[221] and to design policies in a way that is neither regressive nor detrimental to retirees' health.[222] PPACA directs increased cost-

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[218] *See* THALER & SUNSTEIN, *supra* note 19, at 72 (describing cognitive biases that might produce undesirable results even in the face of perfect knowledge); Korobkin & Ulen, *supra* note 215, at 1091-92 (describing overconfidence biases).

[219] Marsha Gold, *An Illustrative Analysis of* Medicare Options Compare: *What's There and What's Not?*, 27 INSIGHT ON ISSUES, April 2009, *available at* http://assets.aarp.org/rgcenter/health/i27_options.pdf.

[220] *See* Karen Davis et al., *In the Literature: Medicare Extra: A Comprehensive Benefit Option for Medicare Beneficiaries*, HEALTH AFF. (Oct. 2005), http://content.healthaffairs.org/content/early/2005/11/15/hlthaff.w5.442.short.

[221] *See generally* Thomas Rice et al., *The Medicare Catastrophic Coverage Act: A Post-*Mortem, 9 HEALTH AFF. 75 (1990) (describing factors that explain the repeal of this Act that attempted to limit the catastrophic costs a retiree might face by imposing additional taxes on higher-income elderly).

[222] A study of several Medigap reform proposals that attempt to control the growth in Medicare

sharing in Medigap plans to reduce usage of Medicare Part B physician services, [223] which could offer a window of opportunity to simultaneously strengthen catastrophic protection without increasing premiums. In addition, as part of Medigap reform, the Simpson-Bowles commission, the Obama Administration, and others have proposed simplifying Medicare cost sharing.[224] These proposals would all make it easier for beneficiaries to navigate Medicare and supplemental coverage options in ways that promote their future financial security.

At the very least, in an environment where we expect individuals to manage complex financial planning, policymakers should strive to make it easier—not harder—for them to make successful choices. Changes to Medicare and Medicaid policy may be necessary in the coming years to stem the increasing share of governmental spending on healthcare. Controlling public expenditures on retiree healthcare costs is a critical component to restoring balance to federal fiscal policies. Many reform proposals contemplate shifting a portion of these costs back to retirees, either through reducing the generosity of Medicare payments or scaling back the scope of Medicaid support for the elderly. While these proposals are often discussed in terms of aggregate deficit reduction or the cost-shifting to typical retirees, attention must also be given to the implications of these reforms on the risks imposed on individual retirees, especially on those with high individual medical costs. Beyond scoring the aggregate financial effects of reforms, policy analysts should also take into account the distributional consequences of reform. At a minimum, public debate over entitlement reform should be informed through clear understanding of the distributional consequences of competing reform proposals on a population that may struggle to understand how such reforms could affect their future financial security.

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spending by increasing cost-sharing, with varying limits on total out-of-pocket costs, showed cost reduction for most enrollees but cost increases for about 21%, disproportionately affecting those in fair/poor health and lower-income enrollees. HENRY J. KAISER FAMILY FOUND., MEDIGAP REFORMS: POTENTIAL EFFECTS OF BENEFIT RESTRICTIONS ON MEDICARE SPENDING AND BENEFICIARY COSTS v (2011).

[223] *See* Patient Protection and Affordable Care Act of 2010, Pub. L. No. 111-148, § 3210, 124 Stat. 119, *amended by* Health Care and Education Reconciliation Act of 2010, Pub. L. No. 111-152, 124 Stat. 1029 (codified as amended in scattered sections of 42 U.S.C.).

[224] LINEHAN, *supra* note 55, at 11 (describing proposals from the Simpson-Bowles commission, the Congressional Budget Office, and the Obama Administration); *see also* Amanda Cassidy, *Health Policy Brief: Putting Limits on 'Medigap,'* HEALTH AFF. (Sept. 21, 2011), http://www.healthaffairs .org/healthpolicybriefs/brief.php?brief_id=52.

APPENDIX: SURVEY INSTRUMENT

The survey instrument had eight sections and three different treatments. Not all treatments contained questions from all eight sections or included all available questions within each section. All participants received the same introductory questions within Section 1. Participants were randomly assigned to one of three basic treatments. Additionally, participants were randomly assigned one of the two sets of questions in Section 8. Below is the survey language of Section 1, followed by the language used for each treatment from Sections 2-7, and then the language of Section 8. Italicized words are explanatory but were not included in the actual survey text. Language within brackets refers to conditional questions.

