
Labour Laws, Unionization, and Wage Setting

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GUNDERSON LECTURE

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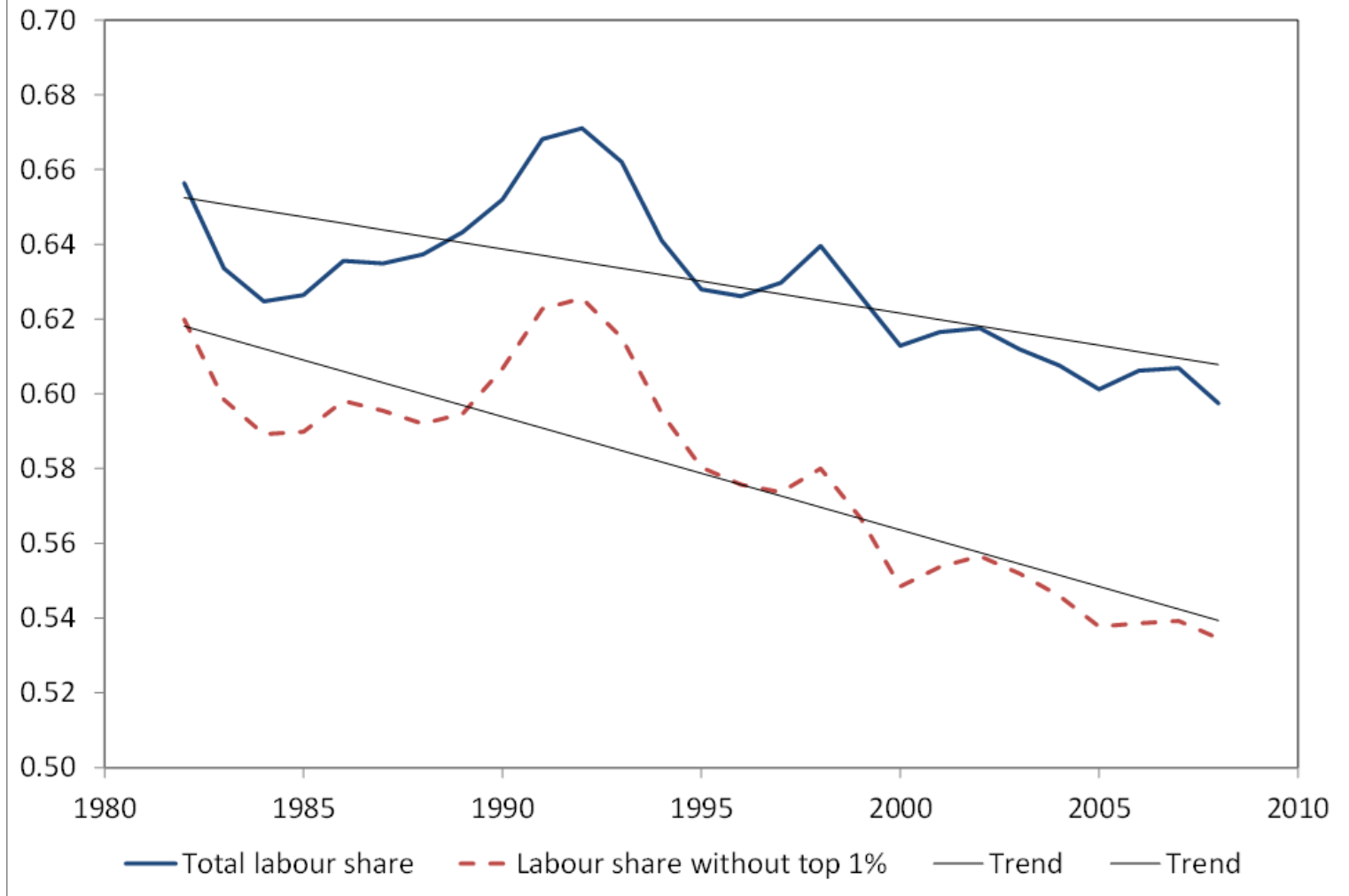
In a nutshell

- The legal and policy environment (“labour laws”) is an important driver of unionization, and union power more generally (industrial relations literature)
 - Unionization is associated with higher and more equally distributed wages (labour economics literature)
 - Twin goal of the lecture:
 - Combine these two approaches by directly looking at how labour laws affect unionization **and** wages
 - Examine the mechanisms involved. Do labour laws affect wages directly, or indirectly through their impact on the unionization rate (acting as an “instrumental variable” for unionization)?
 - Quantify these effects in the context of right-to-work laws in the United States (Fortin, Lemieux, and Lloyd, 2021)
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Why does it matter?

- Inequality has increased and the labour share has declined in Canada, the United States and many other countries over the last few decades
 - The decline in the rate of unionization can account for some of these changes
 - But this may understate the contribution of the legal and policy environment in reducing the rate of unionization and wages regardless of union status
 - The direct effect could be due to declining union “threat effects” or other negative impacts on the bargaining power of workers
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Figure 3: Labour share with and without the top 1%



Source: Lemieux and Riddell (2016), "Top Incomes in Canada"

Plan for the lecture

- Effect of labour laws on unionization
 - Union wage effects
 - Framework for thinking about the direct and indirect (going through the unionization rate) effect of labour laws on wages
 - If all the effect is indirect, labour laws can be used as an instrumental variable for estimating the “causal” effect of unions on wages
 - Application to right-to-work (RTW) laws in the U.S.
 - Event-study estimates of the introduction of RTW laws in Midwestern states
 - Differential exposure analysis (RTW affects some industries more than others)
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Labour laws and unionization

- In principle workers who want a union can get one
 - But small differences in the legal and regulatory framework can have a substantial impact on the success of union organizing drives
 - Riddell (2004): Card-signing campaigns vs. organizing elections in BC
 - See also Campolieti, Riddell and Sline (2007) and Campolieti, Gomez, and Gunderson (2013)
 - Ellwood and Fine (1987) for RTW
 - The policy environment may matter too:
 - Outsourcing, temporary workers, and the “fissured” workplace (Weil, 2014)
 - Treatment of Gig workers as employees or independent contractors
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Right-to-work laws

- In Canada employers automatically deduct union dues for employees covered by collective bargaining agreements (Rand formula)
- All workers covered by a collective bargaining agreement get the same benefits from unionization (wages, benefits, grievance procedures, etc.) but RTW makes it illegal to require workers to pay union dues
- Weakens unions by allowing free riding.
- RTW was allowed by the 1947 Taft-Hartley Act, and quickly adopted by several (mostly Southern) states.
- Little variation over time until large and traditionally unionized states (WI, MI, IN) adopted RTW laws starting in 2011.

