Did Medicaid Expansion Matter in States With Generous Medicaid?

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ABSTRACT

OBJECTIVES: It is unclear whether the Medicaid expansion under the Affordable Care Act had an effect on coverage in states with relatively generous pre-expansion Medicaid eligibility levels. We examined the effect of the Medicaid expansions on Medicaid coverage in 4 generous states: New York, Vermont, Massachusetts, and Delaware.

STUDY DESIGN: We used the American Community Survey (2011-2016) to estimate effects on coverage among nonelderly adults with incomes up to 138% of the federal poverty level.

METHODS: We estimated differences in differences (DID) in marginal probabilities following probit models, comparing New York, Vermont, Massachusetts, and Delaware with nonexpansion states on the East Coast.

RESULTS: There is strong evidence of the effect in New York: DID estimates ranged from 3.3 to 5.2 percentage points. There is weak or no evidence of coverage gains in the other 3 states. Pronounced effects were found among the racial/ethnic majority (white, non-Hispanic white, and nonblack populations) in New York, as well as the working poor and previously eligible in New York and Massachusetts.

CONCLUSIONS: Even in states with relatively generous pre-expansion Medicaid programs, the expansion can produce nontrivial coverage gains, as evidenced by New York. Our findings of spillover effects may indicate the relative importance and success of a simplified enrollment process and increased media coverage in boosting enrollment in Medicaid. Our subgroup analyses highlight a potential need to improve access to office-based care to accommodate the growing population of the working poor on Medicaid and potential changes in the Medicaid risk pool served by managed care organizations and subsequent decreases in capitated payments.

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As of January 2019, 36 states and the District of Columbia have adopted or chosen to adopt Medicaid expansion under the Affordable Care Act (ACA).[1] For most states, the ACA Medicaid expansion signified substantial increases in eligibility thresholds for nonelderly adults. One of the main groups to which the ACA Medicaid expansion extends coverage is childless adults—a category that was not previously mandated to be covered by Medicaid and was not eligible for Medicaid in 44 states as of 2011.[2] Under the ACA, in states that choose to expand Medicaid, individuals with incomes at or below 133% (138% under the new income formula) of the federal poverty level (FPL) are eligible for Medicaid, including childless adults and parents.

There is compelling evidence that Medicaid expansion resulted in significant reductions in the uninsured rate and gains in Medicaid coverage nationally. Results from studies comparing Medicaid expansion states with nonexpansion states have shown greater decreases in the uninsured rate in states with expansions after 2 years,[3-9] with the coverage gains sustained through the beginning of 2018.[10,11] One analysis found that roughly 60% of the reduction in the uninsured rate in 2014-2015 was due to increases in Medicaid coverage.[12] Increases in overall insurance coverage or Medicaid coverage have been reported for such demographic groups as low-income nonelderly adults[13-15] and more specifically among low-income nonelderly childless adults,[6,14,16] both in rural and urban areas[17]; low-income nonelderly parents[6,16,18]; nonelderly adults with low educational attainment[6,16,19]; and groups of different races and ethnicities: white,[19-21] Hispanic,[19-22] and black[19,21] individuals.

The majority of the existing studies have focused on the effects of the ACA Medicaid expansion on coverage across the nation; however, questions remain as to whether states that had relatively generous Medicaid programs before the ACA expansion also experienced coverage gains. We sought to improve our understanding of the impact of the ACA Medicaid expansion in 4 such states: New York, Vermont, Massachusetts, and Delaware. These states had extensive health insurance coverage of their low-income populations by the time that federally funded Medicaid expansion through the ACA became available in 2014. New York's Family Health Plus program

TAKEAWAY POINTS

- New York, which had generous pre-expansion Medicaid eligibility levels, experienced nontrivial gains in Medicaid coverage following the Affordable Care Act Medicaid expansion.
- Together with Vermont, Massachusetts, and Delaware, New York has been neglected in some Medicaid expansion research; however, given the coverage gains, it should be seen as a legitimate expansion state.
- Our findings of spillover effects suggest that a simplified enrollment process and increased media coverage had a strong impact on Medicaid uptake; these could be effective strategies to boost enrollment.
- Coverage gains among the working poor were large in New York and Massachusetts. Managed care organizations may expect an improved Medicaid risk pool after state Medicaid expansions and need to emphasize access to office-based care.

covered childless adults with incomes up to 100% of the FPL and parents with incomes up to 150% of the FPL. Vermont Health Access Plan provided coverage to childless adults with incomes up to 150% of the FPL and parents with incomes up to 185% of the FPL. In Massachusetts, parents with incomes up to 133% of the FPL were eligible for Medicaid, and childless adults with incomes below 100% of the FPL were able to obtain limited coverage under the MassHealth program. In Delaware, nonelderly adults, whether childless or parents, with incomes up to 100% of the FPL were covered prior to 2014.[23]

