The Impact of the ACA Medicaid Expansions on Health Insurance Coverage through 2015 and Coverage Disparities by Age, Race/Ethnicity, and Gender

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Objective. Examine the ACA Medicaid expansion effects on Medicaid take-up and private coverage through 2015 and coverage disparities by age, race/ethnicity, and gender.

Data Sources. 2011–2015 American Community Survey for 3,137,989 low-educated adults aged 19–64 years.

Study Design. Difference-in-differences regressions accounting for national coverage trends and state fixed effects.

Principal Findings. Expansion effects doubled in 2015 among low-educated adults, with a nearly 8 percentage-point increase in Medicaid take-up and 6 percentage-point decline in uninsured rate. Significant coverage gains were observed across virtually all examined groups by age, gender, and race/ethnicity. Take-up and insurance declines were strongest among younger adults and were generally close by gender and race/ethnicity. Despite the increased take-up however, coverage disparities remained sizeable, especially for young adults and Hispanics who had declining but still high uninsured rates in 2015. There was some evidence of private coverage crowd-out in certain subgroups, particularly among young adults aged 19–26 years and women, including in both individually purchased and employer-sponsored coverage.

Conclusions. The ACA Medicaid expansions have continued to increase coverage in 2015 across the entire population of low-educated adults and have reduced age disparities in coverage. However, there is still a need for interventions that target eligible young and Hispanic adults.

Key Words. Medicaid, insurance, disparities

Expanding eligibility for Medicaid coverage is one of the key provisions of the Affordable Care Act (ACA) aimed at increasing coverage and reducing uninsured rate. Under that provision, states have the option of expanding their

Medicaid eligibility for adults aged 19–64 years with family income below 138 percent of the federal poverty line (FPL). Beginning on January 1, 2014, 22 states have expanded their Medicaid eligibility for this program under this provision (The Henry J. Kaiser Family Foundation 2016). Thus far, 31 states and the District of Columbia have expanded their Medicaid under the ACA.

Recent work examining the effects of the ACA Medicaid expansions on coverage in 2014 showed an increase in Medicaid take-up among potentially eligible adults in states that expanded relative to nonexpanding states, with average estimates ranging from a 4 percentage-point increase among low-educated adults (high school or lower education) who are more likely to qualify for coverage (Kaestner et al. 2015) to nearly 10 percentage points among low-income adults (<138 percent of FPL; Wherry and Miller 2016). Coverage gains and uninsured rate declines in 2014 following the Medicaid expansions are suggested to be even larger in certain states such as Kentucky (Benitez, Creel, and Jennings 2016) than these average estimates. When examining heterogeneity in the Medicaid expansion effects by demographic characteristics, greater Medicaid take-up is reported for younger adults and unmarried individuals, and slightly larger effects are reported for nonwhites (Courtemanche et al. 2017). Prior work has found that the Medicaid expansions had crowd-out effect on private coverage in 2014.

We examine the impact of ACA Medicaid expansions on Medicaid take-up and coverage status in through 2015, providing one of the first investigations of the Medicaid expansion effects in the second year of implementation. In doing so, we provide a timely assessment of how these expansions have continued to affect health coverage in expanding relative to nonexpanding states. In addition to examining effects on Medicaid take-up and uninsured status, we also evaluate changes in private coverage (both individually purchased and employer sponsored) given the possibility of crowd-out with public insurance expansions especially for individually purchased coverage (Gruber and Simon 2008).

We also examine the effects of the Medicaid expansions on coverage status and type by age, race/ethnicity, and gender, which have historically been linked to large disparities in health insurance coverage. Understanding the

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expansion impacts by age is important because uninsured rates have been historically highest among young adults and were nearly 30 percent in 2010 (US Census Bureau 2010). Furthermore, beginning in 2010, the ACA mandated that private insurance plans allow adults aged 19–26 years to be covered on their parents' plans, which has resulted in increased private coverage in this group (Shane et al. 2016). Therefore, understanding whether the Medicaid expansions have complemented or offset the dependent adult mandate effects is also relevant for understanding the net ACA impact on coverage for this group.

Extensive disparities in coverage have also historically existed by race/ethnicity, especially among young adults with markedly higher pre-ACA uninsured rates overall among Hispanics (~31 percent) and non-Hispanic blacks (~21 percent) compared to whites (~12 percent) (United States Census Bureau 2010). Even though uninsured rate differences by race/ethnicity are less striking when examining low-educated adults aged 19–64, who are most affected by the Medicaid expansions, disparities are also observed in uninsured rates and source of coverage in this group. Therefore, it is important to examine changes in coverage across racial/ethnic groups, especially since the ACA Medicaid expansions disproportionately apply to minorities (Abdus, Mistry, and Selden 2015). The pre-ACA uninsured rate has also been higher among men than women by over 3 percentage points (United States Census Bureau 2010). Larger gender and age disparities in coverage are seen when examined by race and when focusing on low-educated adults as shown below. Therefore, it is important to examine changes in coverage across groups defined by combinations of these demographic factors, including by both race/ethnicity and gender, by age and race/ethnicity, and by age and gender.

Prior work examining the heterogeneity in the ACA Medicaid expansion effects by demographic factors has been limited to 2014 data (Courtemanche et al. 2017) and has focused on broad groups (e.g., non-Hispanic white vs. nonwhite or grouping individuals affected differently by the ACA into the same group such as combining adults aged 19–26 years impacted the dependent coverage mandate with 27- to 34-year-olds) and did not examine group interactions (e.g., gender by race/ethnicity or age by race/ethnicity). We provide the most granular and comprehensive assessment to date of changes in coverage disparities across various demographic groups following the ACA Medicaid expansions with the goal of understanding whether and how the ACA Medicaid expansions have modified these disparities. We focus on low-educated adults, who are the group most likely to be affected the Medicaid expansions. Examining changes in coverage is especially important

because of the evidence of beneficial effects of Medicaid and health insurance expansions on health outcomes and access to care, including from prior state expansions for children (Currie and Gruber 1996) or adults (Miller 2012; Baicker et al. 2013) as well as early evidence from the ACA Medicaid expansions (Wherry and Miller 2016).

METHODS

We used data from the American Community Survey (ACS), an annual survey of nationally representative samples of the United States (US Census Bureau 2016). The ACS is a mandatory survey—sampled individuals are legally required to respond to the survey—which limits nonresponse bias and enhances generalizability. The ACS has recently sampled over 3 million housing addresses annually through monthly samples covering small census areas. For housing units selected for data collection (e.g., excluding commercial and nonexistent addresses), response rates have generally been over 95 percent (except in 2013 when response rate was 89 percent due to suspended follow-up of initial nonrespondents during the temporary government shutdown). The ACS attempts to collect data first via an Internet survey, then by mail (if there is no response to Internet survey), then by a phone interview (if there is no response via mail), then by a personal visit. In addition to demographic and socioeconomic data, questions on health insurance (status and type of coverage) are also asked. Response rates to the health insurance questions are relatively high (nearly 90 percent or higher in recent years; Clark 2014).

We included data from 2011 through 2015, the last year of ACS data currently available. Because the Medicaid expansions apply only to poor adults (below 138 percent of federal poverty line), our sample only includes low-educated adults (high school or less) in the same because they are mostly likely to be affected by the ACA expansions. Based on the ACS data, mean annual personal income among adults aged 19–64 years with high school or less is ~23,000, compared to ~49,000 among adults with higher education. We did not select the sample based on household income (or poverty level) because income is potentially endogenous to insurance coverage status and Medicaid expansions through changes in employment or wages (Dave et al. 2015). Our total sample included 3,137,989 observations.

