Supplemental Appendix for "Medicaid Expansion in Maine Significantly Reduced Uncompensated Care Costs during the COVID-19 Pandemic"

Supplemental Appendix

Covariate Data

I linked to the cost report data county economic and demographic characteristics from the Bureau of Labor Statistics, the Census Bureau, and the U.S. Department of Agriculture. Information on these data and their respective sources is presented in Exhibit A1.

To account for hospitals' exposure to the COVID-19 pandemic during the final two years of the period of analysis, I developed a novel metric that is based on the source data used to construct the "COVID-19 Pandemic Vulnerability Index" through the National Institute of Environmental Health Sciences. These data include 12 risk factors that are known to influence pandemic severity, including infection rates, population characteristics, and health and environmental factors. These risk factors are modelled into an overall county-level index, which gauges a county's relative communal exposure to the COVID-19 virus at a daily-level.

I obtained daily county-level data on COVID-19 risk factors corresponding to years 2020 and 2021, and flagged instances in which a county had an overall vulnerability index that exceeded the 50th percentile. An annual vulnerability index for each county was generated by taking the ratio of the number of days that a county exceeded the 50th percentile in a year and the number of days in which the pandemic was active in the U.S. during that year. The denominators included 308 days corresponding to data year 2020, (February 28 through December 31), and 365 days corresponding to data year 2021. This index was linked to the cost report data at the county-year level.

Log Transformed Dependent Variable

The outcome of interest in this analysis is a hospital's uncompensated care costs. I converted uncompensated care costs into 2021 dollars across all sample years to account for inflation. Given the skewness of this outcome, I conducted a Box Cox transformation and log transformed uncompensated care costs to serve as the primary outcome in the regression analysis (theta = 0.07) (Deb and Norton, 2017).

Prior studies that examine the impact of Medicaid expansion on hospitals' uncompensated care costs have generally focused on a dependent variable that is constructed as the ratio of uncompensated care costs to operating expenses. This outcome is useful to both account for variation in hospital size and skewness in uncompensated care costs. I focused the analysis on log transformed uncompensated care costs, rather than uncompensated care costs scaled by operating expenses, given the growing body of evidence of the impact of the COVID-19 pandemic on hospitals' operating expenses. Several recent studies find that hospitals' operating expenses grew substantially during the pandemic, for reasons not directly tied to communal exposure to COVID-19, including increased administrative expenses and labor shortages (Wang, Bai, and Anderson 2023; Rhodes, Santos, and Young 2023a; Rhodes, Santos, and Young 2023b). Because

the post-expansion period in this study overlaps substantially with the onset of the pandemic, scaling uncompensated care costs by operating expenses may conflate the findings. For example, scaling by operating expenses may falsely indicate a reduction in levels of uncompensated care costs across hospitals that experienced a significant increase in operating expenses, for reasons unrelated to patient volume or care, and thus, unrelated to changes in uncompensated care costs.

Difference-in-Differences Model

I employ a difference-in-differences methodology to capture the counterfactual of what uncompensated care costs across Maine hospitals would have been in the absence of Medicaid expansion in 2019. I rely on the experiences of 12 non-expansion states to serve as a "control group" during the period of analysis. The list of non-expansion states included in the difference-in-differences framework is presented in Exhibit A2.

I estimate the following difference-in-differences specification to identify the causal impact of Medicaid expansion in Maine on uncompensated care costs across Maine hospitals:

$$(1)\ \ln\left(Y_{h_{(c,s)}t}\right) = \alpha_h + \gamma_t + B_1 Exposure_t + B_2 \mathbf{1}(S = \text{Maine})_{h_{(s)}} * Exposure_t + X^T_{h_{(c)}t} B + \left[B_3 Year_t + B_4 \mathbf{1}(S = \text{Maine})_{h_{(s)}} * Year_t\right] + \varepsilon_{h_{(c,s)}t}$$

