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Private Health Care Spending and Medicaid Expansion: Evidence for Wisconsin*

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Abstract

This report estimates the costs and savings of the proposed Medicaid expansion in Wisconsin. First, we use data on health spending and insurance coverage to provide new estimates of the potential costs and savings of the Medicaid expansion in Wisconsin. We show that the Medicaid expansion could save nearly $100 million annually because of a reduction in uncompensated care costs, and that these savings exceed the costs to private insurers. Second, we re-evaluate the recent Flanders and Williams report (Flanders and Williams, 2019). Their analysis deviates from standard econometric practice in two key dimensions: failing to control for long-term time trends in health care costs and failing to adjust their expenditure data for inflation. Making either change to their analysis, we show that their results do not hold up, and controlling for state level trends and inflation shows a savings, not a cost, from the Medicaid expansion. We similarly find that their analysis of ER visits does not hold up after controlling for time trends.

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1 Introduction

Following passage of the Affordable Care Act (ACA) and the subsequent Supreme Court decision in 2012, individual states faced a choice of whether to expand their Medicaid eligibility to cover individuals with incomes up to 138 percent of the federal poverty line.[1] Because children were already covered at thresholds beyond 138% of the poverty line, the expansion would affect adults.[2] As part of the ACA, the federal government paid for 100% of the expansion costs from 2014-2016, and 90% thereafter. As of 2019, 37 states (including the District of Columbia) had chosen to expand their Medicaid coverage and accept the additional federal funding, leaving 14 states rejecting the expansion, including Wisconsin (Kaiser Family Foundation, 2019).[3]

In Wisconsin, the debate about the Medicaid expansion has been hotly contested. In a recent report, Will Flanders and Noah Williams conclude that the Medicaid expansion in Wisconsin would cost Wisconsin $600 million per year (Flanders and Williams, 2019). According to their report, these costs are not the costs of providing care to the new Medicaid enrollees (which would almost entirely be paid for by the federal government), but the additional costs that would be borne by those who already have private insurance in Wisconsin. Flanders and Williams argue that this is because the Medicaid program has a lower reimbursement rate than private insurance, and therefore private insurers would have to raise their rates to compensate for the lost revenue. Given an estimate of about 76,000 new Medicaid enrollees in Wisconsin (Dyck, 2018),[4] the Flanders and Williams estimate amounts to about $7,900 additional costs per each new Medicaid enrollee, a figure that far exceeds the

[1] In 2019, the federal poverty line is $12,490 for a single person household. The coverage expansion would then be for single individuals making up to $17,236. The poverty line is higher for multi-person households.

[2] In particular, childless adults faced the largest jump in eligibility. Prior to the ACA, states provided coverage to childless adults through Section 1115 waivers or through fully state funded programs.

[3] Although Wisconsin did not choose to expand Medicaid through the ACA, adults, both childless and parents, with incomes up to 100% of the federal poverty level, are currently eligible for Medicaid. It should be noted that this is much more generous than in other states that did not choose to expand through the ACA. These other states typically do not offer any coverage to childless adults and have thresholds for parents based on 1996 welfare eligibility limits (Artiga and Schwartz, 2018).

[4] Our calculations using the American Community Survey from 2017 indicate that the potential eligible population would be about 1.48 percent of the total Wisconsin population, or with a total population of 5,795,483, this is 85,596 people. We define potentially eligible in Wisconsin as individuals aged 19-64, living in households with between 100 and 138 percent of the poverty line, and not currently insured by Medicaid, Medicare, or military insurance programs.

average cost of private insurance in Wisconsin of $5,634 (Centers for Medicaid and Medicare Services, 2017)[5].

In this report, we evaluate the evidence on the costs of the Medicaid expansion for Wisconsin. Our report has two parts. First, we use data on health spending and insurance rates to compute the potential costs and savings of the Medicaid expansion in Wisconsin. Unlike Flanders and Williams, we include the potential savings to health care providers from the Medicaid expansion covering the uninsured, individuals who might otherwise receive free or "charity" care or simply not pay their bills. In a recent report, the cost of this "uncompensated care" in Wisconsin was estimated to be $1.1 billion, provided either as charity care ($553.4 million) or as uncollected bills or "bad debt" ($583.4 million) (Wisconsin Hospital Association Information Center). Recent studies of the states who have expanded Medicaid have concluded that states that expanded Medicaid experienced large decreases in uncompensated care relative to states that did not expand (Dranove et al., 2016). The Medicaid expansion has saved $5.7 billion in uncompensated care costs in the year 2014 alone (DeLeire et al., 2014), helping improve the bottom line of health care providers, particularly smaller rural hospitals (Schubel and Broaddus, 2018). Instead of costing private health insurance consumers in Wisconsin, we might expect the Medicaid expansion would actually reduce their costs.

The second part of our report re-examines the Flanders and Williams evidence. Their cost estimates are based on a regression analysis using annual state level health spending data, covering the period 2002-2014. Using the data they provided us, we replicate exactly their findings using their particular regression specifications. However, when we make two basic changes to their analysis, in line with standard econometric practice, we find very different results. First, if we control for the time trend in health spending, which has risen rapidly across all states– whether they have chosen to expand Medicaid or not – we find no evidence that Medicaid expansions have increased private health insurance costs, and find instead a *savings*. Because the Flanders and Williams analysis fails to control for these time trends, *any* recent policy change–whether related to health care costs or not- would appear to increase health costs. Second, the Flanders and Williams analysis is of nominal spending, i.e. spending not adjusted for inflation. If we follow standard econometric practice and adjust the Flanders and Williams data for inflation, we also find no evidence that Medicaid expansions are associated with higher (real or inflation adjusted) costs.

Similarly, examining their finding that Medicaid expansions increase ER visits, when we control for time trends, which has also been rising across all states, we also

[5]As discussed in Section 3, this is the 2014 value inflated to 2017 dollars using the medical care component of the CPI.

find no evidence that the Medicaid expansion has increased ER visits.

In summary, we have five main findings:

- Taking into account that many of the newly Medicaid eligible would have been uninsured and receiving uncomposensated care, we estimate that the **Medicaid expansion could *save* Wisconsin between $19 and $103 million**, as providers would now be reimbursed for this care, at least partially, by Federal dollars.

- Even under the most pessimistic scenario about the fraction of the newly eligible who would have come from private insurance, we estimate that the **Medicaid expansion would still produce a net savings**.

- A re-examination of the Flanders and Williams state level regression analysis shows that their results do not hold up. Using their data and variable definitions but standard econometric techniques, we find **no evidence that Medicaid expansions in other states have increased private insurance costs**. Across several alternative regression models, the only specification that leads to a statistically significant positive estimate is the one Flanders and Williams report: using nominal spending and omitting any control for time trends.

- In our analysis of Flanders and Williams data controlling for state level trends in health costs and adjusting for inflation, we find that **Medicaid expansions are associated with a *reduction* in private health insurance costs**.

- Re-examining the Flanders and Williams analysis of state level average ER visits using standard econometric techniques also reveals **no evidence that Medicaid expansions are associated with increased ER visits**.

