

# Section 1332 Waiver Evaluation Report

## Evaluating the Alaska Reinsurance Program

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

Prepared by: Preethi Rao, Denis Agniel, Christine Eibner, Jodi L. Liu, Justin W. Lee, Teague W. Ruder, Alexandra Peltz, Justin W. Timbie within RAND Health Care  
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## Foreword

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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.<sup>1,2</sup>

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.

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<sup>1</sup> 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.

<sup>2</sup> 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),<sup>3</sup> and the January 20, 2021, Executive Order on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (EO 13985).<sup>4</sup>

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

<sup>4</sup> "Advancing Racial Equity and Support," January 25, 2021.

## About This Report

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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 Alaska’s waiver, through which the state implemented the Alaska Reinsurance Program (ARP). The ARP requires issuers participating in the individual marketplace to cede both premiums and risks of enrollees with one or more designated high-cost conditions to the program and is designed to stabilize premiums and encourage enrollment in individual market plans. 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 Alaska’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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(310) 393-0411, ext. 7775  
[RAND\\_Health-Care@rand.org](mailto:RAND_Health-Care@rand.org)

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# Summary

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## Background

Section 1332 of the Patient Protection and Affordable Care Act 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 markets under approved section 1332 waivers.

Alaska implemented the Alaska Reinsurance Program (ARP) in 2017. The ARP was then approved as a section 1332 waiver program for a five-year period beginning January 1, 2018. The ARP is unique in that it is currently the only conditions-based reinsurance program implemented under section 1332 waiver authority, meaning that insurers cede premiums for enrollees who have at least one of the high-cost conditions covered by the program to the state, and the state then reimburses insurers for all claims for these individuals. The reinsurance program is funded through a combination of federal pass-through funding, which are premium tax credit payments that would have been made by the federal government to consumers absent the waiver, as well as funding contributed by the state. The Centers for Medicare & Medicaid Services Center for Consumer Information and Insurance Oversight (CCIIO) contracted with the RAND Corporation to conduct an evaluation to determine the effect of the waiver on individual market premiums and enrollment in Alaska.

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 research questions, we used a difference-in-differences methodology to compare enrollee premium spending (i.e., premium net of subsidies) and enrollment in Alaska with a synthetic comparison group in the pre-waiver period (2015–2016) and each of three post-waiver years (2018, 2019, and 2020). We omit the year 2017 because even though the ARP was implemented in that year, the section 1332 waiver did not begin until in 2018. The research questions, outcomes, and data sources for the evaluation are displayed in Table S.1. The states in the synthetic comparison group were differentially weighted for each analysis so that the comparison group matched Alaska’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 implementation of the American Rescue Plan of 2021 and therefore does not take into account the potential impacts of the American Rescue Plan on Alaska’s section 1332 reinsurance program.

**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 plan: 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 by income and subsidy status?	Log enrollment	≥100 to ≤250% of FPL >251 to ≤350% of FPL >351 to ≤400% of FPL	CCIIO OEP PUFs and data provided directly by selected state-based exchanges
		Subsidized Unsubsidized	CCIIO marketplace effectuated enrollment data; EDGE risk adjustment data

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

# Key Findings

- Across all three post-waiver years, premiums for plans offered in Alaska’s marketplace were reduced by an average of 29 percent for the LCB plan, 26 percent for the LCS plan,

30 percent for the SLCS plan, and 37 percent for the LCG plan, relative to premiums that would have existed absent the waiver (all statistically significant at  $p < 0.05$ ).

- Unsubsidized enrollees realized the largest savings in enrollee premium spending, with annual reductions ranging from almost \$2,000 for the LCB plan to almost \$4,000 for the LCG plan for a 27-year-old, relative to pre-waiver means ranging from \$4,800 to \$7,200 for those same plan types ( $p < 0.05$ ). Enrollee premium spending among those in the income range for premium subsidies (100 to 400 percent of FPL) did not change significantly as a result of the waiver.
- For unsubsidized enrollees, we estimated that following the premium reductions, enrollment was higher by more than 2,800 additional individuals on average than if the waiver had not been implemented ( $p < 0.01$ ), relative to mean enrollment of approximately 5,100 individuals in the pre-waiver period. This was due to a combination of increased enrollment in Alaska under the waiver and expected reduced enrollment in absence of the waiver. There were no significant changes in enrollment for subsidized enrollees or for those with incomes between 100 and 400 percent of FPL.

## Conclusion

Premium growth in Alaska exceeded the national average prior to the implementation of the waiver, and enrollment in the individual market was on the decline. The waiver was associated with decreased total premiums as well as enrollee premium spending and increased enrollment among unsubsidized enrollees. Overall, the waiver appears to have stabilized Alaska's individual market.

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## Abbreviations

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ACA	Affordable Care Act
APTC	advance premium tax credit
ARP	Alaska Reinsurance Program
CCIIO	Center for Consumer Information and Insurance Oversight
CMS	Centers for Medicare & Medicare Services
COVID-19	coronavirus disease 2019
CSR	cost-sharing reduction
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
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

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## 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 their 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. The care must be at least as comprehensive and affordable as would be provided absent the waiver; the waiver must provide coverage to a comparable number of state residents as would be provided absent the waiver; and the waiver must be budget 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 markets 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 our methodology and the results from our evaluation of Alaska's waiver program. For the evaluation of Minnesota's waiver program, see Timbie et al. (2021), and for the evaluation of Oregon's waiver program, see Liu et al. (2021).

## Alaska Reinsurance Program

Alaska faces unique challenges in its healthcare marketplace, and these have led to sharply increasing costs, and therefore premiums, on the individual market since the implementation of the ACA. In particular, Alaska has a small population scattered throughout a large (and in some cases, very remote) geographic area, little provider competition, and a disproportionately high number of residents with high-cost medical conditions (State of Alaska, 2017). Increasing costs of covering individuals with high-cost conditions led to insurers exiting the marketplace, which in turn led to even higher premiums. The rate review process showed that requested rate increases were in excess of 35 percent in 2015 and 2016 (Premera Blue Cross, 2015, 2016). By 2016, only a single insurer remained in the marketplace, and premiums were projected to rise by an additional 42 percent for 2017.

In an attempt to address the rising premiums, and more generally to stabilize its healthcare marketplace, Alaska implemented the Alaska Reinsurance Program (ARP) in 2017, appropriating \$55 million in state spending to fund the program for the first year. The ARP was then approved as a section 1332 waiver program for a five-year period beginning January 1, 2018. The ARP is unique in that it is currently the only conditions-based reinsurance program implemented under section 1332 waiver authority, meaning that insurers cede premiums for enrollees who have at least one of the high-cost conditions covered by the program to the state, and the state then reimburses insurers for all claims for these individuals. The conditions-based design of the ARP was initially based on the high-risk pool managed by the

**Conditions Covered by the ARP**

1. HIV/AIDS
2. Septicemia sepsis, systemic inflammatory response syndrome/shock
3. Metastatic cancer
4. Lung, brain, and other severe cancers, including pediatric acute lymphoid leukemia
5. Non-Hodgkin's lymphomas and other cancers and tumors
6. Mucopolysaccharidosis
7. Lipidoses and glycogenosis
8. Amyloidosis, porphyria, and other metabolic disorders
9. End-stage liver disease
10. Chronic hepatitis
11. Acute liver failure or disease, including neonatal hepatitis
12. Intestinal obstruction
13. Chronic pancreatitis
14. Inflammatory bowel disease
15. Rheumatoid arthritis and specified autoimmune disorders
16. Hemophilia
17. Acquired hemolytic anemia, including hemolytic disease of newborn
18. Sickle cell anemia (hb-ss)
19. Thalassemia major
20. Coagulation defects and other specified hematological disorders
21. Anorexia/bulimia nervosa
22. Paraplegia
23. Amyotrophic lateral sclerosis and other anterior horn cell disease
24. Quadriplegic cerebral palsy
25. Cerebral palsy, except quadriplegic
26. Myasthenia gravis/myoneural disorders and Guillain-Barre syndrome/inflammatory and toxic neuropathy
27. Multiple sclerosis
28. Parkinson's, Huntington's and spinocerebellar disease, and other Neurodegenerative disorders
29. Cystic fibrosis
30. End stage renal disease
31. Premature newborns, including birthweight 2,000–2,499 grams
32. Stem cell, including bone marrow, transplant status/complications
33. Amputation status, lower limb/amputation complications.
34. Cardio-respiratory failure and shock, including respiratory distress syndromes (added in 2020)

Alaska Comprehensive Health Insurance Association (ACHIA) (Bailey, Bus, and Latham, 2021). Because Alaska's reinsurance program was implemented prior to the first section 1332 waiver programs in 2018, other models were not considered at the time. Based on the amount of funding available, the ACHIA identified 33 conditions that had the highest-cost claims in the individual market, and the ARP covered the cost of claims for individuals with one or more of these conditions. Starting in 2020, the list of conditions eligible for reinsurance was amended to include the original 33 plus "cardio-respiratory failure and shock, including respiratory distress syndromes," which includes COVID-19 (3 Alaska Admin. Code § 31.540; Giovannelli et al., 2020; State of Alaska, 2017). Representatives of the Alaska Division of Insurance noted in July 2021 that the state may consider revisions to the list of covered conditions in an effort to include more commonly billed conditions (Bailey, Bus, and Latham, 2021). In Spring 2021, Alaska

informed CMS that it intended to apply for a five-year extension of the ARP under the section 1332 waiver program, covering the period 2023–2027.

The total actual cost of the reinsurance program, measured in reinsurance reimbursements, was \$60 million in 2018 and \$64.1 million in 2019, and the planned costs were \$69 million for 2020 (adjusted to \$75.5 million midyear to address COVID-19 claims costs) and \$80 million for 2021 (Alaska Division of Insurance, 2020; CCIIO, 2021). The federal government partially funds the ARP via section 1332 waiver pass-through funding.<sup>5</sup> Alaska funds its share of the cost of the ARP through the Alaska Comprehensive Health Insurance Fund (ACHIF). The ACHIF is a separate fund appropriated by the state legislature and is funded by a premium tax on all lines of insurance in the state. Based on the actual and planned costs of the reinsurance program, Alaska estimates that individual market premiums were reduced by 30.2 percent, on average, in 2018; 34.0 percent in 2019; and 37.1 percent in 2020, compared with a hypothetical scenario in which there had been no waiver (CCIIO, 2021).

As part of Alaska’s section 1332 waiver application, the state submitted analyses conducted by their actuary that projected substantial premium reductions on the individual market. Although premium reductions have been estimated, the impact on individual market enrollment is less clear, as the enrollment decline of 7.6 percent between 2017 and 2020 in Alaska was similar to the national decline of 6.6 percent (Giovannelli et al., 2020).<sup>6</sup> Conversations with representatives from Alaska confirmed that an additional insurer entered the market after the reinsurance waiver was put into place. Because only one insurer had previously participated in Alaska’s individual market, the addition of a newcomer created a potentially significant benefit to the marketplace via competition and stabilization.

## 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

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<sup>5</sup> Pass-through funding is calculated based on the subsidy amount the federal government would have paid in absence of the section 1332 waiver program.

<sup>6</sup> We note that although Alaska’s federal section 1332 waiver program began in 2018, the ARP was implemented by the state in 2017, so it is difficult to draw conclusions based on the examination of data starting in 2017.

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, Alaska’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.<sup>7</sup> 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. 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.

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<sup>7</sup> 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.

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 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
<b>1. What is the waiver’s impact on enrollee premium spending for representative individuals for each of the following on-marketplace plans?</b>	
a) SCLS (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) Lowest cost silver (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) Lowest cost bronze (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) Lowest cost gold (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.
<b>2. What is the waiver’s impact on individual market enrollment for the following types of enrollees?</b>	
a) People with incomes $\geq 100$ percent and $\leq 250$ 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 $\leq 350$ 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.
c) People with incomes >350 percent and $\leq 400$ 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 age,<sup>8</sup> 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 Alaska’s reinsurance program applies to all non-grandfathered and non-grandmothered<sup>9</sup> individual market plans.

