

Section 1332 Waiver Evaluation Report

Evaluating the Oregon Reinsurance Program

Prepared for: Centers for Medicare & Medicaid Services and Office of the Assistant Secretary for Planning and Evaluation

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Foreword

Section 1332 of the Patient Protection and Affordable Care Act (ACA) permits states to apply for waivers of certain ACA requirements to pursue innovative and individualized state strategies that provide their residents with access to affordable, quality health care, subject to approval by the Department of Health and Human Services and the Department of the Treasury (collectively, the Departments). In order for a section 1332 waiver to be approved, the Departments must determine that the waiver complies with section 1332 statutory guardrails. That is, the waiver must provide coverage that is at least as comprehensive as the coverage provided without the waiver (comprehensiveness guardrail); provide coverage and cost-sharing protections against excessive out-of-pocket spending that are at least as affordable as without the waiver (affordability guardrail); provide coverage to at least a comparable number of residents as without the waiver (coverage guardrail); and not increase the federal deficit (deficit neutrality guardrail).

As of Plan Year 2021, the Departments have approved 16 states' waivers. Among these states, 14 currently operate state-based reinsurance programs by waiving the single risk pool requirement under section 1312(c)(1) of the ACA to the extent that it would otherwise require excluding total expected state reinsurance payments when establishing the market-wide index rate.^{1,2}

Generally, states with approved section 1332 state-based reinsurance waivers aim to accomplish one or more of the following policy goals: reduce individual Marketplace premiums; increase enrollment in the individual market; maintain issuer participation; and/or attract more issuers to the Marketplace or encourage issuers to expand service areas. States may then apply federal pass-through amounts (generated by the waiver's premium tax credit savings) to sustainably fund the state-based reinsurance waiver program alongside state funding.

¹ State-based reinsurance programs are distinct from the temporary federal reinsurance program that was effective for the 2014 through 2016 benefit years, the latter having been established via section 1341 of the ACA. The goal of the ACA's temporary reinsurance program was to stabilize individual market premiums during the early years of the federal market reforms that took effect beginning in 2014.

² The remaining two states are Hawaii, which is implementing an approved section 1332 waiver that waives the ACA requirement that a Small Business Health Options Program (SHOP) operate in Hawaii and other related requirements relevant to SHOP Exchanges, and Georgia, which will begin implementing the first part of its approved section 1332 waiver, a state-based reinsurance program, in 2022.

The Departments are responsible for oversight of approved section 1332 waivers and monitoring of compliance with the section 1332 guardrails and the specific terms and conditions (STCs) of the state’s approved waiver. Pursuant to section 1332(a)(4)(B)(v) of the ACA, 31 CFR §33.120(f) and 45 CFR §155.1320(f), and the STCs of the state’s approved waiver, if requested by the Departments, the state must fully cooperate with the Departments or an independent evaluator selected by the Departments to undertake an independent evaluation of any component of the waiver. As such, the Centers for Medicare & Medicaid Services Center for Consumer Information and Insurance Oversight undertook this evaluation to support the aforementioned responsibilities.

As more states continue to express interest in applying for state-based reinsurance waivers or extending currently approved state-based reinsurance waivers, the Departments seek to better understand the strengths and weaknesses of reinsurance programs, and how to improve program effectiveness. Additionally, as the section 1332 waiver program continues to grow in terms of dollar amounts—to date, the Departments have distributed more than \$4 billion in pass-through funding to states—the Departments aim to ensure that these reinsurance programs are fiscally responsible while achieving policy goals and to

1. determine if the approved state-based reinsurance waiver programs are working as intended, and to identify factors contributing to the observed outcomes
2. improve planning and implementation of approved state-based reinsurance waiver programs, in line with the ACA and section 1332 guardrails
3. collect empirical evidence and conduct rigorous analysis that will inform innovative, data-driven public policy for future waiver years.

As this is the Departments’ first set of federal evaluations on section 1332 waivers, our analyses present a different and novel approach from past analyses of section 1332 waivers (e.g., actuarial analyses conducted as part of states’ waiver applications). We examined one question relating to the affordability guardrail to look at the impact on enrollees’ premium spending (i.e., premiums net of subsidies) for representative individuals for different metal level plans. We also examined one research question relating to the coverage guardrail to look at the impact on enrollment for subsidized and unsubsidized enrollees, including by federal poverty level brackets.

Although results differed across the three states evaluated (Alaska, Minnesota, and Oregon), the analyses found some statistically significant effects. Specifically, in Alaska and Minnesota, approved section 1332 state-based reinsurance waivers are associated with premiums that are lower than would be expected without the waiver in place. Given the methodological limitations noted in the report—including limited available data and the small number of comparison states for purposes of the analysis—the findings should be interpreted with caution. The lack of

statistical significance for some of the findings does not automatically reflect on these reinsurance programs' effectiveness; rather, the findings represent opportunities for future research particularly with respect to these reinsurance programs' potentially differential impacts on enrollee subgroups. Opportunities for future research are detailed in the report's discussion.

The Departments remain committed to advancing health insurance coverage and working with states on section 1332 waivers that promote the objectives of the January 28, 2021, Executive Order on Strengthening Medicaid and the Affordable Care Act (EO 14009),³ and the January 20, 2021, Executive Order on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (EO 13985).⁴

Center for Consumer Information and Insurance Oversight
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³ "Strengthening Medicaid and the Affordable Care Act," February 2, 2021.

⁴ "Advancing Racial Equity and Support," January 25, 2021.

About This Report

The Centers for Medicare & Medicaid Services (CMS) Center for Consumer Information and Insurance Oversight (CCIIO) contracted with the RAND Corporation to conduct evaluations of approved section 1332 waivers first implemented by three states starting in 2018: Alaska, Minnesota, and Oregon. This report documents findings from the evaluation of Oregon’s waiver, through which the state implemented the Oregon Reinsurance Program (ORP). The ORP is designed to stabilize the individual market, reduce premiums, and encourage enrollment in individual health insurance market plans by reimbursing insurers for a portion of the costs of enrollees whose claims exceed an attachment point. Under the contract, RAND provided technical assistance with program evaluation design, methodology, analysis, and writing for evaluations of states’ section 1332 waivers. Specifically, this evaluation examined changes in enrollee premium spending and enrollment in Oregon’s individual health insurance market in the three years following approval of the waiver. This research was funded by the Office of the Assistant Secretary for Planning and Evaluation (ASPE) and the Centers for Medicare & Medicaid Services (CMS), Center for Consumer Information and Insurance Oversight (CCIIO) within the U.S. Department of Health and Human Services, and this report was prepared on behalf of CMS as part of an ASPE Policy and Technical Assistance Contract (Contract No. HHSP233201500038I) and carried out within the Payment, Cost, and Coverage Program in RAND Health Care. The contents of this paper are solely the responsibility of the authors and do not necessarily represent the official views of the U.S. Department of Health and Human Services or any of its agencies.

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Summary

Background

Section 1332 of the Patient Protection and Affordable Care Act (ACA) permits states to apply for section 1332 waivers for State Innovation (or “section 1332 waiver”) to pursue innovative strategies that provide their residents with access to high-quality, affordable health insurance. These changes must meet certain conditions, known as “guardrails,” relating to the number of covered residents, the comprehensiveness and affordability of coverage, and deficit-neutrality to the federal government. Most states have used section 1332 waivers to implement reinsurance programs for their individual health insurance markets that are designed to reduce premiums, encourage enrollment, and maintain or increase insurer participation. Fourteen states are currently operating state-based reinsurance programs for their individual market under approved section 1332 waivers.

In 2017, Oregon sought a 1332 waiver for a reinsurance program to stabilize the individual health insurance market, which was experiencing large premium increases and had lost seven insurers. Beginning in 2018, Oregon used its section 1332 waiver to implement the Oregon Reinsurance Program (ORP), a reinsurance model that reimburses insurers for a portion of enrollees’ claims that exceed a threshold (known as an “attachment point”) up to a cap. The reinsurance program is funded through a combination of federal pass-through funding for premium tax credits that would have been paid by the federal government to consumers absent the waiver as well as funding contributed by the state. Oregon officials estimate that statewide average premiums were reduced by 7.2 percent in 2018, 6.7 percent in 2019, and 8.0 percent in 2020 compared with what they would have been without the waiver. Furthermore, insurer participation in the individual market stabilized after the waiver was implemented.

The Centers for Medicare & Medicaid Services Center for Consumer Information and Insurance Oversight (CCIIO) contracted with RAND to conduct an evaluation to determine the effect of the waiver on individual market premiums and enrollment in Oregon. Whereas prior estimates compute the direct effect of reinsurance dollars on aggregate premiums, this evaluation examines enrollee premium spending and enrollment in Oregon relative to synthetic comparison groups of states that did not implement a waiver. The evaluation addressed two research questions:

- What is the waiver’s impact on enrollee premium spending by representative individuals (by age and income) on each of the following on-marketplace plans?
 - lowest cost bronze (LCB)
 - lowest cost silver (LCS)
 - second lowest cost silver (SLCS)
 - lowest cost gold (LCG)

- What is the waiver’s impact on individual market enrollment by income and subsidy status?

Methodology

To address these questions, we used a difference-in-differences methodology to compare enrollee premium spending (i.e., premiums net of subsidies) and enrollment in Oregon between the pre-waiver period (2015–17) and each of three post-waiver years (2018, 2019, and 2020), relative to the corresponding change in a “synthetic comparison group” comprising multiple states that did not implement a section 1332 waiver. The research questions, outcomes, and data sources for this evaluation are displayed in Table S.1. The states in the synthetic comparison group were differentially weighted for each analysis so that comparison group matched Oregon’s pre-waiver trends in each outcome. A key limitation of this approach is that it does not directly account for state-specific market conditions and other time-varying differences between states. The evaluation examines years prior to the American Rescue Plan of 2021 and does not take into account the potential impact of the American Rescue Plan on section 1332 waivers.

Table S.1. Evaluation Research Questions, Outcomes, and Data Sources

Research Question	Outcome	Stratification	Data Source
Q1. What is the waiver’s impact on enrollee premium spending by representative individuals (by age and income) on each of the following on-marketplace plans: LCB LCS SLCS LCG?	Enrollee premium spending	Within each of the four plans: Age 27 100%, 250%, 350%, 450% of FPL Age 45 100%, 250%, 350%, 450% of FPL Age 64 100%, 250%, 350%, 450% of FPL	RWJF HIX Compare
Q2. What is the waiver’s impact on individual market enrollment for enrollees by income and by subsidy status?	Per capita enrollment	100–250% of FPL 251–350% of FPL 351–400% of FPL Subsidized Unsubsidized	CCIIO OEP PUFs and data provided directly by selected state-based exchanges CCIIO marketplace effectuated enrollment data; CCIIO EDGE risk adjustment data

FPL = federal poverty level; CCIIO = Center for Consumer Information and Insurance Oversight; OEP PUFs = Open Enrollment Period Public Use Files; RWJF HIX Compare = Robert Wood Johnson Foundation HIX Compare data. NOTES: Enrollee premium spending is defined as the premium minus the advance premium tax credit. Per capita enrollment in each stratification is calculated as individual market enrollment in the stratification divided by the state population.

Key Findings

- Oregon’s individual market faced double-digit premium growth each year from 2015 to 2018. Premium growth continued at a slower rate in 2019 and was stable in 2020. However, the estimated change in enrollee premium spending in Oregon relative to a synthetic comparison group of states was similar; we could not rule out the possibility that trends were the same despite Oregon’s reinsurance program.
- Oregon’s waiver was associated with a statistically significant average annual decrease of about 3,000 enrollees with incomes 351–400 percent FPL (–20% relative to estimated enrollment without the waiver). However, in an analysis of all subsidized enrollees combined (i.e., people with incomes between 100 and 400% of FPL and no affordable insurance offer from another source), we found no statistically significant effects of the waiver on enrollment.
- This analysis also did not find significant waiver effects on enrollment by unsubsidized individuals, which is consistent with the null finding for waiver effects on enrollee premium spending.

Conclusion

Although the ORP introduced funding into the individual market that most certainly lowered premiums compared with what they would have been without the waiver, we were unable to conclude that the ORP was associated with reductions in enrollee premium spending or increases in enrollment relative to comparison states with similar pre-waiver trends. We tried to isolate the effect of the ORP using a difference-in-differences methodology, but our analysis is limited by the fact that state-specific rate reviews, concurrent policy changes, and other state differences make it difficult to identify an ideal comparison group. To fully understand the impact of the waiver on enrollee premium spending and enrollment relative to other states, it could be helpful to conduct qualitative interviews with stakeholders from Oregon and other states to explore what other state-specific factors may have influenced premiums and enrollment over this time period.

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Abbreviations

ACA	Affordable Care Act
APTC	advance premium tax credit
CCIIO	Center for Consumer Information and Insurance Oversight
CMS	Centers for Medicare & Medicare Services
CSR	cost-sharing reduction
DCBS	Department of Consumer and Business Services
EDGE	External Data Gathering Environment
FPL	federal poverty level
IRS	Internal Revenue Service
KFF	Kaiser Family Foundation
LCB	lowest cost bronze
LCG	lowest cost gold
LCS	lowest cost silver
OEP	Open Enrollment Period
OEP PUFs	Open Enrollment Period Public Use Files
Oregon DCBS	Oregon Department of Consumer and Business Services
ORP	Oregon Reinsurance Program
PUF	Public Use File
RWJF	Robert Wood Johnson Foundation
RWJF HIX Compare	Robert Wood Johnson Foundation HIX Compare data
SLCS	second lowest cost silver

1. Introduction

Background

Section 1332 of the Patient Protection and Affordable Care Act (ACA) permits states to apply for a State Innovation Waiver (or “section 1332 waiver”) to pursue innovative strategies that provide residents with access to high-quality, affordable health insurance while retaining the basic protections of the ACA. Section 1332 allows states to waive particular provisions of the ACA, including those related to metal tiers, essential health benefits, premium tax credits, cost-sharing reductions (CSRs), and use of a single risk pool. States that are granted waivers must comply with statutory guardrails that ensure consumers retain access to quality health care that is at least as comprehensive and affordable as would be provided absent the waiver, that provides coverage to a comparable number of state residents as would be provided absent the waiver, and that must be deficit neutral to the federal government. The Centers for Medicare & Medicaid Services (CMS) and the Department of the Treasury jointly oversee the waiver program.

Most section 1332 waivers have been used by states to implement reinsurance programs (Wright et al., 2019). Reinsurance reduces risk for insurers by reimbursing insurers for a share of enrollee claims that are typically high-cost claims (Bovbjerg, 1992). Prior research has found that reinsurance can achieve risk reduction as well as limiting incentives for adverse selection of higher-cost enrollees (Layton, McGuire, and Sinaiko, 2016; Zhu et al., 2013). Along with risk adjustment and risk corridors, the ACA implemented a federal reinsurance program from 2014 to 2016 to promote insurer competition and stabilize the individual market (Cox et al., 2016). States may pursue reinsurance programs in order to reduce premiums, maintain or increase insurer participation, stabilize markets, and leverage federal matching funds through a section 1332 waiver (Manatt Health, 2019). The impact of reinsurance could vary highly across states depending on enrollee costs and program parameters in a given state (Drake, Fried, and Blewett, 2019; Polyakova, Bhatia, and Bundorf, 2021).

Fourteen states are currently operating state-based reinsurance programs for their individual market under approved section 1332 waivers (CMS, undated; Kaiser Family Foundation [KFF], 2020). Depending on the state, issuers are reimbursed by the state for: (1) a portion of the costs for enrollees whose claims exceed a threshold, known as an attachment point, up to a cap, (2) all claim costs for enrollees with certain health conditions, or (3) a hybrid of the two approaches. Similar to the federal reinsurance program that operated between 2014 and 2016, the state-run programs in these 14 states are designed to stabilize premiums and encourage enrollment in the individual market. The reinsurance program in each state is funded through a combination of federal pass-through dollars for premium tax credits that would have been paid by the federal

government absent the waiver as well as funding contributed by the state, for example through state health insurance premium taxes (Keith, 2020).

CMS Center for Consumer Information and Insurance Oversight (CCIIO) contracted with the RAND Corporation to design and conduct evaluations of the reinsurance programs for three states whose waivers began in 2018 (Alaska, Minnesota, and Oregon). To our knowledge, these are the first independent evaluations of reinsurance programs implemented under section 1332 authority. This report describes the methodology and results from the evaluation of Oregon's waiver program. For the evaluation of Alaska's waiver program, see Rao et al. (2021), and for the evaluation of Minnesota's waiver program, see Timbie et al. (2021).

Oregon Reinsurance Program

In 2017, Oregon sought a section 1332 waiver in order to stabilize the individual health insurance market, which was experiencing substantial premium increases and had lost seven insurers (Oregon Department of Consumer and Business Services [Oregon DCBS], 2017b). Like many individual market insurers across the United States, insurers in Oregon experienced losses due to underpricing in the early years of the ACA (Cox, Levitt, and Claxton, 2017; Oregon DCBS, 2015, 2017a). Oregon regulators took corrective action to increase rates following rate review processes for the 2016–2018 plan years (Oregon DCBS, 2015, 2017a). Similar to national average individual market premium trends, Oregon's individual market premiums increased steadily between 2015 and 2018 (KFF, 2021). In particular, the average benchmark premium in Oregon increased by 23 percent in 2016 and 27 percent in 2017. The 2016 premium increases were large partly because Oregon's Insurance Commissioner raised rates beyond those requested by carriers in order to cover projected claims (Norris, 2021). During this time period, there was substantial market churn as enrollees moved into lower-priced plans, leaving some issuers with large losses. Issuers continually exited the Oregon's individual market or reduced their presence: between 2016 and 2017, Oregon's Health Co-Op, PacificSource, and Premera exited the individual market; between 2017 and 2018, Cambia Health Solutions went from offering in all 36 counties to only 3 counties (McDermott and Cox, 2020).

Oregon's section 1332 waiver established the Oregon Reinsurance Program (ORP), a claims-based reinsurance program, for a five-year period beginning January 1, 2018. The goals of the program are to lower premiums, incentivize enrollment, and encourage insurer participation. Oregon intends to apply for a five-year extension of the ORP under the section 1332 waiver program, covering the period 2023–2027.

The ORP reimburses insurers for a portion of enrollees' claims exceeding an attachment point up to a cap. The model parameters used in the ORP were similar in each of the first four years of the program (CCIIO, 2021). In 2018, the ORP reimbursed insurers for 59.2 percent (the coinsurance rate) of enrollee claims that exceeded \$95,000 (the attachment point), up to a \$1 million cap. In 2019 and 2020, the attachment point was lowered to \$90,000 and the coinsurance

rate was lowered to 50 percent. In 2021, the attachment point was lowered to \$83,000. The total actual cost of the program was \$90 million in 2018 and \$94.5 million in 2019, and planned costs were \$101.8 million for 2020 and \$104.3 million for 2021 (CCIIO, 2021).