2 Medicaid Expansion and Health Insurance Coverage

Crucial to the evaluation of the potential costs of Medicaid expansion in Wisconsin is understanding how the Medicaid expansion affects insurance coverage. Wisconsin presents a unique case because, although it has not expanded Medicaid, individuals

with incomes up to 100% of the federal poverty line are already eligible for BadgerCare, Wisconsin's health insurance for low-income individuals. If Wisconsin were to expand Medicaid under the ACA, eligibility would expand to the group with incomes between 100-138% of the poverty line. This is different than many other states that expanded Medicaid, as most states did not offer any coverage to childless adults prior to expansion.

The costs and savings this policy creates depends on where the newly eligible are coming from–those who already had some form of private or government insurance or the uninsured. For example, if an individual was previously uninsured, savings would potentially accrue though a reduction in uncompensated or charity care. Federal Medicaid dollars could be used to reimburse providers who would otherwise go unpaid. However, if an individual was privately insured, private insurers might lose a customer, and this might cause private insurers to raise rates on their remaining customers. It is also possible that the expansion of Medicaid could increase the demand for health services, raising the price, and increasing private health care costs borne by those insured.

To provide information on the effects of the Medicaid expansions on insurance coverage, we turn to the American Community Survey (ACS), a nationally representative survey of the US population. We examine a sample of adults, aged 18-64, before standard Medicare eligibility. Table 1 presents the percentage reporting insurance in the following categories:

- Employer or union
- Individually purchased insurance
- Military (TriCare) or Veterans Administration (VA)
- Medicare
- Medicaid
- No insurance

Employer, union, and individually purchased insurance are the types of "private" insurance. Although individuals can report having more than one source of insurance, we categorize individuals based on the order presented above and use mutually exclusive grouping. Thus, for example, if an individual reported having both Medicare and Medicaid, we code them as having Medicaid.

Table 1 divides the states into 3 groups: Wisconsin, Medicaid expansion states (implemented by 2017), and non-expansion states (excluding Wisconsin). For each

group of states, we further divide the population by the poverty status of the household (0-100%, 100-138%, and > 138% of the federal poverty line). As expected, looking across the groups, the percentage with any insurance increases with income, especially the percentage with employer or union provided coverage. Conversely, the percentage with Medicaid or Medicare decreases as income increases.

One important finding is that even among the Medicaid eligible, there are still many who have private insurance. Looking only at Wisconsin, we see that among the group at 0-100% of the poverty line, a group already eligible for Medicaid, the fraction with private insurance is about 38 percent. Only about 36 percent are actually enrolled in Medicaid. That is, the "take-up" of the program is no where close to 100 percent, and many individuals who are Medicaid eligible have chosen to keep their private insurance. This is likely due, at least in part, to the fact that patients with Medicaid coverage often face limited access to doctors and higher wait times (Oostrom et al., 2017). Individuals with relatively generous employer or union provided coverage may therefore be reluctant to give up this coverage. Additionally, individuals might perceive a stigma associated with enrolling in Medicaid or believe that the burden to enrolling is high (Stuber et al., 2000).

How would Medicaid access affect private insurance rates in Wisconsin? One answer is provided by comparing the private insurance rates in Table 1. Here we see that comparing the rates of the 0-100% already eligible group to the 100-138% group, the private insurance rates are quite similar: employer or union coverage is 27.7 versus 29 percent, individual plan coverage is 9.4 versus 10.9 percent. This comparison suggests a small reduction or "crowd-out" of private insurance from the expansion of Medicaid.

Taking a wider view, and comparing all expansion versus non-expansion states, we see a smaller increase in private insurance across the income groupings among the states who expanded Medicaid compared to those that did not. To investigate this further, we graph the percentage with any private insurance for individuals with incomes between 100-138% of the poverty line. Figure 1 shows that the private insurance rates were similar prior to the expansion period (2010 and before), but after, as some states expanded Medicaid coverage, the private insurance rates stayed about constant in the expansion states, while increasing in the non-expansion states, including Wisconsin. This may be due to the improving economy and employment, allowing more individuals access to insurance, and changes brought about by the ACA that improved the private insurance market (e.g. banning exclusion based on pre-existing conditions and allowing children to remain on their parent's plan to age 26). Additionally, the ACA introduced a penalty for being uninsured, which may have incentivized some individuals to take-up private insurance.

To analyze the effects of the Medicaid expansion on those between 100-138% of the poverty line, we conduct a regression analysis, using the state level annual private insurance rates from 2008-2017 computed from the ACS, and the dates the Medicaid expansion was implemented in various states. We estimate the following regression equations

$$\begin{aligned}
\text{priv. insur. percent, 100-138\%}_{st} &= \alpha \text{expand}_{st} + \epsilon_{st} && (1)\\
\text{priv. insur. percent, 100-138\%}_{st} &= \alpha \text{expand}_{st} + \delta_s + \omega_t + \epsilon_{st} && (2)\\
\text{priv. insur. percent, 100-138\%}_{st} &= \alpha \text{expand}_{st} + \delta_s + \omega_t + \delta_s \times \text{year}_t + \epsilon_{st} && (3)
\end{aligned}$$

where priv. insur. percent, 100-138%$_{st}$ is the percentage with private insurance (0-100%) for each state s and year t, expand$_{st}$ is an indicator variable equal to 1 if the state s has implement the Medicaid expansion by year t, δ_s are state level fixed effects, ω_t are year fixed effects, and $\delta_s \times \text{year}_t$ are state fixed effects interacted with calendar year (i.e. state level linear time trends).[6] Because private insurance was trending differently by state, our preferred specification includes the state by year trends.

Panel A of Table 2 provides the results of the regression analysis. Looking across the specifications, we see that the expansion of Medicaid is associated with a decrease of approximately 1.9-4.9 percentage points in private insurance for the 100-138% poverty group. The most robust specification, controlling for state by year trends, provides the lowest estimate.[7]

We also conduct a second type of analysis, where instead of the level of the private insurance rate for the 100-138 % group, we use the difference between this group, and the higher income group, which would be unaffected by the Medicaid expansion in most states:

$$\Delta_{st} = \text{priv. insur. percent, 100-138\%}_{st} - \text{priv. insur. percent, } > 138\ \%_{st}$$

Because the higher income group (above 138% of the poverty line), would be unaffected directly by the Medicaid expansion in most state, they can serve as an appro-

[6] See Table A-1 in the Appendix for a list of state and expansion year. We classify states as having expanded during year t if they expanded Medicaid to childless adults at any point during the year.

[7] In alternative analysis, found in Table A-2 of the Appendix, we perform the same estimations weighting the states by the size of their population. Our results are robust to weighting by state population.

priate "control" group for the affected group with poverty 100-138 %.[8] [9] Using this dependent variable, we re-estimate the same regressions as above:

$$\Delta_{st} = \alpha \text{expand}_{st} + \epsilon_{st} \quad (4)$$

$$\Delta_{st} = \alpha \text{expand}_{st} + \delta_s + \omega_t + \epsilon_{st} \quad (5)$$

$$\Delta_{st} = \alpha \text{expand}_{st} + \delta_s + \omega_t + \delta_s \times \text{year}_t + \epsilon_{st} \quad (6)$$

Panel B of Table 2 presents these results. In our preferred specification, we find that private insurance decreased by just 1.6 percentage points more for those with incomes between 100-138% of the federal poverty line compared to those with incomes above 138%. This estimate is similar to those above, using the level of insurance coverage for the newly eligible group.

