The Effect of Medicaid Expansion on Uninsured Rates

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Abstract

Access to healthcare is an integral factor in household financial decision-making. Medicaid expansion, legislation that each state may choose to opt into, attempts to alleviate this household burden by expanding guaranteed medical coverage to all citizens in a state below 138% of the Federal Poverty Rate (FPR), rather than just for low-income children, pregnant women, and disabled adults. The legislation is targeted at lowering the uninsured rate in low-income communities, but it is currently unclear if it is effective in doing so. My research leverages Medicaid expansion to study how expanded healthcare access affects outcomes such as insurance status, emergency care use, and Medicaid-related costs in a state. I exploit within- and across-state variation through a staggered difference-in-differences framework which compares these outcomes in states that adopt to those that do not. I find that expanding Medicaid causes a 34.9% decrease in the uninsured rate and a 2.5% decrease in the private health insurance enrollment rate. While this result does not say anything about cost-related tradeoffs, it does indicate that Medicaid expansion effectively gets coverage to lower-income communities. Additionally, I find while total emergency department (ED) visits remain unchanged, visits by Medicaid payers increase by 43.5% and decrease by 56.5% for self-pay/no-charge payers. Medicaid-related costs increase by 27%. This work shows that Medicaid expansion is effective in increasing healthcare coverage for low-income individuals. While Medicaid-related costs increase, financial burden shifts from household to Medicaid for emergency care, which has implications for households, hospital financial stability, and government expenditures.

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1 Introduction

The Affordable Care Act, legislation passed in 2010 by the Obama administration, allowed states to opt into a Federal program called Medicaid which would be available to states beginning in 2014. This legislation attempts to alleviate this household burden by offering states the opportunity to opt into expanded guaranteed medical coverage to all citizens in a state below 138% of the Federal Poverty Rate (FPR). Prior to expansion, states were only required to guarantee coverage to individuals such as pregnant women, children, and the disabled based on income guidelines. Starting in 2014, states could adopt this expanded coverage. Initially, 25 states and the District of Columbia adopted. Today, 40 states and the District of Columbia have expanded coverage. For clarity throughout the rest of this paper, I refer to this act of adopting as Medicaid expansion.

Medicaid expansion's effectiveness can be measured in how it impacts the uninsured rate in a state. If effective, I expect several consequences. First, there would be a decreased financial barrier for the low-income population to obtain guaranteed coverage. Subsequently, this results in greater potential access to healthcare for a population that previously had little to no access. Simply increasing access, though, does not always result in increased enrollment. For example, even though many students are eligible to receive significant financial aid to attend college many students and parents do not claim said aid since the process of filling out the FAFSA form is challenging (Kofoed [2017]). Additionally, the expected benefit for this population — who would generally not have healthcare otherwise — may outweigh subsequent costs, as some of their diseases and afflictions are preventable (e.g., asthma, diabetes). The purpose of this paper is to empirically study if individuals respond to Medicaid expansion and if they do or do not enroll in Medicaid, thus decreasing the uninsured rate.

Proponents of Medicaid expansion argue that it allows low-income individuals better access to preventable care. For a state, Medicaid costs related to expanding are covered almost entirely by the Federal government, resulting in either minimal additional costs, a neutral budget impact, or even cost savings by expanding coverage. Medicaid expansion could shift patients from indigent care to being able to pay with Medicaid, resulting in cost savings for hospitals, in particular ones that do not reject any patients. States that expand also experience better health outcomes for pregnant women and reduced racial disparity in healthcare acccess, as shown by Bellerose et al. [2022]. Opponents, on the other hand, caution that while costs for states are not high yet, each year states bear a higher burden of said costs. They worry that an increase in healthcare access may result in overcrowded hospitals which may result in longer waits and depreciated quality of care. These opponents often prefer a more market-based approach to health care. By examining how the uninsured rate is impacted by Medicaid expansion, this study allows us to better understand previous unmet insurance needs, which is the first step in understanding Medicaid expansion's impact on state and Federal budgets.

I use state-level Census data from 2001-2019 to conduct empirical analysis on how Medicaid expansion impacts several outcomes. These outcomes fall into two bodies–insurance coverage and costs. The first outcome is uninsured rate, which is defined as the percentage of individuals without insurance in a state as a fraction of the total population. The second outcome is the private healthcare insurance (PHI) enrollment rate, defined as the percentage of individuals enrolled in private health insurance in a state as a fraction of the total population. I then consider the Medicare enrollment rate, defined as the percentage of individuals enrolled in Medicare in a state as a fraction of the total population. Even though the Medicare enrollment rate is related to health insurance, I do not expect it to be significant as it is unrelated to the act of expanding. I then consider emergency department (ED) visit rate, defined as the percentage of ED visits as a fraction of the total population. I break this rate down by payer type, namely total, Medicare, Medicaid, self-pay/no-charge, and private payers going to the emergency department. Finally, I consider the Medicaid-related costs rate, defined as the total Medicaid costs accrued by healthcare facilities as a fraction of the total population.

To distinguish the effect of Medicaid expansion from confounding factors, I exploit within-state variation in adopting and non-adopting states through a staggered difference-in-differences research design, focusing primarily on within-region comparisons through region-by-year fixed effects. I compare changes in outcomes within-state for expanding states in a period to non-expanding states in a given period. My crucial assumption is that in the absence of Medicaid expansion enactment, adopting states would have experienced outcomes similar to non-adopting states within their region.

The data enables us to test this assumption in a number of ways. First, graphical evidence and regression results show that the outcomes of the adopting and non-adopting states did not diverge in years prior to adoption. Additionally, my findings are robust to the inclusion of the poverty rate as well as contemporaneous program enrollment rates. These enrollment rates may act as general health insurance enrollment trends. Finally, I allow for state-specific linear time trends.

My results indicate that expanding coverage does not result in changes in Medicare enrollment. In contrast, I find significant evidence that the expanding states experience a decrease in uninsured rate by a statistically significant 34.9%. Additionally, I estimate that expanded states experience a 2.5% decrease in the PHI enrollment rate.