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<sup>8</sup> 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.

<sup>9</sup> 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

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We combined multiple data sources to address the two research questions. To measure trends in premiums, we used plan-rating area-level premium data for marketplace plans in distinct metal tiers that we aggregated to the state level. To measure trends in enrollment we used state-level data measuring either on-marketplace enrollment or combined on- and off-marketplace enrollment, depending on the analysis. We used a difference-in-differences approach to estimate the impact of the waiver on premiums and enrollment. 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 HIX Compare data (RWJF HIX Compare) (2015–2020): plan-level premium data, by rating area, for individual market plans offered on-marketplace.
2. CCIIO Open Enrollment Period Public Use Files (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, as well as total individual market enrollment by the presence or absence of conditions covered by the ARP.

### Outcome Measures

**Premiums.** We study the impact of the waiver on both total premiums and enrollee premium spending for four on-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. 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

percentage<sup>10</sup>) 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 OEP. Additionally, “the count includes only consumers with non-canceled QHPs [qualified health plans].” By contrast, CCIIO’s 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 measure enrollment in terms of plan selections since effectuated enrollment data are not available by income for all states.<sup>11</sup> While effectuated enrollment data are more accurate than plan selection data, we note that the data are consistent within each analysis. For all analyses, enrollment counts are annual.

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

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<sup>10</sup> 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).

<sup>11</sup> Using data on enrollment in marketplace plans in 2020, we estimate that state-level enrollment measured by plan selections was 10 percent higher, on average, than the corresponding measures of effectuated enrollment.

**Table 2.1. Summary of Research Questions by Data Source**

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 plan: Age 27 100%, 250%, 350%, 450% of FPL	RWJF HIX Compare
		Age 45 100%, 250%, 350%, 450% of FPL	
Q2. What is the waiver’s impact on individual market enrollment for enrollees by income and by subsidy status?	Log enrollment	100-250% of FPL 251-350% of FPL 351-400% of FPL	CCIIO OEP PUFs and data provided by selected state- based exchanges
		Subsidized Unsubsidized	CCIIO marketplace effectuated enrollment data; EDGE risk adjustment data

NOTE: 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.

In addition to the research questions noted above, we also present descriptive figures that display the proportion of individual market enrollees with conditions covered by the ARP in Alaska and in comparison states. The methods and results of this descriptive analysis are presented in Appendix B.

## 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 Alaska. This methodology compares trends in the outcomes of interest in Alaska 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 did not implement section 1332 waivers. Specifically, the comparison states are individually weighted so that the trends in weighted outcomes match those of Alaska 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 violation of the parallel trends assumption required for difference-in-differences. We considered two versions of creating the weighted comparison group. In one version, the weighting algorithm discouraged excessive weight on any individual comparator via a penalty term, thus spreading the weights out over more comparator states. In the “no penalty” approach,

we eliminated the penalty term and allowed the algorithm to choose weights that best reproduced trends in Alaska. The “no penalty” approach thus may better replicate trends in Alaska, but it can also result in the synthetic comparison group relying heavily on data from a single state. We chose the “no penalty” approach for these analyses, as it produced more reasonable parallel trends. We also considered different ways of specifying the outcome of interest. In particular, we considered measuring both premiums and enrollment in terms of the percentage change from the prior year. Since this approach also achieved parallel trends in the pre-waiver period, we include it as a sensitivity analysis in Appendix C. We do not include the approach that applied a penalty to the weighting algorithm, as it did not achieve parallel trends, making it difficult to draw any conclusions.

Because Alaska implemented the ARP in 2017, one year prior to the implementation of the federal section 1332 waiver program, we omit the year 2017 from all analyses. Thus, data from 2017 affects neither our pre-period weights nor our post-reinsurance outcomes.

## Discussion with Alaska Division of Insurance

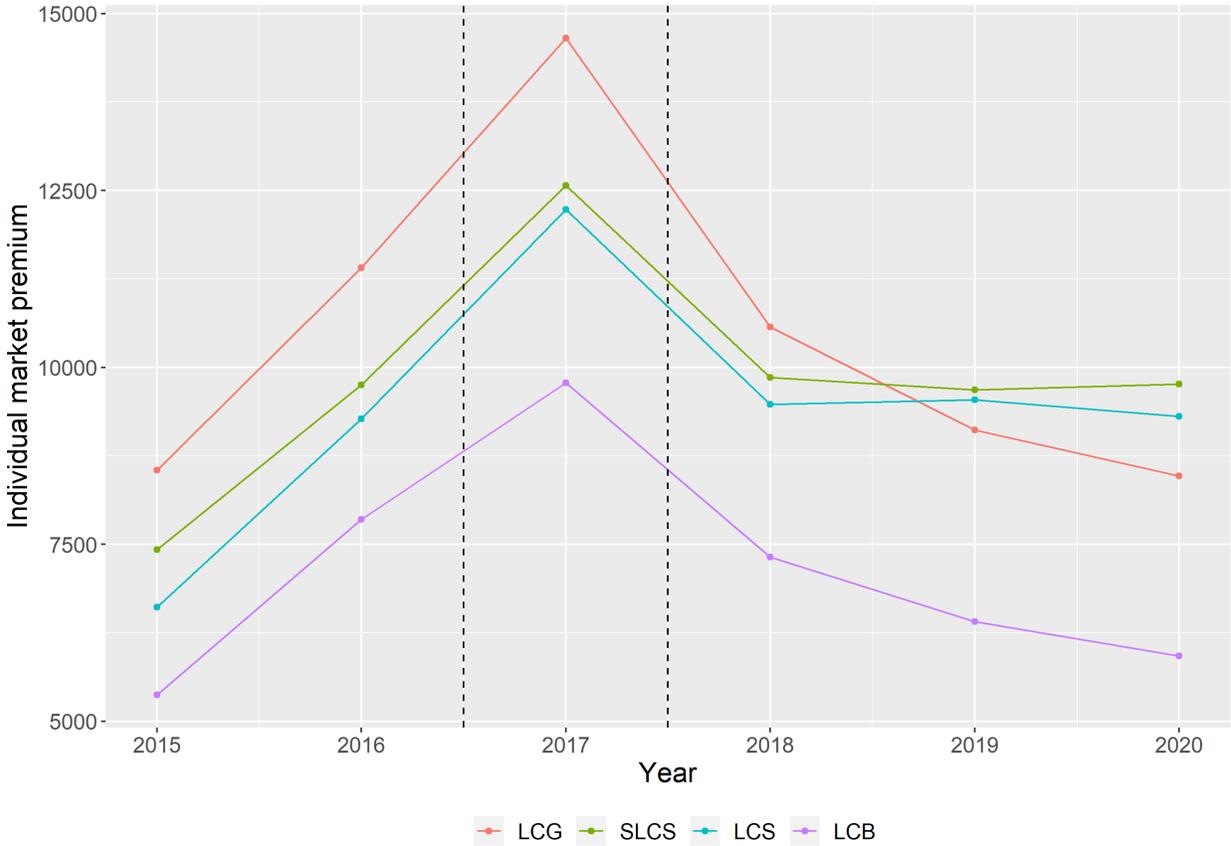
We conducted an informational interview with four representatives from Alaska’s Division of Insurance on July 16, 2021, to further delve into the structure, objectives, and outcomes of the ARP. We used a semistructured interview protocol that was developed in conjunction with CMS and shared with the state representatives in advance of the call.

### 3. Results

#### Trends in Premiums and Enrollment in Alaska’s Individual Market

The rate review process in Alaska revealed that prior to the implementation of the ARP, requested rate increases were in excess of 35 percent, while requested rate changes were negative or zero in the post-waiver period (Premera Blue Cross 2015, 2016, 2018, 2019, 2020). Indeed, across all plan types, premiums rose sharply between 2015 and 2017, peaking near \$10,000 annually for the LCB plan and up to almost \$14,000 annually for the LCG plan, and then began to fall. Figure 3.1 plots the raw premium data in Alaska during 2015 to 2020 by metal tier; the two vertical lines represent the implementation of the ARP (2017) and the beginning of Alaska’s section 1332 reinsurance waiver period (2018), respectively.

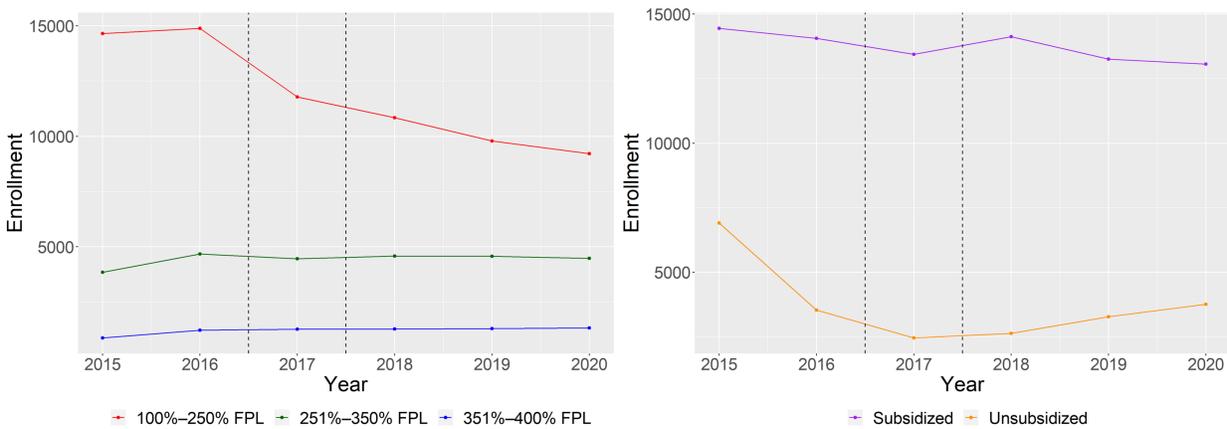
**Figure 3.1. Individual Marketplace Plan Premiums in Alaska, Age 45, by Plan, 2015–2020**



SOURCE: Authors’ analysis using RWJF HIX Compare.

Individual market enrollment in Alaska (measured as plan selections) falls overall for those with incomes between 100 and 250 percent of FPL during 2015 to 2020, while enrollment for those with incomes between 251 and 400 percent of FPL stays relatively stable during this time period (Figure 3.2, left panel). Subsidized enrollment (measured as effectuated enrollment) sees a slight decline over time, while unsubsidized enrollment sees a sharp decline between 2015 and 2017, and then begins to rise again (Figure 3.2, right panel).

