Potential Medicaid Expansion in Wisconsin:

New Estimates of Costs and Benefits for Health Care Providers and the Privately Insured*

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Abstract

We provide new evidence on the potential impact of Medicaid expansion on health care providers and the privately insured in Wisconsin. First, we directly estimate the impact on the privately insured. We show that increased Medicaid enrollment is associated with higher premiums on employer-provided insurance plans, particularly for single enrollees. Second, we separately estimate the costs and benefits of expansion on health care providers. We show that costs, as some of the newly eligible switch from private insurance to Medicaid, exceed savings due to lower uncompensated care by uninsured patients. This approach is similar to Pauley and Wiswall (2019), but we find larger net costs. We also show that recent reports that Medicaid expansion states had lower premiums on ACA exchanges are largely irrelevant for consumers. The vast majority of exchange purchasers receive subsidies which eliminate nearly all variation in effective premiums across states. Overall, the impact of Medicaid expansion depends on the size and composition of the new enrollment. Under the projections of the Wisconsin state government, we estimate that the cost of Medicaid expansion to health care providers and the privately insured would be $44-$133 million per year. With larger enrollment, from increased Medicaid enrollment by those previously eligible, costs would increase to $93-$184 million per year.

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1 Introduction

The potential expansion of Medicaid has been an important topic of debate in Wisconsin over the past several years, reaching new heights this year. After experimenting with other approaches in prior years, in 2014 Wisconsin settled on a partial expansion, where all individuals up to 100% of the Federal Poverty Line (FPL) are eligible for Medicaid. This stopped short of the full expansion up to 138% of FPL under the Affordable Care Act (ACA), and thus Wisconsin is not eligible for the increased federal reimbursement. During the 2018 election, Governor Tony Evers campaigned on a platform of expanding Medicaid, and after his election Medicaid expansion was a key pillar in his proposed budget. However the State Legislature has remained opposed to the expansion, with the Joint Finance Committee recently removing expansion from their state budget plans.

While the potential Medicaid expansion has many dimensions, one of the most important economically is the impact of expanded public insurance provision on households in the state. In addition to increased revenue from the federal government, Medicaid expansion brings potential costs and benefits to health care providers. The costs arise because Medicaid reimburses health care providers at a lower rate than private insurance. With more people on Medicaid, health care providers would receive lower payments for services, which could push up premiums for private insurance. Moreover, if increased public insurance were to increase usage of medical services, the increased demand would put additional cost pressure on providers. The potential benefits of Medicaid expansion come from a reduction in the uninsured rate, and in turn, uncompensated care costs incurred by health care providers. The competition among health care providers implies that at least some of the costs and benefits would be shared by those privately insured through changes in insurance premiums.

We consider two approaches to estimating the impact of Medicaid expansion, both of which build on previous CROWE research. First, similar to Flanders and Williams (2019, henceforth "FW") we directly estimate the impact of increased Medicaid enrollment on health insurance premiums. Using different data and empirical methods than FW, we provide evidence that increased Medicaid enrollment leads to higher premiums on employer-provided insurance plans, particularly for single enrollees. Second, we separately estimate the costs and benefits of expansion, similar to Pauley and Wiswall (2019, henceforth "PW"). We show that the costs to medical providers from some of the newly eligible switching from private insurance to Medicaid exceeds the savings due to lower uncompensated care by uninsured patients.

We consider three different enrollment scenarios following Medicaid expansion. As our benchmark, we rely on the enrollment estimates from Governor Evers's proposed budget. We also consider a case with relatively low Medicaid take-up with fewer people switching from private to public insurance, as suggested by PW from their analysis of Census data. However many states that have expanded Medicaid have seen enrollment exceed projections.[1] Our third scenario has higher enrollment, as suggested in a recent study from the Urban Institute by Buettgens (2018). In particular, previous public insurance expansions have tended to also increase enrollment among those who were already eligible. Since the current Medicaid take-up rate is relatively low and the rate of uninsured is still over 12% among those earning 0-100% of FPL who are currently eligible, this "woodwork effect" could generate additional Medicaid enrollment, for a total nearly twice as large as the state administration's estimates.

Across all of our estimates and enrollment scenarios, we find that higher Medicaid enrollment would increase costs for health care providers and those on private insurance in Wisconsin. Under the Evers administration benchmark enrollment estimates, the cost would be approximately $44 million per year under our direct approach and $133 million per year using the net costs. With a smaller enrollment expansion (made up of a higher proportion of uninsured), these estimates would fall to $19 million and $7.3 million. However with a larger post-expansion enrollment, the costs would increase to $93 million under the direct estimate and $184 million using net costs.

Previous Research

Two previous CROWE reports have analyzed the economic impact of Medicaid expansion in Wisconsin. As discussed above, FW compared costs of private insurance in states that expanded Medicaid with those that did not, finding that Medicaid expansion entailed significant costs. Our direct approach follows FW in looking at the impact of expansion on private costs, but we use different measures both of costs and of the size of the expansion. The data used by FW was relatively limited, with only one year (2014) after the implementation of the ACA when the largest Medicaid expansion took place. Using a different (and longer) data source, we find higher Medicaid enrollment has a dynamic effect on insurance premiums. The report by PW also argued that FW failed to appropriately control for time trends and overall inflation. The current paper corrects for these issues, and we find substantially smaller costs than in the original FW report.

In addition, PW considered in more detail the potential costs and benefits associated with expanding eligibility in Wisconsin to those between 100-138% of FPL. PW focused on costs from lower reimbursement rates from some of the newly eligible switching from private to public insurance, finding substantially lower costs than estimated by FW. PW also estimated the savings to hospitals from lower amounts of uncompensated care by uninsured patients, as some of the formerly uninsured would now be covered by Medicaid.

Our second approach builds on the analysis of PW. We take our estimate of the cost per person who switches from private insurance to Medicaid from their analysis. Their estimate of this "crowding out" effect was relatively low, based on their analysis of

[1] For example, comparing pre-enrollment projections reported by the Advisory Board (2019) with December 2014 expansion group enrollment reports by CMS (2016): Illinois projected 342,000, actual 595,000; Michigan projected 470,000, actual 498,000; Nevada projected 78,000, actual 165,000; Ohio projected 275,000, actual 485,000; West Virginia projected 91,500, actual 154,000.

Census data. However as we discuss below the state administration projects more crowding out of private insurance, which increases costs. They also used a smaller base in their final calculation than in their initial estimates of the crowding out effect, which led them to underestimate the cost by a factor of two. Moreover, in their analysis of benefits, PW assumed that uncompensated care was entirely due to uninsured patients, and they used data on charges billed by hospitals rather than costs incurred. We provide evidence that both of these assumptions are inaccurate, and find costs of uncompensated care per uninsured person roughly one quarter as large as those of PW. Our estimate is similar to Garthwaite, Gross, and Notowidigdo (2018), but even still is likely an overstatement, as the federal government provides hospitals reimbursement funds for uncompensated care through a number of programs. Coughlin et al. (2014) estimated that in 2013 the federal government reimbursed roughly 44% of the cost of uncompensated care nationwide.

Moreover, different from both FW and PW as well as most of the previous research on Medicaid expansion, we focus on the dynamic impact of increases in Medicaid enrollment. Most previous work has looked at Medicaid expansion as a binary variable, sorting states into those that expanded and those that have not. However Medicaid coverage varied substantially across states before the ACA, with different eligible populations and different income limits, so expansion had very different meaning in different states. Thus rather than a binary expansion status indicator, we take the share of the population on Medicaid as our independent variable. Our approach also more easily allows us to tailor our results to Wisconsin, which has already partially expanded Medicaid. Full expansion in Wisconsin, where Medicaid already covers childless adults up to 100% of FPL, would entail a very different newly eligible population than in (say) Texas, which has no coverage for childless adults. Further, because insurance enrollment, insurance premiums, and other outcomes may be only adjusted slowly over time, we consider the dynamic effects of increased Medicaid enrollment. As Meer and West (2016) showed, if the underlying mechanism is dynamic, then controlling for state-specific trends, as PW do, over-corrects and biases the results toward smaller impacts.

