Closing Gaps or Holding Steady? The Affordable Care Act, Medicaid Expansion, and Racial Disparities in Coverage, 2010–2021

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Abstract

Context: Medicaid expansion under the Affordable Care Act (ACA) produced major gains in coverage. However, findings on racial and ethnic disparities are mixed and may depend on how disparities are measured. This study examines absolute and relative changes in uninsurance from 2010 to 2021 by race and ethnicity, stratified by Medicaid expansion status.

Methods: The sample included all respondents younger than age 65 (N = 30,339,104) from the American Community Survey, 2010–21. Absolute and relative differences in uninsurance, compared to white Non-Hispanic individuals, were calculated for individuals who were Hispanic; Black; Asian American, Pacific Islander, and Native Hawaiian (AANHPI); American Indian and Alaska Native (AIAN); and multiracial. States were stratified into ever-expanded versus nonexpansion status.

Findings: After the ACA, three patterns of coverage disparities emerge. For Hispanic and Black individuals, relative to white individuals, absolute disparities in uninsurance declined, but relative disparities were largely unchanged in both expansion and nonexpansion states. For AANHPI individuals, disparities were eliminated entirely in both expansion and nonexpansion states. For AIAN individuals, disparities declined in absolute terms but grew in relative terms, particularly in expansion states.

Conclusions: All groups experienced coverage gains after the ACA, but changes in disparities were heterogeneous. Focused interventions are needed to improve coverage rates for Black, Hispanic, and AIAN individuals.

Keywords disparities, Medicaid, coverage, Affordable Care Act, health insurance

Medicaid expansion under the Affordable Care Act (ACA) led to major gains in insurance coverage, better access to care, and improved health, and the creation of health insurance Marketplaces with income-based premium subsidies increased coverage rates for households with incomes too high to

Journal of Health Politics, Policy and Law, Vol. 50, No. 2, April 2025
DOI 10.1215/03616878-11567660

be eligible for Medicaid (Gruber and Sommers 2019; Mazurenko et al. 2018). An important area of policy and research focus has been the ACA's effects on disparities in coverage by race and ethnicity, because historically minoritized populations such as individuals who were Black; Hispanic; Asian American, Native Hawaiian, and Pacific Islander (AANHPI); and American Indian and Alaska Native (AIAN) have been more likely to lack health insurance than white non-Hispanic individuals. Studies consistently show that the ACA and its Medicaid expansion generally increased coverage rates across most racial and ethnic groups (Sommers et al. 2015), with the exception of AANHPI individuals, whose coverage gains under the ACA have been similar in expansion and nonexpansion states (Park et al. 2018). However, findings on whether these coverage gains narrowed racial and ethnic disparities in coverage have been mixed (Buchmueller et al. 2016; Chen et al. 2016; Courtemanche et al. 2019; McMorrow et al. 2015; Wehby and Lyu 2018; Yue, Rasmussen, and Ponce 2018), and much of this ambiguity may depend on whether researchers are assessing absolute versus relative disparities.

When evaluating health disparities over time, absolute and relative disparities convey different but related information, and it is unclear which measure should be prioritized. Absolute disparities measure differences in the number of people affected by a condition or outcome, and thus the excess population-level burden of the disparity between groups. On the other hand, relative disparities do not depend on the units being measured (e.g., deaths vs. dollars spent vs. percent uninsured), meaning they can be interpreted and compared directly across a range of outcomes. The potential difference in trends over time between absolute and relative disparities is largest when the baseline prevalence of the outcome differs substantially across groups and is changing for all groups concurrently, which is precisely the case with insurance coverage rates and the ACA. Under these circumstances, absolute and relative disparities may in fact move in opposite directions over time (Moonesinghe and Beckles 2015).

For instance, absolute disparities can measure the number of additional deaths per 100,000 for Black versus white adults, while relative disparities can measure the percentage difference (or relative risk) in death rates for those populations. For health insurance coverage rates, the terminology can become more challenging, since the absolute disparity is a "percentage point" difference, while the relative disparity is a "percent" ratio. A simple example may be informative. If we compare a population with a 30% uninsured rate with another that has a 10% uninsured rate, the absolute disparity is 20 percentage points (30% minus 10%), but the relative disparity is

300%, or a relative risk of 3.0 (30% divided by 10%). How these measures change over time is the focus of our analysis, and in our "Discussion" section below, we present an analogy to offer a simple way to conceptualize the different information captured by these measures.

Given that achieving health equity has been described as a national priority under a 2021 Presidential executive order as well as a major goal of the ACA, a comprehensive evaluation of insurance coverage changes and disparities across and between racial and ethnic groups is important. Using nationally representative data, this study measured both absolute and relative changes in the uninsured rate from 2010 to 2021 by race and ethnicity, stratified by state Medicaid expansion status.

Methods

Study Population and Data

This study uses data from the publicly available American Community Survey (ACS). Full-year ACS data were compiled for each year from 2010 to 2021 using all 50 states and Washington, DC. We begin with the 2010 data because this was the year when the ACA was signed into law, and the first major policy expanding coverage—allowing young adults to remain on their parents' private plans until age 26—took effect late that year. The major Medicaid and Marketplace expansions began in 2014. The sample was limited to include all individuals ages 0–64. Individuals 65 and older were excluded because of the extremely high percentage covered by Medicare. The final sample size was N = 30,339,104.

Outcome Variables

The primary outcome of interest was the disparity in annual uninsured rates between white non-Hispanic individuals and individuals in the following racial/ethnic groups, based on self-report: Hispanic; Black non-Hispanic; AANHPI non-Hispanic; AIAN non-Hispanic; and non-Hispanic people reporting multiple races (for brevity, hereafter we refer to each of these groups without the "non-Hispanic" modifier). Disparities were calculated separately for states based on Medicaid expansion status; for simplicity, we classified states into ever-expanded (38 states and Washington, DC) versus nonexpansion status (12 states) as of 2021. Our results were largely unchanged when we limited the sample to states expanding in 2014 versus those that did not expand. We also report differences in Medicaid and

private insurance coverage rates between 2010 and 2021 by racial and ethnic group and state expansion status.