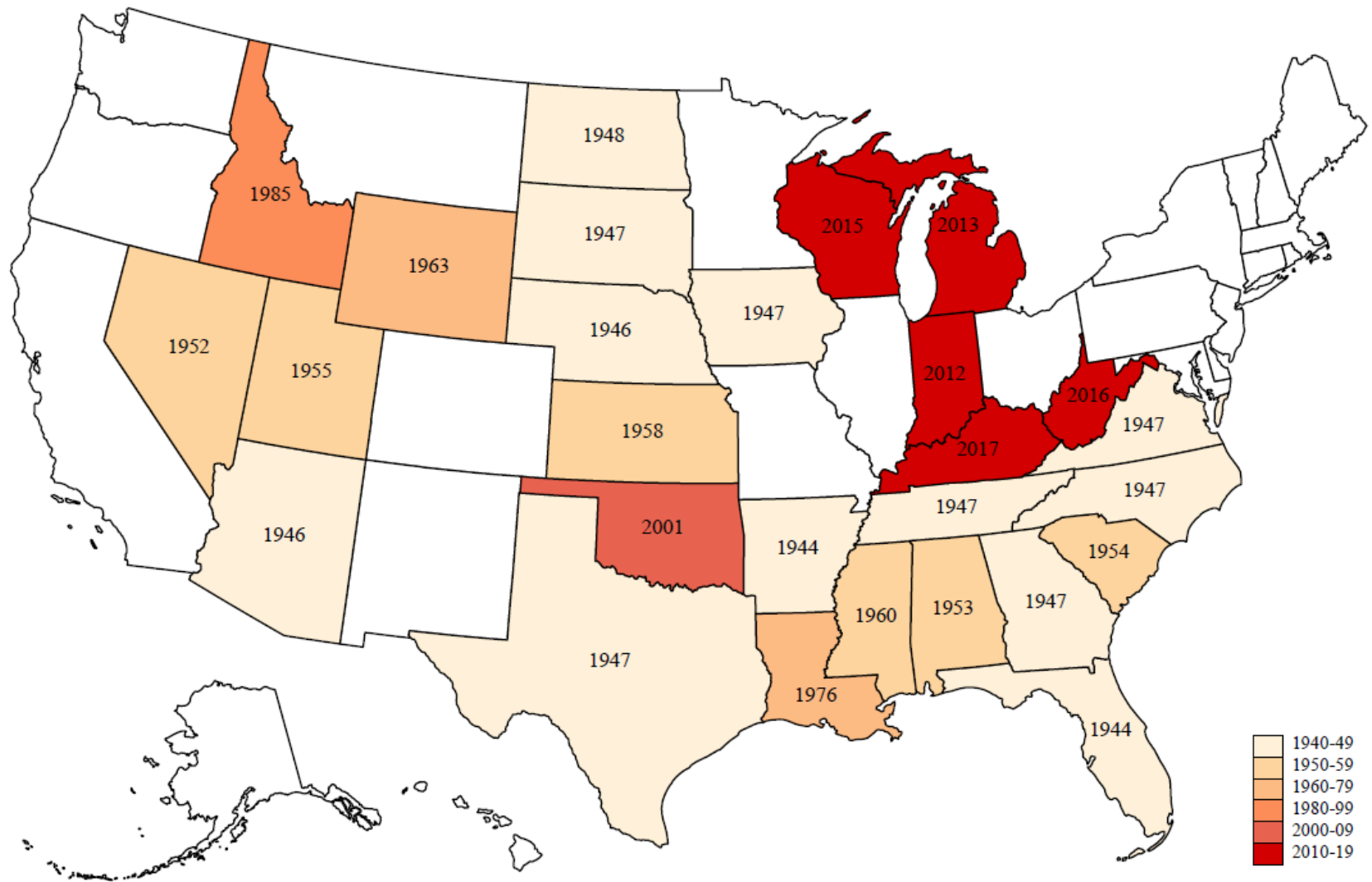


Figure 1: The Expansion of Right-to-Work Coverage

Note: The map demonstrates the adoption of RTW laws across US states beginning in 1944. The map does not include RTW laws brought to vote in Missouri (2017) and New Hampshire (2017, 2021), but not implemented. For more details of recent reforms see Table 1.

Estimating union wage effects

- A very large literature has attempted to estimate the effect of unions on wages in Canada, the United States (Lewis, 1986), and other countries
 - Microdata are used to estimate the effect of union status on wages, using non-union workers as a “counterfactual”
 - A smaller literature shows that unions reduce wage dispersion (Card, Lemieux, and Riddell, 2020, for recent evidence in Canada and the U.S.)
 - As such, de-unionization has contributed to the growth in wage inequality (Card, 1992; Freeman, 1993; DiNardo, Fortin, and Lemieux, 1996)
 - Contribution of de-unionization larger with “threat effects” that reduce non-union wages (Fortin, Lemieux, Lloyd, JOLE 2021)
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Challenges estimating causal effects

- Most of these estimated union wage effects can only be interpreted as causal effect under very strong assumptions
 - Union status randomly assigned conditional on observables (education, education, etc.)
- Challenging to find “natural experiments” for unionization that can be used to conduct causal estimation:
 - DiNardo and Lee (2004): Close (union organizing) elections using a regression-discontinuity design
 - Farber, Herbst, Kuziemko, Naidu (2021): use Wagner Act and War Labor Boards as instrumental variables (IV) in a historical context
- Using RTW laws as IV is another option

Direct and indirect effects of labour laws on wages

■ Indirect effect:

- Changes in labour laws (e.g. RTW laws) affect the rate of unionization through organizing activity and de-certification
- This, in turns, affects wages due to a standard union wage effect
- The entire effect of labour laws on wages is being mediated through the impact of labour laws on unionization

■ Direct effect:

- Labour laws that reduce the bargaining power of all workers due, for instance, to declining threat effects, may directly affect wages regardless of their impact on unionization
 - Threat effects (Rosen, 1969): Non-union firms may tend to emulate the union wage structure to avoid unionization.
 - No longer required when new unionization is very hard to achieve
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Labour laws