We conclude from this analysis that Medicaid expansion is likely to reduce private insurance coverage in Wisconsin, but the magnitude of this effect is modest: about a 2 - 5 percentage point drop in the percentage among the newly eligible with private insurance, with the most robust estimate closer to 2 percent. Our analysis is consistent, and perhaps slightly larger, than estimates from previous studies which have found there was very small or no effects of Medicaid expansion on private insurance rates (Sommers et al., 2014; Courtemanche et al., 2017; Kaestner et al., 2017).

3 Costs and Savings from the Medicaid Expansion

Although there are many potential costs and benefits of the Medicaid expansion, we focus our analysis on how the Medicaid expansion would impact the health costs for the majority of Wisconsinites who have private insurance. If Wisconsin were to expand Medicaid, the newly eligible Medicaid recipients would come from two groups: the uninsured and those with private insurance (from employers, unions, or individually purchased plans). In general, providers (hospitals and doctors) would *gain* from federal dollars being used to pay for the care of the uninsured, who might

[8] As of January 2017, Childless adults with incomes above 138% of the federal poverty line are not eligible anywhere except for DC. Parents with incomes above 138% are eligible in Alaska (141%), Connecticut (155%), DC (221%), and Indiana (139%).

[9] It is possible that the Medicaid expansion for the 100-138 poverty group might affect individuals with incomes above 138% of the poverty line because any policy change could affect the demand for private insurance and the overall price of private insurance, thus affecting demand among all groups. We believe this effect is likely minor: the newly Medicaid eligible group in Wisconsin would be less than 1.5 percent of the total population.

otherwise be provided charity care or simply not pay their medical bills; and *lose* from individuals who drop their private insurance and pay their health care costs using Medicaid, which has a lower reimbursement rate relative to private insurance. Consumers in Wisconsin with private insurance are affected to the extent that these gains and losses are passed on to them in terms of higher medical prices, rather than reducing insurers' and providers' profits.

We next estimate each of these costs and savings in turn.

Expected Costs We assume that all else being equal, newly Medicaid eligible who drop their private insurance would receive the same care from providers (hospitals and doctors) but at lower Medicaid reimbursement rates. Alternatively, it may be the case that individuals with Medicaid face longer wait times and thus use fewer medical resources, which would make our estimates a lower bound. On the other hand, if individuals who dropped private insurance for Medicaid consumed more health care, for example if they went to the emergency room (ER) more frequently, then our estimates are an upper bound. We tend to discount this possibility given that our analysis below shows no statistically significant effect of Medicaid expansions on average state-level ER visits.

The expected cost is given by the following equation:

$$\begin{aligned} \text{Expected Costs} &= \text{Number Newly Medicaid Eligible} \\ &\times \text{Fraction Reduction in Private Insurance} \\ &\times \text{ (1- Relative Medicaid Reimbursement Rate)} \\ &\times \text{Average Cost of Private Insurance} \end{aligned}$$

The Wisconsin Legislative Fiscal Bureau estimates about 76,000 new Medicaid enrollees in Wisconsin (Dyck, 2018). To estimate the reduction in private insurance due to the Medicaid expansion, we use our estimates of a 2-5 percentage point reduction in private insurance found in Section 2. We therefore show values for "Fraction Reduction in Private Insurance" between 0.02-0.06.

Government Accounting Office (GAO) data indicates that Medicaid reimbursement rates in Wisconsin, both for fee for service and managed care organizations, are about 72 percent lower than those for private insurers (Yocom, 2014). The Medicaid reimbursement rate in Wisconsin ("Medicaid Rate") is therefore 0.28, that is, for every $1 private insurance would reimburse, Medicaid would reimburse about 28 cents.

The average private cost of health insurance in Wisconsin ("Avg. Priv. Cost") was $5,159 in 2014, according to the latest data collected by the Department of

Health and Human Services (Centers for Medicaid and Medicare Services, 2017). This includes all health spending on hospitals, doctors, prescription drugs, and the like. This average private cost figure is per individual who has private insurance, and excludes individuals with Medicaid or Medicare. To be consistent with later calculations, we express this in 2017 dollars, inflating using the CPI medical care component, giving a 2017 cost of $5,634.[10]

Finally, to provide the highest possible cost, we compute expected costs assuming that all of the additional costs are passed onto consumers of health insurance, rather than, at least partially, reducing insurer and provider profits. Our expected costs are therefore an upper bound on the potential costs consumers might face.

On the other hand, our calculation ignores any potential price effects of the Medicaid expansion: the Medicaid expansion could increase the demand for health service, increasing the price. We do this because, as mentioned above, there is only mixed evidence that the Medicaid expansion would increase demand for services (it could actually decrease it by shifting individuals to longer wait times). We also note that the expansion population is less than 1.5 percent of the total Wisconsin population and the effects on the overall prices for health care services is likely small.

Expected Savings A savings to the private health care system from the Medicaid expansion would be the reduction in uncompensated care currently incurred by providers to cover the costs of the uninsured. Expected savings is given by the following equation:

$$\begin{aligned} \text{Expected Savings} &= \text{Number Newly Medicaid Eligible} \\ &\times \text{Fraction Uninsured Among Newly Eligible} \\ &\times \text{Average Cost of Uncompensated Care} \end{aligned}$$

We compute the uncompensated care cost per uninsured person in Wisconsin by dividing the total cost, $1.1 billion, of which $553.4 million was charity care and $583.4 was bad debt, by an estimate of the number of uninsured. In 2017, the uninsured rate in Wisconsin was 5.88 percent, and given a total population of 5.8 million, this amounts to about 340,774 uninsured. The average cost of uncompensated care per uninsured person is then $3,228, a figure that is about 60 percent of the average cost of private insurance.[11]

[10] Consumer Price Index (CPI) in 2014 is 435.292, and 2017 475.322, giving an adjustment factor of $475.322/435.292 = 1.092$.

[11] This calculation ignores the fact that some total cost reported could be partially due to unpaid

As we did with the cost calculation above, we assume that all of these savings are passed on to consumers, rather than increasing provider profits. In general, it is difficult to predict how the Medicaid expansion would exactly affect the different groups: private insurance consumers, private insurance companies, and healthcare providers. Our estimates indicate that the allocation of hundreds of millions of new Federal Medicaid dollars to Wisconsin would produce substantial savings, and it is likely that at least some of these savings would be passed on to private insurance consumers.