Our analysis was a difference-in-differences (DD) regression model examining the impact of the state Medicaid expansions in 2014 and 2015 on coverage controlling for time trends shared by expanding and nonexpanding

states and state fixed effects that account for time-invariant differences between states. Under the assumption of shared time trends unrelated to the expansions, the DD model can identify the causal effects of the expansion on coverage. For the total sample and for each demographic group, the regression was specified as follows when estimating the overall expansion effect in 2014–2015:

$$\text{Coverage}_{ijt} = \beta_0 + \beta_1 \text{Medicaid_Expansion}_j \times \text{Post}_t + \mathbf{Year}_t \beta_2 + \mathbf{States}_j \beta_3 + \varepsilon_{ijt}, \quad (1)$$

where for individual i in state j in year t , *Coverage* is one of the 0/1 indicators for coverage status or type (Medicaid, individually purchased, employer-sponsored, and uninsured), *Medicaid_Expansion* is a 0/1 indicator for states that expanded Medicaid in 2014 (treatment group) versus those that did not (control group), *Post* is a 0/1 indicator for postexpansion years (2014 or 2015), and **Year** and **State** are vectors of year and state fixed effects, respectively. The key DD parameter is β_1 , which identifies the expansion effect by subtracting the national time trends captured by the **Year** vector from the pre–post expansion change. The **State** vector captures time-invariant differences between states including differences between states that expanded Medicaid following the ACA and those that did not, including differences prior to the Medicaid expansions. Therefore, there is no need to add a separate effect for the *Medicaid_Expansion* indicator (which would be collinear with the state fixed effects). Similarly, because of the year fixed effects, there is no need to add a separate effect for the *Post* indicator. A similar specification was estimated when examining the expansion effects separately in 2014 and 2015 except for adding separate *Medicaid_Expansion* $\times$ *Post* interactions for these 2 years as follows:

$$\begin{aligned} \text{Coverage}_{ijt} = & \beta_0 + \beta_1 \text{Medicaid_Expansion}_j \times \text{Post1}_t \\ & + \beta_2 \text{Medicaid_Expansion}_j \times \text{Post2}_t + \mathbf{Year}_t \beta_3 + \mathbf{States}_j \beta_4 \\ & + \varepsilon_{ijt}, \end{aligned} \quad (2)$$

where *Post1* and *Post2* are 0/1 indicators for 2014 and 2015, respectively, and β_1 and β_2 identify the expansion effects separately in 2014 and 2015.

Table S1 in Appendix SA2 shows state assignment into the treatment or control group and those that were excluded from the main and sensitivity analyses. The treatment group in the main analysis included those that expanded on January 1, 2014, and did not have full expansions (i.e., to the 138 percent FPL for all adults aged 19–64 years) prior to that. Among these, some

states had partial expansions before that date (Table S1 in Appendix SA2), including expansions to lower income levels (e.g., California) or to restricted services or providers (e.g., Iowa). We included these states in the treatment group in the main analysis because they are likely to still experience an effect from the full Medicaid expansion beginning in 2014. In a sensitivity check, however, we excluded the treatment states that had partial prior expansions from the analysis. The control group included states that did not expand in 2014 under the ACA and did not have prior expansions (or only had very limited expansions). Also included in the control group of the main analysis were states that did not expand in 2014 but had partial prior expansions (Maine and Wisconsin) and those that had full expansions beginning in 2010 (Delaware, Massachusetts, New York, Vermont, and Washington, DC). This latter group with prior full expansions is unlikely to experience a large change in 2014 and 2015. However, we also excluded the states with partial or full prior expansions from the control group in the same sensitivity check that excluded treatment states with partial prior expansions. We excluded five states (Alaska, Indiana, Michigan, New Hampshire, and Pennsylvania) that expanded after January 1, 2014, from all analyses because these would not have experienced the Medicaid expansion effect for the entire period of 2014–2015.

We estimated the models using linear probability regression weighted by the ACA sampling probability weights to account for the survey sampling design and improve generalizability of estimates and clustered the standard errors at the state level (Cameron and Miller 2015). Estimating a logit that includes the state fixed effects as dummy variables does not necessarily remove the bias from state time-invariant unobservables, which may still bias the estimated policy effects (Wooldridge, 2002).

We examined the following age groups separately: 19–26, 27–35, 36–45, 46–55, and 56–64 years. These groupings enable the most granular and balanced assessment for heterogeneity effects across age while ensuring meaningful age differences between the groups and minimum sufficient sample sizes for each group. We first examined 19- to 26-year-olds who are eligible for parental coverage under the ACA-dependent coverage mandate since they may be affected differently by the ACA Medicaid expansions (both in their Medicaid or private coverage) than older individuals who are not impacted by the dependent coverage mandate. For older groups, we defined age groups in intervals of about 10 years to obtain balanced groups for examining the heterogeneity of expansion effects by age. Even among adults older than 26, uninsured rates were generally lower with age before the ACA (United States Census Bureau 2010). Therefore, the expansion may have different effects by

age, including potentially stronger effects among the younger groups with higher pre-ACA uninsured rates. When stratifying by race/ethnicity, we estimated separate models for four groups, including non-Hispanic whites, non-Hispanic blacks, Hispanics, and other race/ethnicity. The sample size was too small to separate the last group into additional race/ethnicity groups. We also estimated separate models for men and women, as well as models by both age and race/ethnicity, gender and race/ethnicity, and age and gender. When grouping by age and another factor, we limited the analysis to three age groups: 19–35, 36–55, and 56–64 years to keep minimum sufficient sample sizes.

RESULTS

Descriptive Analysis

Figure 1 shows the Medicaid coverage and uninsured rates among low-educated adults aged 19–64 years in Medicaid expanding and nonexpanding states between 2011 and 2015. Medicaid take-up increased and uninsured rates decreased slightly prior to 2014, and changes were similar between expanding and nonexpanding states. Beginning in 2014 and continuing in 2015, however, Medicaid take-up increased and uninsured rate decreased much more in expanding than nonexpanding states. In expanding states, Medicaid coverage increased from 18.1 percent in 2011–2013 to 23.6 percent in 2014 and 28.1 percent in 2015, while the uninsured rate declined from 32.4 percent in 2011–2013 to 24.4 percent in 2014 and 18.8 percent in 2015. In nonexpanding states, there was a small increase in Medicaid coverage in 2014–2015 (by nearly 1.5 percentage points) and the declines in uninsured rates were nearly half those in expanding states.

Tables S2 and S3 in Appendix SA2 present a comparison of coverage status and type in 2011–2013, 2014, and 2015 for the overall study sample and for each of the analyzed subgroups separately for expanding and nonexpanding states. Based on this descriptive analysis, Medicaid coverage rates were higher and uninsured rates lower in 2014–2015 for all subgroups in both expanding and nonexpanding states. Private coverage (employer-sponsored or individually purchased) rates were also slightly higher in both state groups and for most demographic subgroups. The uninsured rate in 2011–2013 ranged from ~40 percent among young adults (19–35) to ~20 percent among 56- to 64-year-olds, but differences by age tightened in 2014–2015. The uninsured rate was highest among Hispanics (over 50 percent), particularly among men

Figure 1: Coverage and Uninsured Rates in 2011–2015 in States That Expanded Their Medicaid under ACA Beginning January 1, 2014 (Treatment Group) and Nonexpanding States (Control Group)

and young adults in both periods. The uninsured rate was also higher among men than women over this period in every racial/ethnic and age group, except for 56- to 64-year-olds who had a similar uninsured rate by gender. Differences in uninsured rates by age, race/ethnicity, or gender prior to the expansions were overall comparable between the expanding and nonexpanding states.

