

RESEARCH ARTICLE

COVID-19-related Medicaid enrollment in Medicaid expansion and non-expansion states

Joseph A. Benitez PhD¹  | Lisa Dubay PhD² 

¹Department of Health Management & Policy, College of Public Health, University of Kentucky, Lexington, Kentucky, USA

²Health Policy Center, Urban Institute, Washington, District of Columbia, USA

Correspondence

Joseph A. Benitez, Department of Health Management & Policy, College of Public Health, University of Kentucky, 111 Washington Avenue, Lexington, KY 40536, USA.

Email: joseph.benitez@uky.edu

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Abstract

Research Objective: To explore whether expanded Medicaid helps mitigate the relationship between unemployment due to COVID and being uninsured. Unanticipated unemployment spells are generally associated with disruptions in health insurance coverage, which could also be the case for job losses during the COVID-19 pandemic. Expanded access to Medicaid may insulate some households from long uninsurance gaps due to job loss.

Data Source: Phase 1 of the Census Bureau's Experimental Household Pulse Survey covering April 23, 2020–July 21, 2020.

Study Design: We compare differences in health insurance coverage source and status linked to recent job losses attributable to the COVID-19 pandemic in states that expanded Medicaid against states that did not expand Medicaid.

Data Collection/Extraction Methods: Our analytical dataset was limited to 733,181 non-elderly adults aged 20–64.

Principal Findings: Twenty-six percent of our study sample experienced an income loss between March 13, 2020, and the time leading up to the survey—16% experienced job losses (e.g., layoff, furlough) due to the COVID-19 crisis, and 11% had other reasons they were not working. COVID-linked job losses were associated with a 20 ($p < 0.01$) percentage-point (PPT) lower likelihood of having employer-sponsored health insurance (ESI). Relative to persons in states that did not expand Medicaid, persons in Medicaid expansion states experiencing COVID-linked job losses were 9 PPT ($p < 0.01$) more likely to report having Medicaid and 7 PPT ($p < 0.01$) less likely to be uninsured. The largest increases in Medicaid enrollment were among people who, based on their 2019 incomes, would not have qualified for Medicaid previously.

Conclusions: Our findings suggest that expanded Medicaid eligibility may allow households to stabilize health care needs and they should become detached from private health coverage due to job loss during the pandemic. Households negatively affected by the pandemic are using Medicaid to insure themselves against the potential health risks they would incur while being unemployed.

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KEYWORDS

affordable care act, COVID-19, health reform, Medicaid, state health policy, unemployment

What is known on this topic

- The COVID-19 crisis—the pandemic and the accompanying recession—was the first major macroeconomic test of the Affordable Care Act (ACA).
- The COVID-19 crisis was linked to sharp increases in joblessness and separation from private health insurance coverage.
- Few studies describe the linkage between job losses associated with the COVID-19 crisis and the extent that Medicaid could function as a viable substitute to offset the risks of uninsurance.

What this study adds

- Our findings highlight how the ACA's Medicaid expansions perform in a major economic downturn.
- We found that for households affected by job losses due to the COVID-19 crisis, transitioning from private coverage to Medicaid as a safety net was made easier via the Medicaid expansion.
- Our findings suggest that expanding access to Medicaid may facilitate stabilizing access to needed health care during bouts of economic instability.

1 | INTRODUCTION

The recession caused by the COVID-19 pandemic was one of the most severe disruptions to normal economic activity in recent United States (US) history. In February 2020, the national unemployment rate was 3.5% before reaching 14.8% in April 2020—at least 19 million workers were suddenly unemployed.¹ The economic disruption caused many households to experience financial hardship, and many families were suddenly vulnerable to losing health insurance because of COVID-related job losses.

Medicaid enrollment and uninsurance were each expected to increase at the beginning of the pandemic as people lost jobs and became detached from employer-sponsored health insurance (ESI). Early projections suggested 7.3 million people would lose ESI benefits (both primary policy holders and dependents); 4.3 million adults and children would enroll in Medicaid and CHIP.^{2,3} In fact, the number of non-elderly people enrolled in Medicaid increased by 14.6 million between February of 2020 and November of 2021.^{4,5}

In this study, we explore this issue by examining whether COVID-related and non-COVID-related unemployment are associated with lower rates of being uninsured and higher rates of Medicaid enrollment in states that expanded Medicaid by the beginning of the pandemic relative to those that did not expand. Much of the increase in Medicaid enrollment in the early part of the pandemic may be attributable to people whose eligibility for Medicaid was due to income or job losses that occurred because of the pandemic, and subsequent losses of employer-sponsored-coverage. Under the ACA, states have the option to extend Medicaid's eligibility to those with incomes up to 138% of the federal poverty line (FPL) or not, unlike eligibility for Marketplace coverage which is not at the discretion of states. Expanding

eligibility increases access to Medicaid for those living in chronic poverty as well as for those whose poverty is incidental due to unexpected joblessness. Moreover, people who lost income or jobs due to the pandemic and lived in states that expanded Medicaid may be more likely to enroll in Medicaid and less likely to be uninsured than similar people living in states that did not expand Medicaid.

2 | METHODS**2.1 | Data**

The Household Pulse Survey (HPS)—a rapid-response survey created to measure the social and economic impacts of the coronavirus (COVID-19) pandemic on US households—was sponsored by the US Census Bureau in collaboration with five other federal agencies from the Federal Statistical System.⁶ The HPS sampling frame (686 million unique e-mail/address pairings across 140.1 million housing units) was derived from the Census Bureau's Master Address File. Phase 1 data collection spanned 12 waves occurring from April 23, 2020 through July 21, 2020. Phase 1 of the HPS had initial sample sizes of 1.2 million potential weekly respondents, but the weighted survey response rates were just under 3% on average.⁷ Nonresponse bias associated with such low response rates are expected; however, using the HPS' sampling weights—constructed for non-response bias—is expected to mitigate this source of bias.⁸

Once a household completes an initial interview, it remains in the sample for two additional weekly interview periods. Although data collection for the HPS is ongoing, we narrow our focus to the Phase 1 version. Phase 2 (August 19, 2020–October 26, 2020) and Phase

3 (October 28, 2020–March 29, 2021) capture different points in the pandemic's life cycle and differing levels of exposure to the downturn in the first year. By restricting our analysis to Phase 1, our results will more closely align to how expanded access to Medicaid was beneficial prior to states or the federal government implementing new provisions to stabilize access to health coverage during the pandemic (see Appendix Figure A1). Our analytical dataset contains 733,181 non-elderly adults aged 20–64. Age was not provided in the original survey data, so we impute each respondent's age by subtracting their year of birth from 2020.