$Y_{h_{(c,s)}t}$ are uncompensated care costs at hospital *h*, located within county *c* and state *s*, during year t; α_h are hospital fixed effects that capture time-invariant hospital characteristics; γ_t are year fixed effects, which capture common shocks across all hospitals within the same year; $\mathbf{1}(S = \text{Maine})_{h_{(s)}}$ is an indicator for hospitals located within Maine; $Exposure_t$ captures the duration of the hospital's fiscal year that overlaps with the date of expansion in Maine (January 10, 2019); $X^T_{h_{(c)}t}$ is a vector of time-varying hospital and county characteristics that may be correlated with uncompensated care costs; and, $\varepsilon_{h_{(c,s)}t}$ is a random error term that allows for correlation across hospitals within the same state over time. B_2, the coefficient of interest in the model, captures the interaction between the "treatment" and "post" fields; B_2 is the difference-in-differences estimator, and yields the causal impact of Medicaid expansion in Maine on uncompensated care costs across Maine hospitals.

In the absence of parallel trends in uncompensated care costs during the pre-expansion period, I control for differences in pre-existing trends across Maine hospitals and hospitals located in

non-expansion states through the inclusion of a continuous year field ($Year_t$) fully interacted with an indicator for Maine hospitals (see "Parallel Trends Model" below for more detail).

I conduct a range of statistical analyses to ensure that the results are not biased by the overlap in Maine's post-expansion period and the onset of the COVID-19 pandemic. First, I directly control for a hospital's exposure to the pandemic through the inclusion of a county COVID-19 exposure field (see "Covariate Data" above). Second, I compare estimates from difference-in-differences models that gradually incorporate time-varying hospital, county demographic, and county economic characteristics. While these fields may not directly capture the full impact of the pandemic, to the extent that they are correlated with unobservable effects tied to the pandemic, we would expect the difference-in-differences estimates to change with the inclusion of these fields in the models.

Third, I estimate an event-study model that stratifies the period of analysis into individual years, as opposed to a binary pre- and post-expansion framework. The primary coefficients of interest in this model are year fields interacted with an indicator for a Maine hospital. I compare the estimate corresponding to 2019, which represents the period prior to the pandemic but after Medicaid expansion in Maine, against estimates corresponding to 2020 and 2021, which represents the period after both the onset of the pandemic and Medicaid expansion in Maine. If the estimates corresponding to these three data years are similar in magnitude, this would add evidence that the effect of Maine's Medicaid expansion was immediate and sustained before and after the onset of the pandemic. More detail on the event-study model and the findings that correspond to this analysis findings is presented "Event-Study Model" section (below).

The results of the difference-in-differences analyses are presented in Exhibits A11-A14. Each table features estimates from models that gradually include additional covariates. Both the magnitude and the precision of the estimates are largely unchanged when controlling for time-varying demographic and economic factors throughout the sample period.

Event-Study Model

The event-study analysis builds off the difference-in-differences regression model. In this framework, the coefficients of interest correspond to each year of the sample period. The event-study specification takes the following form:

$$(2)\ \ln\left(Y_{h_{(c,s)}t}\right) = \alpha_h + \gamma_t + \sum_{i=2011}^{2017} B^i \mathbf{1}(t=i)_{\boldsymbol{t}} * \mathbf{1}(S=\text{Maine})_{h_{(s)}} + \sum_{j=2019}^{2021} B^j \mathbf{1}(t=j)_{\boldsymbol{t}} * \mathbf{1}(S=\text{Maine})_{h_{(s)}} + X_{h_{(c)}t}^T B + \varepsilon_{h_{(c,s)}t}$$

The event-study models include hospital fixed effects, year fixed effects, and the same set of time-varying hospital and county controls as those included in Equation 1. The primary coefficients of interest in this model is the post-expansion year fields, (indexed by "*j*"), interacted with an indicator for hospitals located in Maine. The pre-expansion year fields that are interacted with an indicator for Maine hospitals, (indexed by "*i*"), provide an additional test for the existence of parallel trends during the period leading up to expansion. The omitted year is 2018, the year prior to expansion; all pre-expansion ("*i*") and post-expansion ("*j*") interacted fields are relative to the differences in uncompensated care costs between Maine hospitals and hospitals in non-expansion states in 2018.

