Supporting Information

Macro Outsourcing:
Evaluating Government Reliance on the Private Sector

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A Introducing Macro Outsourcing

Construction of the Measure

The macro outsourcing measure follows Minicucci and Donahue's (2004) approach of using publicly available government data to estimate aggregate levels of outsourcing of government services. As those authors explain "the basic logic of our method is to chip away other components of government consumption, as a sculptor defines the statue by removing the extraneous marble" (Minicucci and Donahue, 2004, 494). While their approach estimates an annual aggregate level of outsourcing for all states, I refine the method to calculate annual aggregate levels of outsourcing for individual states.

The marble "base" in my approach is state i's expenditures in year t, which is then refined to exclude all spending not directed toward services. Macro outsourcing is thus defined as a proportion, which is determined by the following equation:

$$\text{Macro Outsourcing}_{it} = \frac{\text{Operating Spending}_{it} - \text{Compensation}_{it} - \text{Goods}_{it}}{\text{Operating Spending}_{it}} \qquad \text{(A1)}$$

All dollar amounts are reported in real 1992 dollars. Equation A1 draws on the following three terms:

Operating Spending: State spending in year t is drawn from the Census of Government Finances (GF), an annual accounting of state and local governments' revenue and expenditures. Annual expenditures for state government i are drawn from the "current expenditures" line item in the GF data. This line item includes spending relating to operating expenses or, more specifically, "direct [expenditures] for compensation of own officers and employees and for supplies, materials, operating leases, and contractual

services except amounts for capital outlay." It does not include spending for debt payments, interest, capital outlays, etc. Because the GF was not conducted in 2001 or 2003, I average the years before and after to get values for these years.

Following the recommendation of Minicucci and Donahue (2004), I take the additional step of subtracting state expenditures for liquor stores and utilities, since not all states spend public monies to maintain these entities. Expenditures for both items are included annually as line items in the GF.

Compensation: The GF series reports wage and salary data for each state government. To get a measure of total compensation, which includes employee benefits in addition to wages and salary, spending on employee benefits must be calculated. Compensation is calculated as:

$$\text{Compensation}_{it} = \text{Wages \& salaries} \times (1 + \text{Benefit rate}) \tag{A2}$$

Wages & salaries: total dollars spent on wages and salaries is reported annually in the GF series for each state.

Benefit rate: Only certain employee benefits are reported in the GF series; as Minicucci and Donahue (2004, 495) explain, the GF "includes all salaries, wages, fees, overtime, premium and night differentials, commissions, bonuses, or awards paid to employees before withholdings but excludes employer share of fringe benefits like retirement, Social Security, health and life insurance." To incorporate this spending into the estimate, I first determine the average hourly wage for state government employees using reports from the Bureau of Labor Statistics (BLS).[1]

[1]Specifically, for years before 2001, I use Table 2 of the "Employer Costs for Employee Compensation Historical Listing (Annual), 1986-2001" (`https://www.bls.gov/ncs/ect/sp/ecechist.pdf`). For 2002-2003, I use Table 2 of the "Employer Costs for Employee Compensation Historical Listing (Quarterly), 2002-2003," (`https://www.bls.gov/ncs/ect/sp/ececqrt.pdf`). For 2004 onward, I use Table 5 of the "Employer Costs for Employee Compensation Historical Listing, National Compensation Survey, March 2004-March 2017" (`https://www.bls.gov/ncs/ect/sp/ececqrtn.pdf`).

Using these same BLS data sources, I then establish the per hour cost of paid leave benefits for government employees, the per hour cost of supplemental pay benefits for government employees, and the per hour cost of other pay benefits (e.g., insurance, retirement, social insurance, and miscellaneous benefits). The benefit rate is thus calculated:

$$\text{Benefit Rate} = \frac{\text{Hourly wage} + \text{Hourly paid leave} + \text{Hourly supp. benefits} + \text{Hourly other benefits}}{\text{Hourly wage} + \text{Hourly paid leave} + \text{Hourly supp. benefits}} - 1 \tag{A3}$$

Consumption goods rate: Consumption goods include state spending on durable and nondurable goods. This figure is calculated based on the Department of Commerce's annual National Income and Product Accounts (NIPA) data. These data are available only in an aggregate figure for all state governments, and are not available on a state-by-state basis. Therefore, I calculate the annual rate of the aggregate spending for all states, using durable and nondurable goods spending (see NIPA Table 3.10.5) over all spending (State expenditures) and apply the rate to all states. While this does not allow for an individualized estimate of state goods spending, it does account for changes in goods spending across time.

Assessing Macro Outsourcing

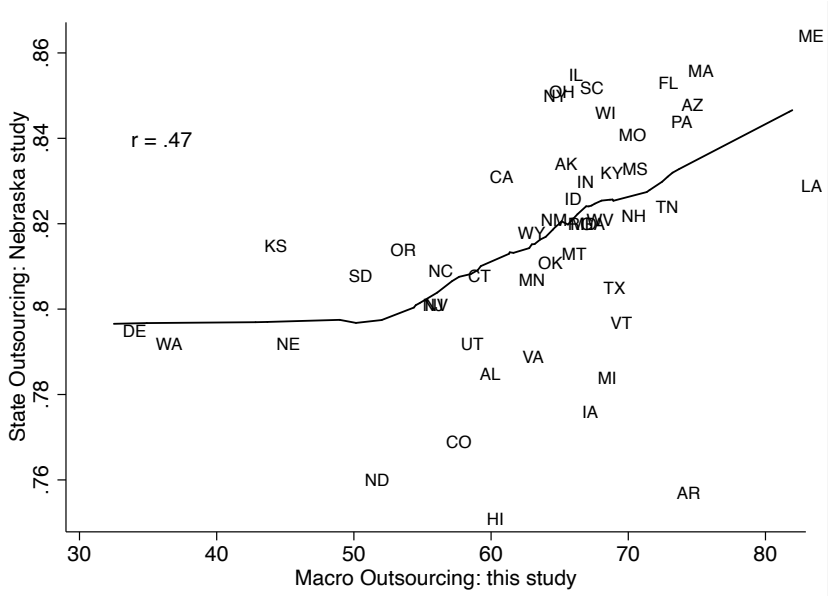
The measure of state-level *Macro Outsourcing* introduced here is a novel attempt to systematically capture how much service spending states are offloading onto the private sector.

While this contribution is valuable, it is worth noting three limitations of the measure. First, the measure is based upon the proportion of dollars outsourced. This approach "follows the money" (so to speak) and is appropriate for some studies (like this one). However, some scholars may be more interested in the number or the percentage of total services outsourced, rather than dollars per se. Second, Minicucci and Donahue (2004) suggest that an alternate calculation can be made wherein a state's share of Medicaid spending can be deducted from the from the numerator in Equation A1. Unfortunately, data on individual state shares of Medicaid spending are not available for the full span of the time series included in the paper. While the Centers for Medicare and Medicaid Services (CMS) do disaggregate some Medicaid spending to the state level, these data were not collected in a consistent manner across the entire length of this study (author correspondence with CMS personnel) and therefore cannot be used for the type of analysis undertaken here. Third, the lack of state-specific data on goods allocations means that it is only possible to calculate an annual (and not a unit-specific) effect for this portion of the estimate.