All statistics were estimated using *Stata* version 15.1, and all results are weighted to account for the HPS's sampling strategy. All regressions were estimated using linear models so the coefficients are interpretable as policy parameters. Last, we use heteroscedasticity standard errors to account for clustering within the state.

2.2 | Conceptual framework

Our conceptual framework is derived from two bodies of literature—one on job loss and health insurance and another on expansions in eligibility for free or low-cost health insurance coverage. Becoming unemployed is generally associated with reductions in health insurance coverage.^{9,10} As people experience job losses, some are expected to transition from having employer-sponsored or private-non-group coverage to being uninsured, while others transition to Medicaid or Marketplace coverage. Still others may opt to purchase coverage through COBRA.¹¹ States implementing policies to provide free or low-cost health insurance coverage to residents offer a broader safety net and greater access to insurance to residents than states not providing such coverage.^{12,13} Our framework predicts people experiencing job losses in the states with broader access to free or low-cost health insurance (i.e., Medicaid) will be (1) more likely to enroll in that coverage and (2) less likely to be uninsured than people in states with less access to such coverage.

The rapid increase in unemployment that occurred at the beginning of the pandemic provides a natural experiment to examine the extent to which the ACA's Medicaid expansion provides a safety net for those losing employment during major economic shocks such as the Great Recession or the Coronavirus pandemic as well as more traditional business cycles. Under these circumstances, people with and without employer-sponsored coverage may become eligible for Medicaid as their incomes fall. Medicaid eligibility currently varies by state. At the beginning of the pandemic, states that expanded Medicaid offered coverage for parents and childless adults at 138% of the federal poverty level (FPL). States that did not expand Medicaid had average eligibility thresholds of 44% of the FPL for parents, and few offer Medicaid eligibility to non-disabled childless adults.¹⁴

Therefore, we expect to see greater levels of Medicaid coverage and lower levels of uninsurance among people who may have become eligible for Medicaid due to job loss of their own or a spouse (i.e., in the case of a dependent) in the early portion of the pandemic in states that expanded Medicaid compared to similar people in non-expansion states.

Lastly, Medicaid eligibility determinations are based on person's household income in the month they apply for coverage, rather than being based on their annual income—as is the case with Marketplace eligibility. As a result, people who become unemployed can become eligible for Medicaid if their current circumstances meet the eligibility criteria.

2.3 | Statistical approach

We examine differences in health insurance coverage between individuals with COVID-related job loss and those in the labor force in states that expanded Medicaid compared to differences among such differences in individuals in states that did not expand Medicaid. Here we can compare the strength of the association between COVID-linked job loss and coverage source (e.g., ESI, Medicaid) and status (i.e., whether uninsured or not). We estimated the following equation:

$$Y_{ist} = \beta_0 + \beta_1 \text{OtherNotWorking}_{ist} + \beta_2 \text{COVIDJobLoss}_{ist} + \beta_3 (\text{OtherNotWorking}_{ist} \times \text{Expansion}_s) + \beta_4 (\text{COVIDJobLoss}_{ist} \times \text{Expansion}_s) + \gamma X_{ist} + \mu_s + \tau_{st} + \varepsilon_{ist} \quad (1)$$

Where: our key outcomes (Y_{ist}) are source and status of health insurance coverage at the time of the interview. We categorize coverage into employer-sponsored and private non-group (including coverage obtained through the Marketplace), and people without insurance are categorized as uninsured.

$\text{COVIDJobLoss}_{ist}$ is a dummy variable indicating whether the person experienced a recent job loss attributable to the pandemic (i.e., not working for profit): (a) *my employer experienced a reduction in business (including furlough) due to the coronavirus pandemic*, (b) *I am/was laid off due to the coronavirus pandemic*, (c) *my employment closed temporarily due to the coronavirus pandemic*, or (d) *my employment went out of business due to the coronavirus pandemic*.

$\text{OtherNotWorking}_{ist}$ is a dummy variable indicating the person is not working for reasons other than what we defined as COVID-specific job losses: (a) *not wishing to be employed at this time for any reason*, (b) *illness with Coronavirus symptoms*, (c) *at home caring for someone with Coronavirus symptoms*, (d) *caring for children not in school or daycare*, (e) *caring for an elderly person*, (f) *disabled or sick from non-Coronavirus illness*, or (g) *retired*.

Expansion_s indicates if the state had expanded Medicaid eligibility as of January 2020—just prior to the pandemic's onset.

Controls included in X_{ist} are age dummies (age 20–26 [reference group], 31–35, 36–40, 41–45, 51–55, 56–60, 61–64), annual income (<\$25,000; \$25,000–50,000; \$50,000–75,000; \$75,000–100,000, >\$100,000), race/ethnicity (non-Hispanic White [reference group], non-Hispanic Black, other non-Hispanic group, Hispanic of any race), marital status, number of children in the household (0 [reference group], 1, 2, 3 or more), and education (did not complete high school, high school or GED, some college/technical school, 4-year college degree or higher [reference group]).

β_1 reflects differences in levels of the outcomes between persons who are not in the labor force for reasons not due to a COVID-related

job loss $\text{OtherNotWorking}_{\text{st}} = 1$ and persons who are currently employed in states that have not expanded Medicaid. β_2 captures the differences in levels of the outcomes between persons experiencing a COVID-linked job loss and persons who are currently employed in non-expansion states.

β_3 and β_4 are our key policy parameters. β_4 represents the relative difference in outcomes for people experiencing COVID-related job loss compared to those who are employed for people residing and not residing in a Medicaid expansion state. β_3 reflects the same associations for those who are not working for other reasons.

A coefficient on the main effect for residing in a Medicaid expansion state (i.e., Expansion_s) would provide the average difference in outcome levels in expansion states relative to non-expansion states but between households not experiencing job loss. However, our regressions omit this term, as the Expansion_s term is correlated with the state fixed effects (μ_s). The state effects account for time-invariant factors at the state level that could contribute to differences in coverage levels between states. τ_{st} is a state-specific period (i.e., week) fixed effect used to account for the timing of the survey. In addition to controlling for the timing of any state-level responses to curb infections from COVID-19 that vary across states and over time within states,¹⁵ this term controls for other observable and unobservable policy actions that could have been implemented across states over time.¹⁶ States either relaxing COVID protocols or enacting new ones could affect the levels of unemployment stemming from the pandemic as well as the demand for Medicaid coverage.