These findings indicate that access matters in regards to lower-income healthcare enrollment. This decreased uninsured rate has not impacted enrollment in other programs. Thus, there is a significant impact on newly eligible — i.e., low-income — individuals with little spillover to other enrollment distinctions. The act of expanding does result in lower PHI enrollment, which could be due to several reasons. For example, individuals may be more willing to pursue other career options such as business ownership now that they no longer require their work for health insurance coverage. Regardless, it is reasonable to assume that switching from PHI to Medicaid has little to no impact on uninsured rates.

When discussing government involvement in healthcare, it is thus relevant to bring up the expected benefit of an increase in low-income insured individuals as it relates to corresponding expected costs. I find that there is negligible effects on ED visits for total payers, Medicare payers, and PHI payers. There is, however, a 43.5% decrease and a 56.5% increase for Medicaid and self-pay/no-charge payers, respectively. States that expand also experience a 27% increase in Medicaid-related costs. This implies a shift from self-pay or indigent care to Medicaid at the emergency department. While overall costs increase, low-income individuals have increased access to preventative care that may allow them to avoid the emergency room. Additionally, hospitals are able to recover costs by decreasing indigent care.

2 Literature Review

These findings contribute to two bodies of literature. The first strand of literature focuses on barriers to enrollment among eligible people from public programs. As discussed above, Kofoed [2017] finds that students forgo an estimated $9,741.05 on average by not completing the FAFSA form (2016). This fact is often attributed to the complexity of the FAFSA form required to receive government funding. Supplemental Nutrition Assistance Program (SNAPS) — a government assistance program focused on improving nutrition in lower-income communities — has been found to have a close relationship with unemployment, with Ganong and Liebman [2018] estimating that SNAPS enrollment raises by 15 percent for every 1 percent increase in unemployment.

The second strand is related to the direct effects of Medicaid expansion. There currently exists a broad base of literature examining Medicaid expansion and its various effects on a range of outcomes such as health status and economic consequences (Antonisse et al. [2018]). Some have focused on health outcomes as their indicators of policy effectiveness. One study found that not only did opting into Medicaid expansion result in increased rates of Medicaid coverage and decreased uninsured rates (the rate of those not insured in a given area, which has often been used to quantify access to healthcare), but opting in also led to improved quality of care (Cole et al. [2017]). Another study by Brendan Saloner and Johanna Catherine Maclean analyzed substance use disorder (SUD) treatment and insurance usage, finding that while usage of the program did not significantly increase, the usage of Medicaid for financing purposes increased by 13.9% and outpatient Medicaid-reimbursed prescriptions for SUD prescriptions increased by 43%. This positive causal effect on SUD's has been studied on several other health outcomes (Polsky et al. [2017]; Simon et al. [2016]; Wen et al. [2015]; Wen et al. [2017]).

A common fear surrounding access to preventative care for low-income individuals is the possibility of an ex-ante moral hazard. The fear is that, with or without adverse selection, newly insured individuals will act more precariously with their health once they become insured (Mendoza [2016]). Mendoza's analysis focuses on low-income childless adults. He finds, however, that while expanded coverage does reach its targeted population, there is not sufficient evidence to conclude an increase in an ex-ante moral hazard. Another fear is that expanding Medicaid will result in increased wait times due to demand for healthcare exceeding supply. Allen et al. [2022] studies this through a difference-in-differences framework, finding that states that expand have an estimated 3.1-minute increase in wait times.

There has also been extensive research on economic implications of Medicaid expansion. A feared economic consequence of Medicaid expansion is the crowding-out effect it would have on private insurance companies. One study, though, found that increases in Medicaid coverage have not impacted private insurance coverage rates (Frean et al. [2017]). A different study alleges that this increased access has resulted in a 1.5% decrease in private insurance rates (Semprini [2023]). This decreased rate for lower-income individuals would result in higher rates for non-eligible individuals. This implication would, thus, be felt in the broader economy by middle-to-upper-class Americans. In this paper, I find my own estimate for Medicaid expansion's impact on private health insurance enrollment.

3 Data & Background

Outcome data for the uninsured rate comes from the U.S. Census Bereau and covers all 50 states from 2001-2019, which measures uninsured individuals from a state as a percentage of total population of a state. Outcome data on both Medicare and private health insurance enrollment are from the Center for Medicare & Medicaid Services (CMS). Data on when each state expands Medicaid comes from the Kaiser Family Foundation (KFF), which includes the year of expansion for a given state. I obtained the population from the U.S. Census Bereau. I used ED visits data by payer and year from the Hospital Cost & Utilization Project (HCUP).

I use these data to examine whether expanding access to healthcare has an effect on insurance status. An individual is generally eligible for Medicare if they are 65 years old or older.[1] As discussed previously, Medicaid eligibility is dependent on state regulations, although it typically depends on factors such as income, age, disability status, etc. Anybody is eligible to enroll in private health insurance, although many receive such benefits through employers. All three programs require that individuals enroll. That is, an individual does not automatically have Medicaid, Medicare, or PHI if they fit the criteria for eligibility. Given an individual is uninsured and eligible, one might expect that a rational individual would enroll in Medicaid as the expected benefit of being insured outweighs the potential cost of participating in the healthcare system. The measure of uninsured I use is percentage of individuals in a state not insured. While the data are mostly composed of estimates, they provide a robust foundation for examining the impact of healthcare expansion on insurance status.

Finally, I obtained the poverty rate from the U.S. Census Bureau as my time-varying control variable. I then leverage Medicare and private health insurance enrollment rate as contemporaneous measures of healthcare trends. Table 1 describes relevant summary statis-

[1] Additionally, individuals with a disability, End-Stage Renal Disease, or ALS are also eligible for Medicare, per the Department of Health & Human Services.

tics regarding these variables, and Figure 1 shows when each state expanded Medicaid.