The results from the event-study analysis, presented in Exhibit A16, indicate that the reduction in uncompensated care costs across Maine hospitals was both immediate and sustained throughout the post-expansion period.

Parallel Trends Model

A critical assumption of the difference-in-differences analysis is that hospitals located in non-expansion states capture the change in uncompensated care costs that would have occurred across Maine hospitals in the absence of Medicaid expansion. While this assumption is untestable, I conduct both visual and statistical tests to determine whether Maine hospitals and hospitals located in non-expansion states exhibit similar trends in uncompensated care costs during the pre-expansion period. The existence of "parallel trends" bolsters the causal framework and interpretation in the difference-in-differences methodology. The statistical analysis involves estimating a regression model that includes a continuous year variable that is fully interacted with an indicator for Maine hospitals during the period 2011-2018:

$$(3)\ \ln\left(Y_{h_{(c,s)}t}\right) = \alpha_h + \gamma_t + B_1 Year_t + B_2 \mathbf{1}(S = \text{Maine})_{h_{(s)}} * Year_t + X^T_{h_{(c)}t} B + \varepsilon_{h_{(c,s)}t}$$

B_1 and B_2 are the coefficients on a continuous year field and a continuous year field interacted with an indicator for a hospital located in Maine, respectively. B_2 is the coefficient of interest in this model and captures the relative difference in trends in uncompensated care costs across Maine hospitals and non-expansion state hospitals during the pre-expansion period.

In Exhibits A3-A10, I present estimates corresponding to Equation 3. I find no evidence of a statistical difference in the trends in uncompensated care costs across Maine hospitals and hospitals located in non-expansion states. When stratifying by hospital characteristics, Maine's critical access hospitals exhibit increasing uncompensated care costs leading up to expansion,

relative to their non-expansion counterparts. Although this finding runs counter to the existence of parallel trends, a positive estimate on B_2 would tend to understate a reduction in uncompensated care costs across critical access hospitals in the difference-in-differences models. However, this estimate is small in magnitude and imprecise when the outcome is logged uncompensated care costs.

Standard Errors and Inference Tests

I cluster standard errors at the state-level to allow for correlation across hospitals within the same state over time in the difference-in-differences models. Following Callison et al. (2021), I also calculate p-values from a randomization inference procedure that has been shown to capture inference more accurately in difference-in-differences models with few treated clusters (MacKinnon and Webb 2020). I compare the p-values from this randomization inference procedure against those corresponding to the regression model with state-clustered standard errors to assess the consistency in the precision of the estimates across methodologies. This methodology involves four steps:

1. Estimate the difference-in-differences model (Equation 1) and obtain the difference-in-differences estimator corresponding to Maine (B_2^{Maine}).

2. Remove from the sample all entries corresponding to Maine hospitals, and estimate Equation 1 separately for each non-expansion state, maintaining a post-period ("*Exposure*") that corresponds with the onset of Medicaid expansion in Maine (January 10, 2019). Obtain the 12 difference-in-differences estimators corresponding to each non-expansion state: $B_2^{Alabama}$, $B_2^{Florida}$, etc…

3. Generate a test statistic that captures the count of the number of times in which the absolute value of the difference-in-differences estimates corresponding to non-expansion states exceeds the absolute value of the estimate corresponding to Maine (B_2^{Maine}):

   $TS = \sum_{n=1}^{12} \mathbf{1}(|B_2^n| > |B_2^{Maine}|)$

   Where *n* indexes each of the 12 non-expansion states.