SECTION 1: INTRODUCTORY QUESTIONS

Introduction

In this survey, we will be asking about health care costs in retirement. But first we want to start with a few questions about your own health and financial planning.

Question 1
First, how would you characterize your health now?
Answers:
1-Excellent
2-Very Good
3-Good
4-Fair
5-Poor

Question 2
Are you familiar with government programs and other insurance plans that might cover your health care expenses in retirement (with 10 being extremely familiar and 1 being not very familiar)?
Answers: scale from 1-10

Question 3
How much attention do you give to monthly health care costs and other expenses (with 10 being a lot of attention and 1 being not very much attention)?
Answers: scale from 1-10

Question 4
Have you ever consulted a financial planner about your retirement?
Answers:
1-Yes
2-No
3-Don't Know/Can't Remember

TREATMENT A

SECTION 2: INSURANCE COVERAGE

Introduction

   In this survey, we want to find out how much you expect to pay for health care in retirement. We are interested in your out-of-pocket costs. Out-of-pocket costs are any expenses that you pay yourself. In addition to any direct payments, these costs include insurance premiums for government programs and other health insurance plans. Out-of-pocket costs also cover deductibles and co-pays. Out-of-pocket costs do not include payments made on your behalf or reimbursed by government programs or other insurance plans. In all cases, we are asking about your own personal health care costs in retirement. Do not include health care costs of other members of your household. Unless otherwise indicated, please do not include in your estimates the cost of long-term residential health-care services (such as extended stays in nursing homes) or premiums for long-term health care insurance. Some questions ask for estimates about costs in the future. Please do not attempt to adjust your estimates to reflect price increases from overall inflation. Just make your estimates using the value of money today.

SECTION 3: LIFE EXPECTANCY

Introduction

   Planning for retirement is hard because we do not know how long we will live. We would now like to get a better sense of how you think about your own life expectancy. We would like to know how likely you think it is that you will live beyond certain ages. If you are very confident you will live beyond a certain age, you should click on the right side of the ruler, towards the upper end of the range. If you are less confident you will live beyond the age, you should click on the left side of the ruler and the lower end of the range.

   Question 1 [*asked if age < 65*]
   How likely do you think it is that you will live beyond the age of 65?
   Answer choices: probability range from 1 to 100
   Question 2 [*asked if age < 75*]
   How likely do you think it is that you will live beyond the age of 75?
   Answer choices: probability range from 1 to 100
   Question 3 [*asked if age < 85*]
   How likely do you think it is that you will live beyond the age of 85?
   Answer choices: probability range from 1 to 100
   Question 4 [*asked if age < 95*]
   How likely do you think it is that you will live beyond the age of 95?
   Answer choices: probability range from 1 to 100
   Question 5 [*asked if age < 105*]
   How likely do you think it is that you will live beyond the age of 105?
   Answer choices: probability range from 1 to 100

SECTION 5: OUT-OF-POCKET COST EXPECTATIONS

Introduction

For the next questions, we would like you to estimate your total monthly out-of-pocket costs in retirement. Your estimates should include all premiums for any government programs or health care insurance plans. You should also include other out-of-pocket costs for health care expenses that you pay directly. Recognizing that these expenses may vary from month to month, please estimate your average monthly expenses.

Question 1

What do you expect your total monthly out-of-pocket costs to be on average? Please give your response in terms of dollars per month.

Answer choices: any number

Question 2

It may be hard to think about this, but during the final year of your life, what do you expect your total monthly out-of-pocket costs to be on average? Please give your response in terms of dollars per month.

Answer choices: any number

SECTION 6: LUMP SUM ESTIMATES

Question 1

In planning for retirement, some individuals like to think in terms of how much money they would need to save by the time they turn 65 in order to have enough money to cover out-of-pocket costs in retirement. Imagine that you were asked to give advice to someone with similar preferences and health characteristics as your own. If such a person wanted to have enough money to cover a reasonable estimate of their total out-of-pocket costs for health care in retirement, how much do you think they would need to have set aside? Please give your answer in terms of the total amount of dollars needed at age 65.