Expected Net Costs/Savings Table 3 provides the expected costs, savings, and net costs or savings from the Medicaid Expansion, under various scenarios.

$$\text{Expected Net Cost/Savings} = \text{Expected Savings} - \text{Expected Costs}$$

Table 3 shows different cost and savings scenarios. Panel A shows expected costs for different values of reduction in private health insurance. The higher the reduction in private insurance, the higher the cost due to the lower reimbursement rates. At our estimated value of reduction in private insurance between 2-5 percentage points, we estimate that the total cost to the private health care system between $6.4 and $19.47 million. We include cost figures that correspond to decreases in private insurance well beyond our estimates and show findings for up to a 10 percent reduction in private insurance. At this extreme value, the total cost is about $32 million. In comparison, the Flanders and Williams estimates, based on their state level regression analysis we analyze below, is about 20 times larger than our highest possible figure.

When considering savings to the private health care market, the higher the rate of Medicaid eligible individuals who are uninsured, the higher the savings rate due to the reduction in uncompensated care. Panel B shows different savings for various rates of uninsured. We consider the fraction of individuals that are uninsured out of those who are newly eligible.[12] Given the estimates in Table 1, this is about 30%. We show possible values between 20 and 40%.

As can be seen in Table 3, the cost of Medicaid expansion to the private health insurance enrollees is estimated to be between $6 and $32 million. However, the

bills of insured individuals (e.g. individuals not paying their co-pays). However, we believe this could only be a small part of the total cost, especially given the limits on out-of-pocket costs instituted by the ACA.

[12]We include all the potential Medicaid eligible uninsured, whether they would actually enroll in Medicaid or not. This is because any uninsured person who incurs medical costs would be enrolled by their health care provider at the time they incur the cost.

most conservative estimate of savings to Wisconsin due to Medicaid expansion, corresponding to an uninsured rate among the newly eligible of 20%, is $51 million, far greater than even the highest cost estimate. Taken together, we estimate that expanding Medicaid in Wisconsin would produce a cost savings of at least $19 million, with the highest estimate nearly $100 million. The "middle of the road" estimate, corresponding to a reduction of private insurance of 4 percentage points and a fraction of uninsured of .3, is a net savings of $64.5 million.

4 Re-Examining the Evidence from Flanders and Williams

4.1 Health Care Costs

Flanders and Williams derive their cost estimates from annual state level data on average private health spending, covering the period 2002-2014. The basis of their analysis is a regression of private health spending on an indicator variable for whether the state had expanded Medicaid. Most states expanded in 2014, but some states expanded in earlier years (according to their definitions from 2010-13). The health spending data is from the Federal Department of Health and Human Services, and is in nominal dollars (current dollars, not adjusted for inflation). Throughout this analysis, we use the Flanders and Williams data and variable definitions.

Before proceeding to analyze this data, we note the dangers in using this type of data to answer policy questions. First, the Medicaid expansion was one part of the ACA, and it may be difficult to separate its effects from those of the other health reforms. Second, the states who chose to expand Medicaid were quite different from other states, a simple comparison of expansion versus non-expansion states would be quite misleading. To illustrate this, Table 4 provides some characteristics of the states in 2009, prior to any state choosing to expand Medicaid. In 2009, the states that chose to expand had higher health spending, higher average income, a lower poverty rate, higher fraction urban, and higher average age than the states that had not expanded by 2014. Third, there is a sharp increasing trend in private health spending across all states, as indicated by Figure 2. Given this trend, any policy–whether actually related to health spending or not–which occurred late in the 2002-14 period would seem to have a positive association with health care costs. This makes it imperative that any credible analysis using this type of data control for time trends in health spending.

4.1.1 Accounting for Time Trends

Table A-5 replicates the regression analysis Flanders and Williams use to compute the cost of the Medicaid expansion. Each column is a separate regression, corresponding to the following three equations:

$$\text{private health spending}_{st} = \alpha\text{expand}_{st} + X'_{st}\beta + \delta_s + \epsilon_{st} \quad (7)$$

$$\text{private health spending}_{st} = \alpha\text{expand}_{st} + X'_{st}\beta + \delta_s + \omega_t + \epsilon_{st} \quad (8)$$

$$\text{private health spending}_{st} = \alpha\text{expand}_{st} + X'_{st}\beta + \delta_s + \omega_t + \delta_s \times \text{year}_t + \epsilon_{st} \quad (9)$$

Following Flanders and Williams, private health spending$_{st}$ is nominal private health spending per privately insured individual for each state s and year t, expand$_{st}$ is an indicator variable equal to 1 if the state s has implement the Medicaid expansion by year t, X_{st} is the vector of control variables they include (population, average household income, average age, poverty rate, and urban rate), δ_s are state level fixed effects, ω_t are year fixed effects, and $\delta_s \times \text{year}_t$ are state fixed effects interacted with calendar year (i.e. state level linear time trends).

Column 1 of Table 5 exactly replicates the Flanders and Williams estimate, indicating that Medicaid expansion would increase per insuree private health costs by \$177.[13] Column 2 adds calendar year effects, to control for the steep increase in nominal health costs. With this addition, the estimated effect of the Medicaid expansion falls to \$67, and is no longer statistically significantly different from zero at the 10 percent level (p-value of 0.316).

Finally, Column 3 of Table 5 adds state level time trends, and the effect of the Medicaid expansion is now negative at -\$84, with a p-value of 0.104, suggesting the expansion produced a savings. The regression in Column 3 is the most general and robust because it controls for state level trends in health spending, due to state level trends in the population characteristics affecting the demand for insurance or state level trends in other health policy reforms occurring in this period. The effect of the Medicaid expansion in this analysis is identified from any deviation at the state level in their trend. That is, we are analyzing how state level spending changes as Medicaid is introduced. The conclusion from this analysis is that the Medicaid expansion is associated with a *reduction* in private health care costs. We emphasize

[13] In their report, Flanders and Williams are not reporting heteroskedastic robust standard errors. Heteroskedastic robust standard errors are standard practice in econometric analysis. The Flanders and Williams standard errors are biased downward (implying more precise results). Appendix Table A-5 reports the same regressions as in Table 5 but with homoskedastic standard errors. In Column 1 of this table, we exactly replicate their reported standard error.

that this is an association, and are reluctant, due to the caveats mentioned above, to believe that this result, like any of these regression results, are necessarily causal.

It is clear that the Flanders and Williams results do not hold up in standard models controlling for time trends. In addition, limiting the analysis to years around the Medicaid expansion dates (see Appendix Table A-3) also reveals no statistically significant relationship. Further analysis indicates that if Flanders and Williams would have included a simple linear year trend (instead of a set of year fixed effects as above), their findings would also not hold up (see Appendix Table A-4). Controlling for time trends is not only standard in econometric research but also necessary in this context. Health care costs are rising rapidly (especially in nominal terms as used by Flanders and Williams) for any number of reasons, many of which cannot be attributed to the Medicaid expansion. Failing to account for these time trends would misleadingly associate *any* recent government policy change–whether actually related to health care or not–with an increase in costs.

4.1.2 Adjusting for Inflation

The preceding results analyzed nominal (or current dollar) health spending over the 2002-14 period. This appears to be unintentional, as Flanders and Williams discuss their results as if they are inflation adjusted (in 2014 $). Standard practice would be to adjust spending for inflation in order to provide a sensible analysis of real spending patterns. This is especially important here given the steep time trend in nominal spending across all states, and that the Flanders and Williams regression analysis includes no control variables for this trend.

