Financial effects of an out-of-pocket cap in Traditional Medicare: a microsimulation study

Working Paper

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Abstract

Importance: Traditional Medicare exposes beneficiaries to substantial financial risk because – unlike Medicare Advantage – there is no out-of-pocket (OOP) maximum for medical spending. Policymakers have proposed introducing an OOP cap, but its fiscal and behavioral effects are uncertain.

Objective: To estimate the financial impact of introducing OOP spending caps in TM—set at $3,000, $5,000, or $10,000 annually—on beneficiary costs, enrollment patterns, and Centers for Medicare & Medicaid Services (CMS) expenditures between 2026 and 2033.

Design: Microsimulation model projecting enrollment, spending, and utilization outcomes under baseline (no OOP cap) and three alternative cap scenarios. The model incorporated elasticity-based behavioral responses, including beneficiary switching between TM and Medicare Advantage (MA) and changes in service use. Sensitivity analyses varied assumptions about demand elasticity and relative spending between TM and MA.

Setting: National analysis using publicly available Medicare and insurance data from 2020–2024 with projections through 2033.

Participants: Simulated Medicare population aged ≥65 years across six enrollment segments: TM without supplemental insurance, TM with Medigap, TM with employer-sponsored coverage, dual-eligible TM beneficiaries, individual MA enrollees, and employer-sponsored MA beneficiaries.

Exposure: Introduction of annual OOP caps for Parts A and B in TM at $3,000, $5,000, or $10,000.

Main Outcomes and Measures: Projected changes in beneficiary enrollment by coverage type, average annual beneficiary out-of-pocket and premium spending, and annual CMS expenditures (total and per beneficiary).

Results: Between 2026 and 2033, a \$3,000 OOP cap was projected to reduce average annual beneficiary expenditures by \$1,198, compared with \$888 under a \$5,000 cap and \$585 under a \$10,000 cap. Corresponding increases in annual CMS spending were estimated at \$56 billion, \$41 billion, and \$23 billion, respectively. OOP caps—especially at lower thresholds—would substantially shift beneficiaries from MA to TM.

Conclusions and Relevance: Implementing an OOP spending cap in TM would provide meaningful financial protection for beneficiaries but impose substantial fiscal costs on CMS.

Introduction

Over half of Medicare beneficiaries are now enrolled in Medicare Advantage (MA).[1] Beneficiaries are increasingly choosing MA plans because they offer supplemental benefits (including prescription drugs, vision, dental, and hearing) and cost sharing protections, all at premiums that are significantly lower than in Traditional Medicare (TM).[2] In parallel, employer groups have moved away from offering retiree coverage that supplements Traditional Medicare and shifted towards employer-sponsored Medicare Advantage plans.[3,4]

Despite the growing popularity of MA, it has important limitations that affect access to care and the quality of coverage. For beneficiaries, these include restrictions on provider networks, frequent denials and prior authorization requirements, and supplemental benefits that often fall short of marketing claims.[5,6] From a fiscal perspective, MA also places a growing burden on the federal budget: CMS pays MA plans 20% more to care for a similar beneficiary in TM due to overpayments from excessive risk coding, favorable selection, generous quality bonus payments, and other payment distortions.[2,7–10]

Given this tension, stakeholders are increasingly looking for strategies to "even the playing field" between TM and MA. The purpose of such strategies is to enhance the benefits of TM so that beneficiaries do not feel compelled to enroll in MA for supplemental benefits and financial protection. A shift towards TM enrollment may also reduce public spending relative to MA and improve CMS' budget position by reducing overpayment to MA plans.

One policy under consideration to even the playing field between TM and MA is to offer an out-of-pocket (OOP) spending cap in TM for Parts A and B.[11,12] OOP spending caps are nearly universal health insurance benefit features in both public and private coverage, serving as a critical financial protection against catastrophic medical costs.[13] However, OOP caps have been noticeably absent from the TM program. While the Inflation Reduction Act (IRA) recently introduced an OOP cap for prescription drug spending under Part D, there is no such protection in Parts A and B. The absence of an OOP cap in TM exposes beneficiaries, especially those without supplemental coverage, to substantial financial risk and represents a critical policy gap in Medicare's structure. Conversely, MA plans are required to offer such an OOP cap on medical spending, creating a significant advantage that draws beneficiaries away from TM.

Although an OOP cap for Parts A and B has conceptual appeal, its financial impact for beneficiaries and CMS is unknown. Under an OOP spending cap, Medicare would assume financial responsibility for all beneficiary spending related to Part A and B above the cap. This would lead to transfer of financial risk from beneficiaries to CMS, with potentially significant implications for Medicare spending. At the same time, an OOP spending cap in TM could lead to a complex set of behavioral interactions among beneficiaries and health plans. This includes beneficiary switching between MA and TM and changes in cost sharing, utilization, and spending.

In this paper, we use a microsimulation model to estimate the impact of an OOP cap for Parts A and B in TM on financial outcomes. We assess both the distributional impact on beneficiaries and the aggregate fiscal implications for CMS.

Methods

We developed a microsimulation model to project the financial impact of 3 potential annual OOP Part A and Part B spending caps ($3000, $5,000, $10,000) for Traditional Medicare beneficiaries between 2026 and 2033. These values represent varying levels of generosity relative to the current OOP cap in MA (around $9,000 for in-network care).[14] Estimates of spending and enrollment with no OOP cap – the baseline scenario – were based on projections between 2026 and 2033 (expressed in 2023 dollars) from the 2024 Medicare Trustees Report.[15]

We modeled enrollment and spending separately across key insurance segments within TM (no supplemental insurance, employer-sponsored supplemental insurance, Medigap-individually purchased supplemental insurance, and TM-dual eligibility with Medicaid) and MA (individual MA, employer-sponsored MA, and MA enrollees with dual eligibility) using data on the share of beneficiaries in each segment.[4] Relative spending differences, cost sharing, and spending above various OOP caps across segments was based on the 2021 Medicare Current Beneficiary Survey (MCBS) and recent literature.[16] Medigap premiums and loss ratios were calculated using data from 2020-2024 data from the National Association of Insurance Commissioners, accessed through the Mark Farrah portal. These data were combined with Trustee estimates of Medicare spending growth to estimate future Medigap premiums.

Microsimulation model design

Our microsimulation model was constructed at the segment-year level (e.g. Medigap, no supplemental insurance, individually purchased Medicare Advantage, in 2026). The model accommodated beneficiary switching across insurance segments as well as changes in utilization caused by changes in cost sharing resulting from OOP caps. Beneficiary responses to price changes in premiums and medical care were based on estimates of price elasticity of demand for medical care from the economics literature and from econometric modeling. In sensitivity analysis, we re-estimated the impact of OOP caps changing the elasticity of demand for medical care and supplemental insurance. Sensitivity analysis also made alternative assumptions about the difference in spending between TM and MA. More detailed information on the simulation and assumptions are described in eMethods, eTable 1, eTable 2, eFigure 1, eFigure 2 .

Results

Baseline Scenario

Under the baseline scenario – with no OOP cap– the TM population was projected to grow by 870,000 beneficiaries between 2026 and 2033 while the MA population was expected to grow by 8.15 million beneficiaries (**Table 1**). During this time, average annual medical spending was expected to increase from $16,226 to $19,518 for TM beneficiaries and from $15,853 to $24,194 for MA beneficiaries.

Enrollment Effects of OOP Caps

Figure 1 shows how the three alternative OOP were projected to impact TM and MA enrollment between 2026 and 2033. It shows that the caps would substantially affect beneficiary enrollment decisions, shifting beneficiaries from MA to TM. Under the $3,000 cap, TM enrollment was projected to be greater than MA enrollment until 2033 when enrollment would be equal. Under the $5,000 cap, MA and TM enrollment growth were projected to be similar until 2029, after which MA enrollment growth would exceed that of TM. Under the $10,000 cap, MA enrollment is projected to be greater than TM enrollment through 2033. Variation in TM and MA enrollment across the cap levels was driven by beneficiaries switching from having no supplemental coverage or MA to Medigap as a result of lower Medigap premiums (**eFigure 2**).

Spending Impacts of OOP Caps

Figure 2 shows the estimated impact of OOP caps on annual spending per beneficiary. The $3,000, $5,000, and $10,000 OOP caps would reduce annual beneficiary expenditures by an average of $1,198, $888, and $585 between 2026 and 2033. OOP spending reductions accounted for approximately 65% of beneficiary savings with Medigap premium reductions accounting for the remaining 35%.