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

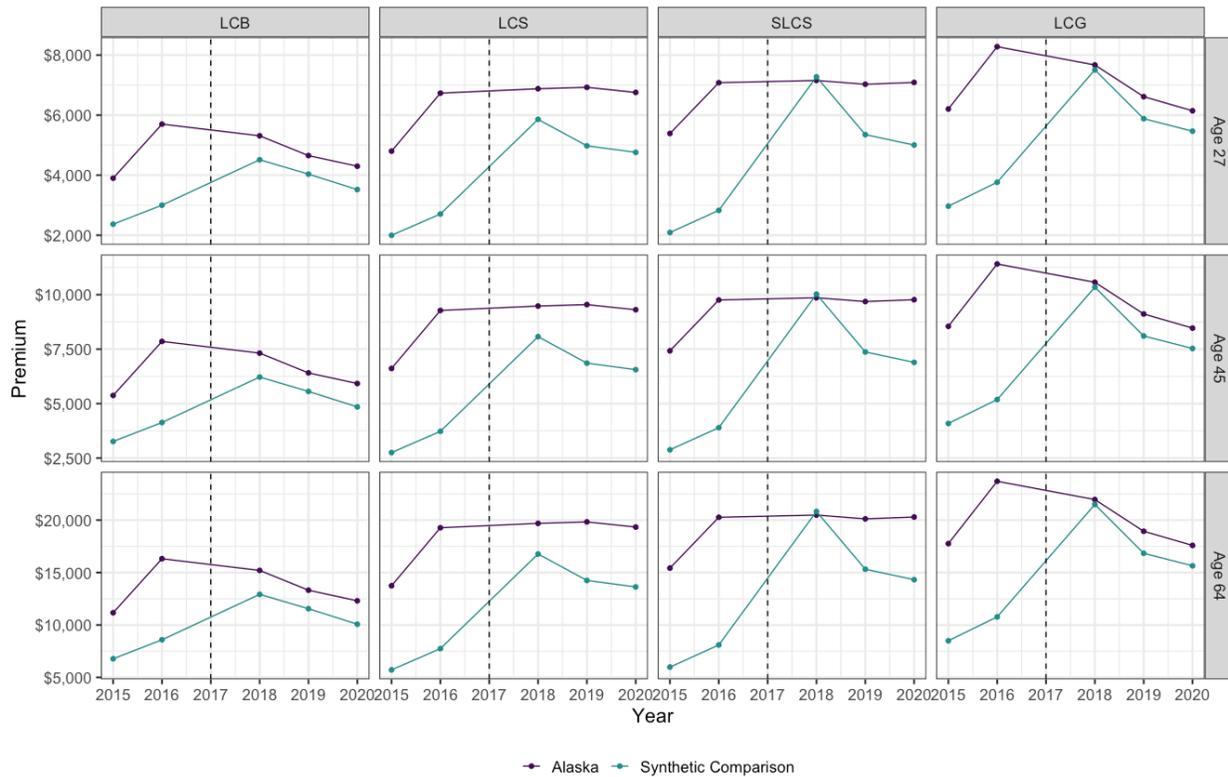


SOURCE: Authors’ analysis using CCIIO OEP PUFs for enrollment by income, and CCIIO effectuated enrollment and EDGE risk adjustment data for enrollment by subsidy status.  
 NOTE: The left panel is limited to enrollment in marketplace plans while the right panel includes enrollment in both on- and off-marketplace plans.

### Waiver Impact on Enrollee Premium Spending

For each plan (LCB, LCS, SLCS, and LCG) and age (27, 45, and 64), average statewide marketplace premiums increased sharply between 2015 and 2016 (Figure 3.3). The trends are relatively parallel between Alaska and the synthetic comparison in the pre-waiver period for most comparisons, although the comparisons for the LCB premiums are not as close to parallel as the others. In all cases, premiums were increasing in both Alaska and the synthetic comparison from 2015 to 2016, but the increase was larger in Alaska. In the post-waiver period, premiums in Alaska decreased sharply or leveled off between 2016 and 2018, and then continued to decrease at a lesser rate through 2020. Premiums in the synthetic comparison generally continued to increase until 2018, but then also began to fall starting in 2019. The pre- and post-waiver mean premiums for Alaska and the synthetic comparison are given in Table B.1.

**Figure 3.3. Average Statewide Individual Marketplace Plan Premiums in Alaska 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 21 comparison states (see Table A.2); some states may receive a weight of 0.

The estimated waiver effects on premiums in Alaska relative to expected premiums in absence of the waiver are large and negative, with the SLCS annual premium falling by almost \$4,400 in 2018 for a representative 27-year-old ( $p < 0.01$ ) (Table 3.1). The overall effect for the SLCS plan was an annual reduction in premiums of over \$3,000 ( $p < 0.01$ ); the effect size was smaller in the subsequent years, but all the effects reached statistical significance at levels commonly used in policy analysis and social science research ( $p \leq 0.10$ ), providing evidence that the waiver likely contributed to these reductions. The overall effect of the waiver on premiums was negative and significant for all other plan types as well, ranging from a reduction of almost \$2,000 annually for the LCB plan for a 27-year-old to a reduction of almost \$4,000 annually for the LCG plan for the same individual (all  $p < 0.01$ ). Interestingly, the premiums fell by a larger percentage overall for the LCG plan ( $-37\%$ ) than for the SLCS plan ( $-30\%$ ), but by a smaller percentage for the LCB ( $-29\%$ ) and LCS ( $-26\%$ ) plans. The same patterns were observed in all other age categories due to age rating.

**Table 3.1. Estimated Effect on Individual Marketplace Plan Premiums in Alaska 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 (overall)	-\$1,969 (-29%)	<0.01*	-\$2,372 (-26%)	<0.01*	-\$3,038 (-30%)	<0.01*	-\$3,991 (-37%)	<0.01*
2018	-\$1,903 (-26%)	0.02*	-\$3,006 (-30%)	<0.01*	-\$4,372 (-38%)	<0.01*	-\$4,353 (-36%)	<0.01*
2019	-\$2,084 (-31%)	0.02*	-\$2,077 (-23%)	0.05*	-\$2,575 (-27%)	0.02*	-\$3,783 (-36%)	<0.01*
2020	-\$1,921 (-31%)	0.02*	-\$2,031 (-23%)	0.05*	-\$2,167 (-23%)	0.06*	-\$3,837 (-38%)	<0.01*
Age 45 (overall)	-\$2,713 (-29%)	<0.01*	-\$3,268 (-26%)	<0.01*	-\$4,185 (-30%)	<0.01*	-\$5,499 (-37%)	<0.01*
2018	-\$2,621 (-26%)	0.02*	-\$4,142 (-30%)	<0.01*	-\$6,024 (-38%)	<0.01*	-\$5,998 (-36%)	<0.01*
2019	-\$2,871 (-31%)	0.02*	-\$2,862 (-23%)	0.05*	-\$3,547 (-27%)	0.02*	-\$5,213 (-36%)	<0.01*
2020	-\$2,648 (-31%)	0.02*	-\$2,799 (-23%)	0.05*	-\$2,985 (-23%)	0.06*	-\$5,287 (-38%)	<0.01*
Age 64 (overall)	-\$5,637 (-29%)	<0.01*	-\$6,789 (-26%)	<0.01*	-\$8,696 (-30%)	<0.01*	-\$11,425 (-37%)	<0.01*
2018	-\$5,446 (-26%)	0.02*	-\$8,605 (-30%)	<0.01*	-\$12,514 (-38%)	<0.01*	-\$12,461 (-36%)	<0.01*
2019	-\$5,965 (-31%)	0.02*	-\$5,946 (-23%)	0.05*	-\$7,370 (-27%)	0.02*	-\$10,829 (-36%)	<0.01*
2020	-\$5,500 (-31%)	0.02*	-\$5,815 (-23%)	0.05*	-\$6,202 (-23%)	0.06*	-\$10,985 (-38%)	<0.01*

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  $\leq 0.10$  to be statistically significant in this analysis (indicated by \*).

The estimated overall effects on enrollee premium spending for representative individuals by age and income for four plan types in Alaska relative to the synthetic comparison following waiver implementation are negative and significant at  $p < 0.05$  for all plans for those with incomes of 450 percent of FPL (Table 3.2). They are equal to the premium effects in Table 3.1 because these individuals do not receive subsidies. The estimated effects for individuals with income below 400 percent FPL are positive for the LCB and LCS plans, because premiums for these plans declined by a smaller amount than did premiums for the SLCS plan, and subsidy amounts are tied to the SLCS premium. However, these results are not statistically significant. Similarly, the estimated effects are negative, but not significant, for the LCG plan, since premiums declined by a larger amount than for the SLCS plan.

**Table 3.2. Estimated Overall Effect on Enrollee Premium Spending in the Marketplace in Alaska 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	\$84	0.17	\$0	1.00	-\$719	0.41
250% FPL	\$656	0.49	\$666	0.17	\$0	1.00	-\$954	0.29
350% FPL	\$1,068	0.16	\$666	0.16	\$0	1.00	-\$954	0.29
450% FPL	-\$1,969	0.02*	-\$2,372	0.02*	-\$3,038	<0.01*	-\$3,991	<0.01*
Age 45								
100% FPL	\$0	1.00	\$62	0.16	\$0	1.00	-\$908	0.48
250% FPL	\$178	0.87	\$918	0.17	\$0	1.00	-\$1,314	0.29
350% FPL	\$1,185	0.33	\$918	0.17	\$0	1.00	-\$1,314	0.29
450% FPL	-\$2,713	0.02*	-\$3,268	0.02*	-\$4,185	<0.01*	-\$5,499	<0.01*
Age 64								
100% FPL	\$0	1.00	\$11	0.14	\$0	1.00	-\$1,652	0.52
250% FPL	\$0	1.00	\$1,365	0.30	\$0	1.00	-\$2,730	0.29
350% FPL	\$0	1.00	\$1,907	0.17	\$0	1.00	-\$2,730	0.29
450% FPL	-\$5,637	0.02*	-\$6,789	0.02*	-\$8,696	<0.01*	-\$11,425	<0.01*

SOURCE: Authors' analysis using RWJF HIX Compare.

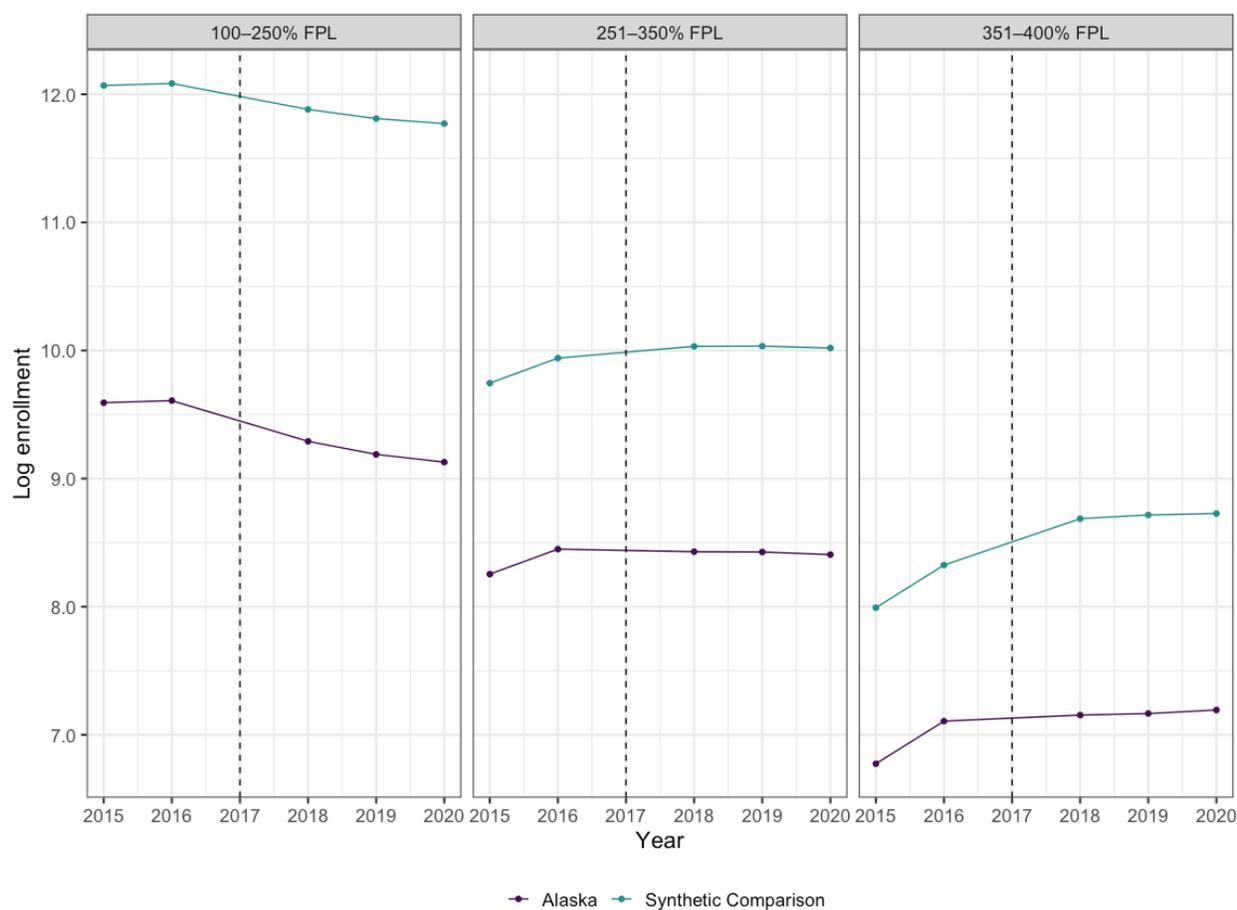
NOTES: Effects on LCB are 0 for 45-year-olds at 100 percent of FPL and 64-year-olds at or below 350 percent FPL because, both with and without the waiver, these individuals get a free plan. Similarly, the effect on the SLCS plan is \$0 for people incomes below 400 percent of FPL because the size of the APTC is mechanically tied to the SLCS plan premium. We considered p-values  $\leq 0.10$  to be statistically significant in this analysis (indicated by \*).