Figure 3 adjusts the nominal health spending data for inflation using the national medical care component of the Consumer Price Index, and expresses the health spending in real $2014. It is clear that the time trend here is still generally increasing, as health care costs have risen faster than even medical price inflation, but that the increase in real health care costs have slowed toward the end of the period. We next show that this difference in the nominal and real series makes an important difference in the regression results.

Table 6 re-estimates the exact same regressions as in Table 5 but uses real health care spending instead of nominal spending. In Column 1, the exact same regression specification as Flanders and Williams now produces an estimated effect that is negative (no longer positive) and not statistically significant from zero (p-value = 0.591). This indicates that the positive statistically significant effect of the Medicaid expansion Flanders and Williams report is due entirely to using nominal, rather than inflation adjusted spending.

Including time fixed effects and state specific trends (Columns 2 and 3) reveal a similar pattern as with the nominal regressions, discussed above. The most general specification in Column 3 indicates that Medicaid expansion is associated with a statistically significant savings in private health care costs of \$97.31 (p-value = 0.092). As a robustness check, we also estimate models deflating health care spending using all components of the CPI instead of just the medical care component. As shown in Appendix Table A-6, our main conclusion still holds: the Flanders and Williams finding is entirely due to the use of nominal spending.

4.1.3 Importance of Methods

Our main finding on health care costs is that across several regression models, the only specification that leads to a statistically significant positive estimate is the one Flanders and Williams report: using nominal spending and omitting any control for time trends. The methodology they use is flawed because the nominal health spending series is increasing rapidly and therefore without any adjustment for this trend – either including time trends in the regression model and/or adjusting the data series for inflation – any recent policy would appear to have a positive effect. Likewise, our conjecture is that this type of methodology would yield a positive estimate for just about any data series that is increasing over the analysis period.

To illustrate this point, we repeat the Flanders and Williams method with a different variable of interest: nominal per capita income by state.[14] Just as with nominal private health spending, nominal per capital income is increasing for all states over this period 2002-14. Table 7 uses the same model as Flanders and Williams: we regress income per capita for each state on the indicator for Medicaid expansion. This regression includes their remaining explanatory variables and state fixed effects, but excludes any variables for time trend. The regression indicates that the Medicaid expansion would increase per capita income by \$5,246, about a 11 percent increase relative to 2014 per capita income. Mirroring the Flanders and Williams results for private health costs, this effect is very large in magnitude and statistically significant (p-value < 0.001). Following the cost-benefit analysis in the Flanders and Williams report, this regression would indicate that the Medicaid expansion would boost the Wisconsin economy by over \$30 billion dollars annually, about 50 times larger than the cost of the program.

[14] Our nominal income series is from the Federal Reserve Bank of St. Louis, fred.stlouisfed.org. A per capita income series is an explanatory variables Flanders and Williams include in their regressions. We use our nominal income series as a dependent variable and drop the Flanders and Williams variable from the set of explanatory variables.

This of course is flawed: it is unlikely that the Medicaid expansion could have such a large positive effect on the Wisconsin economy. The remaining regressions in Table 7 show that the large positive effect of the Medicaid expansion does not hold up once we control for time trends in income or adjust for inflation. In the most robust specification–using inflation adjusted real values and controlling for state level trends–we no longer find a statistically significant relationship between the Medicaid expansion and per capita income. Just as with the private health costs analysis in Flanders and Williams, the specification that yields the largest positive estimate is the one they report using nominal data and no control for time effects. The reason we estimate a positive effect of the Medicaid expansion on per capita income is the same reason that Flanders and Williams find a positive effect on private health care spending: the analysis does not adequately control for overall trends and adjust for inflation. Our exercise here demonstrates an important lesson: this type of methodology is flawed and should be avoided.

4.2 ER Visits

Flanders and Williams also analyze ER visits by state in a similar style regression analysis. This data covers the 2001-16 period. Table 8 estimates the same three regressions as above, but using ER visits per 1000 people as the dependent variable. Column 1 of Table 8 replicates exactly the Flanders and Williams result: Medicaid expansion is associated with approximately 10 additional ER visits per 1,000 people.[15] However, as Figure 4 indicates, there is an upward trend in ER visits across all states.[16] Just as with the health spending analysis, failing to control for this trend in ER visits would then tend to positively associate any recent policy changes (such as Medicaid expansion) with an increase in ER visits.

Columns 2 and 3 of Table 8 add controls for time trends, time fixed effects and state level trends. In these more robust models, the effect of the Medicaid expansion is now negative (Medicaid expansion is associated with a reduction in ER visits). In the Column 3 regression, Medicaid expansion is estimated to be associated with about a reduction in ER visits of 11 per 1,000, but this is not significant (p-value 0.188). When studying the effects of Medicaid eligibility on ER visits, previous studies have found contradictory evidence, with some studies finding increases in ER

[15]In this case, we cannot replicate their standard errors, although the homoskedastic ones match closest. See Table A-7. Throughout our main analysis we report heteroskedastic robust standard errors clustered at the state level, unless attempting to replicate their homoskedastic standard errors.

[16]We do not know the source of the ER data or understand the cause of the dip in the data series. Please refer questions about this data to Flanders and Williams.

visits and some finding no effects (See for example Sommers and Simon (2017)).[17] However, it is likely that the payer composition of ER visits did change (Pines et al., 2016).

[17]The Oregon experiment, which was a lottery to be able to apply for Medicaid, found that Medicaid coverage increases the number of ER visits. It is worth noting that to be eligible to apply individuals had to be uninsured for 6 or more months prior (Taubman et al., 2014).