Federal Spending Implications

The $3,000, $5,000, and $10,000 OOP caps were projected to increase CMS annual expenditures by $56 billion, $41 billion, and $23 billion between 2026 and 2033 (**Figure 3**). Approximately 85% of the increase in CMS expenditures would result from CMS covering OOP payments above the caps while the remaining 15% would result from increases in beneficiary utilization (from moral hazard) (**eFigure 3).**

Estimates were most sensitive to assumptions about the own price elasticity of demand, reflecting moral hazard. For example, an assumption of greater beneficiary price sensitivity of demand (an elasticity of -0.2, compared to -0.1 in the base scenario) resulted in higher average annual expenditures for CMS (e.g. $31 billion under the $10,000 cap) while an assumption of completely inelastic demand resulted in lower CMS expenditures (e.g. $15 billion under the $10,000 cap) (**Figure 3)**. Sensitivity analysis that modified assumptions about beneficiaries switching and assumptions about the relative costs of TM and MA had little effect on the results (**eFigure 4**).

Discussion

Our microsimulation model on the projected impact of OOP spending caps in TM between 2016 and 2033 yielded three key findings. First, OOP caps – particularly the more generous $3,000 and $5,000 caps – were projected to substantially shift beneficiaries from MA to TM. Second, beneficiary savings from TM OOP caps were projected to be considerable, ranging from average annual savings of $1,198 for the $3,000 OOP cap (3.6% of household income for Medicare beneficiaries) to $585 for the $10,000 OOP cap (1.6% of household income).[20] Third, OOP caps were projected to be expensive, leading to average annual increases in CMS expenditures under the base scenario of $56 billion for the $3,000 OOP cap and $23 billion for the $10,000 OOP cap. The projected impact of OOP spending caps on CMS expenditures were most sensitive to assumptions about elasticity of demand for medical care.

Our research updates and extends other estimates of the impact of OOP caps in Medicare. A 2022 Urban Institute report analyzed the impact of introducing a $5,000 cap on Parts A, B, and D spending,[12] finding that it would increase CMS expenditures by $39 billion in 2023. Projections from our study are directionally similar to those from Urban Institute. Our results are also consistent with conclusions from the Urban report that OOP caps would exert downward pressure on Medigap premiums. Our paper adds to this analysis by examining contemporary effects, examining the impact of multiple caps only for Part A and B, and explicitly accounting for potential shifts in MA or Medigap enrollment. While an analysis by the Congressional Budget Office examined the impact of an OOP cap for Part A and B as part of broader Medicare reforms, their approach did not identify the independent effect of an OOP cap.[21] To put the magnitude to our estimates of the impact of an OOP cap on CMS expenditures, they are relatively close to the costs of adding dental, vision, and hearing care to TM, which the Congressional Budget Office estimated would average $35.8 billion per year from 2020-2029.[22]

Limitations

Our study has several limitations. First, our model considered only the financial benefits to beneficiaries and did not incorporate important benefits for beneficiaries outside of financial savings. Evidence of beneficiary switching implies utility gains to beneficiaries even when beneficiary spending may increase (e.g. if a beneficiary switches from no supplemental insurance to Medigap and then pays Medigap premiums). A more complete welfare analysis would incorporate utility gains from an OOP cap, including those resulting from greater financial security, improved mental health,[17] and avoiding the hassle and restrained choice from network restrictions and prior authorization in MA.[18]

Second, our analysis relied on a number of assumptions about beneficiary behavior, Medigap premiums, and the relative expenses of TM and MA. While some elasticity estimates were quite consistent in the literature (e.g. own price elasticity for Medigap and medical care) other estimates were less certain (e.g. cross price elasticity between Medigap premiums and MA). Our sensitivity analysis suggested that results are most sensitive to assumptions about the elasticity of demand for medical care, but largely robust to assumptions about plan switching behavior.

Third, our analysis did not consider heterogeneity across individuals and insurance markets. For instance, the effects of OOP caps are likely to vary across beneficiary income and health status and across different state regulatory regimes with respect to Medigap. Relatedly, beneficiaries who switch supplemental insurance regimes likely differ in unobservable ways from non-switchers,[19] which we did not incorporate into our analysis. We also did not consider the potential dynamic response from MA and Medigap plans to attract beneficiaries in light of OOP caps in TM nor did we consider the impact of OOP caps on MA benchmarks. Fourth, we did not model the impact of uncollected liability, instead assuming that beneficiaries would be responsible for all OOP costs. In reality, beneficiaries have the ability to negotiate for lower bills or declare bankruptcy rather than paying large OOP bills. Finally, we did not consider the role of stand-alone Part D plans or the potential dropping of supplemental coverage altogether in order to limit the complexity of our model.

Policy implications

Our findings have important implications for Medicare policy. First, OOP caps in TM could have a significant impact on enrollment patterns, CMS expenditures, and beneficiary savings. However, the $3,000 and $5,000 OOP caps are too costly to be seriously considered by policymakers. Instead, our analysis suggests that the $10,000 cap, projected to cost CMS around $20 billion annually, is a more viable policy option. The $10,000 cap also has the greatest ratio of financial benefits to beneficiaries to costs to CMS, balancing meaningful financial protection for beneficiaries with more moderate federal costs. An OOP cap in TM could be funded through a variety of strategies ranging from reducing payments to drugs under the 340B program, site neutral payment reform, and reforms to payments to MA plans.[23] As overpayments in the MA program are estimated by MedPAC to be around $84 billion a year, there may be opportunities to pair a generous OOP CAP in FFS with reforms to the MA program.[24]

In addition to supporting Medicare beneficiaries, OOP caps would also substantially benefit health care providers. A large share of high OOP costs is never paid to providers and turn into "uncollected liability."[25] While CMS pays for a portion of this bad debt, OOP caps would reduce providers' administrative burden when seeking payment from beneficiaries and reduce an important part of payment uncertainty to providers.

Conclusion

Estimates from our microsimulation model suggest that OOP caps in TM would result in substantial benefits to beneficiaries but high expenditures to CMS. Among the options analyzed, a $10,000 OOP may best balance these costs and benefits at a reasonable price tag.

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Andrew Ryan had full access to all the data in the study and took responsibility for the integrity of the data and the accuracy of the data analysis.

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References

1. Freed M, Fuglesten Biniek J, Damico A, Neuman T. Medicare Advantage in 2024: Enrollment Update and Key Trends. KFF. Published August 8, 2024. https://www.kff.org/medicare/issue-brief/medicare-advantage-in-2024-enrollment-update-and-key-trends/

2. Ryan AM, Warrier A, Bejarano G, M Whaley C, Meyers DJ, Dixit MN. Trends in Plan Offerings, Enrollment, and Premiums in Medicare Advantage and Medigap. *Health Serv Res*. 2025;60(3):e14456. doi:10.1111/1475-6773.14456

3.Marr J, Polsky D. Traditional Medicare supplemental insurance and the rise of Medicare Advantage. *Am J Manag Care*. 2024;30(5):218-223. doi:10.37765/ajmc.2024.89539

4. Ochieng N, Cubanski J, Neuman T. A Snapshot of Sources of Coverage Among Medicare Beneficiaries. KFF. Published September 23, 2024. Accessed October 8, 2025. https://www.kff.org/medicare/issue-brief/a-snapshot-of-sources-of-coverage-among-medicare-beneficiaries/

5. U.S. Government Accountability Office. Medicare Advantage: Plans Generally Offered Some Supplemental Benefits, but CMS Has Limited Data on Utilization. U.S. Government Accountability Office. Published Jan 31, 2023. Accessed October 8, 2025. https://www.gao.gov/products/gao-23-105527

6. Meyers DJ, Rahman M, Trivedi AN. Narrow Primary Care Networks in Medicare Advantage. *J Gen Intern Med*. 2022;37(2):488-491. doi:10.1007/s11606-020-06534-2

7. Kronick R, Welch WP. Measuring coding intensity in the Medicare Advantage program. *Medicare Medicaid Res Rev*. 2014;4(2):mmrr2014.004.02.a06. Published 2014 Jul 17. doi:10.5600/mmrr2014-004-02-a06

8. Ryan AM, Chopra Z, Meyers DJ, Fuse Brown EC, Murray RC, Williams TC. Favorable Selection In Medicare Advantage Is Linked To Inflated Benchmarks And Billions In Overpayments To Plans. *Health Aff (Millwood)*. 2023;42(9):1190-1197. doi:10.1377/hlthaff.2022.01525

9. Geruso M, Layton T. Upcoding: Evidence from Medicare on Squishy Risk Adjustment. *J Polit Econ*. 2020;12(3):984-1026. doi:10.1086/704756

10. Dixit MN, Shroff J, Meyers DJ, Ryan AM. Estimating the Budgetary Impact of Reforms to the Medicare Advantage Quality Bonus Program. *JAMA*. 2025;334(1):83-84. doi:10.1001/jama.2025.4939

11. Cubanski J, Neuman T, Levinson Z, Jacobson G, Brenner M, Mays J. Modifying Medicare's Benefit Design: What's the Impact on Beneficiaries and Spending?. KFF. Published June 29, 2016. Accessed October 8, 2025. https://www.kff.org/medicare/modifying-medicares-benefit-design-whats-the-impact-on-beneficiaries-and-spending/