The ORP is financed by a combination of state funds and federal pass-through dollars (for the difference in federal spending in premium tax credits with and without the waiver). Oregon finances its share of the ORP through a premium assessment on health insurance premiums (Oregon DCBS, 2017b) as well as excess funds from two state programs in 2018. In 2018, the premium assessment dedicated to reinsurance was 0.3 percent (20% of the 1.5% premium assessment). The premium assessment for reinsurance increased to 0.6 percent in 2019 and 2.0 percent in 2020 (H.B. 2010, 2019).

The ORP introduces funding into the individual market that lowers premiums relative to what they would have been without the waiver. Oregon officials estimate that statewide average premiums were reduced by 7.2 percent in 2018, 6.7 percent in 2019, 8.0 percent in 2020, and 8.1 percent in 2021 compared with what they would have been without the waiver (CCIIO, 2021). These estimates are based on actuarial analyses of the reinsurance dollars and aggregate premiums, as well as assumptions about enrollment take-up when premiums decline, compared with aggregate premiums in the absence of reinsurance dollars (Oregon DCBS, 2017b). Since 2018, the number of issuers in each county has been stable or there has been an increase in the number of issuers as Cambia Health Solutions and PacificSource reentered the market in many counties (McDermott and Cox, 2020). Although premium reductions have been estimated, the impact on individual market enrollment is less clear, as the enrollment decline of 6.5 percent between 2017 and 2020 in Oregon was similar to the national decline of 6.6 percent (Giovannelli et al., 2020).

Evaluation Questions and Hypotheses

Reinsurance programs can reduce health insurance premiums through several mechanisms. First, reinsurance reduces the risk to insurers of enrolling individuals who incur unexpectedly high claims costs. By reducing this risk, insurers can lower the “risk premium”—a factor built into the total premium calculation to ensure that health plans collect enough revenue to cover unanticipated claims.

Second, because the reinsurance program pays for a portion of high-cost claims, insurers may be able to reduce premiums because they no longer bear the full cost of enrollees’ care. The ability to reduce costs in this manner depends on the source of financing for the reinsurance program. If reinsurance is funded solely through a tax levied on health plans participating in the reinsurance program, then the savings due to reduced claims costs may be offset, on average, by the cost of the tax (Dow, Fulton, and Baicker, 2010). However, Oregon’s reinsurance program is funded through a broad-based premium tax that extends beyond the individual health insurance market. As a result, the program reduces the total claims costs borne by individual market

insurers, potentially lowering premiums. Premiums may fall even further if reinsurance results in a “virtuous cycle” in which healthy people with low average medical spending enroll as premiums fall. The addition of these less expensive enrollees into the market may, in turn, further reduce premiums.

In general, we would expect that lower premiums would lead to increased enrollment in the individual market. However, for enrollees who receive advance premium tax credits (APTCs), the effects of reinsurance are not straightforward, because changes in enrollee premium spending (i.e., premiums net of APTCs) will depend on how the APTC changes relative to premiums. An individual’s APTC is calculated as the difference between the cost of a benchmark plan, defined as the second-lowest cost silver (SLCS) plan available in the marketplace, and a required contribution that varies with income.⁵ During the period covered by our analysis, individuals were eligible for APTCs if they had incomes between 100 and 400 percent of the federal poverty level (FPL) and no affordable offer of insurance from another source, such as an employer or Medicaid.

Because APTCs cap the amount that an individual pays for a benchmark plan as a percentage of income, APTC-eligible individuals who enroll in the benchmark plan will not experience changes in enrollee premium spending, unless the benchmark premium falls below the enrollee’s required contribution. However, enrollees may apply their APTCs to plans with higher or lower premiums than the benchmark plan, but—if the benchmark premium falls due to reinsurance, APTC amounts will also fall, since they are tied to the benchmark premium. Depending on the change in the APTC relative to the premium change in the selected plan, enrollee premium spending could increase, decrease, or remain unchanged. If premiums fall proportionately (i.e., by the same percentage) across all plans, the dollar value of the reduction in the APTC would exceed the dollar value of the reduction in premiums for lower-cost plans. Such an effect could reduce the likelihood that an enrollee is eligible for a \$0 premium bronze plan, potentially reducing enrollment among low-income, subsidized individuals. However, it is not clear whether reinsurance-related premium changes would be proportional across plans and metal tiers, and the effect may be complicated by issuer entry/exit and changes in plan design. Because of the complexity surrounding the change in enrollee premiums for the subsidized population, we do not have a strong hypothesis about how reinsurance will affect enrollment and enrollee premium spending for people who are eligible for APTCs.

For unsubsidized individuals, the effect of reinsurance is more straightforward—we expect that reinsurance will lower premiums and hence increase enrollment. Unsubsidized individuals may include people with incomes above 400 percent of FPL, people with incomes below 400 percent of FPL who have access to affordable employer-sponsored insurance, or people with

⁵ The contribution is equal to the individual’s income multiplied by an applicable percentage contribution that increases with income. If the applicable contribution exceeds the benchmark premium, the individual does not receive an APTC.

incomes below 400 percent of FPL for whom the cost of the benchmark premium is below their required income contribution. We expect that people in this last category would tend to be younger and have relatively high incomes, because the benchmark premium is lower for younger people and the required contribution increases with income.

Our analyses consider two key questions related to the effect of state reinsurance programs on premiums and enrollment. These questions, along with hypotheses on the likely impact of the waiver on each outcome, are shown in Table 1.1.

Table 1.1. Evaluation Questions and Hypotheses

Evaluation Question	Hypotheses
1. What is the waiver's impact on enrollee premium spending by representative individuals on each of the following on-marketplace plans?	
a) SLCS (benchmark)	If household income >400 percent of FPL, we expect enrollee premium spending to fall. If income is in the subsidy-eligible range, we expect enrollee premium spending to fall only if the individual's benchmark premium is below the required contribution. This is more likely for those on the high end of the subsidy-eligible range (e.g., household income at 350 percent of FPL) and those who are younger (e.g., <30 years).
b) LCS	Same as above but results for the subsidy-eligible population may vary depending on how the change in the LCS plan premium compares with the change in the APTC.
c) LCB	Same as above but results for the subsidy-eligible population may vary depending on how the change in the LCB plan premium compares with the change in the APTC.
d) LCG	Same as above but results for the subsidy-eligible population may vary depending on how the change in the LCG plan premium compares with the change in the APTC.
2. What is the waiver's impact on individual market enrollment for the following types of enrollees?	
a) People with incomes ≥100 percent and ≤250 percent of FPL	Unclear effect—APTC deflects the impact of premium changes for those who enroll in the benchmark plans. Those enrolled in other plans may face higher or lower costs depending on how the APTC changes relative to the premium of the chosen plan, which could affect enrollment.
b) People with incomes >250 percent and ≤350 of FPL	Unclear effect—APTC deflects the impact of premium changes for those who enroll in the benchmark plans. Those enrolled in other plans may face higher or lower costs depending on how the APTC changes relative to the premium of the chosen plan, which could affect enrollment.
c) People with incomes >350 percent and ≤400 percent of FPL	Possible increase in enrollment if some people in this income range pay full premiums. We would expect any effect to be more pronounced for younger enrollees.
d) All subsidized enrollees	Unclear effect—APTC deflects the impact of premium changes for those who enroll in the benchmark plans. Those enrolled in other plans may face higher or lower costs depending on how the APTC changes relative to the premium of the chosen plan, which could affect enrollment.
e) All unsubsidized enrollees	Increase in enrollment due to lower premiums.

NOTE: Enrollee premium spending is defined as the premium minus the APTC.

For Question 1, representative individuals are defined based on a combination of age (27, 45, 64) and household income (100, 250, 350, 450% of FPL). We make these stratifications because premium levels vary with age⁶ and APTC amounts vary with income. We further assume that the representative individuals considered in our analysis would not have affordable coverage through another source of insurance. For Question 2, we consider enrollment both on and off the marketplace, as Oregon’s reinsurance program applies to all non-grandfathered and non-grandmothered⁷ individual market plans.

⁶ Under the ACA, individual market insurers may charge a 64-year-old three times as much as a 21-year-old, unless state law requires a more compressed premium range.

⁷ The ACA allowed certain plans that existed before the law was enacted on March 23, 2010, to maintain “grandfathered” status, which exempts them from certain ACA requirements, including risk adjustment. Plans that came into existence after the law was signed but before the marketplaces went online in 2014 were later granted “grandmothered” status exempting them from risk adjustment and other provisions via a regulatory change implemented by CMS (Cohen, 2013).

2. Methodology

For these analyses, we combined multiple data sources to construct an analytic data set that included marketplace premiums across plans of each metal tier, as well as on- and off-marketplace enrollment for the individual market. We then use a difference-in-differences approach to determine the impacts of the waiver on premiums and enrollment in Oregon relative to comparison states. This approach differs from the prior estimates of the premium impact of the ORP, which considered the net effect of reinsurance dollars on aggregate premiums; this evaluation considers the impact of the waiver on enrollee premium spending and enrollment when comparing Oregon with other states that did not implement a reinsurance waiver. In this chapter, we briefly describe our methodology; a more detailed description is included in Appendix A.

Data Sources

We used four primary data sources for the evaluation:

1. Robert Wood Johnson Foundation (RWJF) HIX Compare data (2015–2020): plan-rating area-level premiums for individual market plans.
2. CCIIO OEP PUFs (2015–2020): state-level enrollment in marketplace plans by FPL category.
3. CCIIO marketplace effectuated enrollment data (2015–2020): state-level on-marketplace enrollment overall and by APTC subsidy status.
4. CCIIO External Data Gathering Environment (EDGE) summary risk adjustment data (2015–2020): state-level total individual market enrollment.

Outcome Measures

Enrollee premium spending. We study the impact of the waiver on both total premiums and enrollee premium spending for four marketplace plan types (LCB, LCS, SLCS, and LCG in each rating area in a state). For each plan type, a population-weighted average premium is estimated across all rating areas in each state. We examine premium effects by metal tier and age for each post-waiver year. The enrollee premium spending refers to a consumer's expected spending on premiums net of APTCs. Since these amounts are not directly observable in our data, we estimate them by calculating the amount of the subsidy for each representative individual (combinations of ages 27, 45, and 64, and incomes at 100, 250, 350, and 450% of FPL) using information on each enrollee's required contribution (based on household income and the

applicable percentage⁸) by year. We then estimate enrollee premium spending as the difference between the premium for the plan of interest and the amount of the subsidy.

Enrollment. We define enrollment in different ways depending on the data source. Enrollment is defined in CCIIO’s OEP PUFs as “the number of unique consumers who selected a medical plan [on the individual market], were automatically re-enrolled into a medical plan, or were placed into a suggested alternate medical plan (regardless of whether the consumer paid the premium)” as of the end of the open enrollment period (OEP). Additionally, “the count includes only consumers with non-canceled QHPs [qualified health plans].” By contrast, CCIIO’s marketplace effectuated enrollment data and risk adjustment data contain information about average monthly effectuated enrollments—individuals who paid premiums in a given month. For our analyses that examine the waiver’s impact on enrollment for subsidized and unsubsidized individuals, we use effectuated enrollments. For the analysis that examines the waiver’s impact on enrollment by income category, we use enrollment counts defined by plan selections since marketplace effectuated enrollment data are not available by income for all states.⁹ While marketplace effectuated enrollment data are more accurate than plan selection data, we note that the data are consistent within each analysis. Although most enrollees in each income category receive subsidies, those who do not receive subsidies are also included. For all analyses, enrollment counts are annual.

Table 2.1 summarizes the research questions and data sources used to address each question.

⁸ For each FPL category, we defined household income using poverty guidelines (Department of Health and Human Services, undated) and applicable percentage using Internal Revenue Service [IRS] guidance 26 CFR 601.105 (IRS, 2014a, 2014b, 2016, 2017, 2018, 2019).

⁹ Using data on enrollment in marketplace plans in 2020, we found that state-level enrollment measured by plan selections was 10% higher, on average, than the corresponding measures of effectuated enrollment.

Table 2.1. Summary of Research Questions and Data Sources

Research Question	Outcome	Stratification	Data Source
Q1. What is the waiver’s impact on enrollee premium spending by representative individuals (by age and income) on each of the following on-marketplace plans: LCB LCS SLCS LCG?	Enrollee premium spending	Within each of the four plans: Age 27 100%, 250%, 350%, 450% of FPL Age 45 100%, 250%, 350%, 450% of FPL Age 64 100%, 250%, 350%, 450% of FPL	RWJF HIX Compare
Q2. What is the waiver’s impact on individual market enrollment for enrollees by income and subsidy status?	Per capita enrollment	100–250% of FPL 251–350% of FPL 351–400% of FPL <hr/> Subsidized Unsubsidized	CCIIO OEP PUFs and data provided by selected state-based exchanges CCIIO marketplace effectuated enrollment data; CCIIO EDGE risk adjustment data

NOTES: Enrollee premium spending is defined as the premium minus the APTC. Per capita enrollment in each stratification is calculated as individual market enrollment in the stratification divided by the state population.

Analytic Approach

We use a difference-in-differences approach to estimate the impact of the waiver program on enrollment in individual market plans and enrollee premium spending in Oregon relative to states without a waiver. This methodology compares trends in the outcomes of interest in Oregon with those of a comparison group and estimates the impact of the waiver as any departure in trends following the implementation of the waiver. For this analysis we use a “synthetic comparison group” methodology to generate a weighted comparison group that includes multiple states that have not implemented section 1332 waivers. Specifically, the comparison states are individually weighted so that the weighted trends in outcomes match those of Oregon during the pre-waiver period.

The synthetic comparison group methodology is commonly used in policy analysis when the unit of observation is a single large unit, such as a state. The approach can mitigate potential bias arising from policy changes in comparison states during the post-reinsurance period that could affect trends in premiums and enrollment and can reduce the likelihood that any one state will bias estimates of the policy’s impact. In our main analyses, the weighting algorithm discouraged excessive weight on any individual comparator state via a penalty term, thus spreading the weights out over more comparator states.

We conducted three sets of sensitivity analyses to assess the robustness of our results, particularly when pre-waiver trends were not parallel for certain stratifications in the main analyses. First, we considered a “no penalty” approach, in which we eliminated the penalty term

and allowed the algorithm to choose weights that best reproduced the pre-waiver trends in Oregon. The “no penalty” approach may thus better replicate trends in Oregon, but it can also result in the synthetic comparison group relying heavily on data from a single state or few states. Second, we considered a triple-difference approach, which provides additional control of factors that may differ between Oregon and the synthetic comparison group. In the triple-difference approach, we first compare outcomes in each state’s individual market to those in its small group market and then compare Oregon’s trends with those of the comparison group (see Appendix A for more details). Third, we conducted the triple-difference analysis in conjunction with the “no penalty” approach.

Discussion with Oregon Representatives

We had two discussions with five to eight representatives from the Oregon DCBS in July and August 2021 to further delve into the structure, objectives, and outcomes of the ORP. We used a semistructured interview protocol that was developed in conjunction with CMS and shared with the state representatives in advance.

3. Results

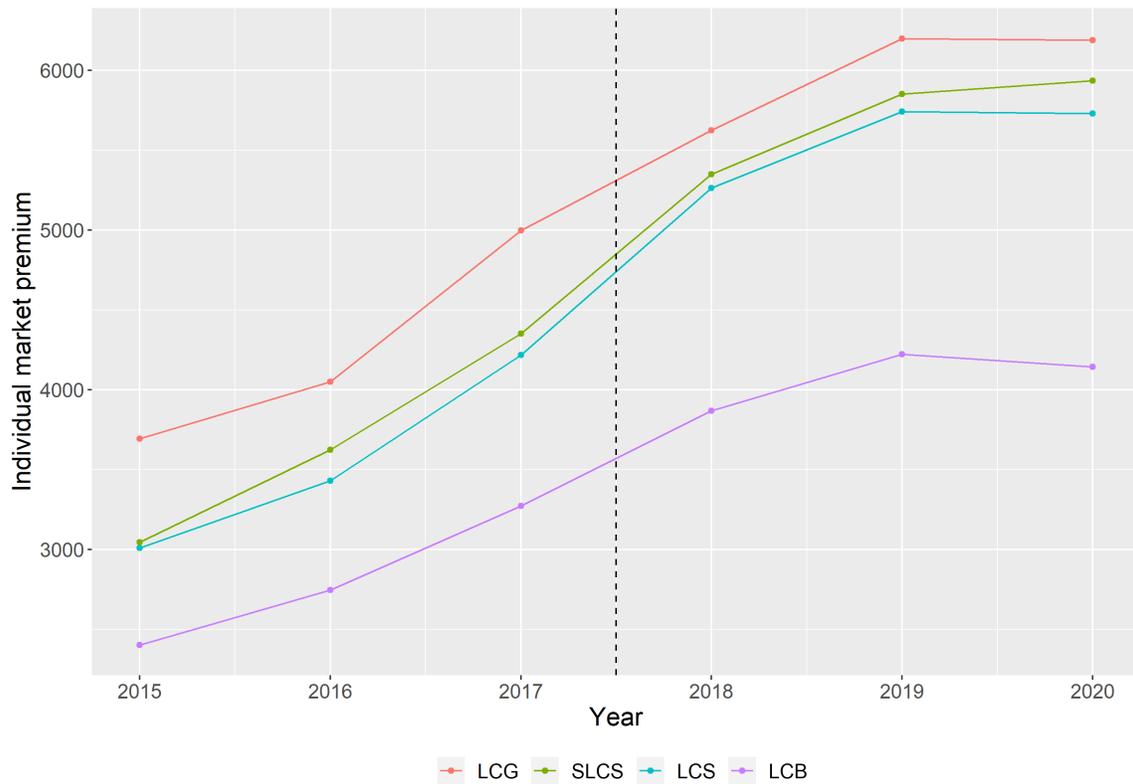
Trends in Premiums and Enrollment in Oregon’s Individual Market

Across the four plan types, premiums rose steadily in the pre-waiver period and continued to increase in the post-waiver period until 2019. Figure 3.1 shows average annual individual market premiums of the LCB, LCS, SLCS, and LCG plans for a 45-year-old in Oregon. The Oregon state representatives stated that Oregon regulators took corrective action to raise rates during 2015–2018 rate reviews in order to stabilize the market following underpricing in the early years of the ACA. Had the premiums been correctly priced during this period, there would likely have been higher levels pre-waiver and a decline post-waiver. Although premium growth occurred post-waiver, growth was below trends projected by the Oregon DCBS. The Oregon state representatives also expressed that after the implementation of the ORP, there was less uncertainty in the individual market and the range of premium rate increases requested by issuers was reduced. In addition, several issuers expanded the zone areas they covered or re-entered the individual market.