Statistical Analysis

Disparities in uninsured rates were calculated in absolute and relative terms. To calculate absolute disparities in a given year, we subtracted the white non-Hispanic uninsured rate from a given racial/ethnic group's rate, reporting results as a percentage-point difference (where 0 percentage points means no difference between groups). To calculate relative disparities in a given year, the racial/ethnic group's uninsured rate was divided by the white non-Hispanic uninsured rate, reporting results in terms of a ratio (where 1.0 means no difference between groups). In this way, we look at both the magnitude of difference in rates and the relative ratios, and then we compare how those two measures changed between 2010 and 2021.

Next, we calculated net changes in coverage (uninsured, Medicaid, and private insurance) for each group comparing 2010 to 2021, to summarize the overall trends during the study period. In addition to unadjusted differences, we also present two sets of regression models examining the changes in coverage from 2010 to 2021 to capture the distinction between absolute and relative disparities. For simplicity, these models just use the first and last years of data and not the intervening period. First, we estimated a model using ordinary least squares, which corresponds to an estimate of changes in absolute disparities, because it calculates the net difference in coverage rates by group over time. Then, we estimated a logistic regression model, which corresponds to an estimate of changes in relative disparities, because it calculates changes in ratios (odds ratios) of being uninsured over time. In both sets of regressions (linear and logistic), our outcome variable was a binary indicator for being uninsured, and the independent variables were indicators for each racial and ethnic group (with white non-Hispanic as the omitted reference group), an indicator for post-ACA (i.e., the year 2021), and interaction terms for post-ACA and each racial and ethnic group (again, with post-ACA * white non-Hispanic as the omitted reference group). This approach identifies the baseline difference in disparities between groups compared to white non-Hispanic individuals, and then it identifies how that disparity changed for each group after the ACA. Using the regression framework also allows us to adjust for the statewide unemployment rate from the Bureau of Labor Statistics, because the local economy is another key factor driving coverage rates, in addition

to policy changes from the ACA. We then repeated our linear and logistic regression models for expansion versus nonexpansion states.

Lastly, we conducted a simple two-period difference-in-difference model for 2010 versus 2021, using state-clustered standard errors, to identify net coverage changes for each racial and ethnic group associated with the Medicaid expansion. More complex modeling using each year of data is possible using the time-varying implementation of Medicaid expansion (Goodman-Bacon 2021), but such analyses have been published in multiple contexts previously (Frean, Gruber, and Sommers 2017; Mazurenko et al. 2018), and our goal here was simply to provide additional context to the primary disparity findings, rather than a detailed causal identification framework. It is important to note that a policy can be beneficial to marginalized populations even if it does not narrow disparities; this difference-in-difference analysis shows the effect of Medicaid expansion on coverage rates within each racial and ethnic group, so it describes the coverage effects of expansion compared to nonexpansion. This is a different but still important lens for understanding the ACA compared to between-group disparity assessments.

For this analysis, we estimated one set of difference-in-difference models for the full sample, and another limited to those with adults ages 19–64 with incomes at or below 138% of the federal poverty level (FPL), corresponding to the Medicaid expansion age and income eligibility criteria.

We conducted several sensitivity analyses. First, we repeated our analysis but ended our study period in 2019, before the COVID-19 pandemic and the associated continuous coverage provision in Medicaid created by the Families First Coronavirus Response Act. This was accomplished by repeating our regression estimates but comparing 2019 instead of 2021 to 2010. Second, given the very high share of AIAN people who report multiple races, we repeated our analysis of this group including all individuals reporting AIAN as their race, either alone or in combination with Hispanic ethnicity or another race.

All analyses used ACS survey weights, and analysis was conducted using Stata 16.0.

Results

Sample Characteristics by State Expansion Status

Table 1 presents sociodemographic characteristics of our sample, for the ever-expansion versus nonexpansion states. Nonexpansion states had a

Table 1 Demographic Characteristics by State Expansion Status

	Nonexpansion states	Expansion states
Age, y		
0–18	29.3%	28.2%
19–35	26.4%	26.8%
36–64	44.3%	44.9%
Gender		
Female	49.5%	49.9%
Male	50.5%	50.1%
Income (% federal poverty level)		
<138%	30.3%	26.7%
138%–400%	39.1%	36.8%
400%+	30.5%	36.6%
Race/ethnicity		
AIAN	0.5%	0.8%
AANHPI non-Hispanic	3.3%	6.7%
Black non-Hispanic	18.0%	10.2%
Hispanic	21.7%	18.5%
Multiple races/other	2.6%	3.4%
White non-Hispanic	53.9%	60.4%

Note: AIAN = American Indian and Alaska Native; AANHPI = Asian American, Native Hawaiian, and Pacific Islander. All differences were statistically significant at $p < 0.05$. Sample includes all US residents, 2010–2021, ages 0–64. N = 30,339,104.

greater share of individuals with incomes below 138% of the federal poverty level (FPL)—the income threshold for Medicaid expansion eligibility under the ACA—than individuals in expansion states (30.3% vs. 26.7%). Nonexpansion states also had larger Black (18.0% vs. 10.2%) and Hispanic (21.7% vs. 18.5%) populations, as shares of the total population. Expansion states, on the other hand, had larger shares that were AANHPI (6.7% vs. 3.3%), AIAN (0.8% vs. 0.5%), Multiple races (3.4% vs. 2.6%), and white non-Hispanic (60.4% vs. 53.9%). The gender and age distributions for the two state groups were similar.