12. Gangopadhyaya A, Holahan J, Garrett B, Shartzer A. *Adding an Out-of-Pocket Spending Limit to Traditional Medicare*. The Urban Institute and The Robert Wood Johnson Foundation; 2022. Accessed October 8, 2025. https://www.urban.org/sites/default/files/2022-06/Adding%20an%20Out-of-Pocket%20Spending%20Limit%20to%20Traditional%20Medicare.pdf

13. 2023 Employer Health Benefits Survey. KFF. Published October 18, 2023. https://www.kff.org/report-section/ehbs-2023-section-1-cost-of-health-insurance/

14. Freed M, Biniek JF, Damico A, Neuman T. Medicare Advantage in 2024: Premiums, Out-of-Pocket Limits, Supplemental Benefits, and Prior Authorization. KFF. Published August 8, 2024. Accessed October 8, 2025. https://www.kff.org/medicare/medicare-advantage-in-2024-premiums-out-of-pocket-limits-supplemental-

benefits-and-prior-authorization/

15. Boards Of Trustees Of The Federal Hospital Insurance And Federal Supplementary Medical Insurance Trust Funds. 2024 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds. Centers for Medicare and Medicaid Services (CMS). Published May 6, 2024. Accessed October 8, 2025. https://www.cms.gov/oact/tr/2024

16. Ippolito B, Trish E, Vabson B. Expected Out-Of-Pocket Costs: Comparing Medicare Advantage With Fee-For-Service Medicare. *Health Aff (Millwood)*. 2024;43(11):1502-1507. doi:10.1377/hlthaff.2024.00295

17. Baicker K, Taubman SL, Allen HL, et al. The Oregon experiment--effects of Medicaid on clinical outcomes. *N Engl J Med*. 2013;368(18):1713-1722. doi:10.1056/NEJMsa1212321

18. Herd P, Moynihan D. Health care administrative burdens: Centering patient experiences. *Health Serv Res*. 2021;56(5):751-754. doi:10.1111/1475-6773.13858

19. Estimating Medicare Advantage coding intensity and favorable selection. In: Report to the Congress: Medicare Payment Policy. Medicare Payment Advisory Commission (MedPAC). Published March 2024. Accessed October 8, 2025. https://www.medpac.gov/wp-content/uploads/2024/03/Mar24_Ch13_MedPAC_Report_To_Congress_SEC.pdf

20. Cottrill A, Cubanski J, Neuman T, Smith K. Income and Assets of Medicare Beneficiaries in 2024. KFF. Published August 25, 2025. Accessed October 8, 2025. https://www.kff.org/medicare/income-and-assets-of-medicare-beneficiaries/

21. Change the Cost-Sharing Rules for Medicare and Restrict Medigap Insurance. Congressional Budget Office (CBO). Published December 7, 2022. Accessed October 8, 2025.

https://www.cbo.gov/budget-options/58647

22. Budgetary Effects of H.R. 3, the Elijah E. Cummings Lower Drug Costs Now Act. Congressional Budget Office (CBO). Published December 10, 2019. Accessed October 8, 2025. https://www.cbo.gov/system/files/2019-12/hr3_complete.pdf

23. Options for Reducing the Deficit: 2025 to 2034. Congressional Budget Office (CBO). Published December 2024. Accessed October 8, 2025. https://www.cbo.gov/system/files/2024-12/60557-budget-options.pdf

24. June 2025 Report to the Congress: Medicare and the Health Care Delivery System. Medicare Payment Advisory Commission (MedPAC). Published June 12, 2025. Accessed October 8, 2025. https://www.medpac.gov/document/june-2025-report-to-the-congress-medicare-and-the-health-care-delivery-system/

25. June 2021 Report to the Congress: Medicare and the Health Care Delivery System . Medicare Payment Advisory Commission (MedPAC). Published June 15, 2021. Accessed October 8, 2025. https://www.medpac.gov/document/june-2021-report-to-the-congress-medicare-and-the-health-care-delivery-system/

Table 1. Descriptive statistics

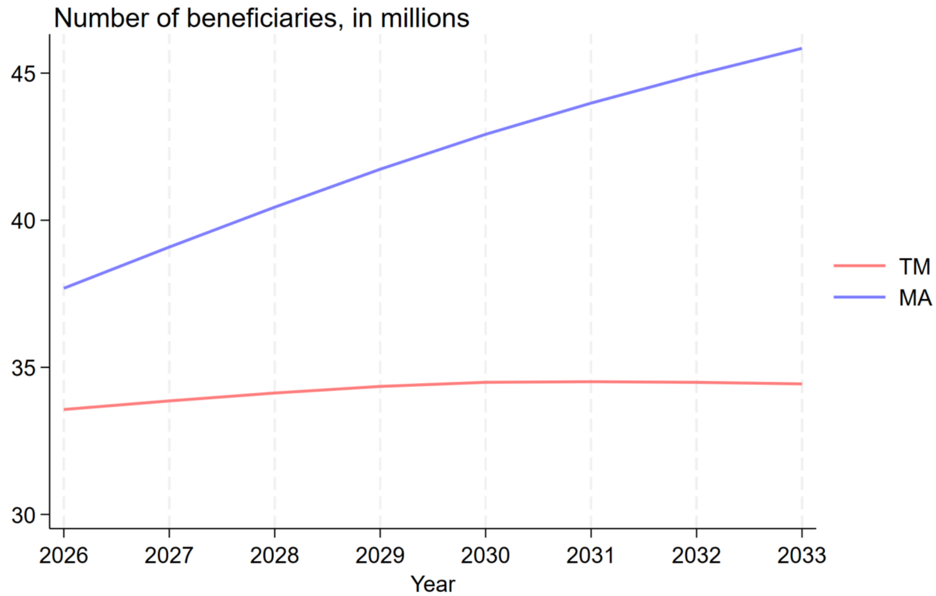
	Values under baseline (counterfactual) scenario	
	2026	2033
Traditional Medicare Beneficiaries, n	33,568,000	34,437,000
Medicare Advantage beneficiaries, n	37,687,000	45,842,000
Beneficiaries by segment, n		
TM Medigap	14,098,560	14,463,540
TM ESI	10,406,080	10,675,470
TM dual	5,370,880	5,509,920
TM No supplemental	3,692,480	3,788,070
MA individual	22,235,330	27,046,780
MA ESI	6,783,660	8,251,560
MA dual	8,668,010	10,543,660
Annual Part A and B spending per Traditional Medicare beneficiary, mean	$16,226	$19,518
Annual Part A and B spending	$15,853	$24,194

Medicare Advantage per beneficiary, mean		
Medigap premiums, mean	$3,648	$4,388

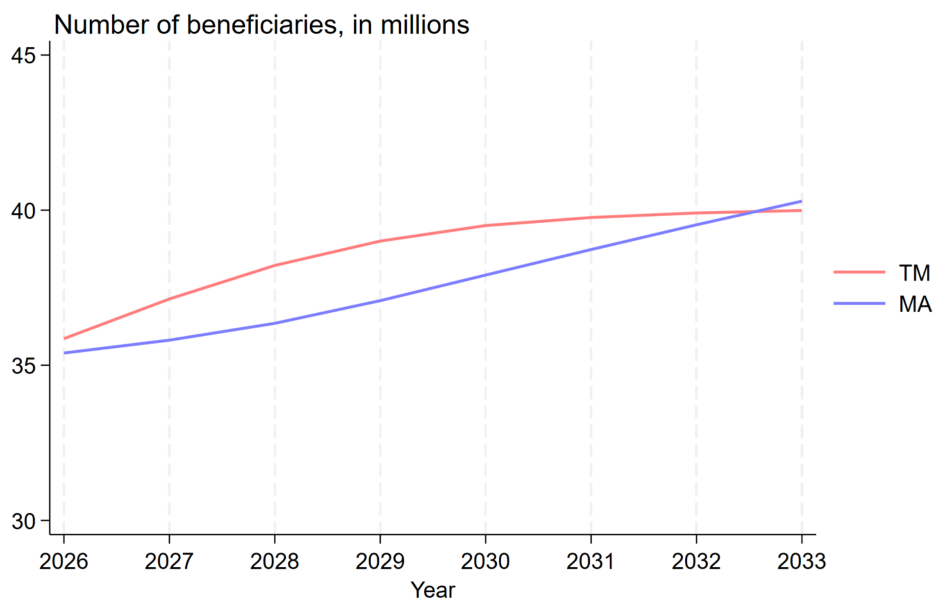
Notes: Own price elasticity of demand for Medigap=-1.4; Cross-price elasticity of demand for Medigap and MA=0.41; Own price elasticity of demand for medical care=-0.2. Estimates drawn from 2024 Medicare Trustees Report and relative segment enrollment.(4,15) ESI stands for Employer-Sponsored Insurance.