2.4 | Stratification by pre-pandemic poverty status

To improve the specificity of our findings, we stratify our regressions by the household's poverty level. The stratified analyses allow us to assess heterogeneity in how Medicaid expansion may moderate the link between job loss and the outcome across different groups based on households' pre-pandemic incomes in addition to risk for job loss during the COVID-19 pandemic. Importantly, the HPS asks respondents about their incomes in the previous year and not their incomes at the time of the survey. Individuals with incomes above Medicaid eligibility levels in 2019 may become eligible when the pandemic hits in 2020 if their incomes drop. We conduct the analysis by income group in 2019 to determine the extent to which the Medicaid program protects people along the income spectrum. We expect those with higher incomes will be less likely to become unemployed during the pandemic due to their abilities to work at home and will be less likely to become Medicaid eligible.

With respect to poverty status, our key stratification groups are <138% FPL, 138%–400% FPL, and >400% FPL. HPS participants report on their 2019 pre-tax incomes as one of eight categories: <\$25,000; \$25,000–\$34,999; \$35,000–\$49,999; \$50,000–\$74,999; \$75,000–\$99,999; \$100,000–\$149,999; \$150,000–\$199,999 and \geq \$200,000. Using the midpoint of each income category as the income for the household, we approximate each household's income as a percentage of the FPL by adapting a strategy outlined by the

State Health Access Data Assistance Center.¹⁷ For example, households whose categorical incomes were <\$25,000 have imputed incomes of \$12,500; households whose 2019 incomes were between \$25,000 and \$34,999 have imputed incomes of \$30,000. About 13% of the sample did not provide their incomes for 2019. Although the share with missing incomes fluctuated over the study period, but there were no observable differences between expansion and non-expansion states over the study period (see Appendix Figure A2 and Appendix Table A1). Respondents with missing incomes tended to be non-white, to be younger, and with limited education (see Appendix Table A1).

With respect to Medicaid enrollment associated with job loss, having pre-pandemic incomes lets us infer something about new enrollments among people who were less likely to be enrolled prior to the pandemic. Middle-income (138%–400% FPL) and high-income (>400% FPL) people would generally not be enrolled in Medicaid.¹⁸ However, negative income shocks such as those created by a recession can change the composition of those enrolled in Medicaid.¹⁹ In addition to expanded eligibility guidelines, fewer categorical restrictions (e.g., parental status) and an overall lower administrative burden could make Medicaid more accessible in expansion states for victims of job loss, and this could allow Medicaid to function more like a safety net.^{20,21}

2.5 | Sensitivity analyses

We test the sensitivity of our results by assessing patterns by education, because it is highly correlated with income. Workers with limited education faced the highest risks of unemployment and income volatility during the Great Recession²²; this pattern is even more pronounced during the COVID-19 recession.²³ In addition to complementing our core findings, these additional analyses can offer insights into who may benefit from added access to non-employer-based coverage with respect to their risk of becoming detached from job-based benefits like ESI.

3 | STUDY RESULTS

3.1 | Summary statistics

Table 1 summarizes the characteristics of people in our sample. There are few striking differences between people in Medicaid expansion and non-expansion states. We do not find many meaningful differences between people in these two groups of states with the exception that those in non-expansion states are more likely to be Black and less likely to have bachelor's degree or higher. People were more likely to have low and middle incomes under 138% FPL and between 138% and 400% FPL in non-expansion states relative to states that expanded Medicaid.

About 27% of people in expansion and non-expansion states experienced some form of income or job loss between March

TABLE 1 Descriptive statistics of non-elderly adults in states that did and did not expand Medicaid

	All states	Expansion states	Non-expansion states	Difference
Exposure to job/income loss				
No job/income loss	73.4	73.2	73.8	-0.7**
Experienced recent job loss due to COVID-19 pandemic	16.3	16.8	15.4	1.4***
Experienced other reasons to not be working	10.3	10.0	10.8	-0.8***
Demographics				
Age	44.4	44.4	44.4	-0.0
Male	48.8	48.9	48.4	0.5
Female	51.2	51.1	51.6	-0.5
Married	58.3	58.0	58.7	-0.6*
White, Non-Hispanic	58.7	60.0	56.3	3.8***
Black, Non-Hispanic	13.2	10.8	17.8	-7.0***
Other, Non-Hispanic	9.8	11.3	6.7	4.6***
Hispanic, any race	18.3	17.9	19.2	-1.4***
Did not complete high school	9.3	8.7	10.5	-1.9***
HS Diploma/GED	28.0	27.5	29.2	-1.7***
Some college/technical school	29.7	29.2	30.6	-1.4***
BA/BS+	33.0	34.7	29.8	5.0***
2019 poverty status				
<138% FPL	22.6	21.3	25.1	-3.8***
138-400% FPL	39.4	38.2	41.8	-3.6***
>400% FPL	38.0	40.5	33.1	7.4***
2019 household (HH) income				
<\$25,000				-2.7***
\$25,000-\$50,000	13.3	12.3	15.0	-3.1***
\$50,000-\$75,000	20.4	19.3	22.4	-1.3***
\$75,000-\$100,000	15.5	15.0	16.3	0.6***
>\$100,000	11.8	12.0	11.4	6.7***
Income missing	27.2	29.5	22.7	-0.3
	12.0	11.9	12.1	
Observations	737,868	517,081	220,787	

Note: $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All statistics are weighted to reflect the complex sampling strategy of the survey. Poverty status was derived using each sample persons reported 2019 household income and by applying the methodology suggested by the State Health Access and Data Assistance Center at the University of Minnesota. COVID-19 related job losses include: (a) employer reduction in business (including furlough) due to coronavirus pandemic, (b) laid off due to coronavirus pandemic, (c) employment closed temporarily due to the coronavirus pandemic, or (d) my employment went out of business due to the coronavirus pandemic.

Source: Authors' own analysis of Phase 1 of the 2020 Household Pulse Survey samples covering April 23, 2020–July 21, 2020.

13, 2020, and the timing of their participation in the survey. In states that expanded Medicaid, 17% of respondents indicated experiencing job losses during the pandemic. In non-expansion states, COVID-linked job losses occurred among 15% of the sample of people (Table 1). Appendix Table A3 provides a complementary summary of the sample stratified by working status at the time of the survey. Compared to the full sample, Black people made up a larger share of the population that experienced an income loss of any kind. Those with less education and lower incomes (i.e., <138% FPL) were more at risk of experiencing income and job losses.