Because of these generous eligibility levels prior to the ACA Medicaid expansion, some researchers have assumed that New York, Vermont, Massachusetts, and Delaware did not have true Medicaid expansions in 2014: These states have been viewed as nonexpansion, control states in some analyses[6,19,24] and have been excluded from others, seen as neither true expansion nor nonexpansion states.[13,25] Medicaid decision makers could be misled by this research if the assumption did not hold that these states were not, in effect, Medicaid expansion states. Furthermore, if these generous states did in fact experience gains in Medicaid coverage, national analyses that fail to include them as expansion states may underestimate the effects of Medicaid expansion on other outcomes, such as healthcare utilization, quality of care, and health.

The purpose of our study was to examine whether Medicaid expansion had an effect on Medicaid coverage in states with previously generous Medicaid programs: New York, Vermont, Massachusetts, and Delaware. Although Washington, DC, has also been treated as a control state or excluded from analyses by some researchers, we chose not to include it because it represents an early Medicaid expansion under the ACA, rather than a prior generous Medicaid or Medicaid-like program, and its effect on coverage has been investigated previously.[26] In this study, we present evidence that Medicaid expansion resulted in significant coverage gains in New York.

METHODS

Data and Study Population

We used data from the 2011-2016 American Community Survey (ACS), a large cross-sectional survey conducted annually by the US Census Bureau that is representative of the civilian noninstitutionalized population, to compare changes in Medicaid coverage in New York, Vermont, Massachusetts, and Delaware with those in 5 nonexpansion states on the East Coast: Virginia, North Carolina, South Carolina, Georgia, and Florida. It is common in Medicaid expansion research to select control nonexpansion states that are in the same Census region as and/or that neighbor the expansion states, based on the assumption that such states are similar economically and demographically.[26-28] Because Maine was the only nonexpansion state in the Northeast in our study period and because Maine experienced a Medicaid eligibility restriction around the same time as the ACA Medicaid expansion,[29] making it an inadequate control state, we cannot follow this tradition but instead chose states on the East Coast. Because the differences-in-differences (DID) design rests primarily on the assumption of parallel trends, we assess this assumption to identify comparison states.

Our study cohort consisted of nonelderly adults (ie, individuals aged 19-64 years) with family incomes at or below 138% of the FPL. Our total sample consisted of 534,828 observations: 171,011 in the 4 expansion states and 363,817 in the 5 nonexpansion states.

Measures

Our data are structured at the person-year level. The dependent variable is a binary variable indicating whether a person currently has Medicaid insurance. More precisely, it measures whether a person has "Medicaid, Medical Assistance, or any other kind of [health insurance or health coverage] government assistance plan for those with low incomes or a disability,"[30] which likely captures New York's Family Health Plus Program, Vermont Health Access Plan, and Massachusetts' MassHealth. Consistent with prior research,[26] we controlled for age, sex, race and ethnicity, citizenship, marital status, educational attainment, income to poverty ratio, and employment status, as well as year indicator variables to capture secular trends. Additionally, we controlled for receipt of Supplemental Security Income and disability status.

Statistical Methods

We calculated DID estimates of the effect of Medicaid expansion for pairs of expansion and nonexpansion states, as well as for each expansion state and the aggregate control group composed of the 5 control states. Estimating separate models with the control states allows us to report on the range of estimates. If these estimates are consistent with each other, it would provide robust evidence of the effect. Estimates are based on pre-expansion and postexpansion marginal probabilities calculated using expansion state predictions from probit models estimated on the expansion state and on the comparison state(s). *P* values were calculated using state-stratified bootstrapped standard errors (based on 100 bootstrap samples). All analyses used ACS survey weights.

To investigate which population groups were most affected by the expansions, we calculated DID estimates for subsamples

based on sex, race/ethnicity, education, presence of a disability, and employment status, comparing each expansion state with the aggregate control group. Differences in estimates among subgroups were then estimated; using bootstrapped standard errors on these estimates, we assessed whether differences among subgroups were statistically significant.

Test of the Parallel Trends Assumption

The key assumption of the DID design is that of parallel trends (ie, the assumption that the outcome trends in the treatment and control groups are similar, conditional on covariates, in the preintervention period and would have continued as such had the intervention not occurred). Importantly, the outcomes need not be at the same level; only the trends need to be parallel.