DD Estimates of Medicaid Expansion Effects

Average Effects in 2014–2015. Table 1 shows the DD estimates of the effects of ACA Medicaid expansions on Medicaid take-up, private coverage, and uninsured status in the total sample and across the subgroups we examined, first combining 2014 and 2015. Among low-educated adults aged 19–64 years, Medicaid take-up increased by 6 percentage points and the uninsured rate declined by 4.8 percentage points after the Medicaid expansions. There were

Table 1: Effects of the ACA Medicaid Expansions on Coverage by Type in the Main Sample in 2014–2015 versus 2011–2013

Groups	N	Covered in Medicaid		Uninsured		Individually Purchased Coverage		Employer-Sponsored Coverage		Any Private Coverage	
		Effect	SE	Effect	SE	Effect	SE	Effect	SE	Effect	SE
All	3,137,989	0.060***	(0.009)	−0.048***	(0.012)	−0.007	(0.005)	−0.002	(0.006)	−0.010	(0.008)
<i>Age in Years</i>											
19–26	520,141	0.071***	(0.011)	−0.056***	(0.011)	−0.002	(0.003)	−0.007	(0.005)	−0.010*	(0.005)
27–35	505,119	0.068***	(0.009)	−0.054***	(0.012)	−0.004	(0.004)	−0.007	(0.007)	−0.010	(0.008)
36–45	600,944	0.061***	(0.009)	−0.048***	(0.012)	−0.010**	(0.005)	−0.000	(0.007)	−0.011	(0.009)
46–55	815,577	0.057***	(0.008)	−0.046***	(0.011)	−0.008	(0.007)	−0.003	(0.006)	−0.010	(0.010)
56–64	696,208	0.047***	(0.012)	−0.035***	(0.015)	−0.014*	(0.008)	0.003	(0.005)	−0.010	(0.009)
<i>Race/Ethnicity</i>											
Non-Hispanic whites	1,771,513	0.054***	(0.008)	−0.043***	(0.007)	−0.006	(0.004)	−0.004	(0.004)	−0.009*	(0.005)
Non-Hispanic blacks	435,019	0.066***	(0.011)	−0.045***	(0.011)	−0.005	(0.005)	−0.007	(0.005)	−0.014*	(0.007)
Non-Hispanic other	215,114	0.057***	(0.017)	−0.039***	(0.018)	−0.024	(0.015)	0.004	(0.011)	−0.019	(0.020)
Hispanics	716,343	0.069***	(0.013)	−0.050***	(0.015)	−0.010	(0.010)	−0.007	(0.005)	−0.017*	(0.009)
<i>Gender</i>											
Male	1,699,256	0.058***	(0.009)	−0.049***	(0.012)	−0.005	(0.005)	0.001	(0.006)	−0.004	(0.008)
Female	1,438,733	0.064***	(0.009)	−0.047***	(0.012)	−0.011*	(0.005)	−0.006	(0.006)	−0.017*	(0.009)
<i>Gender by Race/Ethnicity</i>											
White male	968,205	0.052***	(0.008)	−0.045***	(0.007)	−0.004	(0.004)	−0.000	(0.004)	−0.003	(0.005)
White female	803,308	0.057***	(0.009)	−0.039***	(0.008)	−0.008**	(0.004)	−0.009	(0.005)	−0.017***	(0.006)
Black male	240,619	0.065***	(0.012)	−0.051***	(0.014)	−0.001	(0.005)	−0.002	(0.007)	−0.005	(0.009)
Black female	194,400	0.066***	(0.011)	−0.038***	(0.011)	−0.010*	(0.006)	−0.013*	(0.007)	−0.025***	(0.008)
Other male	106,377	0.055***	(0.019)	−0.036*	(0.020)	−0.017	(0.016)	0.001	(0.012)	−0.017	(0.020)
Other female	108,737	0.060***	(0.016)	−0.041***	(0.018)	−0.031***	(0.015)	0.007	(0.011)	−0.022	(0.020)
Hispanic male	384,055	0.065***	(0.013)	−0.049***	(0.015)	−0.007	(0.009)	−0.005	(0.004)	−0.012	(0.009)
Hispanic female	332,288	0.075***	(0.013)	−0.051***	(0.015)	−0.014	(0.011)	−0.009	(0.007)	−0.024**	(0.010)

continued

Table 1. Continued

Groups	N	Covered in Medicaid		Uninsured		Individually Purchased Coverage		Employer-Sponsored Coverage		Any Private Coverage	
		Effect	SE	Effect	SE	Effect	SE	Effect	SE	Effect	SE
Age by Race/Ethnicity											
19–35 white	499,155	0.070***	(0.010)	–0.059***	(0.009)	–0.001	(0.003)	–0.006	(0.005)	–0.006	(0.005)
36–55 white	805,545	0.035***	(0.007)	–0.042***	(0.007)	–0.007*	(0.004)	–0.007	(0.005)	–0.013**	(0.006)
56–64 white	466,813	0.033***	(0.007)	–0.022***	(0.006)	–0.013**	(0.006)	0.003	(0.004)	–0.008	(0.005)
19–35 black	157,199	0.067***	(0.010)	–0.047***	(0.012)	0.002	(0.004)	–0.012*	(0.007)	–0.015*	(0.009)
36–55 black	188,421	0.068***	(0.013)	–0.047***	(0.013)	–0.009	(0.006)	–0.004	(0.007)	–0.013	(0.009)
56–64 black	89,399	0.061***	(0.014)	–0.031**	(0.012)	–0.013	(0.009)	–0.008	(0.008)	–0.020*	(0.011)
19–35 other	75,283	0.051**	(0.021)	–0.031	(0.021)	–0.019	(0.012)	–0.004	(0.015)	–0.021	(0.018)
36–55 other	95,695	0.056***	(0.014)	–0.043**	(0.021)	–0.029	(0.018)	0.014	(0.011)	–0.014	(0.022)
56–64 other	44,136	0.074***	(0.023)	–0.045**	(0.018)	–0.028	(0.021)	–0.000	(0.013)	–0.028	(0.026)
19–35 Hispanic	293,623	0.071***	(0.013)	–0.052***	(0.013)	–0.005	(0.007)	–0.010*	(0.006)	–0.015*	(0.007)
36–55 Hispanic	326,860	0.065***	(0.013)	–0.048***	(0.018)	–0.011	(0.011)	–0.004	(0.005)	–0.016	(0.011)
56–64 Hispanic	95,860	0.078***	(0.018)	–0.051**	(0.020)	–0.024	(0.015)	–0.001	(0.010)	–0.026	(0.016)
Age by Gender											
19–35 male	601,721	0.070***	(0.010)	–0.059***	(0.010)	–0.002	(0.004)	–0.002	(0.005)	–0.004	(0.006)
19–35 female	423,539	0.069***	(0.010)	–0.049***	(0.012)	–0.005	(0.004)	–0.014**	(0.006)	–0.020***	(0.007)
36–55 male	763,921	0.054***	(0.008)	–0.047***	(0.012)	–0.006	(0.006)	0.001	(0.007)	–0.005	(0.009)
36–55 female	652,600	0.065***	(0.009)	–0.048***	(0.011)	–0.013**	(0.006)	–0.004	(0.007)	–0.017*	(0.010)
55–64 male	333,614	0.039***	(0.014)	–0.028*	(0.015)	–0.010	(0.008)	0.003	(0.006)	–0.005	(0.010)
55–64 female	362,594	0.055***	(0.011)	–0.040***	(0.014)	–0.018**	(0.008)	0.003	(0.005)	–0.015	(0.009)

Notes: All estimates are weighted by ACS sampling weights. Standard errors in parentheses. *, **, and *** indicate $p < .1$, $p < .05$, and $p < .01$, respectively.

small and insignificant declines in individually purchased and employer-sponsored coverage with the expansions.