Figure 1 decomposes job by respondents' 2019 household incomes with respect to poverty status. Because respondents with

missing incomes constitute a non-ignorable share of the sample, we include this group as well. Higher-income households (>400% FPL) had the least exposure to negative income shocks due to the COVID-19 pandemic, and this pattern appears true for expansion and non-expansion states. Fifty-three and 57% of low-income (<138% FPL) households in expansion and non-expansion states were without a job or income loss, and middle-income (138%–400% FPL) households in expansion states appear more likely to have recent income losses relative to those in non-expansion states.

Figure 2 provides a visualization of coverage status among persons (a) experiencing job losses specifically due to the COVID-19 pandemic, (b) who are out of the labor force for reasons unrelated to

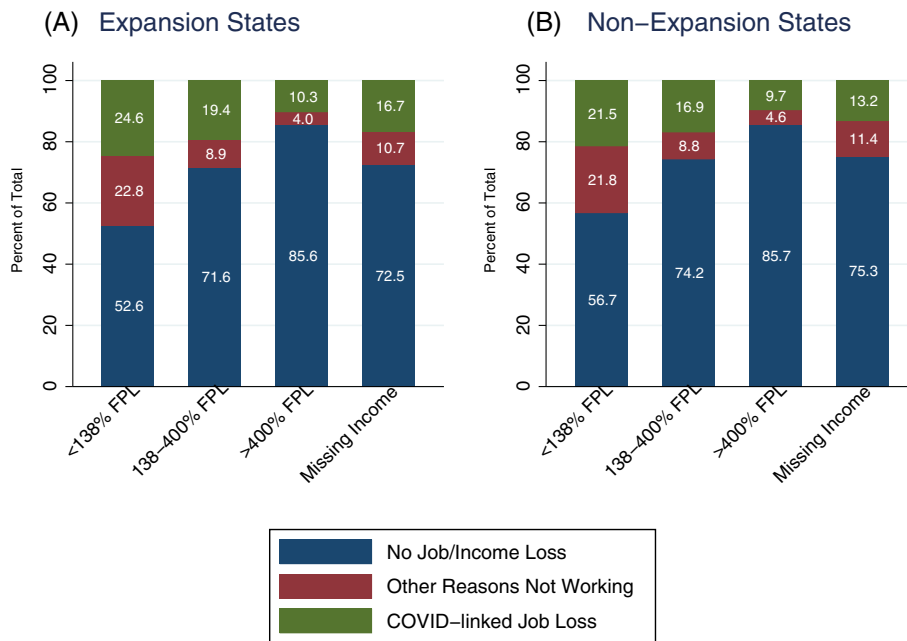


FIGURE 1 Job and income losses due to COVID and not due to COVID in Medicaid expansion and non-expansion states by poverty status. Poverty status was imputed using the survey participants' 2019 household income. Source: Authors' own analysis of Phase 1 of the 2020 Household Pulse Survey (HPS) spanning April 23–July 21, 2020. [Color figure can be viewed at wileyonlinelibrary.com]

COVID-related job loss, and (c) who are in the labor force during the study period. We present this graph to examine the potential differences in coverage patterns with respect to the strength of exposure to income shocks. To correspond to our key regression results, we highlight patterns by level of income and state Medicaid expansion status.

3.2 | Regression results

Table 2 contains our key findings regarding the relationship between COVID-related job losses and coverage status. COVID-related job losses were associated with a 19 percentage-point (PPT) reduction in the likelihood of having ESI ($p < 0.01$) in non-expansion states when compared against persons that had not experienced any income loss. ESI rates in expansion and non-expansion states among those not experiencing any income loss were comparable with one another. A COVID-related job loss reflects a 22%–27% (i.e., $16.2/72.6 = 0.223$ and $19.4/72.6 = 0.267$) reduction in having ESI. Based on our key interaction terms (i.e., Other Reasons Not Working \times Expansion and COVID-Related Job Loss \times Expansion), differences in ESI among those experiencing COVID-related job losses as well as other reasons to not be working were statistically indistinguishable across expansion and non-expansion states in the full sample as well as each of our sub-sample analyses. Experiencing a COVID-related job loss had a similar response with respect to losing ESI in higher-income (138%–400% FPL and >400% FPL) groups, and there was no difference in this relationship based on state Medicaid expansion status.

On net, job losses due to COVID were associated with increased reporting of having non-group coverage (4.4 PPT, $p < 0.01$) in non-expansion states and a smaller increase (-1.4 PPT, $p < 0.01$) in expansion states. This overall increase could be explained by greater

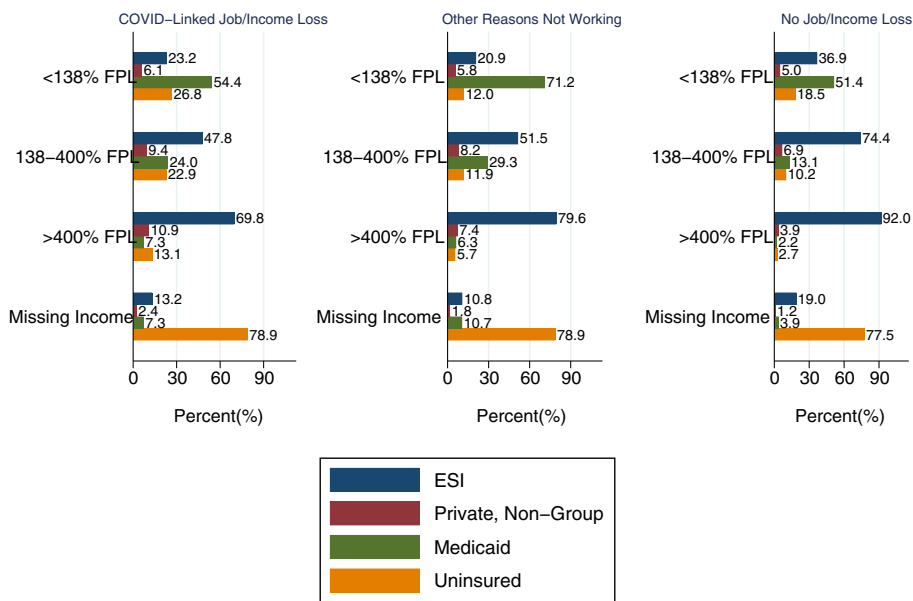
participation in ACA marketplace coverage.^{24,25} This finding is also consistent with households transitioning from ESI to non-group coverage after being separated from ESI due to job loss. The estimates were largest among higher- (>400% FPL; 5.6 PPT, $p < 0.01$) and middle-income (138%–400%; 5.4 PPT, $p < 0.01$) persons and not statistically significant for low-income (<138% FPL) persons. However, we do observe that the difference in COVID-related job losses and being in the labor force is associated with an associated a3.0 PPT ($p < 0.01$) lower rate of private non-group coverage among middle-income earners in expansion states relative to non-expansion states. This may suggest middle-income earners experiencing COVID-linked job losses in expansion states were enrolled in non-group coverage (e.g., ACA marketplace coverage or even extending their benefits through COBRA) at about 44% of the rate of those experiencing COVID-linked job losses in non-expansion states.