Finally, we discuss the evidence of Medicaid expansion on premiums in the ACA exchanges. A recent report by Peper and Cohen (2019) applied the work of Sen and DeLeire (2016, 2018), who found that premiums on the exchanges were 7-10% lower in Medicaid expansion states, after controlling for a number of local characteristics. This does not contradict our results, as the ACA exchange market is very different from the much larger employer-provided insurance market that we analyze. As Sen and DeLeire (2018) show, purchasers on the exchanges are sicker and use more medical services than the general population. Equally as important, we show that the estimates from the ACA exchanges are largely irrelevant to the decision of whether to expand Medicaid, as they are based on pre-subsidy insurance premiums. A key feature of the exchange market is that insurance plans are highly subsidized for most purchasers, and the federal tax subsidies eliminate almost all of the geographic variation in ACA exchange premiums. Since the federal subsidies provide a cap on premiums based on income, lower income consumers choosing the same plans would pay the same regardless of where they lived. Cox et al. (2016) show that when comparing after-subsidy premiums, there is almost no variation across states, whether they expanded Medicaid or not. Thus expansion would simply shift the source of federal funds from smaller insurance premium subsidies to direct Medicaid provision, but not affect the net cost for most of those purchasing insurance on the exchanges.

2 Data

We use data from several sources. The first is the American Community Survey (ACS) of the Census Bureau. With its large sample size and rich information on individual and household poverty and health insurance status, ACS is the main data source for estimating enrollment of potential Medicaid expansion.

One weakness of ACS is that information on health insurance is only available since 2008. To obtain a longer series of Medicaid coverage as well as some other variables at the state level, like the percentage of the population with a disability that limits or prevents work and the percentage of the population that quit job or retired for health reasons, we use the Annual Social and Economic Supplement of the Current Population Survey (CPS), administered by the Bureau of Labor Statistics. Most of the commonly used state-level variables like population, per capita personal income and the labor force participation rate, however, are retrieved from the FRED database of the Federal Reserve Bank of St. Louis.

For measures of employer-provided health insurance premiums, we use the Medical Expenditure Panel Survey (MEPS) from the Agency for Healthcare Research and Quality, the Department of Health and Human Services. In particular, we use two variables from the state tables of the MEPS insurance component: *Average total single premium (in dollars) per enrolled employee at establishments that offer health insurance* and *Average total family premium (in dollars) per enrolled employee at establishments that offer health insurance*. These two variables are available for all 50 states and D.C. from 2003 to 2017, with the exception of 2007 when no data was collected.

All variables measured in dollars are converted to 2018 dollars using the total all items Consumer Price Index (series ID: CPALTT01USA661S) retrieved from FRED.

2.1 Health Insurance Unit

An important decision in health insurance analyses with survey data like ACS (and CPS) is to choose an appropriate definition of a family unit for insurance coverage, often called the health insurance unit (HIU). The Census Bureau's definition of a family includes all *related* members of a household like parents and their children along with any other related individuals who are living with them (e.g., grandparents, adult siblings, aunts/uncles, niece/nephews, cousins), many of whom are typically excluded from one's insurance coverage and thus should not be included in one's HIU.

To address this, the State Health Access Data Assistance Center (SHADAC) of the University of Minnesota's School of Public Health developed an HIU definition for ACS that better captures the eligibility criteria of both private and public insurance. As explained in SHADAC (2012), the HIU includes individuals in a household who would be covered under either a typical private policy (e.g., the policyholder, policyholder's spouse, children under age 19 to 26 depending on the state and year) or Medicaid and CHIP (e.g., parent or guardian and children under age 19 to 21 depending on the state and year).

One channel through which the definition of an HIU affects the evaluation of Medicaid expansion works through the HIU's poverty status. In particular, the new enrollment from potential Medicaid expansion in Wisconsin depends on the number and the insurance status of nonelderly adults with income between 100-138% of FPL, which in turn depends on the definition of an HIU based on which poverty status is calculated.

Table 1. Population Distribution by Poverty and Insurance Statuses: Wisconsin Nonelderly Adults (19-64) in 2017

	% within each poverty group				Number of Individuals			
	All	<=100	(100,138]	>138	All	<=100	(100,138]	>138
Panel A: SHADAC								
Individual	10.5	10.0	10.1	10.6	355072	54209	19527	281336
Medicaid	12.8	42.1	35.5	5.2	434809	228542	68982	137285
Employer	66.3	32.0	35.9	75.5	2249573	174054	69815	2005704
Military	1.9	1.0	1.2	2.1	64519	5634	2365	56520
Medicare	1.6	2.5	2.7	1.4	54999	13778	5235	35986
Uninsured	7.0	12.3	14.6	5.3	236071	66915	28372	140784
Total	100	100	100	100	3395043	543132	194296	2657615
Panel B: PW								
Individual	10.5	9.3	9.5	10.7	355072	34761	14968	305343
Medicaid	12.8	48.4	40.6	6.7	434809	180104	63629	191076
Employer	66.3	25.3	28.8	73.6	2249573	94008	45165	2110400
Military	1.9	1.2	1.0	2.0	64519	4610	1528	58381
Medicare	1.6	2.8	3.1	1.4	54999	10525	4858	39616
Uninsured	7.0	12.9	17.0	5.6	236071	47817	26686	161568
Total	100	100	100	100	3395043	371825	156834	2866384

Note: The columns titled <=100, (100,138] and >138 include individuals with family/HIU income below 100%, between 100 and 138% and above 138% of the FPL, respectively.

Table 1 reports the population distribution by poverty and insurance statuses for Wisconsin nonelderly adults in 2017. Panel A uses SHADAC's definition of the HIU and the corresponding poverty status for each HIU calculated following SHADAC (2013). For comparison, Panel B uses the Census Bureau's definitions as in PW. [2]

[2] Institutionalized individuals and those not in the poverty universe (e.g. those live in group quarters like a college dormitory) are excluded from Table 1. For individuals with multiple sources of insurance coverage, a primary source is assigned. Following PW, the following order is used: 1) Medicaid; (2) Medicare; (3) Military related health insurance including TRICARE and VA; 4) Individually purchased insurance; 5) Employer-sponsored insurance.

Results from the two approaches are clearly different. For example, the Census Bureau's definitions used by PW implies there are 156,834 nonelderly adults with income between 100-138% of FPL that would become Medicaid eligible after the expansion, among which 40.6% are already covered by Medicaid and 17% are uninsured. In comparison, the three numbers from the SHADAC approach are 194,296, 35.5% and 14.6%, respectively. These differences would certainly lead to different estimates of Medicaid enrollment, and in turn the costs and savings from expansion. We use the SHADAC approach whose definition of HIU more closely matches public eligibility criteria.

2.2 Dynamic Responses

As discussed above, most previous work has looked at Medicaid expansion as a binary variable, sorting states into those that expanded and those that have not. However Medicaid coverage varied substantially across states before the ACA, with different eligible populations and different income limits, so expansion had very different meaning in different states. For example in 2013 prior to expansion, Illinois and Massachusetts provided Medicaid to jobless parents earning up to 133% of the FPL, while the cutoffs in Arkansas and West Virginia were 13% and 16% of the FPL, respectively (see Heberlein et al., 2013). With the full implementation of the ACA, all of these cutoffs were increased to 138%, implying very different sizes of the newly eligible population across states.

Another reason that the binary expansion indicator has been used seems to rest on the assumption that it is exogenous to the health insurance market at the state level, and thus could produce more reliable estimates. We don't think this is the case. The expansion indicator is not exogenous, because whether and when to expand Medicaid are decisions made by the state that could potentially depend on some economic calculations related to the state's health insurance market. For example, comparing the 8 states and D.C. that expanded in 2011 according to PW's dating with the rest of the 42 states, we find that, in 2010, the Medicaid coverage was about 3 percentage points higher and the uninsured rate was about 4 percentage points lower for early expanders than others, with both differences statistically significant. Results are similar for 2009.

