

How much does out-of-pocket medical spending eat away at retirement income?

Authors: Melissa McInerney, Matthew S. Rutledge, Sara Ellen King

Persistent link: <http://hdl.handle.net/2345/bc-ir:107621>

This work is posted on [eScholarship@BC](#),
Boston College University Libraries.

Chestnut Hill, Mass.: Center for Retirement Research at Boston College, October 2017

These materials are made available for use in research, teaching and private study, pursuant to U.S. Copyright Law. The user must assume full responsibility for any use of the materials, including but not limited to, infringement of copyright and publication rights of reproduced materials. Any materials used for academic research or otherwise should be fully credited with the source. The publisher or original authors may retain copyright to the materials.



**HOW MUCH DOES OUT-OF-POCKET MEDICAL SPENDING
EAT AWAY AT RETIREMENT INCOME?**

Melissa McInerney, Matthew S. Rutledge, and Sara Ellen King

CRR WP 2017-13
October 2017

Center for Retirement Research at Boston College
Hovey House
140 Commonwealth Avenue
Chestnut Hill, MA 02467
Tel: 617-552-1762 Fax: 617-552-0191
<http://crr.bc.edu>

Melissa McInerney is an associate professor at Tufts University. Matthew S. Rutledge is a research economist at the Center for Retirement Research at Boston College (CRR). Sara Ellen King is a research associate at the CRR. The research reported herein was performed pursuant to a grant from the U.S. Social Security Administration (SSA) funded as part of the Retirement Research Consortium. The opinions and conclusions expressed are solely those of the authors and do not represent the opinions or policy of SSA, any agency of the federal government, Tufts University, or Boston College. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of the contents of this report. Reference herein to any specific commercial product, process or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply endorsement, recommendation or favoring by the United States Government or any agency thereof. The authors are grateful to Bernard Ho and Melanie Qing for excellent research assistance, and to Wenliang Hou for consulting on the projections.

© 2017, Melissa McInerney, Matthew S. Rutledge, and Sara Ellen King. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

About the Center for Retirement Research

The Center for Retirement Research at Boston College, part of a consortium that includes parallel centers at the University of Michigan and the National Bureau of Economic Research, was established in 1998 through a grant from the Social Security Administration. The Center's mission is to produce first-class research and forge a strong link between the academic community and decision-makers in the public and private sectors around an issue of critical importance to the nation's future. To achieve this mission, the Center sponsors a wide variety of research projects, transmits new findings to a broad audience, trains new scholars, and broadens access to valuable data sources.

Center for Retirement Research at Boston College
Hovey House
140 Commonwealth Ave
Chestnut Hill, MA 02467
Tel: 617-552-1762 Fax: 617-552-0191
<http://crr.bc.edu>

Affiliated Institutions:
The Brookings Institution
Syracuse University
Urban Institute

Abstract

The adequacy of retirement income – from Social Security benefits and other sources – is substantially reduced by Medicare’s high out-of-pocket (OOP) costs. This project uses the 2002-2014 *Health and Retirement Study* to calculate post-OOP benefit ratios, defined as the share of either Social Security benefits or total income available for non-medical spending. The project decomposes the share of income that is going toward premium payments and services delivered and examines how these post-OOP benefit ratios differ by age, gender, income, supplemental insurance coverage, and health status. The project also updates previous studies’ estimates to document how OOP spending and the post-OOP income ratios changed following the introduction of Medicare Part D prescription drug coverage in 2006 and the closing of the “donut hole” coverage gap in 2010, which decreased OOP costs under Part D for those spending moderate amounts on prescriptions.

The paper found that:

- Average OOP spending (excluding long-term care) was \$4,274 per year in 2014, with approximately two-thirds (\$2,965) spent on premiums.
- In 2014, the average retiree had only 65.7 percent of his Social Security benefits remaining after OOP spending and only 82.2 percent of total income.
- Nearly one-fifth (18 percent) of retirees had less than 50 percent of their 2014 Social Security income remaining after OOP spending, with 6 percent of retirees falling below 50 percent of total income.
- Post-OOP benefit ratios increased concurrently with the introduction of Medicare Part D for retirees who lacked prescription drug coverage prior to 2006. This group also saw a small increase after the donut hole began closing in 2010.

The policy implications of the findings are:

- With less than two-thirds of their Social Security benefits available for non-medical consumption, and limited income outside of Social Security for much of the elderly population, many retirees likely feel that making ends meet is difficult.
- Medicare spending per beneficiary is expected to resume its decades-long rise by the end of the decade, which will put even more pressure on retirees’ budgets.

Introduction

The general public and most policy analysts tend to evaluate the adequacy of retirement income, and Social Security benefits in particular, based on the level of retirees' total income. More relevant to their purchasing power, though, is their income net of out-of-pocket (OOP) medical costs, which are often considered nondiscretionary.¹

Even though nearly all retirees over 65 are covered by Medicare, their OOP costs are substantial. Webb and Zhivan (2010) estimate that the average household spends \$197,000 in total for OOP health costs (excluding nursing home care) during their retirement years, and some households spend much more (\$311,000 at the 95th percentile).² Medicare enrollees pay premiums for Medicare Parts B and D and any supplemental coverage; contribute a portion of the cost of Medicare-covered services they receive ("cost sharing"); and face the full cost of the many services not covered by Medicare (e.g., dental and vision). The most recent estimates show that the median Social Security beneficiary enrolled in traditional fee-for-service Medicare spent \$3,600 on OOP payments in 2011, nearly one-quarter of his total Social Security benefit (Noel-Miller 2015).³ And the U.S. Social Security Administration (SSA 2013) indicates that about 12 percent of the median household's total income is spent on medical OOP costs (again excluding long-term care).

This project examines how OOP medical costs as a share of Social Security income and as a share of total retirement income differ across individuals using the 2002-2014 *Health and Retirement Study* (HRS). The analysis starts in 2002 because this is the first year the HRS has complete data on premiums and other out-of-pocket spending. This time period is also an interesting one to analyze, because it allows for the examination of the change in income net of OOP costs after Medicare Part D added prescription drug coverage to Medicare for the first time in 2006, and after the closing of the "donut hole" coverage gap began in 2010. The donut hole refers to the gap in Part D's drug coverage that exposes enrollees to the full cost of their prescription drugs for spending above \$2,830 and below \$6,440 (in 2010). Provisions in the

¹ For example, the U.S. Census Bureau's Supplemental Poverty Measure examines family income net of medical spending, because OOP medical costs are assumed to be non-discretionary (Renwick and Fox 2016).

² When the authors include the cost of long term care, the average household spends \$260,000 in lifetime OOP health costs and \$570,000 at the 95th percentile.

³ The analysis in Noel-Miller (2015) reflects median OOP spending for Medicare enrollees. It excludes Medicare Advantage enrollees, but includes premiums paid to Parts B, and D, as well as any supplemental coverage. It also includes long-term care spending.

Affordable Care Act phased in the closing of this donut hole over 10 years so that, by 2020, Part D enrollees will face the same cost sharing below and above the donut hole.⁴

The project decomposes OOP spending by two types – specifically, 1) premiums and 2) cost sharing and uncovered services. It is important to separately document these OOP spending categories, because the amount spent on cost sharing and uncovered services may be more unpredictable from year to year than premiums. The main results exclude long-term care (LTC) spending in order to characterize the relationship between OOP spending and Social Security benefits or retirement income in a typical year. Although the costs of nursing home care can be very large, many retirees never use nursing home care, and those who do typically only enter a nursing home after they reach their eighties and only stay for a short duration (an average of 0.88 years for men and 1.44 years for women).⁵ To examine the sensitivity of this exclusion, the project also presents results that include the cost of LTC.

The project also examines whether subgroups differ in their OOP spending and post-OOP income ratios; the analysis separates the sample by age, by gender, by the type of supplemental insurance, by health status (i.e., the presence of a chronic condition or limitations in Activities of Daily Living (ADL)), and by income quintile. Prior work has shown that older retirees, women, those in the worst health, and the near poor who do not qualify for Medicaid have the lowest post-OOP income ratios (Cubanski et al. 2014a; Neuman et al. 2007; Noel-Miller 2015; Akincigil and Zurlo 2015).

The relationship between supplemental coverage and post-OOP income is more nuanced because, although supplemental coverage reduces costs for covered services, many types of supplemental insurance require enrollees to pay premiums, which reduces post-OOP income. Because Medicare's out-of-pocket costs are often substantial, and because some key services (such as dental, vision, and hearing care) are not covered by traditional Medicare, enrollees often acquire supplemental insurance coverage. The three main types of supplemental insurance the project examines are:

⁴ Beginning in 2010, enrollees who fall in the coverage gap receive a \$250 rebate and beginning in 2011, enrollees who fall in the coverage gap pay only 50 percent of the cost of brand-name drugs (drug companies pay the other 50 percent) and only 93 percent of the cost of generic drugs (down from 100 percent for both types of drugs before 2010). By 2020, enrollees will only face 25 percent of the costs of all drugs in the donut hole.

⁵ Friedberg et al. (2014).

- Medicaid, the public insurance program for low-income individuals that covers Medicare cost sharing and premiums as well as services not covered by Medicare;
- Medicare Advantage (also called Medicare Part C), which is private insurance that covers enrollees' standard Medicare benefits, while also covering other services and reducing the amount they have to pay in cost-sharing; and
- Retiree health insurance (RHI), a form of private group health plan coverage that some employers offer to former employees after retirement.

Although prior work has shown that Medicare beneficiaries with Medicaid, Medicare Advantage, or RHI face lower costs for their covered services (Goldman and Zissimopoulos 2003), Medicare Advantage and RHI also require enrollees to pay premiums. When both premiums and other OOP costs are considered, prior work consistently finds that Medicaid enrollees have the highest share of post-OOP income, in most cases this is followed by Medicare Advantage enrollees, with enrollees with no supplemental insurance and enrollees with private supplemental insurance having the lowest shares of post-OOP income (Akincigil and Zurlo 2015; Cubanski et al. 2014a; Neuman 2007; Noel-Miller 2015).

Accounting for differences in OOP medical cost burdens across people, grouped by the supplemental insurance they have and by other characteristics, is important to SSA, because average premiums and average cost sharing in recent years have provided an incomplete picture of individual benefit adequacy – some groups and individuals will spend much more. And even though healthcare spending slowed in recent years, healthcare spending is still growing faster than the rest of the economy. Given that a high share of Social Security beneficiaries rely exclusively on Social Security income, benefit adequacy is a crucial issue.

This paper is laid out as follows. The next section provides a brief literature review, which is followed by a discussion of the data and methods. The third section presents the results. The final section concludes that, on average, less than two-thirds of Social Security benefits – and only about 80 percent of total retirement income – are available for spending on non-medical needs. If, as expected, costs resume their rise after the beneficial effects of Part D's implementation and the filling of the donut hole, and after the Great Recession fades away, retirees' budgets will be even more vulnerable.

Literature Review

This project builds on several previous studies examining the OOP burden on retirees. Cubanski et al. (2014b) use the *Medicare Current Beneficiary Survey* (MCBS) from 2000 to 2010 to quantify OOP costs for all enrollees receiving traditional Medicare (i.e., excluding those in Medicare Advantage), including adults with disabilities under the age of 65. They show that OOP spending rises with age and health needs, and that premiums comprise a large share of OOP spending for Medicare enrollees (42 percent). Cubanski et al. (2014a) use the *Consumer Expenditure Survey* from 2012 to show that health care spending comprised 14 percent of total spending for households with a Medicare enrollee.