We observe that the difference between Medicaid enrollments linked to COVID-related job loss compared to those who remained in the labor force is 9.8 PPT ($p < 0.01$) higher in Medicaid expansion states than in non-expansion states. This relationship was greatest for middle- (8.2 PPT, $p < 0.01$) and higher-income (4.8 PPT, $p < 0.01$) earners. Due to the low baseline Medicaid participation among persons who did not experience a recent job or income loss of any kind, these relative differences represent about a doubling of Medicaid enrollment.

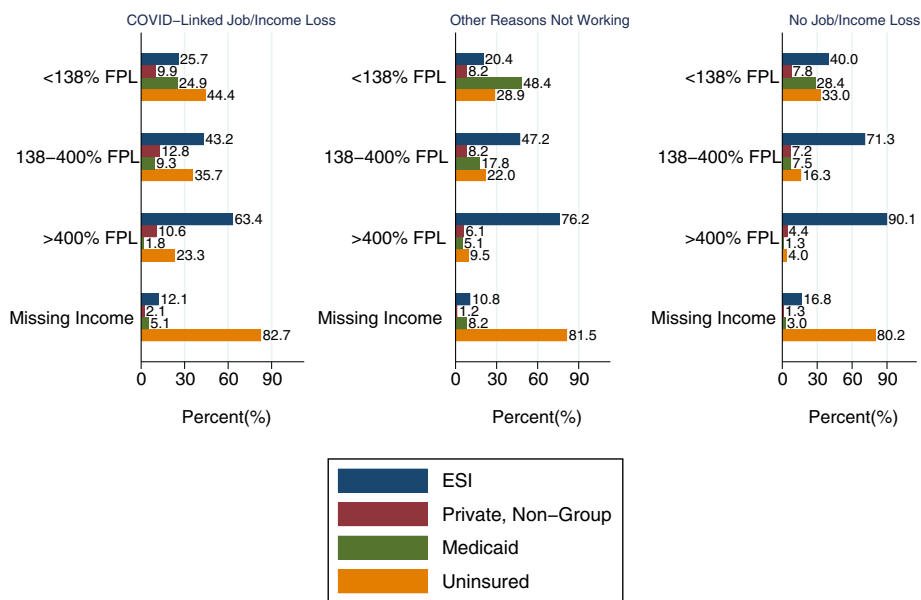
Overall, job losses attributable to COVID were associated with a 16 PPT higher likelihood of being uninsured at the time of the survey ($p < 0.01$) in non-expansion states relative to those with no job loss. However, reporting being uninsured among persons experiencing COVID-related job loss was 7.7 PPT ($p < 0.01$) lower in states that expanded Medicaid. This finding suggests experiencing a COVID-linked job loss was associated with an 8 PPT ($15.9 - 7.7 = 8.2$) reduction in being uninsured in expansion states—about half that between

FIGURE 2 Health insurance coverage among people experiencing income and job losses during the COVID-19 pandemic in Medicaid expansion and non-expansion states by poverty status. Poverty status was imputed using survey participants' 2019 household income. Group coverage totals may sum to more than 100% because the HPS allows persons to indicate whether they are covered by any of the stated types of health insurance. For example, 5% of those with ESI also report having Medicaid at the time of the survey, and this accounts for 3.4% of the overall sample. Eleven percent of those with private non-group coverage report also indicate they have Medicaid, but this accounts for 0.66% of the entire study sample. *Source:* Authors' own analysis of Phase 1 of the 2020 Household Pulse Survey (HPS) spanning April 23–July 21, 2020. [Color figure can be viewed at wileyonlinelibrary.com]

(A) Medicaid Expansion States



(B) Non-Expansion States



job loss and uninsurance in non-expansion states. There was no added protection from experiencing uninsurance stemming from job loss for low-income workers.

3.3 | Sensitivity analyses

To address potential concerns about our decision to categorize some reasons for being out of the labor force as being linked or not linked to COVID, we provide Appendix Table A4. In these regressions, we do not consider how labor force participation interacts with state Medicaid expansion status. Rather, these regressions serve to

assess the nature and strength of the relationship between being in or out of the labor force and coverage source and type. Panel A shows the relationship between “any” income loss (i.e., whether experiencing COVID-linked unemployment or not working for other reasons) and coverage. Panel B uses our previously defined taxonomy and compares adults who are out of the labor force for reasons unrelated to COVID job loss and those who are out of the labor force due to COVID job loss. Compared to those in the labor force adults who were out of the work force for reasons unrelated to COVID job loss and those out of the labor force due to COVID job losses were 16 PPT (<0.01) and 19 PPT (<0.01) less likely to have ESI. Comparatively, a lack of employment for non-COVID reasons (12.1

TABLE 2 Regression estimates of differences in health insurance coverage associated with COVID-linked and other reasons not working in Medicaid expansion and non-expansion states