Stratifying by age showed that Medicaid take-up following the expansions significantly increased across all age groups but slightly declined with age. The expansion effect was largest among younger adults with take-up increasing by 7.1 percentage points among 19- to 26-year-olds and 6.8 percentage points among 27- to 35-year-olds. Among older adults, Medicaid take-up increased by 4.7–6.1 percentage points. The declines in uninsured rate by age echoed those of Medicaid take-up and ranged from 3.5 percentage points for 56- to 64-year-olds to 5.6 percentage points for 19- to 26-year-olds. Across all age groups, there was a slight decline of 1 percentage point in any private coverage (combining individually purchased and employer-sponsored coverage) that was generally insignificant (marginally significant among 19- to 26-year-olds). There was a similar decline in individually purchased coverage for 36- to 45- (significant) and 56- to 64-year-olds (marginally significant).

The expansions significantly increased Medicaid take-up and reduced the uninsured rate for all four groups defined by race/ethnicity but had the largest effect on Medicaid take-up among Hispanics (6.9 percentage points) followed by non-Hispanic blacks (6.6 percentage points), other non-Hispanic nonwhites (5.7 percentage points), and non-Hispanic whites (5.4 percentage points). Hispanics had also the largest decline in uninsured rate by 5 percentage points followed by non-Hispanic blacks (4.5 percentage points). There were marginally significant declines of 1–2 percentage points in private coverage among all groups of 1–2 except other non-Hispanic nonwhites (because this group had the smallest sample size).

Stratifying by gender revealed greater Medicaid take-up among women (6.4 percentage points) than men (5.8 percentage points). However, the decline in uninsured rate was slightly higher among men than women who had a larger and marginally significant decline in private coverage (any coverage or individually purchased coverage).

All subgroups stratified by both gender and race/ethnicity had significant increases in Medicaid take-up, ranging from 5.2 percentage points for non-Hispanic white men to 7.5 percentage points for Hispanic women. Take-up among Hispanic women exceeded that among Hispanic men by 1 percentage point, but differences by gender were smaller for the other racial/ethnic groups. The decline in uninsured rate was largest among Hispanic women and non-Hispanic black men at 5.1 percentage points, and lowest among other non-Hispanic nonwhite men (3.8 percentage points). Private coverage significantly declined, however, among non-Hispanic white, non-Hispanic black,

and Hispanic women by nearly 2 percentage points. Among non-Hispanic black women, there was also a marginally significant decline in employer-sponsored coverage. Other non-Hispanic nonwhite women had also a significant decline in individually purchased coverage by nearly 3 percentage points.

All subgroups defined by age and race/ethnicity also had significant increases in Medicaid take-up, ranging from 3.3 percentage points for non-Hispanic white 56- to 64-year-olds to 7.8 percentage points for Hispanic 56- to 64-year-olds. Differences in take-up by age were largest among non-Hispanic whites with twice as high take-up among 19- to 35- than 56- to 64-year-olds. In contrast to non-Hispanic whites and to non-Hispanic blacks and similar to Hispanics, take-up among other non-Hispanic nonwhites was highest among 56- to 64-year-olds. Changes in uninsured rates had an overall similar pattern, with non-Hispanic white 56- to 64-year-olds having the lowest decline in uninsured rate (2.2 percentage points) and 19- to 35-year-olds the highest decline (5.9 percentage points). Non-Hispanic nonwhite 19- to 35-year-olds had an insignificant decline in uninsured rate that was smaller than that of young adults of other race/ethnicity. Any private coverage declined for all groups, but the change was only significant for non-Hispanic white 36- to 55-year-olds and marginally significant for non-Hispanic black 19- to 35- and 56- to 64-year-olds, and Hispanic 19- to 35-year-olds. Individually purchased coverage also significantly declined among non-Hispanic white 56- to 64-year-olds. Furthermore, there was a marginally significant 1 percentage-point decline in employer-sponsored coverage among Hispanic and non-Hispanic black 19- to 35-year-olds.

Stratifying by both age and gender showed significant increases in Medicaid take-up for all subgroups ranging from 3.9 percentage points for 55- to 64-year-old men to 7 percentage points among 19- to 35-year-old men, and declines in uninsured rate between 2.8 and 5.9 percentage points also bounded by these two subgroups. Employer-sponsored coverage significantly declined among 19- to 35-year-old women, while individually purchased coverage declined among 36- to 55- and 56- to 64-year-old women. Changes in private coverage were much smaller among men for all age groups and none was significant.

Separate Effects for 2014 and 2015. Table 2 reports the Medicaid expansion effects on coverage by type separately for 2014 and 2015 in the total sample of low-educated adults and for each of the evaluated subgroups. Also presented

Table 2: Effects of the ACA Medicaid Expansions on Coverage by Type in the Main Sample Separately for 2014 and 2015 versus 2011–2013

Groups	N	Covered in Medicaid			Uninsured			Individually Purchased Coverage			Employer-Sponsored Coverage			Any Private Coverage		
		DD_14	DD_15	p	DD_14	DD_15	p	DD_14	DD_15	p	DD_14	DD_15	p	DD_14	DD_15	p
All	3,137,989	0.042***	0.079***	.000	−0.036***	−0.061***	.003	−0.004	−0.011	.034	−0.001	−0.003	.592	−0.005	−0.015	.032
<i>Age in Years</i>																
19–26	52,0141	0.048***	0.094***	.000	−0.040***	−0.073***	.000	0.000	−0.004	.167	−0.002	−0.013*	.083	−0.002	−0.018**	.010
27–35	505,119	0.047***	0.089***	.000	−0.041***	−0.066***	.002	−0.002	−0.005	.461	−0.003	−0.011	.179	−0.005	−0.016*	.057
36–45	600,944	0.041***	0.082***	.000	−0.034***	−0.063***	.000	−0.006	−0.014**	.056	0.000	−0.001	.869	−0.005	−0.016	.122
46–55	815,377	0.041***	0.073***	.000	−0.036***	−0.057***	.026	−0.004	−0.012	.105	−0.002	−0.003	.866	−0.006	−0.014	.152
56–64	696,208	0.035***	0.059***	.006	−0.026**	−0.043**	.073	−0.007	−0.020**	.016	−0.002	0.008	.060	−0.009	−0.012	.687
<i>Race/Ethnicity</i>																
Non-Hispanic whites	177,1513	0.040***	0.068***	.000	−0.033***	−0.053***	.000	−0.004	−0.009*	.099	−0.004	−0.004	.977	−0.006	−0.012*	.169
Non-Hispanic blacks	435,019	0.045***	0.086***	.000	−0.031***	−0.059***	.019	−0.003	−0.007	.443	−0.004	−0.010	.468	−0.009	−0.019*	.223
Non-Hispanic other	215,114	0.039***	0.076***	.012	−0.031*	−0.046**	.144	−0.013	−0.036**	.007	0.002	0.007	.656	−0.011	−0.027	.146
Hispanics	716,343	0.046***	0.092***	.000	−0.035***	−0.064***	.024	−0.006	−0.014	.191	−0.004	−0.010	.243	−0.010	−0.024**	.035
<i>Gender</i>																
Male	169,9256	0.039***	0.076***	.000	−0.035***	−0.063***	.000	−0.002	−0.008	.135	0.001	0.000	.767	−0.000	−0.007	.134
Female	1,438,733	0.045***	0.082***	.000	−0.037***	−0.058***	.020	−0.006	−0.015**	.004	−0.004	−0.007	.551	−0.010	−0.023**	.016
<i>Gender by Race/Ethnicity</i>																
White male	968,205	0.039***	0.065***	.000	−0.034***	−0.057***	.000	−0.002	−0.007	.149	−0.001	0.000	.819	−0.001	−0.005	.446
White female	803,308	0.042***	0.072***	.000	−0.031***	−0.048***	.002	−0.006*	−0.011**	.155	−0.008	−0.010	.660	−0.012**	−0.021***	.078
Black male	240,619	0.036***	0.095***	.000	−0.030**	−0.071***	.004	−0.001	−0.001	.978	0.004	−0.008	.255	0.000	−0.010	.326
Black female	194,400	0.055***	0.076***	.033	−0.033**	−0.044***	.346	−0.005	−0.015**	.043	−0.013*	−0.012	.888	−0.020**	−0.029***	.328
Other male	106,377	0.031**	0.078***	.010	−0.031	−0.042*	.322	−0.008	−0.026	.094	0.006	−0.004	.472	−0.003	−0.030	.085
Other female	108,737	0.046***	0.073***	.039	−0.031*	−0.054**	.134	−0.018	−0.045**	.001	−0.002	0.017	.088	−0.018	−0.025	.551
Hispanic male	384,055	0.045***	0.084***	.001	−0.033**	−0.064***	.036	−0.004	−0.010	.320	−0.005	−0.005	.994	−0.009	−0.015	.436
Hispanic female	332,288	0.049***	0.100***	.000	−0.038***	−0.064***	.022	−0.008	−0.019	.111	−0.003	−0.016*	.945	−0.012	−0.036***	.001
<i>Age by Race/Ethnicity</i>																
19–35 white	499,155	0.052***	0.088***	.000	−0.044***	−0.074***	.000	−0.000	−0.001	.801	−0.006	−0.006	.967	−0.005	−0.008	.694
36–55 white	805,545	0.041***	0.069***	.000	−0.031***	−0.052***	.000	−0.005	−0.009*	.212	−0.006	−0.008	.757	−0.009	−0.017**	.199