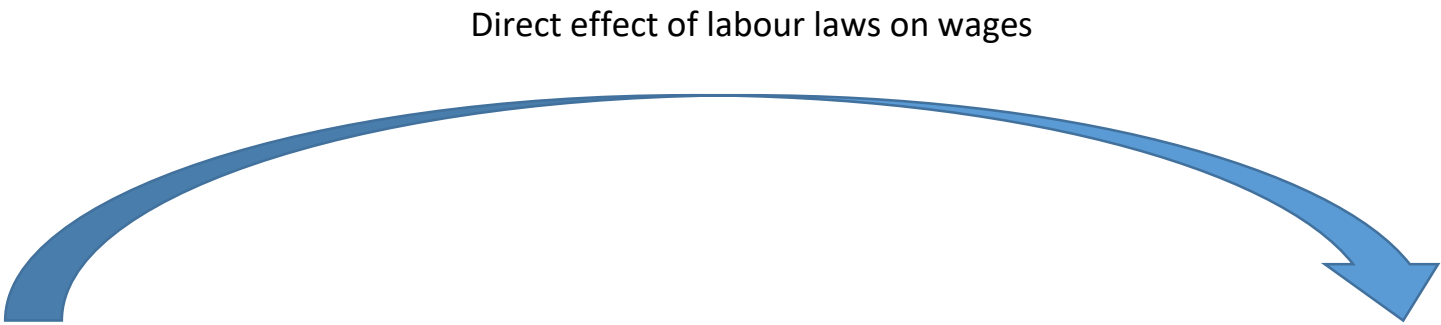
Effect of labour laws
on unionization

Unionization



Union wage effects

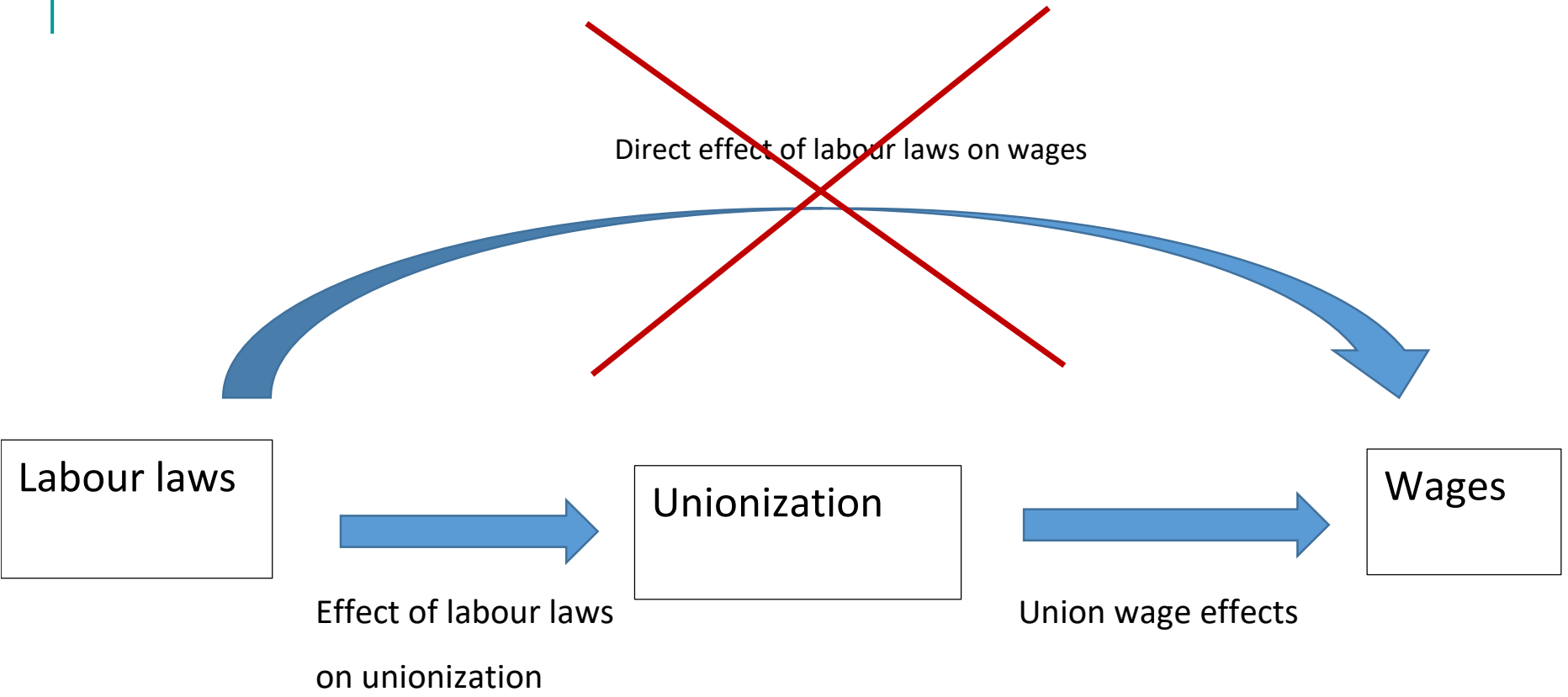
Wages



Direct effect of labour laws on wages

Implications for causal estimation

- Labour laws are a valid IV for unionization under the assumption that they do not have a direct effect on wages
 - Direct effects result in a violation of the exclusion restriction:
 - Labour laws do not enter directly in a regression of union status on wages
 - Only enters indirectly through their impact on the union status of workers
 - In Fortin, Lemieux, and Lloyd (2021) we discuss the issue using a potential outcome framework
 - Direct effect => violation of the stable unit treatment value assumption (SUTVA)
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Labour laws can be used as instrumental variables for unionization in a wage equation when they do not have a direct impact on wages (exclusion restriction)

Is there a direct effect?

- Difficult to assess empirically
 - Exclusion restriction ultimately untestable
 - Literature on threat effects suggest there is direct effect
 - => Exclusion restriction unlikely to hold
 - It is still possible, however, to estimate the total (direct plus indirect) effect of labour laws on wages
 - We do so in the case of RTW laws using two complementary research designs
 - Total effect = “reduced form effect” of RTW on wages
 - We also compute IV estimates
 - Getting estimates that are “too large” suggest that direct effects are likely important
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Empirical application: “RTW laws, unionization, and wage setting”

- We use both an event-study and a differential exposure design
 - Event-study design based on the adoption of RTW laws in Indiana (2012), Michigan (2013), Wisconsin (2015), West Virginia (2016) and Kentucky (2017)
 - All happened under a Republican “trifecta”
 - RTW introduced in the Wisconsin public sector in 2011 (Act 10)
 - Key identification assumption: parallel trends
 - Wages and unionization in RTW adopting states would have evolved in the same way as in non-adopting states absent the introduction of RTW
 - Implemented using Current Population Survey (CPS)
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Event study analysis