We first performed a visual inspection of the observed trends in the Medicaid insurance rate for each expansion state and all the nonexpansion states (**eAppendix A** [eAppendices available at **ajmc.com**]). This examination shows that the trends in each expansion state seem sufficiently parallel to those in the nonexpansion states before 2014. We also performed a statistical check by estimating probit models with interactions between year indicators and the expansion state indicator, omitting the year before the expansion (2013) and adjusting for the same covariates. Statistically insignificant estimates on interactions between pre-expansion year indicators and the expansion state indicator increase the confidence that the parallel trends assumption is not violated. Joint Wald tests of the coefficients on the interaction terms indicated that they are not statistically different from 0 in all models, except for the Massachusetts and South Carolina pair ($P = .037$). We conclude that these 2 states do not have common pre-expansion trends.

The Institutional Review Board at the University of Rochester deemed this study exempt from human subjects research review. All analyses were conducted using Stata version 14.2 (StataCorp LLC; College Station, Texas).

TABLE 1. Characteristics of Low-Income Nonelderly Adult Population by State Before the ACA Medicaid Expansion, 2011-2013[a]

Characteristic	NY	VT	MA	DE	VA	NC	SC	GA	FL
Sample size, 2011-2013	66,416	1738	17,469	2390	21,643	38,245	19,023	39,764	71,874
Female, %	55.5	54.2	56.8	59.8	57.3	56.6	58.4	57.7	55.4
Age in years, mean	39.6	40.5	39.7	39.5	39.3	39.7	40.3	39.7	40.7
Race/ethnicity,[b] %									
White	57.3	97.1	70.5	64.1	64.0	59.1	56.0	53.1	70.3
Black	21.4	1.6	13.9	27.4	28.8	32.7	40.1	40.7	23.9
Asian	10.5	1.2	8.5	3.7	5.4	2.4	1.7	3.5	2.7
Hispanic	22.9	1.5	19.6	13.1	8.0	11.1	5.9	9.7	26.2
Education, %									
Less than high school	27.4	13.3	20.8	24.7	22.2	25.7	25.9	25.9	22.3
High school	31.8	36.8	30.9	34.7	33.7	31.5	35.1	34.3	34.5
At least some college	40.8	49.9	48.3	40.6	44.1	42.8	39.0	39.8	43.2
Married, %	29.7	27.3	21.2	24.6	28.0	30.0	28.0	31.1	31.1
US citizen, %	81.2	98.0	86.0	90.5	91.0	90.0	94.9	90.4	82.9
Disability status, %	21.5	24.6	26.0	21.9	23.3	23.7	24.6	21.6	19.6
On SSI, %	11.3	11.6	14.6	8.5	9.2	8.2	8.0	8.1	7.2
In labor force, %									
Employed	38.9	45.9	37.2	42.3	41.8	40.7	39.6	39.7	41.6
Unemployed	13.1	11.2	14.5	14.1	12.7	15.4	15.6	15.4	16.6
Not in labor force,[c] %	48.0	42.9	48.3	43.6	45.5	43.9	44.8	44.9	41.8

ACA indicates Affordable Care Act; SSI, Supplemental Security Income.

[a]Low income is defined as having income at or below 138% of the federal poverty level.

[b]Percentages for race and ethnicity variables do not sum to 100%. Race variables include race alone or in combination with 1 or more other races. Hispanic variable is separate from race.

[c]Those not in the labor force are mainly students, homemakers, seasonal workers off-season, institutionalized individuals, individuals doing incidental unpaid family work, and individuals who have not recently been actively seeking employment.

RESULTS

Table 1 summarizes demographic characteristics of low-income nonelderly adults in the 9 states in the pre-expansion period. On most demographic characteristics, there are differences between each expansion state and the nonexpansion states. This does not threaten our study design, as the DID approach does not require that observed covariates are similar between the treatment and control groups in the pretreatment period, only that the outcome exhibits parallel pretreatment trends. We adjust for these demographic variables in our models.

The DID estimates, as well as relative changes in coverage, are presented in **Table 2**. We found strong evidence of the effect of the Medicaid expansion in New York, with estimates ranging from 3.3 to 5.2 percentage points, or a 6.3% to 9.8% increase, relative to the pre-expansion Medicaid coverage rate of 52.8% (Table 2, panel A). The effect estimate in Vermont ranges from 2.7 to 4.4 percentage points, with 2 statistically significant estimates (Table 2, panel B). For Massachusetts, the effect estimate ranges from 0.7 to 2.3 percentage points (trends are not common with South Carolina), with 2 statistically significant estimates (Table 2, panel C). There is no evidence of an effect in Delaware (Table 2, panel D).