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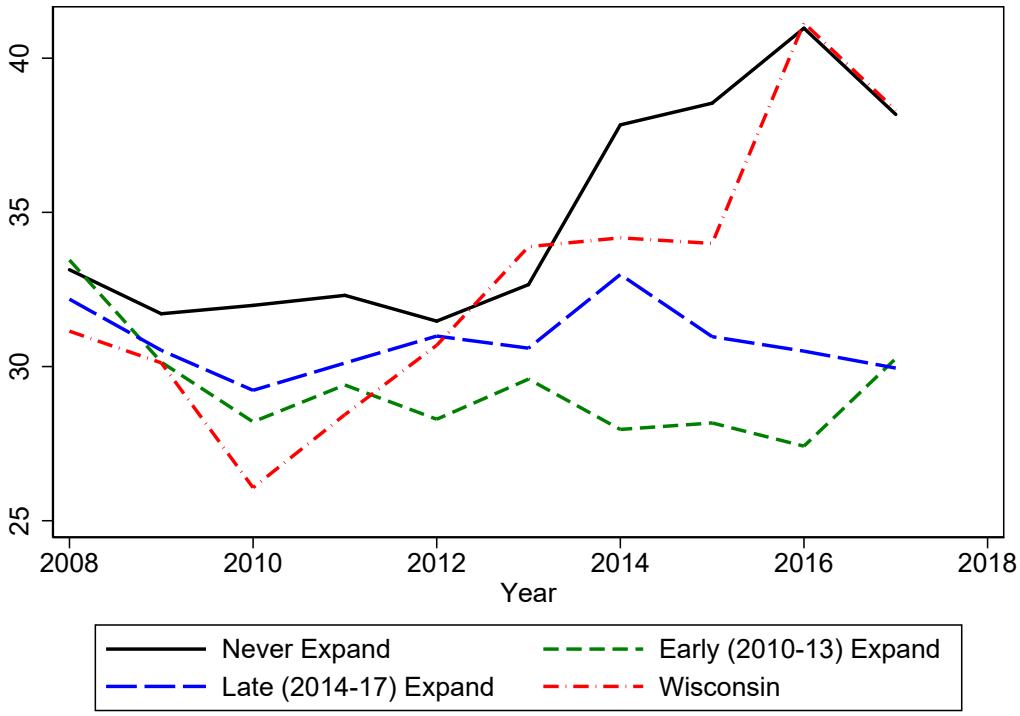
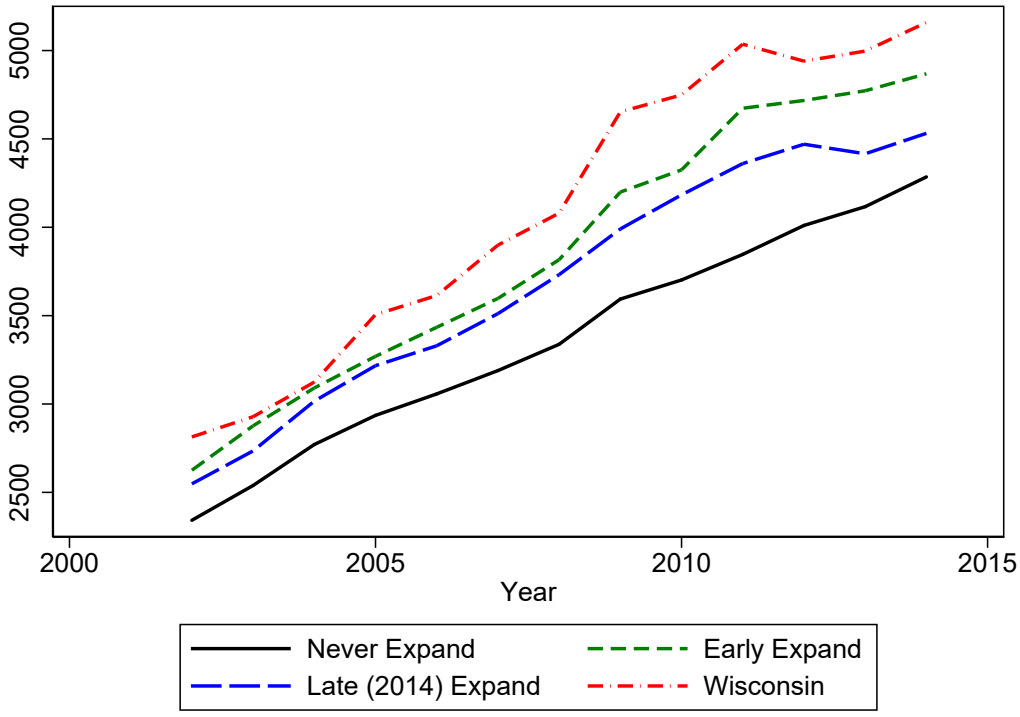
Figure 1: Percentage with Private Insurance (among those Aged 18-64 and Poverty Rate 100-138%)



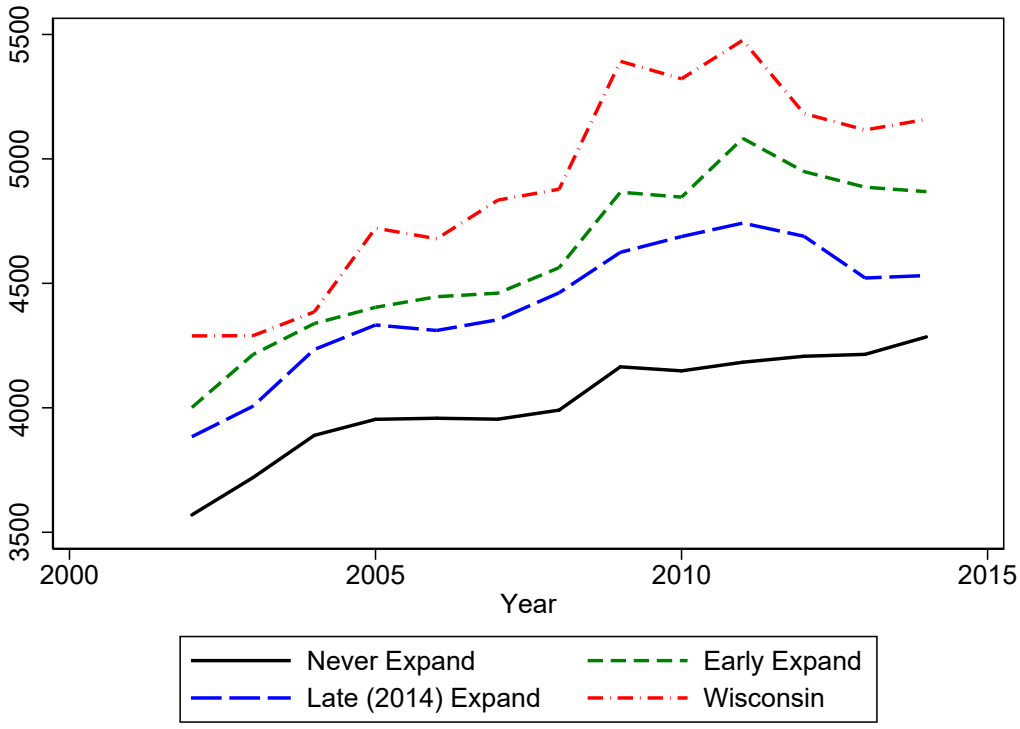
Source: American Community Survey (ACS), provided by IPUMS.
Notes: Percentage private insurance is the percentage reporting health insurance from an employer, union, or from an individually purchased plan. Sample weights used for all statistics.