Because this study focuses on the share of an individual's income remaining after OOP spending, it is closest to four previous analyses using the MCBS (Neuman et al. 2007; Noel-Miller 2015; Akincigil and Zurlo 2015; and Favreault and Johnson, 2016). Neuman et al. (2007) use the 1997-2003 MCBS to examine OOP costs as a share of total income for all enrollees and find that the share of income remaining after medical costs fell by four percentage points between 1992 and 2003. Noel-Miller (2015) uses the 2011 MCBS to quantify OOP costs for seniors enrolled in traditional Medicare and finds that the OOP burden is highest among the near-poor who do not qualify for Medicaid. Akincigil and Zurlo (2015) compare changes in OOP burdens before and after the introduction of Medicare Part D, using the 2005 and 2010 MCBS for all senior Medicare enrollees (i.e., including Medicare Advantage). They document a modest decline in out-of-pocket spending after the introduction of Part D – Medicare enrollees spent 1.4 percentage points less of their income on OOP costs in 2010 than in 2000 – and find that the bulk of this decline reflects reduced spending on prescription drugs. Favreault and Johnson (2016) take a different tack, using the MCBS to calibrate a microsimulation model to project the share of Old Age and Survivors Insurance (OASI) income that will be spent on OOP medical costs through 2055. They find that cost sharing burdens as a share of OASI income, especially for lower-income Medicare enrollees, are expected to grow in the future.

The first contribution of this project to the literature is to extend the analysis through 2014, presenting the most up-to-date estimates currently possible in the HRS (the MCBS analyses stopped in 2011). Using more recent data to understand the post-OOP burden is critical because of the closing of the donut hole, which began in 2010 and affected prescription drug spending, which is the second-highest spending category (see, e.g., Cubanski et al. 2014b) for

Medicare enrollees.⁶ By 2014, enrollees in the donut hole were responsible for only 50 percent of the cost of brand-name drugs and 72 percent of the cost of generics (down from 100 percent for both in 2010).

In addition to making more recent data available, the HRS offers two other advantages over the MCBS. First, the detailed income data in the HRS enable the project to consider OASI income separately, which allows for an examination of Social Security benefit adequacy. Second, with the HRS data, the project can include reliable information on Medicare Advantage enrollees in the analysis. In 2014, 30 percent of Medicare enrollees were participating in a Medicare Advantage plan – an increase from 14 percent in 2002 – so it is now crucial to include this group (Jacobsen et al. 2016). Previous analyses relied on the MCBS, which lacks reliable information on OOP spending by Medicare Advantage enrollees (Cubanski et al. 2014b).

This project is also similar in spirit to an analysis included in the Medicare Trustees Report each year. The Trustees quantify the average portion of care covered under Medicare Parts B (physician and outpatient care) and D (prescription drugs) (see Figure II.F2 of the 2017 report). The Trustees find that after a period of rapid growth, OOP costs for Parts B and D declined between 2010 and 2014.⁷ The Trustees also project the program costs of Parts B and D through 2090 and forecast that the rising costs of Medicare Parts B and D for the insured will outpace increases in OASI benefits. The OOP measure used in the current investigation expands upon the one used by the Trustees to include all non-LTC costs borne by Medicare beneficiaries, including OOP spending on hospital care (usually covered under Part A, but with substantial cost sharing) and other uncovered health expenses that eat into retirees' Social Security income. (The project also constructs an alternative measure of OOP that includes LTC costs.) The analysis also accounts for supplemental insurance coverage from Medicaid, Medicare Advantage, and RHI. Importantly, the project uses individual-level data rather than average measures. The individual data allow for addressing questions such as whether medical costs comprise a larger share of OASI benefits for the near poor who do not qualify for Medicaid but have a difficult time purchasing supplemental insurance, and whether benefit adequacy is a bigger problem for seniors with the most health complications or the for oldest old.

⁶ Excluding long-term care.

⁷ It is not possible to compare the Trustees' OOP measure before and after 2006, because the Trustees only began to include the cost sharing for prescription drugs and Part D premiums once Part D was in place, leading to a discontinuous jump in their OOP time series. This limited scope of costs is because the Trustees focus on the burden of services covered by Supplementary Medical Insurance (i.e., Parts B and D).

Data and Methodology

This study uses data from the 2002-2014 waves of the *Health and Retirement Study* (HRS). Since its start in 1992, the HRS has collected information every two years on the financial security, work histories, medical expenditures, insurance coverage, and self-reported Social Security benefits of respondents who are at least 50 years old. Because the HRS only began asking about respondents' Medicare Advantage premiums in 2002, the analysis starts in that year to ensure that out-of-pocket medical expenditures are measured as consistently as possible.⁸

Since one portion of the analysis focuses on the share of Social Security benefits that remain after medical spending (the other focuses on the share of total income), the sample is limited to respondents who are at least 65 years old and are receiving both Social Security income and Medicare benefits, and it excludes respondents who are working or report receiving health insurance from a current employer or spouse's employer. In other words, the sample is limited to retirees fully detached from the labor force who are choosing health insurance from among Medicare and supplemental plans – and not from employer-sponsored health insurance. In an attempt to attenuate potential misreporting, individuals are excluded from the analysis if their self-reported Social Security benefit is less than \$100 annually (in 2014 dollars) or if they have incomplete information on insurance coverage or premiums.

The three key components of the study – Social Security benefits, total household income, and out-of-pocket medical expenditures (excluding LTC) – are derived from self-reported information in the core HRS but require some adjustment. In the case of Social Security income, survey respondents were asked to report their monthly amount net of Medicare deductions. To back out their gross Social Security income, the analysis adds in their Medicare Part B premiums; the HRS does not collect information on the premium paid, but the analysis adds in the nationwide Part B premium, plus premium surcharges for respondents in higher-income households.⁹ The total – which should represent the gross Social Security annual benefit – was then indexed to 2014 dollars and top-coded at \$50,000.¹⁰

⁸ Goldman, Zissimopoulos, and Yang (2011) compare the OOP measures in the HRS to those in the MCBS and the *Medical Expenditure Panel Survey* (MEPS). They find that the HRS “produces good quality and useful data on OOP spending.”

⁹ Respondents whose household modified adjusted gross income (MAGI) exceeded certain thresholds paid a higher premium. In 2014, premiums for the vast majority of households were \$104.90 per month. But those whose MAGI were between \$85,000 and \$107,000 (for a single filer; the thresholds are double for those who are married filing

While the analysis with respect to OASI income provides one measure of the adequacy of Social Security benefits, it does not capture the total resources available to retired households. This study, therefore, also examines the percentage of total income – Social Security benefits, as well as income from other sources such as pensions, government transfers, and capital income, and income from 401(k) plans and IRAs – that remains after spending on medical costs.¹¹

The third key variable, RAND’s aggregation of OOP expenditures, incorporates costs arising from home health care, prescription drugs, nursing home care, special facilities, surgery, and medical visits to doctors, hospitals and dentists. From 2010 onwards, a broad category for “other” expenses was also included. The main estimates attempt to omit LTC costs by excluding respondents who report that they (or their spouse) spent time in a nursing home or received home health care during the two-year period since their last HRS interview. Since RAND’s measure does not contain insurance premiums, the analysis constructs the total insurance premiums paid for Medicare Part B and D, Medicare Advantage (Part C), and up to three private health plans (including retiree health insurance) from the raw data files. Both the out-of-pocket and insurance premium measures are separately capped at their 98th percentiles; they are then summed to arrive at the individual’s total medical expenditures in the prior year. This analysis is supplemented with information from the *HRS Consumption and Activities Mail Survey* (CAMS), which

jointly) paid \$146.90. At higher thresholds, premiums rose to \$209.80, \$272.70, and \$335.70. Cubanski and Neuman (2015), using administrative data, report that about 6 percent of Medicare Part B beneficiaries paid one of these higher amounts. The corresponding share in our sample is slightly higher, at 8.5 percent, in part because potential defined contribution income is included.

¹⁰ While HRS respondents were also asked in 2008 and 2010 if their Medicare Part D premiums were deducted from their Social Security benefits, they were asked only the amount of their Part D premiums in 2006, 2012 or 2014, irrespective of their payment method. For consistency across time, only Part B premiums were added back into survey participants’ self-reported SSA income.

¹¹ Total personal income is the sum of earnings, pensions, benefits from OASI, SSDI and SSI, unemployment insurance, workers compensation, and other government programs, as well as capital and other income. If the respondent is married or in a marriage-like couple, the analysis assigns him half of the household’s capital or other income. Correspondence with RAND researchers indicates that their version of the HRS does not include any income from 401(k) or IRA distributions. This study adds 401(k) wealth imputed in Gustman, Steinmeier, and Tabatabai (2014) and Munnell et al. (2016) to IRA wealth from the RAND HRS, and then annuitizes the total to calculate potential defined contribution (DC) income. This potential annuity income is added to the total income measure calculated from the RAND. The average post-OOP ratio without adding in potential annuity income is only about 3 percentage points lower, because only about one-third of the sample has potential defined-contribution income, though the difference is greater (about 9 percentage points lower) for the group with any defined-benefit income.

includes fewer households but has been found to more closely match other consumption data (Hurd and Rohwedder 2008).¹²

These two components are combined into the outcome of interest – the post-out-of-pocket (post-OOP) income ratio for beneficiary i in year t :

$$Post - OOP\ income_{it} = \frac{(Income_{it} - OOP_{it})}{Income_{it}} \quad (1)$$

where $Income_{it}$ is either solely OASI income or all income available to individual i at time t . This ratio captures individual i 's share of income available for non-medical spending.

Because cost sharing in traditional Medicare can be substantial, most beneficiaries have some form of supplemental insurance coverage. These supplemental plans differ considerably in their OOP costs, so results are reported separately for each insurance category. Although survey respondents could report being covered under more than one insurance plan, Medicaid is given first priority – i.e., anyone covered by Medicaid was assigned to the Medicaid category. If a respondent is not enrolled in Medicaid but reports that he or she receives a supplemental private health insurance plan through a former employer or a spouse's former employer (and reports being retired), he is assigned to the RHI category. Individuals are designated as Medicare Advantage enrollees if they reported receiving their Medicare benefits through a health maintenance organization and are not covered by Medicaid or RHI. Respondents are assigned to the "other" insurance category if they are covered through CHAMPVA, TRICARE, Medigap, long-term care insurance, spouses' employer-sponsored plans, or any other private plan. Finally, any other respondents receiving Medicare coverage who were not assigned to one of the above groups were assigned to the Medicare-only category.

The analysis also examines whether the post-OOP ratio differs by household income, age, gender, and health status. The sample is split into five household income quintiles,¹³ and into four age groups: ages 65-69, 70-74, 75-79, and 80 or older. Health status in the survey year is measured with two separate indicators: 1) whether the respondent ever had a chronic health

¹² The CAMS sample for this analysis includes 1,568 out of the 7,885 respondents in the main sample. The CAMS out-of-pocket measure equals the sum spent on premiums, health services, and prescription drugs.

¹³ Household income incorporates both the respondent's and spouse's income from work-related earnings, professional practice/trade income, military reserves, pensions and annuities, capital income, Social Security retirement, disability and supplementary income, worker's compensation/unemployment, food stamps, welfare, veterans' benefits, and any other household income.

condition;¹⁴ and 2) whether the respondent reported difficulty with at least two activities of daily living (ADLs).¹⁵

Results

This section presents the results, first for the entire sample and then by population subgroups. Before concluding, the paper discusses trends in OOP spending and projections for the future.

Results for the Full Sample

MEDICAL OUT-OF-POCKET SPENDING IN 2014. Figure 1 demonstrates the wide breadth of OOP spending among retirees in the HRS sample. The median retiree in the sample spent \$3,681 on medical costs in 2014 (in that year's dollars), and the average total out-of-pocket spending was \$4,274. This difference implies that OOP spending is highly skewed; indeed, spending at the 95th percentile is more than twice as large as spending at the mean.

Figure 1 also illustrates that premiums comprise a substantial share of OOP costs for retirees. For the average retiree, premiums comprise over two-thirds of OOP spending (\$2,965) with the remaining portion (\$1,309) reflecting other OOP costs such as cost-sharing for covered services and the full cost of uncovered services. Retirees at higher points in the distribution of OOP costs spend more on premiums, but the real difference rests in the cost of other OOP spending. For example, retirees at the 95th percentile spend about the same amount on insurance premiums as those at the 90th percentile, but spend nearly 50 percent more on cost-sharing and uncovered services.¹⁶

MEDICAL OOP SPENDING AS A SHARE OF INCOME IN 2014. Figure 2 shows that the post-OOP ratio, relative to OASI benefits, also varies widely across the distribution of retirees; Figure

¹⁴ Possible chronic health conditions include cancer, lung disease, stroke, heart problem, diabetes, or high blood pressure.