Table 3 shows DID estimates for subgroup analyses. In New York, larger coverage gains were found among men, the racial/ethnic

TABLE 2. Effects of the Expansion on Coverage of Low-Income[a] Nonelderly Adults, Main Analyses[b]

	DID (*P*)	Relative Change	Sample Size
A. New York (n = 129,028)			
vs Virginia	0.043 (*P* <.001)	8.1%	170,895
vs North Carolina	0.043 (*P* <.001)	8.1%	202,023
vs South Carolina	0.033 (*P* <.001)	6.3%	165,002
vs Georgia	0.052 (*P* <.001)	9.8%	204,347
vs Florida	0.037 (*P* <.001)	7.0%	266,690
vs all 5 nonexpansion states	0.041 (*P* <.001)	7.8%	492,845
B. Vermont (n = 3247)			
vs Virginia	0.042 (*P* = .045)	7.0%	45,114
vs North Carolina	0.035 (*P* = .113)	5.8%	76,242
vs South Carolina	0.027 (*P* = .143)	4.5%	39,221
vs Georgia	0.044 (*P* = .035)	7.3%	78,566
vs Florida	0.032 (*P* = .107)	5.3%	140,909
vs all 5 nonexpansion states	0.035 (*P* = .091)	5.8%	367,064
C. Massachusetts (n = 34,082)			
vs Virginia	0.011 (*P* = .125)	1.8%	75,949
vs North Carolina	0.015 (*P* = .049)	2.5%	107,077
vs South Carolina[c]	0.004 (*P* = .584)	0.7%	70,056
vs Georgia	0.023 (*P* <.001)	3.8%	109,401
vs Florida	0.007 (*P* = .234)	1.2%	171,744
vs all 5 nonexpansion states	0.010 (*P* = .099)	1.6%	397,899
D. Delaware (n = 4654)			
vs Virginia	0.002 (*P* = .921)	0.4%	46,521
vs North Carolina	0.005 (*P* = .796)	1.1%	77,649
vs South Carolina	−0.007 (*P* = .749)	−1.5%	40,628
vs Georgia	0.014 (*P* = .463)	3.0%	79,973
vs Florida	−0.003 (*P* = .833)	−0.6%	142,316
vs all 5 nonexpansion states	0.001 (*P* = .967)	0.2%	368,471

DID indicates differences in differences.

[a]Low income is defined as having income at or below 138% of the federal poverty level.

[b]DID estimates are interpreted as percentage-point changes from pre- to post expansion. Relative changes are from average Medicaid coverage rate in each expansion state in 2011-2013.

[c]For the Massachusetts versus South Carolina model, there is evidence that the assumption of parallel trends is violated. We provide this estimate for table consistency, but an effect, or lack of evidence of an effect, cannot be inferred from this model.

majority (white, non-Hispanic white, nonblack, and non-Hispanic populations), high school graduates, the working poor, and those with no disabilities. The differences in estimates among subgroups were statistically significant in stratified analyses by sex, race, working status, and disability status. In Vermont, statistically significant increases were found among the nonblack population and those without disabilities. In Massachusetts, a positive effect was seen among the working poor. In Delaware, a coverage loss was found among those without a high school education.

Additionally, we estimated effects in income groups that were eligible before the expansion (ie, those with incomes up to 100% of the FPL in New York, Massachusetts, and Delaware; in Vermont, pre-expansion eligibility levels were higher than 138% of the FPL, and the whole sample was eligible before the expansion). Such an effect is commonly referred to as a spillover, woodwork, or "welcome-mat" effect. In New York, there was a 3.5-percentage-point spillover effect ($P < .001$) and a 5.2-percentage-point increase ($P < .001$) in the group with incomes of 101% to 138% of the FPL, a statistically significant difference ($P = .007$). In Massachusetts, there was a 2.5-percentage-point spillover effect ($P = .027$) and an insignificant 0.7-percentage-point increase in the 101% to 138% FPL group (difference not statistically significant; results not shown). There were no statistically significant changes in coverage in Delaware, in either group.

DISCUSSION

We found that the ACA Medicaid expansion resulted in a nontrivial Medicaid coverage gain among low-income nonelderly adults in New York. This finding is consistent with those of other studies of Medicaid expansion's impact on Medicaid coverage.[5,8,11,13-18] We did not find strong evidence of effects in Vermont, Massachusetts, or Delaware. In **eAppendix B**, we show DID estimates from linear probability models to provide a more direct comparison with the existing literature, which primarily uses this method. Our estimates from probit models in New York are higher than linear probability model estimates. This is not surprising given that in a linear approximation, the slope is inherently lower than in an appropriate nonlinear model. Unlike our main estimates, linear probability models show evidence of positive effects in Vermont and Massachusetts; similar to our results, they show lack of evidence for Delaware. The methodological limitations of linear probability models are widely recognized, and we opted for a probit model to avoid these limitations. We conclude that of the 4 generous states, we only have evidence that New York experienced coverage gains because of the expansion and that certain subgroups saw gains in Vermont and Massachusetts.