continued

Table 2. *Continued*

Groups	N	Covered in Medicaid			Uninsured			Individually Purchased Coverage			Employer-Sponsored Coverage			Any Private Coverage		
		DD_14	DD_15	p	DD_14	DD_15	p	DD_14	DD_15	p	DD_14	DD_15	p	DD_14	DD_15	p
56-64 white	466,813	0.024***	0.041***	.000	-0.018***	-0.025***	.286	-0.006	-0.019**	.018	0.002	0.004	.770	-0.002	-0.013*	.142
19-35 black	157,199	0.043***	0.090***	.000	-0.036***	-0.059***	.190	0.006	-0.002	.200	-0.004	-0.020*	.299	-0.004	-0.025*	.200
36-55 black	188,421	0.045***	0.091***	.002	-0.029**	-0.066***	.001	-0.008*	-0.009	.937	-0.003	-0.005	.850	-0.010	-0.016	.499
56-64 black	89,399	0.052***	0.069***	.196	-0.024**	-0.038**	.297	-0.012	-0.014	.842	-0.012	-0.005	.639	-0.024	-0.016	.568
19-35 other	75,283	0.039**	0.062**	.265	-0.029	-0.032	.874	-0.010	-0.028*	.109	-0.004	-0.004	.988	-0.012	-0.029	.305
36-55 other	95,695	0.034***	0.079***	.002	-0.031	-0.056**	.036	-0.018	-0.040*	.024	0.015	0.013	.897	-0.003	-0.025	.087
56-64 other	44,136	0.052***	0.096***	.024	-0.032*	-0.057***	.085	-0.012	-0.044*	.010	-0.015	0.014	.096	-0.028	-0.028	.991
19-35 Hispanic	293,623	0.045***	0.098***	.000	-0.035***	-0.070***	.012	-0.004	-0.007	.525	-0.001	-0.019**	.025	-0.005	-0.025***	.001
36-55 Hispanic	326,860	0.045***	0.085***	.000	-0.036***	-0.060**	.086	-0.005	-0.017	.112	-0.003	-0.006	.737	-0.010	-0.023	.176
56-64 Hispanic	95,860	0.058***	0.097***	.052	-0.033**	-0.068**	.054	-0.017*	-0.030	.331	-0.011	0.009	.083	-0.029**	-0.023	.681
<i>Age by Gender</i>																
19-35 male	601,721	0.047***	0.093***	.000	-0.041***	-0.078***	.000	-0.000	-0.003	.438	-0.001	-0.004	.486	-0.000	-0.007	.235
19-35 female	423,539	0.049***	0.090***	.000	-0.040***	-0.057***	.091	-0.002	-0.007	.123	-0.006	-0.022***	.017	-0.009	-0.030***	.001
36-55 male	763,921	0.037***	0.071***	.000	-0.034***	-0.060***	.005	-0.002	-0.009	.120	0.002	0.001	.789	-0.000	-0.009	.169
36-55 female	652,600	0.046***	0.084***	.000	-0.036***	-0.061***	.002	-0.008	-0.017**	.021	-0.004	-0.004	.970	-0.012	-0.022*	.141
55-64 male	333,614	0.028***	0.050***	.020	-0.021*	-0.035*	.096	-0.004	-0.015	.107	-0.000	0.006	.398	-0.004	-0.007	.750
55-64 female	362,594	0.042***	0.068***	.003	-0.030***	-0.050**	.078	-0.010	-0.026**	.004	-0.004	0.010	.039	-0.013*	-0.017	.688

Notes. All estimates are weighted by ACS sampling weights. Standard errors for the effects are not shown for brevity. *, **, and *** indicate $p < .1$, $p < .05$, and $p < .01$, respectively.

are tests of differences in effects between the 2 years. For the total sample and for every subgroup, the effects on Medicaid take-up and uninsured rates in 2015 were nearly double those in 2014 and the difference was statistically significant. Furthermore, the patterns across the demographic groups described above were generally consistent with effects in each year. On the other hand, the declines in private coverage were much more prominent in 2015 than 2014, particularly for individually purchased coverage. There was also evidence for greater decline in employer-sponsored coverage in 2015 for 19- to 26-year-olds, Hispanic women, 19- to 35-year-old Hispanics, and 19- to 35-year-old women.

Sensitivity Analyses. Table 3 reports the average effects of the Medicaid expansions in 2014 and 2015 excluding states that had prior partial or full expansions from the treatment and control groups (as defined in Table S1 in Appendix SA2). In this restricted sample, overall Medicaid take-up among low-educated 19- to 64-year-olds was similar to the full sample, but the decline in uninsured rate was smaller by over 1 percentage point, due to a significant and larger decline in private coverage compared to the full sample. There were a few other noteworthy differences between the restrictive and the full sample for the stratified subgroups. First, private coverage declined significantly for most subgroups, with declines by over 5 percentage points for other non-Hispanic nonwhites and 3.5 percentage points for Hispanics, leading to small and insignificant declines in uninsured rate for these two groups. Among Hispanics, there were significant declines in both individually purchased and employer-sponsored coverage. Because of the overall large declines in private coverage in the restricted sample, significant declines in uninsured rate were mostly observed only for non-Hispanic blacks and whites, including when stratifying by race/ethnicity and age (or gender). The uninsured rate still significantly declined for Hispanic 19- to 35-year-olds but by much less than their non-Hispanic white and non-Hispanic black counterparts. Differences in effects across demographic groups defined by age or gender (or both) were overall more consistent between the restricted and the full sample. When comparing the separate estimates for 2014 and 2015 between the full and restricted sample, the key differences and similarities were generally comparable to those of the average effects combining 2014 and 2015 (Table 4).