Coverage Disparities

Absolute Disparities. In figure 1, we evaluate changes in absolute racial and ethnic disparities in uninsured rates by state expansion status over time for the five groups reporting a single race and/or ethnicity. At the start of the study period in 2010, Black, Hispanic, AANHPI, and AIAN populations all had higher uninsured rates than the white non-Hispanic population, in

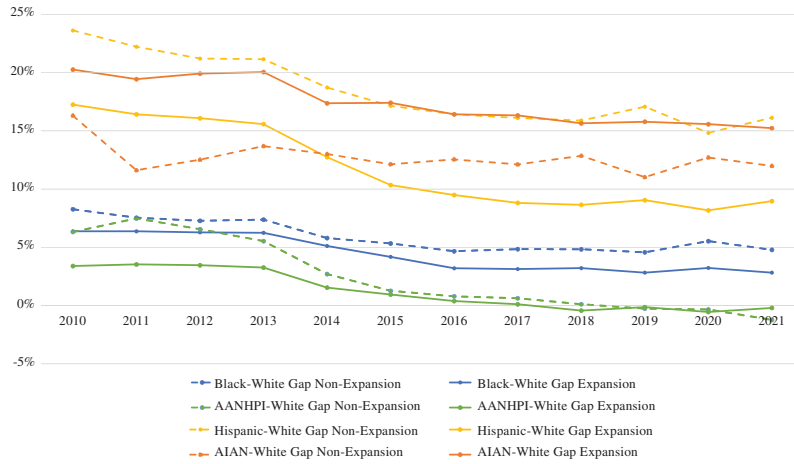

Figure 1 Absolute racial and ethnic disparities in uninsured rates by Medicaid expansion status (2010–2021).

Notes: Authors' analysis of the 2010–21 American Community Survey. Results are the absolute percentage-point difference in uninsured rates between white non-Hispanic individuals and the group in question for each trendline for US residents ages 0–64. AIAN = American Indian and Alaska Native; AANHPI = Asian American, Native Hawaiian, and Pacific Islander. States are classified into ever-expanded Medicaid and never-expanded Medicaid, so the state composition is stable across years. N = 30,339,104.

both expansion and nonexpansion states—evident in the absolute disparities all being greater than zero percentage points. Uninsured disparities were largest for Hispanic and AIAN populations. For Black, Hispanic, and AANHPI populations, coverage disparities were smaller at the start of the study period (2010) in expansion states than in nonexpansion states, while disparities were larger for AIAN in expansion states than in nonexpansion states.

Note that we did not include people with multiple races in figures 1 and 2 because they made the figures difficult to interpret with the addition of two extra data lines, but they are included in the regression results in tables 2 and 3, and their pattern of change over time came closest to that of Black and Hispanic individuals.

After implementation of the ACA beginning in 2014, absolute disparities compared to white individuals narrowed for all groups in both expansion and nonexpansion states. The largest drop occurred among Hispanic individuals in expansion states, with the Hispanic versus white gap shrinking from 17.0 to 9.2 percentage points. By the end of the study period in 2021, for Black and Hispanic populations, disparities in nonexpansion

Table 2 Regression Estimates of Changes in Disparities in the Uninsured Rate (2021 vs. 2010): Linear vs. Logistic Models

	Linear Model			Logistic Model		
Variable	Estimate (pp)	95% CI (pp)	*p*	Estimate (OR)	95% CI	*p*
Black NH	7.8	7.6, 8.0	<0.001	1.75	1.73, 1.77	<0.001
Hispanic	19.7	19.5, 19.9	<0.001	3.25	3.21, 3.28	<0.001
AANHPI NH	3.6	3.4, 3.9	<0.001	1.33	1.31, 1.36	<0.001
AIAN NH	19.0	18.2, 19.9	<0.001	3.12	3.00, 3.24	<0.001
Multiple races NH	2.0	1.6, 2.4	<0.001	1.18	1.14, 1.21	<0.001
Post ACA	−6.8	−6.9, −6.7	<0.001	0.49	0.48, 0.49	<0.001
Black NH * Post ACA	−3.3	−3.4, −3.0	<0.001	0.97	0.95, 0.99	<0.001
Hispanic * Post ACA	−7.8	−8.0, −7.5	<0.001	0.93	0.91, 0.94	<0.001
AANHPI NH * Post ACA	−4.3	−4.6, −4.0	<0.001	0.66	0.64, 0.69	<0.001
AIAN NH * Post ACA	−4.9	−6.1, −3.8	<0.001	1.10	1.03, 1.17	<0.001
Multiple races NH * Post ACA	−0.8	−1.2, −0.4	<0.001	0.99	0.96, 1.03	0.78

Notes: Authors' analysis of the 2010 and 2021 American Community Survey for US residents ages 0–64. pp = percentage points. CI = confidence interval; NH = non-Hispanic; AIAN = American Indian and Alaska Native; AANHPI = Asian American, Native Hawaiian, and Pacific Islander; ACA = Affordable Care Act. White non-Hispanic individuals are the omitted reference group. Model adjusts for year-specific state unemployment rate.

states were still larger than disparities in expansion states, while for AIAN populations, they remained the inverse (larger disparities in expansion states). For AANHPI populations, disparities in both expansion and non-expansion states were completely eliminated (i.e., 0 percentage points) by 2019 and became negative by 2021, meaning AANHPI individuals had lower uninsured rates than white non-Hispanic individuals.

Relative Disparities. Figure 2 shows changes in relative racial and ethnic disparities in uninsured rates by state expansion status between 2010 and 2021, where a ratio of 1.00 means uninsured rates equal to those of white non-Hispanic individuals. Across all racial and ethnic groups, the initial disparities between expansion and nonexpansion states were much closer in magnitude when considering relative as opposed to absolute disparities. This reflects the fact that uninsured rates in general—across all groups—were higher in nonexpansion states at baseline.

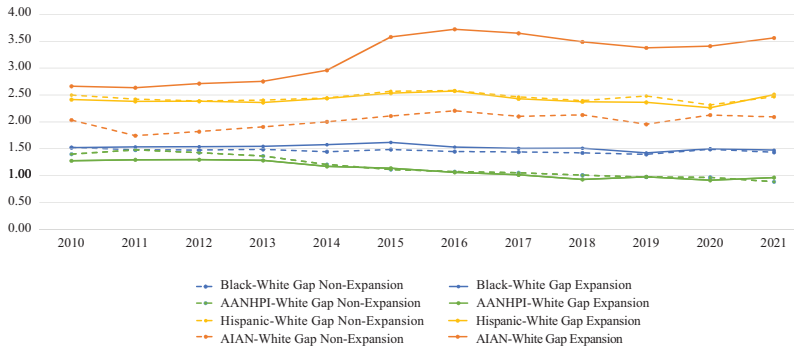

Figure 2 Relative racial and ethnic disparities in uninsured rates, by Medicaid expansion status (2010–21).