In spite of these caveats, *Macro Outsourcing* is a considerable improvement over the handful of prior attempts to measure service outsourcing in the public sector. For example, in 2012 the State of Nebraska commissioned a comparative study to examine state outsourcing of government services (Goss and Morse, 2012). The measure employed in that study relies on a similar formula to the one employed here. However, while *Macro Outsourcing* relies on operating expenses as the starting point, the Nebraska study is is based on total agency expenditures, which presumably includes things like

capital spending and debt repayment. Additionally, the Nebraska study simply subtracts salary from this total. The calculation does not take into account spending on employee benefits, which have been steadily increasing in the public sector in recent years (Maciag, 2015). Despite these differences, as shown in Figure A-1, the two measures correlate reasonably well ($r = 0.47$).

Figure A-1: Relationship between Macro Outsourcing Measure and Nebraska Study

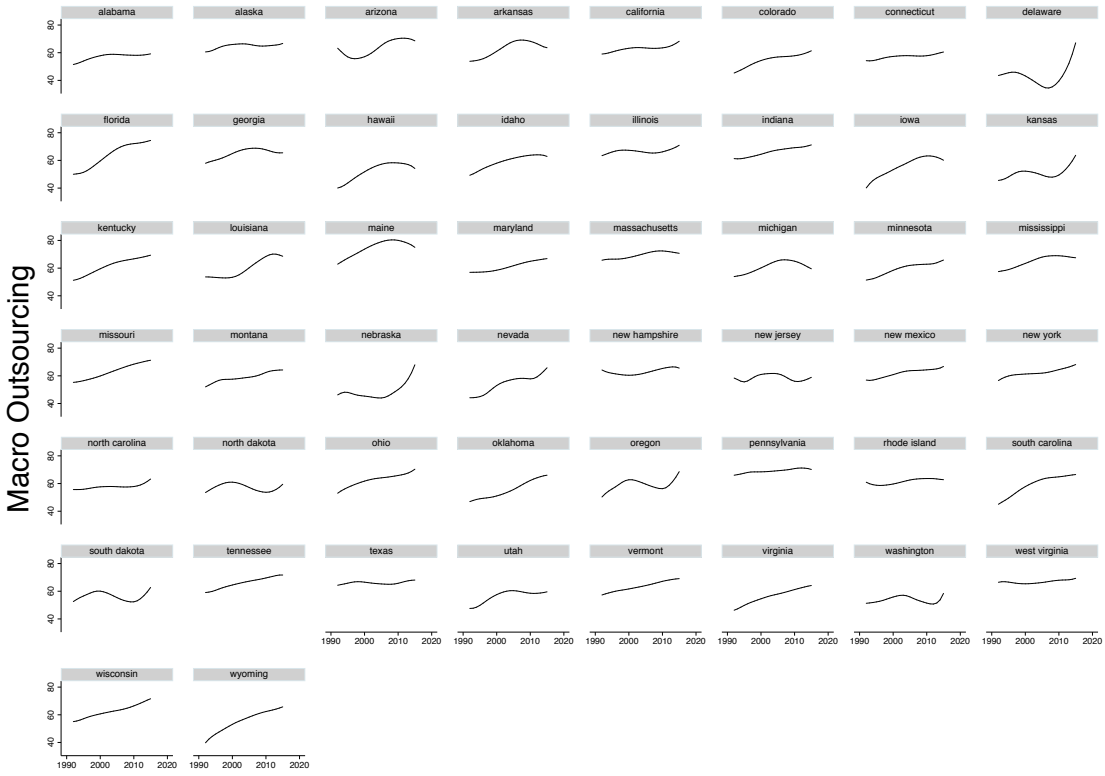


Note: Fitted line indicates a lowess curve. The alternate measure shown on the y-axis is from a study of state government service outsourcing commissioned by the State of Nebraska, see Goss and Morse (2012).

Examining Macro Outsourcing

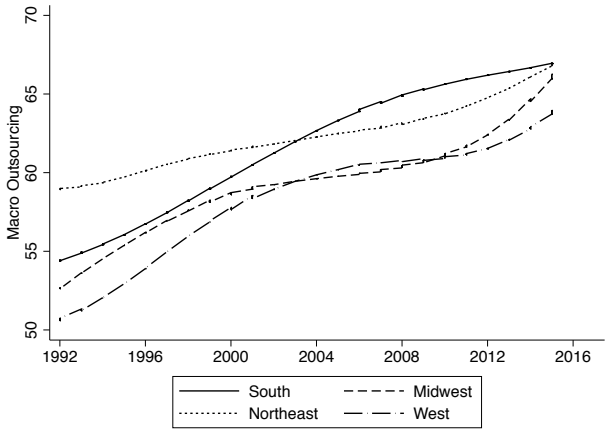
Figure A-2 below shows each state's individual outsourcing trend for the years under study.

Figure A-2: Macro Outsourcing by State, 1992–2015



Note: Figures show lowess curves of macro outsourcing for each state in the dataset.

Figure A-3: Macro Outsourcing by Region



Note: Lines indicate lowess curves of macro outsourcing trends in each region.

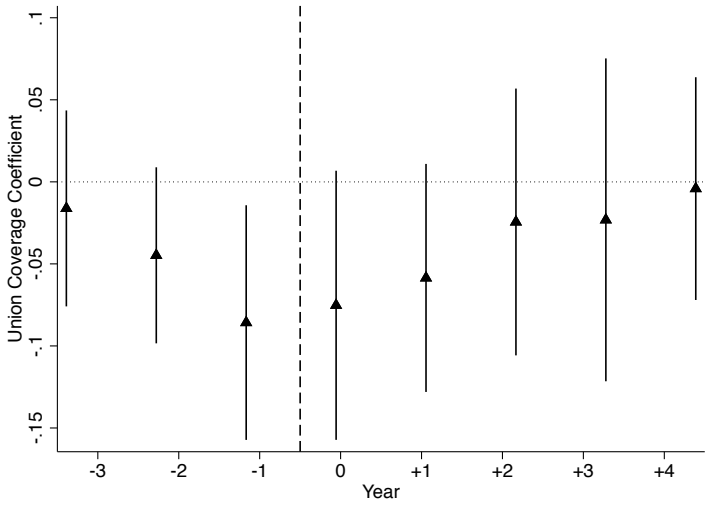
The regions have broadly followed the same pattern of increasing outsourcing, with some slight variations; Figure A-3 shows macro outsourcing trends by region. States in the Northeast were early adopters of outsourcing, while western states were late adopters and have lagged the other regions in more recent years. Notably, the South—which is often given special consideration in American politics and might be considered ripe for outsourcing given its conservative ties—does not stand out in an appreciable way.

