ECON 499 003: Labor Unions and Racial Wage Inequality

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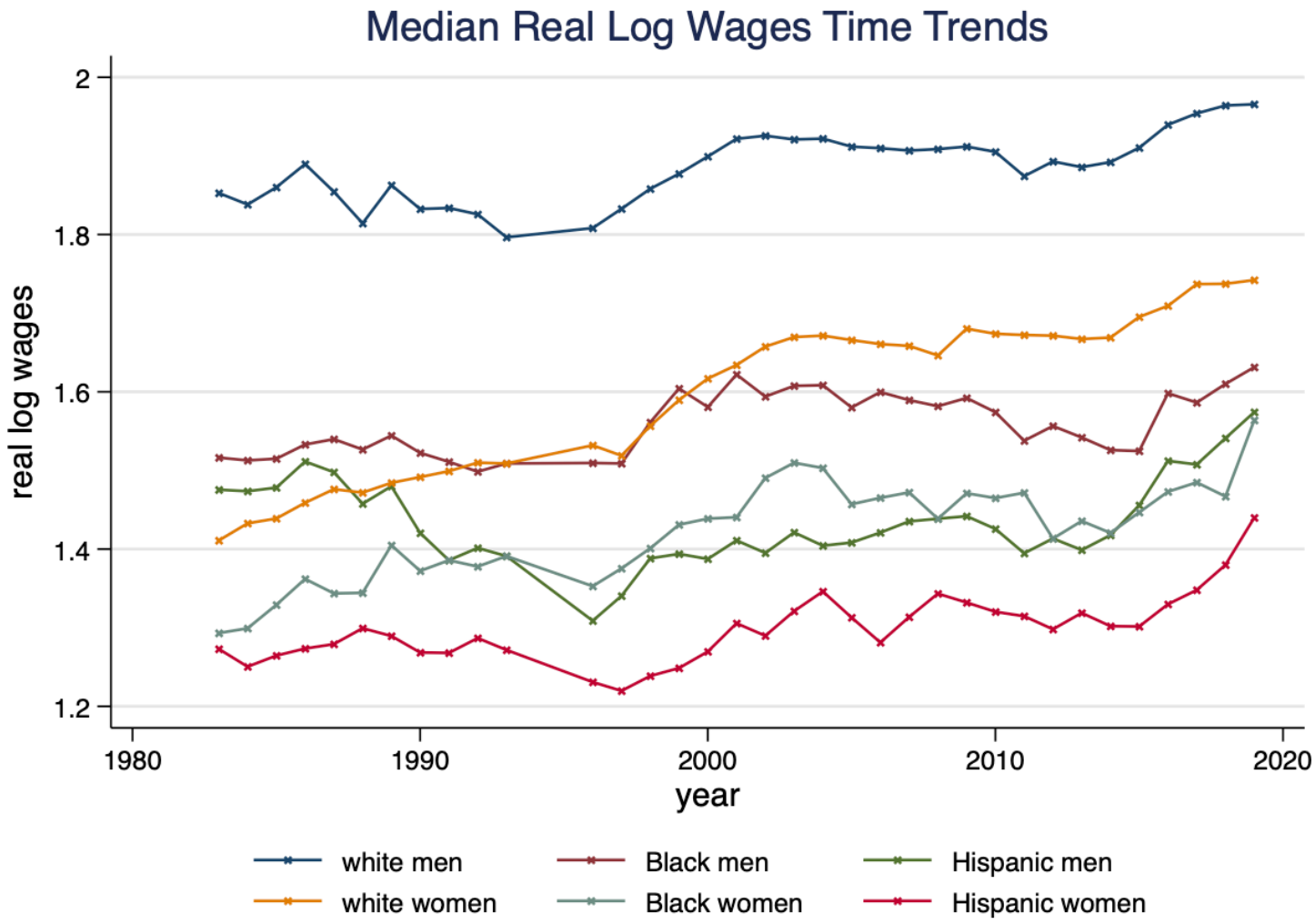
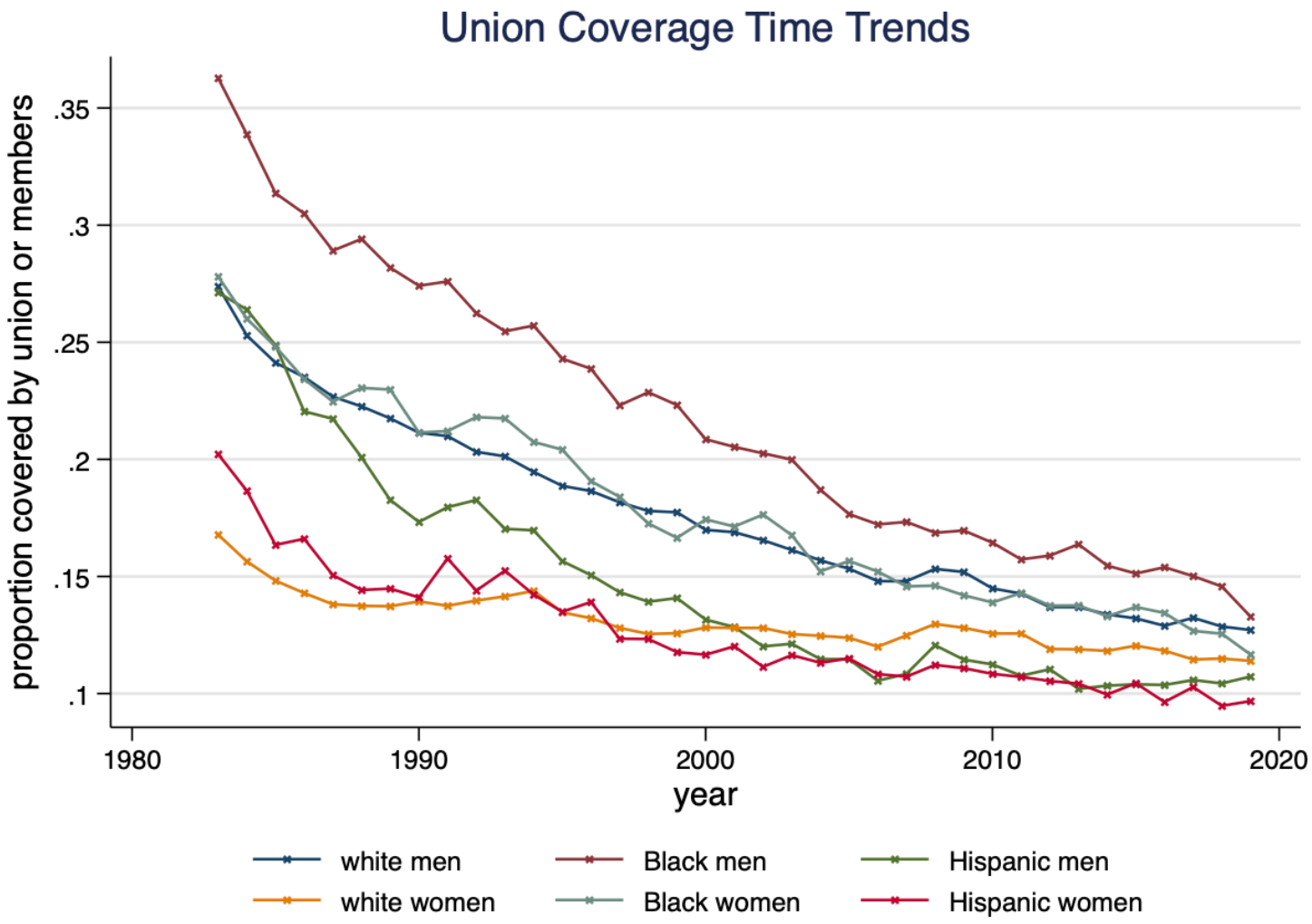
[1] I would like to acknowledge that this presentation is being streamed from the UBC Vancouver Point Grey campus which is located on the traditional, ancestral, and unceded territory of the Musqueam people.