Figure 1. Projected enrollment in Traditional Medicare and Medicare Advantage under alternative out-of-pocket caps

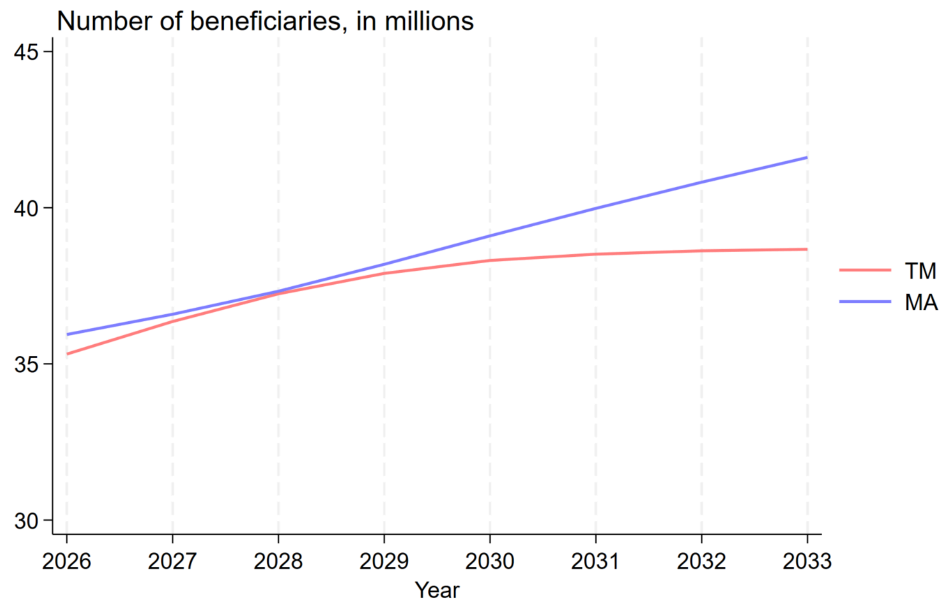
Panel A. Baseline, no out-of-pocket cap



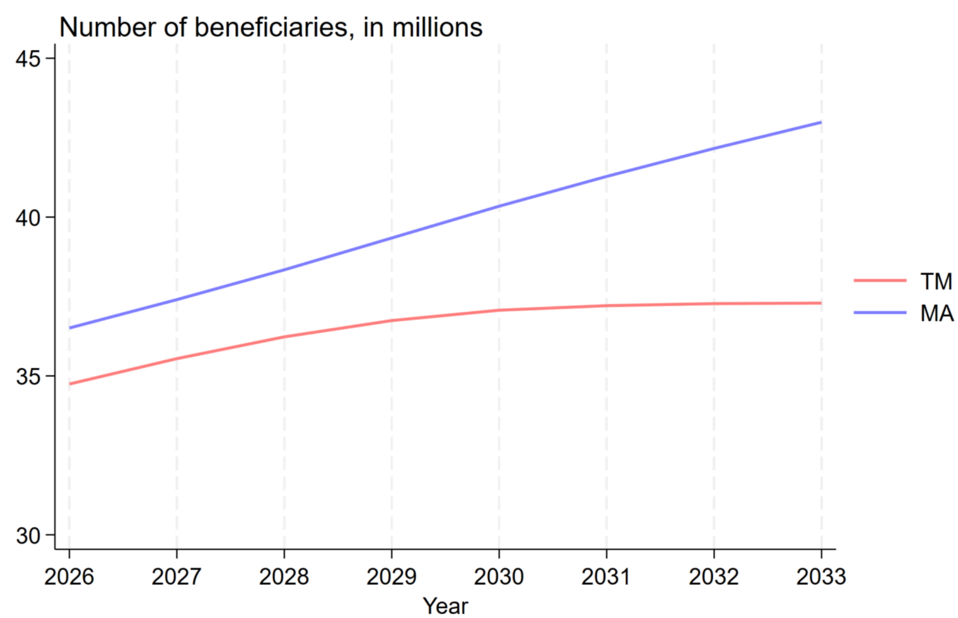
Panel B. $3,000 out-of-pocket cap



Panel C. $5,000 out-of-pocket cap



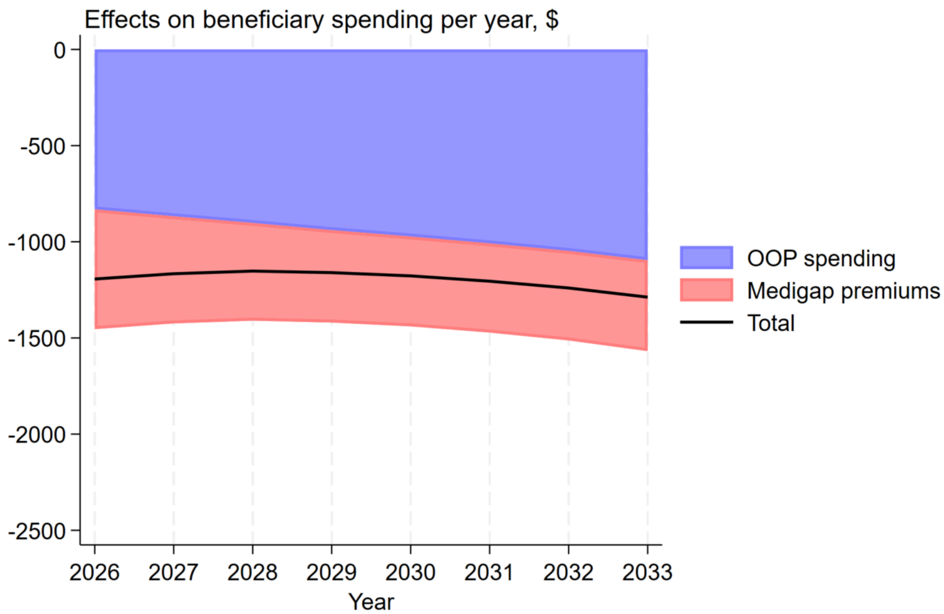
Panel D. $10,000 out-of-pocket cap



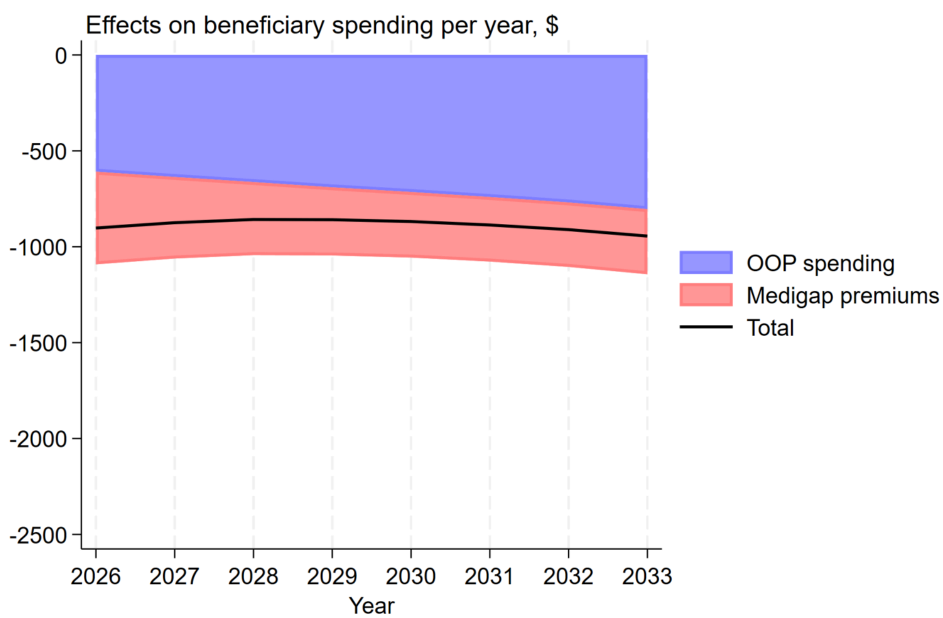
Source: Authors' analysis of microsimulation model.