- “Before and after” RTW approach where we compare the evolution of wages and unionization rates in adopting and non-adopting states
 - Present the differential evolution in a graphical way
 - Implemented using regression analysis where we also control for state and year effects, and observed characteristics of workers
 - Results can be summarized using an difference-in-difference approach where we compare changes in average wages and unionization rates before and after the adoption of RTW
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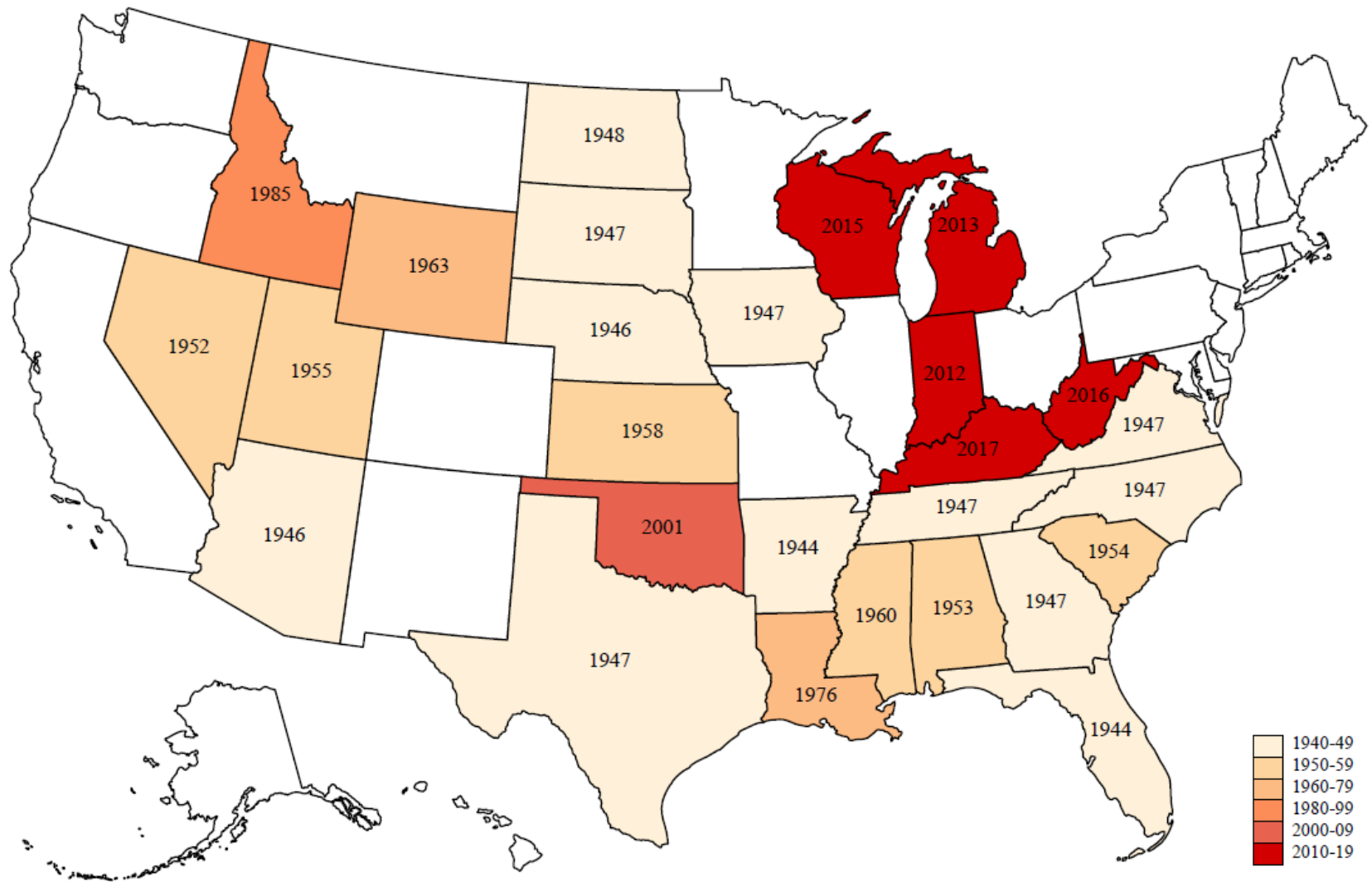