We conducted sensitivity checks on the specification of our analyses using a specification that also used a difference-in-differences approach with a synthetic comparison group constructed with no penalty but used the percentage change in premium as the outcome rather than the premium itself. The trends figure is presented in Figure C.1; the trends are reasonably parallel across the comparisons. The regression results (not included) were similar to the findings presented in Table 3.1; the estimated effects on total premiums were negative and largely significant, though of a larger magnitude than the effects presented in Table 3.1. The effects on enrollee premium spending were also similar in having statistical significance only for those with incomes above 400 percent of FPL, but the signs on the effects for the LCB and LCS plans for those with incomes below 400 percent FPL were flipped (but still not statistically significant).

## Waiver Impact on Enrollment

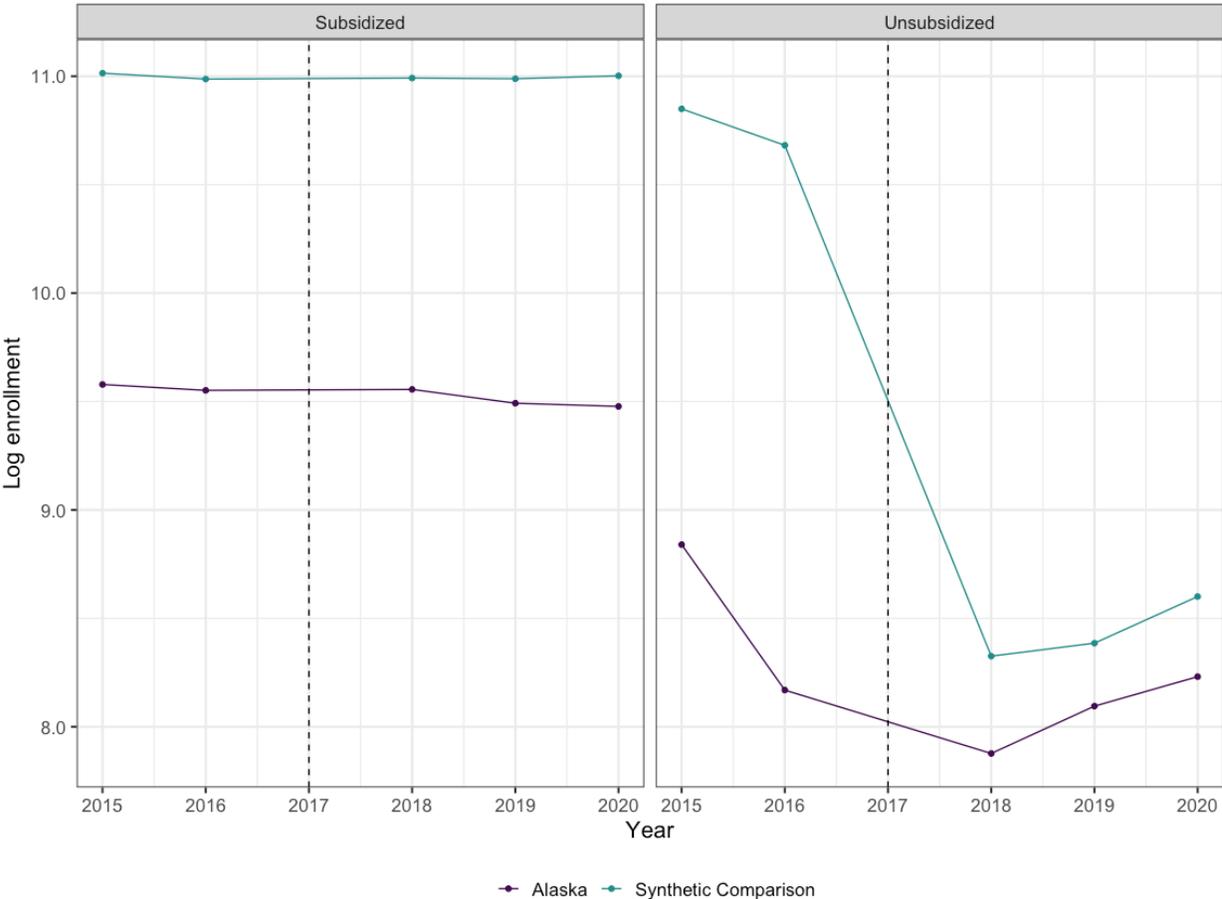
Across each income and subsidy category, we observe reasonably parallel trends in log enrollment between Alaska and the synthetic comparison state between 2015 and 2016 (Figure 3.4). Among those with the lowest incomes (100–250% FPL), log enrollment declines in both Alaska and the synthetic comparison state following the introduction of the ARP, while for those with slightly higher incomes (251–350% FPL and 351–400% FPL), trends diverge, with slight increases in log enrollment in the synthetic comparison compared with largely flat enrollment in Alaska. The picture becomes clearer when observing trends by subsidy status (Figure 3.5); subsidized enrollment is largely flat in the post-waiver period in the synthetic comparison state, while it declines in Alaska. Among unsubsidized individuals, however, log enrollment increases in the post-waiver period following a large decline in Alaska, while the declining trend in enrollment continues for the synthetic comparison state. The pre- and post-waiver mean log enrollment for Alaska and the synthetic comparison are given in Table B.2.

**Figure 3.4. Individual Marketplace Plan Log Enrollment in Alaska and Synthetic Comparison States, by Income Category, 2015–2020**



SOURCE: Authors' analysis using CCIIO OEP PUFs.  
 NOTE: The synthetic comparison reflects a weighted average of the statewide premium across 18 comparison states (see Table A.3); some states may receive a weight of 0.

**Figure 3.5. Individual Market Log Enrollment in Alaska and Synthetic Comparison States by Subsidy Status, 2015–2020**



SOURCE: Authors' analysis using CCIIO marketplace effectuated enrollment data and EDGE risk adjustment data.  
 NOTE: The synthetic comparison reflects a weighted average of the statewide premium across 18 comparison states (see Table A.3); some states may receive a weight of 0.

The estimated effects on individual market enrollment in Alaska in the difference-in-differences analysis compared with enrollment in the synthetic comparison following waiver implementation show that the waiver had a negative impact on enrollment among those with incomes between 100 and 400 percent of FPL across each post-waiver year (Table 3.2). However, none of these effects were large compared with the amount of variability observed in the data and thus are not considered statistically significant.

Among unsubsidized enrollees, however, the waiver was associated with substantial increases in enrollment in Alaska. Enrollment was estimated to be higher by more than 2,300 individuals in 2018, by over 2,900 individuals in 2019, and by over 3,300 individuals in 2020, relative to the expected enrollment in the absence of the waiver. This was due to a combination of increased enrollment in Alaska under the waiver and expected dramatic reduction in enrollment in absence of the waiver. For comparison, mean enrollment in Alaska in the pre-waiver period was about 5,100 annually. All of these effects appear to be large compared with the variability in the data (all  $p < 0.01$ ). For subsidized enrollees, the effect of the waiver on enrollment was negative overall, but the estimate was not large compared with the variability in the data and was not considered statistically significant.

We conducted sensitivity checks on the specification of our analyses using two other specifications:

1. a specification that also used a difference-in-differences approach with a synthetic comparison group constructed with no penalty but used the percentage change in per capita enrollment rather than log enrollment as the outcome
2. a specification that also used a difference-in-differences approach with a synthetic comparison group constructed with no penalty but used per capita enrollment rather than log enrollment as the outcome.

The trends figures are presented in Figures C.2 and C.3 (for specification 1) and in Figures C.4 and C.5 (for specification 2). Reasonably parallel trends can be observed across all comparisons. The regression results (not included) were similar to what we observe in Table 3.3 below; there were no significant effects of the waiver on enrollment, except for the unsubsidized group, for whom enrollment increased significantly from what would have been expected in absence of the waiver. The effect sizes for the unsubsidized group were similar for specification 1, but implausibly high for specification 2 (300–400% larger) in this analysis compared with the main results presented in Table 3.3 below. This illustrates that while the magnitude of the effect was sensitive to the regression specification, the waiver effect on enrollment was consistently positive and significant among unsubsidized enrollees.

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

	Estimated Effect on Enrollment	p-value
100–250% FPL (overall)	–1,493	0.35
2018	–1,316	0.49
2019	–1,533	0.37
2020	–1,666	0.33
251–350% FPL (overall)	–561	0.47
2018	–544	0.57

	<b>Estimated Effect on Enrollment</b>	<b>p-value</b>
2019	-564	0.57
2020	-577	0.57
351-400% FPL (overall)	-491	0.18
2018	-473	0.22
2019	-509	0.22
2020	-494	0.22
Subsidized (overall)	-685	0.76
2018	-8	1.00
2019	-832	0.67
2020	-1,215	0.60
Unsubsidized (overall)	2,849	<0.01*
2018	2,301	<0.01*
2019	2,924	<0.01*
2020	3,316	<0.01*

SOURCE: Authors' analysis using CCIIO OEP PUFs (for results by FPL); EDGE risk adjustment summary data and effectuated enrollment data (for results by subsidy status).

NOTES: The overall effect is the average estimated effect per year in the post-waiver period. We considered p-values  $\leq 0.10$  to be statistically significant in this analysis (indicated by \*). The analysis of enrollment by income is limited to marketplace plans while the analysis of enrollment by subsidy status includes both on- and off-marketplace plans.

## 4. Discussion and Conclusion

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Individual market premiums increased steadily across the United States between 2015 and 2017, but premiums in Alaska were substantially higher than the national mean (ranging from 77 to 158 percent higher during this period) and were increasing at a higher rate as well (KFF, 2021). A number of factors contribute to Alaska's high costs of health care. In particular, the state has a small population that is geographically dispersed (some in very remote areas) and a limited number of medical providers, which leads to limited competition and therefore higher prices. Prior to the implementation of the ARP, individual market premiums were rising rapidly in Alaska, enrollment was declining, and only a single insurer offered plans.

Following the implementation of the ARP in 2017, the rate of premium increase began to slow, and premiums began dropping in 2018. We found that the effects of the waiver on total premiums were large, negative, and statistically significant in all years for all metal tiers. This aligns with our hypotheses that the waiver would lead to reductions in total premiums, given the removal of individuals with high-cost conditions from the risk pool. Furthermore, the magnitude of our findings is in line with estimates of premium reductions calculated by CCIIO (2021) using actual premium data submitted by Alaska to calculate federal pass-through funding as well as estimates from Alaska of premiums in absence of the waiver. We also hypothesized, however, that the impacts on enrollee premium spending for those with incomes in the subsidy-eligible range were dependent on the changes in a given plan's premium relative to the change in the benchmark premium and found that there were no statistically significant changes in enrollee premium spending for subsidy-eligible individuals.