4 Methodology

To distinguish the effect of Medicaid expansion from confounding factors, I leverage the rollout of all states, exploiting within-state variation from 2014-2019. Because of this variation in conditions as well as the existence of non-enacting states, I use a difference-in-differences research design to compare treatment effects between enacting and non-enacting states, focusing primarily on within-region comparisons. I estimate ordinary least squares (OLS) and weighted least squares (WLS) models of the form:

$$Outcome_{st} = \beta_0 \cdot (Treat \times Post)_{st} + \beta_1 \cdot X_{st} + c_s + u_t + W_{rt} + \epsilon_{st}$$

where $Outcome_{st}$ is the log of uninsured rate, Medicare enrollment rate, and PHI enrollment rate per 100,000 people. $(Treat \times Post)_{st}$ is the treatment variable that equals the proportion of year t in which state s has enacted Medicaid expansion. X_{st} is the vector of time-varying control variables, such as demographics and income.

I also observe if time-varying determinants of uninsured rates display orthogonality to within-state variation of Medicaid expansion. My time-varying covariate is poverty rate. c_s includes state-specific fixed effects accounting for observable and unobservable time-invariant differences across states. For example, differences in baseline poverty rates, underlying health conditions, and more. u_t is year-specific fixed effects accounting for observable and unobservable shocks from year to year that affect all states the same. For example, each state was affected by a presidential election. To the extent each state was affected the same by these events, they are accounted for by u_t. In some specifications, W_{rt} is included and accounts for region-by-year fixed effects which allows the year-to-year shocks to be region-specific. For example, the Great Recession affects all states in the SE the same but is allowed to be different from the NE. This analysis will isolate treatment effects between differing states regardless of the year of enactment or other general statewide trends. Additionally, in some specifications I weight by population, since states vary in population so treating them equally may result in bias toward lower-populated states. I also cluster my standard errors by state to account for heteroskedasticity within a state.

The identifying assumption is that in the absence of Medicaid expansion enactment, adopting states would have experienced changes in uninsured rates similar to non-adopting states. I can relax my assumption for specifications including region-by-year fixed effects, where the identifying assumption becomes that in the absence of Medicaid expansion enactment, an adopting state within a region would have experienced changes in uninsured rates similar to a non-adopting state within their region. My data allow me to analyze and relax these assumptions in many ways. First, I look for evidence of the two groups diverging prior to being treated graphically. Additionally, I conduct a formal statistical analysis of my model with only state-by-year fixed effects by creating a variable for two years before adoption. This allows us to either rule out or confirm that states diverge before opting in, which would violate our identifying assumption.

The identifying assumption suggests that factors of uninsured rates should not change given a state has adopted since that would imply that that state would have diverged regardless of adoption status. As such, I model both with and without time-varying factors related to uninsured rates and analyze if doing so meaningfully changes my estimates. Doing so offers assurance that using a staggered difference-in-differences framework is a reasonable choice. In turn, I use unchanged Medicare enrollment as general healthcare trends. It is possible that Medicaid expansion could affect these, but any such effect would most likely be insignificant. I am thus able to leverage Medicare enrollment figures as a control to pick up differential trends in healthcare. The data allow us to perform several placebo — also known as falsification — tests. To do so, I examine how expanding Medicaid impacts the Medicare enrollment rate. Since expanding strictly affects the criteria for Medicaid eligibility, I expect no impact on these enrollment rates if our identifying assumption holds. Finally, I allow each state to follow a different trend via state-specific linear time trends.

5 Results

A. Changes in Insurance Coverage

I now conduct analysis on uninsured rates. Since guaranteed coverage is now offered to a larger population, it is expected that uninsured rates would decrease.

I first consider just the raw data. Figure 6 1 shows log uninsured rates over time for adopting and non-adopting states by year of adoption. For example, 6(b) shows log uninsured rates for states that expanded Medicaid in 2015 (Alaska, Indiana, and Pennsylvania) and compared them to states that have yet to adopt.

Two clear trends emerge when observing these figures. First, uninsured rates of states that adopt follow similar trajectories to those that do not prior to adoption. This would imply that had expanding states not adopted, they would trend similar to those that also did not adopt. Second, in the years following adoption for those adopting in all years, there is a decrease in uninsured rates relative to the control group. This difference in trend is more clear the longer a state had been adopted. While the data only spans from 2001-2019, it is clear that expanded states appear to experience a relative decrease in uninsured rates.

I then formally examine how Medicaid expansion affects uninsured rates. Results are shown in Table 2 and 3. Table 2 shows OLS estimates weighted by population, whereas Table 3 estimates are not weighted by population. The first column only controls for state and year fixed effects. This specification allows for state-specific shocks to be accounted for. The second column considers region-by-year fixed effects, which allows for shocks in a given year to be regional. This is my preferred model. The remaining specifications are intended to test whether my preferred model is a reasonable choice. If my model is reasonable, I expect these coefficients to be relatively stable around my preferred model's estimate. The third column adds poverty rate as a time-varying control to test whether the model is robust to poverty trends. The fourth column adds an indicator for two years prior to adoption and is the only specification to include said indicator. This formally tests for pre-divergence two years prior to adoption. The fifth column includes a contemporaneous Medicare enrollment control. This specification tests whether changes in uninsured rate are driven by general healthcare insurance trends rather than Medicaid expansion. The sixth and final specification controls for state-specific linear time trends, which allows states to trend differently over time.

My preferred WLS model indicates a highly significant 34.9 percent decrease in uninsured rates as a result of expanding. This coefficient stays relatively stable, ranging from 20.3 percent to 30.5 percent in specifications C through F, which is what I expect to occur assuming our identifying assumption holds. Similar results are found in the unweighted OLS model, with estimates ranging from 23.3 percent to 33.4 percent. This small increase in estimate is most likely due to estimates being skewed by lower-populated states such as North Dakota.

In Figure 2, I estimate divergence between expanding and non-expanding states over time. The graphs show the coefficient from a difference-in-differences model including state and year fixed effects, region-by-year fixed effects, and poverty rate as a time-varying covariate. I allow for divergence up to and including nine years prior to adoption five or more years after adoption. Estimates are relative to differences in uninsured rates nine or more years prior to adoption.

I note similar trends when observing raw data. Before adoption, the coefficients for the weighted OLS and unweighted OLS models are relatively stable around 0. This implies that divergence did not occur prior to adoption. A year after adoption, the weighted OLS model estimates divergence to be around 30%, and the unweighted OLS model estimates a divergence of around 35%. This means that, when weighting by average population, a state that expands Medicaid experiences an estimated 30 percent drop in uninsured rate relative to a state that has not expanded one year after adoption.