Thus rather than expansion status, we take the share of the population on Medicaid as our independent variable, and address the potential endogeneity issue by controlling for variables that could affect both Medicaid enrollment and the dependent variable of interest. Two examples of such controls are the percentage of the population with a disability that limits or prevents work and the percentage of the population that quit job or retired for health reasons.

This approach also more easily allows us to tailor our results to Wisconsin, which has already partially expanded Medicaid. Full expansion in Wisconsin, where Medicaid already covers parents and childless adults up to 100% of FPL, would entail a very different newly eligible population than say Texas, which has a 17% of FPL limit for parents and no coverage for childless adults (see Brooks et al., 2019).

Further, because insurance enrollment, insurance premiums, and other outcomes may be only adjusted slowly over time, we consider the dynamic effects of increased Medicaid enrollment. Relatedly, both FW and PW used the fact that some states adopted Medicaid expansion early, before the full 2014 ACA implementation, as an additional source of variation in identifying the impact of Medicaid expansion. However the actual increases in Medicaid enrollment did not generally match the expansion dates.

These issues are illustrated in Figure 1, which shows the percentage of the population in various states on Medicaid using the SHADAC data. Although both Illinois and West Virginia adopted ACA expansion in 2014, there was a much greater increase in enrollment in West Virginia, which started from much lower income eligibility limits and thus had a larger increase in eligible population. Furthermore, Washington was one of the early expansion states, adopting Medicaid expansion in 2011, which both FW and PW code as the expansion date. However we see that there was little change in Medicaid enrollment in Washington until the full implementation of the ACA in 2014.

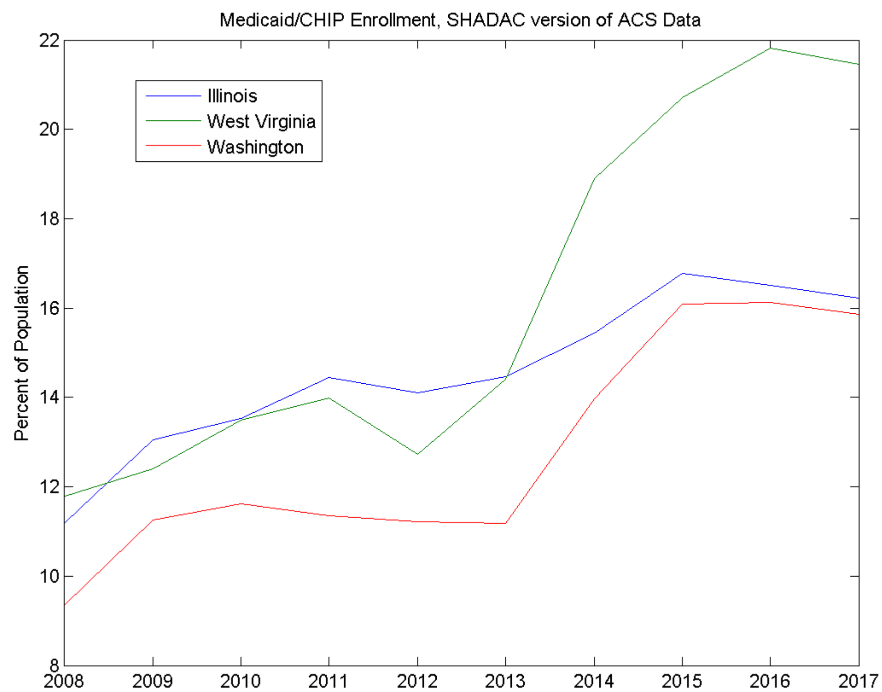

Figure 1: Percentage of the population in various states enrolled in Medicaid/CHIP, SHADAC version of ACS data.

As Figure 1 illustrates, in many states the changes in Medicaid enrollment were dynamic, and not a one-time change in levels or break in trend associated with Medicaid expansion. For example, West Virginia expanded Medicaid in 2014, but enrollment started increasing in 2013 and continued growing until 2016. Thus considering a dynamic specification with the share of the population on Medicaid seems appropriate. Moreover, most insurers negotiate payment levels and set premium prices in advance, while federal reimbursement may be delayed. Thus it is natural to look at the dynamic response on outcomes as well.

Further, if the underlying mechanism is dynamic, then the empirical approach to control for time trends greatly influences the results. As shown in Wolfers (2006), Meer and West (2016), and Strumpf et al. (2017) among others, including state specific trends in a dynamic setting biases the results toward smaller impacts. In their preferred specifications, PW include state specific time trends, and not coincidentally these specifications are associated with the smallest impacts of Medicaid expansion.

3 Private Insurance

Medicaid expansion could affect the private insurance market in multiple ways, with the sign of its effect ambiguous in theory. On the one hand, some low-income individuals may switch from private insurance to Medicaid when they become eligible. Because health care providers are reimbursed at a lower rate by Medicaid than private insurers, to break even in the presence of Medicaid expansion, they could increase their charges to private insurers who in turn could increase their premiums for enrollees. Moreover, the expansion of insurance with low out-of-pocket costs may increase the demand for health services, which would put additional cost pressure on providers and insurers. On the other hand, because low-income individuals on average have poor health, this compositional change could reduce the average risk and in turn the premium of those staying on private insurance. Depending on the relative strength of the two forces, Medicaid expansion could either raise or reduce private insurance premiums. Moreover, the effect could vary across insurance plans (employer-provided or individually purchased through, for example, the ACA exchange markets, single vs. family, etc.) due to the difference in the characteristics of their enrollees.

3.1 Approach

Empirically, we use the following equations to estimate the effect of Medicaid expansion on the premium of private health insurance at the state level

$$Premium_{s,t} = \alpha_0 Medicaid_{s,t} + X_{s,t}\beta + \delta_s + \omega_t + \varepsilon^1_{s,t} \tag{1}$$

$$Premium_{s,t} = \sum_{l=0}^{L>0} \alpha_l Medicaid_{s,t+l} + X_{s,t}\beta + \delta_s + \omega_t + \varepsilon^2_{s,t} \tag{2}$$

$$\Delta Premium_{s,t} = \sum_{l=L_1<0}^{L_2\geq 0} \alpha_l \Delta Medicaid_{s,t+l} + \Delta X_{s,t}\beta + \delta_s + \omega_t + \varepsilon^3_{s,t} \tag{3}$$

Equation (1) assumes that the average *premium* of private insurance in state s in year t depends on the state's *Medicaid* coverage as well as other characteristics included in the vector X, a state fixed effect δ, a time fixed effect ω, and an error term ε. In practice, the vector X includes the population, real per capita personal income, labor force participation rate, poverty rate, the uninsured rate, the percentage of the population with a disability that limits or prevents work, and the percentage of the population that quit job or retired for health reasons.

Assuming that the time-varying controls in X and the fixed effects are sufficient in addressing the common determinants of *Premium* and *Medicaid* such that the unobserved determinants of *Premium* left in the error term is unrelated to *Medicaid*, α_0 measures the contemparenous effect of Medicaid expansion on the average premium of private health insurance at the state level. Intuitively, if states with a larger increase in *Medicaid* over time also experience a larger contemporaneous increase in *premium*, the estimated α_0 would be positive, suggesting a positive effect of Medicaid expansion on the premium of private insurance.

This interpretation fails if the evolution of *Medicaid* at the state level is correlated with unobserved determinants of *Premium* in the error term, in which case the estimated α_0 may reflect the influence of the error term instead of the true effect of *Medicaid* on *Premium*. One typical approach to addressing this concern is to add a state specific time trend into the equation, with the assumption that this trend term would capture the correlation between *Medicaid* and the error term such that the resulting estimate of α_0 is not contaminated by unobserved determinants of *Premium*.

As discussed by Wolfers (2006) and Strumpf et al. (2017), a state specific time trend, however, is inappropriate if Medicaid expansion has a dynamic effect on *Premium* through changes in growth over time instead of an immediate effect on its level. More precisely, in the dynamic case the inclusion of a state specific time trend would bias the estimated α_0 towards zero such that we may not find a significant effect of *Medicaid* on *Premium* even if the true effect is positive. This argument against the use of a state specific time trend is well demonstrated by Meer and West (2016) in the case of the effect of the minimum wage on employment. With both simulations and empirical estimates, they show that specifications with state specific trends tend to generate a zero estimated effect of the minimum wage on employment even if the true effect is negative and dynamic. The reason is that at least part of the true effect will be attributed to the state specific trend.