The waiver also led to changes in individual market enrollment in Alaska. Since 2016, individual market enrollment has declined nationally, with the decline driven by decreases in unsubsidized enrollees (CMS, 2020). However, the decline largely leveled off in Alaska beginning in 2017, and enrollment increased among the unsubsidized in the post-waiver period. The effect of the waiver on unsubsidized enrollees was large (enrollment was higher by almost 3,000 enrollees relative to expected enrollment in absence of the waiver) and statistically significant ( $p < 0.01$ ). The effects on individual market enrollment for individuals with income between 100 and 400 percent of FPL and individuals receiving subsidies were negative, but the results were not statistically significant. This large increase in enrollment among unsubsidized enrollment aligns with our hypothesized effects, as unsubsidized individuals realize the full effect of reduced premiums, while subsidies blunt the effect of premium reductions.

Although not addressed by the analyses in this report, we also note that an additional insurer rejoined Alaska's individual market, which had only a single insurer at the time the ARP was implemented.

## Limitations

Our analysis has several limitations. It is challenging to identify an appropriate comparison group as each state has unique conditions and policies. Although we construct a synthetic comparison group that matches Alaska's pre-waiver trends, there may be other state-specific characteristics that are not accounted for in the analyses. Possible confounding factors include insurer market competition (e.g., the number of issuers, market concentration), insurer-provider negotiations, network adequacy, consumer demographics, market churn, use of the federal Healthcare.gov platform, state-regulated rate increases, 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 Alaska. For example, many states including Alaska 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. We excluded from the comparison group states that adopted CSR loading policies other than silver loading in any year between 2018 and 2020 and states with merged individual and small group markets in order to identify a comparison group that was more similar to Alaska's individual market. However, 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 Alaska or comparison states. We considered sensitivity analyses that would use Alaska's small group market in a triple differences methodology, but due to concerns about the reliability of Alaska's small group market enrollment data during the time period of our study, we did not pursue this analysis.

We also note that our synthetic comparison approach produced reasonable parallel trends in the pre-waiver period when applying no penalty, meaning that the algorithm allowed instances of a single state getting an extremely high weight. This is in fact what happened, with most of our analyses having very high weights on a single state (Table A.2); however, this approach produced the best parallel trends across all comparisons. Allocating weights to one or a few states has some interpretational advantages in that the comparison between Alaska and a small number of comparison states is relatively more straightforward (e.g., one could easily plot the trends for just those few states on a single, interpretable graph). However, allocating weights in this manner also means that the results are more likely to be unduly influenced by idiosyncratic trends in the data of the few comparison states receiving weight.

Because we use state-level enrollment and premium data, the sample size for the regression analyses is small. We restricted states in the synthetic comparison 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 Alaska. For the enrollment analysis by income, we further excluded 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.

Finally, the enrollment data used in the analysis were not available for individuals in specific age, income, and metal tier combinations, which limits our ability to understand how changes in enrollee premium spending across population subgroups defined by these characteristics translated to changes in enrollment. Additionally, while effectuated enrollment data are more accurate than plan selection data, for our analyses of enrollment by income level, only the latter were available, though we note that the data are consistent within each analysis. Finally, the EDGE risk adjustment data are complete as of the data submission deadline,<sup>12</sup> but any changes in enrollment or claims after that date would not be represented. However, we note that the measure is consistent across the years and states included in the figures.

## Future Directions

### *Considerations for Future Research*

In this analysis, we aimed to estimate waiver effects on premiums and enrollment in Alaska's individual market by comparing Alaska 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 Alaska. However, despite using methods to construct a comparator that matched Alaska's pre-waiver trends in premiums and enrollment, differences between states make constructing the ideal comparison group difficult. Future analyses could try to account for these differences; however, factors such as those related to how insurers determine rate requests and how states finalize rate increases 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. Future evaluations may benefit from more focus on qualitative data collection to better understand the unique circumstances in the waiver state of interest and how to best construct a comparator.

A consideration for future evaluations and reinsurance design 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. We estimated that enrollment of unsubsidized individuals increased following implementation of the ARP, most likely due to reductions in premiums. For the subsidized population, we did not find significant effects on the enrollee premium spending and enrollment; however, 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. Future research might consider strategies that could enhance the affordability of coverage for subsidy-eligible enrollees. Some research questions were out of

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<sup>12</sup> 45 CFR § 153.730.

scope for the research described in this report but would be important next steps for future research on reinsurance programs implemented via section 1332 waivers. For example, future research could compare existing reinsurance programs in various 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 our evaluation finds that 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 encourage 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 (McDermott and Cox, 2020). 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 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.

### *Lessons Learned for Policymakers*

This analysis provides estimates of the impact of Alaska's section 1332 waiver reinsurance program on premiums and enrollment in the state's individual market and offers some takeaways for Alaska and for other states currently implementing or considering implementing reinsurance programs. First, states should consider the way the program is structured in order to promote health equity and to ensure that the reinsurance program does not inadvertently lead to higher premium spending among low-income subsidized individuals. Enhancing the affordability of coverage for subsidized enrollees could also have the effect of increasing enrollment among this group, in which trends have generally been flat. Second, 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. Finally, conditions-based reinsurance programs in particular may require recurring consideration of the covered conditions. Representatives from Alaska's Division of Insurance noted that in the future they may consider modifications to the list of conditions covered by the program because some of the conditions covered were not associated with claims costs as high as originally intended (Bailey, Bus, and Latham, 2021). They also noted, however, that overall, the ARP appears to have achieved its goal of stabilizing Alaska's individual market.

### *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, it reduced applicable percentage contributions (the share of income that a premium tax credit-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 premium tax credit–eligible people with incomes below 150 percent of FPL and 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 a broad-based tax (such as Alaska's premium tax on all lines of insurance in the state), 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 application, 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 ARP (Colorado Division of Insurance, 2021). In addition, with more subsidized consumers enrolled in light of the ARP—either because they were eligible prior to the ARP 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 is larger, as the federal government achieves additional premium tax credit savings due to reinsurance (U.S. Department of the Treasury, 2021). Reinsurance also 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 those 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 85 percent of income (Cox et al., 2021), and those offered affordable individual coverage health reimbursement arrangements, who are also ineligible for premium tax credits. It also includes adults with incomes below the poverty line in states that opted not to expand their Medicaid programs. When the American Rescue Plan's subsidy enhancements expire in 2023, the need for reinsurance may grow as the size of the unsubsidized population reverts to pre-pandemic levels.

## Conclusion

Prior to the implementation of the ARP, premiums in Alaska were increasing at a rate well above the national mean, and enrollment was declining. Following implementation of the reinsurance program, premiums declined substantially, and enrollment increased among unsubsidized enrollees while not changing significantly for those receiving subsidies. In addition, we note that a previously participating insurer rejoined Alaska's individual market, which had only one insurer left at the time the ARP was implemented. Overall, the ARP appears to have had a stabilizing effect on Alaska's individual market.

## Appendix A. Detailed Methodology

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### Description of Data Sources

#### *Robert Wood Johnson Foundation HIX Compare Data*

**Description:** The Robert Wood Johnson Foundation produces research-ready data files containing information about individual and small-group plans offered both on- and off-marketplace. Premium information is available for both individual and family coverage for enrollees with different ages.

**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 Evaluation 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 files to measure state level trends in enrollment in individual market plans that are offered on the marketplace for enrollees with incomes between 100 and 250 percent of FPL, 251–350 percent, and 351–400 percent in both Alaska and comparison states.

#### *CCIIO Marketplace Effectuated Enrollment Tables*

**Description:** CCIIO’s full-year marketplace effectuated enrollment tables provide counts of the average number of individuals with active policies per month during the calendar year. These individuals have signed up for a marketplace plan and have paid premiums, if relevant.

**Data structure:** State level

**Years analyzed:** 2015–2020

**Use:** We used these files to measure state level trends in enrollment for both subsidized and unsubsidized enrollees in marketplace plans. Specifically, we estimate unsubsidized enrollment across both on- and off-marketplace plans in each state by calculating the difference between total individual market enrollment in the CCIIO 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 risk adjustment data including information about the occurrence of medical conditions for individuals who have signed up for a plan and paid premiums. These files do not include grandfathered plans and grandmothered plans that are not covered by the ACA risk adjustment program.

**Data structure:** Plan level (data were aggregated to the state level by the CCIIO Payment Policy & Financial Management Team)

**Years analyzed:** 2015–2020

**Use:** We used these data to measure state level trends in total enrollment in individual market plans. We used the EDGE risk adjustment data to measure state-level enrollment in all individual market plans and then subtracted state-level enrollment for subsidized individuals compiled from the effectuated enrollment data and reported by 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.<sup>13</sup> We used the medical conditions data to measure state level trends in on- and off-marketplace enrollment in individual plans by the presence or absence of conditions covered by the ARP beginning in 2017, as the conditions data were not measured consistently prior to 2017.

### 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 the 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 Alaska 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:

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<sup>13</sup> Member months in the EDGE risk adjustment summary data and in the CCIIO 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.

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

In the equation, the outcome value for Alaska in year  $t$  is  $Y_{0t}$ , and the outcome value of the  $i$ th comparison state in year  $t$  is  $Y_{it}$ . The weights  $\omega$  are restricted to the set  $\Omega$  of all non-negative weights that sum to 1. The penalty term  $\zeta$  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 Alaska  $\sum_{i=1}^J \omega_i Y_{it} - Y_{0t}$  is chosen to be approximately equal to  $\omega_0$  in all pre-waiver years. Although the set of weights balance only the pre-waiver outcomes and not any other state-level characteristics, the characteristics were included in the difference-in-differences regression discussed below.

A strength of the synthetic comparison method is its ability to select the most comparable states with Alaska. When appropriate, the synthetic comparison 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 Alaska in the pre-waiver period, it automatically finds and compares with that state. Furthermore, even when no single comparison state has comparable pre-waiver trends with Alaska, the synthetic comparison 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” approach. The comparison states exclude those with an approved section 1332 waiver at any point between 2018 and 2020, leaving 36 states and Washington, D.C., as possible comparison states (KFF, 2020).<sup>14</sup>

To account for silver loading approaches that affect premiums, we also exclude states that adopted a different silver loading approach from Alaska. 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

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<sup>14</sup> 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.

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, and Utah and Alabama since neither state updated its age rating curve in 2018 (as Alaska did), leaving 21 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 Alaska compared with the trends in the synthetic comparison group to ensure that they did not markedly deviate from parallel in the pre-waiver period.

Since the standard synthetic comparison construction did not produce parallel trends for either research question, we set the model's penalization term to 0. The penalty term  $\zeta$  disperses the weights over more comparison states, which has appealing theoretical properties, but setting  $\zeta = 0$  would allow greater enforcement of parallel trends. This produced parallel trends for the enrollment analysis, but not for all comparisons within the premium analysis. Therefore, we revised our approach to match 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. This approach produced parallel trends for the analysis of premiums.

## Estimating Waiver Impact

In Table A.1, we specify the composition of the synthetic comparison group for each research question. The comparison group 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 analysis, with the penalty term set to zero.