There may be concerns that Medicaid expansion has increased Medicaid enrollment through changes in other health insurance enrollment statuses rather than effectively targeting the uninsured population. As such, I also consider changes in PHI enrollment with the same specifications described above. Results are shown on Tables 4 and 5. Similar to the uninsured rate, our model is statistically significant at the 1 percent level. My preferred model estimates a 2.5 percent decrease in the PHI enrollment rate as a result of expanding. This could be for several reasons. It could be because while some low-income individuals have health insurance through their work, it is cheaper for them to switch to Medicaid. It is also possible that Medicaid expansion could allow people to switch into self-employment due to no longer needing employer-based health insurance.

Combining these results, I find that the majority of the population affected by Medicaid expansion is from the uninsured population, implying that they would not have had health insurance without Medicaid. A smaller but significant share is coming from those that had PHI.

I then test our identifying assumption through direct examination of whether health insurance enrollments that should not be affected by expansion — which substitute for general health insurance trends — are affected. If these effects are substantial when they should be exogenous, this would violate the assumption and make the choice of model invalid.

I thus examine how Medicaid expansion affects Medicare enrollment. While there may be some effect, these effects should be at best second-order. Results are shown in Tables **??** and **??**. Table **??** shows the weighted least squares model and Table **??** shows the unweighted OLS model. In both the weighted and unweighted models, Medicare enrollment estimates were large and significant when only considering state and year fixed effects. Once region-by-year fixed effects were added, though, the estimate became small and insignificant. This means that healthcare trends, as measured by Medicare enrollment, are operating differently across regions of the U.S. over time. Therefore, the model accounting for region-by-year fixed effects is more appropriate in terms of believing the identifying assumption.

B. Changes in Costs

While interactions between insurance coverage and Medicaid expansion are relevant in the discussion of the effectiveness of Medicaid as a policy, no conclusions can be drawn about how state costs are impacted. To begin to answer these cost-related questions, I will now look first at emergency department (ED) visits.

First, I examine overall ED visits by all individuals. These results are shown in Tables **??** and **??**. Both weighted and unweighted models indicate that there is little evidence that ED visits have increased or decreased due to Medicaid expansion. While the model with only state and year fixed effects is significant, accounting for region-by-year fixed effects leads this estimate to be small and insignificant. I then examine if payer type is relevant to changes in emergency department visits.

Tables **??** and **??** show my model's estimate for Medicaid ED visits. It estimates that states that expand Medicaid, on average, increase ED visits by Medicaid payers by 43.5%. This is expected since there are more individuals with access to healthcare insurance. Tables **??** and **??** show weighted and unweighted models for self-pay/no charge ED visits. I estimate that, on average, states that expand Medicaid experience a 56.5% decrease in self-pay/no charge ED visits. One possible explanation of this phenomena is that ED visit payers are transferring from indigent or out-of-pocket payments to Medicaid payments. This theory is further supported when observing ED visits by the remaining payer types: Medicare and private health insurance. The results of Medicare ED visits are found in tables **??** and **??**, and the results of PHI ED visits are found in tables **??** and **??**. My model estimates that Medicaid expansion has no significant effect on emergency department visits for either type of payer. In other words, the only changes that occur for ED visits by payer type are for Medicaid and self-pay/no charge payers. It is thus reasonable to conclude that states that expand Medicaid experience a large shift from self-pay/no-charge payers to Medicaid payers in the emergency department. Finally, I consider the total costs related to Medicaid. The results are shown in Tables 6 and 7. All specifications are statistically significant at the 0.1 percent level. My preferred model estimates that, on average, states that expand Medicaid experience a 27.0% increase in Medicaid-related costs. This is an expected result, as more Medicaid recipients naturally lead to more Medicaid-related costs.

While there is a significant increase in Medicaid payers for the emergency department, this is accompanied by a decrease in indigent and self-pay payers. This is a major benefit for hospitals that are required to accept all patients regardless of their ability to pay and are commonly found in low-income and rural areas. Uncompensated costs, which occur with indigent care, can lead to hospitals closing, thus reducing access to emergency care. Furthermore, while increasing Medicaid enrollment has led to higher costs, it also allows these individuals to receive preventive care that could reduce the long-term dependence on the emergency department. While this process may not be immediately cost-saving, it is most likely a net benefit for taxpayers.

6 Conclusion

From 2014-2024, more than 40 states have expanded guaranteed or subsidized coverage to lower-income individuals. There are several reasons these individuals might not participate. They may not be aware of their eligibility; they may not enroll in Medicaid due to worries of hospitals overcrowding; they may restrain from enrolling due to political or personal beliefs — all of these are reasons that Medicaid expansion might fall short in expanding coverage.

Results presented in this paper, though, indicate that these potential deterrents have not stopped lower-income individuals from enrolling in Medicaid. I estimate a 34.9% decrease in uninsured rates, which is largely driven by increased Medicaid enrollment by the lower-income population gaining coverage.

Total emergency department visits are unchanged for states that expand Medicaid. This is also true for ED visits by Medicare and PHI payers. However, Medicaid ED visits increase by an estimated 43.5% on average, offset by a 56.5% decrease for self-pay/no-charge payers. While total ED visits remains unchanged, switching to Medicaid payers means that hospitals are able to retain more uncompensated care costs and avoid closure. Even though Medicaid related costs increase by an estimated 27% in expanded states, Medicaid may be a net benefit to taxpayers, even if it is not cost positive.

One critical question that remains is how this increase in individuals with insurance has impacted state healthcare costs. Currently, expanded states only bear around 10% of Medicaid-related costs, but this percentage will continue to go up. Thus, it is important to consider the potential costs and benefits of expanded healthcare coverage in terms of state budget as the cost burden is expected to shift more to the states in future years.