Median Black-white Wage Gap Trends



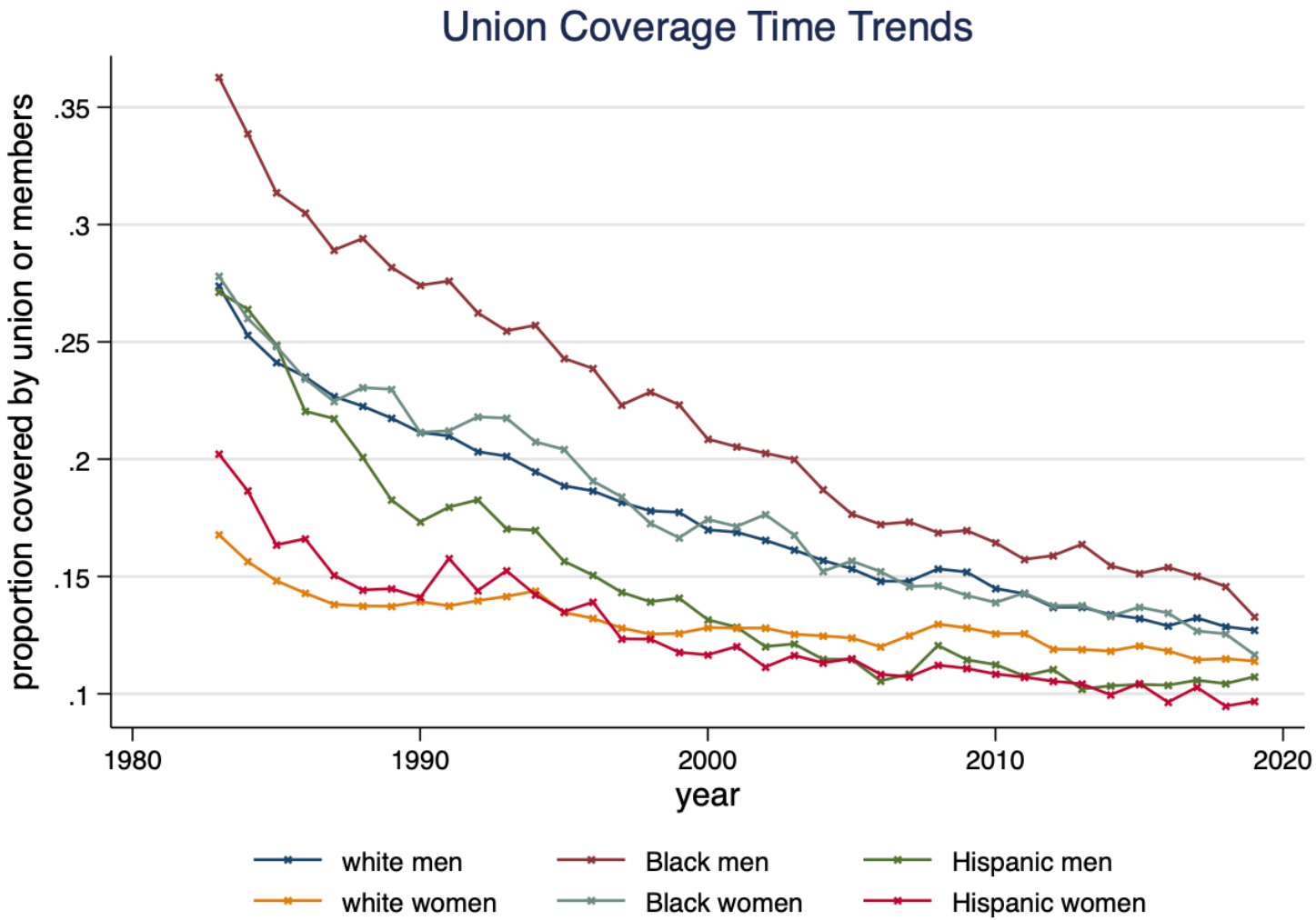
- Between 1983 and 2019, Black-white wage gap at median stagnated for men and exacerbated for women.