Notes: Authors' analysis of the 2010–21 American Community Survey. Results are the relative ratios in uninsured rates between white non-Hispanic individuals and the group in question for each trendline for US residents ages 0–64. AIAN = American Indian and Alaska Native; AANHPI = Asian American, Native Hawaiian, and Pacific Islander. States are classified into ever-expanded Medicaid and never-expanded Medicaid, so the state composition is stable across years. N = 30,339,104.

We also see that over time, relative disparities remain largely unchanged for Black and Hispanic populations, in contrast to the declining absolute disparities in figure 1. This indicates that uninsured rates were declining similarly in proportion to each group's baseline uninsured rate among white, Black, and Hispanic populations. Meanwhile, for AIAN versus white disparity measures, we see a much larger difference in disparities between expansion and nonexpansion states in 2010 (with expansion states having greater disparities), and this relative disparity grew substantially over time in expansion states. Essentially, although AIAN individuals in expansion states gained coverage, they did so at a proportionally lower rate than did white non-Hispanic individuals in those states. For AANHPI individuals, as with absolute disparities, we see the complete elimination of pre-ACA disparities in coverage, with the ratio of uninsured rates for AANHPI individuals compared to white non-Hispanic individuals reaching 1.00 by 2019.

Uninsured and Medicaid Coverage Rates Over Time

To unpack some of the underlying coverage changes driving the patterns of disparities seen in figures 1 and 2, figure 3 shows the difference in uninsured rates, Medicaid, and nongroup private insurance (including Marketplace coverage) between 2010 and 2021 in each racial and ethnic group. This

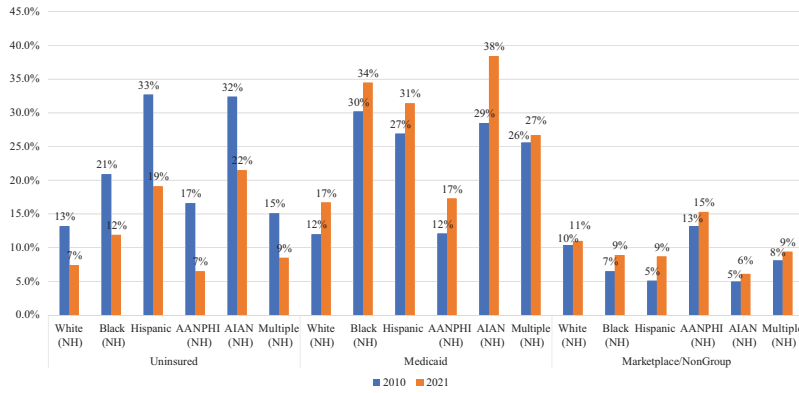

Figure 3 Coverage rates by race and ethnicity between 2010 and 2021.

Notes: Authors' analysis of the 2010 and 2021 American Community Survey for US residents ages 0–64. AIAN = American Indian and Alaska Native; AANHPI = Asian American, Native Hawaiian, and Pacific Islander. NH = non-Hispanic.

comparison aggregates across all states regardless of expansion type. From 2010 to 2021, each racial and ethnic group experienced a decrease in uninsured rates and increases in Medicaid and Marketplace/nongroup coverage rates.

For most groups, the decrease in the uninsured rate was substantially larger than the increase in Medicaid coverage, with the remaining coverage gains coming from Marketplace/nongroup coverage, or Medicare and/or employer coverage (not shown in the figure). For example, there was a decrease of roughly 9 percentage points in the uninsured rate between 2010 and 2021 for Black individuals, including 4 percentage-point growth in Medicaid coverage and 2 percentage-point growth in Marketplace/nongroup coverage. For AANHPI, the uninsured rate decreased by roughly 10 percentage points, including 5 percentage points from Medicaid and 2 percentage points from Marketplace/nongroup. For Hispanic individuals, these values were 14, 4, and 4 percentage points, respectively. In contrast to this pattern were AIAN individuals, for whom the decrease in uninsured rates was similar in size to the growth in Medicaid (10 and 9 percentage points, respectively), with only a 1 percentage-point gain in Marketplace/nongroup, indicating that Medicaid was the primary means of coverage expansion in this population. We also see evidence that Medicaid was the primary means of coverage expansion for the white non-Hispanic

population, where the values were 6 and 5 percentage points, respectively, and Marketplace/nongroup gains were just 1 percentage point. Meanwhile, the uninsured reduction for people reporting multiple races was 6 percentage points, much larger than the Medicaid increase or Marketplace/nongroup increase, which were both just 1 percentage point. This may reflect the changing composition of the population reporting multiple races between 2010 and 2021, as the size of this population in the ACS sample nearly tripled during this period.

Regression-Based Estimates: Absolute versus Relative Disparities

Table 2 shows regression-based estimates for changes in disparities, comparing 2010 to 2021. The linear and logistic models show a similar pattern for the pre-ACA disparities (captured by the direct estimates for each subgroup, compared to white individuals): the highest uninsured disparities were observed for Hispanic and AIAN individuals, then Black individuals, and the smallest were for AANHPI individuals and those reporting multiple races. The post-ACA variable shows reduced uninsurance in 2021 compared to 2010 for the reference group (white individuals). In terms of disparities in the post-ACA period, the linear model produces estimates consistent with the general pattern in figure 1: absolute disparities compared to white individuals all declined significantly, with the biggest reduction (7.8 percentage points) for Hispanic individuals; smaller but sizable reductions for Black, AANHPI, and AIAN individuals; and modest changes in disparities for people reporting multiple races (−0.8 percentage points). Meanwhile, the logistic model produced post-ACA estimates generally consistent with figure 2: relative disparities were only slightly reduced for Black and Hispanic individuals compared to white individuals (odds ratios 0.97 and 0.93, respectively), substantially reduced for AANHPI individuals (odds ratio 0.66), but slightly increased for AIAN individuals (odds ratio 1.10). There were no significant changes over time in relative disparities for people reporting multiple races. Notably, adjusting for the state-year unemployment rate did not change this pattern of results substantially.