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7 Appendix

Table 1: Descriptive Statistics

	Mean (Unweighted)	Mean (Weighted by Population)
Poverty Rate	13.38	13.80
	(3.24)	(2.82)
PHI Enrollment	3850.43	8360.71
	(4066.61)	(6370.34)
Medicare Enrollment	1092.37	2677.83
	(1519.29)	(2788.10)
Uninsured Rate	12.02	13.14
	(4.37)	(4.96)

Each cell contains the mean with standard deviation in parentheses. All variables have 969 observations. Data is measured by the U.S. Census Bureau and the Department of Labor Statistics.

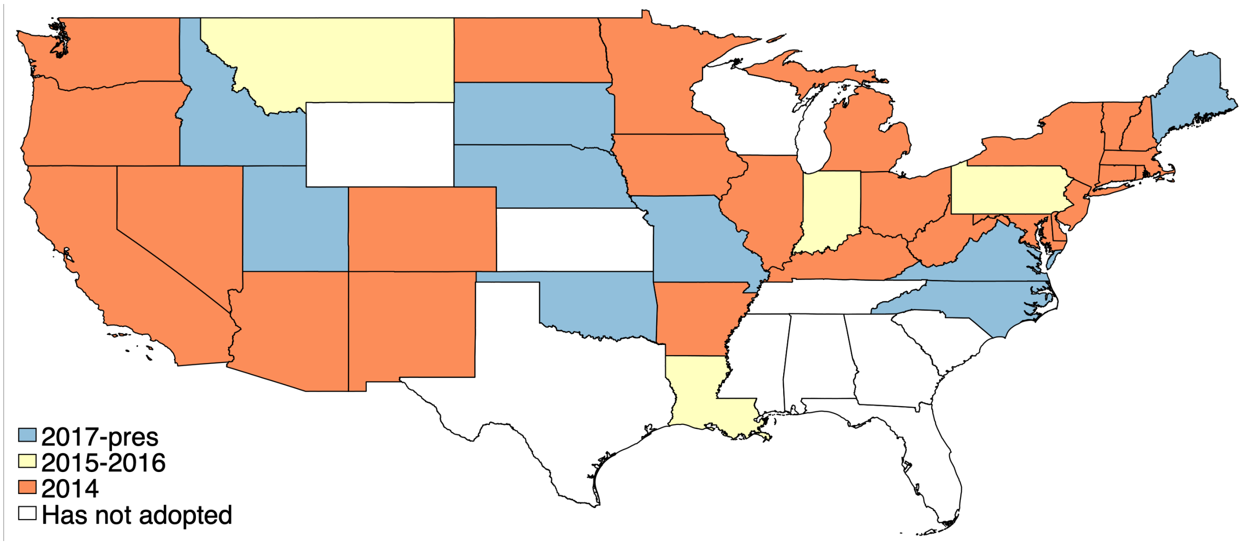
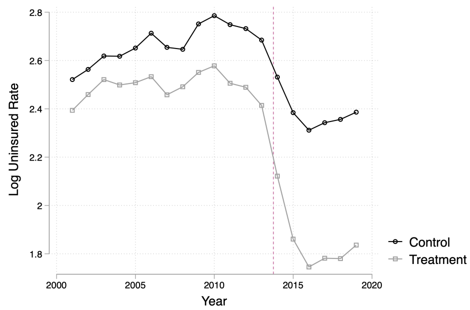
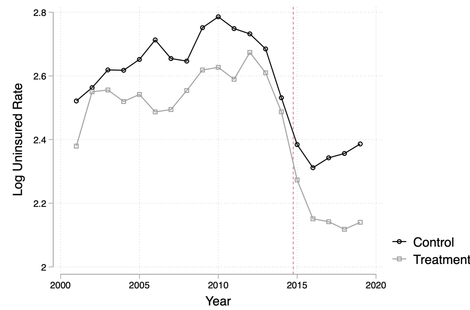


Figure 1: Year of Expansion Status by State

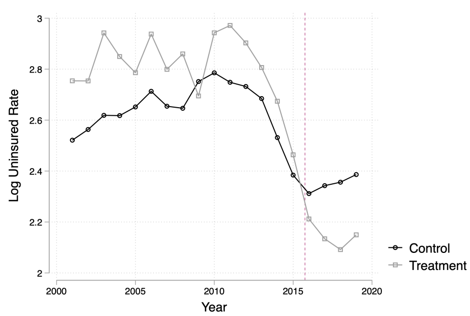
Note: Hawaii and Alaska are excluded. Hawaii expanded in 2014 and Alaska expanded in 2015.



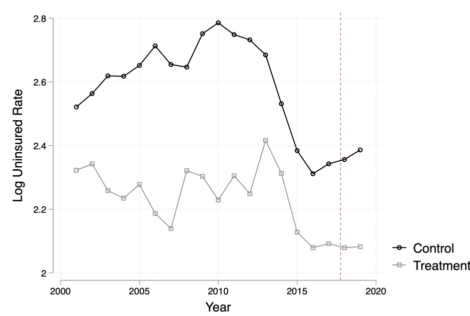
(a) States Adopting in 2014 (Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Hawaii, Illinois, Iowa, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oregon, Rhode Island, Vermont, Washington, West Virginia)



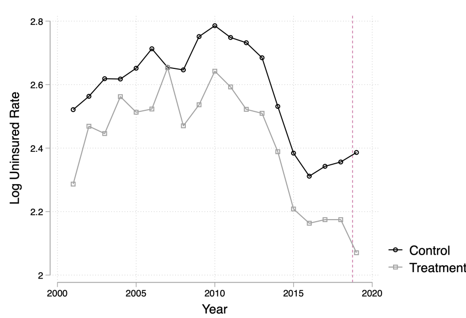
(b) States Adopting in 2015 (Alaska, Indiana, Pennsylvania)



(c) States Adopting in 2016 (Montana, Louisiana)



(d) States Adopting in 2018 (Maine)



(e) States Adopting in 2019 (Virginia)

Figure 2: Log Uninsured Rates Before and After Adoption of Medicaid Expansion, by Year of Adoption