¹⁵ Specifically, the HRS asks whether the respondent currently has difficulty with six ADLs: walking across a room, getting dressed, eating, bathing oneself, using the bathroom, and getting into/out of bed.

¹⁶ The CAMS results, presented in Appendix Figure A, are similar, except that premiums are somewhat lower in the middle of the OOP distribution – perhaps because respondents whose Part B premiums are withheld from their Social Security benefits are not including them – and total medical spending in the lower part of the distribution is lower in the CAMS.

3 shows similar results for total income.¹⁷ For the average retiree, only 65.7 percent of their OASI benefit remains after paying premiums and other out-of-pocket costs. For the median retiree, about 76.3 percent of their OASI benefit remains. However, OOP spending is more burdensome at lower post-OOP income levels. For example, at the 5th percentile of remaining Social Security income, retirees spend over 97 percent of their OASI benefit on medical out-of-pocket costs. Even at the 10th percentile, retirees spend nearly two-thirds of their OASI benefit on medical OOP costs, and 17.9 percent of all retirees spend over half of their Social Security benefits on these costs. These results demonstrate that, for a large number of retirees, OOP costs comprise a sizable share of OASI income.¹⁸

When looking at total income, the post-OOP ratio is higher, as expected, but still varies considerably.¹⁹ Figure 3 shows that even though the share of total income remaining after OOP costs is larger than the share of OASI income remaining, medical spending takes a large toll on retirees' budgets. The average retiree spends about one-fifth of his total income on medical costs, leaving only 82.2 percent available for non-medical spending. The median retiree has 88.6 percent of his total income left over, which almost exactly matches SSA's (2013) analysis of *Consumer Expenditure Survey* data. And over 6 percent of the sample is left with less than half total retirement income after medical spending.

Differences in Post-OOP Ratios for Subgroups of the Sample

DIFFERENCES BY INSURANCE STATUS. The portion of retirement income left over after OOP costs varies substantially across different groups of people. One of the more important distinctions is the type of supplemental insurance held by retirees, as shown in Figure 4.²⁰ The red bars depicting the post-OOP ratio for Social Security benefits show that Medicaid enrollees have the highest share of OASI benefits remaining after OOP spending (85 percent). This result

¹⁷ Because the post-OOP ratio subtracts spending from Social Security benefits, the 5th and 10th percentiles of the post-OOP ratio distribution roughly correspond to the 95th and 90th percentiles, respectively, of the OOP spending distribution from Figure 1.

¹⁸ The CAMS results are similar in magnitude and in the pattern of the distribution (Appendix Figure B).

¹⁹ Note that because the distribution of non-Social Security income is so skewed, mean OASI income in the sample (\$15,698) comprises a smaller share of total personal income (\$36,317) than the mean ratio of OASI income to total personal income (73 percent).

²⁰ The 34 percent of the sample who report supplemental coverage other than Medicaid, RHI, or Medicare Advantage are not included as a separate group in this figure because they are a heterogeneous group. This group ranges from individuals with low-cost TRICARE plans to those with self-purchased Medigap plans that carry high premiums.

is expected because Medicaid often has no premiums and minimal cost sharing, and this is consistent with the literature mentioned above. Medicaid enrollees also have the highest share of total income remaining after OOP spending (89 percent), as shown by the gray bars.

Among those with RHI, Medicare Advantage, and those with no supplemental insurance, the ranking of their post-OOP OASI ratio is surprising. Those with no supplemental insurance have the second highest post-OOP OASI ratio, at 73 percent. Medicare Advantage enrollees, in contrast, have only 67 percent of their OASI income available for non-medical spending. And the post-OOP OASI ratio for respondents with RHI is substantially lower: only 47 percent. These differences are due entirely to premiums. All three groups have similar average OASI income (approximately \$15,000) and spend a similar amount on cost sharing and uncovered services (between \$1,500 and \$1,600 per year). But those with no supplemental insurance pay the least on premiums (\$2,000),²¹ followed by Medicare Advantage enrollees who pay an average of \$2,900 on premiums, while those with RHI pay an average of \$4,500 in premiums. This premium burden is in line with Cubanski et al. (2014b), who found that MCBS respondents with RHI supplementing their Medicare coverage spent half of their OOP spending on premiums in 2010. As a share of total income, however, these groups have much more similar post-OOP income available. Respondents with RHI have much higher total incomes in retirement (\$54,000), and only about half of the average RHI enrollee's income comes from Social Security; as a result, their post-OOP ratio increases to 79 percent when using total income instead of OASI income. Medicare Advantage enrollees, whose total incomes are smaller (\$42,000) and more reliant on Social Security (64 percent of their total income), have 82 percent of their total income remaining. Medicare-only enrollees are even more reliant on Social Security (76 percent of their \$35,000 average total income), and so their post-OOP ratio increases only to 83 percent.

Moreover, the high level of spending on premiums for RHI enrollees may be reported with error. Appendix Figure C shows the analogous results for the CAMS, which prior studies have found to better match other measures of spending more broadly (Hurd and Rohwedder 2008). This analysis shows that the post-OOP OASI ratio for respondents with RHI is higher – about 67 percent – than in the RAND HRS data. This post-OOP ratio is almost exactly equal to

²¹ Retirees with no supplemental coverage still face the cost of Medicare Part B premiums and, if they choose, Medicare Part D premiums.

respondents with no supplemental insurance because of much lower premium spending on RHI relative to what is reported in the RAND HRS. And the post-OOP total income ratios are actually larger for RHI and Medicare Advantage enrollees than for retirees with only Medicare. Future research could use administrative data to attempt to reconcile the RAND HRS and CAMS estimates given their different implications for the value of RHI (and, to lesser extent, Medicare Advantage) relative to not enrolling in supplemental insurance.

DIFFERENCES BY GENDER, AGE, AND HEALTH STATUS. Because past research has indicated OOP costs are higher for women, older retirees, and those with incomes just above the threshold for Medicaid eligibility, Figures 5 to 7 show results by these subgroups. Figure 5 shows that for women, the post-OOP OASI ratio is 62 percent, compared with 70 percent for men. Interestingly, the issue is not that women pay substantially higher costs – they pay slightly lower premiums than men do (by just over \$100 per year) and slightly higher other out-of-pocket costs (by about \$80) – but rather that they have substantially lower OASI benefits (\$12,900 vs. \$16,600).²² Because their total incomes are also lower (\$37,000 vs. \$53,000), women have 79 percent of total income remaining after OOP whereas men have 86 percent of total income remaining.

Figure 6 shows that the post-OOP ratio decreases only slightly with age. For those in their mid-to-late 60s, 68 percent of their OASI income remains after medical spending. For those in their 80s or older, 65 percent of their benefit is left over. The decrease is greater when long-term care is included (66 percent vs. 61 percent, respectively). The pattern by age is similar when considering total income (83 percent for ages 65-60 vs. 81 percent for those in their 80s or older).

With respect to health status, the share of Social Security benefits available for non-medical spending is surprisingly similar for retirees with and without health concerns, but the differences in the share of total income remaining are larger. While the post-OOP OASI ratio is about 66 percent for both those with zero or one ADL vs. those with multiple ADLs (Figure 7), those with minimal ADLs have 85 percent of total income remaining after OOP compared with 81.8 percent for those with multiple ADLs (who represent 15 percent of the sample). The pattern is similar by chronic condition. Those who never report having a chronic condition (12 percent

²² Results available upon request.

of the sample) have 66.2 percent of OASI income remaining after OOP compared with 65.6 percent for those who ever report at least one chronic condition. The share of total income remaining is different for these groups, however, with those never reporting a chronic condition having 82.6 percent of total income remaining after OOP vs. those with at least one chronic condition having 79.2 percent of total income remaining. This difference is because OOP spending and Social Security income is similar across the two groups, but total retirement income is much higher for those never reporting a chronic condition (\$47,000 for those with no chronic conditions vs. \$39,000 for those with a chronic condition).

DIFFERENCES IN TOTAL INCOME REMAINING AFTER OOP SPENDING, BY INCOME QUINTILE. The project next considers differences across the distribution of income. Since the distribution of OASI income is compressed by the progressivity of the system, this analysis considers the share of total income remaining across the distribution of total income.²³ Figure 8 indicates that the share of total income remaining after OOP spending is highest for those in the top income quintile. The highest quintile has 93 percent of total income remaining, even after accounting for income-related premium surcharges for Part B. The lowest quintile, however, has only 76 percent of income remaining after OOP spending. The lowest quintile's post-OOP ratio is, in part, propped up by the low OOP spending by Medicaid enrollees. When excluding those who report Medicaid coverage (about half of the lowest quintile's sample), the post-OOP ratio is only 71 percent in the bottom quintile. This result emphasizes the importance of Medicaid among the lowest-income retirees, and shows how little is left for non-medical spending for those with incomes just above the Medicaid threshold.

THE ROLE OF LONG-TERM CARE SPENDING. The results presented so far exclude recipients of long-term services and supports. Long-term care can be quite costly, ranging from \$40,000 per year for home health aides to over \$80,000 per year for nursing facilities (Genworth, 2016). To examine whether post-OOP ratios are much lower when including long-term care costs, the project also examined post-OOP ratios including respondents who report that they (or their spouse) resides in a long-term care facility, as well as respondents who reside in the community but report receiving home health care. These results are presented in Appendix Figures D and E. As expected, less retirement income remains for non-medical spending:

²³ The post-OOP OASI ratio is lowest for the highest quintile, but almost by design: Social Security replacement rates are lower here, because of the program's progressive benefit formula. This group is also more reliant on other sources of retirement income.

instead of 65.7 percent of his Social Security benefit remaining, the average retiree has 63.7 percent left. Similarly, instead of 82.2 percent of total retirement income remaining, the average retiree has 80.8 percent left. These differences are not that large, however, confirming that OOP spending takes up a large portion of retirement income for all retirees, not just those using long-term care services.

Trends and Projections

One advantage of this analysis is its investigation of a time period with important policy changes, specifically the introduction of Part D in 2006 and the beginning of the closing of the donut hole in 2010. Analyzing trends over this period can help understand how these policies affected OOP spending. Figure 9 shows OOP spending by retirees declined from 2002-2014 for most of the distribution. The average retiree spent just under \$4,700 in 2004, but only \$4,274 in 2014 (both figures are in 2014 dollars), a decrease of 9 percent; the median fell by a smaller amount (6 percent), consistent with declines in out-of-pocket spending being realized at the top of the distribution, among those with the highest costs.²⁴ Declines in out-of-pocket medical costs coincide with the introduction of Medicare Part D and the closing of the donut hole, although other factors likely played a role, as discussed below. Between 2004 and 2008, average out-of-pocket costs fell by over \$200 and by over \$600 between 2010 and 2014.

Given the fall in OOP costs and the general increases in Social Security income over the same period, Figure 10a shows that the post-OOP ratio for OASI income, increased by almost 6 percentage points at the mean between 2004 and 2014;²⁵ the gain was 4 percentage points relative to total income (Figure 10b). The largest gains between 2004 and 2014 were realized by the groups expected to benefit most from drug coverage, as shown in Figure 11 for Social Security income. Those with no supplemental coverage and Medicare Advantage enrollees were unlikely to have prescription drug coverage before 2006 (Wettstein 2016). Following Part D, the post-OOP ratio increased by about 5 percentage points for Medicare-only beneficiaries between 2004 and 2014 and 7 percentage points for Medicare Advantage enrollees.²⁶ In contrast, the

²⁴ The out-of-pocket spending level in 2002 appears to be an outlier, even after capping large expenditure levels at the 98th percentile in that year. As a result, percentage changes use 2004 as the benchmark.

²⁵ When including the cost of LTC, the mean post-OOP Social Security ratio increased by nearly 9 percentage points (Appendix Figure F).