Concurrently with the implementation of the ORP in 2018, silver premiums were increased in 2018 due to silver loading,¹⁰ which resulted in faster premium growth for silver premiums than bronze and gold premiums. From 2019 to 2020, there was little change in premiums; the SLCS premium increased by 1 percent while the other plan premiums had no change or a small decline (–2%).

¹⁰ Following the elimination of federal funding for CSR subsidies under the Trump administration in 2017, many states, including Oregon, allowed insurers to “load” CSR costs onto silver premiums.

Figure 3.1. Average Individual Marketplace Plan Premiums in Oregon, Age 45, by Plan, 2015–2020

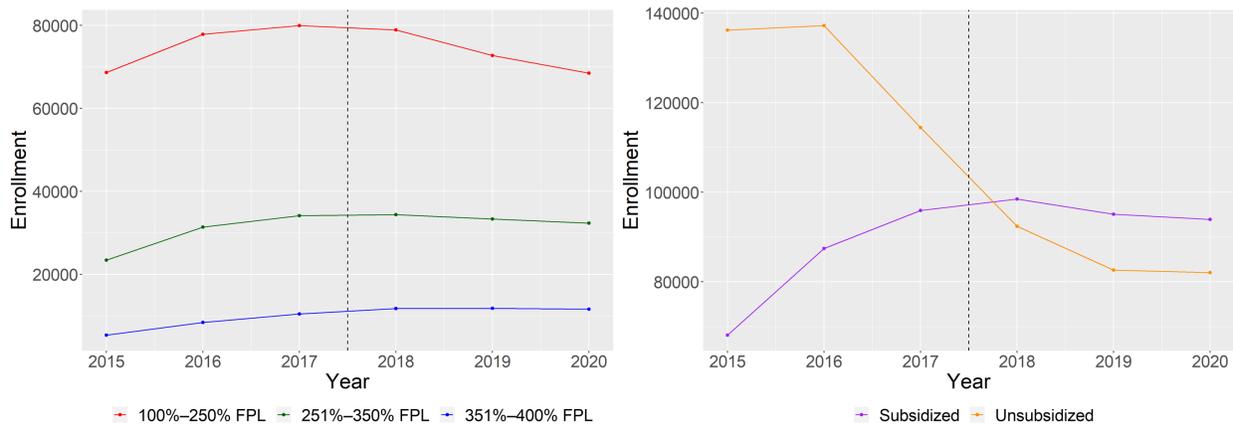


SOURCE: Authors’ analysis using RWJF HIX Compare.

In the pre-waiver period from 2015 to 2017, enrollment (measured as plan selections) in all three income groups increased (Figure 3.2, left panel). In the post-waiver period after 2017, enrollment by individuals with household income 100–251 percent FPL declined, while enrollment by those with income 251–350 and 351–400 percent FPL remained relatively constant.

Similarly, subsidized enrollment (measured as effectuated enrollment among the subsidized population) increased in the pre-waiver period and then had a small decline in the post-waiver period (Figure 3.2, right panel). Unsubsidized enrollment fell substantially between 2016 and 2019. In the discussions with Oregon representatives, the enrollment decline was attributed to multiple reasons, including the elimination of the individual mandate penalty, challenges to the ACA, reductions in the annual OEP, reduced federal funding for states to promote health insurance uptake, and economic downturns. These challenges were common to all states, although enrollee and issuer responses to these changes may have differed across states.

Figure 3.2. Individual Market Enrollment in Oregon, by Income and Subsidy Status, 2015–2020



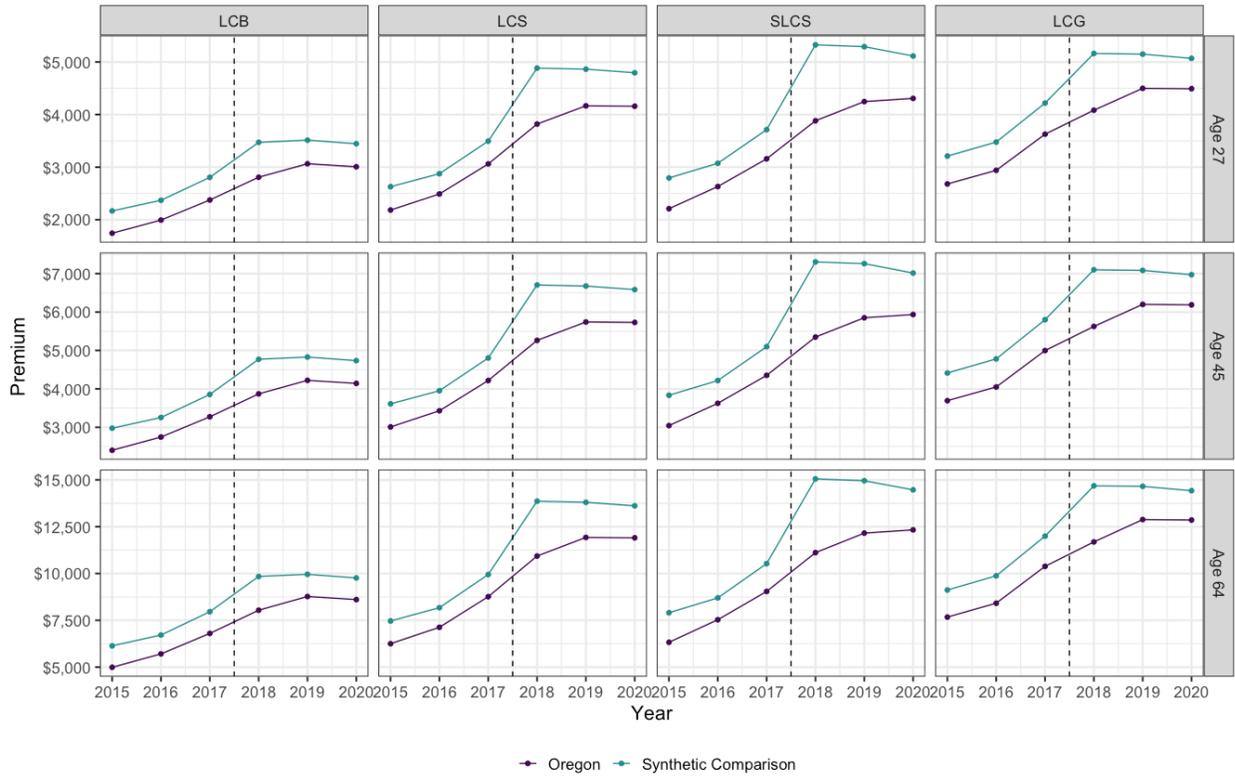
SOURCE: Authors’ analysis using CCIIO OEP PUFs for enrollment by income, and CCIIO marketplace effectuated enrollment and EDGE risk adjustment data for enrollment by subsidy status.

NOTE: The left panel is limited to marketplace plans while the right panel includes both on- and off-marketplace plans.

Waiver Impact on Enrollee Premium Spending

For each plan (LCB, LCS, SLCS, and LCG) and age (27, 45, and 64), average statewide individual market premiums increase and are relatively parallel between Oregon and the synthetic comparison group in the pre-waiver period (Figure 3.3). In the post-waiver period, premiums in Oregon increased from 2017 to 2019 and were constant or declined slightly from 2019 to 2020, while premiums in the synthetic comparison groups increased sharply from 2017 to 2018 but had small declines from 2018 to 2020. The pre- and post-waiver mean premiums for Oregon and the synthetic comparison are given in Table B.1.

Figure 3.3. Average Statewide Individual Market Premiums in Oregon and Synthetic Comparison States, by Plan and Age, 2015–2020



SOURCE: Authors’ analysis using RWJF HIX Compare.
 NOTE: The synthetic comparison reflects a weighted average of the statewide premium across 23 comparison states (see Table A.1).

The estimated waiver effects on premiums in Oregon relative to the synthetic comparison groups are not large in comparison with the variability in the data and are thus not considered statistically significant (Table 3.1). Although the effects on premiums are not statistically significant in any year, the point estimates are negative, with the effects being the largest in 2018 and waning over time.

Table 3.1. Estimated Effects on Individual Market Plan Premiums in Oregon Relative to Synthetic Comparison States Following Waiver Implementation, by Plan, Age, and Year

	LCB		LCS		SLCS		LCG	
	Effect (%)	p-value	Effect (%)	p-value	Effect (%)	p-value	Effect (%)	p-value
Age 27								
2018	-\$257 (-8%)	0.49	-\$639 (-14%)	0.27	-\$917 (-19%)	0.24	-\$500 (-11%)	0.48
2019	-\$44 (-1%)	0.89	-\$272 (-6%)	0.63	-\$518 (-11%)	0.43	-\$72 (-2%)	0.88

	LCB		LCS		SLCS		LCG	
	Effect (%)	p-value	Effect (%)	p-value	Effect (%)	p-value	Effect (%)	p-value
2020	-\$33 (-1%)	0.92	-\$212 (-5%)	0.67	-\$279 (-6%)	0.70	\$1 (<1%)	0.98
Overall	-\$111 (-4%)	0.67	-\$375 (-8%)	0.46	-\$571 (-12%)	0.35	-\$190 (-4%)	0.77
Age 45								
2018	-\$353 (-8%)	0.51	-\$870 (-14%)	0.26	-\$1,250 (-19%)	0.23	-\$690 (-11%)	0.48
2019	-\$58 (-1%)	0.89	-\$364 (-6%)	0.62	-\$701 (-11%)	0.42	-\$100 (-2%)	0.88
2020	-\$43 (-1%)	0.93	-\$282 (-5%)	0.70	-\$373 (-6%)	0.68	\$1 (<1%)	0.99
Overall	-\$151 (-4%)	0.70	-\$505 (-8%)	0.46	-\$774 (-12%)	0.34	-\$263 (-4%)	0.75
Age 64								
2018	-\$712 (-8%)	0.52	-\$1,778 (-14%)	0.24	-\$2,532 (-19%)	0.23	-\$1,423 (-11%)	0.48
2019	-\$94 (-1%)	0.91	-\$724 (-6%)	0.62	-\$1,390 (-11%)	0.45	-\$201 (-2%)	0.89
2020	-\$64 (-1%)	0.95	-\$559 (-5%)	0.70	-\$729 (-6%)	0.70	\$8 (<1%)	1.00
Overall	-\$290 (-4%)	0.78	-\$1,020 (-8%)	0.46	-\$1,550 (-12%)	0.33	-\$539 (-4%)	0.73

SOURCE: Authors' analysis using RWJF HIX Compare.

NOTES: The percentage change waiver effect is the estimated premium change divided by the estimated post-waiver premium without the waiver. We considered p-values ≤ 0.10 to be statistically significant in this analysis.

The estimated effects on the enrollee premium spending for representative individuals by age and income for four plan types in Oregon relative to the synthetic comparison following waiver implementation are also not large compared with the variability in the data and are thus not considered statistically significant (Table 3.2). The estimated effects for the 450-percent-FPL individuals are negative but are not statistically significant (and are equal to the premium effects in Table 3.3 because these individuals do not receive subsidies). The estimated effects for individuals with income below 400 percent FPL are positive because the decline in premium for the benchmark SLCS plan is substantially larger than the decline in premiums for other plan types (e.g., -19% for SLCS compared with -8% for LCB and -11% for LCG in 2018). As a result, the subsidies—which are based on the cost of the benchmark plan—declined by more than the premium for plans other than the benchmark. However, this finding is not statistically significant.

Generally, the change in enrollee premium spending for subsidized people on the benchmark silver plan is \$0, because the change in subsidy equals the change in premium for this plan as long as the premium exceeds the enrollee's applicable percentage contribution. However, there is one exception—for young adults at 350 percent of the FPL, the average benchmark premium falls below the applicable percentage contribution. As a result, those who would have paid the applicable percentage contribution without reinsurance now pay a somewhat lower amount, resulting in \$101 in savings. However, again we cannot reject the null hypothesis that the waiver had no effect on enrollee premium spending.

Table 3.2. Estimated Overall Effect on Individual Market Enrollee Premium Spending in Oregon Relative to Synthetic Comparison States Following Waiver Implementation, by Age, Income, and Plan

	LCB		LCS		SLCS		LCG	
	Effect	p-value	Effect	p-value	Effect	p-value	Effect	p-value
Age 27								
100% FPL	\$0	1.00	\$142	0.27	\$0	1.00	\$381	0.25
250% FPL	\$460	0.22	\$197	0.21	\$0	1.00	\$381	0.39
350% FPL	\$359	0.28	\$95	0.63	-\$101	0.77	\$280	0.45
450% FPL	-\$111	0.67	-\$375	0.46	-\$571	0.35	-\$190	0.77
Age 45								
100% FPL	\$0	1.00	\$121	0.45	\$0	1.00	\$499	0.26
250% FPL	\$623	0.32	\$269	0.22	\$0	1.00	\$512	0.40
350% FPL	\$623	0.21	\$269	0.22	\$0	1.00	\$512	0.36
450% FPL	-\$151	0.70	-\$505	0.46	-\$774	0.34	-\$263	0.75
Age 64								
100% FPL	\$0	1.00	\$31	0.80	\$0	1.00	\$845	0.22
250% FPL	\$0	1.00	\$530	0.23	\$0	1.00	\$1,011	0.41
350% FPL	\$852	0.32	\$530	0.23	\$0	1.00	\$1,011	0.41
450% FPL	-\$290	0.78	-\$1,020	0.46	-\$1,550	0.33	-\$539	0.73

SOURCE: Authors' analysis using RWJF HIX Compare.

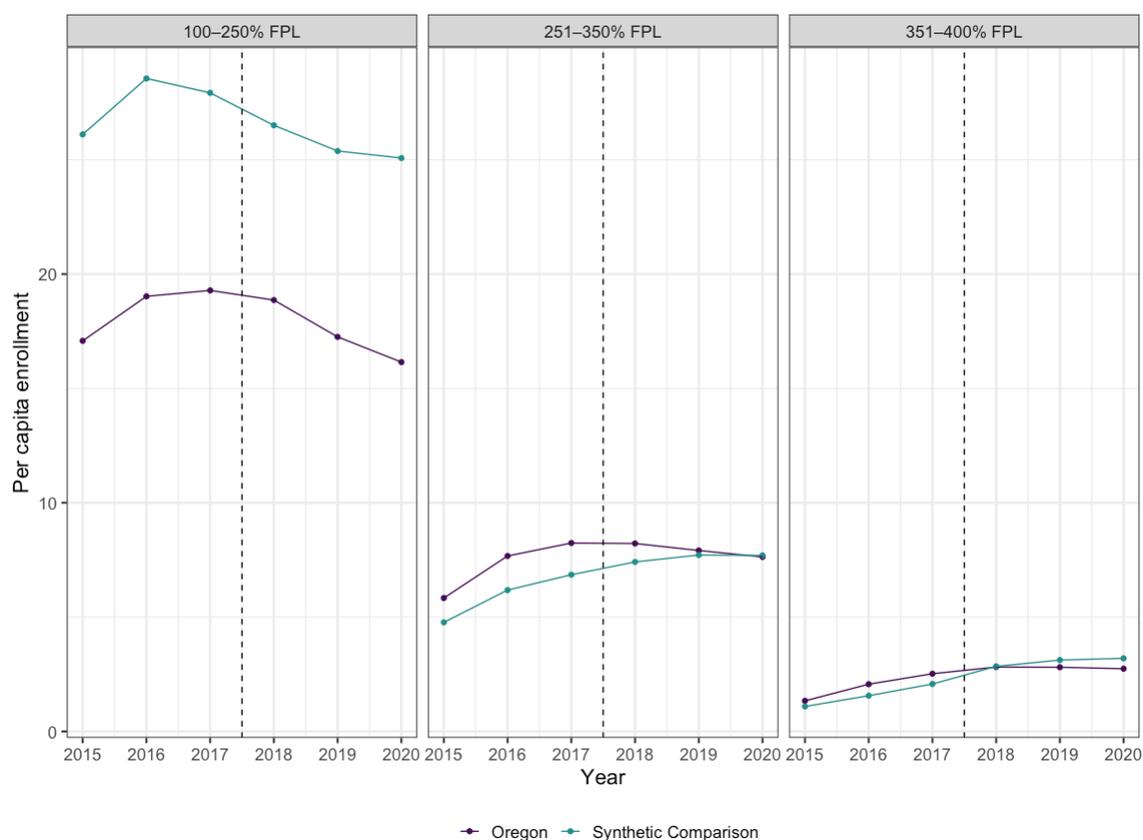
NOTES: Effects on LCB are \$0 for individuals with income 100% of FPL and for 64-year-olds at 250% FPL because, both with and without the waiver, these individuals get a free plan. Similarly, the effect on the SLCS premium is \$0 for people incomes below 400% of FPL because the size of the APTC is mechanically tied to the SLCS premium. We considered p-values ≤ 0.10 to be statistically significant in this analysis.

In the sensitivity analyses, we similarly found no statistically significant effects on premiums in two alternative model specifications but found significant effects in one alternative, which indicates lower SLCS premiums and higher enrollee premium spending for some representative individuals receiving APTCs. However, the findings of the third sensitivity analysis should be interpreted as premium differences in Oregon relative to a synthetic comparison group comprised mostly of Nebraska, which may or may not be an ideal comparator. See Appendix C for more details.

Waiver Impact on Enrollment

For each income category, the pre-waiver trends in per capita enrollment are relatively parallel between Oregon and the synthetic comparison group (Figure 3.4).¹¹ Enrollment by individuals with income from 100–250 percent of FPL increased from 2015 to 2016 and decreased from 2017 to 2020. In the 251–350-percent-FPL category, enrollment increased between 2015 and 2017, and decreased after 2018. In the 351–400-percent-FPL category, pre-waiver per capita enrollment was similar in Oregon and the synthetic comparison, but enrollment in Oregon remained fairly constant in the post-waiver period, while enrollment in the synthetic comparison continued to increase.

Figure 3.4. Individual Market Enrollment per Capita in Oregon and Synthetic Comparison States, by Income, 2015–2020



SOURCE: Authors' analysis using CCIIO OEP PUFs.