Our findings have direct implications for state Medicaid agencies and managed care organizations. First, an increase in Medicaid coverage in New York means an influx of new enrollees into the healthcare system, with likely increases in healthcare utilization and potential improvements in health among its population. In areas with shortages of healthcare providers and facilities, increased demand for healthcare may have further implications for accessibility to health services and, potentially, quality of care. Medicaid agencies' initiatives, such as New York's Delivery System Reform Incentive Payment program, should take this into consideration.

Second, given the evidence of spillover effects in New York and Massachusetts, our findings suggest that a more streamlined enrollment process, removal of the asset test, and/or increased media coverage of Medicaid expansion had a strong impact on enrollment, potentially stronger than changes in eligibility thresholds. This may indicate that state Medicaid agencies aiming to increase healthcare coverage of their low-income populations can boost enrollment by simplifying the enrollment process and increasing advertisement, without

changing eligibility levels. Future research is needed to confirm this supposition.

Third, our subgroup analyses results can further inform state Medicaid decision making. One of the largest effects was found among the working poor. This finding runs contrary to a relatively common perception that individuals who are not working are more likely to take advantage of Medicaid. This may have several implications. First, although enrollment into Medicaid should increase individuals' access to office-based care, additional barriers to care may exist for the working poor. Low-income workers are more likely to have jobs that do not allow them to take time off or plan medical appointments far in advance. It is thus plausible that the working poor on Medicaid may not be able to access office-based care during regular working hours. Such barriers do not exist to access to emergency department (ED) care, as EDs are always open and do not require appointments. The working poor may therefore increase their use of EDs, as there is some evidence that Medicaid patients substitute ED care for unavailable primary care.[31-34] If this is the case, incentives for office-based providers to have alternative office hours may be beneficial to Medicaid programs, managed care organizations, and Medicaid beneficiaries' health. Another implication concerns the changes in the Medicaid risk pool. Under the assumption that the working poor are in better health than those who are unemployed, our finding suggests that Medicaid expansions lead to a generally healthier Medicaid population and a less expensive Medicaid risk pool served by managed care organizations. With adjustments for the changes in the case mix, this may further result in lower capitated payments. Our finding that the impact of the expansion on coverage was particularly pronounced in the racial/ethnic majority in New York indicates that coverage gains were unevenly distributed among racial and ethnic strata. Although evidence for this is weak, Medicaid expansion may also disproportionately favor those with a high school education versus those without. Better strategies to reach racial and ethnic minorities and those with less education may be necessary.

TABLE 3. Effect of the Expansion on Coverage of Low-Income[a] Nonelderly Adults, Subgroup Analyses[b]

	New York	Vermont	Massachusetts	Delaware
Male	0.048[c] (*P* <.001)	0.040 (*P* = .234)	0.015 (*P* = .177)	−0.015 (*P* = .525)
Female	0.034[c] (*P* <.001)	0.029 (*P* = .312)	0.007 (*P* = .422)	0.027 (*P* = .321)
White non-Hispanic	0.054[d] (*P* <.001)	0.032 (*P* = .129)	0.002 (*P* = .848)	−0.021 (*P* = .366)
Nonwhite and/or Hispanic	0.033[d] (*P* <.001)	0.003 (*P* = .974)	0.013 (*P* = .103)	−0.011 (*P* = .664)
White	0.053[d] (*P* <.001)	–[e]	0.006 (*P* = .414)	−0.013 (*P* = .581)
Nonwhite	0.030[d] (*P* <.001)	–[e]	0.014 (*P* = .201)	−0.016 (*P* = .587)
Black	0.007[f] (*P* = .353)	–[g]	0.006 (*P* = .727)	−0.033 (*P* = .258)
Nonblack	0.050[f] (*P* <.001)	0.063 (*P* = .017)	0.010 (*P* = .135)	−0.010 (*P* = .649)
Hispanic	0.039 (*P* <.001)	–[g]	0.019 (*P* = .155)	0.032 (*P* = .526)
Non-Hispanic	0.041 (*P* <.001)	0.036 (*P* = .133)	0.005 (*P* = .478)	−0.005 (*P* = .801)
Less than high school	0.038 (*P* <.001)	–[e]	0.009 (*P* = .545)	−0.087[d] (*P* = .013)
High school graduate	0.042 (*P* <.001)	–[e]	0.009 (*P* = .162)	0.014[d] (*P* = .483)
Working	0.069[f] (*P* <.001)	0.055 (*P* = .066)	0.026[d] (*P* = .007)	0.026[c] (*P* = .302)
Not working[h]	0.021[f] (*P* <.001)	0.019 (*P* = .422)	−0.010[d] (*P* = .139)	−0.033[c] (*P* = .100)
With disability	−0.005[f] (*P* = .543)	−0.015[c] (*P* = .657)	−0.015[c] (*P* = .098)	−0.071[c] (*P* = .050)
Without disability	0.045[f] (*P* <.001)	0.054[c] (*P* = .012)	0.010[c] (*P* = .150)	0.001[c] (*P* = .949)

[a]Low income is defined as having income at or below 138% of the federal poverty level.