Figure 2. Effects of out-of-pocket caps on annual per-beneficiary spending

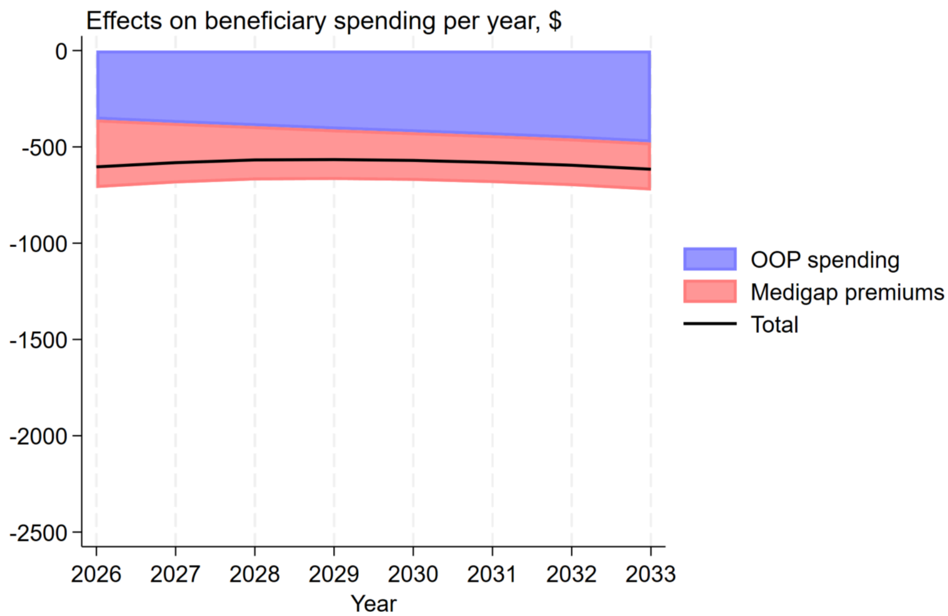
Panel A. $3,000 out-of-pocket cap



Panel B. $5,000 out-of-pocket cap



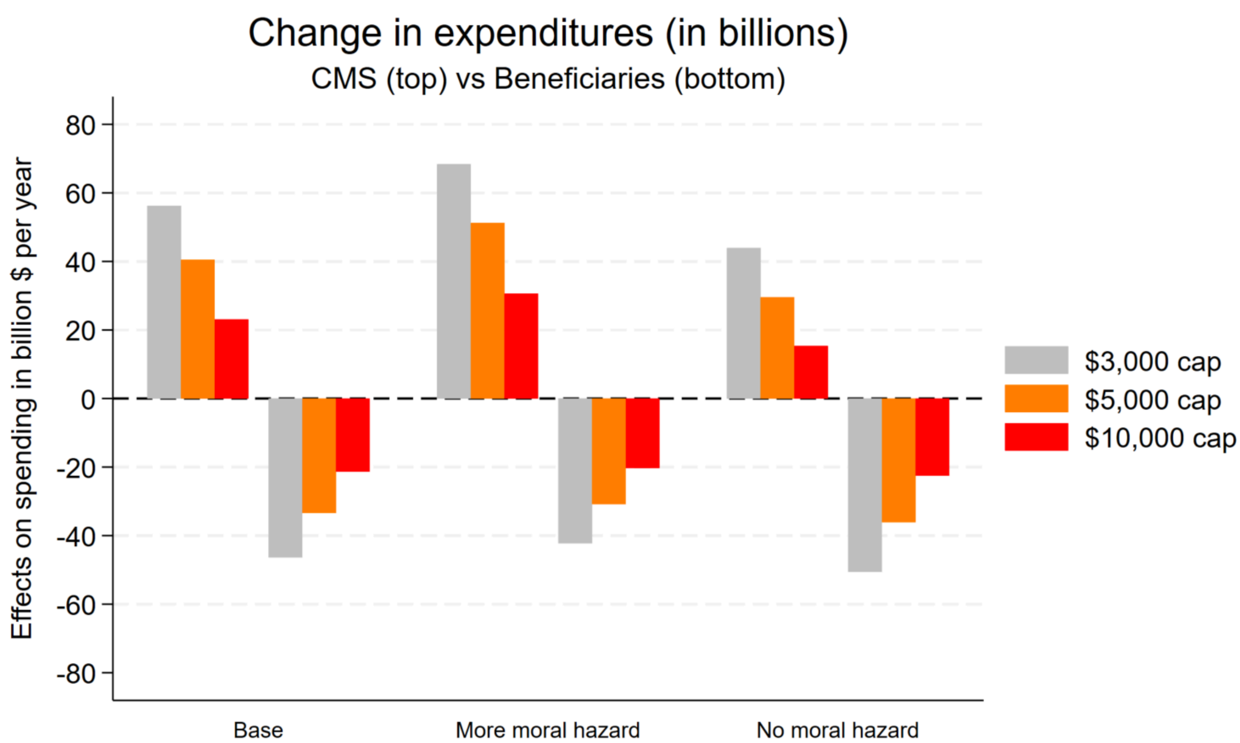
Panel C. $10,000 out-of-pocket cap



Source: Authors' analysis of microsimulation model.

Notes: "Total" is less than the sum of reductions in OOP spending and Medigap premiums because it incorporates projected increases in beneficiaries' Part B premiums from increased utilization.

Figure 3. Estimates of average annual changes in expenditures for CMS and beneficiaries under alternative out-of-pocket caps Across Varying Levels of Moral Hazard, 2026-2033



Notes: Elasticity of demand for medical care varies across the three scenarios: -0.1 for the base scenario; -0.2 for the “more moral hazard” scenario; and 0 for the “no moral hazard” scenario.

Appendix

eMethods

Baseline Projections

Estimates of spending and enrollment with no OOP cap – the baseline scenario – were based on projections between 2026 and 2033 (expressed in 2023 dollars) from the 2024 Medicare Trustees Report.[1]

Beneficiary Segmentation

Enrollment and spending were projected for separate segments within TM (no supplemental insurance, employer provided supplemental insurance, Medigap, and TM-dual) and MA (individual MA, employer provided MA, and MA-dual) using data on the share of beneficiaries in each segment.[2] We assumed that the share of enrollment in different segments within TM and MA would remain constant throughout the study period, rather than conflating them with ongoing secular enrollment trends. This approach allows us to estimate the marginal impact of the policy change alone, independent of broader market shifts.

Spending Assumptions

We estimated relative spending differences across the TM segments using data from the 2021 Medicare Current Beneficiary Survey (MCBS). Because data on MA spending was unreliable in the MCBS, we assumed that the ratio or spending for duals and non-duals was the same as observed in TM and that spending was the same in employer provided and individually-purchased MA plans. We assumed that the same beneficiary in TM would be 20% less costly to CMS than they would be in MA throughout the simulation period. This is a conservative estimate based on only the excess payments to MA based on risk coding and favorable selection.[3]

We also used 2021 MCBS data to calculate the levels and share of beneficiary and plan sponsored (e.g. Medigap) spending above and below each level of the OOP cap for each TM segment. These calculations were used to estimate how much the OOP caps would affect beneficiary and CMS expenditures. Because we could not accurately calculate these expenditure shares for MA, we assumed them to be the same as for TM Medigap. We also used MCBS data to calculate the average cost sharing across each TM segment. Because cost sharing for MA was not reliably estimated in MCBS we derived an estimate of MA cost sharing from a recent paper.[4]

Finally, Medigap premiums and loss ratios were calculated using data from 2020-2024 data from the National Association of Insurance Commissioners, accessed through the Mark Farrah portal. These values were converted into the share of Part A and B spending and applied across the study period.

Outcome Measures

Our primary study outcomes were beneficiary spending and CMS spending. Beneficiary spending consisted of OOP spending, Medigap premiums, uncollected liability, and Part B premiums. CMS spending included expenditures associated with OOP spending above the cap, expenditures resulting from lower beneficiary cost sharing, and expenditures associated with compositional changes between TM and MA. Part B beneficiary premiums were subtracted from CMS expenditures. We also evaluated segment enrollment as a secondary outcome.

Microsimulation assumptions and architecture

Our microsimulation model was specified at the segment-year level. Beneficiary responses to price changes were based on estimates from the economics literature or from econometric modeling. The model required us to identify a number of assumptions and behavioral parameters shown in Appendix Exhibit A1 and described below.

eTable 1. Key microsimulation assumptions and parameter values

Assumption	Base Value	Values in alternative scenarios	Source
Own-price elasticity of demand for Medigap	-1.4	-0.7	Cabral and Mahoney (2019); Curto (2023); Starc (2014)
Cross-price elasticity of demand for MA with respect to Medigap premiums	0.41	0.205	*De novo* econometric estimate (see below)
Own-price elasticity of demand for medical care	-0.2	-0.1, 0	Manning (1987)
TM and MA cost differential	Same beneficiary in TM would be 20% less costly to CMS than they would be in MA		MedPAC (2025)
Inertia in supplemental plan switching	Half of switching immediately, complete phase-in after 5 years	NA	Heis et al. 2021
Employer sponsored and Dual benes would	NA	NA	NA

never switch			
No beneficiaries dropped supplemental coverage altogether	NA	NA	NA

Own price elasticity of demand for Medigap

We assumed that the own-price elasticity of demand for Medigap was -1.4. This value was the average of own-price Medigap elasticities from three studies [5–7](Appendix Exhibit A1).