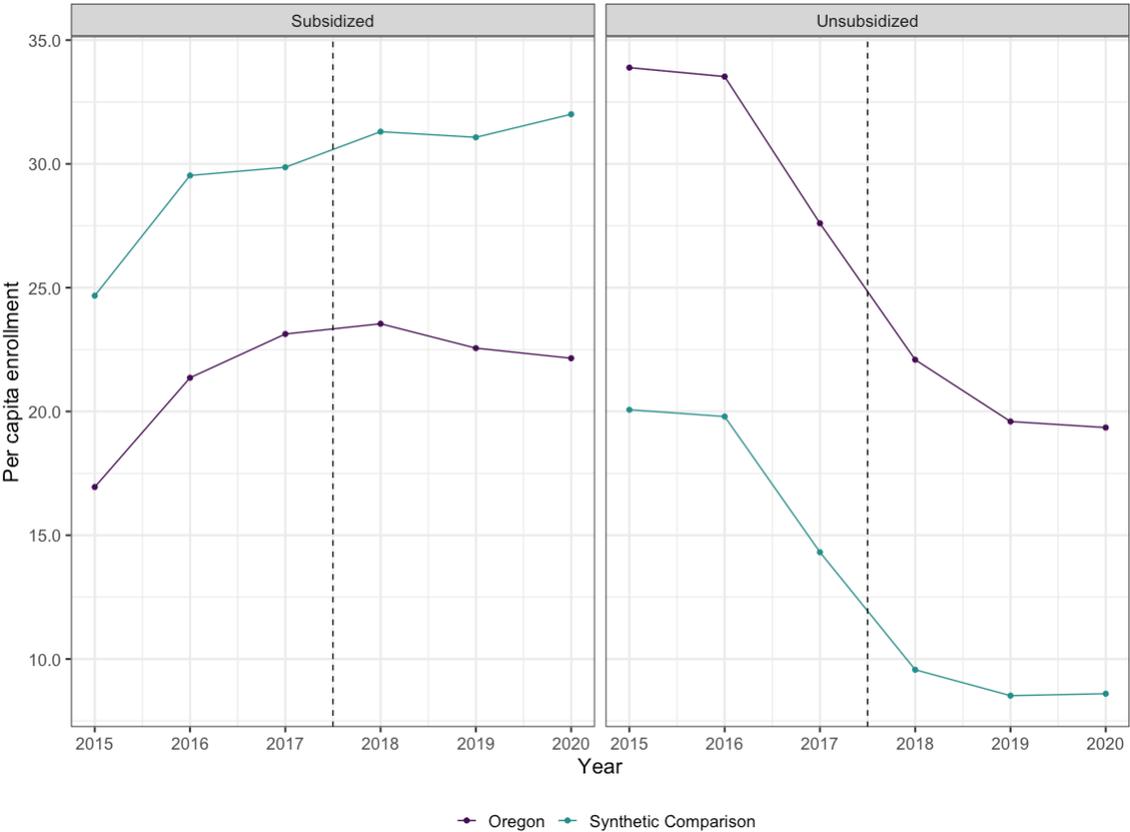
NOTE: The synthetic comparison reflects average per capita enrollment across 19 comparison states (see Table A.1).

¹¹ To improve parallel trends for the 100–250-percent-FPL category, we explored alternative model specifications in sensitivity analyses. See Appendix C for the improved parallel trends and estimated effects on enrollment, which are similar to the main results for the 100–250-percent-FPL category.

The pre- and post-waiver mean per capita enrollments for Oregon and the synthetic comparison are given in Table B.2.

The per capita enrollment trends for subsidized and unsubsidized enrollees in Oregon relative to the synthetic comparison groups are relatively parallel in the pre-waiver period (Figure 3.5). Subsidized enrollment increased in the pre-waiver period in Oregon and the synthetic comparison.¹² However, in the post-waiver period, subsidized enrollment declined in Oregon while increasing from 2018 to 2020 in the synthetic comparison group. In both Oregon and the synthetic comparison, unsubsidized enrollment had large declines between 2015 and 2019.

Figure 3.5. Individual Market Enrollment per Capita in Oregon and Synthetic Comparison States, by Subsidy Status, 2015–2020



SOURCE: Authors’ analysis using CCIIO marketplace effectuated enrollment and EDGE risk adjustment data.
 NOTE: The synthetic comparison reflects average per capita enrollment across 23 comparison states (see Table A.1).

¹² To improve parallel trends for the subsidized category, we explored alternative model specifications in sensitivity analyses. See Appendix C for the improved parallel trends and estimated effects on enrollment, which are similar to the main results for subsidized enrollees.

The estimated effects on individual market enrollment in Oregon in the difference-in-differences analysis compared with enrollment in the synthetic comparison following waiver implementation were generally not large compared with the variability in the data (Table 3.3). The estimated effects for enrollees with income between 100–250 percent FPL and 251–350 percent FPL are not statistically significant. However, for the 351–400-percent-FPL category, the estimated effects on enrollment are statistically significant in 2019 and 2020, and the negative effects grow over time. The overall effect is 3,016 fewer enrollees with income between 351–400 percent FPL, on average per year, than expected in the absence of the waiver (–20% per year on average relative to the estimated enrollment without the waiver), which results from constant enrollment in Oregon compared with increasing enrollment in the synthetic comparison. Like the estimated effects by income, the point estimates show declining enrollment among the subsidized and unsubsidized populations that appear to grow over time in the post-waiver period; however, the effects are not statistically significant.

Table 3.3. Estimated Effect on Individual Market Enrollment in Oregon Relative to Synthetic Comparison States Following Waiver Implementation, by Income Category, 2018–2020

	Estimated Effect on Enrollment	p-value
100–250% FPL		
2018	4,182	0.68
2019	2,151	0.83
2020	–1,206	0.93
Overall	1,721	0.87
251–350% FPL		
2018	–2,419	0.68
2019	–5,006	0.83
2020	–6,158	0.93
Overall	–4,519	0.87
351–400% FPL		
2018	–2,004	0.22
2019	–3,224	0.07*
2020	–3,832	0.03*
Overall	–3,016	0.04*
Subsidized		
2018	–4,280	0.60
2019	–7,503	0.37
2020	–13,231	0.20
Overall	–8,318	0.36
Unsubsidized		
2018	–3,748	0.77

	Estimated Effect on Enrollment	p-value
2019	-9,886	0.46
2020	-11,317	0.39
Overall	-8,300	0.52

SOURCE: Authors' analysis using CCIIO OEP PUFs, marketplace effectuated enrollment data, and EDGE risk adjustment data.

NOTES: Enrollment in the income categories (100–250% FPL, 251–350% FPL, and 351–400% FPL) reflect plan selections, while subsidized and unsubsidized enrollment reflect effectuated enrollment. The overall effect is the average estimated effect per year in the post-waiver period. We considered p-values ≤ 0.10 to be statistically significant in this analysis (indicated by *).

In the sensitivity analyses using the difference-in-differences methodology with no penalty, the enrollment results were similar to the main analysis, with enrollment reductions for the 351–400-percent-FPL category. In the sensitivity analyses using a triple-difference methodology, there were no statistically significant differences in enrollment; however, these findings should be interpreted with caution. The triple-difference analysis with the penalty term resulted in non-parallel pre-waiver trends for some categories. The triple-difference analysis with no penalty term resulted in synthetic comparison groups skewed to one or two states. See Appendix C for more details.

4. Discussion and Conclusion

The ORP aimed to stabilize individual market premiums and reduce uncertainty for health insurers by spreading risk across the individual market. The funding introduced by reinsurance most certainly reduced premiums relative to what they would have been absent the waiver, and the number of issuers offering individual market plans stabilized and increased after the waiver was implemented (McDermott and Cox, 2020). Following the implementation of Oregon’s section 1332 waiver for a reinsurance program in 2018, the average benchmark premium increased by a smaller amount (19%) than the national average increase (34%) (KFF, 2020). However, since 2018, individual market premiums in Oregon have been relatively stable, while national average premiums have declined. Although Oregon’s premium growth appears to slow after 2018, we did not find evidence that Oregon’s premium reductions were significantly different from those experienced in comparison states. This comparison differs from the actuarial analyses, which projected premium reductions of 6 to 8 percent based on aggregate premiums and reinsurance dollars in Oregon (Oregon DCBS, 2017b). Specific to this evaluation, it is possible that premiums in Oregon’s individual market would have been lower compared with other states if other state differences could have been accounted for in this analysis. In particular, the corrective action taken by Oregon regulators to increase rates in 2015 through 2018, following underpricing in the individual market, may differ from the rate review process in other states. Had the analysis been able to control for corrective action in rate reviews of Oregon and the comparison states, the weighting of pre-waiver trends could have resulted in a different synthetic comparison group.

Since 2016, individual market enrollment has declined in Oregon and nationally, with the decline driven by decreases in unsubsidized enrollees over time (CMS, 2020). Although we hypothesized that unsubsidized enrollment would increase due to lower premiums with reinsurance, we did not find strong evidence of reduced premiums and unsubsidized enrollment growth in Oregon relative to trends in comparison states. Following waiver implementation, we estimated that individual market enrollment by individuals with income between 351 and 400 percent of FPL in Oregon declined relative to the synthetic comparison groups. This may be partially due to relatively higher enrollee premium spending faced by those with income between 351 and 400 percent of FPL, of which about 83 to 85 percent are subsidized and received smaller subsidies after the reinsurance program was implemented due to declines in the benchmark premium.

Declines in enrollment could also reflect factors beyond premiums, such as network adequacy, insurer participation in the individual market, and economic conditions that could affect eligibility for job-based insurance. Additionally, changes in national policy during this time period, such as the elimination of the individual mandate; reduced OEPs; reduced federal

funding for outreach and enrollment assistance; and proliferation of short-term, limited-duration plans that competed with ACA-compliant insurance, could have led to declines in enrollment. Although these national factors likely affected both Oregon and the comparison states, the extent of the effects may vary between Oregon and other states.

Limitations

Our analysis has several limitations. It is challenging to identify appropriate comparison groups as each state has unique conditions and policies. Although we construct synthetic comparison groups that match Oregon's pre-waiver trends, there may be other state-specific factors that are not accounted for in the analyses. For example, Oregon regulators increased rates to correct for underpricing in the initial years of the ACA. These rate increases in the pre-waiver period would affect the selection of the synthetic comparison states that underwent different rate review processes and may not have had state-enforced rate increases. In addition, Oregon experienced extremely low enrollment in 2014 due to the failure of the Cover Oregon website, which was replaced with adoption of the federal Healthcare.gov platform in 2015. This change in platform may have contributed to slower uptake in Oregon during the early years of the ACA compared with other states, which would have again influenced the selection of the synthetic comparison states. Other possible confounding factors include insurer market competition (e.g., the number of issuers, market concentration), insurer-provider negotiations, network adequacy, consumer demographics, market churn, whether a state marketplace uses the federal Healthcare.gov platform, and other state programs that affect the individual market or other insurance markets.

There were also concurrent changes during the time period that reinsurance was implemented in Oregon. For example, many states including Oregon had loading policies starting in 2018 in response to federal non-payment of CSRs. Although we include only states with silver loading policies in the synthetic comparison group, loading policies were implemented differently across states and changed over time in some states. Although we excluded from the comparator group states that implemented broad loading policies or no loading for CSRs in any year between 2018 and 2020, states with merged individual and small group markets, and states that operated a Basic Health Program to identify a comparison group that was more similar to Oregon's individual market, estimates of the waiver's impact could still be biased by the implementation of new programs or changes in market dynamics unrelated to the reinsurance program in either Oregon or comparison states.

In a sensitivity analysis, we used information about trends in premiums and enrollment in the small group market as part of a triple-difference methodology to attempt to account for differences between Oregon and comparison states that could bias estimates of the waiver's impact (see Appendix C). However, differences between the individual market and small group market could still lead to divergent trends that would affect our estimates. For example, enrollees

in the small group market may differ significantly from enrollees in the individual market in terms of their income or health status. Since small group market enrollees are eligible for neither subsidies nor CSRs, their responses to premium changes may also differ from individual market enrollees who are eligible for both. Any systematic change in employer contributions to premiums over this period would affect small group market enrollee premium spending independent of the waiver. In addition, the differential in the outcomes of the individual and small group market in Oregon did not trend the same way as the differential in the outcomes of the individual and small group markets in synthetic comparison groups for some of the stratifications. In the triple-difference sensitivity results, the estimated effects on premiums and enrollment following the waiver were not large compared with the underlying variability in the data and were thus not significant.

Because we used state-level enrollment and premium data, the sample size for the regression analyses is small. We restricted states in the synthetic comparison groups to those that did not have a section 1332 waiver in the time period of interest and those that had a similar individual market structure and silver loading policy to that of Oregon. For the enrollment analysis by income, we further excluded a few states with state-based exchanges for which data were not available. In addition, the number of pre-waiver years is limited. Because of the limited sample size, we expect that if the true effect of the waiver is small, there will not have been sufficient power to detect this. Because of the limited pool of comparison states, this is a difficult issue to overcome. Furthermore, our p-values rely on a placebo test that assumes that the amount of variability observed in comparison states can help characterize the variability in estimation of the effect in Oregon. If comparison states were actually much more variable than Oregon, our p-values could be too large, while if comparison states were much less variable than Oregon, our p-values could be too small. See Appendix A for details on p-values and further discussion of this issue.

Finally, the enrollment data used in the analysis were not available for individuals in specific age, income, and metal tiers combinations, which limited our ability to understand how changes in enrollee premium spending across population subgroups defined by these characteristics translated to changes in enrollment. Additionally, while marketplace effectuated enrollment data are more accurate than plan selections, for our analyses of enrollment by income level, only the latter were available, though we note that the data are consistent within each stratified analysis.

Future Directions

Lessons Learned

A key lesson from the analysis is that differences between states make constructing the ideal comparison group difficult. In this analysis, we aimed to estimate waiver effects on enrollee premium spending and enrollment in Oregon's individual market by comparing Oregon with

other states that did not implement a waiver. The purpose of the comparison with other states is to have a counterfactual in which there was no waiver in Oregon. However, despite using methods to construct a comparator that matches Oregon's pre-waiver trends in premiums and enrollment, there are differences between states such as those related to the rate review process (e.g., how insurers determine rate requests and how states finalize rate increases) that are difficult to quantify. Furthermore, state-level analyses are limited in sample size, which constrains the number of variables that could be included in a model to adjust for these factors. Qualitative data collection could help to further interpret trends in premiums and enrollment and to better understand the unique circumstances in each state. In addition, given the limited power of most analyses, states might need to rely on triangulation of findings and sensitivity analysis (including the use of alternative comparison groups) to test the robustness of conclusions about the waiver's effects.

Another key lesson is that reinsurance can have differential effects on subsidized and unsubsidized populations due to the interaction with the APTC structure that is tied to benchmark premiums. Although we did not find significant effects on subsidized and unsubsidized enrollment in Oregon relative to the comparison states in this analysis, we hypothesized that unsubsidized enrollment would be more sensitive to lower premiums with the ORP compared with the counterfactual of no ORP. It is possible that reinsurance could worsen affordability for some subsidized enrollees if APTCs fall (due to benchmark premiums falling) by more than other plan premiums. Closer examination of the enrollment patterns of these individuals may be valuable to better understand whether reduced affordability leads to disenrollment. In addition, states might consider changes to the design of their reinsurance programs to enhance the affordability of coverage for subsidy-eligible enrollees.

Reinsurance programs are implemented in a complex policy environment and can interact with existing policies and programs. For example, as discussed below, the American Rescue Plan has implications for reinsurance since it expands subsidies to individuals who were most likely to benefit from reinsurance programs. As a result, states may need to make a more comprehensive assessment of the benefits and costs to the state of reinsurance relative to existing state or federal programs.

Future research on reinsurance programs could address methodological limitations of the current analysis and cover additional research questions. Future analyses could try to account for differences between states that might affect trends in premiums or enrollment; however, factors such as those related to how insurers determine rate requests and how states finalize rate increases are difficult to quantify. Future evaluations may also benefit from more focus on qualitative data collection to better understand the unique circumstances in the waiver state and how to best construct a comparator. Researchers could compare existing reinsurance programs across multiple states and provide policy recommendations for states considering implementation of a new reinsurance program or changes to an existing program. Furthermore, simulation analyses could be used to compare specific parameters of a given reinsurance model (e.g.,

comparison of attachment points, coinsurance rates, and payment caps within a claims-based reinsurance program, or claims- vs. conditions-based reinsurance program). Additionally, as described in the next subsection, explicit consideration of health equity will be important in future evaluations of waiver programs.

Health Equity Considerations

Although reinsurance primarily benefits individuals with incomes above 400 percent of FPL, these programs can promote health equity goals by reducing gaps in coverage and affordability between certain population groups. Reinsurance can reduce disparities in coverage between individuals eligible for subsidies and lower-income adults who are just over the income-eligibility threshold—many of whom are older adults with modest incomes. Reinsurance could also encourage new issuers to begin offering coverage in a state or encouraging existing issuers to expand into new markets, which could promote competition and further drive down premiums and improve affordability particularly for unsubsidized enrollees in rural areas, which tend to have fewer participating issuers than urban areas.¹³ Finally, reinsurance could reduce the tendency of issuers to use narrow provider networks as a strategy to control costs, which could reduce disparities in access to providers for enrollees with specific health care needs and preferences. For example, provider choice may be particularly important for patients with specific health conditions; those who prefer receiving care from providers with a similar race, ethnicity, gender, or language preference; or providers that are more likely to support patients in addressing their health-related social needs such as housing and nutrition assistance.

Given the potential impact of reinsurance on health equity, evaluations of reinsurance programs would ideally include a health equity impact assessment. This type of assessment would require enrollment data stratified by enrollee characteristics such as race/ethnicity, income, and geography, including combinations of these characteristics. Although characteristics such as race/ethnicity are reported on a voluntary basis at the time of enrollment and may be incomplete, validated methods are available to impute race and ethnicity using enrollee-level information (e.g., surname and address) in conjunction with U.S. census data (Elliott et al., 2009). The assessment might replicate the analyses presented in this report, including an assessment of the reinsurance program's effect on enrollment stratified by race/ethnicity and geography (as opposed to simply income). Analyses of enrollee premium spending could be conducted at the rating area level as well as the state level to quantify differences in the program's effect between urban and rural areas. Additional analyses might include changes in the availability of zero premium plans for different population groups, and changes in the number of issuers offering coverage to different population groups. Enrollee-level data on plan

¹³ In 2021, counties in metropolitan areas had 3.1 participating issuers, on average, compared with 2.5 participating issuers in counties outside of metropolitan areas (McDermott and Cox, 2020).

selections could also be used to determine whether reinsurance reduces disparities in affordability across population groups. For example, analysis of changes in enrollee premium spending for different populations in distinct metal tiers could identify population groups that could benefit from switching into plans in higher metal tiers with little or no change in enrollee premium spending.

Implications of the American Rescue Plan

The American Rescue Plan made substantial changes to the ACA's premium tax credit structure for 2021 and 2022. First, the American Rescue Plan extended premium tax credits to people with incomes above 400 percent of FPL who do not have an affordable health insurance offer from another source. Second, the American Rescue Plan reduced applicable percentage contributions (the share of income that a subsidy-eligible individual is required to pay for a benchmark plan) for people at all income levels, which in turn increased the size of the subsidies that people can receive. Without the American Rescue Plan, applicable percentage contributions for 2021 would have ranged from 2.07 percent of income for eligible enrollees at 100 percent of the FPL to 9.83 percent of income for eligible enrollees with income between 300 and 400 percent of FPL (IRS, 2020). With the American Rescue Plan, applicable percentage contributions were reduced to zero for subsidy-eligible people with incomes below 150 percent of FPL and ranged up to a maximum of 8.5 percent of income for those with incomes above 400 percent of FPL (H.R. 1319, 117th Congress). Because the applicable percentage contributions cap spending for the benchmark plan as a percentage of income, they insulate enrollees from premium increases if they enroll in the benchmark plan.