²⁶ The HRS survey includes a question about Medicare Advantage premiums in 2012, but for some reason no one in the raw HRS file has a valid answer to that question. The analysis by insurance category, therefore, excludes

post-OOP ratio fell slightly for those with Medicaid and RHI, both of which usually included drug coverage prior to 2006. In results not shown, the project documents a similar pattern of results across type of supplemental insurance when considering the share of total retirement income remaining. The gains were even larger when accounting for long-term care spending: Medicare-only retirees and Medicare Advantage enrollees both saw their post-OOP OASI ratios rise by almost 11 percentage points. Only 30 percent of the sample had no supplemental coverage or were enrolled in Medicare Advantage, and therefore were directly affected by Part D, so the lack of increase in medical OOP observed in this paper was likely also driven by additional factors such as the Great Recession, state Medicaid cuts, and slow technological breakthroughs (Chandra, Holmes, and Skinner 2013). But the decrease in out-of-pocket medical costs is at least coincidental with the two changes to Medicare prescription drug coverage.

In addition, women and retirees in poor health saw the largest increases in their post-OOP ratios over this time period. Women experienced a 6-percentage-point increase in their post-OOP OASI ratio, compared to a 4-percentage-point increase for men (Figure 12). Differences over time were even more dramatic when considering total income: women experienced a 5-percentage-point increase in the share of total income remaining after OOP, compared to a 2-percentage-point increase for men. Retirees with chronic conditions also experienced an 8-percentage-point increase in their post-OOP OASI ratio, compared to no change for those reporting no chronic conditions (Figure 13). Differences over time in the share of total income remaining were much smaller; a 2-percentage-point increase in the share of total income remaining for those with chronic conditions vs. a 1-percentage-point increase for those reporting no chronic conditions.

While looking back at trends can be informative, the project also aims to understand how the burden on retirees is likely to change in the years ahead. This exercise is especially important given that further policy expansions seem unlikely. Figure 14 shows projection estimates using assumptions from the Social Security Trustees, the Medicare Trustees, and the Congressional Budget Office.²⁷ As shown above, the post-OOP ratio rose from 52 percent in 2002 to 66 percent in 2014. For 2014-2018, the post-OOP ratio is projected to be flat at about 66

Medicare Advantage enrollees in 2012 because, without premiums, they will have artificially low OOP spending, and thus artificially high post-OOP ratios.

²⁷ Both the Medicare Trustees and CBO model the growth rate of Medicare spending per beneficiary accounting for current spending, overall inflation, expected healthcare inflation, changes in the composition of Medicare enrollees, and scheduled changes to laws affecting Medicare.

percent, as OASI benefits and Medicare spending per beneficiary grow at approximately the same rate. After 2018, however, the post-OOP ratio is projected to fall, reaching 64 percent in 2026.²⁸ This decline in the post-OOP ratio is driven by the expectation that medical costs will increase faster than OASI benefits. From 2019 on, the Social Security Trustees predict that retirement benefits per beneficiary will increase by just less than 4 percent per year, whereas the Medicare Trustees and CBO predict Medicare spending per beneficiary to increase by 4.5-5 percent per year on average. Year-by-year projections of Medicare spending growth are not available beyond 2026, but thereafter, the Medicare Trustees Report expects medical cost growth well in excess of OASI benefit growth. Thus, the burden of medical costs on retirees' budgets is expected to grow substantially more in the coming decades.

Conclusion

This study examines the adequacy of Social Security benefits and retirement income, evaluated based on beneficiaries' OASI income net of out-of-pocket medical costs, including premiums, cost-sharing, and uncovered services from all types of medical care (and excluding long-term care). The results indicate that the median retiree in 2014 has 76 percent of his Social Security benefits, and 89 percent of his total retirement income, remaining after medical spending, though this share varies widely across the post-OOP ratio's distribution. The average retiree, in contrast, has only 66 percent of his Social Security benefits left for non-medical spending, and almost 20 percent of retirees have less than one-half of their OASI income remaining. When considering all retirement income, the average retiree has only 82 percent of total income remaining for non-medical spending, and 6 percent of retirees have less than one-half of their total retirement income remaining. Premiums for Medicare Parts B and D, Medicare Advantage, and supplemental plans (including retiree health insurance) make up the lion's share of medical spending for most retirees, except those with the highest spending.

²⁸ The projected average OASI benefits and average OOP spending in each year are used to construct the projected post-OOP ratio. The Social Security Trustees Report (2017) shows projections of the total cost of scheduled benefits (Table IV.A1) and the number of OASI beneficiaries (Table V.C4); their ratio grows at an average of 4 percent per year from 2019-2026, in line with their projections of the average wage index (which is the OASI benefit growth rate that the Medicare Trustees Report (2017) uses for its Figure II.F2). Out-of-pocket medical costs are inflated by the Medicare Trustees baseline assumptions and the CBO baseline assumptions (2017). The Medicare Trustees' illustrative alternative scenario does not differ from the baseline assumptions until the year 2025, so the project only reports results using the Medicare Trustees' baseline scenario (Table V.D1 of the 2017 report).

As seen in earlier analyses – the Medicare Trustees Report most prominently – OOP spending has fallen since the 2006 implementation of Medicare Part D, resulting in a modest increase in the share of Social Security benefits (and total retirement income) remaining after medical costs. Women, retirees in poor health, and those who had insurance coverage that tended to lack prescription drug coverage prior to 2006 – notably traditional Medicare without supplemental coverage and enrollees in Medicare Advantage – have seen the majority of this increase. Since the closing of the Part D donut hole began in 2010, these same groups have seen a further increase in the post-OOP ratio.

Despite these recent increases in post-OOP ratios, with less than two-thirds of Social Security benefits available for spending on any needs other than medical care, and no other substantial sources of income for much of the elderly population, many retirees likely feel that making ends meet is difficult.²⁹ And the recent improvements were likely temporary. Medicare costs are expected to resume their decades-long increase after the recent pause, once the effects of the implementation of Part D and the Great Recession have worn off. These cost increases are expected to reduce the portion of Social Security benefits available for non-medical spending by another few percentage points by 2026, and the Medicare Trustees Report (2017) suggests that medical costs will grow even faster than Social Security benefits in subsequent decades. If costs resume their rise as expected, Social Security beneficiaries are likely to feel further pressure on their budgets.

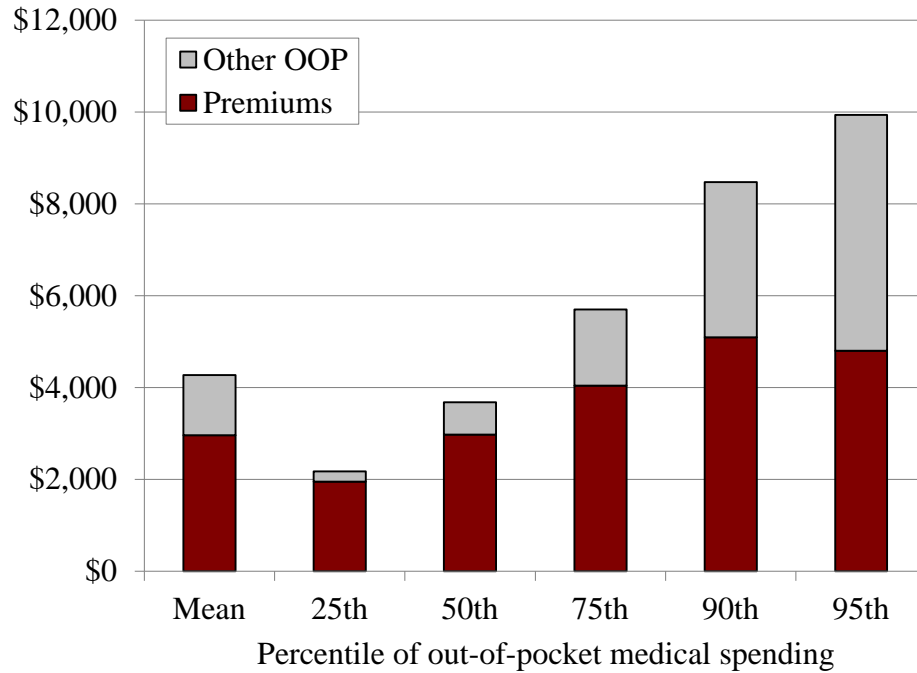
²⁹ On top of medical spending – which most analyses treat as outside of the individual’s discretion – retirees face a substantial amount of other non-discretionary costs. Farrell and Greig (2017) find that housing expenses, taxes, and non-housing debt represent about 30 percent of retirees’ household income, leaving even less for surprise expenses and any other desired consumption.

References

- Akincigil, Ayse and Karen Zurlo. 2015. "The Economic Burden of Out-of-Pocket Medical Expenditures Before and After Implementation of the Medicare Prescription Drug Program." Working Paper 2015-28. Chestnut Hill, MA: Center for Retirement Research at Boston College.
- The Boards of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds. 2017. *2017 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds*. Washington, DC.
- Chandra, Amitabh, Jonathan Holmes, and Jonathan Skinner. 2013. "Is This Time Different? The Slowdown in Health Care Spending." *Brookings Papers on Economic Activity* Fall 2013: 261-302.
- Congressional Budget Office. 2017. "Baseline Projections for Selected Programs: Medicare." <https://www.cbo.gov/sites/default/files/recurringdata/51302-2017-06-medicare.pdf>. Last accessed August 14, 2017.
- Cubanski, Juliette and Tricia Neuman. 2015. "Medicare's Income-Related Premiums: A Data Note." Menlo Park, CA: Kaiser Family Foundation.
- Cubanski, Juliette, Christina Swoope, Anthony Damico, and Tricia Neuman. 2014a. "Health Care on a Budget: The Financial Burden of Health Spending by Medicare Households." Menlo Park, CA: Kaiser Family Foundation.
- Cubanski, Juliette, Christina Swoope, Anthony Damico, and Tricia Neuman. 2014b. "How Much Is Enough? Out-of-Pocket Spending Among Medicare Beneficiaries: A Chartbook." Working Paper. Menlo Park, CA: Kaiser Family Foundation.
- Favreault, Melissa M. and Richard W. Johnson. 2016. "How Would Social Security Changes Affect Medicare Costs and Seniors' Out-of-Pocket Spending? A Microsimulation Analysis." Working Paper 15-10. Chestnut Hill, MA: Center for Retirement Research at Boston College.
- Friedberg, Leora, Wenliang Hou, Wei Sun, and Anthony Webb. 2014. "New Evidence on the Risk of Requiring Long-Term Care." Working Paper 2014-12. Chestnut Hill, MA: Center for Retirement Research at Boston College.
- Genworth. 2016. "Cost of Care Survey 2016." https://www.genworth.com/dam/Americas/US/PDFs/Consumer/corporate/131168_050516.pdf. Accessed August 14, 2017.
- Goldman, Dana P. and Julie M. Zissimopoulos. 2003. "High Out-Of-Pocket Health Care Spending by the Elderly." *Health Affairs* 22(3): 194-202.