Cross price elasticity of demand for MA with respect to Medigap premiums

An older study found strong effects of Medigap premiums on enrollment in managed Medicare [8] while more recent studies found little relationship.[5,7] To address this discrepancy, we performed an econometric analysis. Our analysis was performed at the count-year level using data on Medigap premiums from Weiss ratings and MA penetration from Medicare regional variation files between 2014 and 2021. Medigap premiums were measured using the Paasch price index (in dollars) based on the age, gender, race, smoking status, and Medigap plan letter. Our analysis controlled for the share of dually-eligible TM beneficiaries, average TM beneficiary age, the share of female TM beneficiaries, average TM Medicare spending, TM Medicare risk (captured by HCC scores), and average MA premiums. The data and sample has been described in greater detail elsewhere.[9]

Because there was limited variation in Medigap premiums and MA penetration within counties over time, identification through longitudinal fixed effects analysis was problematic given variance inflation. Instead, we estimated a pool cross-sectional model for county *j* in year *t*:

$$(1)\quad \textit{MA penetration}_{jt} = b_0 + b_1\, \textit{Medigap premium}_{jt} + b_2 X_{jt} + b_3\, \textit{year}_t + u_{jt}$$

We also performed an instrumental variables analysis where the Medigap premium was instrumented based on whether a state had guaranteed issue, community rating, or both.
We then transformed b1 to capture how a percentage change in the Medigap premium would affect MA penetration in percentage terms. The model was weighted by the number of TM beneficiaries. Standard errors were clustered by state.

The results, shown in Appendix Exhibit A2, show that the cross-price elasticity of demand for MA with respect to Medigap premiums in the base model was 0.41. The estimate from our instrumental variables model was similar.

eTable 2. Estimates of cross-price elasticity of demand

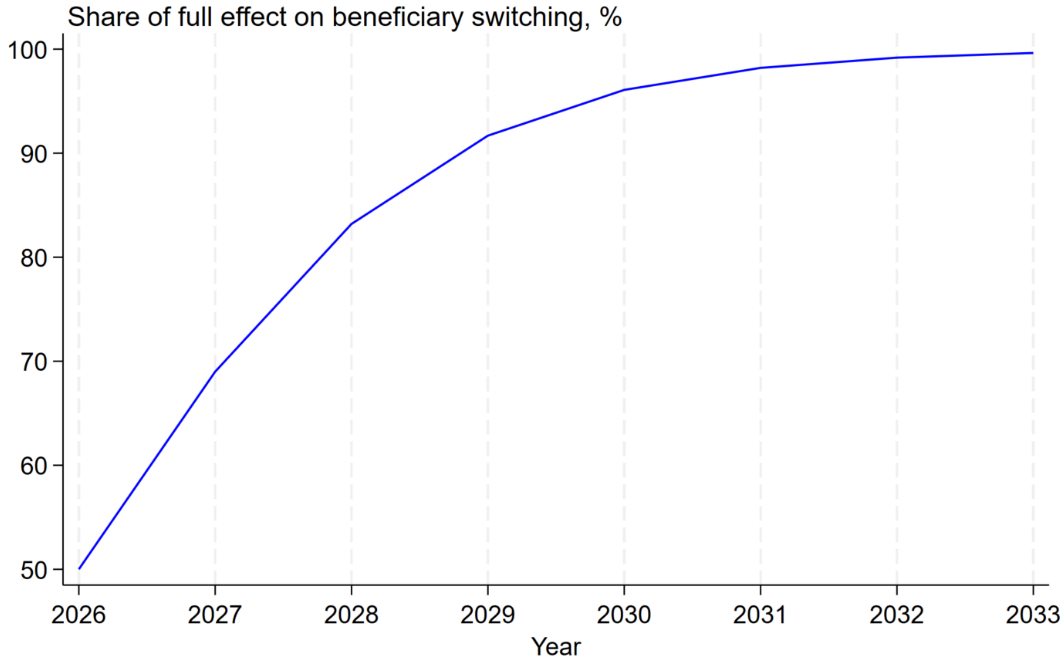
Model specification	Controls?	Instrumental variable?	Coefficient estimate	Elasticity
1	Yes	No	.0000337	0.4139
2	Yes	Yes	.0000285	0.3500

Note: Models include 21,293 county-year observations from 2,798 counties in 46 states representing information from 370 million TM beneficiary years from 2014 to 2021

Modeling inertia in plan switching

Given evidence of inertia in Medicare plan choice,[10–12] we assumed that switching would occur in a non-linear phased manner, with half of switching occurring immediately and the remaining switching increasing at a decreasing rate until near complete phase-in by year 5 in 2031 (eMethods). Importantly, we assumed that only those beneficiaries in TM without supplemental insurance, beneficiaries in TM Medigap plans, and beneficiaries in individual MA plans would be responsive to Medigap price changes. Beneficiaries with employer sponsored supplemental insurance and those who were dually eligible for Medicaid were not assumed to not be responsive to Medigap price changes. Lacking clear evidence about how OOP caps may decrease demand for supplemental insurance, we also assumed that no beneficiaries would drop coverage altogether as a result of the cap. In addition, we assumed that the OOP caps made no impact on the total population of Medicare beneficiaries (e.g., no effects of OOP caps on mortality).

eFigure 1. Phase-in function



Own price elasticity of demand for Medigap

Finally, own-price elasticity of demand with respect to medical care was -0.1.[13,14] While patients' price sensitivity to medical care is well-established,[15,16] evidence suggests that price has a larger effect on whether patients use any care (versus no care) compared to the impact of price conditional on any utilization.[17,18] All beneficiaries reaching OOP caps would already have substantial health care utilization in a given year, suggesting lower price sensitivity. In addition, demand for physician and hospital services (included in Part A and Part B) is less price sensitive than other services such as prescription drugs.[19] Given this evidence, our base model used the midpoint between the standard price elasticity of demand for medical care (-0.2) and completely inelastic demand. Apart from the impact of reductions in cost sharing from changing supplemental insurance, we assumed that switchers maintain the spending profile of their prior group (e.g. switchers from no supplemental insurance to Medigap maintain spending levels from no-supplemental insurance).

Using these inputs, our microsimulation model proceeded in several steps. First, we estimated the impact of OOP caps on Medigap premiums. This was accomplished by calculating the reduction in Medigap plan claims from a given OOP cap (eMethods). OOP spending caps were assumed to increase proportionally over time with changes in Part A and B spending. Next, we used the own price Medigap and cross price MA elasticities to generate beneficiary switching between segments. We then estimated how OOP caps would affect utilization through changes in beneficiaries' cost sharing. The changes occurred below the cap for beneficiaries switching between segments and occurred above the cap for all beneficiaries in TM. Changes in effective prices were multiplied by the own-price elasticity of demand demand for medical care to derive expected changes in medical spending.

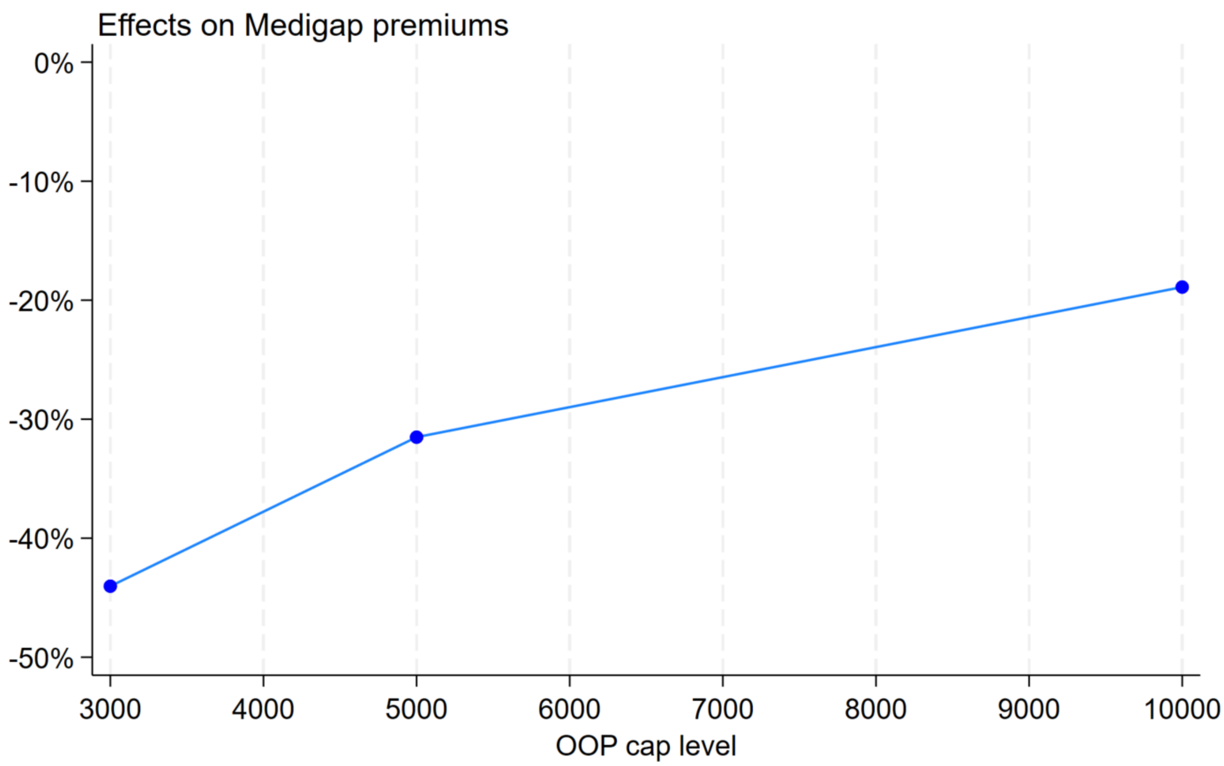
Based on these new levels of utilization, we calculated the impact of the caps on spending for CMS and beneficiaries. Changes in beneficiary spending were estimated at the beneficiary-year level and decomposed into differences related to OOP spending, Medigap premiums, and Part B premiums. Expenditures on Medigap premiums included both changes in Medigap enrollment and Medigap prices. Part B premiums were calculated assuming that Part B spending would remain a constant 56% of combined Part A and B spending[20] and that beneficiaries would be responsible for 25%. CMS spending changes included expenditures associated with OOP spending above the cap, expenditures resulting from lower beneficiary cost sharing, and expenditures associated with compositional changes between TM and MA. Part B beneficiary premiums were subtracted from CMS expenditures.