**Table A.1. States Included in the Synthetic Comparison Group, by Research Question**

<b>Research Question</b>	<b>Comparison States</b>
Q1. What is the waiver’s impact on enrollee premium spending for representative individuals for each of the following on-marketplace plans: LCB LCS SLCS LCG?	21 states (Ariz., Calif., Conn., Fla., Iowa, Idaho, Kans., Ky., La., Mich., Mo., N.C., Nebr., Nev., Ohio, S.C., S.D., Tenn., Va., Wash., Wyo.)  Mass. is omitted (merged individual and small group markets).  Utah and Ala. are omitted due to age rating curve (neither state changed its curve in 2018; Alaska changed its curve).
Q2. What is the waiver’s impact on enrollment for the following types of enrollees: 100–250% of FPL 251–350% of FPL 351–400% of FPL?	18 states (Ariz., Calif., Fla., Iowa, Kans., La., Mich., Mo., N.C., Nebr., Nev., Ohio, S.C., S.D., Tenn., Va., Wash., Wyo.)  Conn. and Idaho are SBEs that did not provide data and are omitted from Q2.
Subsidized Unsubsidized	Nev. is missing in 2020 data.  Ky. is missing 2015–16 data.

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

**Table A.2. Synthetic Comparison Group Weights, Research Question 1, 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
Arkansas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
California	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Connecticut	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Florida	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Iowa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Idaho	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kansas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kentucky	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Louisiana	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Michigan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Missouri	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
North Carolina	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Nebraska	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Nevada	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ohio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
South Carolina	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
South Dakota	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tennessee	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00
Virginia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Washington	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wyoming	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Table A.3. Synthetic Comparison Group Weights, Research Question 2, Without Penalty, by State and Stratification**

State	100–250% of FPL	251–350% of FPL	351–400% of FPL	Subsidized	Unsubsidized
Arkansas	0.03	0.04	0.02	0.00	0.00
California	0.03	0.04	0.02	0.00	0.00
Florida	0.03	0.04	0.02	0.00	0.00
Iowa	0.03	0.04	0.02	0.00	0.00
Kansas	0.03	0.04	0.02	0.00	0.00
Kentucky	N/A	N/A	N/A	1.00	0.00
Louisiana	0.03	0.04	0.02	0.00	0.00
Michigan	0.57	0.04	0.02	0.00	0.00
Missouri	0.03	0.04	0.02	0.00	0.00
North Carolina	0.03	0.04	0.75	0.00	0.00
Nebraska	0.03	0.04	0.02	0.00	0.00
Ohio	0.03	0.04	0.02	0.00	0.00
South Carolina	0.03	0.04	0.02	0.00	0.00
South Dakota	0.03	0.39	0.02	0.00	1.00
Tennessee	0.03	0.04	0.02	0.00	0.00
Virginia	0.03	0.04	0.02	0.00	0.00
Washington	0.03	0.04	0.02	0.00	0.00
Wyoming	0.03	0.04	0.02	0.00	0.00

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

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

where  $W_{it}$  is 1 for Alaska after implementation of the waiver and is 0 otherwise. As it is written above,  $\tau$  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  $\omega$ , the weighted least squares equation also includes time weights  $\lambda$ . 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.

We use a clustered bootstrap methodology to make inference on the effects of interest, as suggested in Arkhangelsky et al. (2019). This means that we sample  $J + 1$  states with replacement from the data, re-estimate the weights and difference-in-differences model on this resampled dataset, and record the estimate for the waiver effect  $\tau^b$ . We do this for 1,000 replications,  $b \dots \dots, 1,000$  and estimate the variance of the waiver effect  $\text{var}(\tau)$  as the variance of the  $\tau^b$ s.

### *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 Alaska 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 Alaska. 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 Alaska. 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. Secondly, 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.

## Appendix B. Additional Tables and Figures

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### Descriptive Analyses of ARP Covered Conditions

Since Alaska is currently the only state with a conditions-based reinsurance waiver, we considered whether individuals with conditions covered by the ARP may have been affected differently by the waiver compared with enrollees without such conditions. Since individuals with such conditions cannot be charged different premiums specifically due to their health status, we hypothesized that we should not observe differential trends in enrollment between those with and without the conditions covered by the ARP.

#### *Methodology*

Reliable data on medical conditions from the EDGE risk adjustment data were only available as far back as 2017,<sup>15</sup> so regression analyses were not conducted. Instead, we plot the percentage of individual market enrollees (Figure B.1) and number of individual market enrollees per capita (Figure B.2) with at least one of the conditions covered by the ARP, in Alaska and in all states included in the synthetic comparison group for the regression analysis of premiums (weighted equally). We note, however, that the EDGE risk adjustment data include the number of occurrences of conditions covered by the ARP, rather than the number of unique individuals. Therefore, we may be overcounting the number of individuals with covered conditions if some individuals have multiple conditions. The figures we present below should be interpreted as upper bounds of the percentage and number of individuals with covered conditions. In addition, the EDGE risk adjustment data may not represent 100 percent of issuer data, since CCIIO only requires 90 percent of total claims data to be submitted. Finally, the EDGE risk adjustment data are complete as of the data submission deadline so any changes in enrollment or claims after that date would not be represented. However, we note that the measure is consistent across the years and states included in the figures.

#### *Findings*

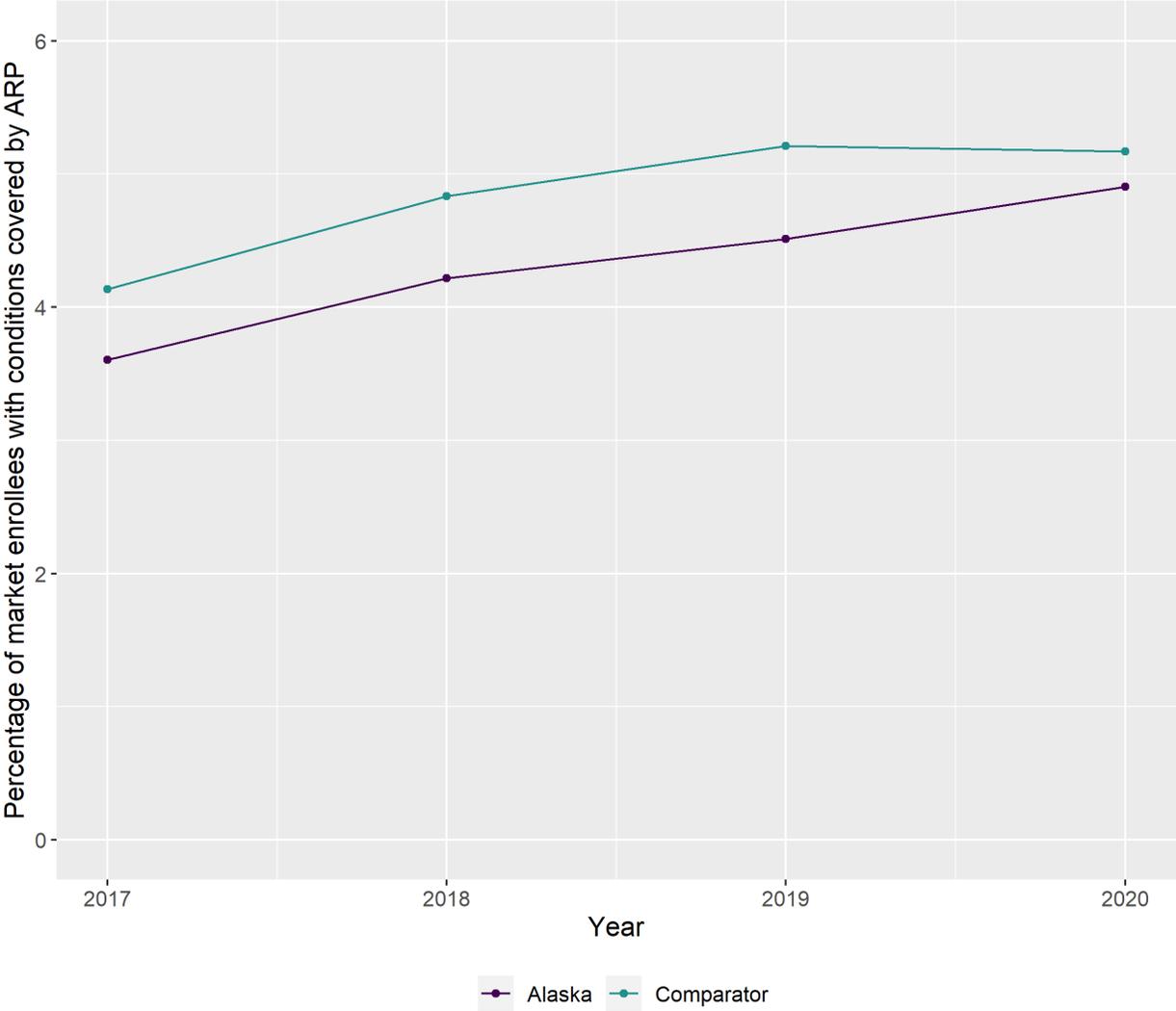
We see that the unweighted trends plotted in Figures B.1 and B.2 are parallel for Alaska and the comparison states, which is consistent with our hypothesis. That is, while enrollment among people with targeted conditions increased over time in Alaska, states without reinsurance

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<sup>15</sup> Data for 2015 and 2016 were available but may be incomplete, making comparisons between 2015–2016 and later years unreliable. Therefore, we did not include pre-2017 data in our analysis.

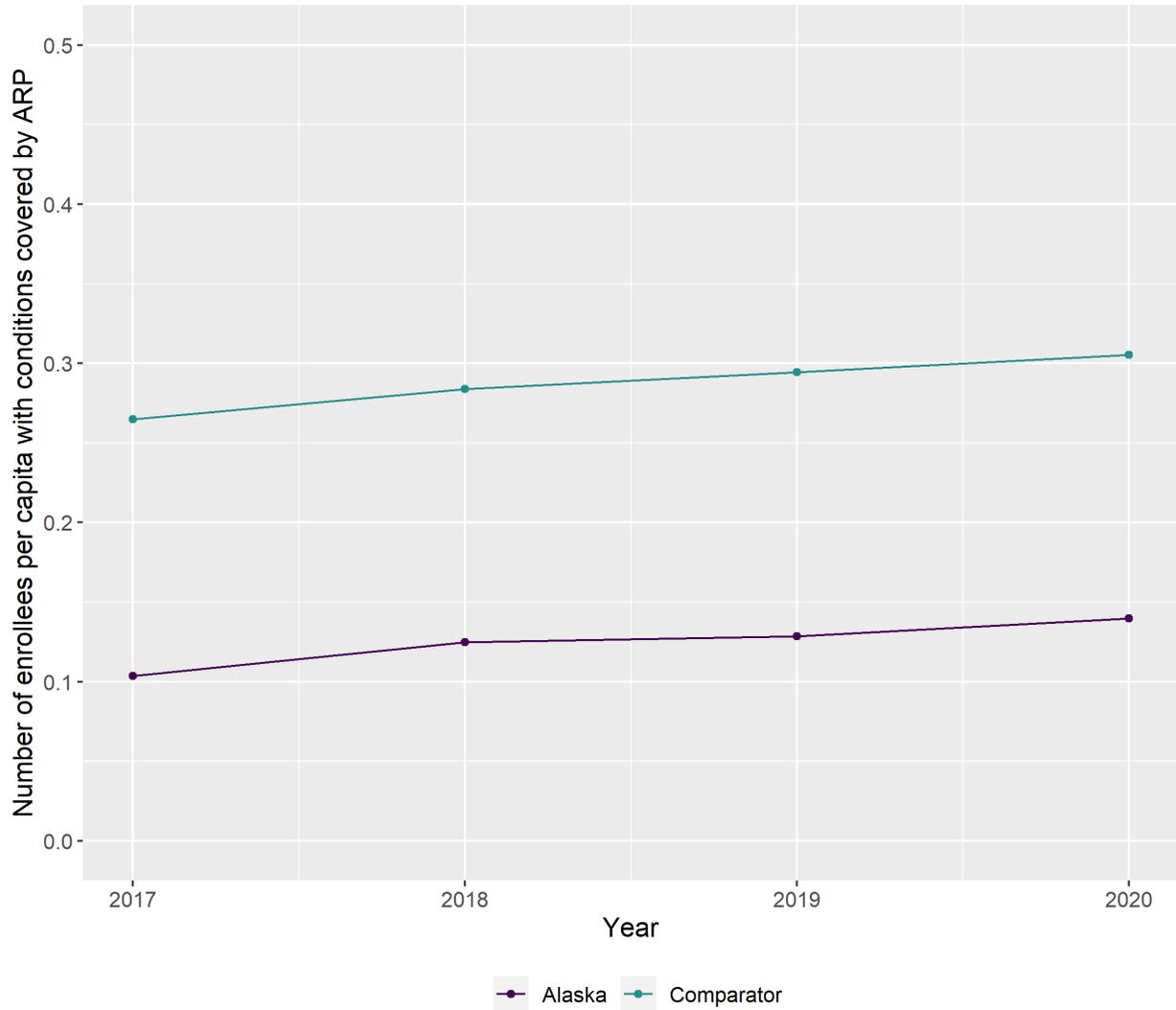
programs experienced similar increases. This finding may reflect secular phenomena common to Alaska and other states, such as growth in the underlying prevalence of targeted conditions.