One way to investigate the appropriateness of state specific trends is to add leads of *Medicaid* as in equation (2). If estimates of $\alpha_{l>0}$ are significantly different from zero, that is, Medicaid expansion is significantly correlated with *Premium* before implementation, it would suggest that state specific trends are relevant and should be properly addressed. Otherwise, insignificant estimates of $\alpha_{l>0}$ would suggest that state specific trends are probably not important and thus should be avoided due to its attenuation effect on α_0.

For any variable z, let $\Delta z_t = z_t - z_{t-1}$ be its annual change from year t – 1 to year t. Equation (3) estimates the dynamic effect of Medicaid expansion on *Premium* directly. In addition to contemporaneous ($l = 0$) changes in Medicaid coverage, we add its lags ($l < 0$) and leads ($l > 0$) into the equation. The lags are informative of the dynamic effect, if any. Similar to equation (2), the leads in equation (3) are informative of whether it's appropriate to omit state specific trends.

3.2 Estimates

Table 2 reports the estimated effect of Medicaid expansion on average total *single* premium (in dollars) per enrolled employee at establishments that offer health insurance, obtained from the MEPS. Independent variables like population, real per capita personal income and the labor force participation rate are obtained from FRED. Medicaid coverage and other control variables are calculated from the CPS.

The first column shows that a one percentage point increase in Medicaid coverage (an increase of $Medicaid$ by 0.01) is associated with a contemporaneous increase in average single premium by about 0.214%, which is statistically significant at the 10% significance level. Column 2 shows that the leads of $Medicaid$ are not significantly correlated with average single premium, suggesting that state specific trends may not be important and should be avoided as we do. The estimated contemporaneous effect is 0.216%, statistically significant and quantitatively very close to the estimate in column 1.

Table 2. Medicaid Expansion and Average Single Premium

	(1) $\log Single_{s,t}$	(2) $\log Single_{s,t}$	(3) $\Delta \log Single_{s,t}$	(4) $\Delta \log Single_{s,t}$
$Medicaid_{s,t}$	0.214*	0.216*		
	(0.117)	(0.123)		
$Medicaid_{s,t+1}$		-0.085		
		(0.099)		
$Medicaid_{s,t+2}$		0.106		
		(0.111)		
$\Delta Medicaid_{s,t}$			0.317**	0.305**
			(0.126)	(0.129)
$\Delta Medicaid_{s,t-1}$			0.156	0.056
			(0.122)	(0.143)
$\Delta Medicaid_{s,t-2}$			0.207*	0.268*
			(0.115)	(0.148)
$\Delta Medicaid_{s,t+1}$				-0.079
				(0.121)
$\Delta Medicaid_{s,t+2}$				0.036
				(0.135)
State effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
N	714	612	612	510

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Heteroskedastic robust standard errors, clustered by state, are reported in the parentheses. All variables are measured at the state (50 plus D.C.) by year (2003-2017 without 2007) level. The first two columns also control for the population, real per capita personal income, labor force participation rate, poverty rate, the uninsured rate, the percentage of the population with a disability that limits or prevents work, and the percentage of the population that quit job or retired for health reasons. The last two columns control for the annual changes of these variables.

Using a growth specification with two lags, column 3 shows that Medicaid expansion does have a dynamic effect on the average single premium. In addition to a contemporaneous effect of 0.317%, a one percentage point increase in Medicaid coverage in one year is associated with an increase in the average single premium in the next two years by 0.156% and 0.207%, respectively, and the latter is statistically significant at the

10% significance level. In sum, depending on whether we include the insignificant estimate of 0.156% for the first lag, a one percentage point increase in Medicaid coverage is associated with an increase in the average single premium by about 0.524-0.68% after two years.

In addition to the two lags, column 4 adds two leads of changes in *Medicaid* into the dynamic specification. The estimates indicate an insignificant, both statistically and economically, effect of the leads, which again suggests that state specific trends are not important and should be avoided as we do. The second lag still enters significantly, implying a dynamic effect of Medicaid expansion on average single premium. The cumulative effect of a one percentage point increase in Medicaid coverage on average single premium is about 0.573-0.629% after two years.

In summary, estimates in Table 2 suggest a significant and dynamic effect of Medicaid expansion on average single premium, with a cumulative effect of about 0.6% after two years. The estimates are robust to the inclusion of more leads and lags, although the standard errors would increase due to the smaller number of observations. In particular, neither the third lead nor the third lag enters significantly in relevant specifications.

Table 3. Medicaid Expansion and Average Family Premium

	(1) $\log Family_{s,t}$	(2) $\log Family_{s,t}$	(3) $\Delta \log Family_{s,t}$	(4) $\Delta \log Family_{s,t}$
$Medicaid_{s,t}$	0.121	0.025		
	(0.110)	(0.136)		
$Medicaid_{s,t+1}$		0.207		
		(0.133)		
$Medicaid_{s,t+2}$		0.014		
		(0.120)		
$\Delta Medicaid_{s,t}$			-0.118	-0.170
			(0.148)	(0.156)
$\Delta Medicaid_{s,t-1}$			0.009	0.033
			(0.142)	(0.157)
$\Delta Medicaid_{s,t-2}$			-0.010	0.164
			(0.113)	(0.129)
$\Delta Medicaid_{s,t+1}$				0.054
				(0.158)
$\Delta Medicaid_{s,t+2}$				-0.142
				(0.153)
State effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
N	714	612	612	510

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Heteroskedastic robust standard errors, clustered by state, are reported in the parentheses. All variables are measured at the state (50 plus D.C.) by year (2003-2017 without 2007) level. The first two columns also control for the population, real per capita personal income, labor force participation rate, poverty rate, the uninsured rate, the percentage of the population with a disability that limits or prevents work, and the percentage of the population that quit job or retired for health reasons. The last two columns control for the annual changes of these variables.

Using the same specifications as those in Table 2, Table 3 reports the estimates for average total *family* premium (in dollars) per enrolled employee at establishments that offer health insurance. Different from Table 2, none of the estimates in Table 3 is statistically significant, suggesting an insignificant effect of Medicaid expansion on average family premium. As discussed above, the relative strength of the two competing forces of Medicaid expansion could vary and lead to different effects across insurance plans due to the difference in the characteristics and responses (whether to switch to Medicaid or not) of their enrollees.

3.3 Crowding out

To calculate the implied cost of Medicaid expansion arising from the increase in average single premium, we need to know the number of individuals who would stay on employer-provided single plans after the expansion. In other words, given the population currently on employer-provided single plans, we need to estimate how many of them would be crowded out and switch to other plans.[3]

Using the SHADAC approach to ACS data, we define individuals on employer-provided single plans as nonelderly adults (age 19-64) with employer-provided insurance who is the only person in the health insurance unit (HIU). With this definition, we calculate the *number* of individuals on employer-provided single plans in each state in each year from 2008 to 2017 and use it, instead of *Premium* as the dependent variable in equations (1)-(3). For consistency and different from the premium regressions, we also calculate Medicaid coverage, the uninsured rate and the poverty rate from ACS.

Table 4 reports the estimates. Column 1 suggests that a one percentage point increase in Medicaid coverage reduces the population on employer-provided single plans by about 1.547%, which is statistically significant at the 1% significance level. Estimated coefficients of the two leads in column 2 are small and insignificant, suggesting that state specific trends are not important. The estimated coefficients of the two lags in column 3 are also small and of opposite signs, suggesting an economically insignificant dynamic effect, if any. The contemporaneous effect, however, is still significant both statistically and economically. Estimates in column 4 are generally consistent with those in the first three columns.

In summary, the estimates suggest that a one percentage point increase in Medicaid coverage reduces the number of individuals on employer-provided single plans by at most 1.58%.