Labor Union Coverage Trends



- Black people consistently over-represented in unions.

Labor Union Coverage Trends



- Unionization rates for Black people declined at a higher rate relative to white people.
  - More striking for Black women relative to white women.

Research Question

- Through the period, a series of state-level right-to-work laws that weaken labor unions have been enacted, thereby providing a mechanism by which one can price this declining unionization rate in terms of wages.

Research Question

- Has the Black-white wage gap exacerbated as a consequence of these RTW laws?
- If so, by how much?
- Where in the wage distribution are these effects the strongest?
- How much of this effect is driven by spillovers?

Right-To-Work Laws

- National Labor Relations Act (1935) required that all people, including non-union members, who are covered by a collective bargaining agreement pay dues to unions.
- Labor Management Relations Act (1947) allows states to pass legislation that does not permit unions to collect dues from people covered by a CBA or require that they join the union - "Right-To-Work" laws.
- Policy variation: Oklahoma (2001), Indiana (2012), Michigan (2013), Wisconsin (2015), & Kentucky (2017).

Spillover Effects

- In highly unionized environments, firms whose employees are not covered by a union may raise wages to minimize potential unionization threats.
- Laws that weaken unions make these potential threats less credible.

Existing Research

- Ashenfelter (1972) - effect of labor unions on racial discrimination in labor markets.
  - On average racial discrimination is less prevalent in labor markets that are unionized.
  - Cautiously notes the presence of racial discrimination by labor unions themselves in the late sixties.
- Donohue and Heckman (1991) - “the story of Black economic progress is not one of uniform secular advance, but rather of episodic change”.

Existing Research

- Bound and Freeman (1992) - among other factors, de-unionization contributed to an increase in the Black-white wage gap among young men in the eighties.
- Rosenfeld and Kleykamp (2012) - relationship between de-unionization in the private sector and racial inequality.
  - find that de-unionization contributes to exacerbating the Black-white wage gap - with the effect being stronger for women than for men.

Empirical Strategy

- Difference in Differences.

$$\begin{aligned}\ln(w_{ijqst}) =& \beta_0 + \beta_1 \text{Black}_i + \beta_2 \text{RTW}_{st} + \beta_3(\text{RTW}_{st} \times \text{Black}_i) + X_i'\Gamma \\ &+ \zeta_j + \psi_q + \lambda_s + \delta_t + \epsilon_{ijqst}\end{aligned}$$

where $\text{RTW}_{st} = 1$ if state s has a RTW law at time t.

  - Controls X: education, quartic in experience, education-experience interaction, marital status, part-time status, public sector, CMSA, & occupation categories.
  - Fixed effects ζ_j, ψ_q, λ_s, & δ_t: industry, quarter, state & time respectively.

- Recentered Influence Function - Difference in Differences.
  - Estimates the effect along wage distribution.

Key Findings

- Laws that weaken unions appear to increase Black-white wage inequality with the effects concentrated at the bottom of the wage distribution and among women.
  - For women, in addition to a baseline decrease in wages of over 3%, RTW laws lead to a disproportionate 3.88% decline in wages for Black women.
- These disproportionate effects are largely driven by spillovers.
  - In addition to a baseline 2.51% decline in wages for women not covered by a union, there is an additional 2.78% decline in wages for Black women not covered by a union.
- Disproportionate spillover effects of RTW legislation are harshest around the 20th centile of the wage distribution, the same place where the associated surplus union premium for Black women is the strongest.

Data Description and Summary Statistics

- NBER extracts of CPS Merged Outgoing Rotation Groups for the years 1983 to 2019. (1989-2019 for DID analysis.)

	White Men	Black Men	White Women	Black Women
Union Coverage	0.183	0.225	0.137	0.183
	(0.387)	(0.418)	(0.344)	(0.387)
Union Membership	0.168	0.203	0.119	0.159
	(0.374)	(0.402)	(0.324)	(0.366)
Real Log Wage (1979$)	1.874	1.594	1.617	1.480
	(0.595)	(0.537)	(0.552)	(0.519)
Education	13.708	12.933	13.813	13.244
	(2.409)	(2.331)	(2.282)	(2.244)
Experience	18.403	18.118	18.442	18.152
	(12.300)	(12.039)	(12.638)	(11.962)
Public Sector	0.146	0.187	0.195	0.243
	(0.353)	(0.390)	(0.397)	(0.429)
Observations	1609600	150237	1550943	194743

Sample includes years 1983-2019 excluding 1994 & 1995.