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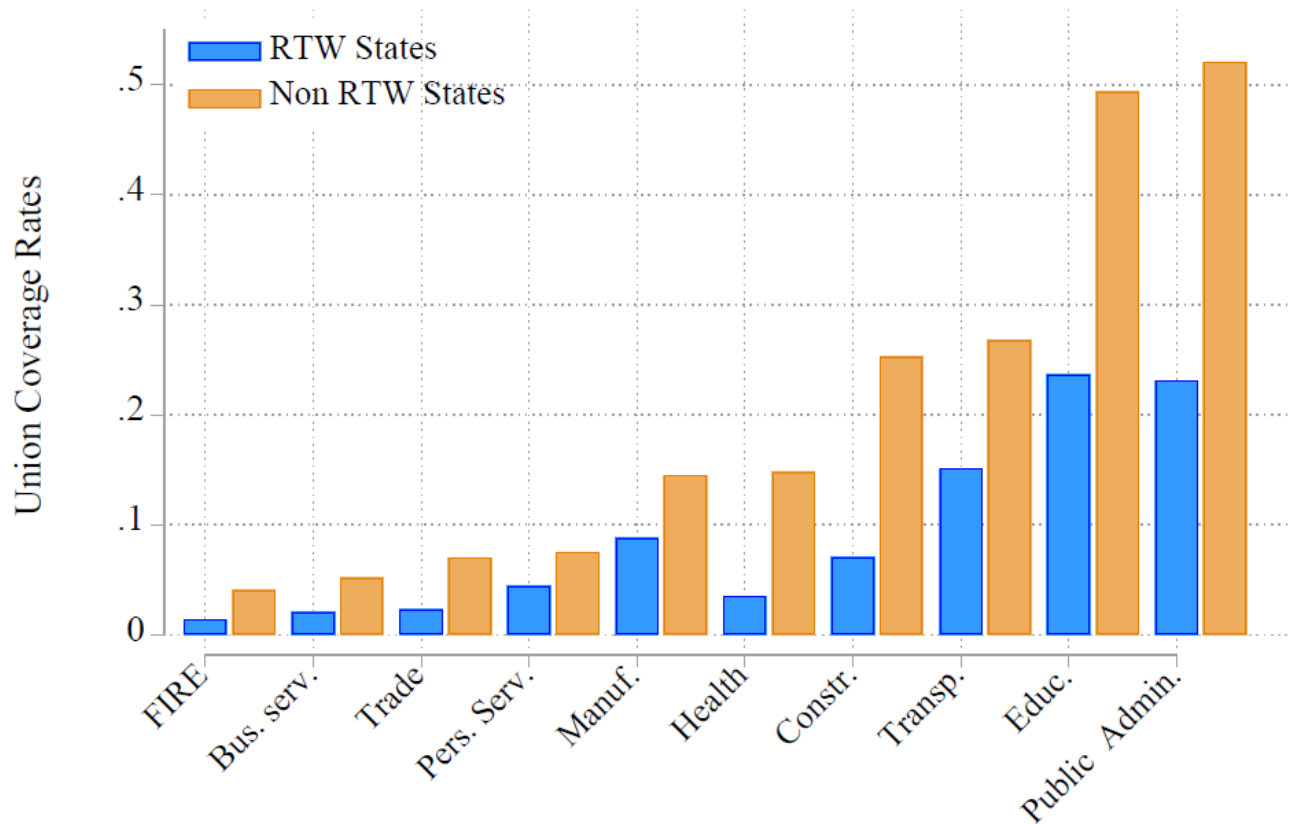
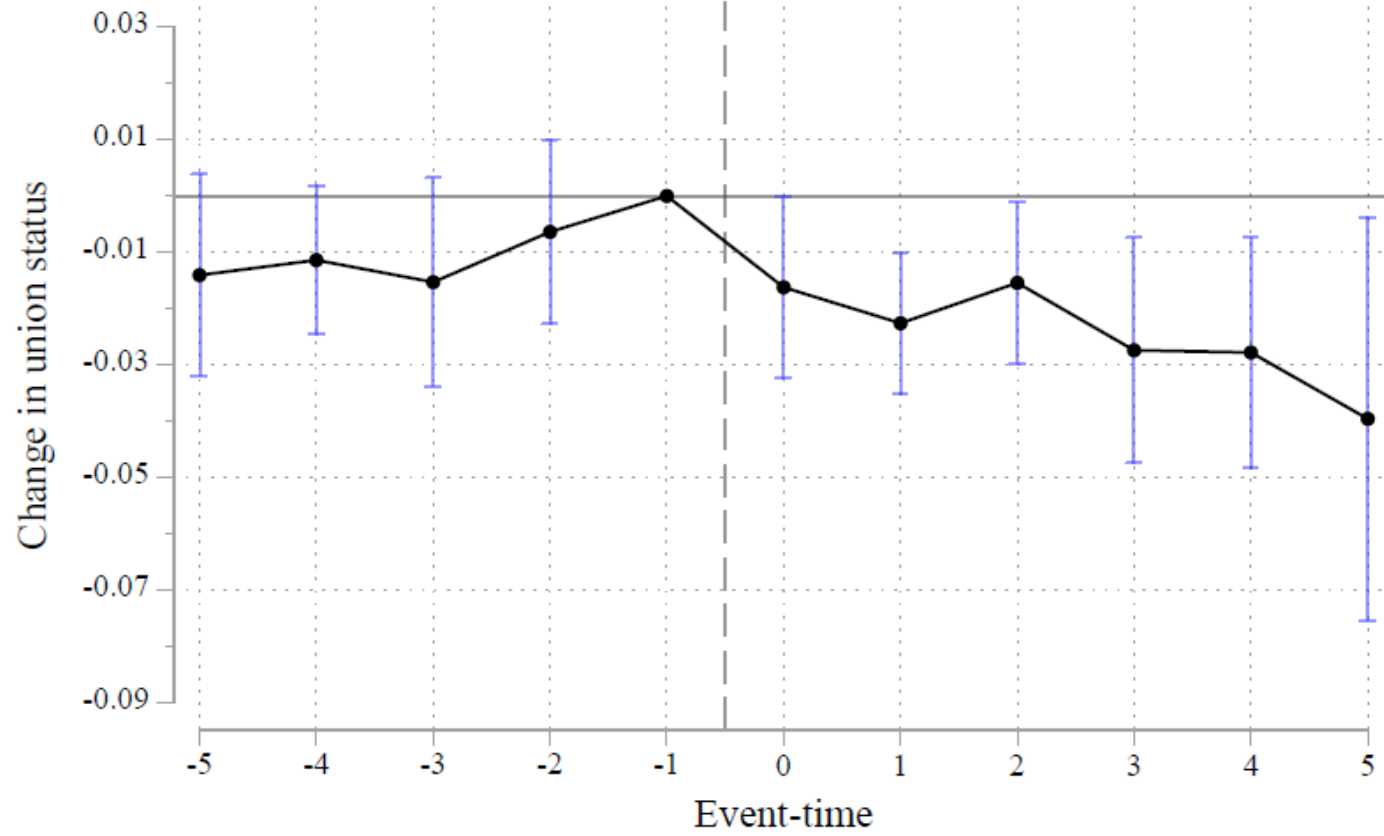
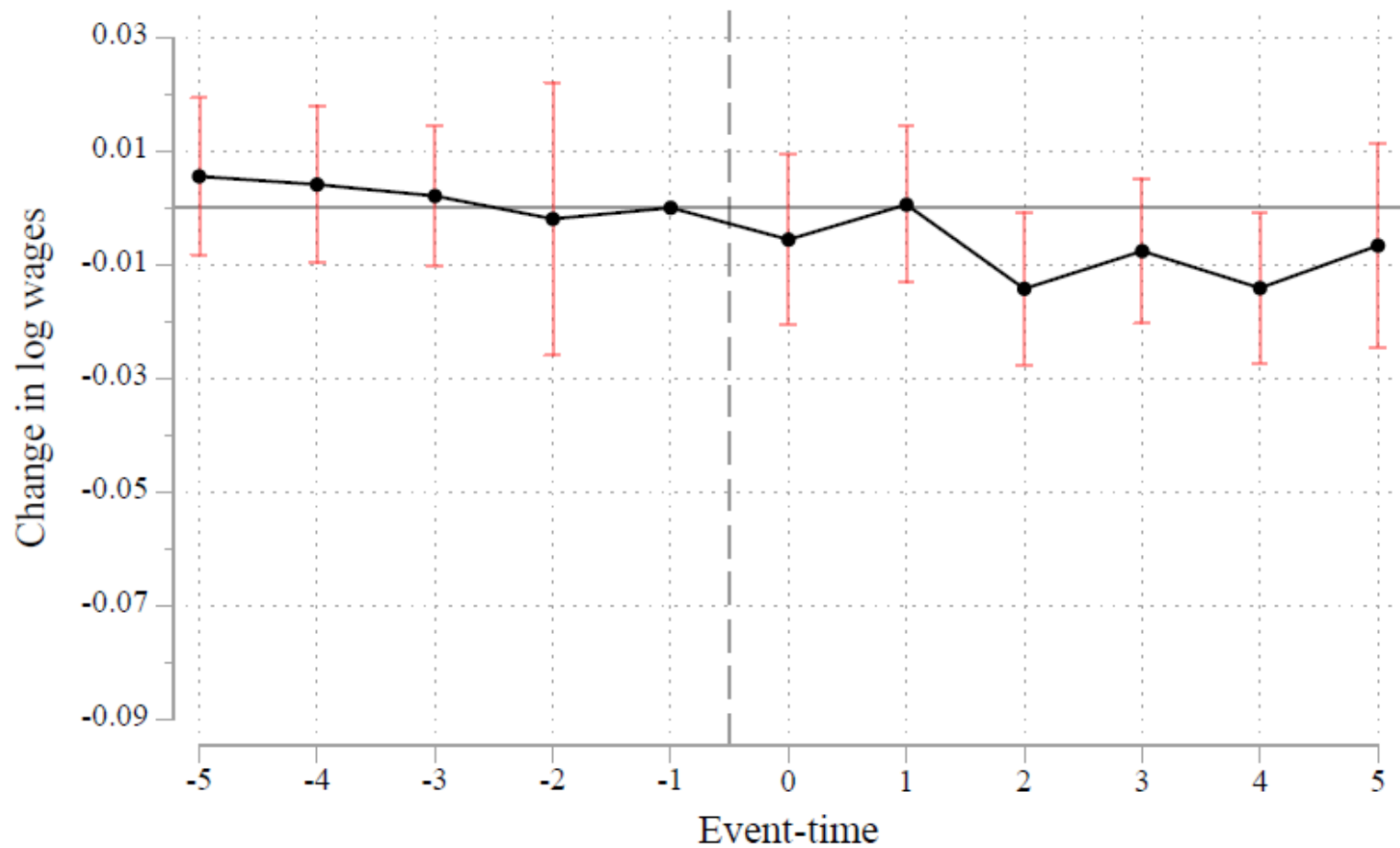