B Evaluating the Parallel Trends Assumption

The parallel trends assumption requires that pre-treatment trends in "treated" states are the same as pretreatment trends in "untreated" states. In the dynamic panel model framework I employ, this assumption implies that there are no time-varying confounders that affect states with weaker unions (and, therefore, those states' levels of outsourcing) differently than states with stronger unions. Following Pischke (2005), one way to evaluate this assumption is to regress contemporaneous outsourcing levels on future "treatments" (i.e., stronger public sector unions) (for similar applications, see Autor, 2003; de Benedictis-Kessner and Warshaw, 2020). The intuition here is that if future levels of union coverage influence outsourcing in prior years, there may be a reverse causality at work that implies the presence of time-varying confounders and suggests the parallel trends assumption is not validated.

To validate the parallel trends assumption, I therefore conduct an analysis with both lags and leads of *Union Coverage*. The results of this evaluation, shown in Figure B-1, indicate that, as expected, a one-year lag of *Union Coverage* is negatively and significantly associated with *Macro Outsourcing*. In contrast, lead values of *Union Coverage* are statistically insignificant and declining in magnitude toward zero. This placebo check indicates that future values of union strength do not determine current levels of outsourcing, and serves to confirm that the causal arrow points in the hypothesized direction.

Figure B-1: Evaluating the Parallel Trends Assumption with Lags and Leads



Note: Lines indicate 95% confidence intervals.

C Robustness Checks for Macro Outsourcing Models

Table C-1: Alternate Measures of Ideology and Macro Outsourcing

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Governor Ideology$_{t-1}$[a]	0.027						0.056
	(0.213)						(0.260)
House Ideology$_{t-1}$[b]		-0.086		-0.531			0.114
		(0.882)		(0.596)			(0.479)
Senate Ideology$_{t-1}$[b]			0.464	0.755			0.700
			(0.470)	(0.467)			(0.709)
Mass Econ Liberalism$_{t-1}$[c]					-1.243		-4.329
					(1.249)		(2.622)
Business Bias$_{t-1}$[d]						-0.253	-0.167
						(1.038)	(1.302)
Outsourcing$_{t-1}$	0.757***	0.751***	0.751***	0.751***	0.755***	0.751***	0.739***
	(0.045)	(0.048)	(0.049)	(0.048)	(0.044)	(0.051)	(0.057)
Outsourcing$_{t-2}$	-0.095***	-0.100***	-0.103**	-0.100***	-0.084	-0.056	-0.092
	(0.046)	(0.048)	(0.048)	(0.048)	(0.044)	(0.057)	(0.063)
Observations	1,031	939	931	929	1,100	900	709
R-squared	0.808	0.793	0.795	0.795	0.813	0.818	0.800
State & Year FE	YES	YES	YES	YES	YES	YES	YES
States	50	49	49	49	50	50	49

Note: *** p<0.001, ** p<0.01, * p<0.05. Robust standard errors clustered at the state level are in parentheses. FE = fixed effect. Models with measures based on legislative chambers exclude Nebraska, which has a unicameral legislature. Some sample sizes are further truncated due to limited data availability.
a: Governor ideology estimates are from Bonica's (2013) CF scores.
b: Legislative chamber ideology estimates are from Shor and McCarty (2011) and reflect the chamber median. These data have numerous missing observations for the 1992-1995 period, which reduces the sample sizes for these models.
c: Dynamic state economic liberalism estimates are from Caughey and Warshaw (2018).
d: Measures of state business bias are from Witko (2017).

Table C-2: Measures of Party Control of Government and Macro Outsourcing

	(1)	(2)	(3)	(4)	(5)	(6)
Share GOP Seats (House)$_{t-1}$	-0.495	-0.584				
	(3.507)	(3.713)				
Share GOP Seats (Senate)$_{t-1}$	1.887	2.504				
	(2.059)	(2.244)				
Divided$_{t-1}$			0.123	0.092		
			(0.262)	(0.271)		
Unified Democratic$_{t-1}$					-0.190	-0.180
					(0.335)	(0.347)
Unified Republican$_{t-1}$					-0.034	-0.006
					(0.451)	(0.480)
Outsourcing$_{t-1}$	0.700***	0.749***	0.704***	0.753***	0.703***	0.752***
	(0.032)	(0.047)	(0.029)	(0.047)	(0.030)	(0.047)
Outsourcing$_{t-2}$		-0.078		-0.075		-0.076
		(0.046)		(0.046)		(0.048)
Observations	1,127	1,078	1,127	1,078	1,127	1,078
R-squared	0.813	0.811	0.813	0.811	0.813	0.811
State & Year FE	YES	YES	YES	YES	YES	YES
States	49	49	49	49	49	49

Note: *** p<0.001, ** p<0.01, * p<0.05. Robust standard errors clustered at the state level are in parentheses. FE = fixed effect. The number of observations varies across each model due to the inclusion of different lag structures. Models exclude Nebraska, which has a unicameral legislature.

Table C-3: Alternate Measures of Fiscal Pressure and Macro Outsourcing

	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment Rate$_{t-1}$[a]	-1.154			-35.034	-14.299	-14.688
	(15.683)			(49.877)	(25.788)	(25.110)
Income per Capita$_{t-1}$[a,b]		-0.094		-0.001	-0.043	-0.041
		(0.088)		(0.430)	(0.187)	(0.194)
Fraction of ARC paid$_{t-1}$[c]			0.106	-0.004	0.185	0.122
			(0.148)	(0.332)	(0.223)	(0.214)
Outsourcing$_{t-1}$	0.756***	0.750***	0.729***		0.584***	0.676***
	(0.044)	(0.051)	(0.057)		(0.044)	(0.068)
Outsourcing$_{t-2}$	-0.082	-0.058	-0.170***			-0.157***
	(0.044)	(0.058)	(0.042)			(0.058)
Observations	1,100	900	683	490	490	490
R-squared	0.813	0.819	0.787	0.704	0.807	0.812
State & Year FE	YES	YES	YES	YES	YES	YES
States	50	50	49	49	49	49

Note: *** p<0.001, ** p<0.01, * p<0.05. Robust standard errors clustered at the state level are in parentheses. FE = fixed effect. Some sample sizes are truncated due to limited data availability.

a: State economic data are from Jordan and Grossmann (2020).

b: Measured in thousands of dollars.

c: Represents the Annual Required Contribution (ARC)—the amount that the state must pay to amortize the existing pension obligations plus its outstanding pension debt—as a percentage of the state's revenues. The ARC is calculated according to standardized accounting rules. Data are from the Public Plans Database from the Center for Retirement Research at Boston College.