OLS Regression of Real Log Wages on Union Coverage and Race

$$\ln(w_{ijqst}) = \beta_0 + \beta_1 \text{Black}_i + \beta_2 \text{covered}_i + \beta_3(\text{covered}_i \times \text{Black}_i) + X_i'\Gamma + \zeta_j + \psi_q + \lambda_s + \delta_t + \epsilon_{ijqst}.$$

	Men	Women	Men	Women	Men	Women
	Panel A: 1983-1988		Panel B: 1988-2000		Panel C: 2000-2019	
Black	-0.170***	-0.0693***	-0.169***	-0.0912***	-0.163***	-0.103***
	(0.00549)	(0.00576)	(0.00418)	(0.00415)	(0.00350)	(0.00426)
covered	0.190***	0.173***	0.179***	0.151***	0.171***	0.120***
	(0.0103)	(0.00845)	(0.00756)	(0.00640)	(0.00755)	(0.00700)
covered × Black	0.0441***	0.0160*	0.0304***	0.0336***	0.0262***	0.0405***
	(0.00979)	(0.00921)	(0.00900)	(0.00905)	(0.00770)	(0.00806)
Observations	312495	286909	524915	513808	628445	648645

Standard errors in parentheses
* p < 0.1, ** p < 0.05, *** p < 0.01

Standard errors clustered at the state-industry level. Having the property of the coefficient in each panel is associated with a $100(e^{\beta} - 1)$ percent change in wages.

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- For Black men there exists an associated wage penalty of around 15% relative to white men in all three periods.

OLS Regression of Real Log Wages on Union Coverage and Race

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- Being a Black woman is associated with 6.7% lower wages than white women in the 1983-1988 period, 8.72% lower wages in the nineties, and 9.79% lower wages at the turn of the century.

OLS Regression of Real Log Wages on Union Coverage and Race

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- Baseline wage premium associated with being covered by a union appears to be weakening over time.

OLS Regression of Real Log Wages on Union Coverage and Race

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- Surplus association between union coverage and real log wages for Black women increases over the three periods despite the downward trend in union coverage rates.

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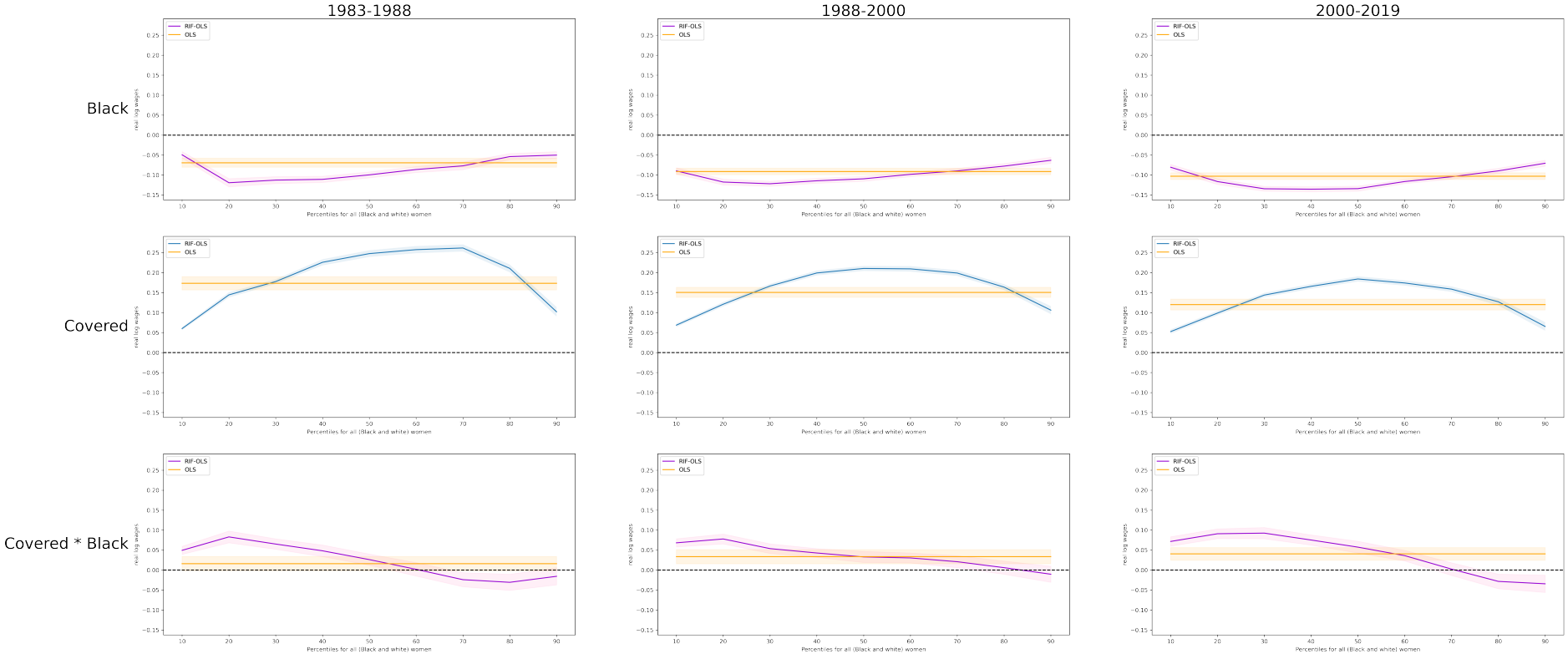
- Therefore, union coverage crucially appears to mitigate the racial wage penalty.