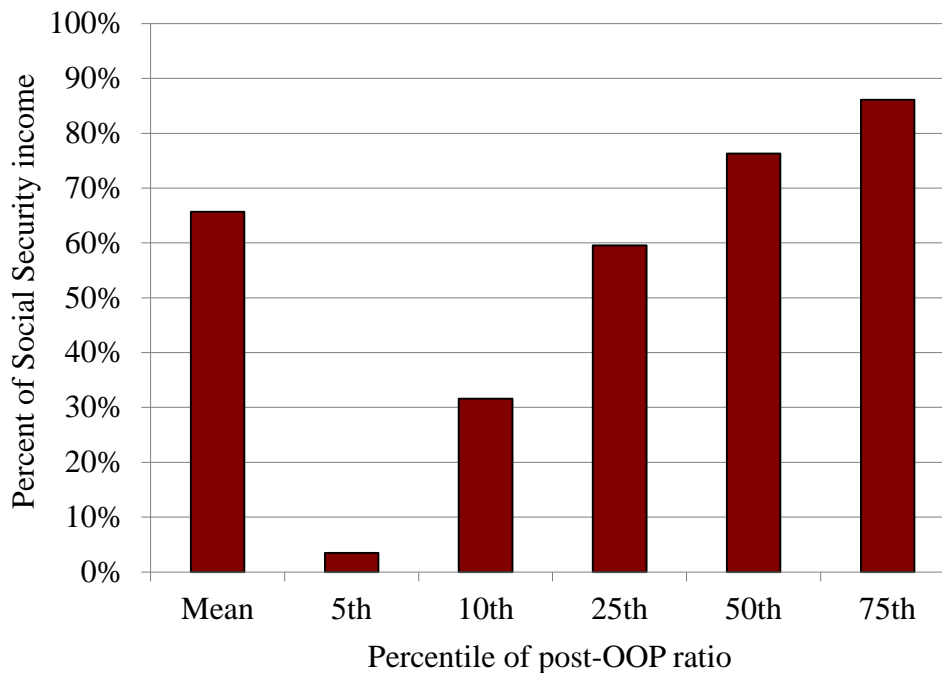
- Goldman, Dana P., Julie Zissimopoulos, and Yang Lu. 2011. "Medical Expenditures and Measures in the Health and Retirement Study." *Forum for Health Economics and Policy*, 14(3).
- Gustman, Alan L., Thomas L. Steinmeier, and Nahid Tabatabai. 2014. "Updated Pension Wealth Data Files in the HRS Panel: 1992 to 2010." Ann Arbor, MI: Health and Retirement Study. Available at: <http://hrsonline.isr.umich.edu/>.
- Hurd, Michael and Susann Rohwedder. 2008. "Methodological Innovations in Collecting Spending Data: The HRS Consumption and Mail Activities Survey." *Fiscal Studies* 30(3-4): 435-459.
- Munnell, Alicia H., Wenliang Hou, Anthony Webb, and Yinji Li. 2016. "Pension Participation, Wealth, and Income: 1992-2010." Working Paper 2006-3. Chestnut Hill, MA: Center for Retirement Research at Boston College.
- Neuman, Patricia, Juliette Cubanski, Katherine A. Desmond, and Thomas H. Rice. 2007. "How Much 'Skin in the Game' Do Medicare Beneficiaries Have? The Increasing Financial Burden of Health Care Spending, 1997-2003." *Health Affairs*, 26(6): 1692-1701.
- Noel-Miller, Claire. 2015. "Medicare Beneficiaries' Out-of-Pocket Spending for Health Care." *Insight on the Issues* brief. Washington, DC: AARP Public Policy Institute.
- Renwick, Trudi and Liana Fox. 2016. "The Supplemental Poverty Measure: 2015." Report P60-258. Washington, DC: U.S. Census Bureau.
- Social Security Administration. 2013. *Expenditures of the Aged Chartbook, 2010*. Washington, DC.
- Social Security Administration. 2017. *The 2017 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*. Washington, DC.
- Webb, Anthony and Natalia Zhivan. 2010. "How Much is Enough? The Distribution of Lifetime Health Care Costs." Working Paper 2010-1. Chestnut Hill, MA: Center for Retirement Research at Boston College.
- Wettstein, Gal. 2016. "Retirement Lock and Prescription Drug Insurance: Evidence from Medicare Part D." Working Paper. Cambridge, MA: Harvard University.

Figure 1. *Medical Out-of-Pocket Spending in 2014, by Spending Type and Percentile*



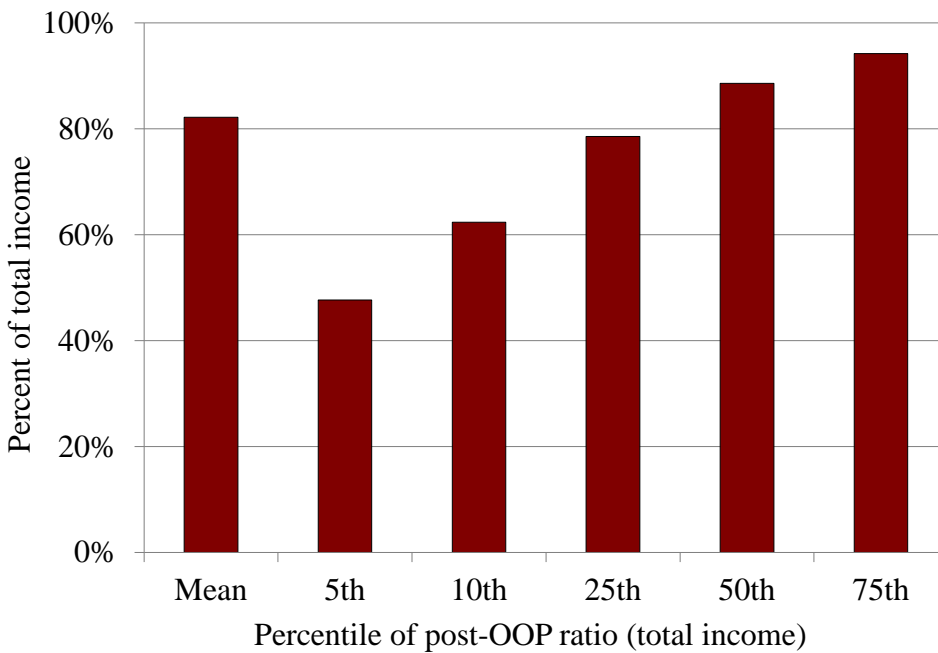
Source: *Health and Retirement Study*, 2014.

Figure 2. *Share of Social Security Income Remaining after Medical Out-of-Pocket Spending in 2014, by Percentile*



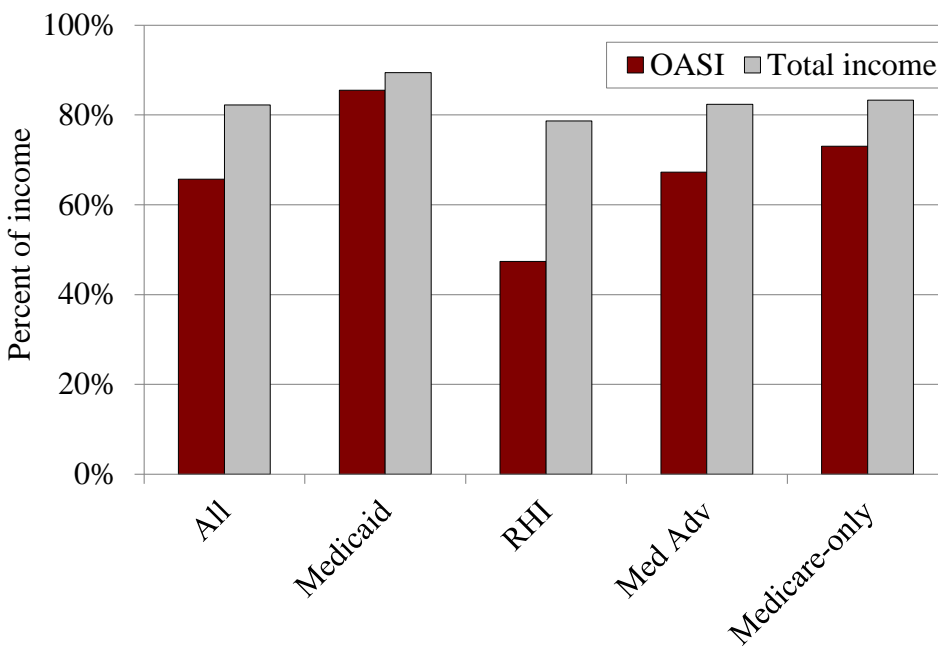
Source: *Health and Retirement Study*, 2014.

Figure 3. *Share of Total Income Remaining after Medical Out-of-Pocket Spending in 2014, by Percentile*



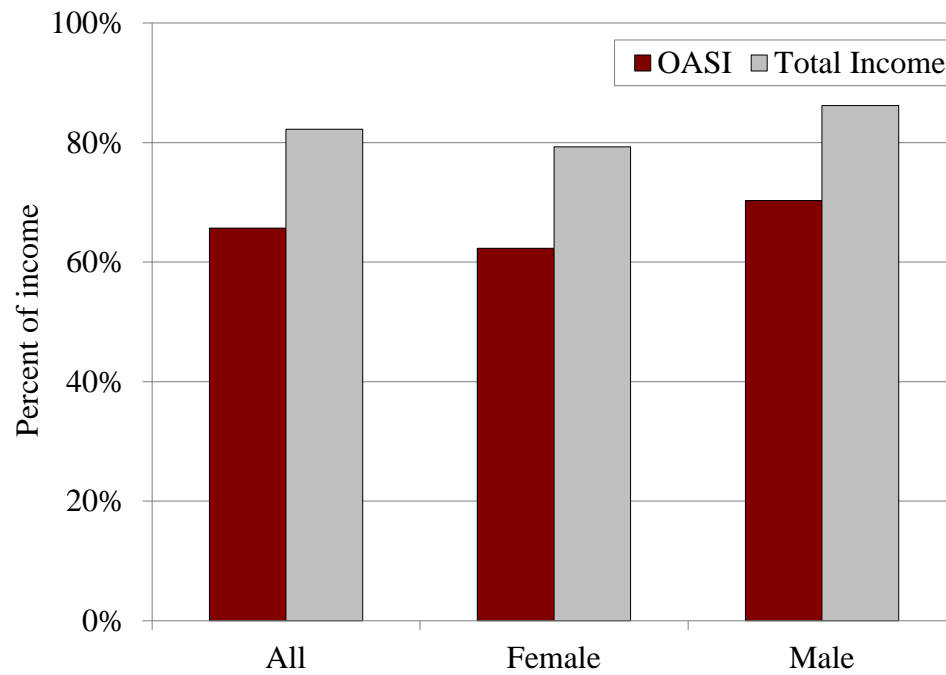
Source: Health and Retirement Study, 2014.

Figure 4. *Share of OASI and Total Income Remaining after Medical Out-of-Pocket Spending in 2014, by Supplemental Insurance Status*



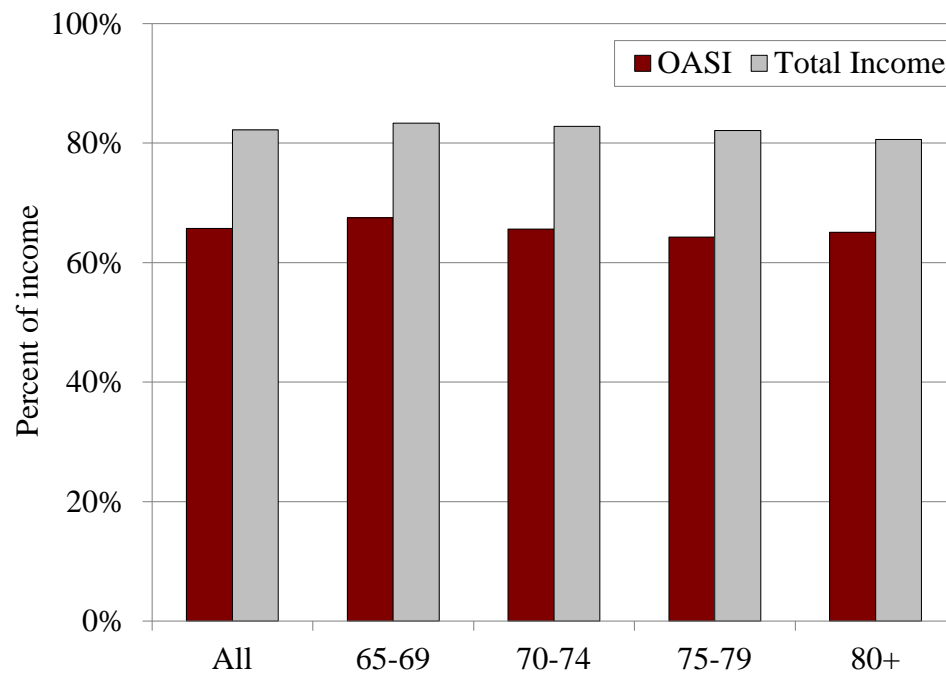
Source: Health and Retirement Study, 2014.