By extending premium tax credits to people with incomes above 400 percent of FPL, the American Rescue Plan reduced the size of the unsubsidized population that is most likely to benefit from reinsurance. Additionally, by expanding subsidies to a larger population, and by increasing the subsidies' value, the American Rescue Plan may attract a larger pool of healthy people to the individual insurance market, potentially stabilizing premiums. Because state reinsurance programs are typically funded through state general funds and/or broad-based taxes (such as Oregon's 2.0% premium assessment in 2020), state policymakers may determine that reinsurance is a low-priority investment alongside the American Rescue Plan, which uses federal dollars to improve the affordability and stability of the market. Yet, reinsurance could still offer benefits for the state. For example, in an analysis looking at a post-American Rescue Plan scenario for a section 1332 waiver, actuaries for the state of Colorado estimated that reinsurance would lead to a 19.2-percent reduction in premiums in 2022, even after accounting for the effects of the American Rescue Plan (Colorado Division of Insurance, 2021). In addition, with more subsidized consumers enrolled in light of the American Rescue Plan—either because they were eligible prior to the American Rescue Plan and subsequently enrolled after the increased premium tax credit generosity, or because they were newly eligible for premium tax credit—the size of federal pass-through funding available to the state due to reduced premiums is larger, as

the federal government achieves additional PTC savings due to reinsurance (U.S. Department of the Treasury, 2021). Reinsurance creates benefits for several categories of enrollees including people who pay less than 8.5 percent of income for premiums and adults with incomes below the poverty line in states that opted not to expand their Medicaid programs. It also includes people subject to the so-called family glitch, which precludes premium tax credit receipt among people with an affordable offer of single employee coverage, even if premiums for dependent coverage are more than 8.5 percent of income (Cox et al., 2021), and those offered affordable individual coverage health reimbursement arrangements (IHRAs) who are not eligible for premium tax credits. It also includes. When the American Rescue Plan’s subsidy enhancement expires in 2023, the need for reinsurance may grow as the size of the unsubsidized population reverts to pre-pandemic levels.

Conclusion

Although the ORP introduced funding into the individual market that most certainly lowered premiums compared with what they would have been without the waiver, we were unable to conclude that the ORP was associated with reductions in individual market premium growth or increases in enrollment relative to comparison states with similar pre-trends. Although we tried to isolate the effect of the ORP using a difference-in-differences methodology, our analysis is limited by the fact that state-specific rate review, concurrent policy changes, and other state differences make it difficult to identify an ideal comparison group. To fully understand the impact of the waiver on enrollee premium spending and enrollment relative to other states, it could be helpful to conduct qualitative interviews with Oregon stakeholders to understand what other state-specific factors may have influenced premiums and enrollment over this time period.

Appendix A. Detailed Methodology

Description of Data Sources

Robert Wood Johnson Foundation HIX Compare Data

Description: The RWJF produces research-ready data files containing information about individual and small group plans offered both on and off the marketplace. Premium information is available for both individual and family coverage for enrollees with different ages for plans available in each rating area in a given state.

Data structure: Plan-rating area level

Years analyzed: 2015–2020

Use: We use these files to measure statewide premiums for the four types of marketplace plans specified in Research Question 1 (LCB, LCS, SLCS, and LCG) for individuals with selected ages and incomes from 2015 to 2020.

CCIIO Open Enrollment Period Public Use Files

Description: The OEP PUFs contain state-level information on enrollment in marketplace plans in the individual market for both Healthcare.gov states and state-based exchanges. These files include data on applications and plan selections during the OEPs through the marketplaces and therefore do not include off-marketplace enrollment.

Data structure: State level

Years analyzed: 2015–2020

Use: We used these state-year files to measure trends in enrollment in individual market plans that are offered on the marketplace for enrollees with incomes between 100 and 250 percent of FPL, 251 and 350 percent, and 351 and 400 percent in Oregon and comparison states.

CCIIO Marketplace Effectuated Enrollment Tables

Description: CCIIO's full-year effectuated enrollment tables provide counts of the monthly average number of individuals with active policies during the calendar year who have signed up for a marketplace plan and paid their first premium, if relevant.

Data structure: State level

Years analyzed: 2015–2020

Use: We used these state-level enrollment tables for subsidized enrollees in marketplace plans. We estimated unsubsidized enrollment across both on- and off-marketplace plans in each state by calculating the difference between total individual market enrollment in the CCIIO EDGE risk adjustment summary data (described below) and subsidized enrollment from the

effectuated enrollment tables. Enrollment in the effectuated enrollment tables is measured as the average monthly enrollment across the 12 months in each calendar year.

CCIIO External Data Gathering Environment Risk Adjustment Summary Data

Description: The EDGE data contain plan-level information about individuals who signed up for a plan and paid premiums that is used for risk adjustment. These files do not include grandfathered plans and grandmothered plans that are not covered by the ACA risk adjustment program.

Data structure: State level

Years analyzed: 2015–2020

Use: We used these data to measure state-levels trends in enrollment for unsubsidized individuals enrolled in individual market plans. We used the risk adjustment summary data to measure state-level enrollment in all individual market plans and then subtracted state-level enrollment for subsidized individuals compiled from CCIIO marketplace effectuated enrollment tables (CMS, 2020) to estimate unsubsidized enrollment. Enrollment in the EDGE risk adjustment summary data is measured in enrollment days, which was aggregated to member months in the file prepared by CCIIO for this analysis. We divide member months by 12 to estimate average monthly enrollment in each calendar year.¹⁴ We also used data on small group enrollment in sensitivity analyses.

CCIIO Medical Loss Ratio Files

Description: The Medical Loss Ratio (MLR) files contain information about enrollment, premiums, and expenditures for qualified health plans (QHPs), grandfathered plans, and grandmothered plans in each state. For QHPs, this includes plans that are offered both on and off marketplace.

Data structure: Issuer level

Years analyzed: 2015–2019

Intended use: We used these files to measure enrollment in small group market plans in sensitivity analyses. Because EDGE risk adjustment data for the small group market were available to us only for the past three years, we relied on the MLR data for the small group

¹⁴ Member months in the EDGE risk adjustment summary data and in the CCIIO marketplace effectuated enrollment tables are calculated in slightly different ways. In the EDGE risk adjustment summary data, enrollment days are aggregated to member months for each calendar year whereas in the CCIIO marketplace effectuated enrollment data tables, monthly enrollment counts are averaged across the 12 months of each calendar year.

market for 2015–2019 and imputed small group enrollment in 2020 using EDGE risk adjustment data.¹⁵

Choice of Comparison Group

“Synthetic comparators” are commonly used in policy analysis when the unit of observation is large, such as a state. To estimate the impact of a policy in the state of interest, outcomes from comparison states that are not exposed to the policy are combined and weighted to match pre-policy trends for the state of interest. Any departure in trends following the implementation of the policy is then interpreted as the impact of the policy.

We follow the approach of Arkhangelsky et al. (2019) to reweight a set of non-waiver comparison states that is customized to Oregon into a synthetic comparison group, so that the assumption of pre-waiver parallel trends is satisfied. Specifically, we select $\omega = (\omega_1, \dots, \omega_J)$ to satisfy the following minimization problem:

$$(\omega_0, \omega) = \arg \min_{\omega \in \Omega} \sum_{t=2014}^{2017} \left(\omega_0 + \sum_{i=1}^J \omega_i Y_{it} - Y_{0t} \right)^2 + \zeta^2 \|\omega\|_2^2.$$

In the equation, the outcome value for the waiver state in year t is Y_{0t} , and the outcome value of the i th comparison state in year t is Y_{it} . The weights ω are restricted to the set Ω of all non-negative weights that sum to 1. The penalty term ζ controls the extent to which the weights are allowed to concentrate on a single comparison state. This weighting ensures that the pre-waiver trends are parallel because the difference in the pre-waiver outcome between the synthetic comparison state and Oregon $\sum_{i=1}^J \omega_i Y_{it} - Y_{0t}$ is chosen to be approximately equal to ω_0 in all pre-waiver years. A unique set of weights was developed for the synthetic comparison groups used for each stratification of interest for the two research questions. Note that each set of weights balance the pre-waiver outcomes but not any other state-level characteristics.

A strength of the synthetic comparator method is its ability to select the most comparable states with Oregon. When appropriate, the synthetic comparator method combines information from multiple comparison states, thus reducing the likelihood that any one state will unduly influence the outcome. When only a single comparison state is sufficiently similar to Oregon in the pre-waiver period, it automatically finds and compares Oregon with that state. Furthermore,

¹⁵ To impute small group market enrollment in 2020, we calculated the ratio of small group market enrollment in the 2019 MLR data and CCIIO’s 2019 EDGE risk adjustment data and applied this ratio to the 2020 small group market enrollment estimates in the EDGE risk adjustment data. We used the MLR data as the primary data source for enrollment in the small group market because it was available for more years (2015–2019) than the corresponding EDGE risk adjustment data (2017–2020), which is subject to a three-year retention policy.

even when no single comparison state has comparable pre-waiver trends with Oregon, the synthetic comparison state may yet closely match the pre-waiver trends.

Operationalizing the Synthetic Comparison Group

We construct the synthetic comparison group from a pool of comparison states chosen based on waiver status and “silver loading” policy. The comparison states exclude those with an approved 1332 waiver at any point between 2018 and 2020, leaving 36 states and Washington, D.C., as possible comparison states (KFF, 2020).¹⁶

To account for silver loading approaches that affect premiums, we also exclude states that adopted a different silver loading approach from Oregon. Following the elimination of federal funding for CSR subsidies under the Trump administration in 2017, most states allowed insurers to “load” CSR costs onto plan premiums. However, states differed in the type of loading allowed. “Silver loading” increased premiums on the silver tier, while “broad loading” increased premiums across all metal tiers. Furthermore, some states loaded costs onto all silver plans while other states opted for “silver switch” (or “silver switcheroo”) that allowed insurers to load CSR costs onto on-marketplace silver plans only, leaving off-marketplace silver premiums unaffected by the loading. In 2018, 15 states opted to silver load on all silver plans (including Oregon and Alaska) and 21 states opted to silver switch (including Minnesota) (Anderson et al., 2018). In 2019, more states transitioned to the silver switch approach, with 11 states opting to load on all silver plans (including Oregon) and 31 states opting for silver switch (including Minnesota and Alaska).

Including non-waiver states and states with silver loading policies (silver load or silver switch), the pool of potential comparison states consisted of the following 24 states: Alabama, Arkansas, California, Connecticut, Florida, Idaho, Iowa, Kansas, Kentucky, Louisiana, Massachusetts, Michigan, Missouri, Nebraska, Nevada, North Carolina, Ohio, South Carolina, South Dakota, Tennessee, Utah, Virginia, Washington, and Wyoming. We further excluded Massachusetts, which has merged individual and small group markets, leaving 23 possible comparison states.

We selected the synthetic comparison weights to closely approximate the parallel-trends assumption by minimizing the penalized squared differences in pre-waiver outcomes (see equation above). Additionally, we visually inspected the trends in Oregon compared with the trends in the synthetic comparison state to ensure that they did not markedly deviate from parallel in the pre-waiver period.

¹⁶ We include comparison states that have approved section 1332 waivers for programs that begin after 2020. For example, Pennsylvania and New Hampshire have approved waivers for reinsurance programs that will begin in 2021. We include these as comparison states for this analysis, which focuses on waiver impacts through 2020.

To address departures from parallel trends, we set the model’s penalization term to 0. The penalty term ζ disperses the weights over more comparison states, which has appealing theoretical properties, but setting $\zeta = 0$ allows greater enforcement of parallel trends. We also explored matching on relative changes in outcomes, $100 \times \delta_{jt} / Y_{(jt-1)}$ (Abadie, 2019) as opposed to matching on the levels of outcomes in each pre-waiver year, to achieve parallel trends (data not shown).

Estimating Waiver Impact

In Table A.1, we specify the composition of the synthetic comparison group for each research question. The comparison groups for the income categories in Research Question 2 contains four fewer states (Connecticut, Idaho, Kentucky, and Nevada) than the other comparison groups. In Tables A.2 and A.3, we specify the relative weights for each state in the synthetic comparison group for each stratification in the main analyses, in which the penalty term is included. The synthetic comparison group differs for each stratification in order to best match pre-waiver trends for each outcome measure.

Table A.1. Comparison States by Research Question

Research Question	Comparison States
Q1. What is the waiver’s impact on enrollee premium spending by representative individuals (by age and income) on each of the following on-marketplace plans: LCB LCS SLCS LCG?	23 states (Ala., Ariz., Calif., Conn., Fla., Iowa, Idaho, Kans., Ky., La., Mich., Mo., N.C., Nebr., Nev., Ohio, S.C., S.D., Tenn., Utah, Va., Wash., Wyo.)
Q2. What is the waiver’s impact on individual market enrollment for the following types of enrollees: 100–250% of FPL 251–350% of FPL 351–400% of FPL Subsidized Unsubsidized?	19 states ^a (Ala., Ariz., Calif., Fla., Iowa, Kans., La., Mich., Mo., N.C., Nebr., Ohio, S.C., S.D., Tenn., Utah, Va., Wash. Wyo.) 23 states (Ala., Ariz., Calif., Conn., Fla., Iowa, Idaho, Kans., Ky., La., Mich., Mo., N.C., Nebr., Nev., Ohio, S.C., S.D., Tenn., Utah, Va., Wash., Wyo.)

NOTE: Enrollee premium spending is defined as the premium minus the APTC.

^a The states differ in the income category stratification due to the exclusion of four states (Conn., Idaho, Ky., Nev.) for which data on enrollment by income are not available.

Table A.2. Synthetic Comparison Group Weights for Research Question 1, by State and Stratification

State	Age 27				Age 45				Age 64			
	LCB	LCS	SLCS	LCG	LCB	LCS	SLCS	LCG	LCB	LCS	SLCS	LCG
Alabama	0.03	0.04	0.02	0.02	0.03	0.04	0.02	0.02	0.04	0.04	0.02	0.02
Arkansas	0.06	0.05	0.05	0.07	0.06	0.05	0.05	0.06	0.06	0.05	0.05	0.06
California	0.06	0.04	0.04	0.07	0.06	0.04	0.04	0.07	0.06	0.04	0.04	0.07
Connecticut	0.04	0.04	0.02	0.06	0.04	0.04	0.02	0.06	0.04	0.04	0.02	0.06
Florida	0.05	0.04	0.03	0.05	0.05	0.04	0.03	0.05	0.05	0.04	0.03	0.05
Iowa	0.04	0.05	0.05	0.02	0.04	0.05	0.05	0.02	0.04	0.05	0.05	0.02
Idaho	0.04	0.05	0.06	0.04	0.04	0.05	0.06	0.04	0.04	0.05	0.06	0.04
Kansas	0.03	0.04	0.02	0.04	0.03	0.04	0.02	0.04	0.03	0.04	0.02	0.04
Kentucky	0.05	0.04	0.02	0.06	0.05	0.04	0.02	0.06	0.05	0.04	0.02	0.06
Louisiana	0.03	0.04	0.06	0.04	0.03	0.04	0.06	0.04	0.03	0.04	0.06	0.03
Michigan	0.05	0.04	0.04	0.06	0.05	0.04	0.04	0.06	0.05	0.04	0.03	0.06
Missouri	0.05	0.05	0.05	0.04	0.05	0.05	0.05	0.04	0.05	0.05	0.05	0.04
North Carolina	0.02	0.04	0.05	0.01	0.02	0.04	0.05	0.01	0.02	0.04	0.05	0.01
Nebraska	0.02	0.05	0.05	0.02	0.02	0.05	0.06	0.02	0.02	0.05	0.06	0.02
Nevada	0.06	0.05	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.05	0.06	0.05
Ohio	0.06	0.05	0.04	0.07	0.06	0.05	0.04	0.07	0.06	0.04	0.04	0.07
South Carolina	0.04	0.04	0.03	0.04	0.04	0.04	0.03	0.04	0.04	0.04	0.03	0.04
South Dakota	0.03	0.05	0.06	0.03	0.03	0.05	0.06	0.03	0.03	0.05	0.06	0.03
Tennessee	0.02	0.04	0.04	0.01	0.02	0.04	0.04	0.01	0.02	0.04	0.04	0.01
Utah	0.04	0.04	0.06	0.02	0.04	0.04	0.05	0.02	0.05	0.04	0.05	0.03
Virginia	0.05	0.04	0.05	0.05	0.05	0.04	0.05	0.05	0.05	0.04	0.05	0.05
Washington	0.06	0.05	0.02	0.07	0.06	0.04	0.02	0.07	0.05	0.04	0.02	0.07
Wyoming	0.07	0.05	0.06	0.06	0.07	0.05	0.06	0.06	0.07	0.05	0.06	0.06

Table A.3. Synthetic Comparison Group Weights for Research Question 2, by State and Stratification

State	100–250% FPL	251–350% FPL	351–400% FPL	Subsidized	Unsubsidized	
Alabama		0.04	0.04	<0.01	0.09	0.06
Arkansas		0.06	<0.01	<0.01	0.02	0.01
California		0.06	<0.01	<0.01	0.04	0.02
Connecticut		NA	NA	NA	0.03	0.06
Florida		0.06	<0.01	<0.01	0.04	0.03
Idaho		NA	NA	NA	0.04	0.06
Iowa		0.06	<0.01	<0.01	<0.01	0.05
Kansas		0.06	<0.01	<0.01	0.07	0.06
Kentucky		NA	NA	NA	0.02	0.03
Louisiana		0.01	0.03	<0.01	<0.01	0.05
Michigan		0.05	<0.01	<0.01	<0.01	0.02
Missouri		0.01	<0.01	<0.01	<0.01	0.04
North Carolina		0.01	0.04	0.17	0.01	0.05
Nebraska		0.05	0.13	0.34	0.07	0.08
Nevada		NA	NA	NA	0.03	0.05
Ohio		0.06	<0.01	<0.01	0.03	0.02
South Carolina		0.06	<0.01	<0.01	0.04	0.03
South Dakota		0.09	0.36	0.25	0.14	0.09
Tennessee		0.02	0.19	<0.01	0.03	0.07
Utah		0.09	0.20	0.24	0.12	0.04
Virginia		0.06	<0.01	<0.01	0.05	0.04
Washington		0.08	<0.01	<0.01	0.03	0.04
Wyoming		0.09	<0.01	<0.01	0.09	0.02

NOTE: State weights greater than 0.1 are shown in bold.