Table 2: Log Uninsured Rate — OLS Weighted

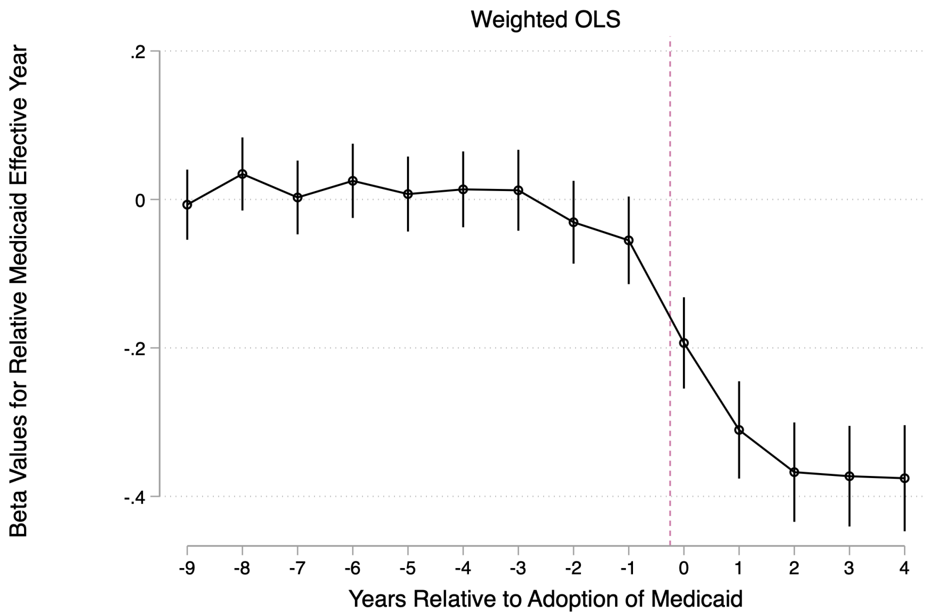
	A	B	C	D	E	F
Medicaid Expansion	-0.643***	-0.301***	-0.314***	-0.304***	-0.316***	-0.216***
	(0.0349)	(0.0446)	(0.0453)	(0.0443)	(0.0454)	(0.0356)
0-2 Years Prior				-0.0315*		
				(0.0129)		
Observations	969	969	969	969	969	969
State and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Region-by-Year FE		Yes	Yes	Yes	Yes	Yes
Time-Varying Controls			Yes	Yes	Yes	Yes
Contemporaneous Medicare Controls					Yes	
Linear Time Trends						Yes

Standard errors in parentheses, Clustered by state
Weighted by Population
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

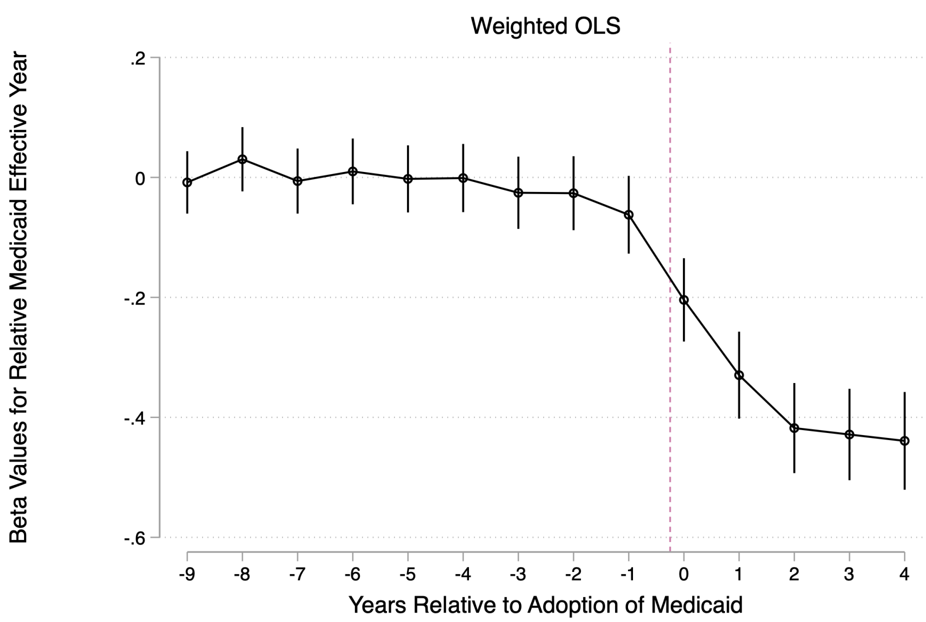
Table 3: Log Uninsured Rate — OLS Unweighted

	A	B	C	D	E	F
Medicaid Expansion	-0.620***	-0.342***	-0.349***	-0.349***	-0.341***	-0.254***
	(0.0271)	(0.0385)	(0.0412)	(0.0431)	(0.0432)	(0.0321)
0-2 Years Prior				-0.00215		
				(0.0236)		
Observations	969	969	969	969	969	969

Standard errors in parentheses, Clustered by state
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

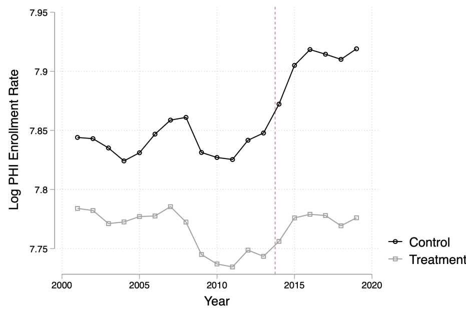


(a) Weighted OLS

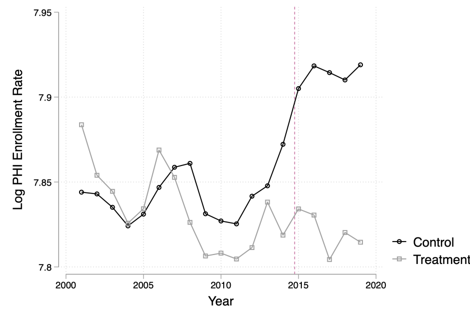


(b) Unweighted OLS

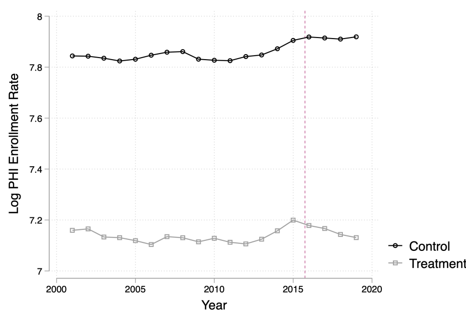
Figure 3: Divergence in Log Uninsured Rates Before and After Expansion of Medicaid, Relative to the Difference Five or More Years Before Adoption