Figure 5. *Share of OASI and Total Income Remaining after Medical Out-of-Pocket Spending in 2014, by Gender*



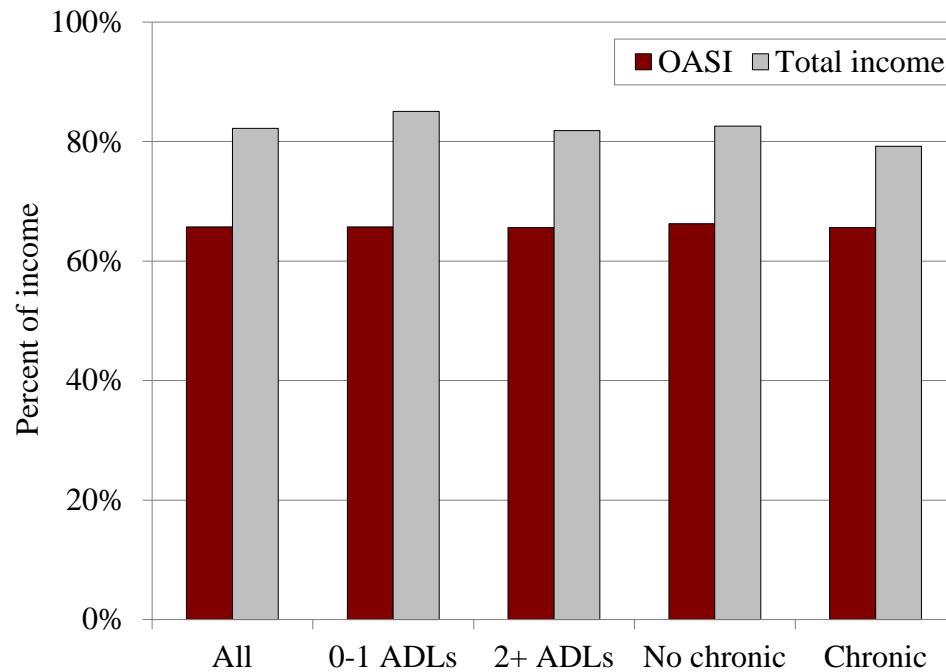
Source: Health and Retirement Study, 2014.

Figure 6. *Share of OASI and Total Income Remaining after Medical Out-of-Pocket Spending in 2014, by Age*



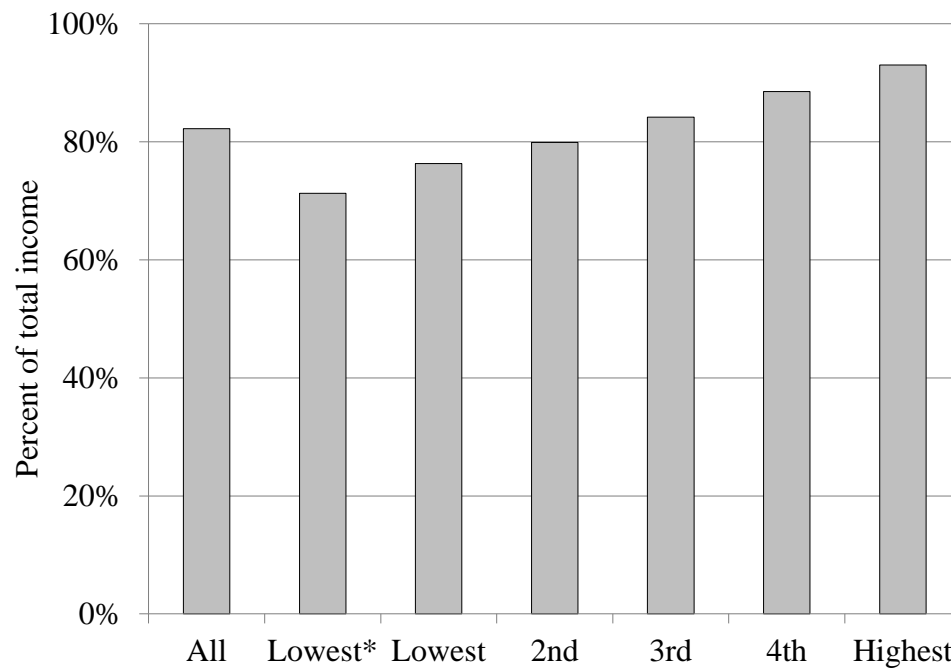
Source: Health and Retirement Study, 2014.

Figure 7. *Share of OASI and Total Income Remaining after Medical Out-of-Pocket Spending in 2014, by Health Status*



Source: Health and Retirement Study, 2014.

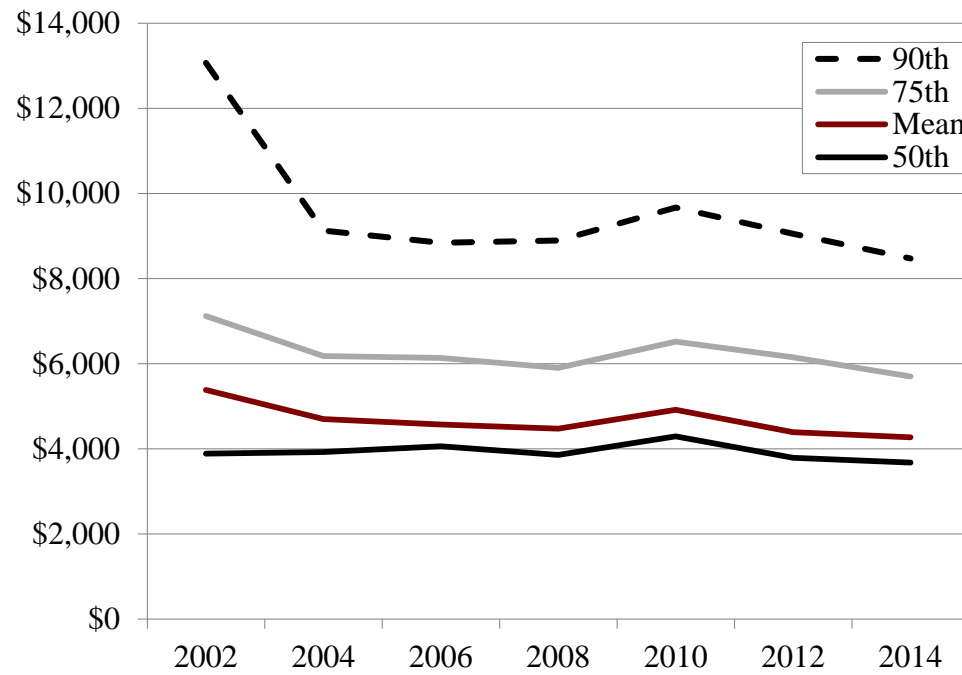
Figure 8. *Share of Total Income Remaining after Medical Out-of-Pocket Spending in 2014, by Household Income Quintile*



* excluding Medicaid.

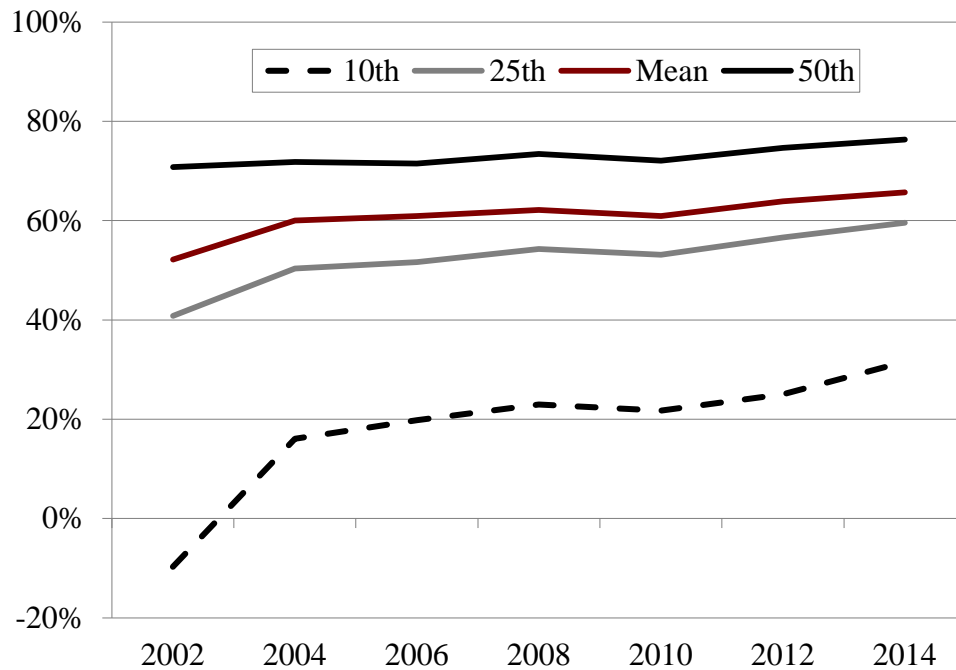
Source: Health and Retirement Study, 2014.

Figure 9. *Medical Out-of-Pocket Spending, 2002-2014, by Percentile*



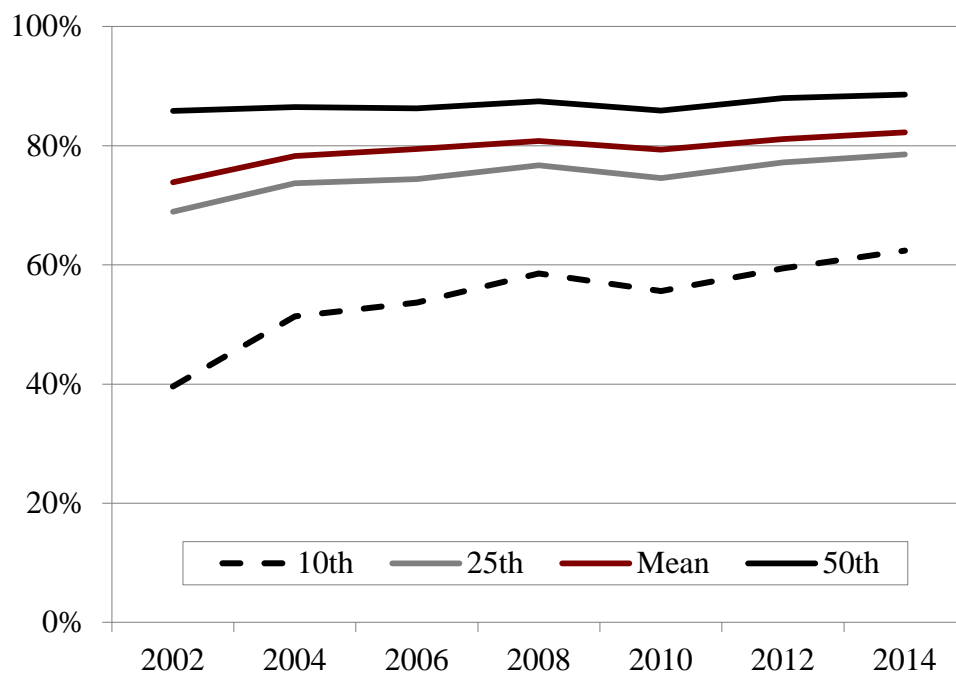
Source: *Health and Retirement Study, 2002-2014.*

Figure 10a. *Share of Social Security Income Remaining after Medical Out-of-Pocket Spending, 2002-2014, by Percentile*



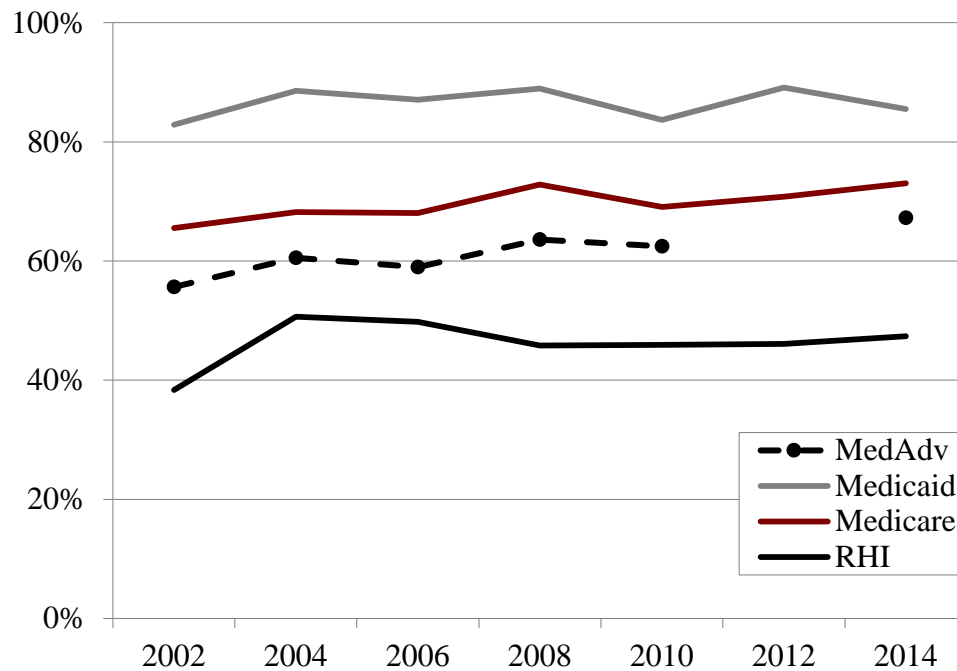
Source: *Health and Retirement Study*, 2002-2014.