When repeating this regression analysis separately for expansion versus nonexpansion states (table 3), the results show some variation by expansion status; but in general, the patterns from figures 1 and 2 were consistent. Reduced absolute disparities post-ACA were evident in both groups of states for Black, Hispanic, AANHPI, and AIAN populations, relative to

Table 3 Regression Estimates of Changes in Disparities in the Uninsured Rate (2021 vs. 2010): Medicaid Expansion vs. Nonexpansion States

	Expansion States		Nonexpansion States	
Variable	Absolute disparity change (pp)	Relative disparity change (OR)	Absolute disparity change (pp)	Relative disparity change (OR)
Black NH * post ACA	–3.5**	0.93**	–3.0**	0.93**
Hispanic * post ACA	–8.3**	0.92**	–8.7**	0.80**
AANHPI NH * post ACA	–3.6**	0.73**	–8.2**	0.55**
AIAN NH * post ACA	–5.0**	1.23**	–5.0**	0.92
Multiple races NH * post ACA	–1.1**	0.98	–0.8	0.99

Notes: Authors' analysis of the 2010 and 2021 American Community Survey for US residents ages 0–64. pp = percentage points; OR = odds ratio; NH = non-Hispanic; ACA = Affordable Care Act; AANHPI = Asian American, Native Hawaiian, and Pacific Islander; AIAN = American Indian and Alaska Native. White non-Hispanic individuals are the omitted reference group. Model adjusts for year-specific state unemployment rate and post ACA.

** $p < 0.01$; * $p < 0.05$.

white individuals; changes in absolute disparities for people reporting multiple races were smaller in both groups of states (and nonsignificant in nonexpansion states). Meanwhile, relative disparities only declined modestly for Black and Hispanic individuals in both expansion and nonexpansion states (odds ratios ranging from 0.80 to 0.93), but relative disparities narrowed more dramatically for AANHPI individuals in both groups of states. AIAN individuals actually saw a rise in relative disparities in expansion states (odds ratio = 1.23) and no significant change in nonexpansion states. Thus, the choice of the regression functional form—linear versus logistic—produces very different interpretations of the changes in disparities.

Coverage Comparison by State Medicaid Expansion Status

A focus exclusively on changes in disparities as in tables 2 and 3, however, can obscure the overall effect of policies on subgroups. Table 4 details changes in uninsured rates, Medicaid, and private insurance for race and

Table 4 Medicaid Expansion and Coverage Changes

	Expansion				Nonexpansion				Expansion difference-in-difference†	
	2010	2021	Absolute change (pp)	*p*	2010	2021	Absolute change (pp)	*p*	Net change (pp)	*p*
White NH										
Uninsured	12.2%	5.9%	−6.2	<0.001	15.7%	11.0%	−4.8	<0.001	−1.5	0.02
Medicaid	12.2%	18.0%	5.8	<0.001	11.5%	13.4%	1.9	<0.001	3.8	<0.001
Private	76.3%	77.9%	1.5	<0.001	72.9%	76.5%	3.6	<0.001	−2.1	<0.001
Black NH										
Uninsured	18.6%	8.8%	−9.8	<0.001	24.0%	15.8%	−8.3	<0.001	−1.5	0.18
Medicaid	31.8%	39.0%	7.2	<0.001	27.9%	28.7%	0.8	<0.001	6.4	<0.001
Private	50.8%	55.0%	4.2	<0.001	48.4%	57.0%	8.6	<0.001	−4.4	<0.001
Hispanic										
Uninsured	29.4%	14.9%	−14.5	<0.001	39.4%	27.1%	−12.3	<0.001	−2.2	0.47
Medicaid	28.9%	35.4%	6.6	<0.001	22.9%	23.8%	0.9	0.47	5.6	0.005
Private	43.1%	52.3%	9.2	<0.001	38.2%	50.4%	12.2	<0.001	−3.0	0.12
AANHPI NH										
Uninsured	15.6%	5.7%	−9.8	<0.001	22.1%	9.7%	−12.3	<0.001	2.5	0.09
Medicaid	12.8%	18.9%	6.2	<0.001	8.6%	10.1%	1.5	0.18	4.7	<0.001
Private	72.6%	77.9%	5.3	<0.001	69.8%	82.1%	12.3	<0.001	−6.9	<0.001
AIAN NH										
Uninsured	32.4%	21.2%	−11.3	<0.001	32.1%	23.0%	−9.1	0.001	−2.2	0.50
Medicaid	29.3%	40.3%	11.0	<0.001	25.6%	30.6%	5.1	0.003	5.9	0.11
Private	39.3%	41.4%	2.1	0.18	43.0%	46.9%	3.9	0.24	−1.8	0.63
Multiple races NH										
Uninsured	14.2%	6.9%	−7.3	<0.001	18.4%	12.8%	−5.5	<0.001	−1.8	0.004
Medicaid	25.5%	27.9%	2.3	0.03	25.8%	23.6%	−2.1	0.02	4.5	0.002
Private	62.7%	68.5%	5.8	<0.001	57.4%	65.7%	8.4	<0.001	−2.6	0.051

Notes: Authors' analysis of the 2010 and 2021 American Community Survey for US residents ages 0–64. pp = percentage points; NH = non-Hispanic; AANHPI = Asian American, Native Hawaiian, and Pacific Islander; AIAN = American Indian and Alaska Native.

†Analysis uses robust state-clustered standard errors.

ethnicity between 2010 and 2021, by state expansion status, for people ages 0–64. Table 4 shows the results for the full income distribution, while appendix table 1 focuses on adults 19–64 with family incomes at or below 138% of FPL. For the full sample (table 4), the uninsured rate declined significantly across all racial and ethnic groups in both expansion and nonexpansion states, while Medicaid coverage increased significantly for all groups in expansion states, with smaller or nonsignificant changes in nonexpansion states. Private coverage increased in both expansion and nonexpansion states for all racial and ethnic groups, but these changes were not significant for AIAN individuals.