[b]Differences-in-differences estimates are interpreted as percentage-point changes from pre- to post expansion.

[c]Difference between counterpart subgroups statistically significant at .05 level.

[d]Difference between counterpart subgroups statistically significant at .01 level.

[e]Probit models did not converge in bootstrap samples.

[f]Difference between counterpart subgroups statistically significant at .001 level.

[g]Subgroup population too small.

[h]Not working category comprises those not in labor force and the unemployed.

Following the 2018 midterm elections, Idaho, Maine, Nebraska, and Utah are expected to expand Medicaid, with Maine having a relatively generous current eligibility threshold for parents. To the extent that these states will respond similarly to those analyzed in our study, the effects and implications discussed here may apply in the newly expanding states as well.

In addition to the policy implications pertinent to Medicaid decision makers, our findings have an important research implication. In DID studies comparing expansion and nonexpansion states, New York, Vermont, Massachusetts, and Delaware have sometimes been excluded from the analyses[13,25] or included as control, nonexpansion states.[6,19,24] Our findings indicate that treating New York as such may result in underestimated effects of the Medicaid expansion on considered outcomes.

Limitations

Our study has several limitations. First, the ACS does not distinguish between documented and undocumented immigrants, both of whom are referred to as noncitizens in the survey. Whereas documented immigrants normally qualify for Medicaid, most undocumented immigrants do not. Our inability to distinguish between legal and illegal immigrants may produce biased results because illegal immigrants are included in the sample but are unlikely to qualify for Medicaid, even when eligible otherwise. When we excluded noncitizens in sensitivity analyses, our estimates remained essentially the same (only the Vermont vs Georgia model was sensitive). Further, the ACS variable for income to poverty ratio relies on the reported income amount, which may not reflect respondents' true income. If misreports are common, our study cohort may not have been correctly identified. Similarly, the source of health insurance is self-reported. It is possible that some respondents did not know what health insurance they had. Moreover, Medicaid expansion was not the only policy change that occurred in January 2014. The individual mandate and Marketplace

exchanges for affordable private insurance were also implemented in 2014. The individual mandate may have been a stronger impetus for the eligible adults to enroll in Medicaid than the eligibility expansion itself. Medicaid expansions also involved a more streamlined enrollment process and the elimination of the asset test. We were unable to disentangle the effect of the eligibility expansion from the effects of the individual mandate and simplified enrollment, which should be addressed in future research if possible. Finally, available empirical tests cannot affirm with certainty that pre-expansion trends are parallel but can only provide evidence when they are not. Although we did not find the latter in most expansion–control pairs, it is impossible to ascertain that the core assumption of the DID design is not violated.

CONCLUSIONS

Our findings suggest that the ACA Medicaid expansion produced nontrivial coverage gains in New York, likely with further effects on health services use and, potentially, health outcomes. Evidence of spillover effects in New York and Massachusetts indicates that a simplified enrollment process and/or increased media coverage may have resulted in improved enrollment of the eligible, and state Medicaid agencies may succeed in boosting coverage of their low-income populations without changing eligibility levels. Our findings from subgroup analyses suggest a potential need to strengthen access to office-based care to accommodate the growing population of the working poor on Medicaid, as well as potential changes in the Medicaid risk pool served by managed care organizations and subsequent decreases in capitated payments. ■

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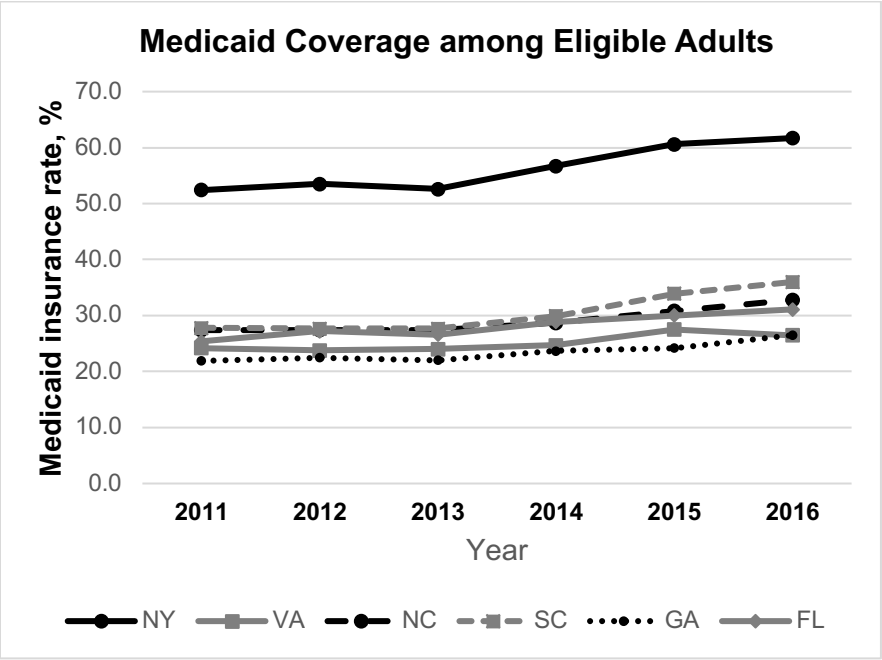
eAppendix A.