Figure 10b. *Share of Total Income Remaining after Medical Out-of-Pocket Spending, 2002-2014*



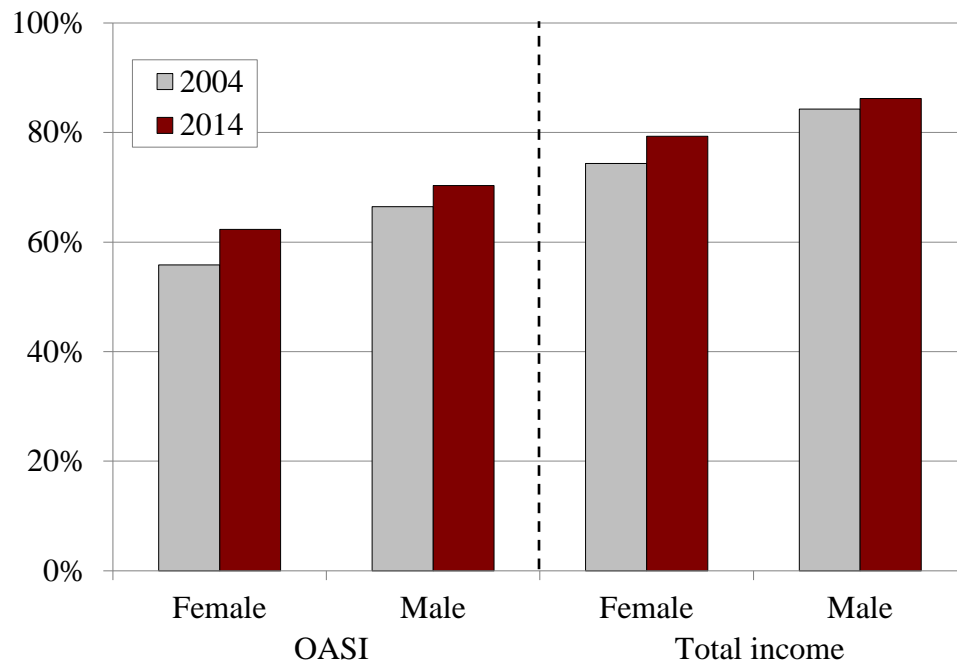
Source: *Health and Retirement Study*, 2002-2014.

Figure 11. *Share of Social Security Income Remaining after Medical Out-of-Pocket Spending, 2002-2014, by Supplemental Insurance Status*



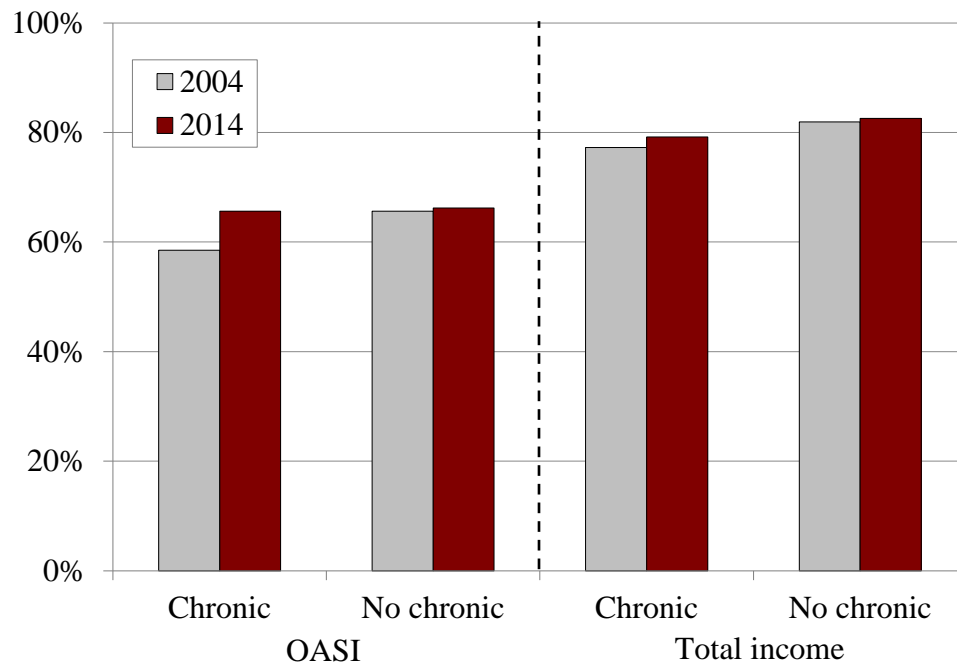
Source: Health and Retirement Study, 2002-2014.

Figure 12. *Share of OASI and Total Income Remaining after Medical Out-of-Pocket Spending in 2004 and 2014, by Gender*



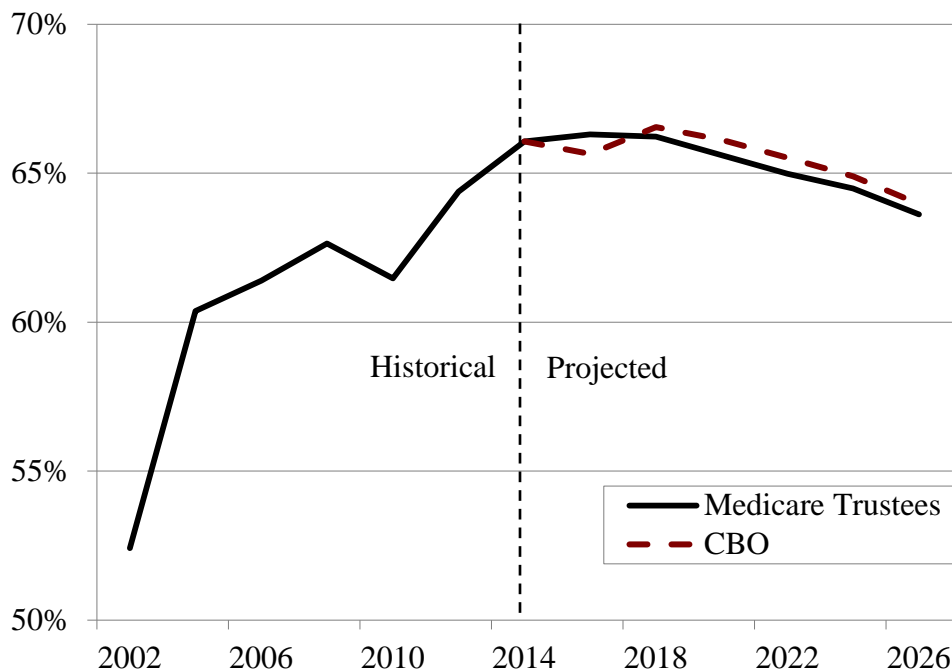
Source: Health and Retirement Study, 2002-2014.

Figure 13. *Share of OASI and Total Income Remaining after Medical Out-of-Pocket Spending in 2004 and 2014, by Presence of One or More Chronic Conditions*



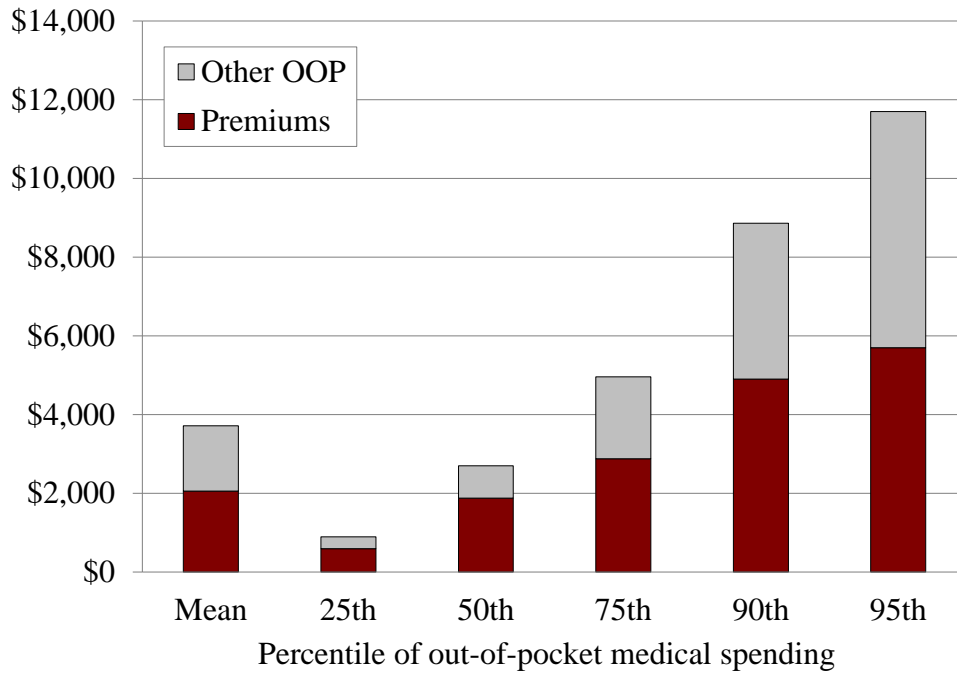
Source: *Health and Retirement Study*, 2002-2014.

Figure 14. *Projected Change in the Post-OOP Social Security Ratio for the Average Retiree, 2002-2026*



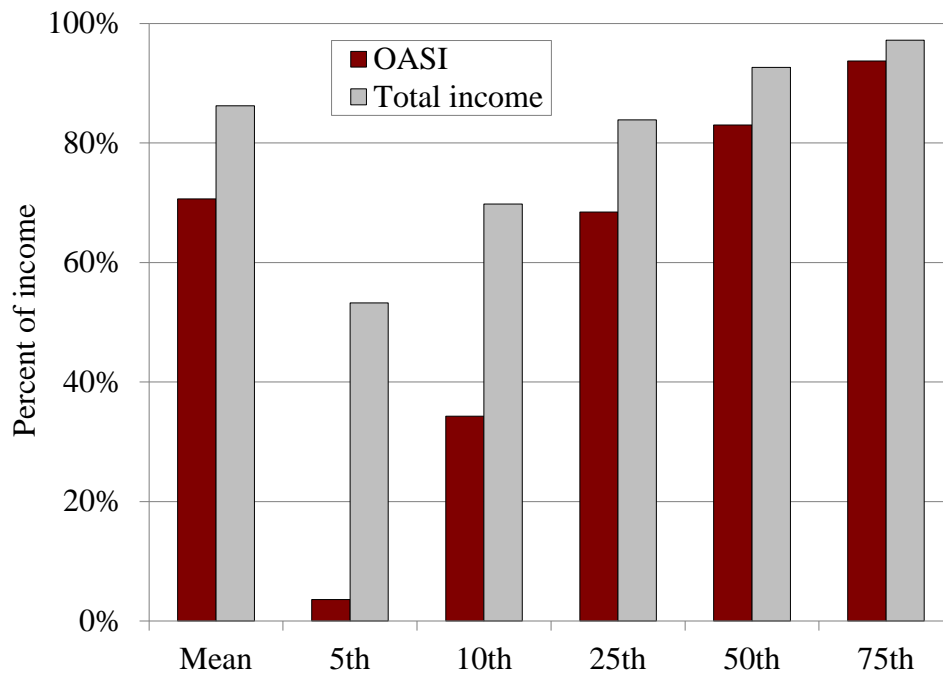
Sources: Authors' calculations using the *Health and Retirement Study*, 2002-2014; *Medicare Trustees Report* (2017); CBO (2017); and *Social Security Trustees Report* (2017).