Table C-4: Alternate Measures of Union Strength and Macro Outsourcing

	(1)	(2)	(3)	(4)	(5)
Union Density$_{t-1}$[a]	-0.071*		-0.211***	-0.076	-0.078
	(0.035)		(0.081)	(0.043)	(0.043)
Labor Contributions$_{t-1}$[b]		-0.001***	-0.001	-0.001***	-0.001***
		(0.0004)	(0.001)	(0.0003)	(0.0003)
Outsourcing$_{t-1}$	0.753***	0.742***		0.665***	0.738***
	(0.044)	(0.045)		(0.029)	(0.045)
Outsourcing$_{t-2}$	-0.085	-0.109***			-0.113***
	(0.044)	(0.046)			(0.046)
Observations	1,100	1,001	1,016	1,016	1,001
R-squared	0.813	0.799	0.638	0.798	0.800
State & Year FE	YES	YES	YES	YES	YES
States	50	50	50	50	50

Note: *** p<0.001, ** p<0.01, * p<0.05. Robust standard errors clustered at the state level are in parentheses. FE = fixed effect. The number of observations varies across each model due to the inclusion of different lag structures. Some sample sizes are further truncated due to limited data availability.

a: Data are from Hirsch and MacPherson (2003).

b: The change in campaign contributions made by the labor sector to candidates for state office in the state over the prior year, according to the National Institute on Money in State Politics.

Table C-5: "Ideological Decay" and Macro Outsourcing[a]

	(1)	(2)	(3)	(4)
Dem Governor$_{t-1}$ × Period 1	-0.149			-0.077
	(0.514)			(0.484)
Dem Governor$_{t-1}$ × Period 2	-0.464			-0.323
	(0.495)			(0.504)
Dem Governor$_{t-1}$ × Period 3	-0.181			-0.169
	(0.439)			(0.409)
Dem House$_{t-1}$ × Period 1		-0.484		-0.677
		(0.507)		(0.537)
Dem House$_{t-1}$ × Period 2		-0.662		0.460
		(0.700)		(0.740)
Dem House$_{t-1}$ × Period 3		0.419		0.916
		(0.655)		(0.691)
Dem Senate$_{t-1}$ × Period 1			-0.204	0.213
			(0.386)	(0.449)
Dem Senate$_{t-1}$ × Period 2			0.232	-0.265
			(0.484)	(0.538)
Dem Senate$_{t-1}$ × Period 3			-0.178	-0.895
			(0.545)	(0.582)
Dem Governor$_{t-1}$		-0.055	-0.030	
		(0.280)	(0.283)	
Dem House$_{t-1}$	0.117		0.200	
	(0.501)		(0.497)	
Dem Senate$_{t-1}$	-0.177	-0.246		
	(0.305)	(0.318)		
Debt % GSP$_{t-1}$	0.053	0.047	0.046	0.048
	(0.064)	(0.061)	(0.062)	(0.060)
Budget Surplus$_{t-1}$	0.093	0.099	0.098	0.097
	(0.071)	(0.070)	(0.071)	(0.073)
Union Coverage$_{t-1}$	-0.082***	-0.083***	-0.079***	-0.082***
	(0.035)	(0.034)	(0.035)	(0.035)
Outsourcing$_{t-1}$	0.745***	0.744***	0.746***	0.743***
	(0.047)	(0.047)	(0.046)	(0.046)
Outsourcing$_{t-2}$	-0.094***	-0.094***	-0.094***	-0.094***
	(0.044)	(0.044)	(0.044)	(0.045)
Observations	1,029	1,029	1,029	1,029
R-squared	0.815	0.816	0.815	0.816
State & Year FE	YES	YES	YES	YES
States	49	49	49	49

Note: *** p<0.001, ** p<0.01, * p<0.05. Robust standard errors clustered at the state level are in parentheses. FE = fixed effect. Models exclude Nebraska, which has a unicameral legislature.

a: This table tests the hypothesis that outsourcing may have become less partisan over time (i.e., it was initially "owned by Republican leaders, but came to be associated with both parties over time). If this hypothesis holds, we should expect to see a negative and statistically significant effect for Democratic leaders in the earlier periods that fades over time. The results do not support this hypothesis.

Table C-6: Conditional Effects of Ideology and Macro Outsourcing

	(1)	(2)	(3)	(4)
GOP Governor$_{t-1}$ × Debt % GSP	0.062			0.075
	(0.052)			(0.053)
GOP Governor$_{t-1}$ × Budget Surplus	-0.012			-0.051
	(0.143)			(0.137)
GOP House$_{t-1}$ × Debt % GSP		-0.027		-0.091
		(0.079)		(0.074)
GOP House$_{t-1}$ × Budget Surplus		0.246		0.269
		(0.281)		(0.274)
GOP Senate$_{t-1}$ × Debt % GSP			0.036	0.062
			(0.069)	(0.062)
GOP Senate$_{t-1}$ × Budget Surplus			0.139	-0.010
			(0.200)	(0.139)
GOP Governor$_{t-1}$	-0.406	0.022	0.007	-0.502
	(0.495)	(0.274)	(0.272)	(0.491)
GOP House$_{t-1}$	-0.045	0.090	-0.034	0.502
	(0.477)	(0.583)	(0.489)	(0.636)
GOP Senate$_{t-1}$	0.146	0.139	0.089	-0.292
	(0.300)	(0.290)	(0.522)	(0.517)
Debt % GSP$_{t-1}$	0.022	0.058	0.029	0.035
	(0.059)	(0.069)	(0.067)	(0.075)
Budget Surplus$_{t-1}$	0.119	0.074	0.079	0.102
	(0.126)	(0.052)	(0.058)	(0.124)
Union Coverage$_{t-1}$	-0.088***	-0.085***	-0.084***	-0.088***
	(0.035)	(0.035)	(0.036)	(0.035)
Outsourcing$_{t-1}$	0.747***	0.747***	0.747***	0.748***
	(0.047)	(0.047)	(0.047)	(0.047)
Outsourcing$_{t-2}$	-0.080	-0.078	-0.081	-0.077
	(0.047)	(0.045)	(0.046)	(0.046)
Observations	1,078	1,078	1,078	1,078
R-squared	0.813	0.813	0.813	0.814
State & Year FE	YES	YES	YES	YES
States	49	49	49	49

Note: *** p<0.001, ** p<0.01, * p<0.05. Robust standard errors clustered at the state level are in parentheses. FE = fixed effect. Models exclude Nebraska, which has a unicameral legislature.