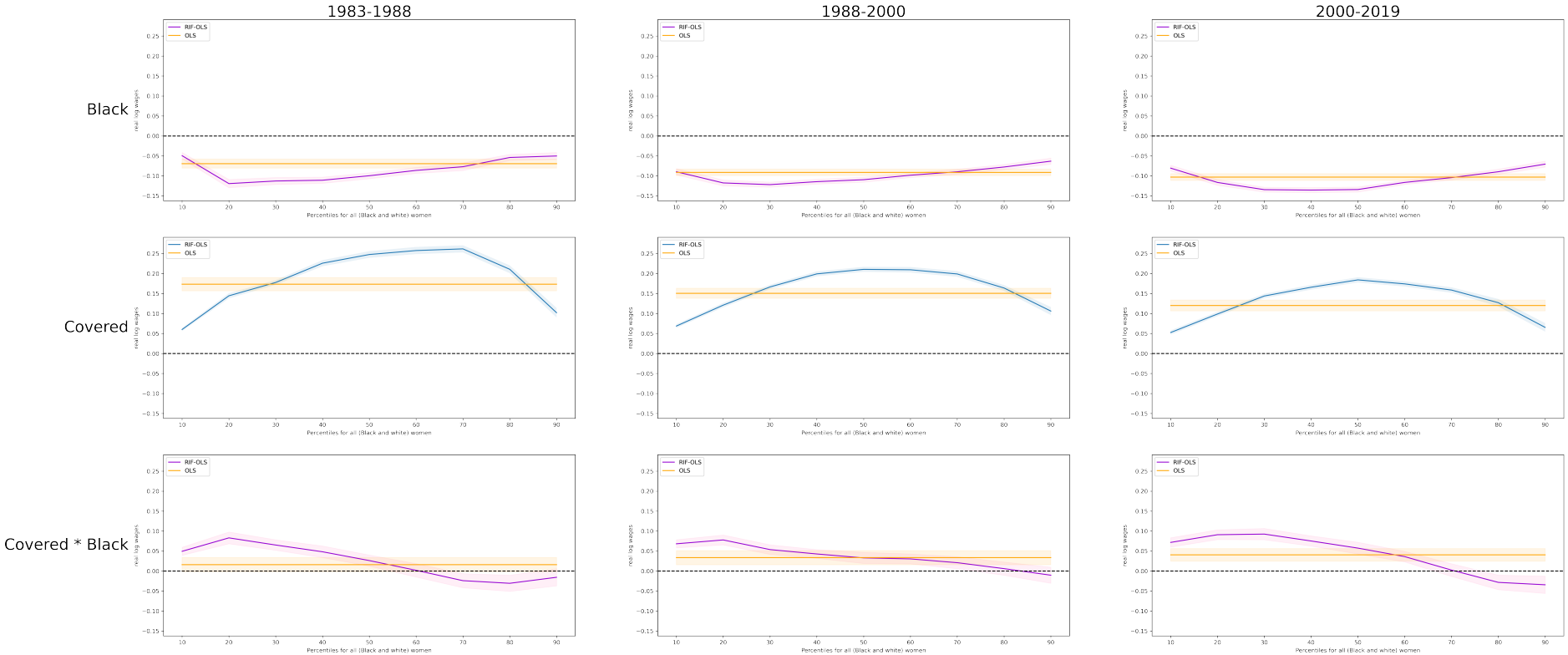
RIF-OLS Regression of Real Log Wages on Union Coverage and Race - Women



Standard errors for OLS clustered at the state-industry level. Standard errors for RIF-OLS bootstrapped with 100 replicates. 95% confidence intervals presented.

- For women, the associated Black wage penalty peaks at the 20th centile of the overall female wage distribution in the 1983-1988 period.
- As the periods progress, the peak Black wage penalty moves toward the 40th centile of the overall female wage distribution.

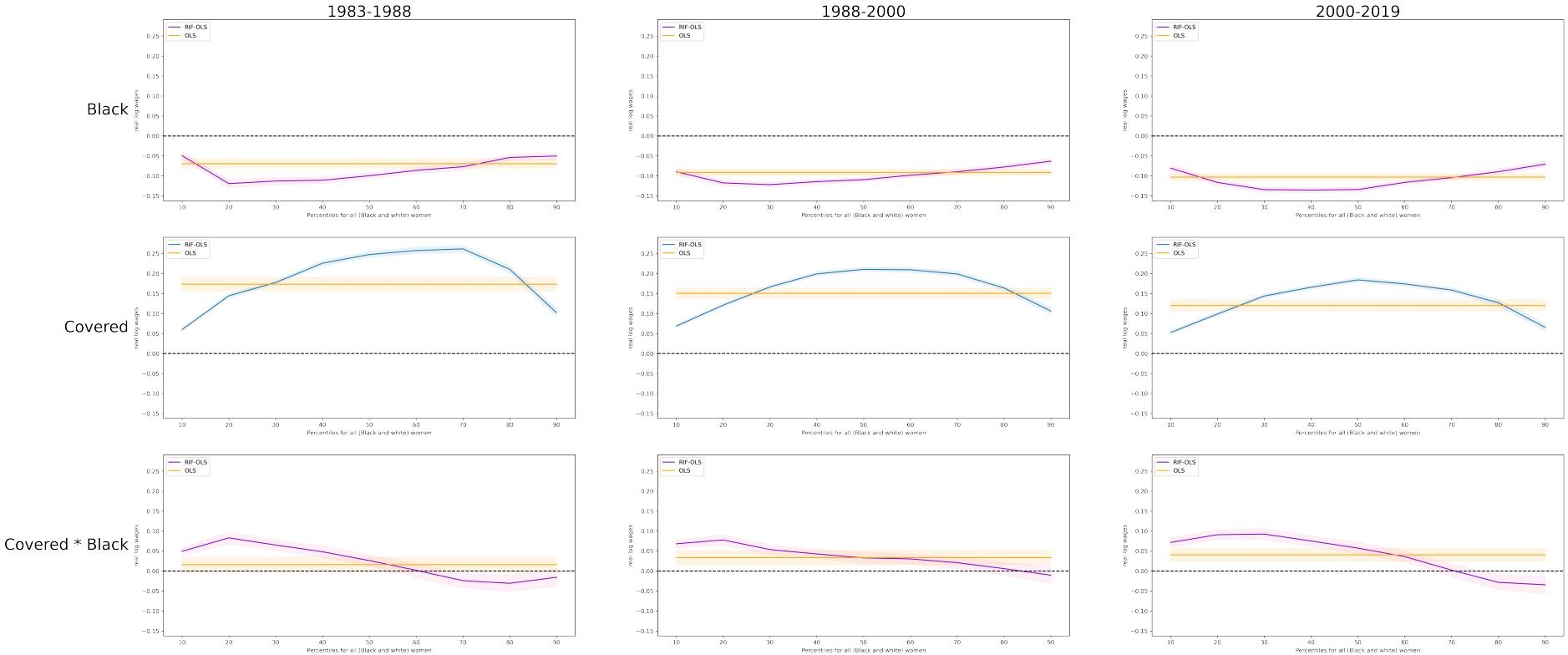
RIF-OLS Regression of Real Log Wages on Union Coverage and Race - Women