Because our study years follow the Great Recession and include the weak recovery period, we also examined whether changes in the unemployment rate during this period may have influenced the estimated effects of the

Table 3: Effects of the ACA Medicaid Expansions on Coverage by Type in the Restricted (Sensitivity Analysis) Sample in 2014–2015 versus 2011–2013

Groups	N	Covered in Medicaid		Uninsured		Individually Purchased Coverage		Employer-Sponsored Coverage		Any Private Coverage	
		Effect	SE	Effect	SE	Effect	SE	Effect	SE	Effect	SE
All	2,068,833	0.062***	(0.008)	−0.033***	(0.009)	−0.015***	(0.005)	−0.011*	(0.006)	−0.025***	(0.006)
<i>Age in Years</i>											
19–26	337,363	0.072***	(0.011)	−0.051***	(0.011)	−0.006	(0.004)	−0.008	(0.006)	−0.015***	(0.006)
27–35	331,144	0.067***	(0.011)	−0.039***	(0.011)	−0.010**	(0.005)	−0.016**	(0.008)	−0.024**	(0.009)
36–45	391,830	0.065***	(0.010)	−0.033***	(0.009)	−0.016***	(0.006)	−0.015***	(0.005)	−0.030***	(0.006)
46–55	538,412	0.061***	(0.008)	−0.033***	(0.008)	−0.017**	(0.007)	−0.011	(0.007)	−0.027***	(0.007)
56–64	470,084	0.047***	(0.006)	−0.016**	(0.008)	−0.026***	(0.007)	−0.002	(0.007)	−0.025***	(0.009)
<i>Race/Ethnicity</i>											
Non-Hispanic whites	1,245,803	0.050***	(0.010)	−0.041***	(0.009)	−0.011**	(0.004)	−0.006	(0.005)	−0.015***	(0.004)
Non-Hispanic blacks	351,423	0.070***	(0.014)	−0.044***	(0.015)	−0.009	(0.006)	−0.010	(0.006)	−0.021**	(0.008)
Non-Hispanic other	96,920	0.073***	(0.012)	−0.022	(0.017)	−0.048***	(0.012)	−0.015	(0.011)	−0.059***	(0.016)
Hispanics	374,687	0.056***	(0.009)	−0.018	(0.011)	−0.023**	(0.011)	−0.015**	(0.006)	−0.035***	(0.008)
<i>Gender</i>											
Male	1,117,553	0.057***	(0.007)	−0.035***	(0.009)	−0.012**	(0.006)	−0.007	(0.006)	−0.017**	(0.007)
Female	951,180	0.067***	(0.010)	−0.031***	(0.009)	−0.018***	(0.005)	−0.016**	(0.006)	−0.034***	(0.006)
<i>Gender by Race/Ethnicity</i>											
White male	673,467	0.056***	(0.009)	−0.044***	(0.008)	−0.009*	(0.005)	−0.002	(0.005)	−0.008	(0.005)
White female	572,336	0.064***	(0.012)	−0.038***	(0.012)	−0.012***	(0.004)	−0.010*	(0.006)	−0.023***	(0.005)
Black male	193,777	0.067***	(0.017)	−0.050**	(0.020)	−0.004	(0.006)	−0.001	(0.009)	−0.007	(0.011)
Black female	157,646	0.072***	(0.014)	−0.036**	(0.015)	−0.016**	(0.007)	−0.021***	(0.007)	−0.036***	(0.008)
Other male	47,863	0.068***	(0.010)	−0.015	(0.021)	−0.042***	(0.012)	−0.017	(0.014)	−0.056**	(0.021)
Other female	49,057	0.077***	(0.016)	−0.028*	(0.015)	−0.054***	(0.012)	−0.013	(0.013)	−0.062***	(0.017)
Hispanic male	202,546	0.051***	(0.008)	−0.019	(0.012)	−0.019*	(0.010)	−0.012	(0.007)	−0.029***	(0.010)

continued

Table 3. Continued

Groups	N	Covered in Medicaid		Uninsured		Individually Purchased Coverage		Employer-Sponsored Coverage		Any Private Coverage	
		Effect	SE	Effect	SE	Effect	SE	Effect	SE	Effect	SE
Hispanic female	172,141	0.061***	(0.009)	-0.017	(0.011)	-0.027**	(0.013)	-0.018**	(0.007)	-0.044***	(0.007)
Age by Race/Ethnicity											
19-35 white	351,912	0.074***	(0.015)	-0.061***	(0.013)	-0.005	(0.004)	-0.003	(0.006)	-0.007	(0.006)
36-55 white	567,027	0.062***	(0.009)	-0.040***	(0.009)	-0.011**	(0.005)	-0.011**	(0.006)	-0.021***	(0.005)
56-64 white	326,864	0.036***	(0.007)	-0.018***	(0.006)	-0.020***	(0.006)	0.004	(0.006)	-0.013**	(0.006)
19-35 black	125,348	0.071***	(0.013)	-0.045***	(0.016)	0.001	(0.004)	-0.018**	(0.007)	-0.022**	(0.009)
36-55 black	151,804	0.071***	(0.018)	-0.049***	(0.017)	-0.013	(0.008)	-0.003	(0.009)	-0.017	(0.011)
56-64 black	74,271	0.064***	(0.013)	-0.025*	(0.014)	-0.025**	(0.010)	-0.010	(0.010)	-0.031**	(0.013)
19-35 other	35,963	0.065***	(0.021)	-0.023	(0.027)	-0.030**	(0.012)	-0.022	(0.015)	-0.048***	(0.017)
36-55 other	42,336	0.067***	(0.013)	-0.014	(0.014)	-0.061***	(0.012)	-0.011	(0.015)	-0.066***	(0.017)
56-64 other	18,621	0.108***	(0.017)	-0.035	(0.022)	-0.064**	(0.024)	-0.013	(0.021)	-0.074**	(0.032)
19-35 Hispanic	155,284	0.059***	(0.009)	-0.028**	(0.012)	-0.015*	(0.008)	-0.014*	(0.007)	-0.028***	(0.007)
36-55 Hispanic	169,075	0.051***	(0.014)	-0.011	(0.016)	-0.023*	(0.013)	-0.016***	(0.005)	-0.039***	(0.010)
56-64 Hispanic	50,328	0.064***	(0.011)	-0.008	(0.022)	-0.048***	(0.016)	-0.010	(0.014)	-0.052***	(0.013)
Age by Gender											
19-35 male	391,973	0.070***	(0.008)	-0.052***	(0.010)	-0.007	(0.005)	-0.005	(0.006)	-0.010	(0.007)
19-35 female	276,534	0.067***	(0.014)	-0.035**	(0.014)	-0.010**	(0.004)	-0.021***	(0.007)	-0.032***	(0.007)
36-55 male	501,837	0.056***	(0.007)	-0.032***	(0.009)	-0.013*	(0.006)	-0.010*	(0.006)	-0.022***	(0.007)
36-55 female	428,405	0.071***	(0.010)	-0.034***	(0.009)	-0.021***	(0.006)	-0.016**	(0.007)	-0.037***	(0.005)
55-64 male	223,843	0.035***	(0.007)	-0.009	(0.009)	-0.023***	(0.008)	-0.002	(0.008)	-0.020*	(0.011)
55-64 female	246,241	0.057***	(0.007)	-0.023***	(0.008)	-0.029***	(0.007)	-0.002	(0.006)	-0.030***	(0.008)

Notes. All estimates are weighted by ACS sampling weights. Standard errors in parentheses. *, **, and *** indicate $p < .1$, $p < .05$, and $p < .01$, respectively.