Figure 2: Private Health Spending per Person (Nominal)



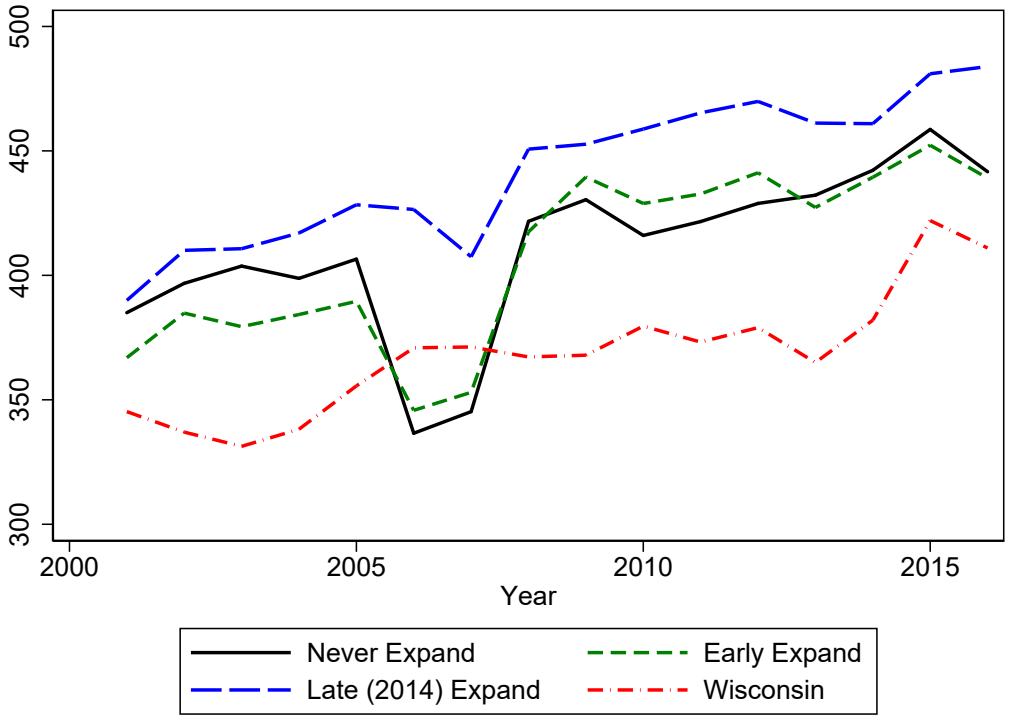
Source: Flanders and Williams (2019).

Figure 3: Private Health Spending per Person (Real 2014 $)



Source: Flanders and Williams (2019) deflated by Medical CPI series.

Figure 4: ER Visits per 1,000 People



Source: Flanders and Williams (2019).

Table 1: Insurance Rates in 2017 (Aged 18-64)

Panel A: Wisconsin

	All	Poverty $< 100\%$	Poverty $100 - 138\%$	Poverty $\geq 138\%$
Employer/Union	65.4	27.7	29.0	73.5
Individual	10.5	10.9	9.4	10.5
Military/VA	1.9	1.3	1.0	2.0
Medicare	1.6	2.6	2.9	1.4
Medicaid	13.4	43.6	41.3	6.9
Uninsured	7.2	14.0	16.5	5.6

Panel B: Expansion States

	All	Poverty $< 100\%$	Poverty $100 - 138\%$	Poverty $\geq 138\%$
Employer/Union	57.4	20.7	22.3	66.5
Individual	9.7	10.0	7.7	9.8
Military/VA	3.4	3.0	2.6	3.6
Medicare	2.0	2.8	4.4	1.7
Medicaid	18.0	47.0	46.9	10.6
Uninsured	9.5	16.5	16.1	7.8

Panel C: Non-Expansion States

	All	Poverty $< 100\%$	Poverty $100 - 138\%$	Poverty $\geq 138\%$
Employer/Union	55.9	21.8	26.5	64.9
Individual	11.2	10.7	11.7	11.3
Military/VA	4.6	3.8	2.9	4.8
Medicare	2.3	2.8	4.6	2.0
Medicaid	10.2	29.1	23.8	5.4
Uninsured	15.8	31.8	30.5	11.5

Source: American Community Survey (ACS), provided by IPUMS.

Notes: Percentage private insurance is the percentage reporting health insurance from an employer, union, or from an individually purchased plan. Sample weights used for all statistics. Non-Expansion states exclude Wisconsin.

Table 2: Private Insurance Rates and Medicaid Expansion

Panel A: Private Insurance Rates among 100-138% Group

	[1]	[2]	[3]
Expanded Medicaid	-3.038***	-4.919***	-1.943**
	(1.037)	(.697)	(.838)
Obs.	510	510	510
State FE	No	Yes	Yes
Year FE	No	Yes	Yes
State FE × Year	No	No	Yes

Panel B: Difference in Private Ins. Rates (100-138 % Group vs. > 138 % Group)

	[1]	[2]	[3]
Expanded Medicaid	-4.704***	-3.793***	-1.616**
	(1.000)	(.572)	(.796)
Obs.	510	510	510
State FE	No	Yes	Yes
Year FE	No	Yes	Yes
State FE × Year	No	No	Yes

Notes: Sample includes only individuals aged 18-64. Observations from 51 states and years 2008-2017 included. Heteroskedastic robust standard errors, clusted by state, are reported.

Table 3: Costs and Savings from Medicaid Expansion

Panel A: Expected Costs

Scenario	Fraction Reduction Priv. Insurance	(1-Medicaid Reimburse Rate)	Cost Priv. Ins.	Total Cost (Millions)
1	.02	.72	5634	6.49
2	.04	.72	5634	12.98
3	.06	.72	5634	19.47
4	.08	.72	5634	25.96
5	.1	.72	5634	32.45

Panel B: Expected Savings

Scenario	Fraction Uninsured	Cost Uninsured	Total Savings (Millions)
1	.2	3228	51.65
2	.25	3228	64.56
3	.3	3228	77.47
4	.35	3228	90.38
5	.4	3228	103.3

Notes: Author's calculations as discussed in the text.

Table 4: Characteristics of States in 2009 by Future Expansion Status

	Never	Expand Early	Expand Later	Wisconsin
Private Health Spend	3594	4199	3991	4653
Average Household Income	46105	53931	50683	51237
Poverty Rate	14.28	13.05	13.44	10.8
Population (1,000)	5792	6742	5519	5545
Percent Urban	65.62	78.54	74.71	68.3
Average Age	36.55	37.4	37.11	37.9

Source: Authors' calculations using Flanders & Williams (2019) data.

Table 5: Private Health Spending and Medicaid Expansion (Nominal Dollars)

	[1] Flanders Williams	[2]	[3]
Expanded Medicaid	177.235**	66.859	-84.106
	(87.714)	(66.077)	(51.394)
Obs.	663	663	663
State FE	Yes	Yes	Yes
Year FE	No	Yes	Yes
State FE × Year	No	No	Yes

Notes: Observations from 51 states and years 2002-2014 included in each regression. Heteroskedastic robust standard errors, clusted by state, are reported. Flanders and Williams report non-robust, homoskedastic, standard errors. We replicate their standard errors in the Appendix. All regressions include the Flanders and Williams control variables: state level per capita income, population, poverty rate, urbanization rate, and average age.

Table 6: Private Health Spending and Medicaid Expansion (Real 2014 Dollars using Medical CPI)

	[1] Flanders Williams	[2]	[3]
Expanded Medicaid	-37.024	14.821	-97.312*
	(68.528)	(57.806)	(56.597)
Obs.	663	663	663
State FE	Yes	Yes	Yes
Year FE	No	Yes	Yes
State FE × Year	No	No	Yes

Notes: Observations from 51 states and years 2002-2014 included in each regression. Heteroskedastic robust standard errors, clusted by state, are reported. All regressions include the Flanders and Williams control variables: state level per capita income, population, poverty rate, urbanization rate, and average age.