Coefficients	Full sample	Poverty level (as %FPL)			Missing income
		<138	138–400	>400	
Panel A. Employer-sponsored health insurance					
Other reasons not working	−16.2*** (1.3)	−16.5*** (1.6)	−22.4*** (1.8)	−13.0*** (1.5)	−5.6*** (1.8)
COVID-related job loss	−19.4*** (2.5)	−14.2*** (2.3)	−25.8*** (2.1)	−24.1*** (4.2)	−3.9*** (0.8)
Other reasons not working × expansion	0.3 (1.7)	3.8 (2.3)	0.9 (2.2)	1.2 (1.9)	−2.1 (1.9)
COVID-related job loss × expansion	0.8 (2.6)	1.0 (2.3)	1.7 (2.4)	3.8 (4.3)	−0.2 (1.6)
Observations	732,496	88,013	227,704	330,260	86,519
Non-expansion mean/no income loss	72.6	39.9	76.5	91.6	20.6
Expansion mean/no income loss	75.1	36.2	76.8	92.6	21.4
Panel B non-group private					
Other reasons not working	1.4* (0.7)	0.8 (1.1)	0.8 (0.6)	1.6 (1.0)	0.0 (0.3)
COVID-related job loss	4.4*** (0.7)	2.3 (1.6)	5.4*** (0.6)	5.6*** (0.7)	1.0 (0.6)
Other reasons not working × expansion	0.1 (0.8)	−0.0 (1.4)	0.5 (0.8)	1.9 (1.4)	0.7 (0.5)
COVID-related job loss × expansion	−1.4* (0.7)	−1.3 (1.7)	−3.0*** (0.8)	1.0 (1.2)	0.5 (0.7)
Observations	732,496	88,013	227,704	330,260	86,519
Non-expansion mean/no income loss	5.5	10.5	7.6	4.0	1.7
Expansion mean/no income loss	4.80	6.7	7.3	4.0	1.4
Panel C Medicaid					
Other reasons not working	7.5*** (1.0)	16.3*** (1.0)	8.6*** (1.9)	3.5*** (0.5)	4.3*** (1.1)
COVID-related job loss	−3.1*** (0.5)	−4.6*** (0.9)	1.1*** (0.4)	−0.2 (0.2)	1.1 (0.9)
Other reasons not working × expansion	7.2*** (1.5)	−1.3 (1.7)	5.6** (2.2)	0.5 (0.8)	0.8 (1.5)
COVID-related job loss × expansion	9.8*** (0.9)	6.2*** (1.5)	8.2*** (1.4)	4.8*** (0.8)	1.4 (1.2)
Observations	732,496	88,013	227,704	330,260	86,519
Non-expansion mean/no income loss	5.7	28.6	6.7	1.0	2.1
Expansion mean/no income loss	8.6	52.8	11.7	1.6	2.9
Panel D uninsured					
Other reasons not working	3.0*** (0.8)	−4.2*** (0.8)	5.6*** (1.0)	4.8*** (0.8)	1.2 (1.4)
COVID-related job loss	15.9*** (2.2)	11.6*** (2.7)	18.2*** (2.3)	17.8*** (3.7)	2.2 (1.5)
Other reasons not working × expansion	−5.6*** (0.9)	−1.6 (1.4)	−4.1*** (1.4)	−2.5*** (0.9)	0.2 (1.7)
COVID-related job loss × expansion	−7.7*** (2.4)	−3.3 (2.9)	−6.8*** (2.5)	−8.5** (3.8)	−2.7 (2.0)
Observations	732,496	88,013	227,704	330,260	86,519
Non-expansion mean/no income loss	17.6	28.9	11.5	3.1	76.5
Expansion mean/no income loss	13.7	15.2	8.4	2.1	75.4

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors robust to clustering at the state-level in parentheses. All coefficients are scaled by 100 for readability. In each regression, we control for age group (20–26 [reference category], 27–30, 31–35, 36–40, 41–45, 46–50, 51–55, 56–60, 61–64), poverty status (<138% FPL [reference category], 138–400% FPL, >400% FPL), race/ethnicity (Non-Hispanic White [reference category], Non-Hispanic Black, Non-Hispanic Other, Hispanic [any race]), gender, marital status, education, and the number of own children in the household. State-by-Week effects included. States were classified as Medicaid expansion or non-expansion states based on their January 2020 implementation status. Standard errors clustered at the state level. COVID-19 related job losses include: (a) employer reduction in business (including furlough) due to coronavirus pandemic, (b) laid off due to coronavirus pandemic, (c) employment closed temporarily due to the coronavirus pandemic, or (d) my employment went out of business due to the coronavirus pandemic. Poverty status was determined following the approach recommended by the State Health Access Data Assistance Center at the University of Minnesota.

Source: Authors' own analysis of Phase 1 of the 2020 Household Pulse Survey spanning April 23–July 21, 2020.

PPT, $p < 0.01$) was more strongly associated with Medicaid coverage than was a lack of employment due to COVID-linked job losses (3.4 PPT, $p < 0.01$). However, it was only the COVID-related job losses (as we defined them) that were associated with reporting being

uninsured (10.8 PPT, $p < 0.01$). In panel C, we separate out the sub-categories within each of our two groups. The results from panel B suggest no relationship between other reasons to not be working and being uninsured on net. Sick (i.e., not due to COVID) and disabled

persons were less likely to be uninsured by 12.4 PPT ($p < 0.01$). In the lower half of panel C, we observe that three of the four sub-categories we assigned to COVID-linked job losses were statistically associated with elevated levels of uninsurance at the $p < 0.05$ level—the fourth was significant at the $p < 0.10$ level.

In Appendix Table A5, we collapse all reasons for not working to assess the relationship between not working and coverage. Comparing the findings in panel A with those in panel B affirms uninsurance was more prevalent among COVID-linked job losses.

Appendix Table A6 provides supplementary analyses stratifying the sample by level of education, and the patterns are similar to the main results presented in Table 2. In Appendix Table A7, we examine whether there was heterogeneity in the relationship between coverage and income among married and unmarried persons as well as parents and childless adults. Married persons could be insulated from coverage loss associated with income shocks if they could leverage spousal coverage. Comparatively, net coverage loss due to unemployment was larger among unmarried and childless adults. We also find that unemployment-linked Medicaid enrollments were larger among unmarried persons compared to married persons.

4 | DISCUSSION

Our results suggest a consistent pattern whereby individuals who experience a COVID-related job loss are more likely to have Medicaid coverage and less likely to be uninsured than those who are employed in states that expanded Medicaid than in states that did not expand. There were no differences between the two types of states in the relative share of people with employer-sponsored coverage after a COVID-related job loss. Although we cannot assert this more affirmatively, our findings are consistent with the hypothesis that expanding Medicaid eligibility under the ACA was associated with increases in Medicaid enrollment—which in turn was associated with smaller increases in the share of the people who were uninsured due to COVID-linked job losses. We observed similar coverage patterns for people who had COVID-related job losses and those who were otherwise out of the workforce. While we focused on people who had COVID-related job losses, our results suggest expansions in Medicaid eligibility guidelines can serve as a safety net beyond large economic shocks and to serve as a safety net to protect people who become poor due to job loss from becoming uninsured due to business cycle effects.