We estimated a weighted two-way fixed effects regression. Specifically, we solved the following weighted least squares problem for the effect of interest τ :

$$\arg \min_{\tau, \mu, \alpha, \beta, \gamma} \left\{ \sum_{i=0}^J \sum_{t=2014}^{2020} (Y_{it} - \mu - \alpha_i - \beta_t - W_{it}\tau)^2 \omega_i \lambda_t \right\}$$

where W_{it} is 1 for Oregon after implementation of the waiver and is 0 otherwise. As it is written above, τ represents the average effect of the waiver over all post-waiver years. We also estimate year-specific effects for each post-waiver year. In addition to the synthetic comparison weights ω , the weighted least squares equation also includes time weights λ . The time weights are constructed similarly to the synthetic comparison weights, but instead of reweighting comparison states, they reweight the study years so that the most relevant pre-waiver years receive more weight in the analysis. Specifically, the weights are constructed to minimize the difference between the pre- and post-waiver outcomes among the comparison states.

P-values

We contextualize the size of our effect estimates by determining how the magnitude of the estimated effect compares with a *null distribution*, or the distribution that the effect would take due to random chance in the absence of any true effect. Because there are few pre-waiver years and only a single waiver state of interest, we have limited methods for computing a null distribution. To approximate the null distribution, we make use of the comparison states, where no waiver was implemented and thus where we would expect there to be no true effect. We compute the effect that we would estimate in each of the post-waiver years if we were to label one of the comparison states as the waiver state of interest and omit Oregon from the data. We repeat this process for each comparison state. We also compute the corresponding estimates for the year before waiver implementation to increase the granularity of the placebo distribution. These estimates are collected into a distribution of placebo effects that can be considered a null distribution for each estimated single-year effect for Oregon. We compute the single-year p-value as the proportion of null distribution effects that are larger in magnitude than the observed effect. We compute the p-value for the overall effect (which is an average over all post-waiver years) by computing similar averages on the distribution of placebo effects for each comparison state. When the placebo distribution includes placebo effects for each of four years (2017–2020), but the post-waiver period is only three years (2018–2020), we take all possible three-year averages of the four placebo effects for each comparison state.

This approach encodes two assumptions about variability. First, it assumes that the variability we observe in fitting the model to comparison states is representative of the variability in Oregon. This can be thought of as a type of homoscedasticity assumption and is common in settings such as these where there is only a single treated state and limited ability to characterize its inherent variability. Second, we assume that placebos computed in different years may be

collected into a single placebo distribution. This is another type of homoscedasticity assumption. Because of having so relatively few comparison states, this assumption is both difficult to verify and likely needed to obtain sufficient resolution on p-values.

Triple-Difference Methodology

As a sensitivity analysis, we applied a triple-difference methodology, an extension of the difference-in-differences methodology that can address bias due to factors that may differ between Oregon and the synthetic comparison group. For example, insurer competition, consumer attitudes toward purchasing health insurance, and state policy decisions might affect enrollment or premiums in ways that could differ between Oregon and comparison states. In particular, CMS changed the standard age rating curve in 2018, although several states have elected to continue using their existing rating curves,¹⁷ which could cause a divergence in premiums in these states relative to Oregon. Because the age-rating curve used in the small group market was identical to the age-rating curve used in the individual market during the study period for all states included in the analysis, we can “remove” the impact of this potential source of bias by first calculating *within-state* differences in each outcome: the difference in enrollment between the individual market and small group market in each state. When comparing Oregon with the synthetic comparison group, this within-state difference may be less sensitive to state-specific factors to the extent that they affect the individual and small group markets in similar ways. After redefining the outcome as a within-state difference, the selection of synthetic comparison weights and estimation of the difference-in-difference regression proceeds as specified above.

Despite the potential benefits of using the triple-difference methodology, there are also several potential drawbacks. First, enrollees in the small group market may differ significantly from enrollees in the individual market (e.g., they may be more likely to be employed and may differ in income and health status). Second, most individual market enrollees receive subsidies, and many are eligible for CSRs whereas small group market enrollees are eligible for neither, which may lead to differences between the two groups in terms of responses to premium changes over time. Third, any systematic change in employer contributions to premiums over this period would affect small group market enrollee premium spending (net of employer premium contributions) independent of the waiver. These factors may lead to divergent trends between the individual and small group markets that could distort estimates of the waiver’s impact. Finally, information on enrollment by income in the small group market is not available in administrative data sources.

¹⁷ Massachusetts and Utah used their own age-rating curve from 2014 through 2017 and opted to continue using the same curve in 2018 and beyond.

Appendix B. Additional Tables and Figures

Table B.1. Pre- and Post-Waiver Mean Premiums, 45-Year-Old

	LCB	LCS	SLCS	LCG
Pre-waiver mean, Oregon	\$3,020	\$4,048	\$4,169	\$4,719
Pre-waiver mean, Comparison group	\$3,569	\$4,620	\$4,877	\$5,505
Post-waiver mean, Oregon	\$4,078	\$5,578	\$5,712	\$6,004
Post-waiver mean, Comparison group	\$4,778	\$6,656	\$7,194	\$7,053

NOTE: Pre-waiver means reflect average premiums from 2015 to 2017 and incorporate the time weights described in Appendix A; post-waiver means reflect average premiums from 2018 to 2020.

Table B.2. Pre- and Post-Waiver Mean per Capita Enrollment

	Subsidized	Unsubsidized	100–250% FPL	251–350% FPL	351–400% FPL
Pre-waiver mean, Oregon	23.1	29.2	19.3	8.2	2.5
Pre-waiver mean, Comparison group	29.9	15.8	27.9	6.9	2.1
Post-waiver mean, Oregon	22.7	20.3	17.4	7.9	2.8
Post-waiver mean, Comparison group	31.5	8.9	25.7	7.6	3.1

NOTES: Pre-waiver means reflect average per capita enrollment from 2015 to 2017 and incorporate the time weights described in Appendix A; post-waiver means reflect average per capita enrollment from 2018 to 2020. Per capita enrollment is calculated as individual market enrollment in the stratification divided by the state population.

Appendix C. Sensitivity Analyses

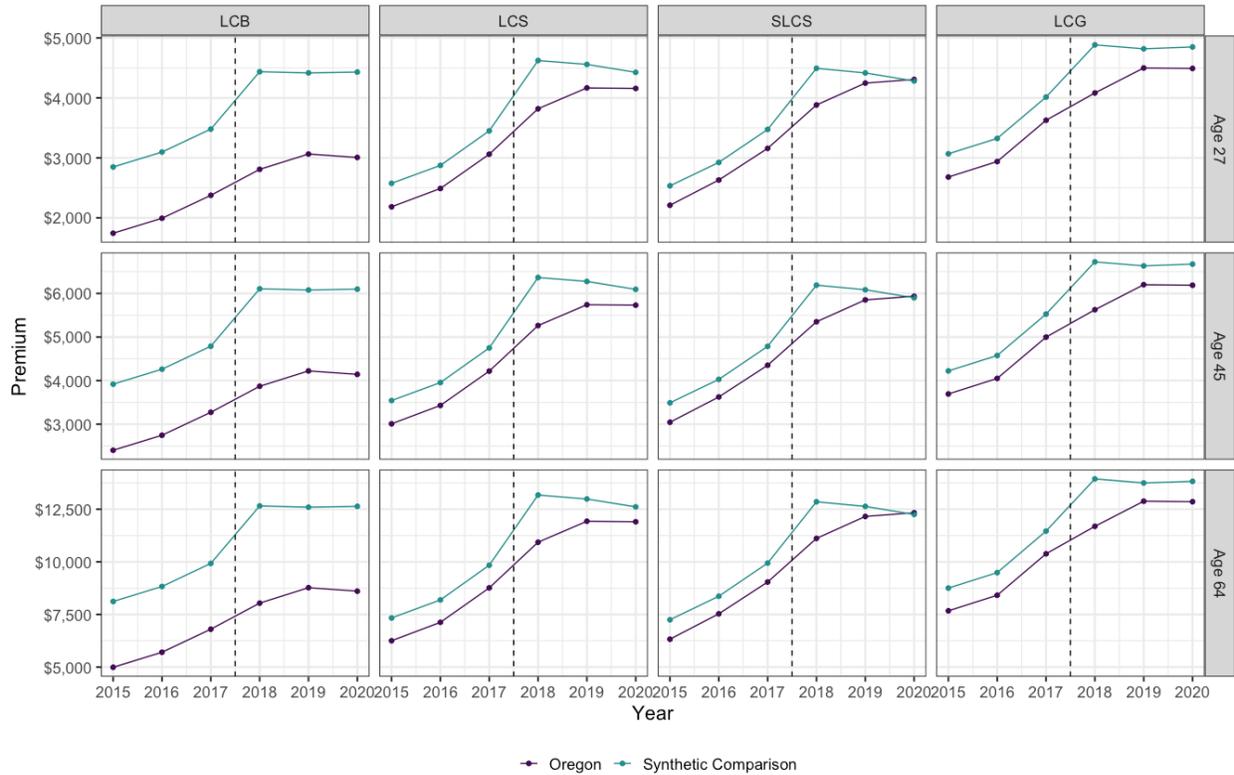
We conducted three sets of sensitivity analyses. The first set of sensitivity analyses aimed to improve parallel trends between Oregon and the synthetic comparison group in the pre-waiver period, particularly for the pre-waiver trends for silver premiums, the 100–250-percent-FPL income category, and subsidized enrollees. To allow for greater flexibility in state weights in the synthetic comparison group, we set the penalty term to zero, as described in Appendix A. The removal of the penalty term did improve the parallel trends (Figures C.1–C.3).

However, there is a trade-off between improved parallel trends and the composition of the states in the synthetic comparison groups. The state weights shown in Tables C.1 and C.2 are concentrated in one or two states in each model, and these states varied across analyses. For example, the synthetic comparison group for 100–250 percent of FPL is primarily composed of Wyoming and Virginia while the synthetic comparison group for 251–350 percent of FPL is primarily composed of South Dakota and Tennessee. Allocating weights to one or a few states simplifies the interpretation to a comparison between the waiver state and the few comparison states. However, allocating weights in this manner also means that the results are more likely to be unduly influenced by idiosyncrasies in the data of the few comparison states receiving weight.

The removal of the penalty term did not substantially change the estimated effects on premiums relative to the main analyses, which were not statistically significant (data not shown).

The estimated effects on enrollment in the sensitivity analyses without the penalty term are similar to the main analyses (Table C.3). The overall estimated decline in enrollment among those with income 351–400 percent FPL is –4,311 enrollees per year (–27% relative to the estimated average without the waiver). The estimated enrollment effects in the other income category and subsidy status stratifications are not statistically significant.

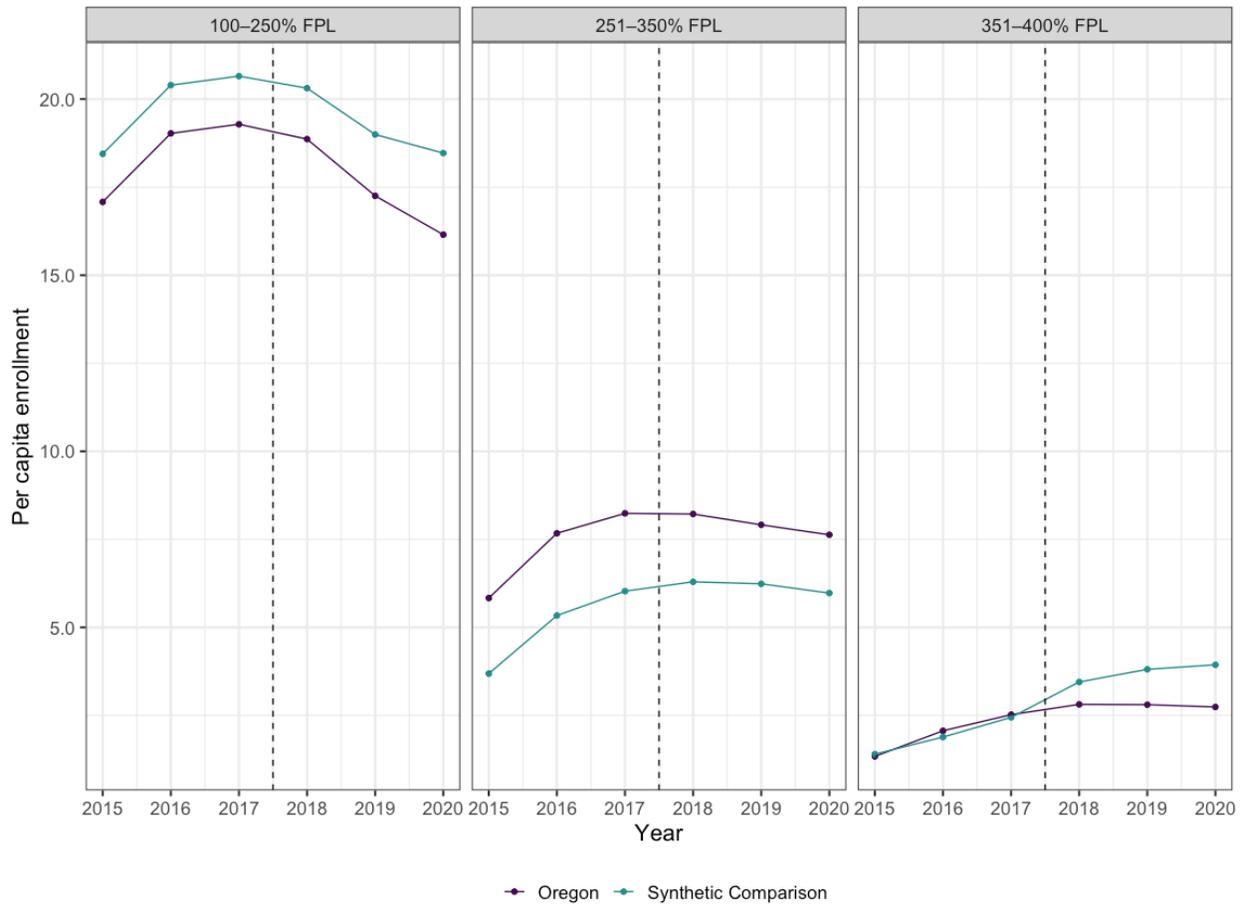
Figure C.1. Average Statewide Individual Market Premiums in Oregon and Synthetic Comparison States, Sensitivity Analyses Without Penalty, by Plan and Age, 2015–2020



SOURCE: Authors' analysis using RWJF HIX Compare.

NOTE: The synthetic comparison reflects a weighted average of the statewide premium across 23 comparison states; with the no penalty approach, some states have small weights (see Table C.1).

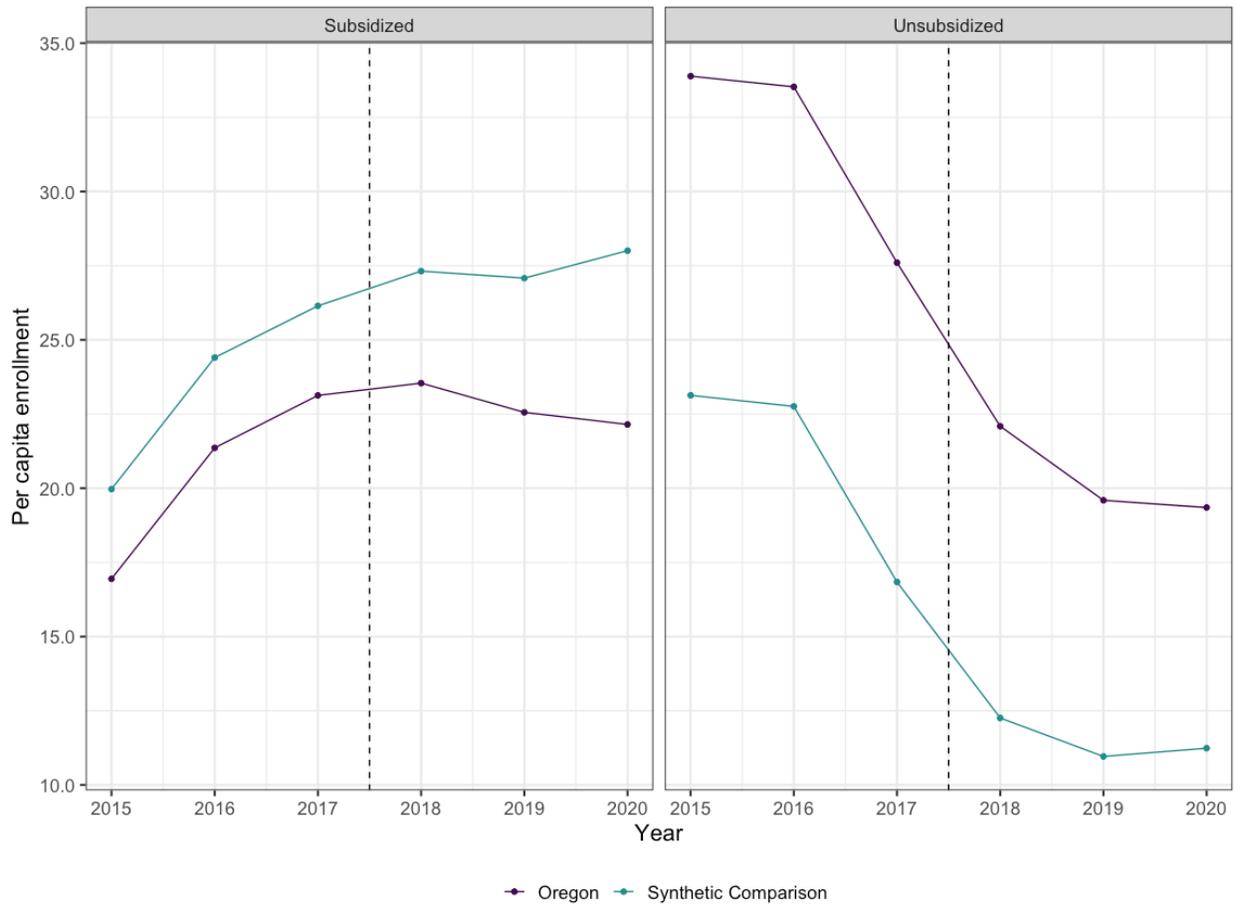
Figure C.2. Individual Market Enrollment per Capita in Oregon and Synthetic Comparison States, Sensitivity Analyses Without Penalty, by Income, 2015–2020



SOURCE: Authors' analysis using CCIIO OEP PUFs.

NOTE: The synthetic comparison reflects average per capita enrollment across 19 comparison states; with the no penalty approach, some states have small weights or even zero weights (see Table C.2).

Figure C.3. Individual Market Enrollment per Capita in Oregon and Synthetic Comparison States, Sensitivity Analyses Without Penalty, by Subsidy Status, 2015–2020



SOURCE: Authors' analysis using CCIO marketplace effectuated enrollment and EDGE risk adjustment data.
 NOTE: The synthetic comparison reflects average per capita enrollment across 23 comparison states; with the no penalty approach, some states have small weights (see Table C.2).