Table C-7: Alternate Lag Structures and Macro Outsourcing[a]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GOP Governor$_t$	0.064						0.030	
	(0.268)						(0.265)	
GOP Governor$_{t-2}$		-0.023						-0.031
		(0.317)						(0.317)
GOP House$_t$	-0.075						-0.145	
	(0.435)						(0.438)	
GOP House$_{t-2}$		-0.213						-0.270
		(0.483)						(0.495)
GOP Senate$_t$	0.375						0.352	
	(0.348)						(0.347)	
GOP Senate$_{t-2}$		0.399						0.381
		(0.414)						(0.422)
Debt % GSP$_t$			0.012				0.037	
			(0.076)				(0.068)	
Debt % GSP$_{t-2}$				0.113***				0.084***
				(0.048)				(0.041)
Budget Surplus$_t$			0.026				0.020	
			(0.054)				(0.056)	
Budget Surplus$_{t-2}$				0.074				0.071
				(0.055)				(0.054)
Union Coverage$_t$					-0.081***		-0.078	
					(0.040)		(0.041)	
Union Coverage$_{t-2}$						-0.063***		-0.049
						(0.030)		(0.027)
Outsourcing$_{t-1}$	0.751***	0.752***	0.756***	0.755***	0.751***	0.751***	0.746***	0.747***
	(0.047)	(0.046)	(0.044)	(0.044)	(0.045)	(0.044)	(0.048)	(0.047)
Outsourcing$_{t-2}$	-0.078	-0.077	-0.082	-0.084	-0.083	-0.084	-0.078	-0.079
	(0.047)	(0.049)	(0.044)	(0.044)	(0.044)	(0.043)	(0.046)	(0.048)
Observations	1,078	1,078	1,100	1,100	1,100	1,100	1,078	1,078
R-squared	0.811	0.811	0.813	0.813	0.814	0.813	0.812	0.812
State & Year FE	YES	YES	YES	YES	YES	YES	YES	YES
States	49	49	50	50	50	50	49	49

Note: *** p<0.001, ** p<0.01, * p<0.05. Robust standard errors clustered at the state level are in parentheses. FE = fixed effect. The number of observations varies across each model due to the inclusion of different lag structures. Additionally, models with measures based on legislative chambers exclude Nebraska, which has a unicameral legislature.

a: This table examines alternate lag structures of the key independent variables, on the logic that it may take more ($t-2$) or less time (t) for political or economic factors to permeate outsourcing decisions.

Table C-8: Political Influences on Differences (Δ) in State Macro Outsourcing

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ideology								
GOP Governor$_{t-1}$	-0.021				0.019	0.075	0.071	0.030
	(0.242)				(0.236)	(0.267)	(0.302)	(0.278)
GOP House$_{t-1}$		-0.353			-0.396	-0.093	0.097	-0.041
		(0.407)			(0.403)	(0.460)	(0.494)	(0.479)
GOP Senate$_{t-1}$		-0.218			-0.227	0.115	0.156	0.162
		(0.292)			(0.290)	(0.284)	(0.335)	(0.300)
Fiscal Pressure								
Debt % GSP$_{t-1}$			-0.047		-0.033	0.029	0.023	0.041
			(0.041)		(0.041)	(0.058)	(0.034)	(0.058)
Budget Surplus$_{t-1}$			0.106		0.102	0.111	0.051	0.113
			(0.077)		(0.076)	(0.058)	(0.045)	(0.058)
Union Strength								
Union Coverage$_{t-1}$				-0.035	-0.028	-0.081***	-0.143***	-0.086***
				(0.033)	(0.031)	(0.034)	(0.037)	(0.036)
Outsourcing$_{t-1}$						-0.305***	-0.260***	-0.254***
						(0.031)	(0.042)	(0.047)
Outsourcing$_{t-2}$							0.012	-0.081
							(0.050)	(0.047)
Observations	1,150	1,127	1,150	1,150	1,127	1,127	1,078	1,078
R-squared	0.120	0.126	0.122	0.121	0.128	0.261	0.128	0.220
State FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	NO	YES
States	50	49	50	50	49	49	49	49

Note: *** p<0.001, ** p<0.01, * p<0.05. Robust standard errors clustered at the state level are in parentheses. FE = fixed effect. The number of observations varies across each model due to the inclusion of different lag structures. Additionally, models with measures based on legislative chambers exclude Nebraska, which has a unicameral legislature.

† This table replicates Table 1 in the main text of the paper, using first differences of the *Macro Outsourcing* dependent variable rather than levels.

Table C-9: Accounting for Total Spending

	(1) Macro Outsourcing	(2) Macro Outsourcing	(3) Macro Outsourcing	(4) Macro Outsourcing (ln)	(5) Macro Outsourcing (ln)	(6) Macro Outsourcing (ln)
GOP Governor$_{t-1}$		0.335	0.105		0.007	0.002
		(0.517)	(0.268)		(0.009)	(0.005)
GOP House$_{t-1}$		0.606	-0.058		0.009	-0.004
		(0.806)	(0.470)		(0.014)	(0.009)
GOP Senate$_{t-1}$		0.942	0.242		0.014	0.001
		(0.568)	(0.291)		(0.010)	(0.005)
Debt % GSP$_{t-1}$		0.176	0.054		0.003	0.001
		(0.198)	(0.063)		(0.004)	(0.002)
Budget Surplus$_{t-1}$		0.171	0.134***		0.003	0.002
		(0.090)	(0.064)		(0.001)	(0.001)
Union Coverage$_{t-1}$	-0.093***	-0.180***	-0.077***	-0.002***	-0.003***	-0.002***
	(0.034)	(0.061)	(0.033)	(0.001)	(0.001)	(0.001)
Total Spending (ln)	7.071***	12.279***	7.665***	0.109***	0.203***	0.120***
	(2.019)	(4.575)	(2.034)	(0.039)	(0.086)	(0.039)
Outsourcing$_{t-1}$	0.742***		0.736***	0.013***		0.013***
	(0.046)		(0.048)	(0.001)		(0.001)
Outsourcing$_{t-2}$	-0.085		-0.080	-0.001		-0.001
	(0.044)		(0.048)	(0.001)		(0.001)
Observations	1,100	1,127	1,078	1,100	1,127	1,078
R-squared	0.817	0.649	0.816	0.808	0.635	0.808
State & Year FE	YES	YES	YES	YES	YES	YES
States	50	49	49	50	49	49

Note: *** p<0.001, ** p<0.01, * p<0.05. Robust standard errors clustered at the state level are in parentheses. FE = fixed effect. The number of observations varies across each model due to the inclusion of different lag structures. Additionally, models with measures based on legislative chambers exclude Nebraska, which has a unicameral legislature.

a: This table evaluates the potential for a bias in outsourcing towards states that have higher levels of spending. Such a bias might be particularly problematic in terms of detecting an effect for ideology if liberal/Democratic states were disproportionately more likely to outsource as a result of higher spending. This is not a threat to inference for two reasons. First, extant research indicates that Democratic governments do not systematically spend more than Republican ones. Indeed, rather than increasing the total size of the pie (e.g., Gilligan and Matsusaka, 2001; Leigh, 2008), partisan governments reallocate budgetary resources to their preferred policy areas (e.g., Adolph, Breunig and Koski, 2020; Beland and Oloomi, 2017). Second, this might still be an issue if there was some fixed amount of spending that could not be outsourced; such a floor effect would mean that lower-spending governments would systematically be less likely to outsource. Yet, observers have noted that the concept of an "inherently governmental function" is a slippery slope (e.g., Burman, 2008; Verkuil, 2017) meaning that services that were once considered sacrosanct for government (e.g., prisons, contract management, emergency services) have been increasingly contracted out to the private sector.