Table 4: Effects of the ACA Medicaid Expansions on Coverage by Type in the Restricted (Sensitivity Analysis) Sample Separately for 2014 and 2015 versus 2011–2013

Groups	N	Covered in Medicaid			Uninsured			Individually Purchased Coverage			Employer-Sponsored Coverage			Any Private Coverage		
		DD_14	DD_15	p	DD_14	DD_15	p	DD_14	DD_15	p	DD_14	DD_15	p	DD_14	DD_15	p
All	2,068,833	0.04***	0.077***	.000	−0.025***	−0.042***	.002	−0.010**	−0.019***	.019	−0.009*	−0.014*	.0254	−0.018***	−0.032***	.008
<i>Age in Years</i>																
19–26	337,363	0.051***	0.092***	.001	−0.037***	−0.065***	.009	−0.001	−0.011**	.018	−0.004	−0.012	.0420	−0.007	−0.023***	.067
27–35	331,144	0.050***	0.084***	.000	−0.030***	−0.048***	.007	−0.010**	−0.009	.816	−0.011	−0.021**	.0124	−0.020**	−0.029**	.252
36–45	391,830	0.047***	0.082***	.000	−0.022**	−0.043***	.007	−0.013**	−0.019**	.203	−0.011*	−0.019***	.0218	−0.023***	−0.037***	.045
46–55	538,412	0.047***	0.074***	.000	−0.027***	−0.038***	.063	−0.012**	−0.023**	.056	−0.010	−0.013	.0617	−0.021***	−0.034***	.051
56–64	470,084	0.033***	0.058***	.000	−0.010*	−0.022*	.153	−0.016***	−0.036***	.001	−0.005	.0001	.0342	−0.019**	−0.030**	.141
<i>Race/Ethnicity</i>																
Non-Hispanic whites	1,245,803	0.047***	0.072***	.000	−0.031***	−0.051***	.001	−0.007*	−0.014**	.047	−0.006	−0.005	.0694	−0.012**	−0.018***	.285
Non-Hispanic blacks	351,423	0.048***	0.092***	.001	−0.031***	−0.057**	.087	−0.005	−0.014	.253	−0.008	−0.012	.0609	−0.015*	−0.026**	.206
Non-Hispanic other	96,920	0.048***	0.096***	.001	−0.020	−0.024	.803	−0.036***	−0.060***	.008	−0.007	−0.022	.0392	−0.040**	−0.077***	.031
Hispanics	374,687	0.041***	0.070***	.001	−0.013	−0.023	.321	−0.017**	−0.028*	.213	−0.010	−0.019**	.0216	−0.026***	−0.045***	.018
<i>Gender</i>																
Male	1,117,653	0.041***	0.073***	.000	−0.023***	−0.046***	.000	−0.009**	−0.015**	.139	−0.007	−0.008	.0781	−0.014**	−0.021**	.182
Female	951,180	0.052***	0.082***	.000	−0.027***	−0.036***	.069	−0.013***	−0.024***	.001	−0.012**	−0.020**	.0668	−0.024***	−0.044***	.000
<i>Gender by Race/Ethnicity</i>																
White male	673,467	0.043***	0.069***	.000	−0.031***	−0.056***	.001	−0.006	−0.013*	.116	−0.004	.0000	.0332	−0.007	−0.009	.750
White female	572,336	0.050***	0.077***	.000	−0.031***	−0.046***	.008	−0.009**	−0.016***	.064	−0.009	−0.012*	.0609	−0.018***	−0.028***	.083
Black male	193,777	0.035***	0.069***	.000	−0.027*	−0.073**	.014	−0.002	−0.005	.820	0.002	−0.004	.0579	−0.003	−0.011	.550
Black female	157,646	0.063***	0.083***	.087	−0.035***	−0.038*	.833	−0.009*	−0.024***	.008	−0.019**	−0.029**	.0780	−0.029***	−0.044***	.120
Other male	47,863	0.036**	0.098***	.002	−0.010	−0.020	.603	−0.036***	−0.047***	.433	.0002	−0.035	.0133	−0.035	−0.076***	.093
Other female	49,057	0.059***	0.095***	.016	−0.028	−0.028*	.981	−0.035**	−0.072***	.001	−0.015	−0.010	.0788	−0.046**	−0.078***	.095
Hispanic male	202,546	0.041***	0.061***	.005	−0.014	−0.024	.299	−0.015**	−0.023*	.291	−0.013	−0.011	.0823	−0.025**	−0.032**	.459
Hispanic female	172,141	0.041***	0.081***	.003	−0.012	−0.021	.517	−0.020**	−0.033*	.182	−0.006	−0.030***	.0010	−0.026***	−0.061***	.000
<i>Age by Race/Ethnicity</i>																
19–35 white	351,912	0.058***	0.090***	.000	−0.045***	−0.077***	.001	−0.004	−0.005	.801	−0.005	−0.002	.0598	−0.007	−0.007	.945
36–55 white	567,027	0.051***	0.074***	.000	−0.031***	−0.050***	.000	−0.008	−0.014**	.126	−0.012*	−0.011*	.0866	−0.024***	−0.018***	.392
56–64 white	326,864	0.047***	0.064***	.000	−0.013*	−0.023***	.194	−0.011**	−0.028***	.010	.0004	.0005	.0926	−0.005	−0.020**	.103
19–35 black	125,348	0.048***	0.095***	.001	−0.032***	−0.058***	.287	.006	−0.005	.264	−0.012	−0.024*	.0547	−0.013	−0.031*	.399

continued

Table 4. Continued

Groups	N	Covered in Medicaid			Uninsured			Individually Purchased Coverage			Employer-Sponsored Coverage			Any Private Coverage		
		DD_14	DD_15	p	DD_14	DD_15	p	DD_14	DD_15	p	DD_14	DD_15	p	DD_14	DD_15	p
36-55 black	151,804	0.047***	0.096***	.008	-.032**	-.067***	.006	-.011*	-.015	.641	-.002	-.004	0.853	-.012	-.022*	.326
56-64 black	74,271	0.051***	0.075***	.120	-.020*	-.030	.555	-.018*	-.032**	.154	-.013	-.008	0.778	-.031*	-.031**	.993
19-35 other	35,963	0.051**	0.079***	.250	-.028	-.018	.672	-.018	-.040**	.125	-.006	-.036**	0.244	-.024	-.071***	.074
36-55 other	42,336	0.032*	0.101***	.000	-.003	-.024	.346	-.0354***	-.068***	.268	-.000	-.020	0.320	-.048**	-.083***	.061
56-64 other	18,621	0.086***	0.130***	.080	-.031	-.039	.724	-.041	-.088***	.015	-.024	-.000	0.490	-.067**	-.081*	.654
19-35 Hispanic	155,284	0.040***	0.078***	.005	-.021	-.036**	.145	-.013**	-.017	.530	-.006	-.023**	0.151	-.018*	-.039***	.056
36-55 Hispanic	169,075	0.039***	0.063***	.000	-.010	-.012	.916	-.017*	-.029	.239	-.010*	-.022***	0.158	-.027***	-.049***	.052
56-64 Hispanic	50,328	0.052***	0.076***	.173	0.004	-.020	.153	-.036***	-.0353***	.079	-.019	-.002	0.491	-.049***	-.055***	.769
Age by Gender																
19-35 male	391,973	0.048***	0.092***	.000	-.034***	-.070***	.000	-.005	-.008	.519	-.004	-.006	0.779	-.008	-.013	.581
19-35 female	276,534	0.053***	0.082***	.010	-.033	-.038**	.525	-.007*	-.012**	.259	-.012	-.030***	0.030	-.020**	-.044***	.005
36-55 male	501,837	0.041***	0.071***	.000	-.022***	-.042***	.003	-.009*	-.016*	.155	-.009	-.011*	0.754	-.017**	-.026***	.194
36-55 female	428,405	0.056***	0.087***	.000	-.028***	-.040***	.021	-.016***	-.026***	.020	-.012*	-.021**	0.187	-.027***	-.047***	.009
55-64 male	223,843	0.027***	0.044***	.010	-.005	-.013	.277	-.016**	-.030***	.040	-.003	-.000	0.689	-.015	-.024*	.342
55-64 female	246,241	0.044***	0.071***	.000	-.015**	-.030**	.138	-.016**	-.041***	.000	-.006	0.002	0.250	-.023***	-.037***	.106