[3] By focusing on individuals currently on employer-provided single plans, irrespective of their income and whether they would switch to Medicaid or other insurance status, our analysis here is clearly different from and not comparable with the crowding out estimates in PW which we consider below. They focus on the effect of Medicaid expansion on % privately insured among nonelderly adults with income between 100 and 138% of the FPL. Importantly, we do not assume that all those who drop employer-provided single plans switch to Medicaid.

Table 4. Medicaid Expansion and the Population on Employer-Provided Single Plans

	(1)	(2)	(3)	(4)
	$\log Number_{s,t}$	$\log Number_{s,t}$	$\Delta \log Number_{s,t}$	$\Delta \log Number_{s,t}$
$Medicaid_{s,t}$	-1.547***	-1.577***		
	(0.210)	(0.275)		
$Medicaid_{s,t+1}$		0.142		
		(0.345)		
$Medicaid_{s,t+2}$		0.028		
		(0.257)		
$\Delta Medicaid_{s,t}$			-1.521***	-1.188***
			(0.426)	(0.405)
$\Delta Medicaid_{s,t-1}$			0.290	0.286
			(0.224)	(0.445)
$\Delta Medicaid_{s,t-2}$			-0.412	-0.399
			(0.257)	(0.600)
$\Delta Medicaid_{s,t+1}$				0.247
				(0.470)
$\Delta Medicaid_{s,t+2}$				-0.448
				(0.457)
State effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
N	510	408	357	255

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Heteroskedastic robust standard errors, clustered by state, are reported in the parentheses. All variables are measured at the state (50 plus D.C.) by year (2008-2017) level. The first two columns also control for the population, real per capita personal income, labor force participation rate, poverty rate, the uninsured rate, the percentage of the population with a disability that limits or prevents work, and the percentage of the population that quit job or retired for health reasons. The last two columns control for the annual changes of these variables.

3.4 ACA Exchange Premiums

During the recent debate about Medicaid expansion in Wisconsin, Peper and Cohen (2019) of the Wakely Consulting Group prepared a report for the State of Wisconsin Office of the Commissioner of Insurance which analyzed the impact of Medicaid expansion on the premiums in the ACA exchange markets. This report summarized and applied the research of Sen and DeLeire (2016, 2018), who found that premiums on the exchanges were 7-10% lower in Medicaid expansion states, after controlling for a number of local characteristics. While this report may appear to contradict our findings, we note two important issues which limit its applicability for studying the impact of Medicaid expansion on Wisconsin households.

First, the ACA exchange market is a different, and narrower market than the market for employer-provided insurance that we study. Thus the findings of Sen and DeLeire

(2018) do not contradict our results. In particular, they provide evidence that purchasers on the exchanges are sicker and use more medical services than the general population. Therefore moving people in poor health from private insurance on the ACA exchanges to Medicaid may reduce the risk pool of those remaining on the exchanges, and potentially lower exchange premiums. While this effect may dominate the higher provider costs associated with Medicaid *on that market,* this is not true for the employer-provided market which only faces the higher costs with a much smaller change in the risk pool.

Second, and perhaps more important, very few purchasers on the ACA exchange market pay the full premium. A key feature of the exchange market is that insurance plans are highly subsidized for most purchasers, and federal tax subsidies eliminate almost all of the geographic variation in ACA exchange premiums. The premium before tax subsidies may differ across states that have and have not expanded Medicaid, as Sen and DeLeire (2018) find. But looking at after-subsidy premiums, there is almost no variation across states, whether they expanded Medicaid or not. Thus expansion would simply shift the source of federal funds from insurance premium subsidies to direct Medicaid provision, but not affect the net cost for most of those purchasing insurance on the exchanges.

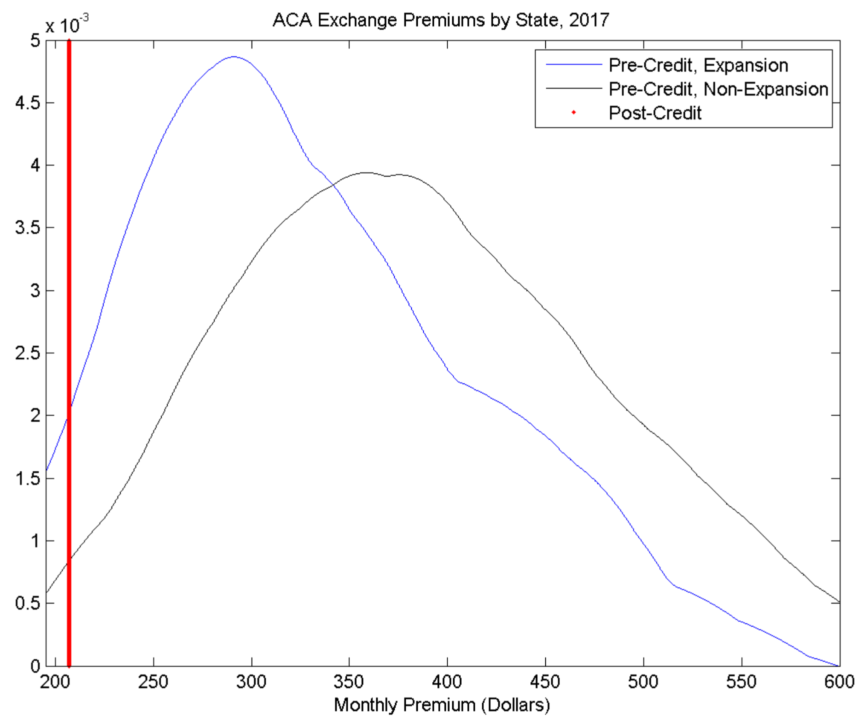

Figure 2: The distribution of monthly premiums for a male earning $30,000 on the ACA exchanges in 2017, before and after accounting for tax credits. Source: Cox et al. (2016)

We now illustrate the important distinction between insurance premiums before and after tax credits. Cox et al. (2016) analyzed the premiums in 2017 for the benchmark second-lowest-sliver plan on the ACA exchanges, the same plans analyzed by Sen and DeLeire (2018). In particular, they analyzed premiums for a 40-year-old adult male non-smoker making $30,000 per year residing in the major city in each state. For the continental United States, the pre-credit premiums varied from a maximum of $572 per month in North Carolina to a minimum of $229 per month in Kentucky.[4] Premiums were on average higher in non-expansion states at $387 compared to $329 in expansion states, in accord with Sen and DeLeire (2018). Moreover, the distribution of premiums in non-expansion states is shifted to the right, as shown in Figure 2, which plots the kernel-smoothed distributions. However the after-credit premium for *every single state* was $207, because the premium in every state was above the federal cap, with the tax subsidies making up the difference. This degenerate after-tax distribution is also shown in Figure 2.

Additional data on average premiums on the ACA exchanges before and after credits comes from the Centers for Medicaid and Medicare Services (2019). Rather than comparing the premiums across states for a single hypothetical individual choosing a single plan, the CMS reports the average before and after tax credits by state, as well as the number of consumers receiving credits, and the average credit among them. Since income levels and demographics, as well as the chosen plans, vary by state, this is not the cost of the same plan across states as above. Nonetheless the data is still reflective of the state-level differences in average premiums before and after credits.