4. Calculate the p-value based on the test statistic generated in Step 3 as follows:

$$p = (\frac{TS}{12})$$

The p-value captures the percent of instances in which hospitals in non-expansion states experienced a greater change in uncompensated care costs, relative to Maine hospitals, in the difference-in-differences framework. Because there are only 12 non-expansion states, the minimum non-zero p-value is eight percent (1/12).

The results from this analysis are presented in Exhibit A15. I find that the p-values from the main model, which clusters standard errors at the state-level, and those corresponding to the randomization inference procedure, all approach zero.

Supplemental Tables and Figures

Exhibit A1: Data Sources

Hospital Characteristics	Source	Link	Notes
Ownership	CMS Hospital Cost Report Data	Cost Reports by Fiscal Year	RPT Worksheet, Variable 2
Critical Access Hospital	CMS Hospital Cost Report Data	Cost Reports by Fiscal Year	RPT Worksheet, Variable 3
Number of Beds	CMS Hospital Cost Report Data	Cost Reports by Fiscal Year	Worksheet S301; Line 14; Column 2
Teaching Hospital	CMS Hospital Cost Report Data	Cost Reports by Fiscal Year	Worksheet S201; Line 56; Column 1
Uncompensated Care Costs	CMS Hospital Cost Report Data	Cost Reports by Fiscal Year	Worksheet S100; Line 30; Column 1
Charity Care Costs			Worksheet S100; Line 23; Column 3
Bad Debt Costs			Worksheet S100; Line 29; Column 1
Operating Expenses	CMS Hospital Cost Report Data	Cost Reports by Fiscal Year	Worksheet G300; Line 4; Column 1
Fiscal Year End Month	CMS Hospital Cost Report Data	Cost Reports by Fiscal Year	RPT Worksheet, Variable 7
Hospital County Characteristics			
Rural County	U.S. Department of Agriculture	2013 Rural-Urban Continuum Codes	Codes 8 and 9
Unemployment Rate	Bureau of Labor Statistics	Local Area Unemployment Statistics	
Poverty Rate	Census Bureau	Small Area Income and Poverty Estimates	
Median Household Income ($ thousands)	Census Bureau	Small Area Income and Poverty Estimates	
Female (%)	Census Bureau	Population and Housing Unit Estimates Datasets	Files: cc-est2021-all.csv and CC-EST2020-ALLDATA.csv
Ages 65 and older (%)	Census Bureau	Population and Housing Unit Estimates Datasets	Files: cc-est2021-all.csv and CC-EST2020-ALLDATA.csv
Hispanic (%)	Census Bureau	Population and Housing Unit Estimates Datasets	Files: cc-est2021-all.csv and CC-EST2020-ALLDATA.csv
Black (%)	Census Bureau	Population and Housing Unit Estimates Datasets	Files: cc-est2021-all.csv and CC-EST2020-ALLDATA.csv
Pandemic Vulnerability Index	Pandemix Vulnerability Index Dashboard	Model 11.2.1	Data Years: 2020 and 2021

Exhibit A2: Expansion and Non-Expansion State Categories

Expansion State Categories
Maine: Expanded 1/2019 with coverage retroactive 7/2018.
Non-Expansion States*: AL, FL, GA, KS, MS, NC, SC, SD, TN, TX, WI, and WY.

*Analysis includes states that had not expanded as of 12/2021. SD (7/2023) and NC (projected 10/2023) have since expanded coverage.

Exhibit A3: Parallel Trends Analysis - All Hospitals - Uncompensated Care Costs ($)

	(1)	(2)	(3)	(4)	(5)
1(S=Maine) X Year	-0.157	-0.184	-0.181	-0.0892	-0.0817
	(0.202)	(0.184)	(0.186)	(0.134)	(0.126)
Observations	11,771	11,771	11,771	11,771	11,771
Hospital Fixed Effects		X	X	X	X
Year Fixed Effects		X	X	X	X
Hospital Controls			X	X	X
County Demographic Controls				X	X
County Economic Controls					X

Standard errors are clustered at the state-level.