**Figure B.1. Percentage of Individual Market Enrollees with Conditions Covered by ARP, 2017–2020**



SOURCE: Authors' analysis using CMS EDGE risk adjustment data.

**Figure B.2. Number of Individual Market Enrollees per Capita with Conditions Covered by ARP, 2017–2020**



SOURCE: Authors' analysis using CMS EDGE risk adjustment data.

## Detailed Results for Impact Analyses

**Table B.1. Pre- and Post-Waiver Mean Premium (45-Year-Old Individual)**

	<b>Lowest Cost Bronze</b>	<b>Lowest Cost Silver</b>	<b>Second Lowest Cost Silver</b>	<b>Lowest Cost Gold</b>
Pre-waiver mean, Alaska	\$7,854	\$9,276	\$9,755	\$11,409
Pre-waiver mean, Comparison group	\$4,133	\$3,728	\$3,896	\$5,186
Post-waiver mean, Alaska	\$6,550	\$9,443	\$9,769	\$9,383
Post-waiver mean, Comparison group	\$5,543	\$7,163	\$8,096	\$8,659

NOTE: "Pre-waiver" means reflect premiums in 2015 and 2016 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 Log Enrollment**

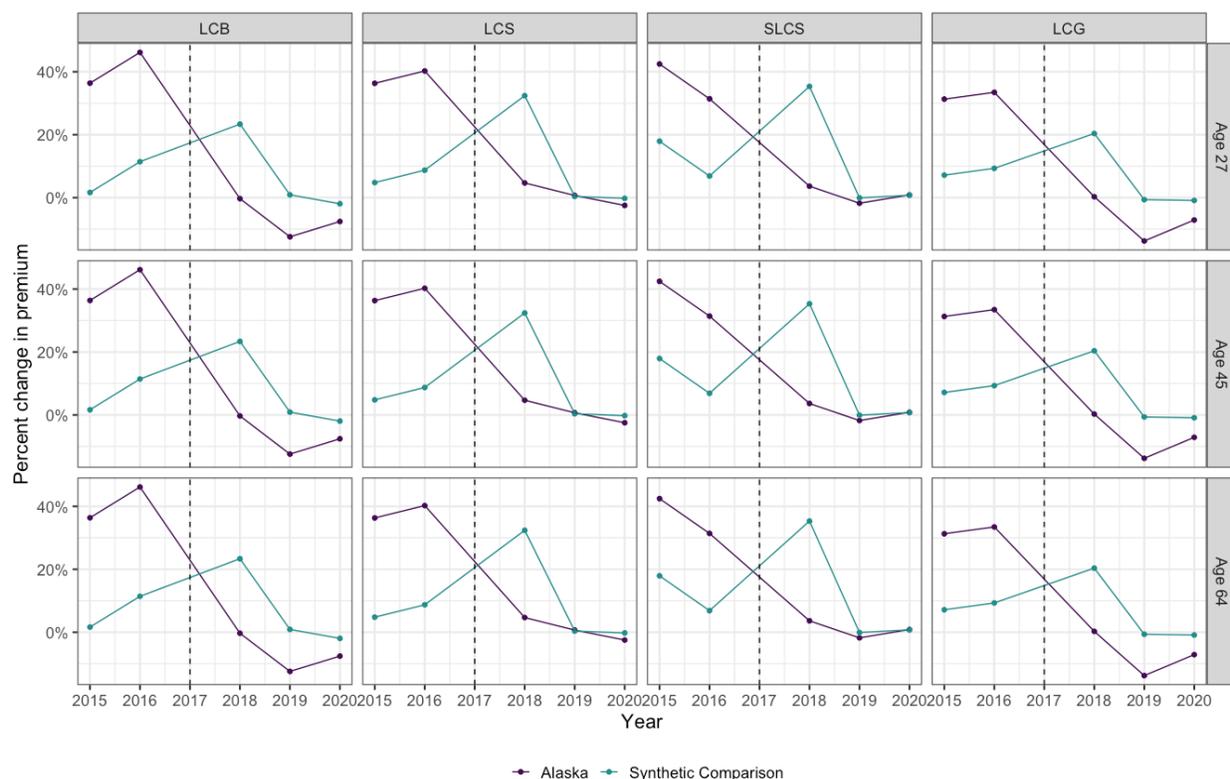
	<b>Subsidized</b>	<b>Unsubsidized</b>	<b>100–250% FPL</b>	<b>251–350% FPL</b>	<b>351–400% FPL</b>
Pre-waiver mean, Alaska	9.6	8.2	9.6	8.4	7.1
Pre-waiver mean, Comparison group	11.0	10.7	12.1	9.9	8.3
Post-waiver mean, Alaska	9.5	8.1	9.2	8.4	7.2
Post-waiver mean, Comparison group	11.0	8.4	11.8	10.0	8.7

NOTE: "Pre-waiver" means reflect enrollment in 2015 and 2016 and incorporate the time weights described in Appendix A; "post-waiver" means reflect average enrollment from 2018 to 2020.

## Appendix C. Sensitivity Analyses

In Figure C.1, we present the trends over time in marketplace plan premiums for Alaska and the synthetic comparison, using the percentage change in premium as the outcome rather than the premium itself. Across all comparisons, the trends are parallel between the two. The regression results (not included) were similar to the findings presented in Table 3.1; the estimated effects on total premiums were negative and largely significant, though of a larger magnitude than the effects presented in Table 3.1. The effects on out-of-pocket premiums were also similar in having statistical significance only for those with incomes above 400 percent of FPL, but the signs on the effects for the LCB and LCS plans for those with incomes below 400 percent FPL were flipped (but still not statistically significant).

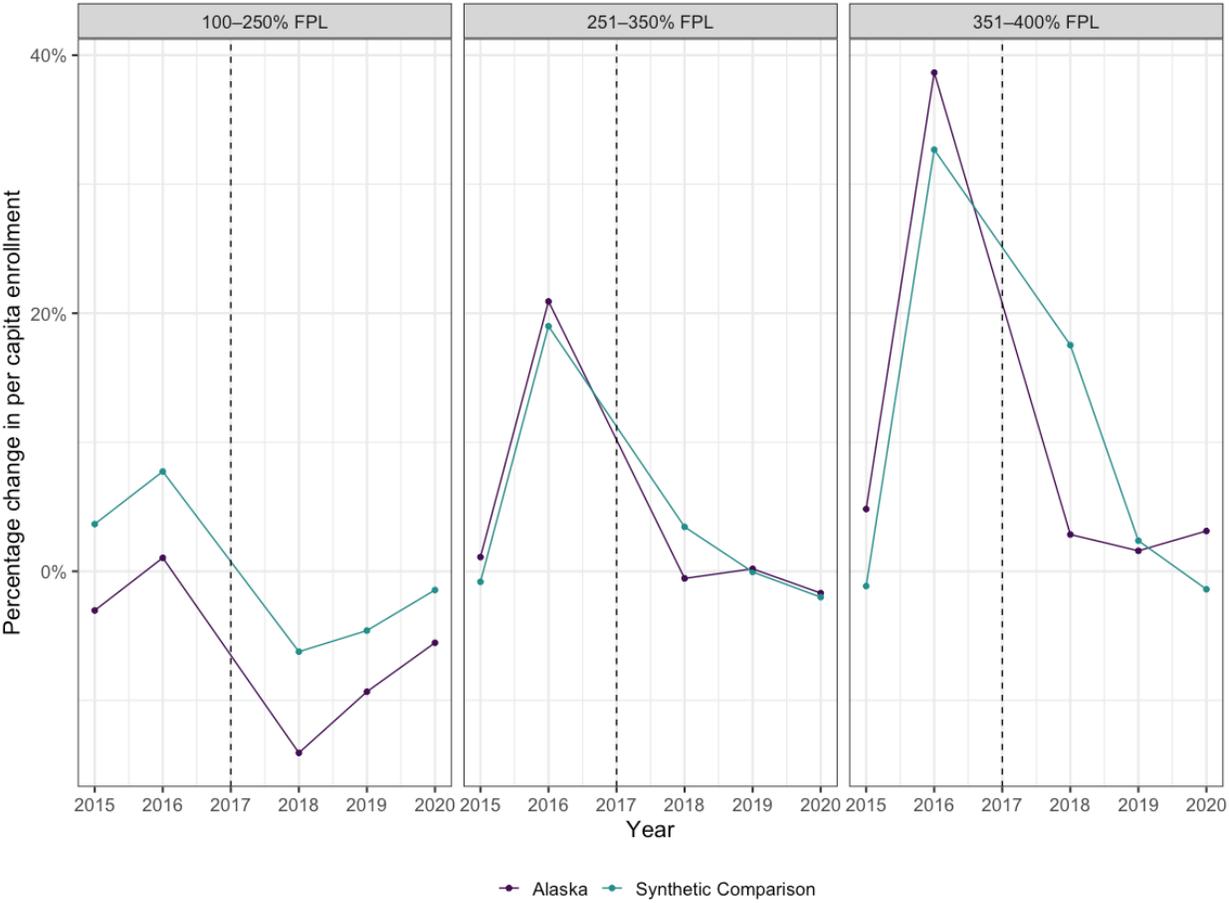
**Figure C.1. Sensitivity Analysis: Percentage Change in Marketplace Plan Premiums in Alaska and Synthetic Comparison States, by Income Category, 2015–2020**



SOURCE: Authors' analysis using RWJF HIX Compare.