†All models include the logged amount of total government spending in state i in year t, in order to account for the possibility that states with larger budgets have greater potential for outsourcing.

†† Models 4, 5, and 6 include a logged version of the dependent variable to address whether outsourcing grows disproportionately in relation to spending. These models suggest that there is, unsurprisingly, a relationship between outsourcing and the total amount of state spending, but that it does not affect the interpretation of the relationship between outsourcing and ideology, fiscal pressure, and union strength.

Table C-10: Alternate Modeling Strategies

	(1) GMM	(2) GMM	(3) FE	(4) FE
GOP Governor$_{t-1}$	-0.005	-0.011	0.032	0.077
	(0.279)	(0.280)	(0.551)	(0.615)
GOP House$_{t-1}$	0.216	0.033	-0.945	-0.484
	(0.574)	(0.587)	(0.884)	(0.688)
GOP Senate$_{t-1}$	0.470	0.112	0.529	0.215
	(0.390)	(0.384)	(0.436)	(0.664)
Debt % GSP$_{t-1}$	0.027	0.025	0.132	-0.080
	(0.109)	(0.077)	(0.180)	(0.151)
Budget Surplus$_{t-1}$	0.138***	0.107	0.078	0.125
	(0.068)	(0.064)	(0.086)	(0.080)
Union Coverage$_{t-1}$	-0.124***	-0.083***	-0.141***	-0.183***
	(0.051)	(0.041)	(0.070)	(0.072)
Outsourcing$_{t-1}$	0.607***	0.487***		
	(0.054)	(0.083)		
Outsourcing$_{t-2}$	-0.220***	0.110		
	(0.046)	(0.060)		
Observations	1,078	1,078	1,127	1,127
State & Year FE	YES	YES	YES	YES
State linear time trends	NO	NO	YES	YES
State quadratic time trends	NO	NO	NO	YES

Note: *** p<0.001, ** p<0.01, * p<0.05. Robust standard errors clustered at the state level are in parentheses. FE = fixed effect. Models exclude Nebraska, which has a unicameral legislature.

† Models 1 and 2 rely on Arellano and Bond's (1991) Generalized Methods of Moments (GMM) estimator, an approach that addresses potential bias and inconsistency in lagged dependent variable models. Specifically, the GMM approach uses first-differences to demean the error term. Lagged values of the dependent variable from prior periods as well as lags of the other explanatory variables serve as instruments. Model 1 shows the results with one to three year lags of *Macro Outsourcing* to instrument for the prior year's outsourcing levels. Model 2 shows the results relying on lags for for three to five years to instrument the past outcomes in the previous two years.

†† Models 3 and 4 incorporate state-specific linear and quadratic time trends in order to address potential trending within states. The models produce similar results if lagged dependent variables are included. Notably, the substantive takeways are qualitatively unchanged from those presented in the body of the paper.

D Analysis of Right-to-Work Laws

Analyzing union retrenchment laws provide another avenue to explore the roles of ideology and union strength in outsourcing decisions. Specifically, because these laws are advanced by conservative activists (and opposed by labor unions), they have a clear ideological connection. However, unlike the main measures of ideology that were based on the ideological disposition and party affiliation of key political actors, the adoption of these laws is a one-off; they need to happen only once, yet they have the potential to have a sustained impact on outsourcing in the long-run. In this sense, they are a "back door" for ideology. Additionally, because these laws attack union strength head-on, by the logic outlined in the manuscript, their adoption should be associated with higher levels of outsourcing. The analysis here thus serves as an additional check on the primary results regarding unions.

Specifically, at the study's outset, 21 states had a "Right to Work" (RTW) law in place, a policy that prohibits unions from forcing all workers covered by a union agreement to join the union or pay dues.[2] During the course of the study's time period, an additional four states—Oklahoma, Indiana, Michigan, and Wisconsin—adopted RTW laws. To evaluate the effect of RTW laws on outsourcing, I code RTW Law, a dichotomous variable indicating whether a state had a RTW law in a given year. I then follow the estimation approach from Table 1 in the main paper. This is a hard test, since the identification in the model is only coming from the small set of states that adopted RTW.

The results are shown in Table D-1. Although the estimates are noisy, they reveal a pattern that suggests that RTW laws are positively associated with an increase in macro outsourcing. More specifically, all estimates are in the hypothesized positive direction and in Model 3 *RTW Law* achieves significance at standard levels.

[2] As Feigenbaum, Hertel-Fernandez and Williamson (2018, 3) point out, courts have interpreted RTW laws to apply equally to public and private sector unions.

These results are only suggestive, particularly given the difficult nature of the test. However, they are also broadly consistent with work that finds that RTW laws have broad political effects (Eren and Ozbeklik, 2016; Feigenbaum, Hertel-Fernandez and Williamson, 2018) and are also consistent with RTW having a downstream effect on outsourcing.

Table D-1: Macro Outsourcing and State Right-To-Work Laws

	(1)	(2)	(3)	(4)
RTW Law	0.892	0.840	2.089***	0.839
	(1.077)	(1.099)	(0.776)	(1.154)
GOP Governor		0.081	0.156	0.033
		(0.287)	(0.315)	(0.277)
GOP House		-0.007	0.129	-0.083
		(0.483)	(0.502)	(0.483)
GOP Senate		0.192	0.209	0.161
		(0.300)	(0.340)	(0.301)
Debt % GSP		0.038	0.024	0.039
		(0.060)	(0.033)	(0.058)
Budget Surplus		0.120	0.060	0.112
		(0.060)	(0.046)	(0.058)
Union Coverage				-0.086***
				(0.036)
Outsourcing t-1	0.756***	0.751***	0.756***	0.746***
	(0.044)	(0.046)	(0.041)	(0.047)
Outsourcing t-2	-0.082	-0.078	0.020	-0.080
	(0.044)	(0.048)	(0.051)	(0.047)
Observations	1,100	1,078	1,078	1,078
R-squared	0.813	0.812	0.788	0.813
State FE	YES	YES	YES	YES
Year FE	YES	YES	NO	YES
States	50	49	49	49

Note: *** p<0.001, ** p<0.01, * p<0.05. Robust standard errors clustered at the state level are in parentheses. FE = fixed effect.