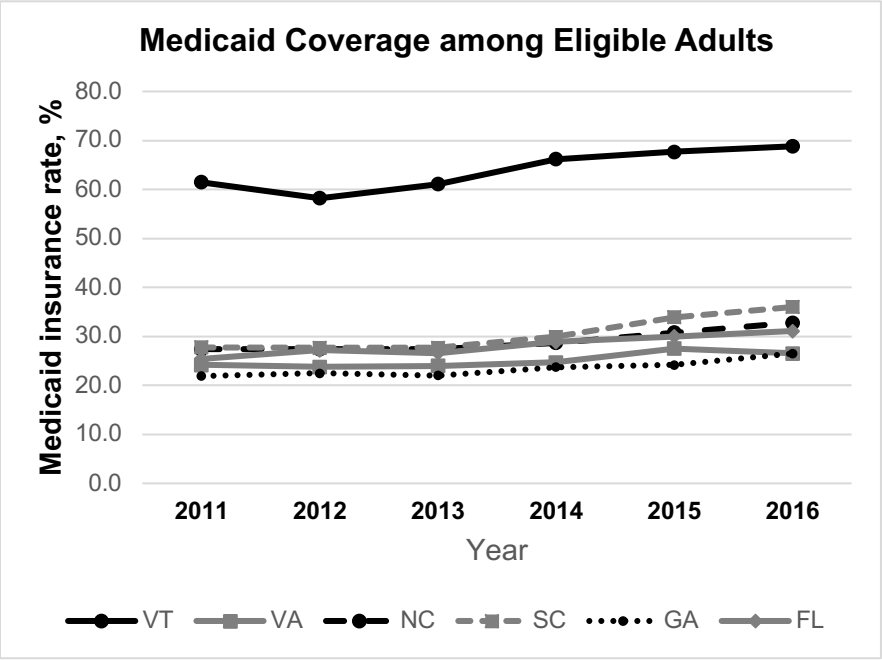
Figure 1. Medicaid Coverage Rates Among Low-Income Nonelderly Adults, New York and Nonexpansion States, Annual Means, 2011-2016



Low-income is defined as having income below or at 138% of the Federal Poverty Level.

NY = New York, VA = Virginia, NC = North Carolina, SC = South Carolina, GA = Georgia, FL = Florida

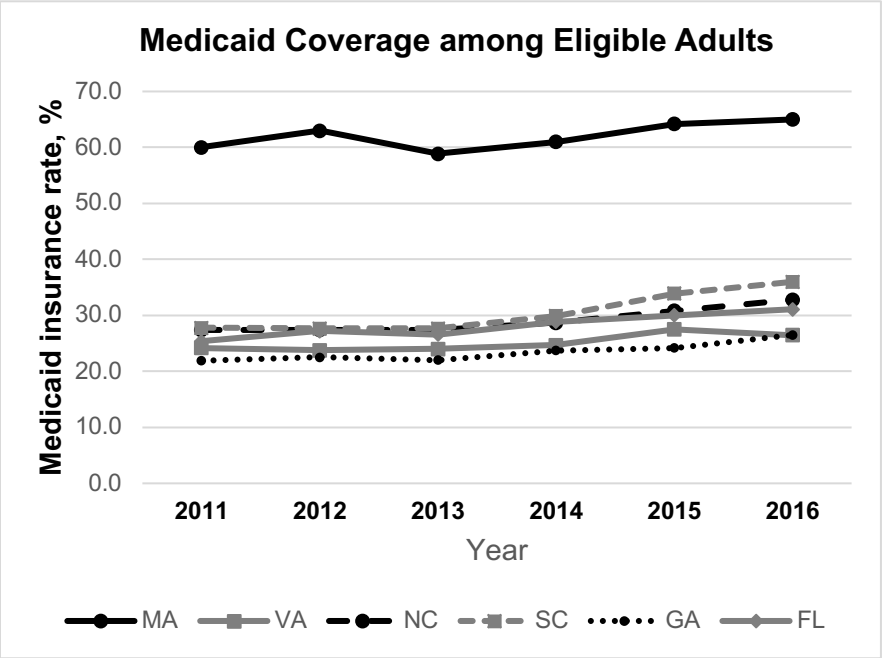
Figure 2. Medicaid Coverage Rates Among Low-Income Nonelderly Adults, Vermont and Nonexpansion States, Annual Means, 2011-2016



Low-income is defined as having income below or at 138% of the Federal Poverty Level.