Table C.1. Synthetic Comparison Group Weights for Research Question 1, Sensitivity Analyses Without Penalty, by State and Stratification

State	Age 27				Age 45				Age 64			
	LCB	LCS	SLCS	LCG	LCB	LCS	SLCS	LCG	LCB	LCS	SLCS	LCG
Alabama	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02
Arkansas	0.02	0.36	<0.01	0.02	0.02	0.36	<0.01	0.02	0.02	0.36	<0.01	0.02
California	0.14	0.02	<0.01	0.02	0.14	0.02	<0.01	0.02	0.14	0.02	<0.01	0.02
Connecticut	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02
Florida	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02
Iowa	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02
Idaho	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02
Kansas	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02
Kentucky	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02
Louisiana	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02
Michigan	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02
Missouri	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02
North Carolina	0.07	0.02	<0.01	0.02	0.07	0.02	<0.01	0.02	0.07	0.02	<0.01	0.02
Nebraska	0.02	0.08	<0.01	0.02	0.02	0.08	<0.01	0.02	0.02	0.08	<0.01	0.02
Nevada	0.02	0.02	0.66	0.39	0.02	0.02	0.66	0.38	0.02	0.02	0.66	0.38
Ohio	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02
South Carolina	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02
South Dakota	0.02	0.02	0.27	0.02	0.02	0.02	0.27	0.02	0.02	0.02	0.27	0.02
Tennessee	0.02	0.17	0.02	0.02	0.02	0.17	0.02	0.02	0.02	0.17	0.02	0.02
Utah	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02
Virginia	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02	0.02	0.02	<0.01	0.02
Washington	0.02	0.02	<0.01	0.24	0.02	0.02	<0.01	0.24	0.02	0.02	<0.01	0.24
Wyoming	0.46	0.02	<0.01	0.02	0.45	0.02	<0.01	0.02	0.45	0.02	<0.01	0.02

NOTE: State weights greater than 0.1 are shown in bold.

Table C.2. Synthetic Comparison Group Weights for Research Question 2, Sensitivity Analyses Without Penalty, by State and Stratification

State	100–250% FPL	251–350% FPL	351–400% FPL	Subsidized	Unsubsidized
Alabama	0.01	<0.01	0	0.01	0.03
Arkansas	0.01	<0.01	0	0.01	0.04
California	0.01	<0.01	0	0.01	0.03
Connecticut	NA	NA	NA	0.01	0.03
Florida	0.01	<0.01	0	0.01	0.03
Idaho	NA	NA	NA	0.01	0.03
Iowa	0.01	<0.01	0	0.01	0.03
Kansas	0.01	<0.01	0	0.01	0.03
Kentucky	NA	NA	NA	0.09	0.03
Louisiana	0.01	<0.01	0	0.01	0.03
Michigan	0.01	<0.01	0	0.01	0.03
Missouri	0.02	<0.01	0	0.01	0.03
North Carolina	0.01	<0.01	0.18	0.01	0.03
Nebraska	0.01	<0.01	0.82	0.01	0.06
Nevada	NA	NA	NA	0.01	0.03
Ohio	0.01	<0.01	0	0.01	0.03
South Carolina	0.01	<0.01	0	0.01	0.03
South Dakota	0.01	0.56	0	0.58	0.30
Tennessee	0.03	0.43	0	0.01	0.03
Utah	0.01	<0.01	0	0.09	0.03
Virginia	0.11	<0.01	0	0.01	0.03
Washington	0.01	<0.01	0	0.13	0.03
Wyoming	0.62	<0.01	0	0.01	0.03

NOTE: State weights greater than 0.1 are shown in bold.

Table C.3. Estimated Effect on Individual Market Enrollment in Oregon Relative to Synthetic Comparison States Following Waiver Implementation, Sensitivity Analyses Without Penalty, by Income Category, 2018–2020

	Estimated Effect on Enrollment	p-value
100–250% FPL		
2018	–334	0.99
2019	–1,583	0.91
2020	–4,026	0.70
Overall	–1,973	0.87
251–350% FPL		
2018	–1,189	0.57
2019	–2,252	0.39
2020	–2,352	0.37
Overall	–1,928	0.37
351–400% FPL		
2018	–2,987	0.11
2019	–4,557	0.05*
2020	–5,405	0.01*
Overall	–4,311	0.03*
Subsidized		
2018	–3,171	0.64
2019	–6,342	0.40
2020	–12,043	0.17
Overall	–7,166	0.32
Unsubsidized		
2018	–3,884	0.85
2019	–8,976	0.62
2020	–11,240	0.47
Overall	–8,016	0.48

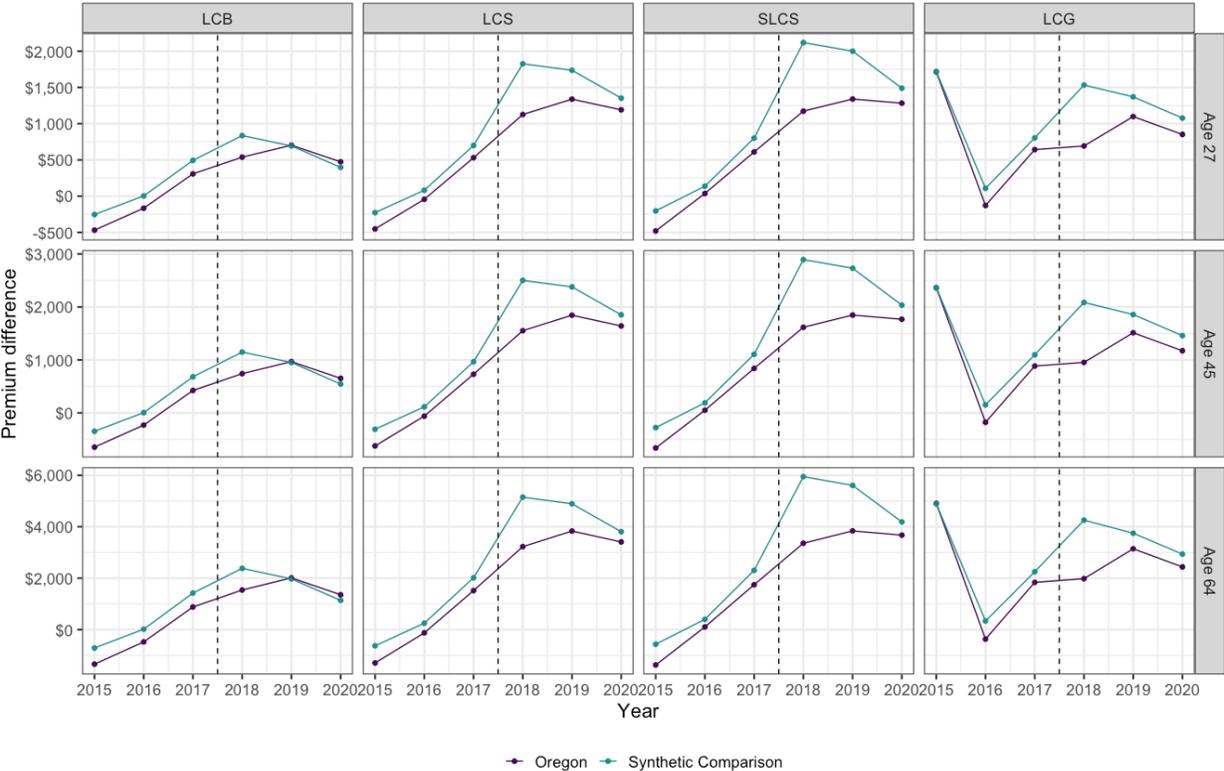
SOURCE: Authors' analysis using CCIIO OEP PUFs, marketplace effectuated enrollment data, and EDGE risk adjustment data.

NOTE: We considered p-values ≤ 0.10 to be statistically significant in this analysis (indicated by *).

In the second set of sensitivity analyses, we used a triple-difference methodology to account for factors that may differ between Oregon and the synthetic comparison group but are the same or similar between Oregon's individual market and small group market. The triple-difference approach improved the parallel trends for the difference in premiums between the individual and small group markets in Oregon compared with the synthetic comparison (Figure C.4). However, the LCG premium difference is unusually large in 2015 due to the small LCG premium in the

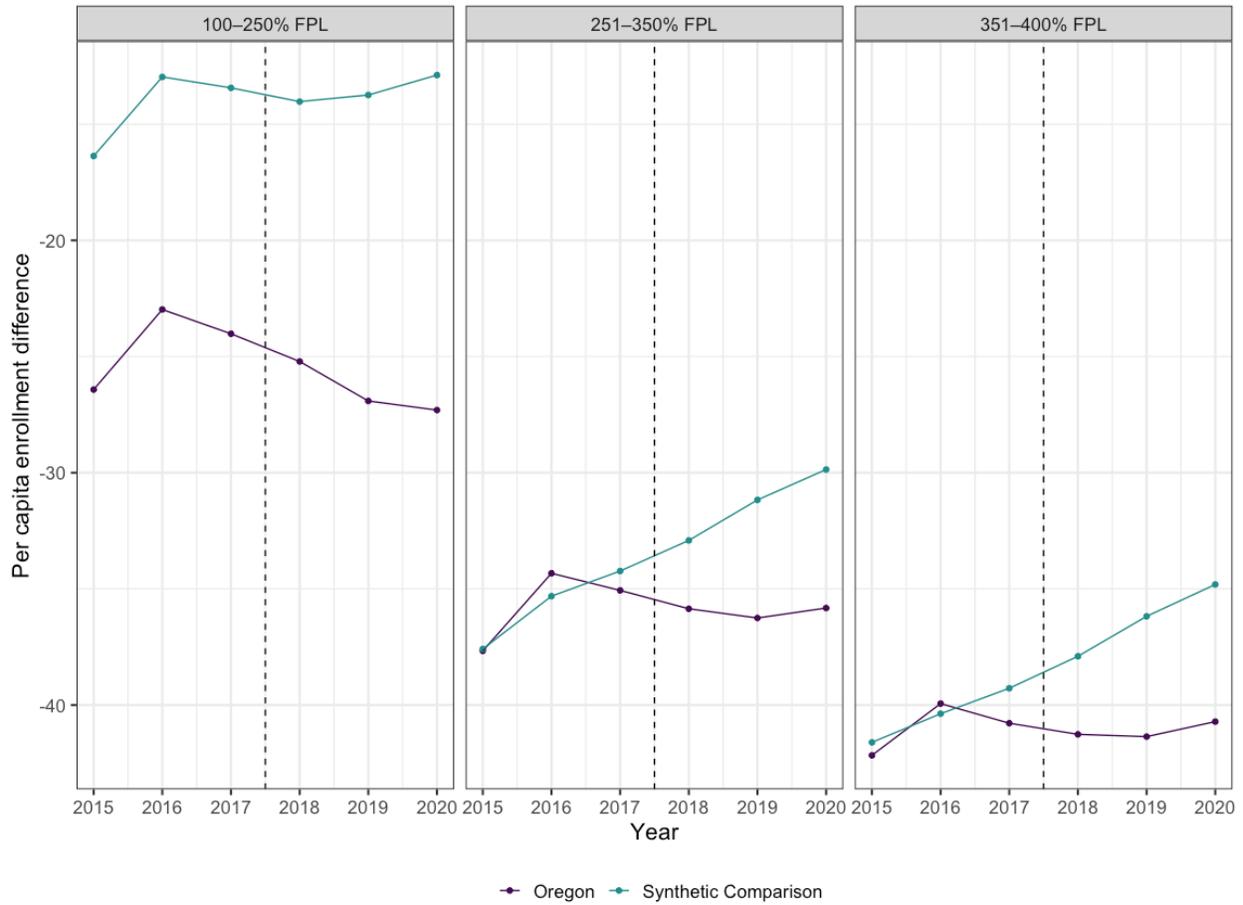
small group market that year. The parallel trends are also improved for differential enrollment in the individual and small group markets in the pre-waiver period for the 100–250-percent-FPL category; however, the pre-waiver trends deviate between Oregon and the synthetic comparison groups for 251–350 and 351–400 percent FPL (Figure C.5). The parallel trends for the subsidized category improve relative to the main analysis using the standard difference-in-differences approach; however, the trends are somewhat less parallel for the unsubsidized category (Figure C.6). None of the estimated effects on premiums and enrollment from the triple-difference analyses were statistically significant (data not shown).

Figure C.4. Average Statewide Individual Market Premiums in Oregon and Synthetic Comparison States, Sensitivity Analyses with Triple Difference, by Plan and Age, 2015–2020



SOURCE: Authors’ analysis using RWJF HIX Compare.
 NOTE: The synthetic comparison reflects a weighted average of the statewide premium across 23 comparison states (see Table A.1).

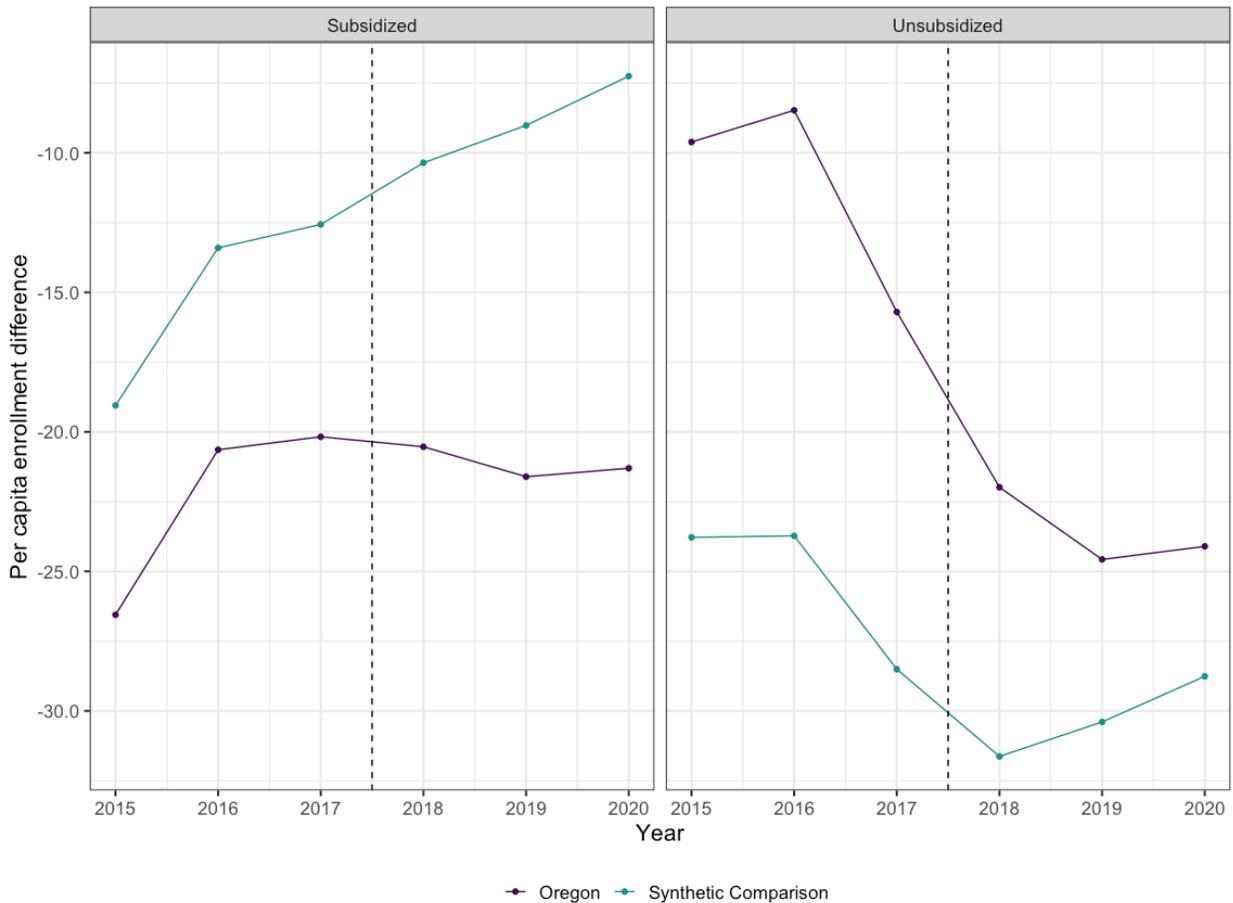
Figure C.5. Individual Market Enrollment per Capita in Oregon and Synthetic Comparison States, Sensitivity Analyses with Triple Difference, by Income, 2015–2020



SOURCE: Authors' analysis using CCIIO OEP PUFs.

NOTE: The synthetic comparison reflects average per capita enrollment across 19 comparison states (see Table A.1).

Figure C.6. Individual Market Enrollment per Capita in Oregon and Synthetic Comparison States, Sensitivity Analyses with Triple Difference, by Subsidy Status, 2015–2020



SOURCE: Authors' analysis using CCIO marketplace effectuated enrollment and EDGE risk adjustment data.
 NOTE: The synthetic comparison reflects average per capita enrollment across 23 comparison states (see Table A.1).

In the third set of sensitivity analyses, we again used the triple-difference methodology and did not include a penalty term in order to allow for more flexibility in state weights to match the relative individual and small group trends in Oregon with those in the synthetic comparison groups. Each stratified analysis has one or two comparison states that dominate the synthetic comparison group, and those states vary across stratifications (Tables C.4 and C.5). Figure C.7 shows the premium difference between the individual market and small group market in Oregon and the synthetic control. With this no-penalty approach, there again is the trade-off between improved alignment between the differential in the outcomes between the individual and small group market in Oregon versus those in the synthetic comparison, and the few states in the synthetic comparison groups.