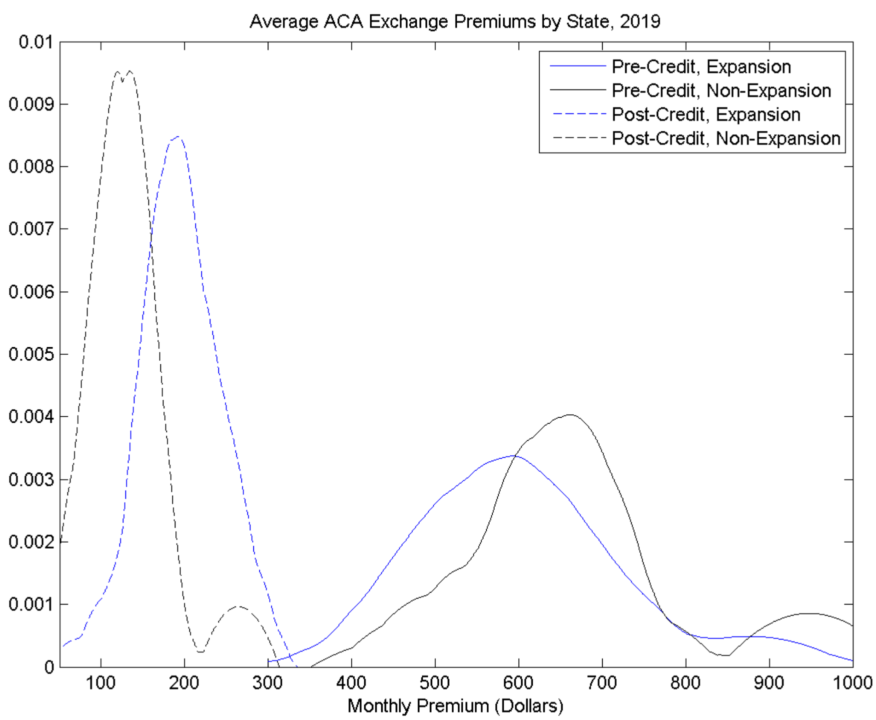

Figure 3: The distribution of average monthly premiums on the ACA exchanges in 2019, before and after accounting for tax credits.

[4] Alaska was an outlier with a pre-credit premium of $904 but it had the lowest after-credit premium of $164. Hawaii also had an after-credit premium lower than the continental states at $178.

The CMS data also shows that tax credits provide substantial savings for consumers and eliminate much of the geographic variation in premiums. Data is more complete for states using the federal healthcare.gov platform. For these states, the average 2019 monthly premium before credits was $612, and $143 after credits. In Wisconsin, the average premiums were $700 before credits and $161 after credits. Over 87% of consumers nationwide on the federal exchange received tax credits, and the average after-credit premium for them was $87, amounting to only 15% of the average pre-credit premium. Figure 3 shows the distributions of average monthly premium across states, not just those using the federal platform.[5] Again the pre-credit average premium distribution is shifted toward higher prices in the non-expansion states. Tax credits greatly compress the distributions and now the after-credit premiums are lower in the non-expansion states, largely reflecting demographic factors including that the non-expansion states on average have lower incomes. The key take-away is that even if Medicaid expansion were to lower pre-credit premiums on the ACA exchanges, few consumers would be affected.

4 Uncompensated Care

One channel of potential savings from Medicaid expansion is the reduction in uncompensated care costs. With the expansion of public insurance, there would be fewer uninsured patients receiving services from hospitals and other health care providers for which they would not receive payment. Previous research, such as Dranove, Garthwaite, and Ody (2016), has shown that Medicaid expansion reduced uncompensated care costs nationwide. PW estimated that Wisconsin hospitals could save up to $100 million in lower uncompensated care due to expansion. However their estimates greatly overstate potential savings for two main reasons: (1) they reported hospital charges rather than actual costs, and (2) they assumed all uncompensated care was due to the uninsured, ignoring other factors. Properly accounting for these factors reduces the estimated cost savings by roughly a factor of four, which makes it roughly equal to the nationwide cost per uninsured estimated by Garthwaite, Gross and Notowidigdo (2018).

As is well known, the "sticker price" associated with medical charges does not reflect the cost of service to providers, nor the amount that patients or insurance providers actually pay. For example, the most recent guidelines from the US Department of Labor for worker's compensation put the cost-to-charge ratio (CCR) for Wisconsin at 0.405.[6] Fortunately, the Wisconsin Hospital Association (WHA) collects data on uncompensated care at Wisconsin hospitals both by charge and at cost. For example, in Wisconsin in 2017, uncompensated care charges were $1.1 billion (which is the amount that PW use), but uncompensated care at cost was only $416 million.[7]

[5] We exclude Idaho, which did not report data, and the District of Columbia which has a very small exchange enrollment that is an outlier with only 6% of enrollees receiving tax credits.
[6] See U.S. Department of Labor (2018)
[7] See Wisconsin Hospital Association (2017)

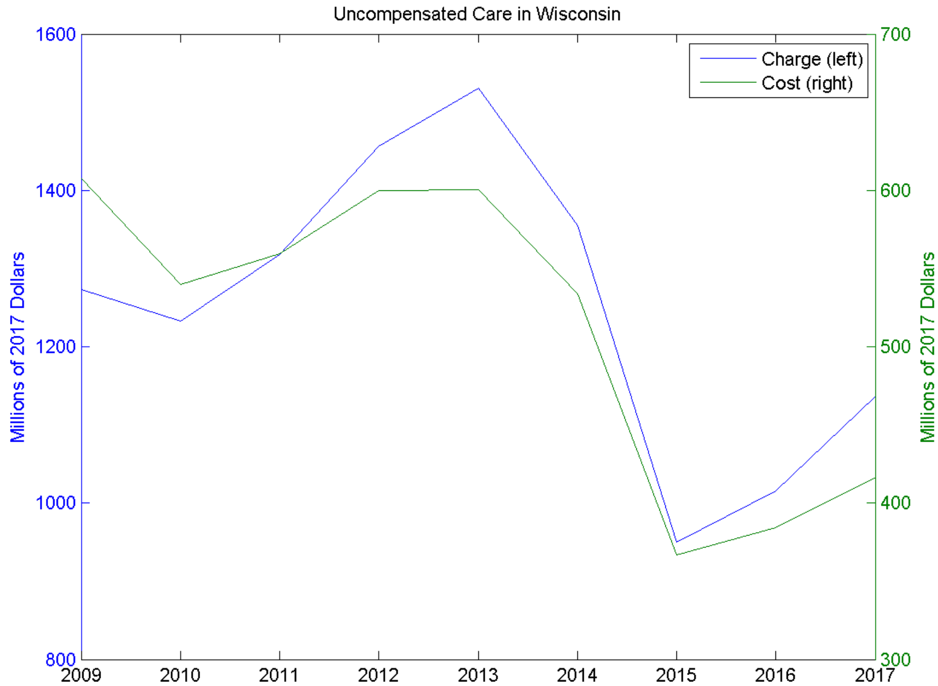

Figure 4: Uncompensated care at Wisconsin hospitals, charges (left scale) and costs (right scale).

Figure 4 above shows total uncompensated care charges (left scale) and uncompensated care at cost. The data are in real 2017 dollars, deflated with the CPI. Note the difference in scale, charges are 2.5 or more times as large as costs, reflecting the fact that cost-to-charge ratios at hospitals and other medical providers are significantly less than one. The overall trends between costs and charges over this time period are similar but, the implied CCR for uncompensated care has fallen from 0.48 in 2009 to 0.37 in 2017.

In addition, costs of care from the uninsured make up only part of the total amount of uncompensated care. For example, in recent years uncompensated care has grown in some states even as the uninsured rate has fallen, largely due to expenses for individuals on high deductible plans. Figure 5 again shows uncompensated care at cost in Wisconsin, but now with the number of uninsured (estimated from the ACS). Clearly there is a correlation between the two series, with both declining sharply in 2014-2015, but there is clearly not a one-to-one relationship, as for example uncompensated care has risen since 2015 while the number of uninsured has declined slightly. A simple regression of the uncompensated care on the number of uninsured gives an estimate of $910.56 in uncompensated care costs per uninsured person. Multiplying this by the number of uninsured suggests that the uninsured account for about 77% of the total uncompensated care costs.