Figure 2: Differences in Union Coverage Rates across RTW and non-RTW States

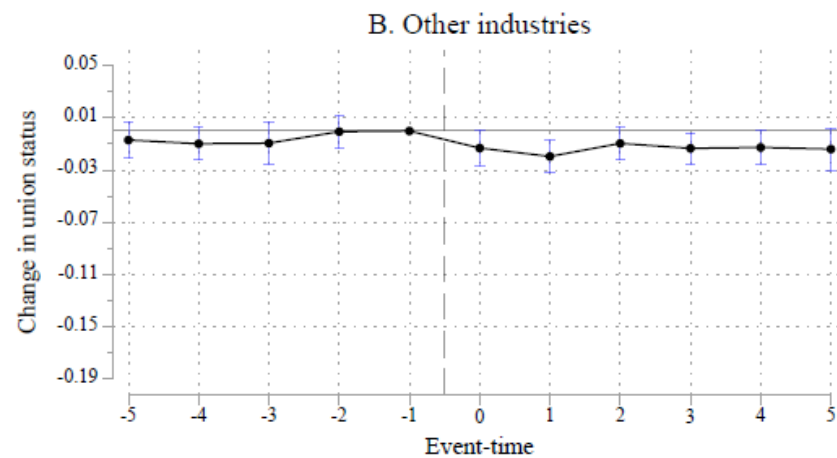
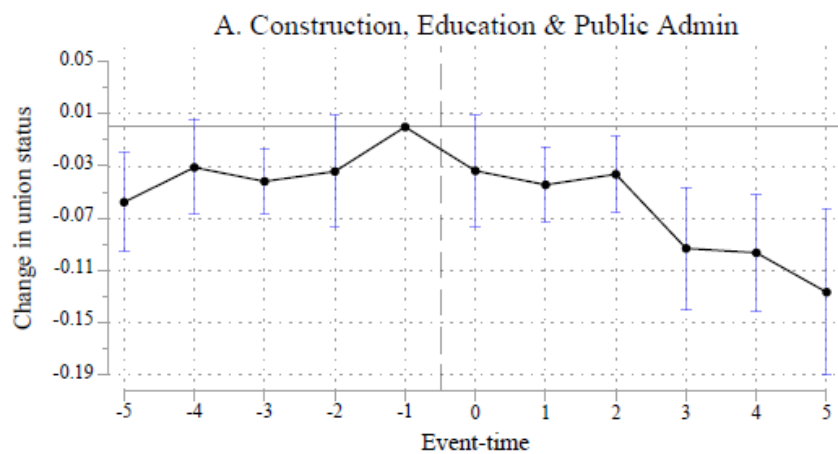
A. First Stage: RTW on Unionization Rates



B. Reduced Form: RTW on Log Wages



First Stage: RTW on Unionization Rates



Reduced Form: RTW on Log Wages

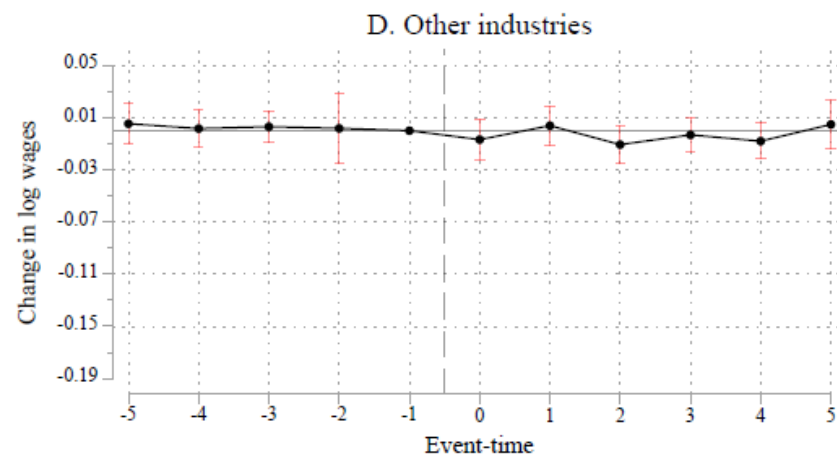
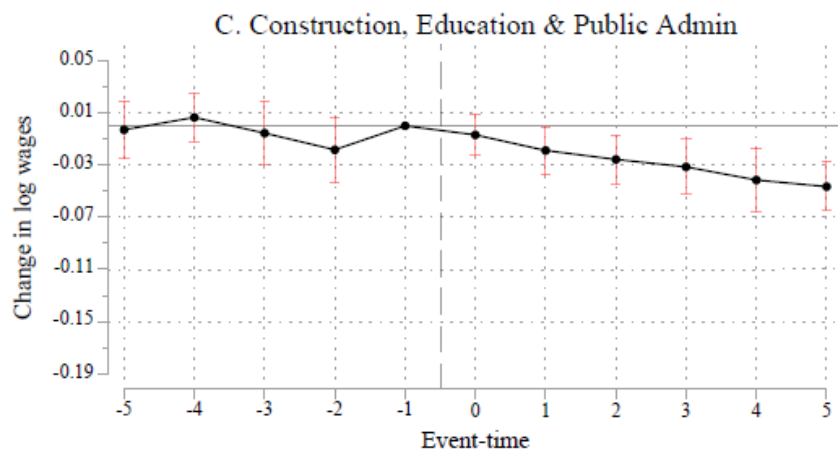


Figure 6: Event-study Estimates of the Impact of Adopting RTW Laws by Industry

Table 2: Difference-in-differences Estimates of the Effect of RTW
on Unionization Rates and Wages