Answer choices: any number

[*If the answer given was less than $1,000, the survey displayed the following prompt*:

Are you sure savings of only _____ at 65 would be enough to cover out-of-pocket costs in retirement? Please go back and check your answer.]

SECTION 7: LONG-TERM CARE

Introduction

The following questions concern the costs of long-term residential health care services, such as nursing home care or an assisted living facility. Long-term residential health care services include extended stays in nursing homes or assisted living facilities and also extended assistance with activities of daily living (eating, dressing or bathing) at home by home health aides.

Question 1

If you were to maintain a separate insurance policy for long-term residential health care services in retirement, how much do you think the policy would cost for someone like you? Please give your estimate in terms of dollars for a monthly premium.

Answer choices: any number

Question 2

If you were not to maintain a separate insurance policy for long-term residential health care services, how much would you expect your out-of-pocket costs to be for a month of residential nursing home care?

Answer choices: any number

SECTION 8A: RISK FACTORS – INSURANCE

Introduction

In this final set of questions, we ask you to consider several factors that might increase your out-of-pocket costs for health care in retirement and to consider how much you would be willing to pay each month in order to eliminate these risks.

Question 1

Research suggests that health care expenses in retirement can vary considerably from individual to individual based on differences in the health of individuals and their medical needs. As a result, out-of-pocket costs for some individuals can be much higher than those of the average retiree. How much would you be willing to pay each month for an insurance policy that fully protected you from incurring out-of-pocket costs higher than those of the average retiree, regardless of your own health or medical needs?

Question 2

In recent years, health care costs have increased faster than the overall rate of inflation, and some have expressed concern that health care costs may continue to increase faster than overall inflation. How much would you be willing to pay each month for an insurance policy that fully protected you against any unexpected acceleration in the rate of inflation of health care costs?

Question 3

In recent years, policy analysts have been discussing whether changes in Medicare and other government programs will be necessary to address the problems of federal government deficits. Some have expressed concern that such changes could reduce government support for retiree health care and increase the amount that retirees must themselves pay for health care costs. How much would you be willing to pay each month for an insurance policy that fully protected you from incurring additional out-of-pocket costs as a result of any changes in Medicare or other government programs?

SECTION 8B: RISK FACTORS – QUALITATIVE

Introduction

In this final set of questions, we ask you to consider various factors that might increase your out-of-pocket costs for health care in retirement.

Question 1

Research suggests that health care expenses in retirement can vary from individual to individual based on differences in the health of individuals and their medical needs. How concerned are you that your own out-of-pocket costs might be higher than average based on your own health and medical needs?

Answer choices:

1-Not concerned at all

2-A little concerned

3-Quite concerned

4-Extremely concerned

Question 2

If your personal health care expenses in retirement do end up being higher than average as a result of your own health and medical needs, how much more do you think would you need to budget to be highly confident that you would have enough to cover your out-of-pocket costs?

Answer choices:

1-A little more (less than 5 percent)

2-A reasonable amount more (5 to 25 percent)

3-A substantial amount more (25 to 50 percent)

4-A large amount more (50 to 100 percent)

5-An extremely large amount more (over 100 percent)

Question 3

In recent years, the price of health care has increased faster than the overall rate of inflation, and some have expressed concern that the price of health care may continue to increase faster than overall inflation. How concerned are you that faster rates of inflation for the price of health care will increase your out-of-pocket costs in retirement?

Answer choices:

1-Not concerned at all

2-A little concerned

3-Quite concerned

4-Extremely concerned

Question 4

In the event that the price of health care does rise faster than overall inflation, how much more do you think you would need to budget to be highly confident that you would have enough to cover your out-of-pocket costs in retirement?

Answer choices:

1-A little more (less than 5 percent)

2-A reasonable amount more (5 to 25 percent)

3-A substantial amount more (25 to 50 percent)

4-A large amount more (50 to 100 percent)

5-An extremely large amount more (over 100 percent)

Question 5

In recent years, policy analysts have been discussing whether changes in Medicare and other government programs will be necessary to address the problems

of federal government deficits. Some have expressed concern that such changes could reduce government support for retiree health care and increase the amount that retirees must themselves pay for health care costs. How concerned are you that such changes might increase your out-of-pocket costs in retirement?