Our findings are consistent with both several other studies that examined the impact of the ACA expansions and trends in insurance coverage during the pandemic. One found Medicaid expansions under the ACA led to increased Medicaid enrollment among the unemployed, and this increased coverage led to stark reductions in uninsurance among this group.²⁶ Another study found expanding Medicaid's eligibility guidelines increased the connectivity between declines in local economic conditions and Medicaid enrollment.²⁷ Another study using the HPS found declines in ESI were comparable in expansion

and non-expansion states over time, and non-expansion states' overall decline in coverage was largely driven by reductions in ESI.²⁸ Focusing on trends in COVID-linked racial disparities in Arkansas, Kentucky, Louisiana, and Texas (non-expansion state), Figueroa and colleagues found the declines in coverage and access to care were smaller, though not statistically significant, in the three states with expanded Medicaid.²⁹

The job losses created by the COVID-19 pandemic dwarf labor market shocks even when compared against the 2007–2009 Great Recession—the largest economic recession since the Great Depression. Medicaid enrollment is known to increase during economic downturns like the Great Recession,^{30,31} and unemployment-linked Medicaid enrollment depends on states' eligibility guidelines.¹⁹ Expanding Medicaid's eligibility guidelines in the remaining 12 states that have not yet done so as of April 2022 provides a technically feasible, if politically challenging, pathway for Medicaid to function as a safety net to more households that may experience a broad array of income shocks.

Other factors beyond COVID-related job loss likely account for some of the increase in Medicaid enrollment over the course of the pandemic. When the COVID crisis was declared a Public Health Emergency (PHE), states were required to relax many administrative barriers that deter Medicaid participation; furthermore, states have been required to keep people enrolled in Medicaid through the duration of the pandemic's status as a PHE. Relaxing these barriers likely facilitated access to Medicaid for households at risk of coverage loss due to joblessness. When these protections under PHE guidelines are rescinded, it is plausible that uninsurance will increase in both expansion and non-expansion states.³²

4.1 | Limitations

The HPS's key strength is that it allows for timely analysis of the impacts of the COVID-19 pandemic on US economic health; however, our study is not without limitation. The weighted poverty rate for our sample is 17.6%—about 55% higher than the 2019 national poverty rate of 12%. The COVID-induced recession thrusting many households into incidental poverty; however, this should not explain the disparity between our imputed poverty rate and that from other surveys. Part of this discrepancy could be due to problems in the HPS's sampling strategy. The response rate for the HPS is considerably lower than other nationally representative surveys like the Census Bureau's American Community Survey (92% in 2018) or the Current Population Survey (82% in January 2020).^{33,34} Even with probability weighting and the different modalities (e.g., what fraction of people in the sampling frame were omitted because they lacked access to high-speed Internet) for survey inclusion, it becomes difficult to make statistically reliable inferences. Because of this problem, it is unclear how the survey results would compare against analyses of other population-based surveys, and inferential limitations due to the HPS's non-response bias are known.⁸

5 | CONCLUSION

Broadly speaking, we believe our findings shed light on the first macroeconomic tests of the ACA. They also provide insights into the benefits of the ACA's major coverage expansions beyond the immediate coverage gains following the enactment of these policies. Together with eligibility for Marketplace coverage that was made more affordable by the American Rescue Plan, the ACA's Medicaid expansion protected many families who suffered COVID-related and other job losses over the course of the pandemic from becoming uninsured.^{35,36}