	All workers	Men	Women	High union industries	Other industries	All workers (triple-diff)
	(1)	(2)	(3)	(4)	(5)	(6)
A. First-stage: Effect of RTW on unionization rates						
	-0.0185 (0.0048)	-0.0147 (0.0047)	-0.0226 (0.0061)	-0.0467 (0.0127)	-0.0099 (0.0033)	-0.034 (0.0111)
B. Reduced Form: Effect of RTW on log wages						
	-0.0123 (0.0035)	-0.007 (0.0040)	-0.0184 (0.0043)	-0.0253 (0.0058)	-0.0084 (0.00386)	-0.0172 (0.0069)
C. IV estimates of the effect of unions on wages (RTW as IV for union status)						
	0.664 (0.227)	0.473 (0.281)	0.812 (0.253)	0.541 (0.180)	0.850 (0.441)	0.505 (0.254)
D. OLS estimates of the effect of unions on wages						
	0.162 (0.0031)	0.185 (0.0036)	0.128 (0.0035)	0.171 (0.0041)	0.144 (0.0041)	
Obs.	772283	384392	387891	175095	597188	772283

Event-study design: upshot

- Result suggest that RTW reduces unionization rates and wages
 - The IV estimates are very large (but imprecise), suggesting direct effects are involved
 - Robustness and precision is an issue:
 - We get similar results using only non-adopting “RustBelt” states as controls
 - Adoption of RTW in Wisconsin public sector in 2011 has a disproportionate impact on the findings
 - Statistical inference an issue with only 5 adopting states
 - Motivates using a complementary “exposure” design
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Differential exposure design

- RTW laws cannot have much impact on industries (mostly services) where unionization is very low regardless of RTW
 - Suggest using these very low unionization industries as “controls”
 - Identification assumption: Conditional on observables, industry wage differentials in RTW and non-RTW states should be the same in absence of RTW laws
 - Looking at the connection between the effect of RTW on industry wages and industry unionization rates reveals the impact of RTW
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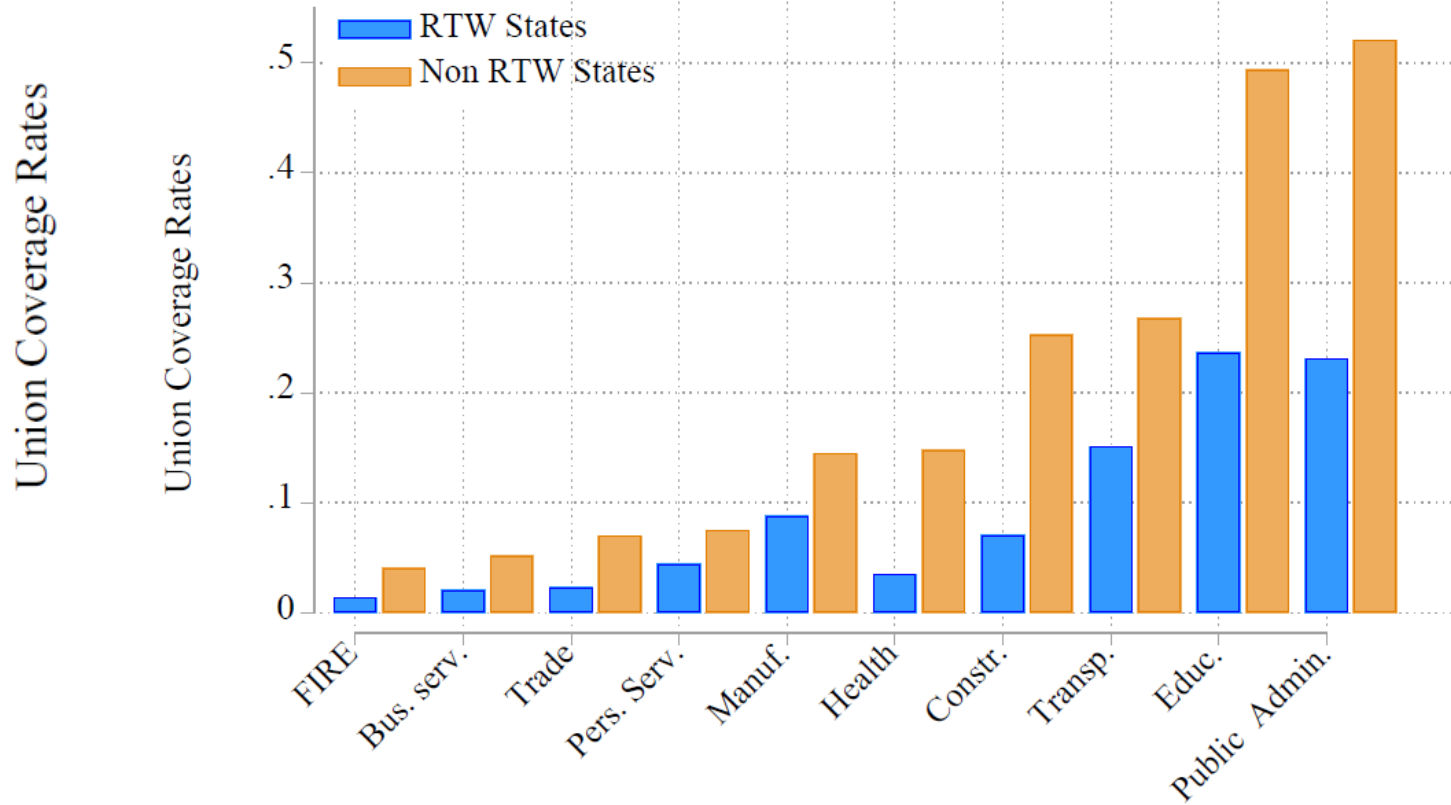