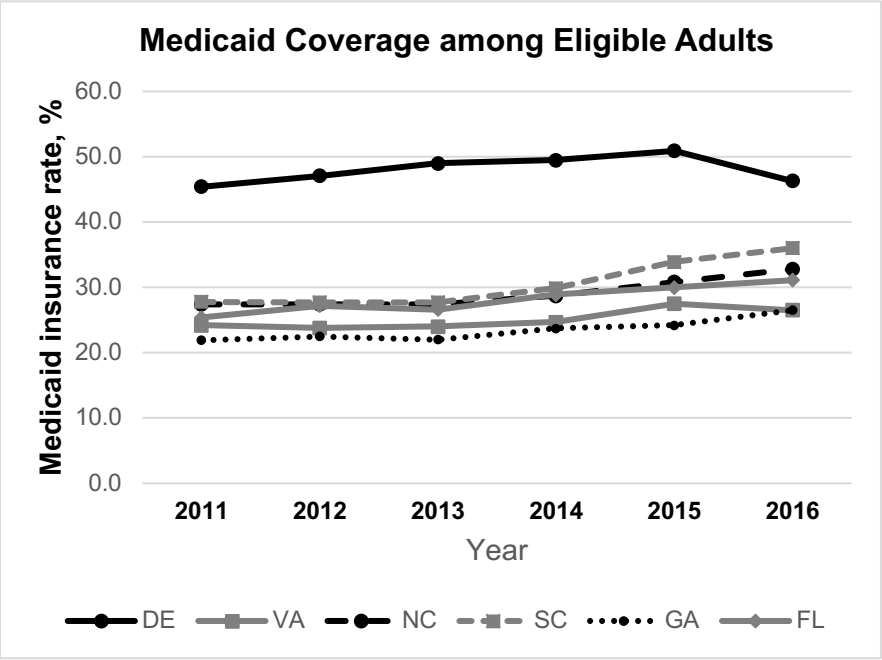
VT = Vermont, VA = Virginia, NC = North Carolina, SC = South Carolina, GA = Georgia, FL = Florida

Figure 3. Medicaid Coverage Rates Among Low-Income Nonelderly Adults, Massachusetts and Nonexpansion States, Annual Means, 2011-2016



Low-income is defined as having income below or at 138% of the Federal Poverty Level. MA = Massachusetts, VA = Virginia, NC = North Carolina, SC = South Carolina, GA = Georgia, FL = Florida

Figure 4. Medicaid Coverage Rates Among Low-Income Nonelderly Adults, Delaware and Nonexpansion States, Annual Means, 2011-2016



Low-income is defined as having income below or at 138% of the Federal Poverty Level.
DE = Delaware, VA = Virginia, NC = North Carolina, SC = South Carolina, GA = Georgia, FL = Florida

eAppendix B.

Table 1. Effects of the Expansion on Coverage of Low-Income Nonelderly Adults, Linear Probability Models

	DID (*P*)
Panel A. New York	
vs. Virginia	0.042 (*P* <.001)
vs. North Carolina	0.038 (*P* <.001)
vs. South Carolina	0.020 (*P* =.002)
vs. Georgia	0.047 (*P* <.001)
vs. Florida	0.034 (*P* <.001)
vs. all 5 nonexpansion states	0.038 (*P* <.001)
Panel B. Vermont	
vs. Virginia	0.059 (*P* =.007)
vs. North Carolina	0.054 (*P* =.016)
vs. South Carolina	0.041 (*P* =.075)
vs. Georgia	0.062 (*P* =.006)
vs. Florida	0.048 (*P* =.032)
vs. all 5 nonexpansion states	0.056 (*P* =.012)
Panel C. Massachusetts	
vs. Virginia	0.012 (*P* =.103)
vs. North Carolina	0.038 (*P* <.001)
vs. South Carolina	0.020 (*P* =.002)
vs. Georgia	0.021 (*P* =.003)
vs. Florida	0.007 (*P* =.267)
vs. all 5 nonexpansion states	0.013 (*P* =.040)
Panel D. Delaware	
vs. Virginia	0.003 (*P* =.863)
vs. North Carolina	0.003 (*P* =.883)
vs. South Carolina	-0.015 (*P* =.420)
vs. Georgia	0.012 (*P* =.483)
vs. Florida	-0.001 (*P* =.962)
vs. all 5 nonexpansion states	0.002 (*P* =.924)