Notes. All estimates are weighted by ACS sampling weights. Standard errors for the effects are not shown for brevity. *, **, and *** indicate $p < .1$, $p < .05$, and $p < .01$, respectively.

Medicaid expansions for the total sample and each of the subgroups. We did this by re-estimating the models controlling for the state unemployment rates in each year. We found no meaningful changes in the results (Tables S4 and S5 in Appendix SA2).

DISCUSSION

We provide a timely and detailed assessment of the effects of the ACA Medicaid expansions on Medicaid and private coverage through 2015 among low-educated adults and across various demographic subgroups who differed in their pre-ACA uninsured rates to evaluate if they responded differently to the expansion. Examining this potential heterogeneity is important for evaluating the returns of this policy and understanding changes in coverage disparities following the expansions.

Using our main sample that included all nonexpanding states and states that expanded before or on January 1, 2014, we found that the ACA Medicaid expansions significantly increased Medicaid coverage and reduced uninsured rates across virtually all the examined demographic groups defined by age, race/ethnicity, and gender or combinations of these variables. Therefore, coverage gains appear to be spreading across the entire targeted population. Furthermore, the expansion effects intensified in 2015 and were nearly double those in 2014 for the total sample and many of the subgroups. This indicates that not only were the 2014 coverage gains maintained in 2015 but that new individuals gained coverage at nearly the same rate as in 2014.

In terms of changes in demographic disparities based on the main sample, there is evidence that the expansions have somewhat reduced coverage disparities by age given the larger increase in take-up and decline in uninsured rates among young adults. For instance, the Medicaid expansions have reduced the coverage gap between 19- to 26- and 56- to 64-year-olds by 3 percentage points in 2015, or by nearly 15 percent relative to the ~19 percentage-point gap in coverage in 2011–2013 between these two groups. However, important coverage gaps continue to exist in coverage by age with over 20 percent of 19- to 45 year-olds (including a quarter of 27- to 35-year-olds) being without coverage in 2015, compared to ~10 percent of 56- to 64-year-olds. Therefore, while efforts should continue to expand Medicaid enrollment across the eligible population, there appears to be a need for policies and interventions that specifically target eligible young adults.

Similarly, even though the expansions have reduced uninsured rates across racial/ethnic groups, there is only a slight change in coverage disparities by race/ethnicity. For instance, the uninsured gap between Hispanics and non-Hispanic whites has only declined by 1 percentage point in 2015 or by 4 percent of the nearly 25 percentage-point gap in 2011–2013 due to the Medicaid expansion, and the uninsured rate continued to be nearly three times higher among non-Hispanic whites. However, the main sample estimates indicate that demographic subgroups with some of the highest uninsured rates prior to the expansions such as minority young adults, minority men, young men, and Hispanic women have generally achieved meaningful declines in uninsured rates. On the other hand, Medicaid take-up and uninsured decline rates were lower among other non-Hispanic nonwhites compared to other minorities especially among young adults and men who had high uninsured rates before the expansion, suggesting a slight increase in disparity compared to non-Hispanic whites. These findings indicate that additional efforts are needed to increase take-up among eligible adults particularly among Hispanics and other minorities for the expansions to become more impactful in reducing racial/ethnic disparities in coverage. In terms of gender disparities, men continue to have a higher uninsured rate than women by a relatively similar margin after the expansion as before.

There is some evidence for crowding out private coverage in certain subgroups, particularly among young adults aged 19–26 years and women. Among women, crowd-out effects were strongest among 19- to 35-year-olds, Hispanics, and non-Hispanic blacks. A few other groups such as middle-age whites and young Hispanics have also significant decline in private coverage. Crowd-out effects were generally stronger in 2015 and were more prominent for individually purchased coverage. However, there is some evidence for crowd-out in employer-sponsored coverage for several groups including 19- to 26-year-olds, Hispanic and non-Hispanic black women, 19- to 35-year-old Hispanics and non-Hispanic blacks, and 19- to 35-year-old women. Even though effects on private coverage crowd-out were smaller than the gains in Medicaid coverage (and in some cases only marginally significant), they are meaningful in magnitude to warrant monitoring going forward. Despite the small crowd-out effects among young adults aged 19–26 years, the net decline in uninsured rate in this group suggests that the Medicaid expansions are not meaningful offsetting but are rather complementing the ACA-dependent coverage mandate in increasing coverage in this group.

Most of our results are robust to excluding the 14 states that had partial or full expansions prior to 2014 from the analysis, with the exception

for larger declines in private coverage that are significant across most groups, particularly for Hispanics and other non-Hispanic nonwhites leading to small and insignificant declines in uninsured rates for these subgroups. It is important, however, to recognize that excluding these states reduces the main sample by nearly one-third but even more for Hispanics and other non-Hispanic nonwhites whose subgroup samples decline by nearly 47 and 55 percent, respectively, compared to 19 percent for non-Hispanic blacks and 29 percent for non-Hispanic whites. Therefore, the restricted sample after these state exclusions may not be well representative not only of the broader effects of the expansions on private coverage across the larger U.S. population but especially for effects on coverage among these two minority groups with the smallest sample sizes and likely greater sample selection bias after these state exclusions. The potential selection bias in the restricted sample is even of greater concern when stratifying these two minority groups further by age or gender. Therefore, the results of these sensitivity analyses are best interpreted within that perspective and not as refuting the main findings of significant increases in take-up and declines in coverage across all racial groups.

Our findings offer several insights for future research. Further understanding of barriers to Medicaid enrollment among eligible poor adults especially young and minority individuals and effective approaches to increase Medicaid take-up is important for reducing insurance disparities. In addition, studies of the impact of the Medicaid expansions on access to health care use and health outcomes should consider the possibility of heterogeneous effects across demographic subgroups in order to understand changes in access and health disparities. Finally, monitoring the potential crowd-out of employer-sponsored coverage in certain groups and investigating mechanisms is important for identifying any offsetting effects and the need for corrective interventions.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the supporting information tab for this article:

Appendix SA1: Author Matrix.

Appendix SA2:

Table S1. Grouping of Treatment and Control States.

Table S2. Coverage Summary Statistics in Non-Expanding States.

Table S3. Coverage Summary Statistics in Expanding States.

Table S4. Effects of the ACA Medicaid Expansions on Coverage by Type in the Main Sample in 2014–2015 versus 2011–2013 Controlling for the Unemployment Rate.

Table S5. Effects of the ACA Medicaid Expansions on Coverage by Type in the Main Sample Separately for 2014 and 2015 versus 2011–2013 Controlling for the Unemployment Rate.