*** denotes statistically significant at the 1% level; ** denotes statistically significant at the 5% level; * denotes statistically significant at the 10% level.

Sources: CMS Hospital Cost Report Data, Census, Bureau of Labor Statistics, and U.S. Department of Agriculture.

Exhibit A4: Parallel Trends Analysis - All Hospitals - Log of Uncompensated Care Costs ($)

	(1)	(2)	(3)	(4)	(5)
1(S=Maine) X Year	-0.00560	-0.00405	-0.00330	0.00282	0.00641
	(0.0104)	(0.0120)	(0.0121)	(0.0163)	(0.0153)
Observations	11,771	11,771	11,771	11,771	11,771
Hospital Fixed Effects		X	X	X	X
Year Fixed Effects		X	X	X	X
Hospital Controls			X	X	X
County Demographic Controls				X	X
County Economic Controls					X

Standard errors are clustered at the state-level.

*** denotes statistically significant at the 1% level; ** denotes statistically significant at the 5% level; * denotes statistically significant at the 10% level.

Sources: CMS Hospital Cost Report Data, Census, Bureau of Labor Statistics, and U.S. Department of Agriculture.

Exhibit A5: Parallel Trends Analysis - General Acute Care Hospitals - Uncompensated Care Costs ($)

	(1)	(2)	(3)	(4)	(5)
1(S=Maine) X Year	-0.117	-0.208	-0.195	-0.0235	-0.0930
	(0.270)	(0.237)	(0.244)	(0.187)	(0.182)
Observations	8,616	8,616	8,616	8,616	8,616
Hospital Fixed Effects		X	X	X	X
Year Fixed Effects		X	X	X	X
Hospital Controls			X	X	X
County Demographic Controls				X	X
County Economic Controls					X

Standard errors are clustered at the state-level.

*** denotes statistically significant at the 1% level; ** denotes statistically significant at the 5% level; * denotes statistically significant at the 10% level.

Sources: CMS Hospital Cost Report Data, Census, Bureau of Labor Statistics, and U.S. Department of Agriculture.

Exhibit A6: Parallel Trends Analysis - General Acute Care Hospitals - Log of Uncompensated Care Costs ($)

	(1)	(2)	(3)	(4)	(5)
1(S=Maine) X Year	-0.0174*	-0.0132	-0.0113	-0.00483	0.000772
	(0.00930)	(0.0116)	(0.0118)	(0.0176)	(0.0176)
Observations	8,616	8,616	8,616	8,616	8,616
Hospital Fixed Effects		X	X	X	X
Year Fixed Effects		X	X	X	X
Hospital Controls			X	X	X
County Demographic Controls				X	X
County Economic Controls					X

Standard errors are clustered at the state-level.

*** denotes statistically significant at the 1% level; ** denotes statistically significant at the 5% level; * denotes statistically significant at the 10% level.

Sources: CMS Hospital Cost Report Data, Census, Bureau of Labor Statistics, and U.S. Department of Agriculture.

Exhibit A7: Parallel Trends Analysis - Critical Access Hospitals - Uncompensated Care Costs ($)

	(1)	(2)	(3)	(4)	(5)
1(S=Maine) X Year	0.0568**	0.0699***	0.0684***	0.0731***	0.0714***
	(0.0223)	(0.0171)	(0.0164)	(0.0183)	(0.0210)
Observations	3,155	3,155	3,155	3,155	3,155
Hospital Fixed Effects		X	X	X	X
Year Fixed Effects		X	X	X	X
Hospital Controls			X	X	X
County Demographic Controls				X	X
County Economic Controls					X

Standard errors are clustered at the state-level.

*** denotes statistically significant at the 1% level; ** denotes statistically significant at the 5% level; * denotes statistically significant at the 10% level.

Sources: CMS Hospital Cost Report Data, Census, Bureau of Labor Statistics, and U.S. Department of Agriculture.