Table 7: Per Capital Income and Medicaid Expansion

Panel A: Nominal Per Capita Income

	[1] Flanders Williams	[2]	[3]
Expanded Medicaid	5245.679***	1011.843**	31.076
	(1129.189)	(479.814)	(194.876)
Obs.	663	663	663
State FE	Yes	Yes	Yes
Year FE	No	Yes	Yes
State FE × Year	No	No	Yes

Panel B: Real (2014 $) Per Capita Income

	[1] Flanders Williams	[2]	[3]
Expanded Medicaid	2078.671***	296.613	82.272
	(598.244)	(434.576)	(220.111)
Obs.	663	663	663
State FE	Yes	Yes	Yes
Year FE	No	Yes	Yes
State FE × Year	No	No	Yes

Notes: Observations from 51 states and years 2002-2014 included in each regression. Heteroskedastic robust standard errors, clusted by state, are reported. All regressions include the Flanders and Williams control variables: state level population, poverty rate, urbanization rate, and average age.

Table 8: ER Visits per 1,000 People and Medicaid Expansion

	[1] Flanders Williams	[2]	[3]
Expanded Medicaid	9.963	-2.300	-10.930
	(6.060)	(7.046)	(8.188)
Obs.	816	816	816
State FE	Yes	Yes	Yes
Year FE	No	Yes	Yes
State FE × Year	No	No	Yes

Notes: Observations from 51 states and years 2001-2016 included in each regression. Heteroskedastic robust standard errors, clusted by state, are reported. All regressions include the Flanders and Williams control variables: state level per capita income, population, poverty rate, urbanization rate, and average age.

APPENDIX

Table A-1: Year of Medicaid Expansion

State	Year of Expansion (PW)	Year (FW)
Alaska	2015	2015
Arizona	2011	2014
Arkansas	2014	2014
California	2014	2013
Colorado	2014	2012
Connecticut	2011	2010
Delaware	2011	2014
District of Columbia	2011	2011
Hawaii	2011	2013
Illinois	2014	2014
Indiana	2015	2015
Iowa	2014	2014
Kentucky	2014	2014
Louisiana	2016	2016
Maryland	2014	2014
Massachusetts	2014	2014
Michigan	2014	2014
Minnesota	2011	2010
Nevada	2014	2013
New Hampshire	2014	2014
New Jersey	2014	2011
New Mexico	2014	2013
New York	2011	2013
North Dakota	2014	2013
Ohio	2014	2014
Oregon	2014	2014
Pennsylvania	2015	2015
Rhode Island	2014	2014
Vermont	2011	2013
Washington	2011	2011
West Virginia	2014	2013

Notes: The following states have not expanded Medicaid: Alabama, Florida, Georgia, Kansas, Maine, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Wisconsin, Wyoming. Idaho, Nebraska, and Utah are going to expand at a date to be determined. We classify states as having expanded if they expanded at any point during the year. We classify states as having expanded by 2011 if they offered public health insurance to childless individuals.

Table A-2: Private Insurance Rates and Medicaid Expansion Weighted by State Population

Panel A: Private Insurance Rates among 100-138% Group

	[1]	[2]	[3]
Expanded Medicaid	-2.260***	-5.248***	-1.923**
	(.813)	(.968)	(.912)
Obs.	510	510	510
State FE	No	Yes	Yes
Year FE	No	Yes	Yes
State FE × Year	No	No	Yes

Panel B: Difference in Private Ins. Rates (100-138 % Group vs. > 138 % Group)

	[1]	[2]	[3]
Expanded Medicaid	-4.982***	-4.048***	-1.654**
	(.905)	(.628)	(.654)
Obs.	510	510	510
State FE	No	Yes	Yes
Year FE	No	Yes	Yes
State FE × Year	No	No	Yes

Notes: Sample includes only individuals aged 18-64. Observations from 51 states and years 2008-2017 included. States are weighted by the size of the population. Heteroskedastic robust standard errors, clusted by state, are reported. All regressions include the Flanders and Williams control variables: state level per capita income, population, poverty rate, urbanization rate, and average age.

Table A-3: Nominal Health Spending over Alternative Year Ranges

	[1]	[2]	[3]
Expanded Medicaid	90.818	-71.506	-36.942
	(157.084)	(58.939)	(60.721)
Obs.	153	255	102
Years	2010-2012	2010-2014	2013-2014

Notes: Each regression contains state and year fixed effects and observations from 51 states. Heteroskedastic robust standard errors, clusted by state, are reported. All regressions include the Flanders and Williams control variables: state level per capita income, population, poverty rate, urbanization rate, and average age.

Table A-4: Private Health Spending and Medicaid Expansion (Nominal Dollars) with Different Year Trends

	[1]	[2]	[3]
Expanded Medicaid	-36.962	36.772	73.184
	(73.754)	(83.087)	(76.207)
Obs.	663	663	663
State FE	Yes	Yes	Yes
Year	Yes	Yes	Yes
Year squared	No	Yes	Yes
Year cubed	No	No	Yes

Notes: Observations from 51 states and years 2002-2014 included in each regression. Heteroskedastic robust standard errors, clusted by state, are reported. All regressions include the Flanders and Williams control variables: state level per capita income, population, poverty rate, urbanization rate, and average age.

Table A-5: Private Health Spending and Medicaid Expansion (Nominal Dollars) with Homoskedastic Standard Errors

	[1] Flanders Williams	[2]	[3]
Expanded Medicaid	177.235***	66.859*	-84.106**
	(51.682)	(39.160)	(37.658)
Obs.	663	663	663
State FE	Yes	Yes	Yes
Year FE	No	Yes	Yes
State FE × Year	No	No	Yes

Notes: Observations from 51 states and years 2002-2014 included in each regression. All regressions include the Flanders and Williams control variables: state level per capita income, population, poverty rate, urbanization rate, and average age.

Table A-6: Private Health Spending and Medicaid Expansion (Real 2014 Dollars, using All Items CPI)

	[1] Flanders Williams	[2]	[3]
Expanded Medicaid	50.586	34.992	-92.705*
	(75.889)	(58.449)	(54.242)
Obs.	663	663	663
State FE	Yes	Yes	Yes
Year FE	No	Yes	Yes
State FE × Year	No	No	Yes

Notes: Observations from 51 states and years 2002-2014 included in each regression. Heteroskedastic robust standard errors, clusted by state, are reported. All regressions include the Flanders and Williams control variables: state level per capita income, population, poverty rate, urbanization rate, and average age.

Table A-7: ER Visits per 1,000 People, with Homoskedastic Standard Errors

	[1] Flanders Williams	[2]	[3]
Expanded Medicaid	9.963**	-2.300	-10.930*
	(4.988)	(5.201)	(6.414)
Obs.	816	816	816
State FE	Yes	Yes	Yes
Year FE	No	Yes	Yes
State FE × Year	No	No	Yes

Notes: Observations from 51 states and years 2001-2016 included in each regression. All regressions include the Flanders and Williams control variables: state level per capita income, population, poverty rate, urbanization rate, and average age.