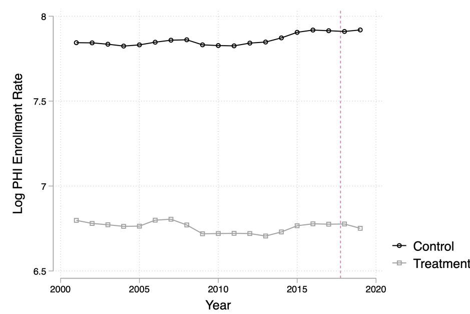
(a) States Adopting in 2014 (Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Hawaii, Illinois, Iowa, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oregon, Rhode Island, Vermont, Washington, West Virginia)



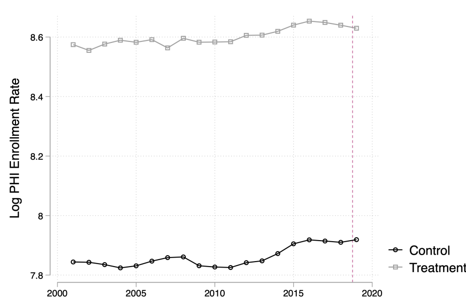
(b) States Adopting in 2015 (Alaska, Indiana, Pennsylvania)



(c) States Adopting in 2016 (Montana, Louisiana)



(d) States Adopting in 2018 (Maine)



(e) States Adopting in 2019 (Virginia)

Figure 4: Log PHI Enrollment Rates Before and After Adoption of Medicaid Expansion, by Year of Adoption

Table 4: Log PHI Enrollment Rate — OLS Weighted

	A	B	C	D	E	F
Medicaid Expansion	0.476***	-0.0298***	-0.0249***	-0.0231***	-0.0248***	-0.0235***
	(0.00755)	(0.00750)	(0.00657)	(0.00654)	(0.00640)	(0.00617)
0-2 Years Prior				-0.00536		
				(0.00336)		
Observations	969	969	969	969	969	969
State and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Region-by-Year FE		Yes	Yes	Yes	Yes	Yes
Time-Varying Controls			Yes	Yes	Yes	Yes
Contemporaneous Medicare Controls					Yes	
State-Specific Linear Time Trends						Yes

Standard errors in parentheses, Clustered by state

Weighted by Population

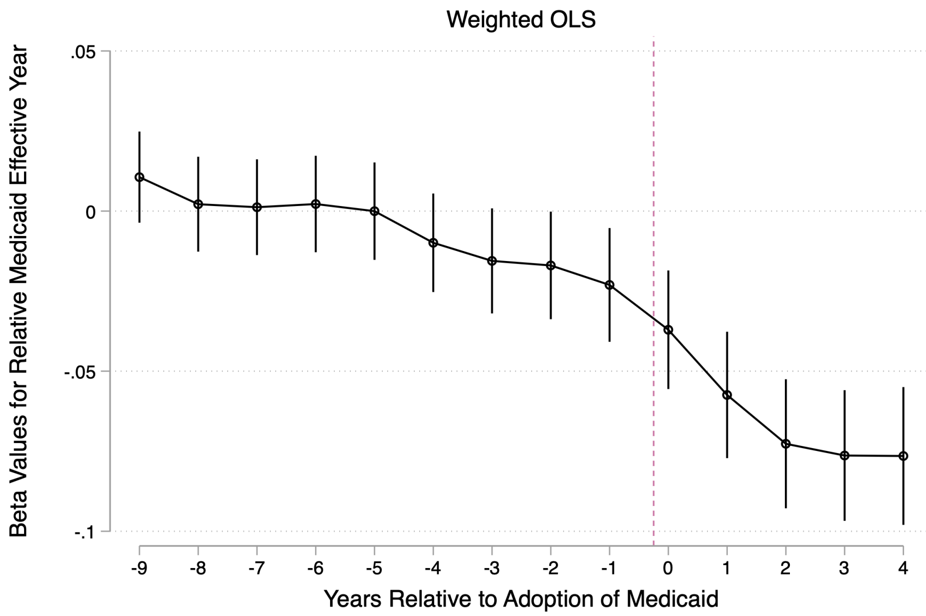
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5: Log PHI Enrollment Rate — OLS Unweighted

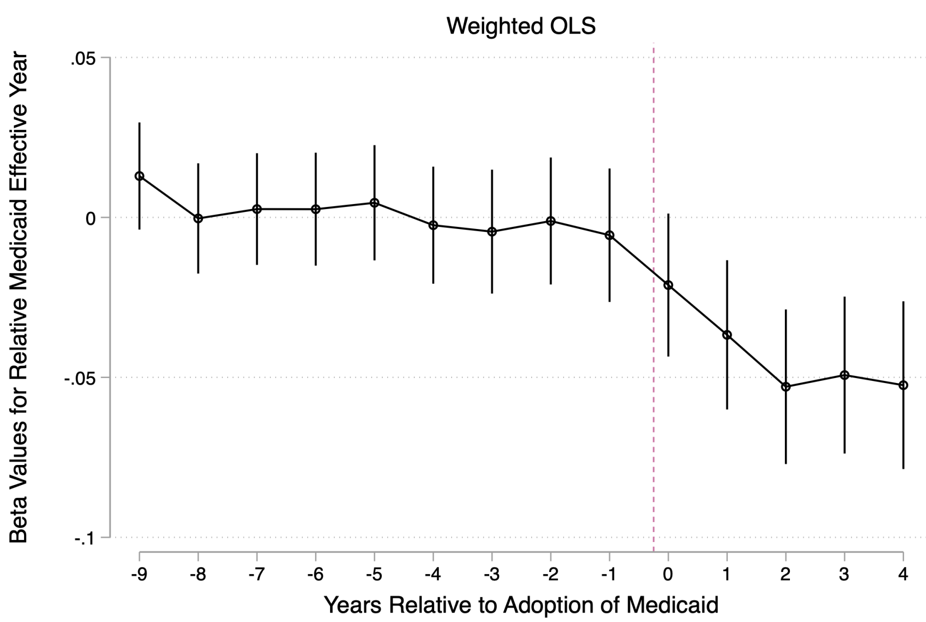
	A	B	C	D	E	F
Medicaid Expansion	0.473***	-0.0269**	-0.0239**	-0.0223*	-0.0254**	-0.0215**
	(0.00484)	(0.00943)	(0.00889)	(0.00927)	(0.00797)	(0.00644)
0-2 Years Prior				-0.00431		
				(0.00336)		
Observations	969	969	969	969	969	969