Exhibit A8: Parallel Trends Analysis - Critical Access Hospitals - Log of Uncompensated Care Costs ($)

	(1)	(2)	(3)	(4)	(5)
1(S=Maine) X Year	0.0157	0.0196	0.0181	0.0274	0.0259
	(0.0115)	(0.0118)	(0.0116)	(0.0164)	(0.0172)
Observations	3,155	3,155	3,155	3,155	3,155
Hospital Fixed Effects		X	X	X	X
Year Fixed Effects		X	X	X	X
Hospital Controls			X	X	X
County Demographic Controls				X	X
County Economic Controls					X

Standard errors are clustered at the state-level.

*** denotes statistically significant at the 1% level; ** denotes statistically significant at the 5% level; * denotes statistically significant at the 10% level.

Sources: CMS Hospital Cost Report Data, Census, Bureau of Labor Statistics, and U.S. Department of Agriculture.

Exhibit A9: Parallel Trends Analysis -Highest Baseline Uncompensated Care Hospitals - Uncompensated Care Costs ($)

	(1)	(2)	(3)	(4)	(5)
1(S=Maine) X Year	-0.214	-0.331	-0.334	-0.119	-0.165
	(0.269)	(0.240)	(0.242)	(0.131)	(0.127)
Observations	7,128	7,128	7,128	7,128	7,128
Hospital Fixed Effects		X	X	X	X
Year Fixed Effects		X	X	X	X
Hospital Controls			X	X	X
County Demographic Controls				X	X
County Economic Controls					X

Standard errors are clustered at the state-level.

*** denotes statistically significant at the 1% level; ** denotes statistically significant at the 5% level; * denotes statistically significant at the 10% level.

Sources: CMS Hospital Cost Report Data, Census, Bureau of Labor Statistics, and U.S. Department of Agriculture.

Exhibit A10: Parallel Trends Analysis -Highest Baseline Uncompensated Care Hospitals - Log of Uncompensated Care Costs ($)

	(1)	(2)	(3)	(4)	(5)
1(S=Maine) X Year	-0.0198**	-0.0209**	-0.0203**	-0.0130	-0.0106
	(0.00680)	(0.00828)	(0.00840)	(0.0107)	(0.0111)
Observations	7,128	7,128	7,128	7,128	7,128
Hospital Fixed Effects		X	X	X	X
Year Fixed Effects		X	X	X	X
Hospital Controls			X	X	X
County Demographic Controls				X	X
County Economic Controls					X

Standard errors are clustered at the state-level.

*** denotes statistically significant at the 1% level; ** denotes statistically significant at the 5% level; * denotes statistically significant at the 10% level.

Sources: CMS Hospital Cost Report Data, Census, Bureau of Labor Statistics, and U.S. Department of Agriculture.

Exhibit A11: Difference-in-Differences Estimates - All Hospitals - Log of Uncompensated Care Costs ($)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1(S=Maine) X Exposure	-0.378***	-0.370***	-0.369***	-0.310***	-0.306***	-0.302***	-0.340***
	(0.0475)	(0.0450)	(0.0446)	(0.0528)	(0.0516)	(0.0537)	(0.0410)
Observations	16,076	16,076	16,076	16,076	16,076	16,076	16,076
Hospital FEs		X	X	X	X	X	X
Year FEs		X	X	X	X	X	X
Hospital Controls			X	X	X	X	X
County Demographic Controls				X	X	X	X
County Economic Controls					X	X	X
County COVID-19 Control						X	X
Pre-Existing Trends							X

Standard errors are clustered at the state-level.

*** denotes statistically significant at the 1% level; ** denotes statistically significant at the 5% level; * denotes statistically significant at the 10% level.

Sources: CMS Hospital Cost Report Data, Census, Bureau of Labor Statistics, U.S. Department of Agriculture, and COVID-19 PVI Dashboard.