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ORCID

Joseph A. Benitez  <https://orcid.org/0000-0002-0116-7270>

Lisa Dubay  <https://orcid.org/0000-0003-3607-109X>

REFERENCES

1. U.S. Bureau of Labor Statistics. Unemployment rate [UNRATE]. Fred. 2021. <https://fred.stlouisfed.org/series/UNRATE>. Accessed February 20, 2021.
2. Gangopadhyaya A, Garrett B. Unemployment, health insurance, and the COVID-19 recession. 2020. <https://www.urban.org/research/publication/unemployment-health-insurance-and-covid-19-recession>. Accessed April 14, 2020.
3. Banthin J, Simpson M, Buettgens M, Blumberg LJ, Wang R. Changes in health insurance coverage due to the COVID-19 recession: preliminary estimates using microsimulation. Washington, DC. 2020. <https://www.urban.org/research/publication/changes-health-insurance-coverage-due-covid-19-recession>. Accessed February 21, 2021.
4. Corallo B, Mehta A. Analysis of recent national trends in Medicaid and CHIP enrollment | KFF. KFF. 2021. <https://www.kff.org/coronavirus-covid-19/issue-brief/analysis-of-recent-national-trends-in-medicaid-and-chip-enrollment/>. Accessed December 13, 2021.
5. Corallo B, Moreno S. Analysis of recent national trends in Medicaid and CHIP enrollment. Washington, DC. 2022. <https://www.kff.org/coronavirus-covid-19/issue-brief/analysis-of-recent-national-trends-in-medicaid-and-chip-enrollment/>. Accessed May 1, 2022.
6. Fields J, Hunter-Childs J, Tersine A, et al. Design and operation of the 2020 Household Pulse Survey. 2020. <https://www.census.gov/householdpulsedata>
7. United States Census Bureau. Source of the data and accuracy of the estimates for the 2020 Household Pulse Survey: interagency federal statistical rapid response survey to measure household experiences during the Coronavirus (COVID-19) Pandemic. Washington, DC. 2020. <https://www2.census.gov/programs-surveys/demo/technical-documentation/hhp/Source-and-Accuracy-Statement-July-16-July-21.pdf>
8. Peterson S, Toribio N, Farber J, Hornick D. Nonresponse bias report for the 2020 Household Pulse Survey. Washington, DC. 2021. https://www2.census.gov/programs-surveys/demo/technical-documentation/hhp/2020_HPS_NR_Bias_Report-final.pdf. Accessed July 19, 2021.
9. Gruber J, Madrian BC. Employment separation and health insurance coverage. *J Public Econ*. 1997;66(3):349-382. doi:10.1016/S0047-2727(96)01621-0
10. Schaller J, Stevens AH. Short-run effects of job loss on health conditions, health insurance, and health care utilization. *J Health Econ*. 2015;43:190-203. doi:10.1016/J.JHEALECO.2015.07.003
11. Pollitz K, Rae M, Cox C, Rabah K, Fehr R, Young G. Key issues related to COBRA subsidies. <https://www.kff.org/private-insurance/issue-brief/key-issues-related-to-cobra-subsidies/>. Accessed May 1, 2022.
12. Aday LA, Andersen R. A framework for the study of access to medical care. *Health Serv Res*. 1974;9(3):208-220.
13. Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? *J Health Soc Behav*. 1995;36(1):1-10.
14. Brooks T, Gardner A, Tolbert J, Dolan R, Pham O. Medicaid and CHIP eligibility and enrollment policies as of January 2021: findings from a 50-state survey | KFF. 2021. <https://www.kff.org/medicaid/report/medicaid-and-chip-eligibility-and-enrollment-policies-as-of-january-2021-findings-from-a-50-state-survey/>. Accessed March 10, 2022.
15. Courtemanche CJ, Garuccio J, Le A, Pinkston J, Yelowitz A. Strong social distancing measures in the United States reduced the COVID-19 growth rate. *Health Aff*. 2020;39:1237-1246. doi:10.1377/hlthaff.2020.00608
16. Raifman J, Bor J, Dean LT, et al. COVID-19 US state policy database. 2020. <https://statepolicies.com/>
17. Hest R. Four methods for calculating income as a percent of the Federal Poverty Guidelines (FPG) in the behavioral risk factor surveillance system (BRFSS). 2019. https://www.shadac.org/sites/default/files/publications/Calculating_Income_as_PercentFPG_BRFSS.pdf. Accessed September 2, 2019.
18. Courtemanche CJ, Marton J, Yelowitz A. Medicaid coverage across the income distribution under the affordable care act. *Natl Bur Econ Res Work Pap Ser*. 2019;No. 26145. 10.3386/w26145
19. Benitez JA, Perez VA, Seiber EE. Medicaid access during economic distress: lessons learned from the great recession. *Med Care Res Rev*. 2020;78(5):490-501. doi:10.1177/1077558720909237
20. Fox AM, Stazyk EC, Feng W. Administrative easing: rule reduction and Medicaid enrollment. *Public Adm Rev*. 2020;80(1):104-117. doi:10.1111/puar.13131
21. Fox AM, Feng W, Zeitlin J, Howell EA. Trends in state Medicaid eligibility, enrollment rules, and benefits. *Health Aff*. 2020;39(11):1909-1916. doi:10.1377/hlthaff.2019.01350
22. Bauer L, Shambaugh J. Workers with low levels of education still haven't recovered from the great recession. *Up Front*. 2018. <https://www.brookings.edu/blog/up-front/2018/09/06/workers-with-low-levels-of-education-still-havent-recovered-from-the-great-recession/>. Accessed June 10, 2021.
23. Kochhar R. How U.S. unemployment during COVID-19 compares with great recession. Washington, DC; 2020. <https://www.pewresearch.org/fact-tank/2020/06/11/unemployment-rose-higher-in-three-months-of-covid-19-than-it-did-in-two-years-of-the-great-recession/>. Accessed June 10, 2021.
24. Keith K. HealthCare.gov enrollment up in first two weeks of COVID special enrollment period. *Health Affairs Blog*. 10.1377/hblog20200402.109653

25. Keith K. Marketplace enrollment tops 12 million for 2021; Largest-Ever Funding For Navigators. *Health Affairs Blog*. doi:[10.1377/hblog20210422.65513](https://doi.org/10.1377/hblog20210422.65513)
26. Buchmueller TC, Levy HG, Valletta RG. Medicaid expansion and the unemployed. *Natl Bur Econ Res Work Pap Ser* 2019; No. 26553. [10.3386/w26553](https://doi.org/10.3386/w26553)
27. Benitez JA, Williams T, Goldstein E, Seiber EE. The relationship between unemployment and health insurance before and after the ACA: lessons from Kentucky. *Med Care*. 2021;59:768-777. doi:[10.1097/MLR.0000000000001603](https://doi.org/10.1097/MLR.0000000000001603)
28. Bundorf MK, Gupta S, Kim C. Trends in US health insurance coverage during the COVID-19 pandemic key points + invited commentary + multimedia + supplemental content. *JAMA Health Forum*. 2021;2(9):212487. doi:[10.1001/jamahealthforum.2021.2487](https://doi.org/10.1001/jamahealthforum.2021.2487)
29. Figueroa JF, Khorrani P, Bhanja A, John Orav E, Epstein AM, Sommers BD. COVID-19-related insurance coverage changes and disparities in access to care among low-income US adults in 4 southern states. *JAMA Health Forum*. 2021;2(8):212007. doi:[10.1001/jamahealthforum.2021.2007](https://doi.org/10.1001/jamahealthforum.2021.2007)
30. Holahan J. The 2007–09 recession and health insurance coverage. *Health Aff*. 2010;30:145-152. doi:[10.1377/hlthaff.2010.1003](https://doi.org/10.1377/hlthaff.2010.1003)
31. Holahan J, Chen V. Changes in health insurance coverage in the great recession, 2007–2010. Kaiser Commission on Medicaid and the Uninsured Issue Paper. <https://www.kff.org/wp-content/uploads/2013/01/8264.pdf>. 2011. Accessed October 14, 2019.
32. Serafi K, Mann C, Punukollu N. The risk of coverage loss for Medicaid beneficiaries as the COVID-19 public health emergency ends. 2021. [https://www.commonwealthfund.org/blog/2021/risk-coverage-loss-](https://www.commonwealthfund.org/blog/2021/risk-coverage-loss-medicaid-beneficiaries-covid-19?utm_source=alert&utm_medium=email&utm_campaign=Achieving+Universal+Coverage)
33. U.S. Census Bureau. American community survey: response rates. <https://www.census.gov/acs/www/methodology/sample-size-and-data-quality/response-rates/>. 2020. Accessed August 6, 2020.
34. U.S. Bureau of Labor Statistics. Household and Establishment Survey Response Rates. Washington, DC. 2020. <https://www.bls.gov/osmr/response-rates/>. Accessed August 6, 2020.
35. Keith K. The American rescue plan expands the ACA. *Health Aff*. 2021;40(5):696-697. doi:[10.1377/hlthaff.2021.00597](https://doi.org/10.1377/hlthaff.2021.00597)
36. O'Mahen PN, Petersen LA. Will the American rescue plan overcome opposition to Medicaid expansion? *J Gen Intern Med*. 2021;36(11):3550-3552. doi:[10.1007/s11606-021-07084-x](https://doi.org/10.1007/s11606-021-07084-x)

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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