Standard errors in parentheses, Clustered by state

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

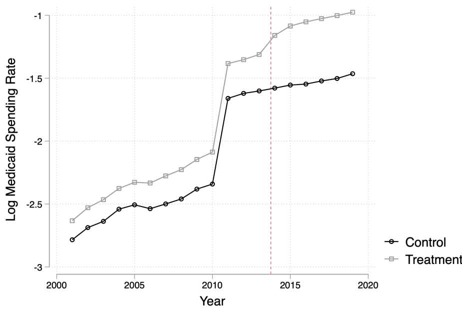


(a) Weighted OLS

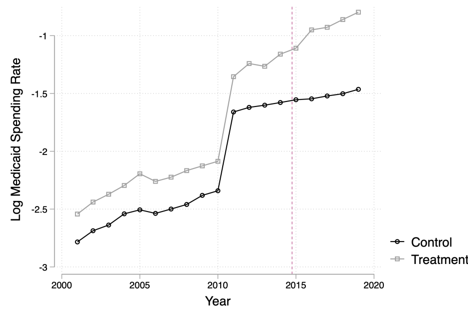


(b) Unweighted OLS

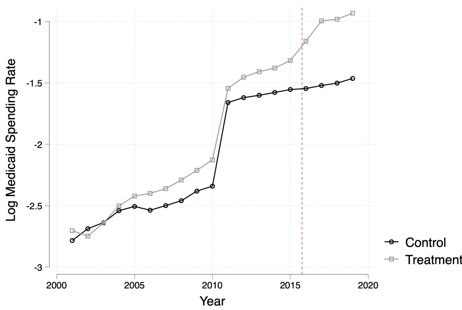
Figure 5: Divergence in Log PHI Enrollment Rates Before and After Expansion of Medicaid, Relative to the Difference Five or More Years Before Adoption



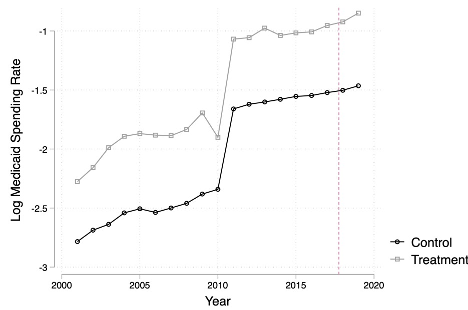
(a) States Adopting in 2014 (Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Hawaii, Illinois, Iowa, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oregon, Rhode Island, Vermont, Washington, West Virginia)



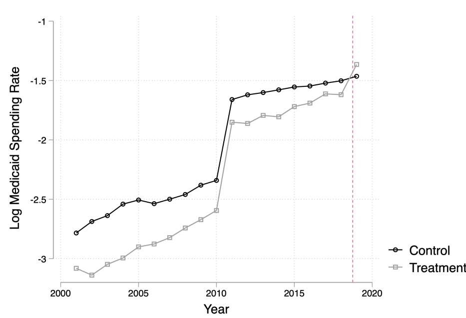
(b) States Adopting in 2015 (Alaska, Indiana, Pennsylvania)



(c) States Adopting in 2016 (Montana, Louisiana)



(d) States Adopting in 2018 (Maine)



(e) States Adopting in 2019 (Virginia)

Figure 6: Log Medicaid Enrollment Rates Before and After Adoption of Medicaid Expansion, by Year of Adoption

Table 6: Medicaid-Related Costs — OLS Weighted

	A	B	C	D	E	F
Medicaid Expansion	0.777***	0.212***	0.214***	0.211***	0.215***	0.123**
	(0.0381)	(0.0399)	(0.0408)	(0.0406)	(0.0408)	(0.0361)
0-2 Years Prior				0.00977		
				(0.0152)		
Observations	969	969	969	969	969	969
State and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Region-by-Year FE		Yes	Yes	Yes	Yes	Yes
Time-Varying Controls			Yes	Yes	Yes	Yes
Contemporaneous Medicare Controls					Yes	
State-Specific Linear Time Trends						Yes

Standard errors in parentheses

Weighted by Population

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7: Medicaid-Related Costs — OLS Unweighted

	A	B	C	D	E	F
Medicaid Expansion	0.789***	0.268***	0.270***	0.267***	0.270***	0.176***
	(0.0227)	(0.0291)	(0.0293)	(0.0302)	(0.0295)	(0.0284)
0-2 Years Prior				0.00769		
				(0.0138)		
Observations	969	969	969	969	969	969

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 8: Asthma ED Visits for Medicaid Payers — OLS Unweighted

	A	B	C	D	E	F
medic	0.259***	0.162	0.147	0.112	0.140	0.207*
	(0.0696)	(0.0953)	(0.0945)	(0.0785)	(0.0941)	(0.0939)
pre2_medic				0.0682		
				(0.0778)		
Observations	487	487	487	487	487	487

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 9: Asthma ED Visits for Uninsured Payers — OLS Unweighted

	A	B	C	D	E	F
medic	-0.932***	-0.558**	-0.622***	-0.649***	-0.646***	-0.652***
	(0.137)	(0.195)	(0.150)	(0.153)	(0.145)	(0.132)
pre2_medic				-0.828***		
				(0.111)		
Observations	383	383	383	383	383	383

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$