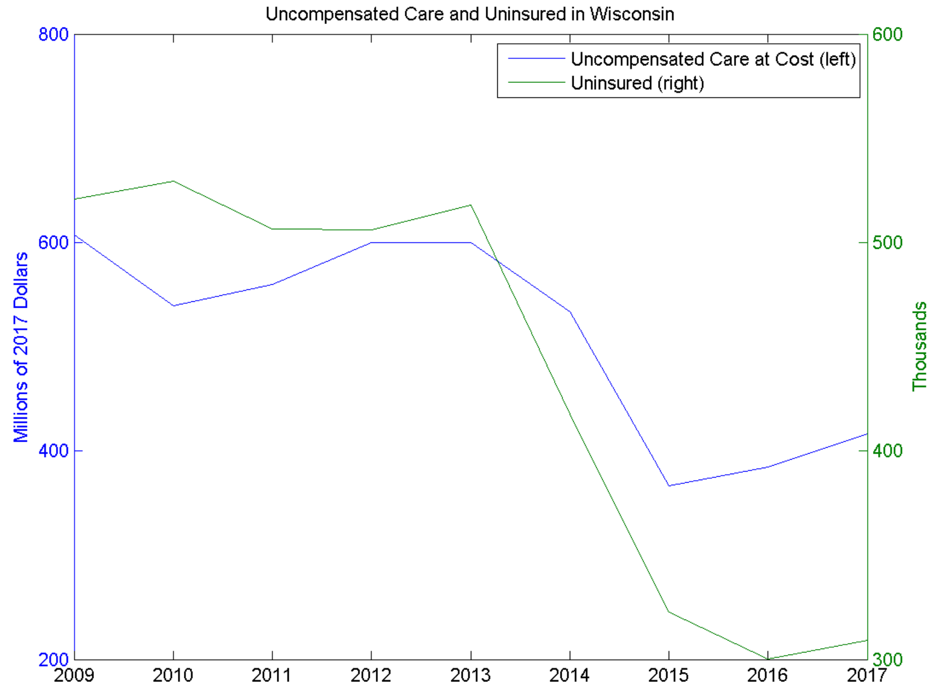

Figure 5: Uncompensated care at Wisconsin hospitals at cost (left scale) and the number of uninsured (right scale).

More direct approaches to measure the costs of the uninsured give results similar to this simple estimate. As noted above, Coughlin et al. (2014) use MEPS data to estimate uncompensated care nationwide in 2013. From the data in Figure 1 of their report, the total cost of uncompensated care by full-year uninsured was $69.4 billion ($1702 times 40.8 million), and $21.3 billion ($677 times 31.4 million) and $45.6 billion ($232 times 196.4 million) for part-year uninsured and full-year insured, respectively. The resulting share for full-year and part-year uninsured are 51% and 15.6%, respectively. That is, the uninsured account for 66.6% of the total uncompensated care cost.

While these are national estimates at a point in time before the ACA, it is likely that estimates for Wisconsin after implementation of the ACA may differ. One direct source on uninsured costs in Wisconsin comes from the CMS reports on Medicaid DSH payments.[8] The 2014 report gives a breakdown of costs for uninsured at a large subset of hospitals, 98 of the 129 GMS hospitals, in Wisconsin. (The reports for other years are very incomplete.) At these hospitals uncompensated care for the uninsured was $268 million, or 2.14% of total costs.

To extrapolate from this subset of hospitals to the whole state, we can take two approaches which yield very similar results. The statewide WHA uncompensated care report in 2014 noted that for all hospitals total uncompensated care was 2.9% of costs, so if the hospitals from the DSH report were representative, that would give us a fraction of

[8] See https://www.medicaid.gov/medicaid/finance/dsh/index.html.

about 0.0214/0.029 =0.74 due to the uninsured. Another way to extrapolate is to use the WHA hospital report to impute total costs for all hospitals using the CCR for total uncompensated care, then look at the share of total costs that the CMS 98 of 129 hospitals accounted for, and use the inverse of that ratio to scale up the $268 million directly measured costs from the uninsured. Doing that gives a very similar result: the uninsured accounted for 75% of uncompensated care costs.

Therefore if we take 0.75*(uncompensated care at cost)/(ACS uninsured) we get an estimate of $890 per person on average in Wisconsin in 2017 dollars, which is similar to our simple regression estimate above. Converting this to 2018 dollars gives us $911 in uncompensated care per uninsured person. Note that this is very close to the estimates of Garthwaite, Gross and Notowidigdo (2018), who find that, "each additional uninsured person costs hospitals approximately $800 each year" in 2011 dollars, which is about $893 in 2018 dollars.

In addition, this estimate is likely an overstatement of the costs of uninsured patients to Wisconsin hospitals, as the federal government provides hospitals reimbursement funds for uncompensated care through a number of programs. For example, Coughlin et al. (2014) estimated that in 2013 the federal government reimbursed roughly 44% of the cost of uncompensated care nationwide. In Section 5.5 below, we consider the robustness of our cost estimates to other values of the cost per uninsured.

5 Net Costs of Potential Medicaid Expansion in Wisconsin

Our estimates above imply that the costs associated with Medicaid expansion depend on the number and the insurance status of those who enroll. Since there is uncertainty about enrollment and many states have had higher enrollment than projected, we consider three different enrollment scenarios. Our results are summarized in Table 5.

Table 5: Summary of Enrollment Scenarios and Net Costs

Enrollment Scenario	New Enrollment	New Enrollees Uninsured	Direct Cost Estimate	Net Cost Estimate
State Administration	82,000	41,000	$44.4 million	$133 million
Estimates from Census	36,338	28,372	$19.3 million	$7.3 million
Urban Institute	176,000	108,000	$92.7 million	$184 million

5.1 Costs and Benefits

Under our direct approach, we find that a one percentage point increase in Medicaid coverage is associated with an increase in the average single premium by a statistically significant 0.6 percent two years after the initial increase. From the MEPS data, the average single premium in Wisconsin in 2017 was about $6,594 in 2018 dollars. In combination, the two numbers suggest that a one percentage point increase in Medicaid coverage would raise the annual average single premium by about $39.6. Furthermore, the number of adults on employer-provided single plans in Wisconsin in 2017 is 819,897, which is estimated to decrease by at most 1.58% for each percentage point increase in

Medicaid coverage. Together, the numbers imply the following formula for the annual cost associated with an increase in Medicaid coverage by x percentage points:

$$819897 \times (1 - 0.0158x) \times 6594 \times 0.006x \qquad (4)$$

For the net costs, we need to consider the cost per person switching from private insurance to Medicaid as well as the benefit in lower uncompensated care for each previously uninsured person. Above we estimated that the cost of uncompensated care per uninsured person in Wisconsin was $911 in 2018 dollars. For the cost per person switching from private insurance to Medicaid, we follow PW. They estimated the average health care cost of those privately insured to be $5,634 in 2017 dollars, which is about $5,770 in 2018 dollars. They also estimate that Medicaid only reimburses 28 cents for each dollar reimbursed by private insurers, a difference of about 72%. Thus the cost per person switching from private insurance to Medicaid is 72% of $5770, or about $4154. Together, these imply the following formula for the net costs associated with an increase in Medicaid coverage comprising U uninsured and S switchers from private insurance:

$$4154S - 911U \qquad (5)$$

5.2 Evers Administration Projections

Governor Evers's 2019-2021 executive budget estimates that Medicaid expansion would increase the enrollment by about 82,000, out of which about 30,000-41,000 are currently uninsured.[9]

The 82,000 new enrollment represents 1.4% of the state's population. With x=1.4, equation (4) implies a direct cost estimate of $44.4 million per year.

To obtain a conservative estimate for the net cost, we assume 41,000 of the 82,000 new enrollment are currently uninsured. That is, U=S=41,000. The cost due to those switching from private insurance is 41,000*$4154=$170 million, while the benefit from the uncompensated care reduction is 41,000*$911=$37 million. Thus the net cost is approximately $133 million per year.

5.3 Estimates from Census Data

Alternative estimates of new enrollment estimated based on Census data imply much lower overall take-up rates of Medicaid among the newly eligible, as well as smaller crowding out of private insurance and thus much lower total costs. This approach follows PW with some modifications.

[9] See State of Wisconsin (2019). Page 36 of the Budget in Brief says "Expanding Medicaid … ensures affordable coverage for 82,000 Wisconsinites. Some estimates project that up to half of the individuals who will be newly eligible for Medicaid coverage are currently uninsured". Page 230 of the complete document says "To provide healthcare coverage to 82,000 low-income families, of which approximately 30,000 are uninsured."