E Synthetic Control Analysis of Wisconsin

In 1959, Wisconsin became the first state to offer collective bargaining to its public sector employees. However, in June of 2011, Wisconsin eliminated collective bargaining protections for these employees, as part of a platform intended to balance the budget and reform the way government works (Walker, 2011). The state's initial proposal to limit the protections gained sustained national attention, as state employees, who were strongly opposed, staked out the capitol in Madison and engaged in weeks-long protests involving more than 100,000 protestors. In the end, Republican Governor Scott Walker and a unified Republican legislature succeeded in passing "Act 10," a law that not only removed the public sector employees' collective bargaining rights, but also further circumscribed union power by mandating annual recertification elections and eliminating automatic paycheck deductions for dues collection. If these changes weakened the state's unions, then following the logic in the paper, this change should be reflected in Wisconsin's aggregate outsourcing levels after the law's passage.

Because Wisconsin's law was passed in the latter-half of the outsourcing time series, analyzing it serves an ideal case study, since it allows for considerable time in the pre-treatment period, while still allowing for analysis in the post-treatment period.[3] Although not dispositive, this analysis serves as an additional piece of confirmatory evidence about the broader role of union power in influencing outsourcing.

I rely on the Synthetic Control Method (SCM), a technique that allows the researcher to systematically select comparison units in order to estimate the effect of a specific intervention (Abadie, Diamond and Hainmueller, 2010, 2015). Using this method, it is possible to construct a counterfactual scenario wherein one estimates the level of outsourcing *had Wisconsin not changed its collective bargaining law*. If union

[3] At the time of Act 10's adoption in 2011, Wisconsin's level of outsourcing was 66%, above the mean of the remaining states (mean = 62%), but well within one standard deviation (s.d. = 10). This suggests that Wisconsin was relatively comparable to other states at that point. By 2015, Wisconsin's level of outsourcing reached 71%, well above that of other states (mean = 66%, s.d. = 4).

strength is indeed an important impediment to state outsourcing decisions, the level of outsourcing in Wisconsin should be lower under the synthetic counterfactual (where unions retained their strength) than under the actual level of outsourcing (where union power was sapped via the Act 10 changes).

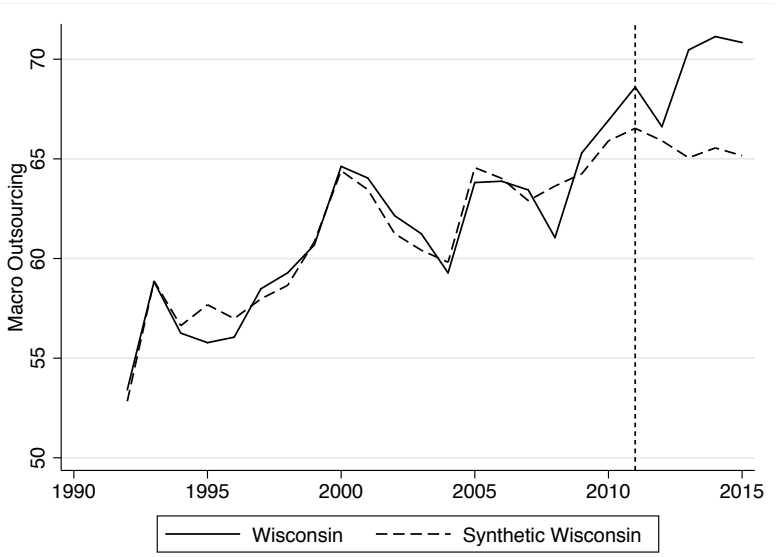
Using SCM, this analysis compares observed levels of outsourcing in Wisconsin with a synthetically-generated counterfactual case of Wisconsin, had the state kept collective bargaining rights for public sector unions intact. The pool of donor cases is restricted to donor pool states in which collective bargaining was legal during the entirety of the study's time period. For public sector workers, collective bargaining is often granted on a sector-by-sector basis. To develop a list of appropriate states, I thus rely on the set of states for which collective bargaining was legal for firefighters, police, and teachers, which results in a set of 33 comparison states.[4] Building on a set of covariates for each state, the SCM approach identifies similarities between the treatment state and the donor states during the pre-treatment period. These similarities are then used to generate a synthetic counterfactual unit for the treatment state that is a weighted combination of the component control states.

Figure E-1 shows the results of this approach, illustrating the synthetically generated level of outsourcing in Wisconsin pre- and post- adoption of Act 10, in contrast to the actual levels of outsourcing observed in Wisconsin during these periods. Notably, had Wisconsin not adopted this law, based on a control group generated by peer states, it is predicted to have experienced a drop in outsourcing levels. However, the state actually saw a substantial increase in outsourcing following the adoption of Act 10, a pattern in keeping with the expected effects of this policy change. Specifically, over the period from

[4]See Table 1 in Sanes and Schmitt (2014) for a list of collective bargaining by sector for each state. In addition, following general SCM practices, I exclude an additional five outlier states. The states in the donor pool are: Alaska, California, Delaware, Florida, Hawaii, Idaho, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Missouri, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, Washington, and West Virginia.

2012-2015, macro outsourcing increased 3.1% per year on average, which amounts to an increase of 5.7% over the 2011 baseline. Stepping back, this analysis suggests that outsourcing in Wisconsin increased over expected levels following the passage of Act 10.

Figure E-1: Evaluation of Wisconsin's Act 10 Using SCM



Note: The dotted line shows the results from synthetic Wisconsin, while the solid line shows actual outsourcing levels in Wisconsin.

SCM Model Details

The SCM approach generates a synthetic version of Wisconsin by created a weighted average of units in the donor pool. Building from a set of independent variables, the method draws on a weighted combination of the nine states shown in Table E-1.

Table E-1: Unit Weights for Wisconsin SCM Study

State	*Weight*
Idaho	.303
Minnesota	.151
Alaska	.143
Pennsylvania	.128
New Hampshire	.114
Montana	.076
Lousiana	.036
Iowa	.026
Oregon	.024

Note: The synthetic control unit is the weighted average of pretreatment covariates using data from states in the donor pool. The table shows the states and weights used for constructing the synthetic control unit. Among the donor pool of 33 states, the method draws on nine states, with the weights shown in the table. The remaining donor states are assigned a weight of zero.

Prior to the 2011 law, Wisconsin was a relatively average state in terms of outsourcing levels, as Figure E-2 shows. However, Wisconsin became more extreme after the law's passage.

Figure E-2: Wisconsin & Peer State Macro Outsourcing Levels

Note: The dark line shows Wisconsin's observed outsourcing levels. Lighter lines show outsourcing levels for the 33 states in the donor pool that did not rescind their collective bargaining laws. These are Alaska, California, Delaware, Florida, Hawaii, Idaho, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Missouri, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, Washington, and West Virginia.