Exhibit A12: Difference-in-Differences Estimates - General Acute Care Hospitals - Log of Uncompensated Care Costs ($)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1(S=Maine) X Exposure	-0.513***	-0.502***	-0.497***	-0.432***	-0.422***	-0.412***	-0.412***
	(0.0424)	(0.0471)	(0.0479)	(0.0657)	(0.0668)	(0.0802)	(0.0498)
Observations	11,701	11,701	11,701	11,701	11,701	11,701	11,701
Hospital FEs		X	X	X	X	X	X
Year FEs		X	X	X	X	X	X
Hospital Controls			X	X	X	X	X
County Demographic Controls				X	X	X	X
County Economic Controls					X	X	X
County COVID-19 Control						X	X
Pre-Existing Trends							X

Standard errors are clustered at the state-level.

*** denotes statistically significant at the 1% level; ** denotes statistically significant at the 5% level; * denotes statistically significant at the 10% level.

Sources: CMS Hospital Cost Report Data, Census, Bureau of Labor Statistics, U.S. Department of Agriculture, and COVID-19 PVI Dashboard.

Exhibit A13: Difference-in-Differences Estimates - Critical Access Hospitals - Log of Uncompensated Care Costs ($)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1(S=Maine) X Exposure	-0.227***	-0.216***	-0.218***	-0.170***	-0.173***	-0.176***	-0.332***
	(0.0578)	(0.0446)	(0.0402)	(0.0418)	(0.0421)	(0.0402)	(0.0619)
Observations	4,375	4,375	4,375	4,375	4,375	4,375	4,375
Hospital FEs		X	X	X	X	X	X
Year FEs		X	X	X	X	X	X
Hospital Controls			X	X	X	X	X
County Demographic Controls				X	X	X	X
County Economic Controls					X	X	X
County COVID-19 Control						X	X
Pre-Existing Trends							X

Standard errors are clustered at the state-level.

*** denotes statistically significant at the 1% level; ** denotes statistically significant at the 5% level; * denotes statistically significant at the 10% level.

Sources: CMS Hospital Cost Report Data, Census, Bureau of Labor Statistics, U.S. Department of Agriculture, and COVID-19 PVI Dashboard.

Exhibit A14: Difference-in-Differences Estimates - Highest Baseline Uncompensated Care Hospitals - Log of Uncompensated Care Costs ($)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1(S=Maine) X Exposure	-0.335***	-0.338***	-0.337***	-0.257***	-0.253***	-0.293***	-0.247***
	(0.0447)	(0.0478)	(0.0463)	(0.0472)	(0.0472)	(0.0474)	(0.0510)
Observations	9,838	9,838	9,838	9,838	9,838	9,838	9,838
Hospital FEs		X	X	X	X	X	X
Year FEs		X	X	X	X	X	X
Hospital Controls			X	X	X	X	X
County Demographic Controls				X	X	X	X
County Economic Controls					X	X	X
County COVID-19 Control						X	X
Pre-Existing Trends							X

Standard errors are clustered at the state-level.

*** denotes statistically significant at the 1% level; ** denotes statistically significant at the 5% level; * denotes statistically significant at the 10% level.