Standard errors for OLS clustered at the state-industry level. Standard errors for RIF-OLS bootstrapped with 100 replicates. 95% confidence intervals presented.

- The peak baseline association for women is at the 70th percentile of the overall female wage distribution and shifts to the median through the periods.

RIF-OLS Regression of Real Log Wages on Union Coverage and Race - Women



Standard errors for OLS clustered at the state-industry level. Standard errors for RIF-OLS bootstrapped with 100 replicates. 95% confidence intervals presented.

- The surplus association of union coverage for Black women relative to white women appears to mirror and therefore seems to offset the Black wage penalty for women.

Difference in Differences

$$\ln(w_{ijqst}) = \beta_0 + \beta_1 \text{Black}_i + \beta_2 \text{RTW}_{st} + \beta_3(\text{RTW}_{st} \times \text{Black}_i) + X_i'\Gamma + \zeta_j + \psi_q + \lambda_s + \delta_t + \epsilon_{ijqst}$$

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: All (Black and White) People						
Black	-0.144***	-0.144***	-0.145***	-0.0663***	-0.0663***	-0.0672***
	(0.00647)	(0.00648)	(0.00638)	(0.00658)	(0.00658)	(0.00652)
RTW_{st}	-0.0377**	-0.0395**	-0.0199*	-0.0318***	-0.0325***	-0.0572***
	(0.0182)	(0.0190)	(0.0106)	(0.00834)	(0.00872)	(0.0117)
$\text{RTW}_{st} \times$ Black	-0.0219**	-0.0219**	-0.0218**	-0.0396***	-0.0396***	-0.0389***
	(0.00884)	(0.00887)	(0.00876)	(0.00801)	(0.00801)	(0.00807)
Observations	1005865	1005865	1005865	1014977	1014977	1014977
State Monthly Unemployment Rate	No	Yes	Yes	No	Yes	Yes
Year Fixed Effect	Yes	Yes	No	Yes	Yes	No
State Linear Time Trends	No	No	Yes	No	No	Yes

Standard errors in parentheses - clustered at state level.
All states, expect WV, MT, ME, NH, & VT, in sample. * p<0.1, ** p<0.05, *** p<0.01

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All states, expect WV, MT, ME, NH, & VT, in sample. * p<0.1, ** p<0.05, *** p<0.01

- Being in a RTW state after the legislation becomes effective leads to a baseline 3.7% decrease in wages for men and 3.13% decrease for women.

Difference in Differences

$$\ln(w_{ijqst}) = \beta_0 + \beta_1 \text{Black}_i + \beta_2 \text{RTW}_{st} + \beta_3 (\text{RTW}_{st} \times \text{Black}_i) + X_i' \Gamma + \zeta_j + \psi_q + \lambda_s + \delta_t + \epsilon_{ijqst}$$

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- Laws that weaken unions disproportionately affect Black people with the effects concentrated among women.

Difference in Differences - Spillover Effects

$$\ln(w_{ijqst}) = \beta_0 + \beta_1 \text{Black}_i + \beta_2 \text{RTW}_{st} + \beta_3 (\text{RTW}_{st} \times \text{Black}_i) + X_i' \Gamma + \zeta_j + \psi_q + \lambda_s + \delta_t + \epsilon_{ijqst}$$

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel B: People Not Covered by Union - Spillover Effect						
Black	-0.159***	-0.159***	-0.160***	-0.0840***	-0.0840***	-0.0848***
	(0.00503)	(0.00503)	(0.00498)	(0.00701)	(0.00701)	(0.00682)
RTW_{st}	-0.0266*	-0.0286*	-0.0199*	-0.0254***	-0.0262***	-0.0590***
	(0.0136)	(0.0144)	(0.0114)	(0.00706)	(0.00728)	(0.0119)
$\text{RTW}_{st} \times$ Black	-0.00302	-0.00301	-0.00337	-0.0282***	-0.0282***	-0.0274***
	(0.00811)	(0.00814)	(0.00820)	(0.00827)	(0.00828)	(0.00832)
Observations	825912	825912	825912	868290	868290	868290
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Black	-0.159***	-0.159***	-0.160***	-0.0840***	-0.0840***	-0.0848***
	(0.00503)	(0.00503)	(0.00498)	(0.00701)	(0.00701)	(0.00682)
RTW_{st}	-0.0266*	-0.0286*	-0.0199*	-0.0254***	-0.0262***	-0.0590***
	(0.0136)	(0.0144)	(0.0114)	(0.00706)	(0.00728)	(0.0119)
$RTW_{st} \times$ Black	-0.00302	-0.00301	-0.00337	-0.0282***	-0.0282***	-0.0274***
	(0.00811)	(0.00814)	(0.00820)	(0.00827)	(0.00828)	(0.00832)
Observations	825912	825912	825912	868290	868290	868290
State Monthly Unemployment Rate	No	Yes	Yes	No	Yes	Yes
Year Fixed Effect	Yes	Yes	No	Yes	Yes	No
State Linear Time Trends	No	No	Yes	No	No	Yes

Standard errors in parentheses - clustered at state level.
All states, expect WV, MT, ME, NH, & VT, in sample. * p<0.1, ** p<0.05, *** p<0.01

- The Black wage penalty among people not covered by a union is 14.7% for men and 8.06% for women.