Figure 2: Differences in Union Coverage Rates across RTW and non-RTW States

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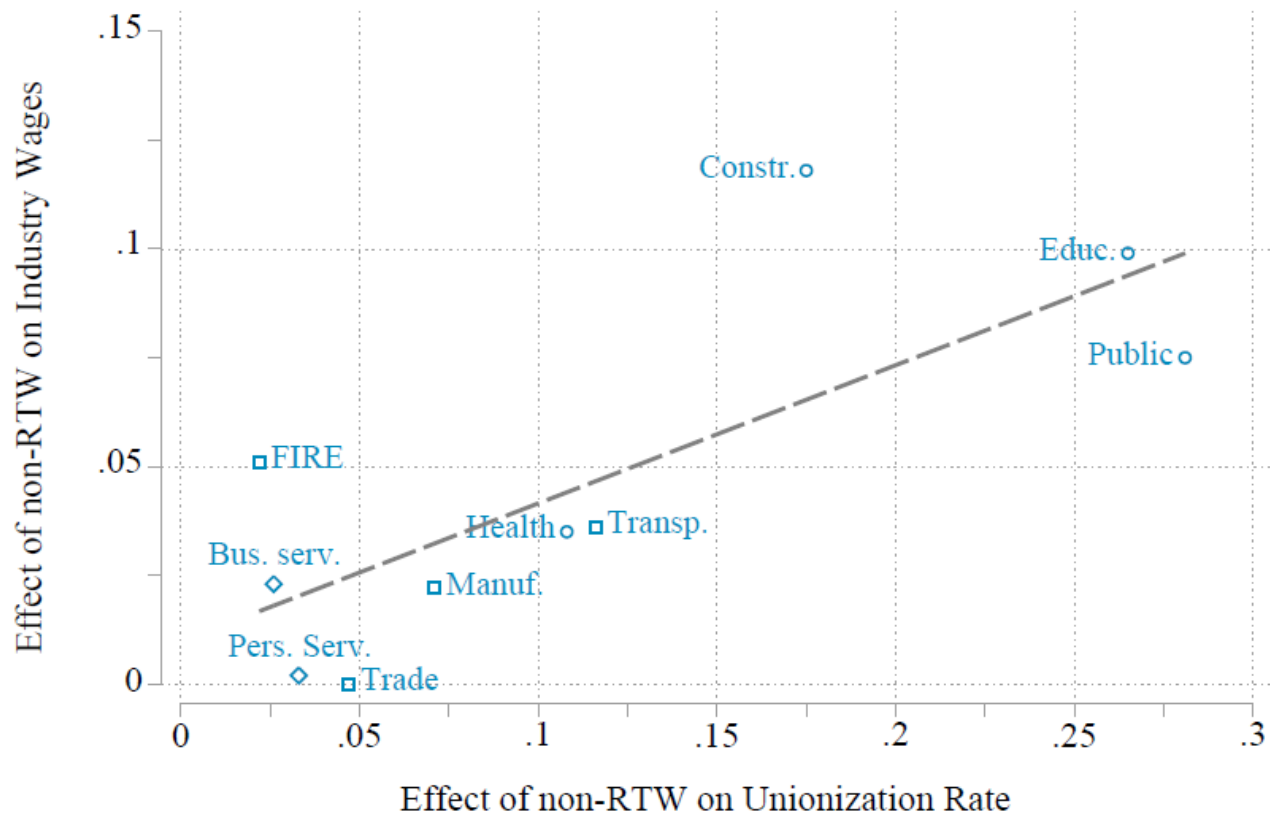


Figure 7: Relative Effect of RTW on Industry Wages and Unionization Rates

Note: The figures plot the estimated effect of RTW interacted with industry affiliation in regression models that also control for individual covariates and a set of state, year, and three-digit industry dummies. The regression models are estimated using MORG CPS data for 2003-2019. See text for details.

Differential exposure design

- More formally, we can use the interaction between RTW status and industries as IV for union status in a wage equation
 - RTW and industry dummies also included as main impact
 - The interaction capture the “differential impact”
 - To quantify the “reduced form” effect we compare “high-unionization” industries (education, construction, and public administration) to low-unionization industries
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Table 3: Estimates of the Effect of RTW on Wages Based on a Differential Exposure Design

	2003-2019			1993-2002			1983-1992		
	All (1)	Men (2)	Women (3)	All (4)	Men (5)	Women (6)	All (7)	Men (8)	Women (9)
A. IV estimates of the effect of unions on wages (RTW x industry as IV)									
	0.354 (0.046)	0.420 (0.051)	0.291 (0.047)	0.421 (0.048)	0.503 (0.057)	0.359 (0.049)	0.306 (0.059)	0.399 (0.076)	0.248 (0.056)
B. OLS estimates of the effect of unions on wages									
	0.161 (0.007)	0.175 (0.009)	0.134 (0.007)	0.175 (0.007)	0.177 (0.009)	0.160 (0.007)	0.168 (0.007)	0.168 (0.009)	0.152 (0.006)
C. First-stage: Effect of RTW on unionization rates relative to low-union industries									
High-union	-0.215 (0.014)	-0.189 (0.013)	-0.242 (0.017)	-0.204 (0.016)	-0.186 (0.014)	-0.220 (0.019)	-0.169 (0.016)	-0.163 (0.014)	-0.171 (0.020)
Mid-union	-0.058 (0.009)	-0.051 (0.007)	-0.064 (0.009)	-0.070 (0.009)	-0.073 (0.010)	-0.067 (0.010)	-0.074 (0.010)	-0.067 (0.010)	-0.080 (0.011)
D. Reduced Form: Effect of RTW on log wages relative to low-union industries									
High-union	-0.085 (0.011)	-0.093 (0.012)	-0.073 (0.012)	-0.094 (0.011)	-0.103 (0.012)	-0.083 (0.013)	-0.056 (0.010)	-0.068 (0.011)	-0.043 (0.012)
Mid-union	-0.011 (0.008)	-0.002 (0.008)	-0.020 (0.007)	-0.020 (0.008)	-0.010 (0.008)	-0.029 (0.009)	-0.013 (0.008)	0.001 (0.008)	-0.027 (0.009)
Obs.	1,737,180	874,050	863,130	940,321	470,350	469,971	1,450,509	746,715	703,793

2003-2019

All	Men	Women
(1)	(2)	(3)

A. IV estimates of the effect of unions on wages

0.354	0.420	0.291
(0.046)	(0.051)	(0.047)

B. OLS estimates of the effect of unions on wages

0.161	0.175	0.134
(0.007)	(0.009)	(0.007)

C. First-stage: Effect of RTW on unionization rate

High-union	-0.215 (0.014)	-0.189 (0.013)	-0.242 (0.017)
Mid-union	-0.058 (0.009)	-0.051 (0.007)	-0.064 (0.009)

D. Reduced Form: Effect of RTW on log wages

High-union	-0.085 (0.011)	-0.093 (0.012)	-0.073 (0.012)
Mid-union	-0.011 (0.008)	-0.002 (0.008)	-0.020 (0.007)
Obs.	1,737,180	874,050	863,130

Differential exposure design: upshot

- RTW laws have a large impact on unionization rates and wages industries highly exposed to unionization
 - 20 pp impact on unionization rates, and 8 pp impact on wages in these industries
 - Assumptions may be stronger, but estimates are more precise than for the event-study design
 - The implied causal effect of unions on wage is large (around 35 pp) but not implausible
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Conclusions

- It is well known that the legal framework for union representation and collective bargaining has important implication for the rate of unionization
 - The analysis of RTW laws shows that labour laws also have a large impact on wages
 - The magnitude of the effects suggest that either:
 - The union wage effect is substantially larger than what is typically obtained using “non-causal” methods
 - We are missing an important part of the effect of labour laws on wages by ignoring direct effects
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Conclusions

- The economics literature typically emphasizes the role of skills and technology to explain why wages did not keep up with productivity growth (declining labour share) and inequality increased
- This focus understates the contribution of labour market institutions (unionization and the legal environment) in these important phenomena
- Mounting evidence (based on employer-employee data) suggest that imperfect competition and labour market concentration are important determinant of wages
- Unlike in a perfectly competitive market, laws and institutions can play an important role in restoring workers' bargaining power in this setting