In the difference-in-difference model, Medicaid expansion was associated with significantly larger growth in Medicaid for all racial and ethnic groups except for AIAN (where growth was +5.9 percentage points but nonsignificant at $p = 0.11$). However, the pattern varied for uninsured rates: Medicaid expansion was significantly associated with reduced uninsured rates for white individuals and people reporting multiple races, but not for the other groups.

Among lower-income working-age adults, the target population for Medicaid expansion (appendix table 1), we see large gains in Medicaid coverage for all groups in the difference-in-difference model, although for AIAN individuals, the difference of 9.1 percentage points was only marginally significant ($p = 0.09$). Changes in the uninsured rate associated with Medicaid expansion was negative and similar in magnitude for white, Black, Hispanic, and AIAN populations (−6 to −10 percentage points), although it was nonsignificant for the latter two groups. In contrast, for AANHPI individuals the coefficient was nonsignificant and positive.

Sensitivity Analyses

Results were fairly similar when repeating our regression models ending in 2019 instead of 2021, indicating that the overall pattern of disparities we found here post-ACA were not driven by pandemic-era changes or the continuous coverage provision in Medicaid. The only notable change was that the increase in relative disparities for AIAN individuals post-ACA was no longer statistically significant.

Appendix table 2 shows the regression results for AIAN individuals when we include in that group anyone reporting AIAN race either alone or in combination with Hispanic ethnicity or another race (in our primary analyses, the latter group is classified either as Hispanic or multiple races non-Hispanic). Among those reporting AIAN race in combination with

another race or ethnicity, the baseline disparity compared to white individuals was 10.2 percentage points (compared to 19.0 for AIAN alone), and the post-ACA reduction in the absolute coverage disparity was still negative (–3.6 percentage points), but it was smaller than for AIAN alone (–4.9 percentage points). The relative disparities post-ACA increased for AIAN alone (odds ratio 1.10) but were stable (odds ratio 1.01) for AIAN in combination with another race or ethnicity. In other words, individuals reporting AIAN alone were the only group with increasing relative disparities post-ACA. For individuals reporting AIAN in combination with another race or ethnicity, their pattern looked more similar to Black and Hispanic individuals—declining absolute disparities, but no major change in relative disparities.

Discussion

In this analysis of nationally representative survey data from 2010–21, we find major declines in uninsurance across all racial and ethnic groups after the ACA, but three distinct patterns of disparities emerge. For Hispanic and Black Americans, relative to white non-Hispanic individuals, expansion states had smaller disparities to begin with; after the ACA, absolute disparities in uninsurance declined similarly over time regardless of expansion status, leaving relative disparities unchanged or only modestly reduced. For AANHPI individuals, disparities in the uninsured rate relative to white individuals were eliminated entirely in both expansion and nonexpansion states. For AIAN individuals, disparities relative to white individuals were worse in expansion states than in nonexpansion states and declined in absolute terms over time but grew in relative terms.

There are important policy and research implications across each of these three patterns, which we summarize in table 5. Among Hispanic individuals, uninsured rates were much higher before the ACA, and coverage expansions were essentially proportional to the baseline risk of being uninsured. This combination produced large absolute reductions in Hispanic versus white disparities, but left relative disparities unaffected. To a lesser extent, the same pattern occurred among Black individuals even though their baseline uninsured rate was closer to that of white individuals. This raises a "glass half empty versus half full" discussion, evident in the previous literature with varying perspectives (Lipton, Decker, and Sommers 2017; McMorrow et al. 2015; Sommers et al. 2017; Wehby and Lyu 2018). In absolute terms, the ACA led to much greater coverage gains in these two communities that have been historically less likely to have health insurance

Table 5 Patterns of Changes in Absolute and Relative Disparities, and Their Potential Policy Interpretations

Change in absolute disparity	Change in relative disparity	Policy interpretation	Example from ACA and Medicaid expansion
↓	0	Broad-based progress but with remaining structural gaps	Coverage changes among Black and Hispanic individuals, relative to white non-Hispanic individuals
↓	↓	Clear evidence of improving equity	Coverage changes among AANHPI individuals, relative to white non-Hispanic individuals
↓	↑	Reduced risk but greater inequality	Coverage changes among AIAN individuals, relative to white non-Hispanic individuals

Note: ACA = Affordable Care Act. The table does not include other permutations, such as worsening absolute and relative disparities, or no change in absolute or relative disparities.

because of a combination of economic, legal, and social obstacles to coverage that largely result from structural racism impacting employment, income, housing, and immigration status (ASPE 2021; Semprini, Ali, and Benavidez 2023). But in relative terms, the ACA did not reduce the increased relative risk of being uninsured for Black, Hispanic, and multiracial individuals compared to white individuals. Although this pattern is open to interpretation, a reasonable description of it might be *broad-based progress but with remaining structural gaps*.

Second, among AANHPI individuals, we observed complete elimination of the AANHPI versus white disparity in uninsured rates, which is a notable policy accomplishment and is consistent with previous research findings (Park et al. 2018). Interestingly, Medicaid expansion did not appear to be the primary driver for the elimination of this disparity, because it occurred in both expansion and nonexpansion states, and analyses of coverage type show that expansion status mainly affected the type of coverage acquired—Medicaid in expansion states versus private insurance in nonexpansion states. Earlier research suggests that high Marketplace coverage growth among AANHPI individuals likely plays a significant role in this pattern (Park et al. 2019). We describe this pattern of reductions in absolute and relative disparities as *clear evidence of improving equity*.

In this particular case, the changes were sufficiently large to completely eliminate the disparity, which is the strongest form of equity improvement.