Difference in Differences - Spillover Effects

$$\ln(w_{ijqst}) = \beta_0 + \beta_1 \text{Black}_i + \beta_2 \text{RTW}_{st} + \beta_3 (\text{RTW}_{st} \times \text{Black}_i) + X_i' \Gamma + \zeta_j + \psi_q + \lambda_s + \delta_t + \epsilon_{ijqst}$$

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel B: People Not Covered by Union - Spillover Effect						
Black	-0.159***	-0.159***	-0.160***	-0.0840***	-0.0840***	-0.0848***
	(0.00503)	(0.00503)	(0.00498)	(0.00701)	(0.00701)	(0.00682)
RTW_{st}	-0.0266*	-0.0286*	-0.0199*	-0.0254***	-0.0262***	-0.0590***
	(0.0136)	(0.0144)	(0.0114)	(0.00706)	(0.00728)	(0.0119)
$\text{RTW}_{st} \times$ Black	-0.00302	-0.00301	-0.00337	-0.0282***	-0.0282***	-0.0274***
	(0.00811)	(0.00814)	(0.00820)	(0.00827)	(0.00828)	(0.00832)
Observations	825912	825912	825912	868290	868290	868290
State Monthly Unemployment Rate	No	Yes	Yes	No	Yes	Yes
Year Fixed Effect	Yes	Yes	No	Yes	Yes	No
State Linear Time Trends	No	No	Yes	No	No	Yes

Standard errors in parentheses - clustered at state level.
All states, expect WV, MT, ME, NH, & VT, in sample. * p<0.1, ** p<0.05, *** p<0.01

- RTW laws have significant spillovers, leading to a baseline 2.63% decline in wages for non-union men, and a baseline 2.51% decline for non-union women.

Difference in Differences - Spillover Effects

$$\ln(w_{ijqst}) = \beta_0 + \beta_1 \text{Black}_i + \beta_2 \text{RTW}_{st} + \beta_3 (\text{RTW}_{st} \times \text{Black}_i) + X_i' \Gamma + \zeta_j + \psi_q + \lambda_s + \delta_t + \epsilon_{ijqst}$$

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel B: People Not Covered by Union - Spillover Effect						
Black	-0.159***	-0.159***	-0.160***	-0.0840***	-0.0840***	-0.0848***
	(0.00503)	(0.00503)	(0.00498)	(0.00701)	(0.00701)	(0.00682)
RTW_{st}	-0.0266*	-0.0286*	-0.0199*	-0.0254***	-0.0262***	-0.0590***
	(0.0136)	(0.0144)	(0.0114)	(0.00706)	(0.00728)	(0.0119)
$\text{RTW}_{st} \times$ Black	-0.00302	-0.00301	-0.00337	-0.0282***	-0.0282***	-0.0274***
	(0.00811)	(0.00814)	(0.00820)	(0.00827)	(0.00828)	(0.00832)
Observations	825912	825912	825912	868290	868290	868290
State Monthly Unemployment Rate	No	Yes	Yes	No	Yes	Yes
Year Fixed Effect	Yes	Yes	No	Yes	Yes	No
State Linear Time Trends	No	No	Yes	No	No	Yes

Standard errors in parentheses - clustered at state level.
All states, expect WV, MT, ME, NH, & VT, in sample. * p<0.1, ** p<0.05, *** p<0.01

- There exist sizable disproportionate spillover effects of RTW legislation for Black women.

Difference in Differences - Direct Effects

$$\ln(w_{ijqst}) = \beta_0 + \beta_1 \text{Black}_i + \beta_2 \text{RTW}_{st} + \beta_3(\text{RTW}_{st} \times \text{Black}_i) + X_i'\Gamma + \zeta_j + \psi_q + \lambda_s + \delta_t + \epsilon_{ijqst}$$

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel C: People Covered by Union - Direct Effect						
Black	-0.140***	-0.140***	-0.141***	-0.0555***	-0.0555***	-0.0565***
	(0.0123)	(0.0123)	(0.0122)	(0.0100)	(0.01000)	(0.00969)
RTW_{st}	-0.0572*	-0.0581*	-0.0470**	-0.0607***	-0.0614***	-0.0539**
	(0.0314)	(0.0322)	(0.0190)	(0.0184)	(0.0190)	(0.0213)
$\text{RTW}_{st} \times$ Black	-0.0145	-0.0145	-0.0134	0.000499	0.000546	0.000630
	(0.0147)	(0.0147)	(0.0145)	(0.0156)	(0.0156)	(0.0150)
Observations	178512	178512	178512	145102	145102	145102
State Monthly Unemployment Rate	No	Yes	Yes	No	Yes	Yes
Year Fixed Effect	Yes	Yes	No	Yes	Yes	No
State Linear Time Trends	No	No	Yes	No	No	Yes

Standard errors in parentheses - clustered at state level.
All states, expect WV, MT, ME, NH, & VT, in sample. * p<0.1, ** p<0.05, *** p<0.01

- The direct effects of RTW laws on the wages of those covered by a union appear to be borne equally between unionized Black people and unionized white people.