We then performed sensitivity analysis changing a number of model parameters. First, we modified the elasticity of demand for medical care to -0.2 and 0 in alternative specifications. Sensitivity analysis also examined the impact of tested less shifting across segments, assuming a 50% reduction in the own-price and cross price elasticity of demand for Medigap and MA. Third, sensitivity analysis assumed that the difference in spending between TM and MA was 10% rather than 20%.

Estimating effects of out-of-pocket caps on Medigap premiums

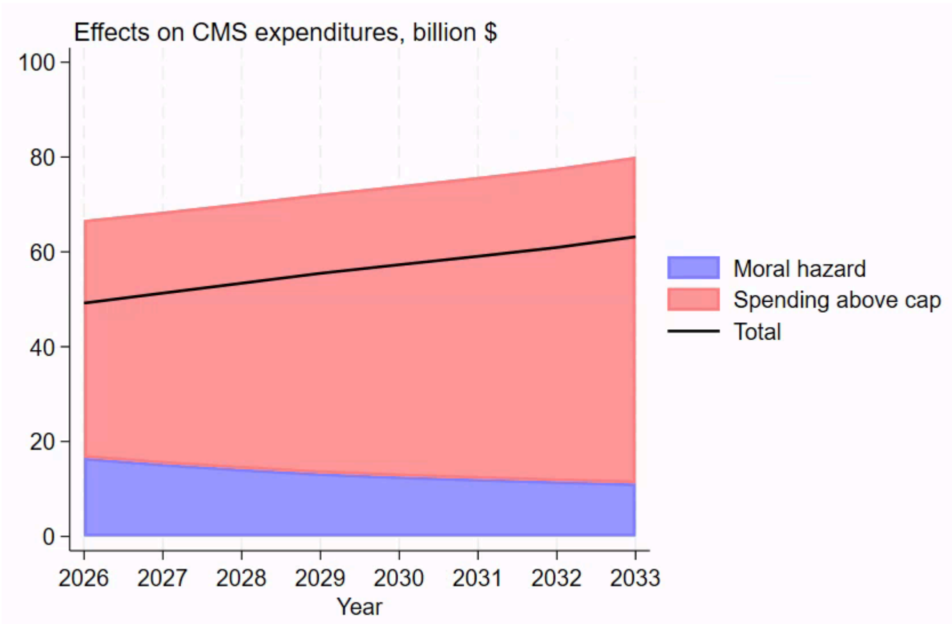
To estimate the impact of OOP caps on Medigap premiums, we first used 2021 MCBS data to calculate the share of OOP spending that was above various hypothetical caps for beneficiaries with Medigap. Under the assumption that OOP caps would reduce cost sharing and increase spending, we then estimated a new level of Medigap spending given each OOP cap level and the amount of cost sharing a beneficiary would face given this new spending level and the hypothetical OOP cap. We then calculated the ratio of this new (lower level) of OOP spending to the observed level of spending , incorporated a constant administrative factor, and projected Medigap premiums as a function of Part A and Part B spending over time. Appendix Exhibit A4 shows that a $3,000 OOP cap was estimated to reduce Medigap premiums by over 40%, a $5,000 cap is estimated to reduce Medigap premiums by 30%, and a $10,000 cap would reduce premiums by approximately 20%.