Table 1 shows that, under the SHADAC definition, there are 194,296 nonelderly adults with family income between 100 and 138% of the FPL who would become eligible for Medicaid under the expansion. Of this group, about 14.6% or 28,372 are uninsured. PW assume 100% take-up for this group in their estimation of benefits, on the assumption that any eligible person who incurs healthcare costs that would otherwise be uncompensated would then be enrolled by the providers. For comparison and to obtain a conservative cost estimate, we follow their approach and set U=28,372. However, it should be noted that actual Medicaid take-up rates among the uninsured from previous expansions varied across states, but were at most 70-80% (see Sommers et al. (2012) and Buettgens and Kenney (2016)). A lower take-up among the uninsured would imply a lower saving and a larger net cost of potential Medicaid expansion.

To obtain S, the number of switchers from private insurance to Medicaid, we follow PW who estimate that Medicaid expansion would reduce the share of privately insured among the newly eligible (nonelderly adults with family income between 100 and 138% of the FPL) by about 2-5 percentage points. The larger estimate of about 5% is obtained from a specification with state and year fixed effects but without state-specific trends, which is the one we prefer as discussed previously in section 3, although PW prefer their lower estimate with state-specific trends. Applying this specification to the SHADAC data, we obtain a crowding out estimate of about 4.1%, which implies S=4.1%*194,296=7,966.[10]

The estimated total enrollment is thus $U+S$=36,338, representing 0.6% of the state's population and far below the administration estimates.

With x=0.6, equation (4) implies a direct cost estimate of $19.3 million per year. For the other approach, the cost due to those switching from private insurance is 7,966*$4154=$33.1 million, while the benefit from the uncompensated care reduction is 28,372*$911=$25.8 million. Thus the net cost is approximately $7.3 million per year.

5.4 Urban Institute Projections

In addition to increasing enrollment among the newly eligible, Medicaid expansion may increase the enrollment among those who are already eligible. This "woodwork effect" of previous expansions has been substantial. For example, Frean, Gruber, and Sommers (2016) estimated that 44% of the gains in Medicaid enrollment in 2014 came from previously eligible adults and children. As we noted above, the Medicaid take-up rate is relatively low and the rate of uninsured is still over 12% among those earning 0-100% of

[10] Instead of applying the 2-5% crowding out estimate to the population of nonelderly (age 18-64) with income between 100 and 138% of the FPL, which is about 160,000 and is the base for private insurance rates used for the crowding out estimate in their Table 2, PW applied it to their estimated "Number Newly Medicaid Eligible" that excludes those currently on Medicaid, Medicare or military insurance programs (footnote 4), which is about 80,000 according to Table 3 (calculated by dividing the last number by the product of the three (two) preceding numbers in each row of panel A (B)). The cost thus should be about twice as large as their reported estimates. However they report a range of cost estimates which includes the value corresponding to their preferred crowding out estimate. Using 2% crowd out with our data generates a smaller net cost.

FPL in Wisconsin. In particular, Table 1 shows that in addition to the 28,372 uninsured in the 100-138% range that would gain eligibility, there are another 66,927 uninsured with incomes below 100% of the FPL. This suggests the potential of significantly higher enrollment under Medicaid expansion than the state administration estimates.

Research from the Urban Institute by Buettgens and Kenney (2016) and Buettgens (2018) takes into account the additional enrollment from those already eligible. Rather than projecting based off past enrollment rates, as described in Buettgens et al. (2016), these papers "use a microsimulation approach based on the relative desirability of the health insurance options available to each individual and family under reform. The health insurance coverage decisions of individuals and families in the model account for several factors, such as premiums and out-of-pocket health care costs for available insurance products, health care risk, and family disposable income. [...] The resulting health insurance decisions made by individuals, families, and employers are calibrated to findings in the empirical economics literature, such as price elasticities for employer-sponsored insurance and nongroup coverage."

The Urban Institute approach generates significant enrollment projections beyond those gaining eligibility. The estimated enrollment comes from a take-up rate of 73% among the newly eligible uninsured, 100% take-up among the newly eligible who are now on the ACA exchanges, switches from other private insurance to Medicaid, and new enrollment among the previously eligible some of whom were uninsured and some with private insurance. In particular, Buettgens and Kenney (2016) estimated that if Wisconsin had expanded Medicaid in 2017, increased enrollment would have been roughly 130% of the size of the newly eligible population. The update by Buettgens (2018) estimated that expansion in Wisconsin in 2019 would generate enrollment of 176,000, representing 3% of the state's population and more than twice as large as the state administration estimates. Of these newly enrolled, U=108,000 were estimated to be uninsured and S=68,000 with private insurance.

With x=3, equation (4) implies a direct cost estimate of $92.7 million per year. For the other approach, the cost due to those switching from private insurance is 68,000*$4154=$282 million, while the benefit from the uncompensated care reduction is 108,000*$911=$98 million. Thus the net cost is approximately $184 million per year.

5.5 Alternative Values of the Benefit per Uninsured

Above calculations assume that the benefit from each uninsured who would become eligible for Medicaid after the expansion is $911, the estimated uncompensated care cost per uninsured. Now we show that Medicaid expansion would increase the cost for health care providers substantially even if the benefit per uninsured is larger than $911.

For this calculation, we use the enrollment estimates from the state government where U=S=41,000. As shown above, the cost due to those switching from private insurance is 41,000*$4154=$170 million. As a benchmark where the benefit per uninsured is $911, the total benefit is 41,000*$911=$37 million. The net cost is $133 million per year.

Suppose the payment that health care providers receive from Medicaid is 50% higher than the cost, so that the benefit per uninsured is 150%*$911=$1366.5. The total benefit would be 41,000*$1366.5=$56 million. The net cost is $114 million per year.

As an extreme, assume as in PW that Medicaid receives no discount from health care providers and pays whatever they charge. The benefit per uninsured is thus equal to the uncompensated care charges per uninsured. Ignoring the contributions from the insured, PW estimate that the uncompensated care charges per uninsured is $3,228 in 2017, which is about $3,306 in 2018 dollars. Above we have shown that the uninsured contribute to 66.6-75% of uncompensated care. Thus the true uncompensated care charges per uninsured is at most $3,306*75%=$2,480. Using this as the benefit per uninsured, the total benefit is 41,000*$2,480=$102 million. The net cost is about $68 million per year.

In summary, these calculations suggest a significant cost of Medicaid expansion to health care providers even if the benefit per uninsured is more than twice as large as the estimated value of $911. Given the cost per switcher of $4,154, equation (5) would imply a net benefit only with either an implausibly large benefit per uninsured or an implausibly small switcher-to-uninsured ratio S/U among the new enrollees. For example, to arrive at their estimate that Medicaid expansion could save Wisconsin nearly $100 million annually, PW use a benefit per uninsured of $3,228 (in 2017 dollars) and a switcher-to-uninsured ratio S/U=0.05,[11] neither of which is likely based on our estimates and other estimates in the literature.

6 Conclusion

Like any other policy change, Medicaid expansion is likely to bring both benefits and costs to Wisconsin. While the benefits including greater federal revenue through a higher federal medical assistance percentage are well understood, there is relatively little evidence on the potential costs. In this report we have provided two approaches estimating the potential cost of Medicaid expansion to health care providers and the privately insured in Wisconsin, and looked at three different enrollment scenarios. In each case we found that the costs were substantial. Under the enrollment projected by the Wisconsin state government, we estimate that the cost of Medicaid expansion would be $44 million per year under our direct estimate and $133 million per year when estimating costs and benefits. Only if the new Medicaid enrollment is largely made up of the uninsured would the costs fall substantially, to perhaps as low as $7.3 million per year. However larger enrollment, due to increased Medicaid enrollment by those previously eligible as many states have experienced, the cost of expansion would increase to $93 million under the direct approach and $184 million per year in net costs.

[11] In Table 3 of PW, the first row of Panel A shows that the total cost is $6.49 million when 2% of the newly eligible would switch from private insurance, and the last row of Panel B shows that the total savings would be $103.3 million when 40% of the newly eligible are currently uninsured. Thus the net benefit is $103.3-$6.49=$96.81 million when the switcher-to-uninsured ratio is 2%/40%=0.05.

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