Answer choices:

1-Not concerned at all

2-A little concerned

3-Quite concerned

4-Extremely concerned

Question 6

If government support for retiree health care is reduced in coming years, how much more do you think you would need to budget to be highly confident that you would have enough to cover your out-of-pocket costs in retirement?

Answer choices:

1-A little more (less than 5 percent)

2-A reasonable amount more (5 to 25 percent)

3-A substantial amount more (25 to 50 percent)

4-A large amount more (50 to 100 percent)

5-An extremely large amount more (over 100 percent)

TREATMENT B [Same as Treatment A, but with these Additional Questions]

SECTION 2: INSURANCE COVERAGE

Question 1

Do you expect to be covered by Medicare in retirement?

Answer choices: percentage range from 0-100

[*If the answer chosen was greater than zero, the survey displayed the following questions*]:

As you may know, Medicare offers two forms of basic health care coverage for most Americans over the age of 65: Traditional Medicare and Medicare Advantage. In addition, several years ago a new Medicare Part D Prescription Drug coverage became available. If you were to maintain Medicare coverage in retirement, which form of basic health care coverage would you expect to elect:

Answer choices:

1-Traditional Medicare Coverage

2-Medicare Advantage Coverage

3-Don't Know or Haven't Decided

Would you expect to add Medicare Part D Prescription Drug Coverage?

Answer choices:

1-Yes

2-No

3-Don't Know or Haven't Decided

Question 2

Beyond Medicare, do you expect to be covered by an Employer Sponsored Retiree Health Care Policy in retirement?

Answer choices: percentage range from 0-100

Question 3

Beyond Medicare, do you expect to be covered by a Medigap Supplement Insurance Policy in retirement other than one sponsored by a former employer?

Answer choices: percentage range from 0-100

Question 4

Do you expect to be covered by Medicaid in retirement?

Answer choices: percentage range from 0-100

Question 5

Do you expect to be covered by Veterans Administration health care benefits in retirement?

Answer choices: percentage range from 0-100

SECTION 4: MONTHLY PREMIUM COST EXPECTATIONS

Question 1

As you may know, Medicare beneficiaries are required to pay monthly premiums for various kinds of coverage. If you were to maintain Medicare coverage, how much would you expect your total monthly Medicare premiums to be during your retirement years? Please give your response in terms of dollars per month. (please round up to the nearest dollar)

Answer choices: any number

Question 2 [*asked if likelihood of having Employer Sponsored Retiree Health Care coverage > 0*]

In response to a previous question, you indicated that you might have Employer Sponsored Retiree Health Care coverage in retirement. As you may know, some Employer Sponsored Retiree Health Care coverage requires participants to pay monthly premiums. If you do maintain Employer Sponsored Retiree Health Care coverage in retirement, how much do you expect your monthly premiums to be for this coverage? Please give your response in terms of dollars per month.

Answer choices: any number

Question 3 [*asked if likelihood of having Medigap coverage > 0*]

In response to a previous question, you indicated that you might have Medigap Supplement Insurance coverage in retirement. If you do maintain Medigap Supplement Insurance coverage in retirement, how much do you expect your monthly premiums to be for this coverage? Please give your response in terms of dollars per month.

Answer choices: any number

SECTION 5: OUT-OF-POCKET COST EXPECTATIONS

Introduction

For the next questions, we would like you to estimate your total monthly out-of-pocket costs for health care expenses at various times in retirement. Your estimates should include all premiums for any government programs or health care insurance plans. You should also include other out-of-pocket costs for health care expenses that you pay directly. Recognizing that these expenses may vary from month to month, please estimate your average monthly expenses.

Question 1 [*asked if age < 65*]

When you are 65, what do you expect your total monthly out-of-pocket costs for health care expenses to be on average? Please give your response in terms of dollars per month.

Answer choices: any number

[*If respondent was 65 years old or older, the survey displayed the following question instead:*

Since you turned 65, what would you estimate your total monthly out-of-pocket costs for health care expenses have been on average? Please give your response in terms of dollars per month.