eFigure 2. Estimated effect of out-of-pocket caps on Medigap premiums

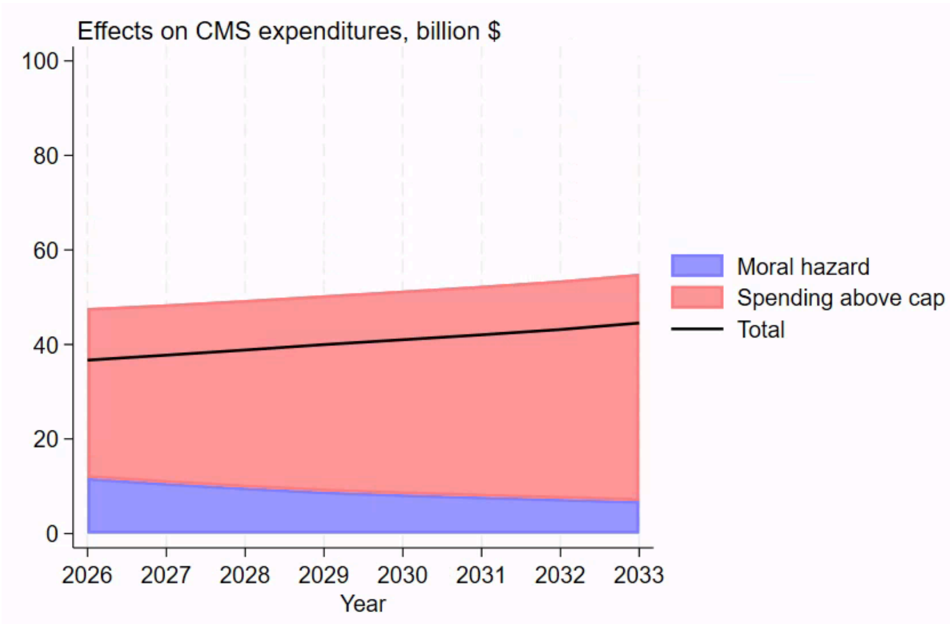


eFigure 3. Effects of out-of-pocket caps on components of CMS expenditures

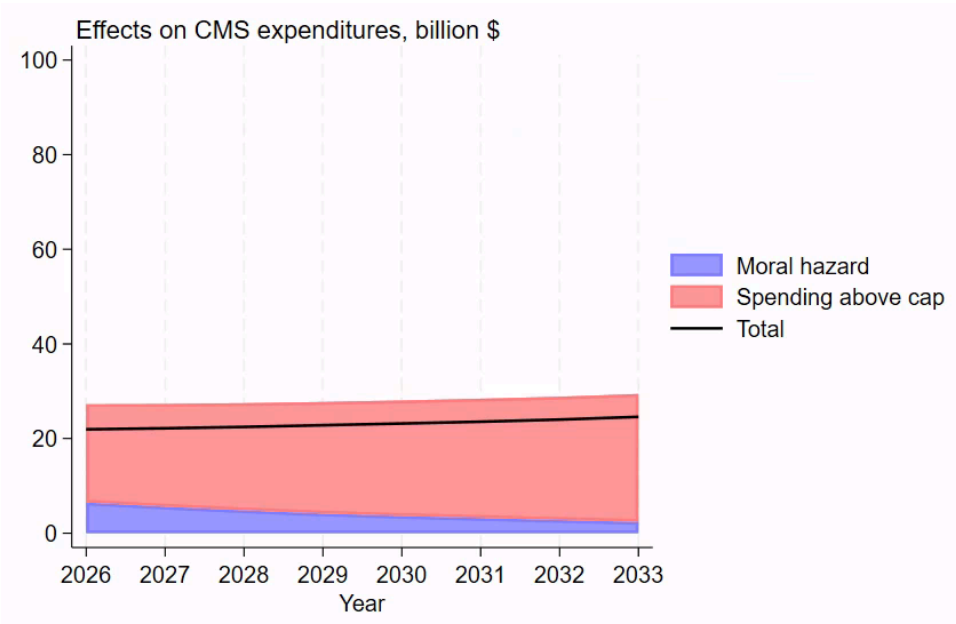
Panel A. $3,000 out-of-pocket cap



Panel B. $5,000 out-of-pocket cap

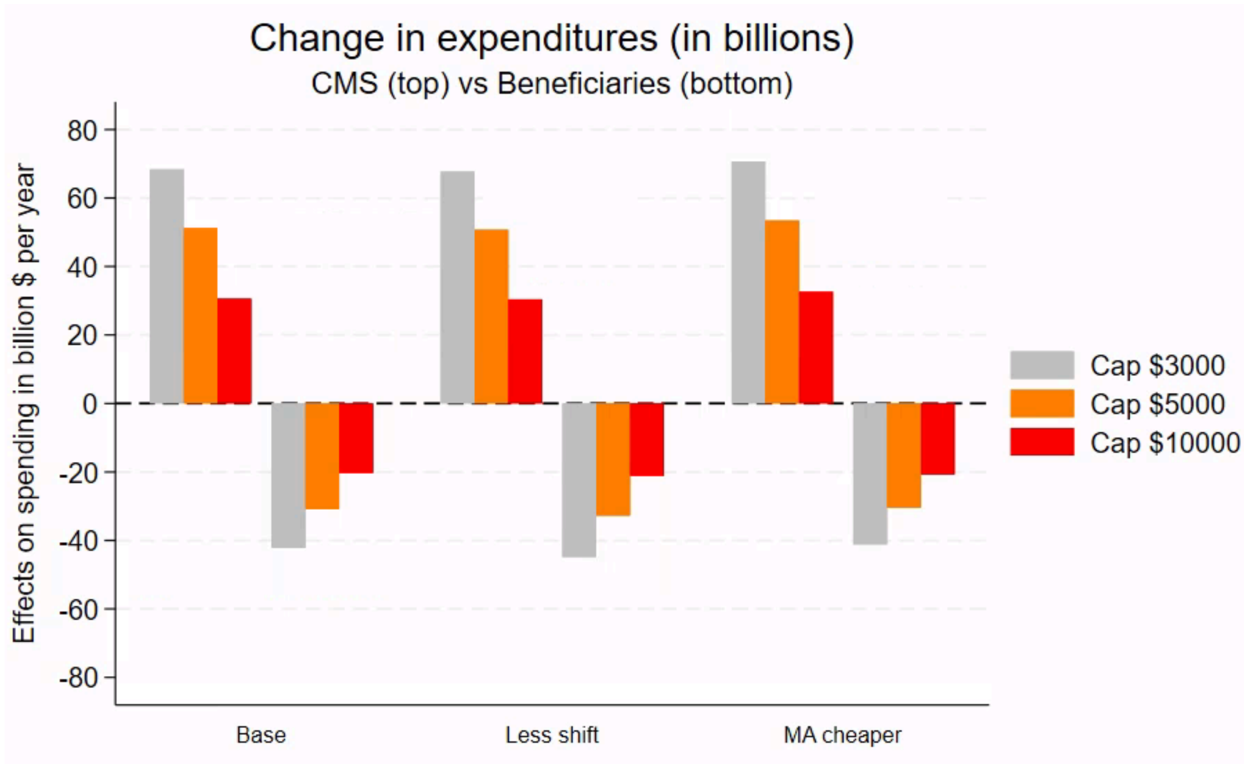


Panel C. $10,000 out-of-pocket cap



Note: "Total" is less than the sum of reductions in OOP spending and Medigap premiums because it incorporates increases in beneficiaries' Part B premiums

eFigure 4. Estimates of average annual changes in expenditures for CMS and beneficiaries under alternative out-of-pocket caps for alternative scenarios, 2026-2033



Note: "Less shift" scenario reduced the own-price elasticity of demand for Medigap from -1.4 to -0.7 and reduced the cross-price elasticity of demand for MA with respect to Medigap premiums from 0.41 to 0.205. The "MA cheaper" reduced the cost differential from TM to MA from 20% to 10%.

References

1. Boards Of Trustees Of The Federal Hospital Insurance And Federal Supplementary Medical Insurance Trust Funds. 2024 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds. Centers for Medicare and Medicaid Services (CMS). Published May 6, 2024. Accessed October 8, 2025. https://www.cms.gov/oact/tr/2024

2. Ochieng N, Cubanski J, Neuman T. A Snapshot of Sources of Coverage Among Medicare Beneficiaries. KFF. Published September 23, 2024. Accessed October 8, 2025. https://www.kff.org/medicare/issue-brief/a-snapshot-of-sources-of-coverage-among-medicare-beneficiaries/

3. Report to the Congress: Medicare Payment Policy. Medicare Payment Advisory Commission (MedPAC). Published March 2025. Accessed October 8, 2025. https://www.medpac.gov/wp-content/uploads/2025/03/Mar25_MedPAC_Report_To_Congress_SEC.pdf

4. Ippolito B, Trish E, Vabson B. Expected Out-Of-Pocket Costs: Comparing Medicare Advantage With Fee-For-Service Medicare. *Health Aff (Millwood)*. 2024;43(11):1502-1507. doi:10.1377/hlthaff.2024.00295

5. Cabral M, Mahoney N. Externalities and Taxation of Supplemental Insurance: A Study of Medicare and Medigap. Am. Econ. J. Appl. Econ. 2019;11(2):37-73. doi:https://doi.org/10.1257/app.20160350

6. Starc A. Insurer pricing and consumer welfare: evidence from Medigap. *Rand J Econ*. 2014;45(1):198-220. doi:https://doi.org/10.1111/1756-2171.12048

7. Curto VE. Pricing regulations in individual health insurance: Evidence from Medigap. *J Health Econ*.

2023;91:102785. doi:10.1016/j.jhealeco.2023.102785

8. McLaughlin CG, Chernew M, Taylor EF. Medigap Premiums and Medicare HMO Enrollment. *Health Serv Res*. 2002;37(6):1445-1468. doi:https://doi.org/10.1111/1475-6773.10832

9. Ryan AM, Warrier A, Bejarano G, M Whaley C, Meyers DJ, Dixit MN. Trends in Plan Offerings, Enrollment, and Premiums in Medicare Advantage and Medigap. *Health Serv Res*. 2025;60(3):e14456. doi:10.1111/1475-6773.14456

10. Heiss F, McFadden D, Winter J, Wuppermann A, Zhou B. Inattention and Switching Costs as Sources of Inertia in Medicare Part D. *Am Econ Rev*. 2021;111(9):2737–81. https://pubs.aeaweb.org/doi/10.1257/aer.20170471

11. Atherly A, Feldman RD, Dowd B, Van Den Broek-Altenburg E. Switching Costs in Medicare Advantage. *Forum Health Econ Policy*. 2020;23(1):20190023. https://www.degruyter.com/document/doi/10.1515/fhep-2019-0023/html

12. Abaluck J, Gruber J. Choice Inconsistencies among the Elderly: Evidence from Plan Choice in the Medicare Part D Program. *Am Econ Rev*. 2011;101(4):1180–210. https://pubs.aeaweb.org/doi/10.1257/aer.101.4.1180

13. Manning WG, Newhouse JP, Duan N, Keeler EB, Leibowitz A, Marquis MS. Health insurance and the demand for medical care: evidence from a randomized experiment. *Am Econ Rev*. 1987;77(3):251–77.

14. Ringel JS, Hosek SD, Vollaard BA, Mahnovski S. The Elasticity of Demand for Health Care: A Review of the Literature and Its Application to the Military Health System. RAND Corporation. Published April 22, 2002. Accessed October 8, 2025. https://www.rand.org/pubs/monograph_reports/MR1355.html

15. Finkelstein A, Taubman S, Wright B, et al. THE OREGON HEALTH INSURANCE EXPERIMENT: EVIDENCE FROM THE FIRST YEAR. *Q J Econ*. 2012;127(3):1057-1106. doi:10.1093/qje/qjs020

16. Newhouse JP, USA, editors. Free for all? Lessons from the RAND Health Insurance Experiment. 2. printing. Cambridge, Mass.: Harvard Univ. Press; 1996. 489 p.

17. Chandra A, Gruber J, McKnight R. Patient Cost-Sharing and Hospitalization Offsets in the Elderly. *Am Econ Rev.* 2010;100(1):193–213.

18. Einav L, Finkelstein A, Schrimpf P. THE RESPONSE OF DRUG EXPENDITURE TO NON-LINEAR CONTRACT DESIGN: EVIDENCE FROM MEDICARE PART D. *Q J Econ*. 2015;130(2):841-899. doi:10.1093/qje/qjv005

19. Ellis RP, Martins B, Zhu W. Health care demand elasticities by type of service. *J. Health Econ*. 2017;55:232–43. https://linkinghub.elsevier.com/retrieve/pii/S0167629616303757

20. Medicare (Congressional Budget Office Baseline Projections). Congressional Budget Office (CBO). Published May 2023. Accessed October 8, 2025. https://www.cbo.gov/system/files/2023-05/51302-2023-05-medicare.pdf