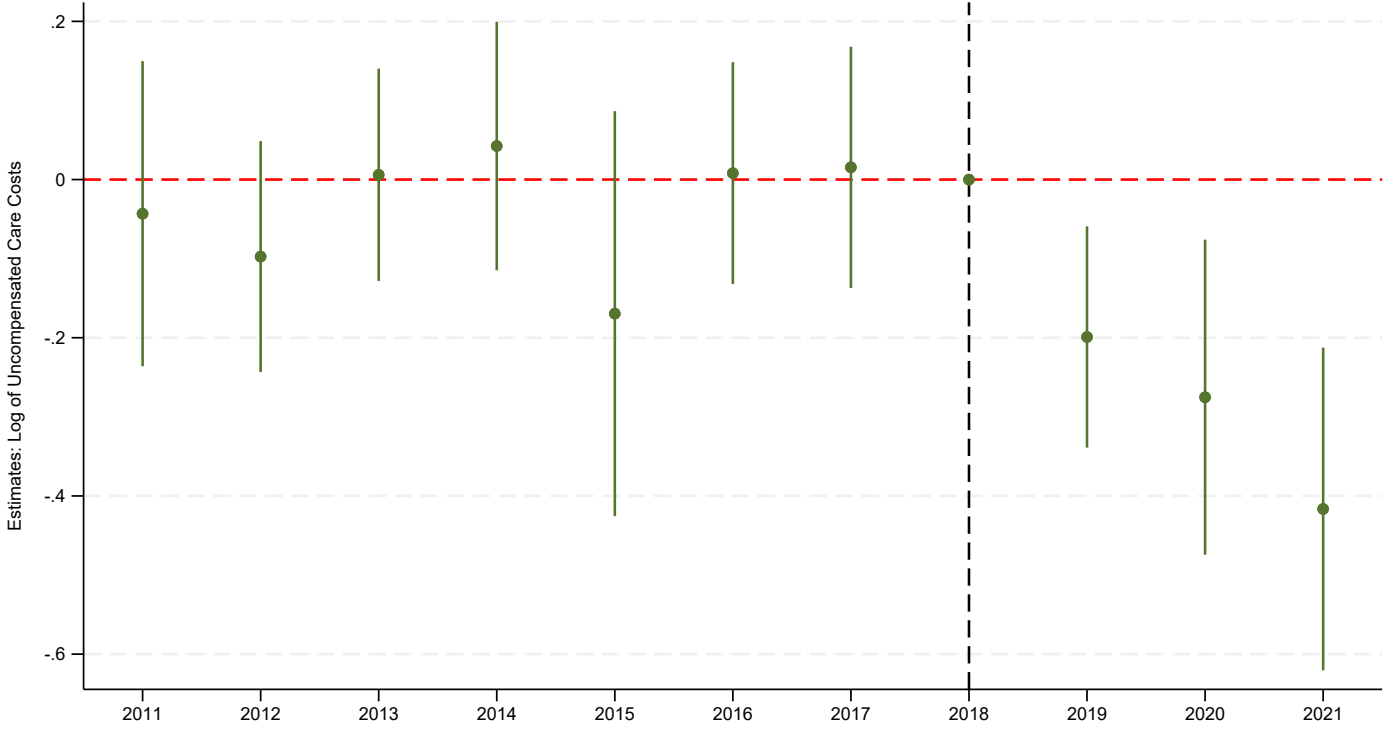
Sources: CMS Hospital Cost Report Data, Census, Bureau of Labor Statistics, U.S. Department of Agriculture, and COVID-19 PVI Dashboard.

Exhibit A15: Comparison of P-values from Inference Methodologies

	Difference-in-Differences Estimate (Logged Outcome)
All Hospitals	
1(S=Maine) X Exposure	-0.302***
Standard Errors Clustered at the State-Level P-value	0.00
Randomization Inference Procedure P-value	0.00
General Acute Care Hospitals	
1(S=Maine) X Exposure	-0.41***
Standard Errors Clustered at the State-Level P-value	0.00
Randomization Inference Procedure P-value	0.00
Critical Access Hospitals	
1(S=Maine) X Exposure	-0.18***
Standard Errors Clustered at the State-Level P-value	0.00
Randomization Inference Procedure P-value	0.083
Highest Tercile UC Cost Hospitals	
1(S=Maine) X Exposure	-0.29***
Standard Errors Clustered at the State-Level P-value	0.00
Randomization Inference Procedure P-value	0.00

Sources: CMS Hospital Cost Report Data, Census, Bureau of Labor Statistics, U.S. Department of Agriculture, and COVID-19 PVI Dashboard.

Exhibit A16: Event-Study Estimates



Sources: CMS Hospital Cost Report Data, Census, Bureau of Labor Statistics, U.S. Department of Agriculture, and COVID-19 PVI Dashboard.