Answer choices: any number]

Question 2 [*asked if age < 75*]

When you are 75, what do you expect your total monthly out-of-pocket costs for health care expenses to be on average? Please give your response in terms of dollars per month.

Answer choices: any number

Question 3 [*asked if age < 85*]

When you are 85, what do you expect your total monthly out-of-pocket costs for health care expenses to be on average? Please give your response in terms of dollars per month.

Answer choices: any number

Question 4

It may be hard to think about this, but during the final year of your life, what do you expect your total monthly out-of-pocket costs to be on average? Please give your response in terms of dollars per month.

Answer choices: any number

TREATMENT C [Same as Treatment B, but with Revised Anchoring Information]

SECTION 3: LIFE EXPECTANCY

Introduction

Planning for retirement is hard because we do not know how long we will live. According to experts, American men who turn 65 today are projected to live a bit over 17 more years on average and women turning 65 are projected to live another 20 years on average. We would now like to get a better sense of how you think about your own life expectancy. We would like to know how likely you think it is that you will live beyond certain ages. If you are very confident you will live beyond a certain age, you should click on the right side of the ruler towards the upper end of the range. If you are less confident you will live beyond the age, you should click on the left side of the ruler and the lower end of the range.

SECTION 4: MONTHLY PREMIUM COST EXPECTATIONS

Question 1

As you may know, Medicare beneficiaries are required to pay monthly premiums for their coverage. Currently, monthly premiums for traditional Medicare coverage range from $95 to $115 a month depending on the year individuals started receiving coverage. Individuals with annual incomes over $85,000 and families with incomes over $170,000 pay higher monthly premiums for traditional Medicare coverage, with premiums ranging from $160 to $370 a month. Medicare Part D Prescription Drug coverage is additional and Part D premiums average about $40 a month. For those participating in Medicare Advantage coverage, which usually includes its own prescription drug benefits, monthly premiums range are about the same as those for participants in traditional Medicare and Part D Prescription Drug programs. Medicare Advantage participants do, however, sometimes receive a premium rebate, which in recent years has averaged $20 a month, and also generally pay lower out-of-pocket expenses than participants in traditional Medicare. If you were to maintain Medicare coverage, how much do you expect your total monthly Medicare premiums to be during your retirement years? Please give your response in terms of dollars per month.

Question 2 [*asked if likelihood of having Employer Sponsored Retiree Health Care coverage > 0*]

In response to a previous question, you indicated that you might have Employer Sponsored Retiree Health Care coverage in retirement. As you may know, some Employer Sponsored Retiree Health Care coverage requires participants to pay monthly premiums. The average monthly premium cost for Employer Sponsored Retiree Health Care coverage is about $165 a month for a retiree aged 65 or older and $330 a month for a retiree younger than age 65. If you do maintain Employer Sponsored Retiree Health Care coverage in retirement, how much do you expect your monthly premiums to be for this coverage? Please give your response in terms of dollars per month.

Question 3 [*asked if likelihood of having Medigap coverage > 0*]

In response to a previous question, you indicated that you might have Medigap Supplement Insurance coverage in retirement. As you may know, pricing for Medigap Supplemental Insurance premiums vary considerably by state and by terms of coverage, with monthly premiums ranging from less than $50 to over $200, with some forms of coverage reaching monthly premiums of $500 or more. If you do maintain Medigap Supplement Insurance coverage in retirement, how much do you expect your monthly premiums to be for this coverage?

SECTION 5: OUT-OF-POCKET COST EXPECTATIONS

Introduction

For the next questions, we would like you to estimate your total monthly out-of-pocket costs at various times in retirement. Your estimates should include all premiums for any government programs or health care insurance plans. You should also include other out-of-pocket costs for health care expenses that you pay directly. As a rule of thumb, insurance premiums typically constitute between forty and sixty percent of total out-of-pocket costs. As you may know, the cost of health care has risen faster than overall inflation over the past few decades, and government experts predict that retiree health care costs will rise more than one percentage point faster than overall inflation in coming years. If that prediction is accurate, the real costs of retiree health care would increase by more than ten percent every decade. Recognizing that these expenses may vary from month to month, please estimate your average monthly expenses for health care at various times during your retirement years.