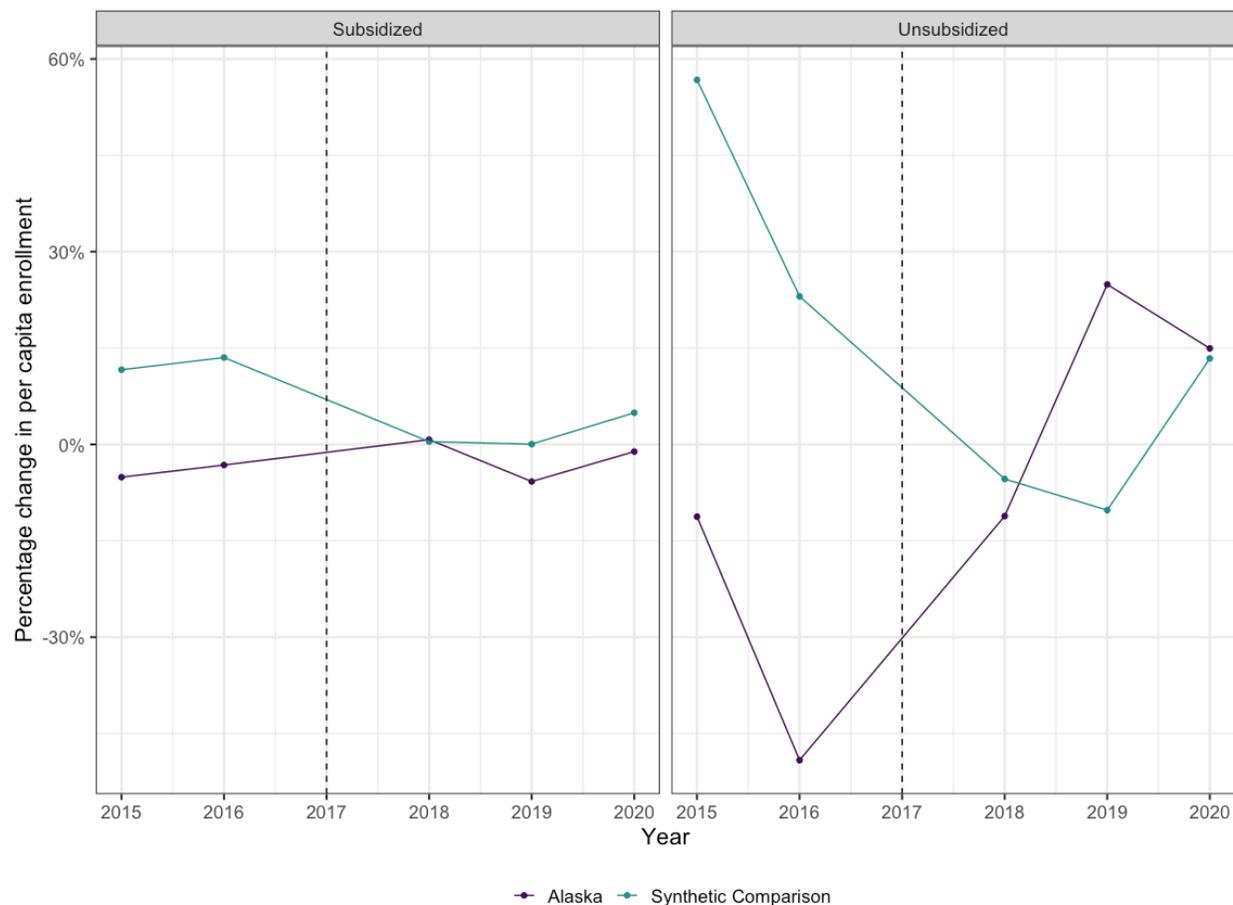
In Figures C.2 and C.3, we present the trends over time in per capita enrollment by income category (Figure C.2) and subsidy status (Figure C.3) for Alaska and the synthetic comparison, using the percentage change in enrollment as the outcome rather than log enrollment. Across all comparisons, the trends are reasonably parallel between the two. The regression results (not included) were similar to what we observe in Table 3.3; there were no significant effects of the waiver on enrollment, except for the unsubsidized group, for whom enrollment increased significantly. The effect sizes for the unsubsidized group were of a similar magnitude as in the main results.

**Figure C.2. Sensitivity Analysis: Individual Marketplace Plan Percentage Change in Enrollment per Capita in Alaska and Synthetic Comparison States, by Income Category, 2015–2020**



SOURCE: Authors’ analysis using CCIIO OEP PUFs.

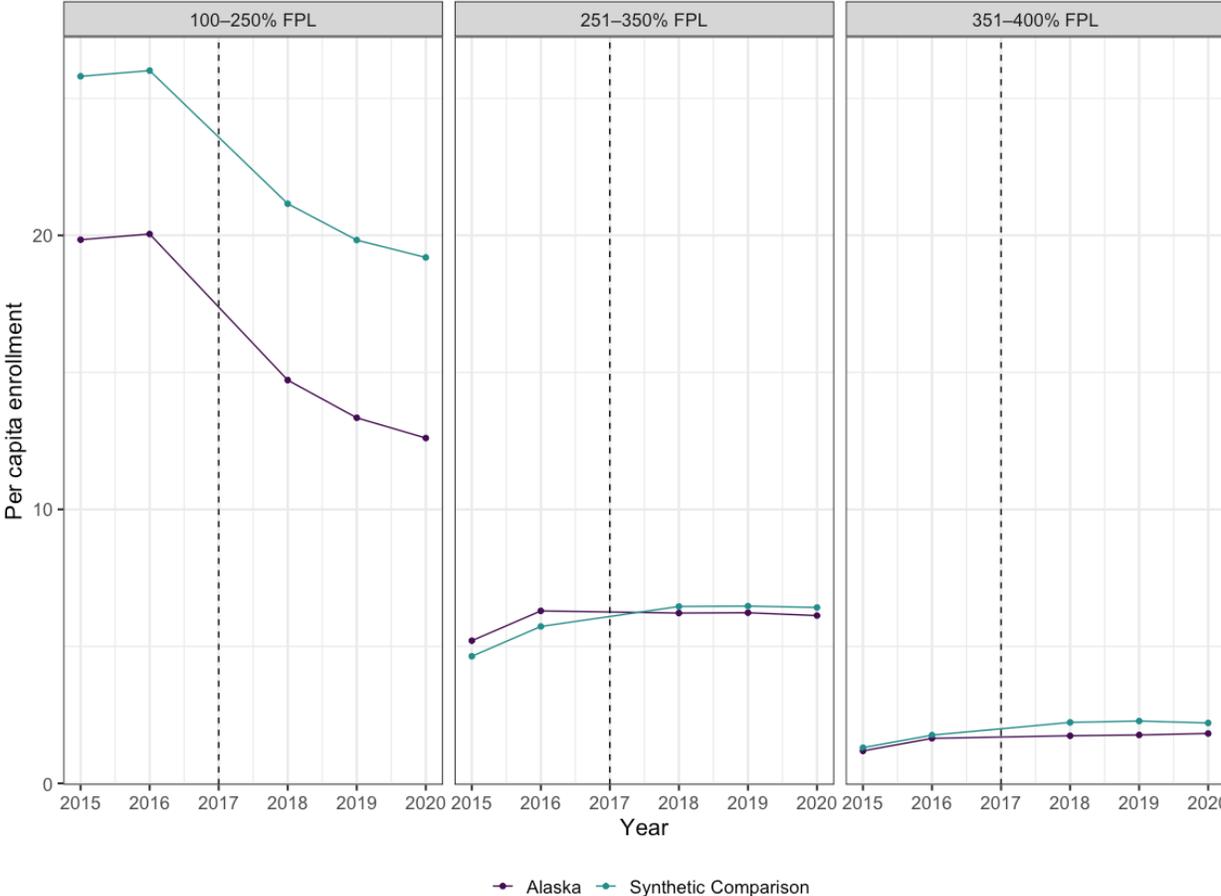
**Figure C.3. Sensitivity Analysis: Individual Market Percentage Change in Enrollment per Capita in Alaska and Synthetic Comparison States, by Subsidy Status, 2015–2020**



SOURCE: Authors’ analysis using CCIIO marketplace effectuated enrollment data and EDGE risk adjustment data.

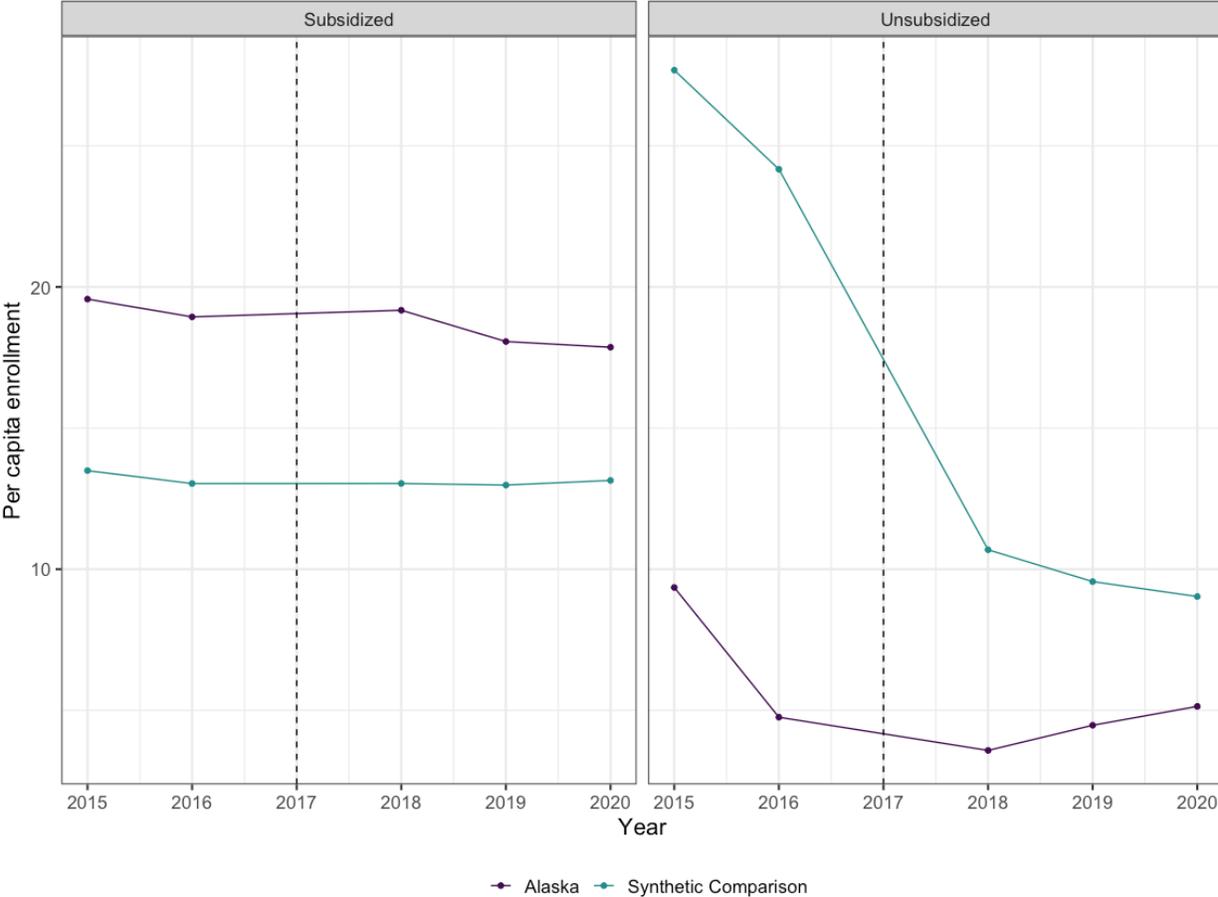
In Figures C.4 and C.5, we present the trends over time in per capita enrollment by income category (Figure C.4) and subsidy status (Figure C.5) for Alaska and the synthetic comparison, using the per capita enrollment as the outcome rather than log enrollment. Across all comparisons, the trends are reasonably parallel between the two. The regression results (not included) were similar to what we observe in Table 3.3 in that there were no significant effects of the waiver on enrollment, except for the unsubsidized group, for whom enrollment increased significantly. However, the effect sizes for the unsubsidized group were substantially larger (by 300–400%) in this analysis than in the main results, indicating that while the effect of the waiver on enrollment is well established by these results, the magnitude of the effect is sensitive to the regression specification.

**Figure C.4. Sensitivity Analysis: Individual Marketplace Plan Enrollment per Capita in Alaska and Synthetic Comparison States, by Income Category, 2015–2020**



SOURCE: Authors' analysis using CCIIO OEP PUFs.

**Figure C.5. Sensitivity Analysis: Individual Marketplace Plan Enrollment per Capita in Alaska and Synthetic Comparison States, by Subsidy Status, 2015–2020**



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

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