Finally, for AIAN individuals, the ACA results are more concerning. While coverage rates did improve in both expansion and nonexpansion states and the absolute AIAN versus white coverage disparity shrank because of the elevated absolute risk of uninsurance in the AIAN population, the relative disparity actually grew over time in expansion states. This combination is possible because white non-Hispanic individuals—who began with much lower uninsured rates—also experienced coverage gains, which proportionally outpaced those of AIAN individuals. This does not mean that the ACA produced no positive effects for the AIAN population; previous research and the declining uninsured rates observed here demonstrate that is not the case (Frean et al. 2016). However, in terms of improving *equitable* coverage rates, the ACA did not succeed for AIAN individuals, particularly for those who reported their race as AIAN alone (those who reported AIAN in combination with another race or ethnicity had stable but not worsening relative disparities). Some of this pattern may be attributable to the fact that receiving care from the Indian Health Service is not considered health insurance in federal data or in our analysis (rather, it is a direct care delivery system). Nonetheless, the results indicate that barriers to effective enrollment in ACA-related coverage remain. This pattern—decreasing absolute disparities but increasing relative disparities—can be described as *reduced risk but greater inequality*.

An Analogy: Handing Out Lottery Tickets for Health Insurance

The differences between absolute and relative disparities—and how different regression models, for instance, estimate those relationships—may not be intuitively apparent. To aid in understanding, here we present an analogy.

Imagine that the ACA was implemented as a lottery system for gaining health insurance. Each person who lacks coverage at a given point in time receives a single lottery ticket. Each ticket has an equal chance (roughly 50%) to provide the person with health insurance through the ACA. Since only uninsured people (across all racial and ethnic groups) receive the tickets, the result of holding the lottery will be that the uninsured rate will drop by roughly half. Within each racial and ethnic group, the uninsured rate will also drop by half. If, at baseline, 30% of Hispanic individuals were uninsured and 10% of white individuals were uninsured, after the lottery these racial/ethnic percentages would drop to 15% and 5%, respectively.

The result will be that the absolute disparity between Hispanic and white individuals has shrunk (going from a 20 percentage-point gap [30% vs. 10%] to a 10-point gap [15% vs. 5%]), but the relative disparity will not have changed at all because Hispanic individuals still are three times likelier than white individuals to be uninsured. In essence, this is what occurred for the ACA among Black and Hispanic populations compared to the white population: disparities narrowed in absolute terms but remained largely stable in relative terms.

Now consider an alternative scenario where instead of giving every uninsured person a single ticket, we start out by giving uninsured white, Black, and Hispanic individuals 10 tickets each, with each ticket's winning probability reduced to maintain a person's overall 50% chance of getting picked. Meanwhile, uninsured AANHPI individuals get 12 tickets, while uninsured AIAN individuals only get eight tickets. Without belaboring the math, again we will see that Black and Hispanic disparities compared to white individuals will shrink in absolute terms but will stay the same in relative terms. But AANHPI individuals will see a reduction in disparities in both absolute and relative terms, because they each got more lottery tickets than uninsured white people got. And in this case, although AIAN individuals still experience a reduction in absolute disparities because their baseline uninsured rates were quite high, they actually lose ground in relative disparities compared to white individuals.

Ultimately, a variety of policy and contextual factors discussed more in the next section determine how many "lottery tickets" uninsured people in each group receive. These factors include who is eligible for ACA coverage (a product of income rules, employment patterns, immigration law, and state Medicaid expansion decisions) and how likely eligible people are to sign up for coverage (a product of outreach, administrative burden, racial discrimination, stigma, and other factors).

Policy Implications

Our results on the differential gains by coverage type have several policy implications. Why do we observe these different patterns by race and ethnicity? While a full discussion of all the potential causes is beyond the scope of this analysis, several key factors based on previous research are likely relevant.

For Black and Hispanic individuals, coverage gains were largely proportional to their baseline uninsured rates compared to white individuals (i.e., the "equal lottery ticket" scenario), even though outreach efforts by

the Obama and Biden administrations attempted to close disparities and focused significant attention on these groups. However, countervailing factors may have prevented the reduction of relative coverage disparities. Anti-Black racism—which has been embedded in the United States for centuries, and more recently has been a powerful influence on how state and federal policies have approached health care access to Black communities (Eisape and Nogueira 2022; Michener 2020)—has created numerous obstacles to coverage expansion, manifesting in forms such as onerous work requirements in Medicaid (Sommers et al. 2019) and lack of ACA expansion in states with large Black populations in the so-called Medicaid coverage gap (Garfield, Orgera, and Damico 2019). For Hispanic communities, policies that raise the specter of immigration enforcement for applicants or their family members have been shown to produce a chilling effect on program participation among citizens and noncitizens alike (Sommers et al. 2020; Watson 2014), and language barriers are also a significant barrier (Blavin et al. 2014). Nonetheless, research indicates the ACA did make major coverage inroads even among noncitizens (Porteny, Ponce, and Sommers 2022).

Meanwhile, the elimination of coverage disparities among AANHPI individuals after the ACA may reflect the confluence of several factors. First, previous research has suggested that Marketplace outreach efforts focused on Asian Americans and those speaking Asian languages were particularly effective, which may explain in part the modest contribution of Medicaid expansion to coverage gains for this group (Park et al. 2019). In addition, the top and middle of Asian American income distribution have increased rapidly over recent decades, which likely enabled a larger share of this population to benefit from the ACA's premium subsidies; however, income inequality—income differences between high- and low-income households—within the AANHPI community has also grown, suggesting that Medicaid may play an increasing role for AANHPI individuals at the lower end of the income distribution, of whom Native Hawaiians and Pacific Islanders are a disproportionate share (Kochhar and Pumphrey 2018).

Worsening relative coverage changes among AIAN individuals were concentrated among those reporting AIAN as their only race. Experiences of racism and discrimination within the health care system are highly prevalent among AIAN individuals (Findling et al. 2019), which likely contribute to the disproportionately smaller ACA-related coverage gains in this group. Qualitative research has documented that barriers to public insurance among some AIAN individuals include lack of awareness and

the seasonal nature of employment for many workers in that population (Liddell and Lilly, 2022). Other AIAN individuals may see enrolling in health insurance programs as unnecessary if they are using Indian Health Service services, or they may object to enrolling in a means-tested program when the federal government has a treaty obligation to provide health care to many tribes. Regional variation—both by state and between those residing on reservations and those living elsewhere (Frean et al. 2016; Frerichs et al. 2019)—have also been identified, and unpacking root causes for these differences in future research may help devise better strategies for future coverage-expansion efforts.