Table E-2 shows the balance between the covariates in the treated states and their synthetic counterfactual. While the match is close between the two columns for most variables, it is clear that the donor states have fewer cases of a GOP Senate in particular. However, as Figure E-1 shows, the method is able to closely approximate the two trend lines in the pre-treatment period.

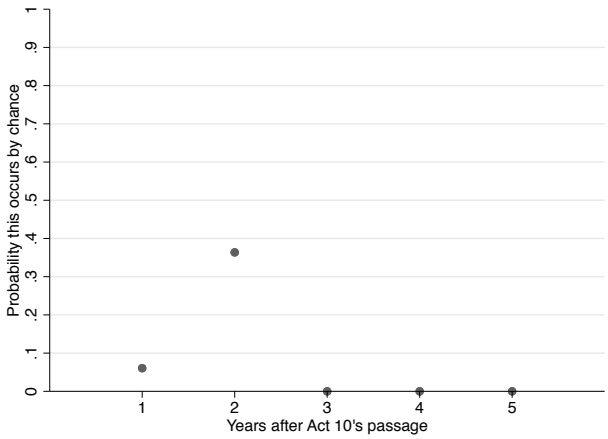
Table E-2: Predictor Balance for Wisconsin Collective Bargaining Study

	Wisconsin	*Synthetic Wisconsin*	*Donor Pool Average*
GOP Governor	0.65	0.61	0.61
GOP House	0.78	0.77	0.77
GOP Senate	.052	0.67	0.44
Debt % GSP	7.07	8.08	7.19
Budget Surplus	0.09	0.17	0.17
RMSPE		0.960	

Note: The table shows the mean values of the covariates and the outcome variable (*Macro Outsourcing*). The value of each predictor is averaged over the pretreatment period. The root mean squared prediction error (RMSPE) is based on differences between the treatment and synthetic control units in the pre-treatment period.

Figure E-3 shows that the difference between synthetic Wisconsin and real Wisconsin (as shown in Figure E-1) were statistically different in all of the post-treatment years, with the exception of the second year.

Figure E-3: Probability of SCM Differences Occurring by Chance

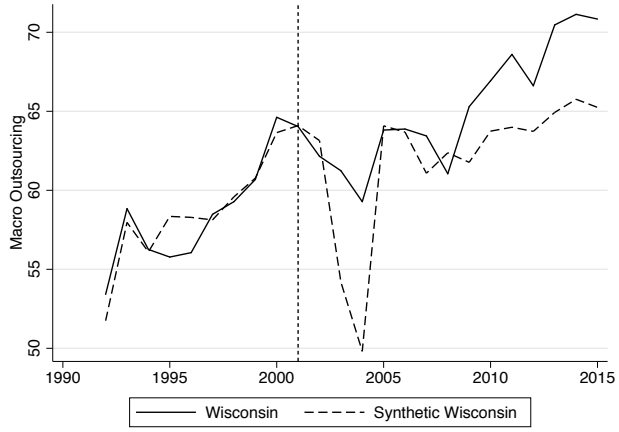


Note: The panel shows the probability that the differences between synthetic and real Wisconsin would have been observed by chance for each year in the post-treatment period.

SCM Robustness

Following Abadie, Diamond and Hainmueller (2015), I assess the robustness of the SCM by conducting an in-time placebo test. Specifically, I (arbitrarily) assume that Wisconsin eliminated collective bargaining at an earlier point in time—in 2002. If making this assumption and conducting the subsequent analyses yields equally plausible results to those already presented, then we should be less confident that the 2011 break was a definitive one. The results, shown in Figure E-4, do not show the expected relationship between Wisconsin and Synthetic Wisconsin, which gives additional confidence to the 2011 results.

Figure E-4: In-time Placebo Test of Wisconsin's Collective Bargaining Law

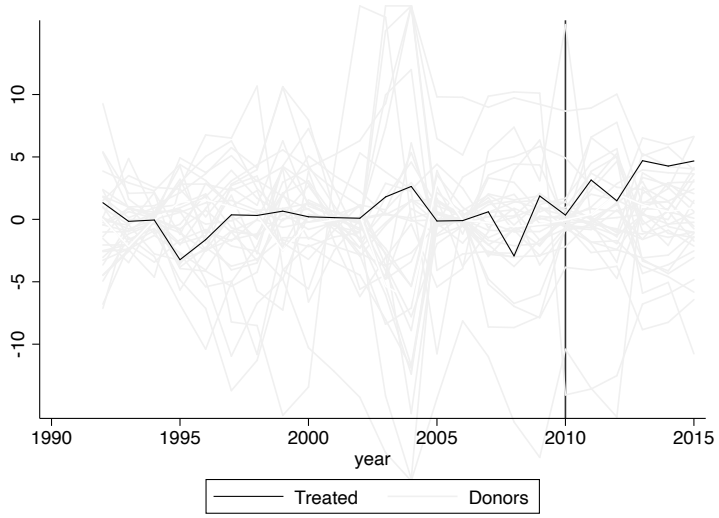


Next, I conduct an in-space placebo test by iteratively applying the synthetic control method to every control unit in the sample and observing the gaps between each state and its synthetic control.[5] The results are plotted in Figure E-5, which shows that before the intervention there is little difference between Wisconsin and its synthetic control (i.e., it is comparable with the states in the donor pool); however, after the collective bargaining intervention, Wisconsin considerably differentiates itself from the

[5]This analysis is conducted using the `synth_runner` package for Stata (Galiani and Quistorff, 2017).

other states with large gaps with its synthetic control. Examining the distribution, it is clear that reassigning the removal of collective bargaining to other states is very unlikely to result in as large a gap as that obtained for Wisconsin. All told these robustness checks serve to enhance our confidence in the results presented in the paper.

Figure E-5: In-space Placebo Test for Each State and its Synthetic Control



Note: This analysis iteratively assumes that that each state in the donor pool received the treatment, using the remaining states as the untreated units. Lines show the difference between a treatment state and its synthetic control. The dark line indicates the gap between Wisconsin and its synthetic control. Lighter lines indicate the placebo results for states in the donor pool. The red vertical line indicates the point of intervention.

Finally, I consider a test proposed by Abadie, Diamond and Hainmueller (2015) which compares the root mean squared prediction error (RMSPE) pre- and post-intervention in Wisconsin and its comparison states. The treatment in Wisconsin should result in a relatively large pre-/ post- RMSPE ratio compared to placebo states; this is indeed the case as Wisconsin's ratio is double that of the placebos. The probability of obtaining the ratio as large as Wisconsin's is $\frac{1}{33} = .03$. These analyses increase confidence that the results shown for Wisconsin's are attributable to the adoption of that state's collective bargaining law.

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