Table C.4. Synthetic Comparison Group Weights for Research Question 1, Sensitivity Analyses with Triple Difference Without Penalty, by State and Stratification

State	Age 27				Age 45				Age 64			
	LCB	LCS	SLCS	LCG	LCB	LCS	SLCS	LCG	LCB	LCS	SLCS	LCG
Alabama	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.01
Arkansas	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.01
California	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.01
Connecticut	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.01
Florida	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.01
Iowa	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.21
Idaho	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.01
Kansas	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.01
Kentucky	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.01
Louisiana	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.01
Michigan	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.01
Missouri	0.03	0.02	0.10	0.02	0.03	0.02	0.10	0.02	0.03	0.02	0.10	0.01
North Carolina	0.20	0.17	0.07	0.02	0.20	0.17	0.07	0.02	0.20	0.17	0.07	0.01
Nebraska	0.03	0.33	0.68	0.02	0.03	0.33	0.68	0.02	0.03	0.33	0.68	0.01
Nevada	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.01
Ohio	0.03	0.07	0.07	0.29	0.03	0.07	0.07	0.29	0.03	0.07	0.07	0.29
South Carolina	0.19	0.02	<0.01	0.02	0.19	0.02	<0.01	0.02	0.19	0.02	<0.01	0.01
South Dakota	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.24
Tennessee	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.01
Utah	0.03	0.02	<0.01	0.31	0.03	0.02	<0.01	0.36	0.03	0.02	<0.01	0.01
Virginia	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.01
Washington	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.01
Wyoming	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.02	0.03	0.02	<0.01	0.01

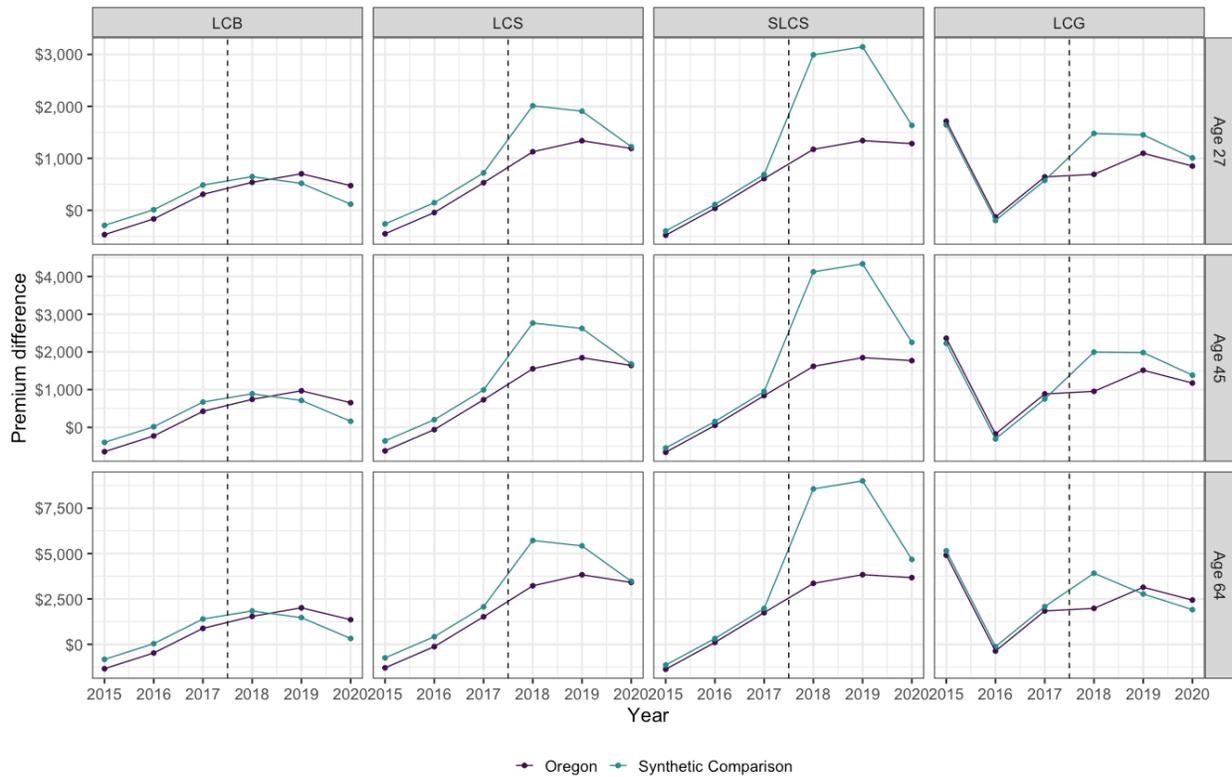
NOTE: State weights greater than 0.1 are shown in bold.

Table C.5. Synthetic Comparison Group Weights for Research Question 2, Sensitivity Analyses with Triple Difference Without Penalty, by State and Stratification

State	100–250% FPL	251–350% FPL	351–400% FPL	Subsidized	Unsubsidized
Alabama	0.04	0.01	0.01	0.03	<0.01
Arkansas	0.04	0.01	0.01	0.03	0.02
California	NA	NA	NA	0.13	<0.01
Connecticut	NA	NA	NA	0.03	<0.01
Florida	0.04	0.01	0.01	0.03	<0.01
Idaho	NA	NA	NA	0.03	<0.01
Iowa	0.04	0.15	0.30	0.03	<0.01
Kansas	0.04	0.01	0.01	0.03	<0.01
Kentucky	NA	NA	NA	0.03	<0.01
Louisiana	0.04	0.01	0.10	0.15	0.06
Michigan	0.04	0.01	0.01	0.03	<0.01
Missouri	0.04	0.01	0.01	0.03	<0.01
North Carolina	0.32	0.58	0.45	0.03	<0.01
Nebraska	0.04	0.01	0.01	0.03	0.83
Nevada	NA	NA	NA	0.03	<0.01
Ohio	0.04	0.01	0.01	0.03	<0.01
South Carolina	0.04	0.01	0.01	0.03	<0.01
South Dakota	0.10	0.01	0.01	0.03	0.06
Tennessee	0.04	0.01	0.01	0.03	<0.01
Utah	0.04	0.01	0.01	0.03	<0.01
Virginia	0.04	0.01	0.01	0.03	<0.01
Washington	0.04	0.01	0.01	0.03	<0.01
Wyoming	0.04	0.01	0.06	0.03	<0.01

NOTE: State weights greater than 0.1 are shown in bold.

Figure C.7. Average Statewide Individual Market Premiums in Oregon and Synthetic Comparison States, Sensitivity Analyses with Triple Difference Without Penalty, by Plan and Age, 2015–2020



SOURCE: Authors’ analysis using RWJF HIX Compare.
 NOTE: The synthetic comparison reflects a weighted average of the statewide premium across 23 comparison states; with the no penalty approach, some states have small weights (see Table C.4).

In the triple-difference methodology with no penalty, some of the resulting estimates of the waiver effect on premiums are statistically significant, but these should be interpreted with caution. In 2018 and 2019, the SLCS premiums for age 45 and 64 were 29 to 30 percent lower in Oregon than those in the synthetic comparison; however, the synthetic comparison is predominantly comprised of Nebraska (68% of the synthetic comparison) (Table C.6). These lower estimated SLCS premiums result in lower subsidies and higher enrollee premium spending for some individuals (Table C.7).

Figures C.8 and C.9 show the per capita enrollment difference between the individual and small group markets in Oregon and the synthetic comparison groups. The estimated effects on enrollment in the triple-difference analyses without penalty were not statistically significant (data not shown).

Table C.6. Estimated Effects on Individual Market Premiums in Oregon Relative to Synthetic Comparison States Following Waiver Implementation, Sensitivity Analyses with Triple Difference Without Penalty, by Age, Income, and Plan

	LCB		LCS		SLCS		LCG	
	Effect (%)	p-value	Effect (%)	p-value	Effect (%)	p-value	Effect (%)	p-value
Age 27								
2018	\$69 (3%)	0.89	-\$696 (-15%)	0.38	-\$1,740 (-31%)	0.11	-\$855 (-17%)	0.39
2019	\$362 (13%)	0.42	-\$380 (-8%)	0.69	-\$1,726 (-29%)	0.11	-\$422 (-9%)	0.59
2020	\$533 (22%)	0.28	\$157 (4%)	0.82	-\$273 (-6%)	0.73	-\$225 (-5%)	0.77
Overall	\$321 (12%)	0.40	-\$306 (-7%)	0.73	-\$1,246 (-23%)	0.13	-\$501 (-10%)	0.32
Age 45								
2018	\$98 (3%)	0.86	-\$951 (-15%)	0.38	-\$2,396 (-31%)	0.09*	-\$1,173 (-17%)	0.40
2019	\$502 (14%)	0.42	-\$515 (-8%)	0.70	-\$2,377 (-29%)	0.09*	-\$601 (-9%)	0.58
2020	\$739 (22%)	0.28	\$223 (4%)	0.81	-\$375 (-6%)	0.72	-\$343 (-5%)	0.75
Overall	\$446 (12%)	0.40	-\$415 (-7%)	0.74	-\$1,716 (-23%)	0.09*	-\$706 (-11%)	0.32
Age 64								
2018	\$218 (3%)	0.83	-\$1,944 (-15%)	0.38	-\$4,971 (-31%)	0.09*	-\$1,694 (-13%)	0.52
2019	\$1,055 (14%)	0.41	-\$1,041 (-8%)	0.72	-\$4,934 (-29%)	0.09*	\$610 (5%)	0.78
2020	\$1,549 (22%)	0.28	\$488 (4%)	0.78	-\$775 (-6%)	0.72	\$769 (6%)	0.74
Overall	\$941 (12%)	0.40	-\$832 (-7%)	0.74	-\$3,560 (-23%)	0.08*	-\$105 (-1%)	0.99

SOURCE: Authors' analysis using RWJF HIX Compare.

NOTES: The percentage change waiver effect is the estimated premium change divided by the estimated post-waiver premium without the waiver. We considered p-values ≤ 0.10 to be statistically significant in this analysis (indicated by *).

Table C.7. Estimated Overall Effect on Individual Market Enrollee Premium Spending in Oregon Relative to Synthetic Comparison States Following Waiver Implementation, Sensitivity Analyses with Triple Difference Without Penalty, by Age, Income, and Plan

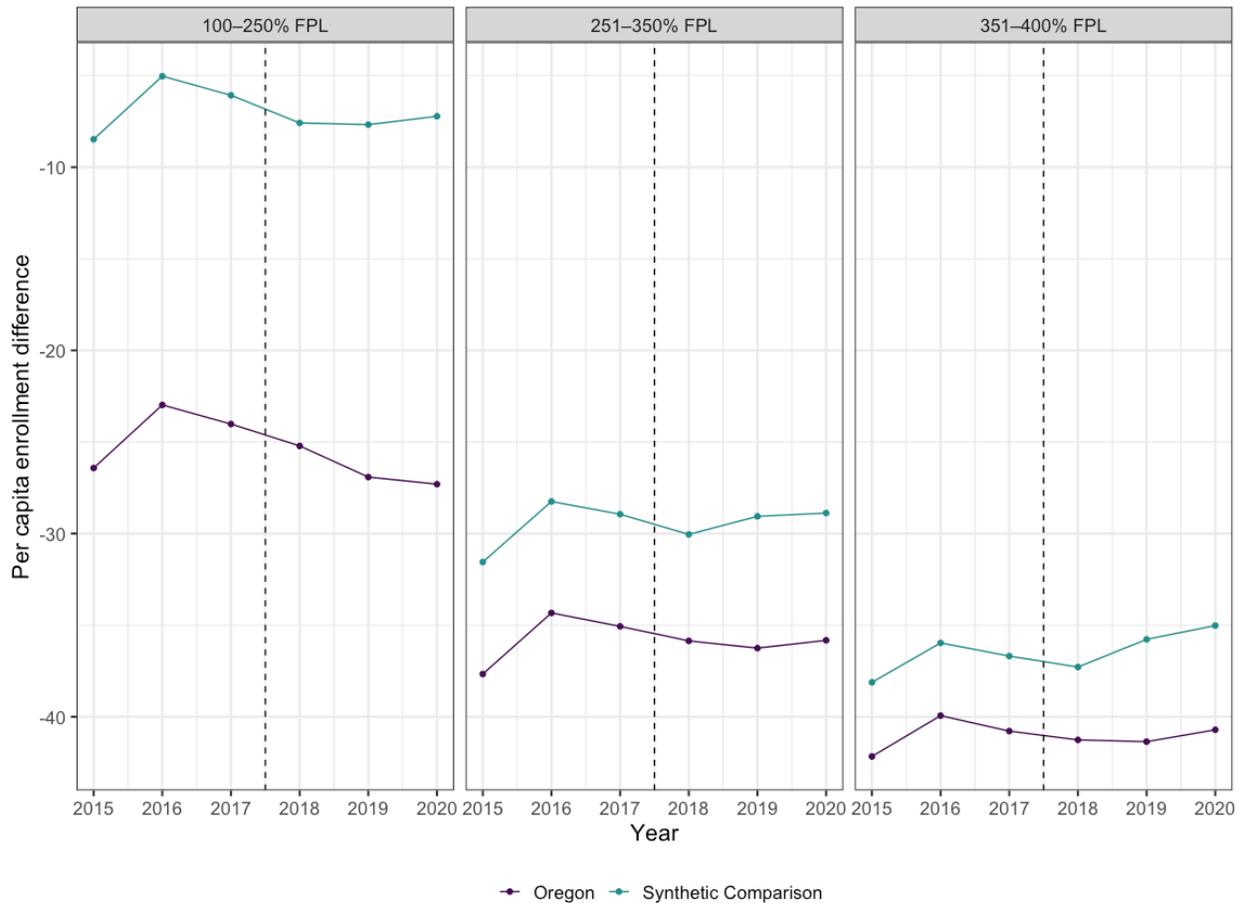
	LCB		LCS		SLCS		LCG	
	Effect	p-value	Effect	p-value	Effect	p-value	Effect	p-value
Age 27								
100% FPL	\$0	1.00	\$158	0.27	\$0	1.00	\$335	0.55
250% FPL	\$1,206	0.01*	\$940	0.06*	\$0	1.00	\$746	0.26
350% FPL	\$1,467	0.01*	\$839	0.19	-\$101	0.85	\$644	0.24
450% FPL	\$321	0.40	-\$306	0.73	-\$1,246	0.13	-\$501	0.32
Age 45								
100% FPL	\$0	1.00	\$121	0.48	\$0	1.00	\$387	0.61
250% FPL	\$937	0.10*	\$1,301	0.01*	\$0	1.00	\$1,010	0.24

	LCB		LCS		SLCS		LCG	
	Effect	p-value	Effect	p-value	Effect	p-value	Effect	p-value
350% FPL	\$2,096	<0.01*	\$1,301	0.03*	\$0	1.00	\$1,010	0.25
450% FPL	\$446	0.40	-\$415	0.74	-\$1,716	0.09*	-\$706	0.32
Age 64								
100% FPL	\$0	1.00	\$31	0.94	\$0	1.00	\$863	0.36
250% FPL	\$0	1.00	\$1,974	0.02*	\$0	1.00	\$2,636	0.19
350% FPL	\$852	0.36	\$2,728	0.01*	\$0	1.00	\$3,285	0.17
450% FPL	\$941	0.40	-\$832	0.74	-\$3,560	0.08*	-\$105	0.99

SOURCE: Authors' analysis using RWJF HIX Compare.

NOTE: We considered p-values ≤ 0.10 to be statistically significant in this analysis (indicated by *).

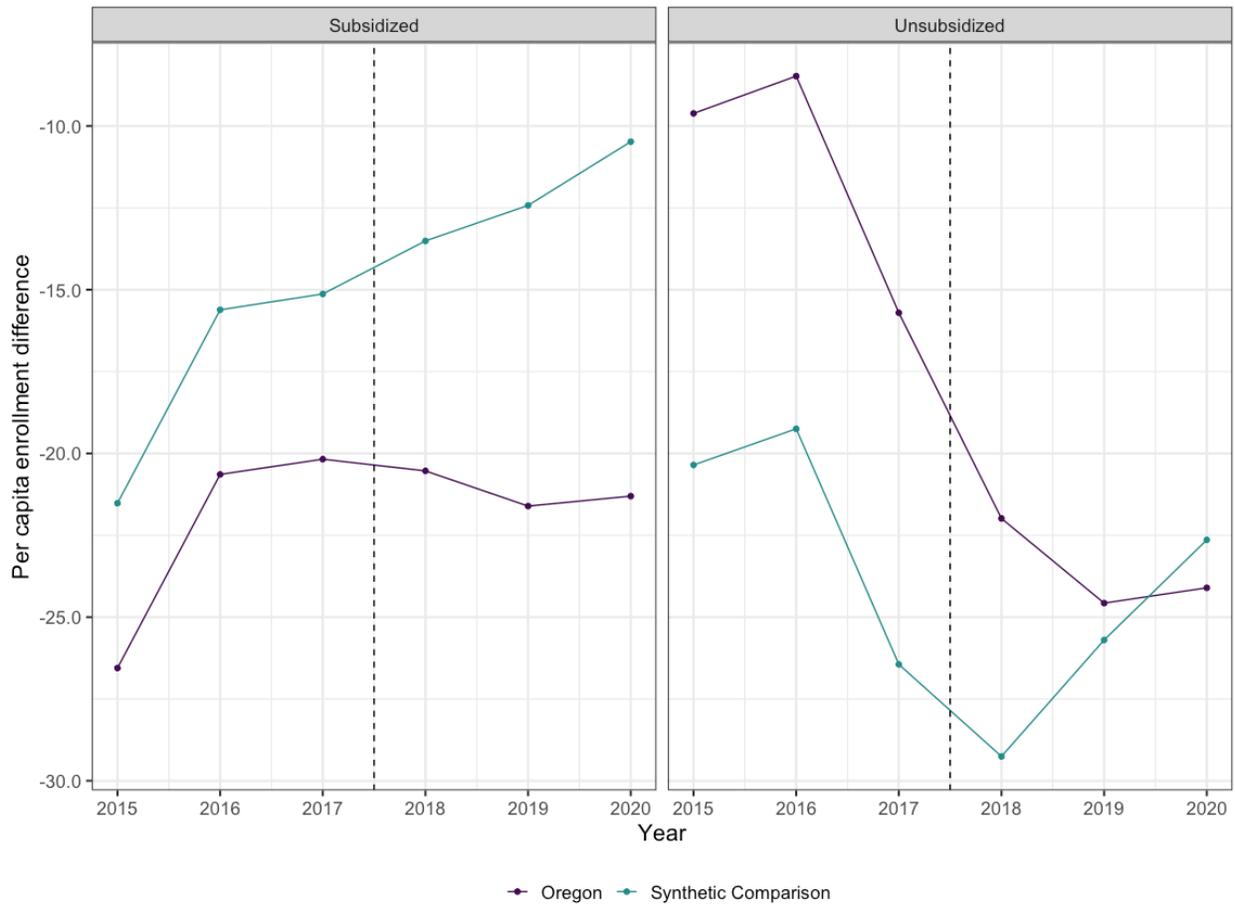
Figure C.8. Individual Market Enrollment per Capita in Oregon and Synthetic Comparison States, Sensitivity Analyses with Triple Difference Without Penalty, by Income, 2015–2020



SOURCE: Authors' analysis using CCIIO OEP PUFs.

NOTE: The synthetic comparison reflects average per capita enrollment across 19 comparison states; with the no penalty approach, some states have small weights (see Table C.5).

Figure C.9. Individual Market Enrollment per Capita in Oregon and Synthetic Comparison States, Sensitivity Analyses with Triple Difference Without Penalty, by Subsidy Status, 2015–2020



SOURCE: Authors' analysis using CCIIO marketplace effectuated enrollment and EDGE risk adjustment data.
 NOTE: The synthetic comparison reflects average per capita enrollment across 23 comparison states; with the no penalty approach, some states have small weights (see Table C.5).

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