Appendix Figure A. *Medical Out-of-Pocket Spending in 2015, by Spending Type and Percentile (CAMS)*



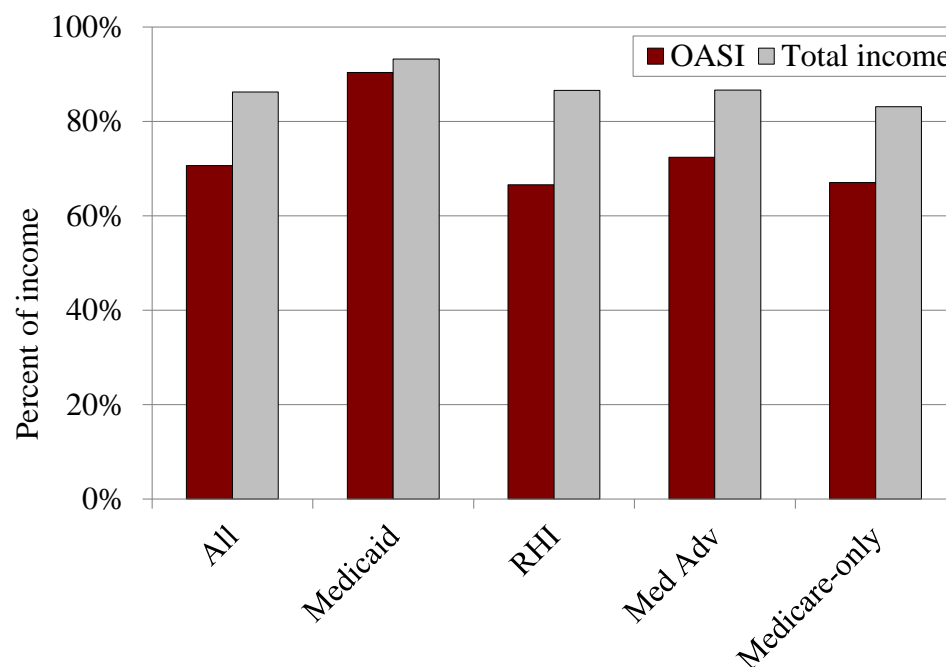
Source: Health and Retirement Study Consumption and Activities Mail Survey, 2015.

Appendix Figure B. *Share of OASI and Total Income Remaining after Medical Out-of-Pocket Spending in 2015, by Percentile (CAMS)*



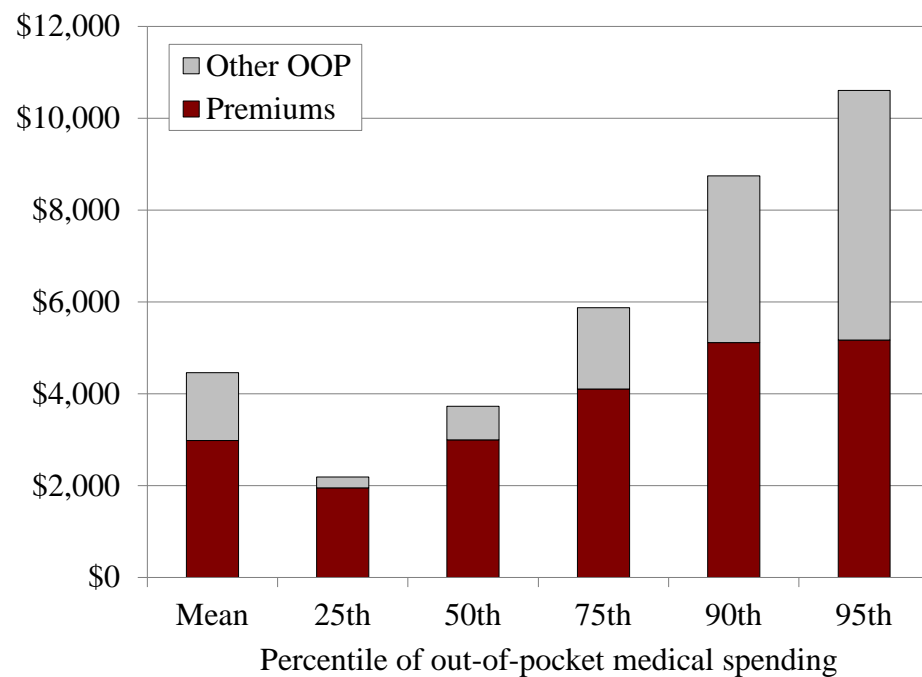
Source: Health and Retirement Study Consumption and Activities Mail Survey, 2015.

Appendix Figure C. *Share of OASI and Total Income Remaining after Medical Out-of-Pocket Spending in 2015, by Supplemental Insurance (CAMS)*



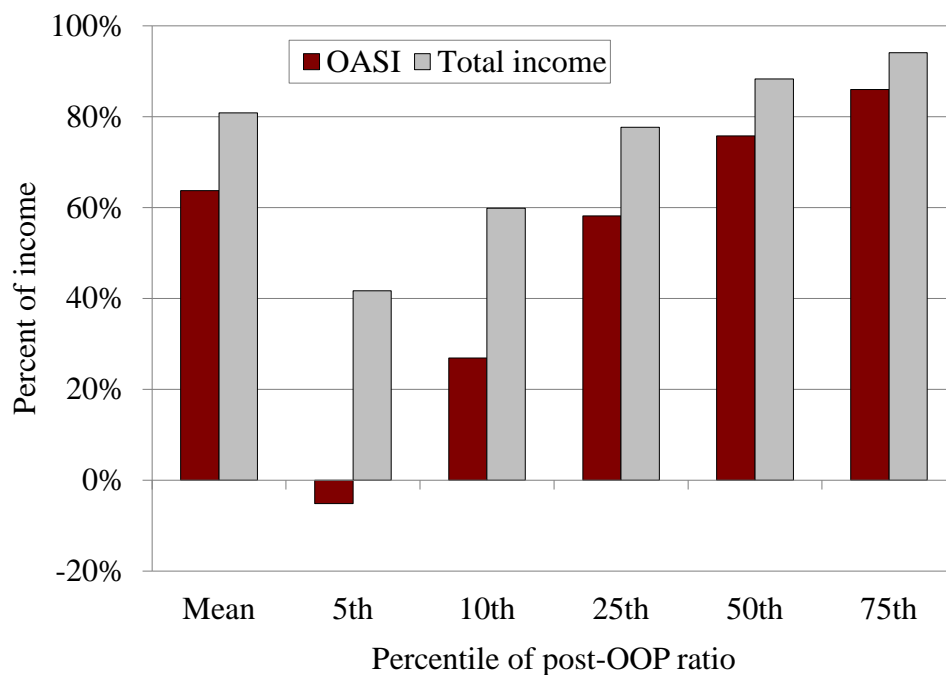
Source: Health and Retirement Study Consumption and Activities Mail Survey, 2015.

Appendix Figure D. *Medical Out-of-Pocket Spending in 2014, by Spending Type and Percentile (Including Long-Term Care)*



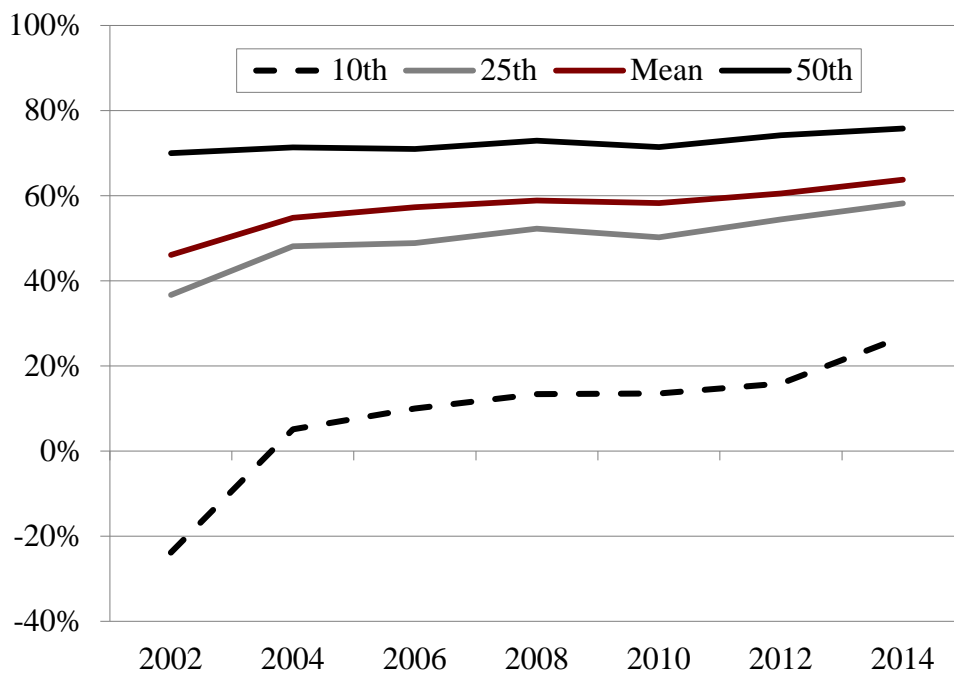
Source: Health and Retirement Study, 2014.

Appendix Figure E. *Share OASI and Total Income Remaining after Medical Out-of-Pocket Spending in 2014, by Percentile (Including Long-Term Care)*



Source: Health and Retirement Study, 2014.

Appendix Figure F. *Share of Social Security Remaining after Medical Out-of-Pocket Spending, 2002-2014, by Percentile (Including Long-Term Care)*



Source: Health and Retirement Study, 2002-2014.

RECENT WORKING PAPERS FROM THE
CENTER FOR RETIREMENT RESEARCH AT BOSTON COLLEGE

Can Knowledge Empower Women to Save More for Retirement?

Drew M. Anderson and J. Michael Collins, September 2017

Dementia, Help with Financial Management, and Well-Being

Anek Belbase and Geoffrey T. Sanzenbacher, September 2017

The Behavioral and Consumption Effects of Social Security Changes

Wenliang Hou and Geoffrey T. Sanzenbacher, September 2017

Family Transfers With Retirement-Aged Adults in the United States: Kin Availability, Wealth Differentials, Geographic Proximity, Gender, and Racial Disparities

Ashton M. Verdery, Jonathan Daw, Colin Campbell, and Rachel Margolis, August 2017

Guardianship and the Representative Payee Program

Anek Belbase and Geoffrey T. Sanzenbacher, August 2017

The Relative Effects of Economic and Non-Economic Factors on Taxpayers' Preferences Between Front-Loaded and Back-Loaded Retirement Savings Plans

Andrew D. Cuccia, Marcus M. Doxey, and Shane R. Stinson, July 2017

Social Security and Total Replacement Rates in Disability and Retirement

Mashfiqur R. Khan, Matthew S. Rutledge, and Geoffrey T. Sanzenbacher, May 2017

An Experimental Analysis of Modifications to the Survivor Benefit Information within the Social Security Statement

Jeffrey Diebold and Susan Camilleri, May 2017

Actuarial Inputs and the Valuation of Public Pension Liabilities and Contribution Requirements: A Simulation Approach

Gang Chen and David S. T. Matkin, May 2017

Why Are U.S. Households Claiming Social Security Later?

Wenliang Hou, Alicia H. Munnell, Geoffrey T. Sanzenbacher, and Yinji Li, April 2017

Rising Inequality in Life Expectancy by Socioeconomic Status

Geoffrey T. Sanzenbacher, Anthony Webb, Candace M. Cosgrove, and Natalia S. Orlova, April 2017

*All working papers are available on the Center for Retirement Research website
(<http://crr.bc.edu>) and can be requested by e-mail (crr@bc.edu) or phone (617-552-1762).*