Despite these challenges, Medicaid coverage increased for nearly all groups in all states—even nonexpansion states—reflecting the "welcome mat" phenomenon, in which expanded outreach efforts, increased awareness, streamlined enrollment rules, and the individual mandate may all have contributed to greater enrollment among the previously eligible population (Sonier, Boudreaux, and Blewett 2013). One exception to this pattern, however, was that Medicaid coverage rates for Hispanic individuals in the full-income sample in nonexpansion states did not increase between 2010 and 2021, although there were gains among lower-income families in this population. Given the large number of uninsured Hispanic adults in two of the largest nonexpansion states—Florida and Texas—this remains a population at risk for substantial barriers to coverage and care.

Moreover, the expiration of the pandemic-era Medicaid continuous coverage provision starting in April 2023 threatens the loss of health insurance among millions of beneficiaries, and this burden is likely to fall disproportionately on beneficiaries of color (ASPE 2022). Some of the same patterns evident in our analysis may occur in reverse as these coverage protections are removed; and researchers' choices to examine those changes through either an absolute disparity lens or a relative disparity lens may affect their interpretation of their findings.

Research Implications

More broadly, these patterns of results can extend to any situation in which the underlying outcome is changing for all groups under consideration in the presence of substantial baseline disparities. Under such circumstances, researchers may be best able to capture the full dynamics of changes in disparities by presenting both absolute and relative estimates (Moonesinghe and Beckles 2015). In some cases the results will look largely similar, but in others the implications may differ substantially. This logic

extends to the difference between using linear regressions versus logistic (or other ratio-based models) regressions to analyze changes in disparities over time, where the directionality of the effect may in fact reverse depending on which model is used. Therefore, offering both sets of analyses is the most thorough way to describe changes over time, consistent with reporting guidelines from the Centers for Disease Control and Prevention (Keppel, Pamuk, and Lynch 2005).

It is important to note that odds ratios are not identical to relative risk. Odds ratios approximate a relative risk ratio when the outcome is rare, but for measures such as ours—where the uninsured percentages ranged as high as 35%–40% in some populations—odds ratios will overstate the relative risk of the outcome (Norton, Dowd, and Maciejewski 2018). For instance, an odds ratio of 4.0 when an outcome's prevalence is 40% is equivalent to a risk ratio of roughly 1.82. However, our focus in presenting logistic results here is simply to highlight how shifting to a ratio-based regression model as opposed to linear regression can alter the even more basic pattern of results—namely, the direction of the effect (increased risk, decreased risk, or no change).

As discussed in the previous section, our results point to numerous questions in need of additional exploration, using both quantitative and qualitative methods, in terms of underlying drivers of the differential coverage gains across race and ethnic groups, how these changing coverage disparities track with corresponding changes in access and health disparities, and heterogeneity within subgroups, indicating that more granular analyses may find even greater variation in the law's impact on equitable coverage rates.

Limitations

Our study has several limitations. First, to concisely describe the changes in disparities across multiple years, state expansion status, and racial and ethnic groups, our analysis created five categories that belie substantial heterogeneity within populations. Previous research has demonstrated the extent to which ACA-related coverage gains differed significantly among subgroups of the AANHPI, AIAN, and Hispanic populations (Alcala et al. 2017; Frerichs et al. 2019; Gonzales and Sommers 2017; Park et al. 2018), and future work could explore the absolute versus relative pattern of disparities for those subpopulations.

Second, we only analyzed insurance coverage, and there are similar critical questions related to how the ACA has affected relative and absolute

disparities in access to care and health outcomes. We view coverage as one critical outcome and a useful case study for our approach of exploring absolute versus relative disparities, but it is far from the only outcome of interest related to the ACA's impact on health equity. More broadly, our approach primarily focused on the overall uninsured rate. We did not attempt to assess the relative quality of the coverage being obtained in terms of financial protection or access to care; substantial heterogeneity exists in the quality and generosity of plans available through Medicaid expansion and Marketplace coverage (including plans with and without cost-sharing subsidies).

Third, we did not focus specifically on lower-income adults in most of our analyses because our objective was to present changes in population-level coverage disparities in the full nonelderly population, which include both Marketplace and Medicaid effects, as well as the 2010 dependent coverage provision allowing young adults to stay on their parents' plans.

Fourth, besides Medicaid expansion decisions, our study did not attempt to measure the numerous policy domains in which state Medicaid programs and other policies affecting coverage rates vary. Such policies—including but not limited to state managed care penetration, quality of managed care plan offerings, optional benefits, administrative burdens in enrollment and retention, and state outreach efforts—likely have important effects on racial and ethnic differences in coverage and are an important area for ongoing and future research.

Finally, the bulk of our analyses were descriptive, precluding a causal attribution for the coverage changes we analyzed. However, adjustment for economic conditions did not produce major changes in our findings, and a large body of research less focused on disparities makes clear that there is strong evidence that these changes are largely attributable to the policies of the ACA (Courtemanche et al. 2019; Frean, Gruber, and Sommers 2017; Gruber and Sommers 2019; Mazurenko et al. 2018).

Conclusion

The ACA—through Medicaid expansion and subsidized Marketplace insurance—reduced uninsured rates for all racial and ethnic groups in the United States. However, the pattern of changes in racial and ethnic disparities varied by group, by Medicaid expansion status, and by whether one analyzes absolute or relative differences in coverage. These results point to the ongoing need for more focused interventions to improve equitable rates of insurance coverage, particularly for Black, Hispanic, and AIAN individuals.

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Acknowledgments

Benjamin D. Sommers worked at the US Department of Health and Human Services (HHS) from January 2021 to July 2023. This article does not reflect HHS views.

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