Difference in Differences

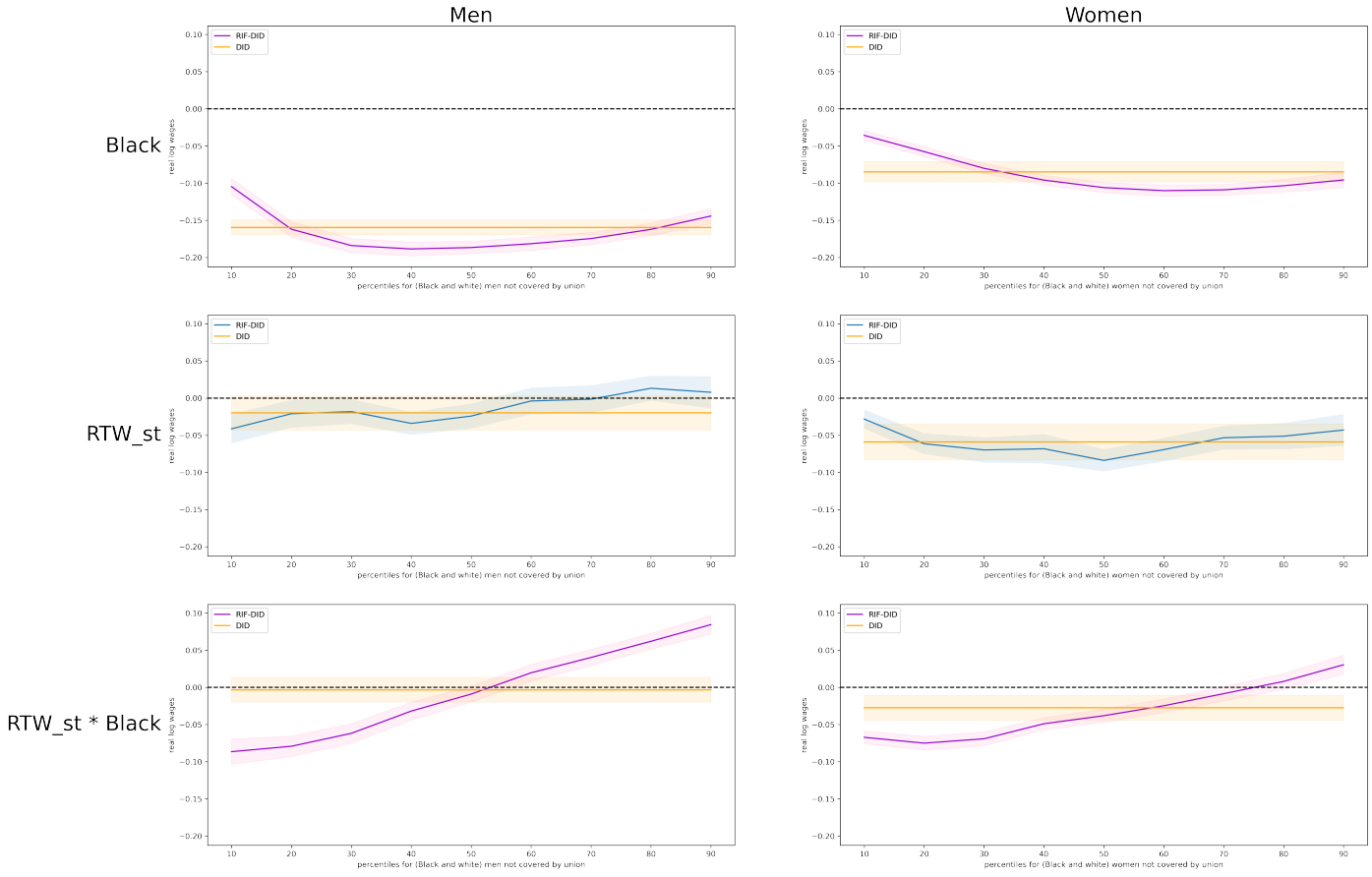
$$\ln(w_{ijqst}) = \beta_0 + \beta_1 \text{Black}_i + \beta_2 \text{RTW}_{st} + \beta_3(\text{RTW}_{st} \times \text{Black}_i) + X_i'\Gamma + \zeta_j + \psi_q + \lambda_s + \delta_t + \epsilon_{ijqst}$$

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: All (Black and White) People						
Black	-0.144***	-0.144***	-0.145***	-0.0663***	-0.0663***	-0.0672***
	(0.00647)	(0.00648)	(0.00638)	(0.00658)	(0.00658)	(0.00652)
RTW_{st}	-0.0377**	-0.0395**	-0.0199*	-0.0318***	-0.0325***	-0.0572***
	(0.0182)	(0.0190)	(0.0106)	(0.00834)	(0.00872)	(0.0117)
$\text{RTW}_{st} \times$ Black	-0.0219**	-0.0219**	-0.0218**	-0.0396***	-0.0396***	-0.0389***
	(0.00884)	(0.00887)	(0.00876)	(0.00801)	(0.00801)	(0.00807)
Observations	1005865	1005865	1005865	1014977	1014977	1014977
State Monthly Unemployment Rate	No	Yes	Yes	No	Yes	Yes
Year Fixed Effect	Yes	Yes	No	Yes	Yes	No
State Linear Time Trends	No	No	Yes	No	No	Yes

Standard errors in parentheses - clustered at state level.
All states, expect WV, MT, ME, NH, & VT, in sample. * p<0.1, ** p<0.05, *** p<0.01

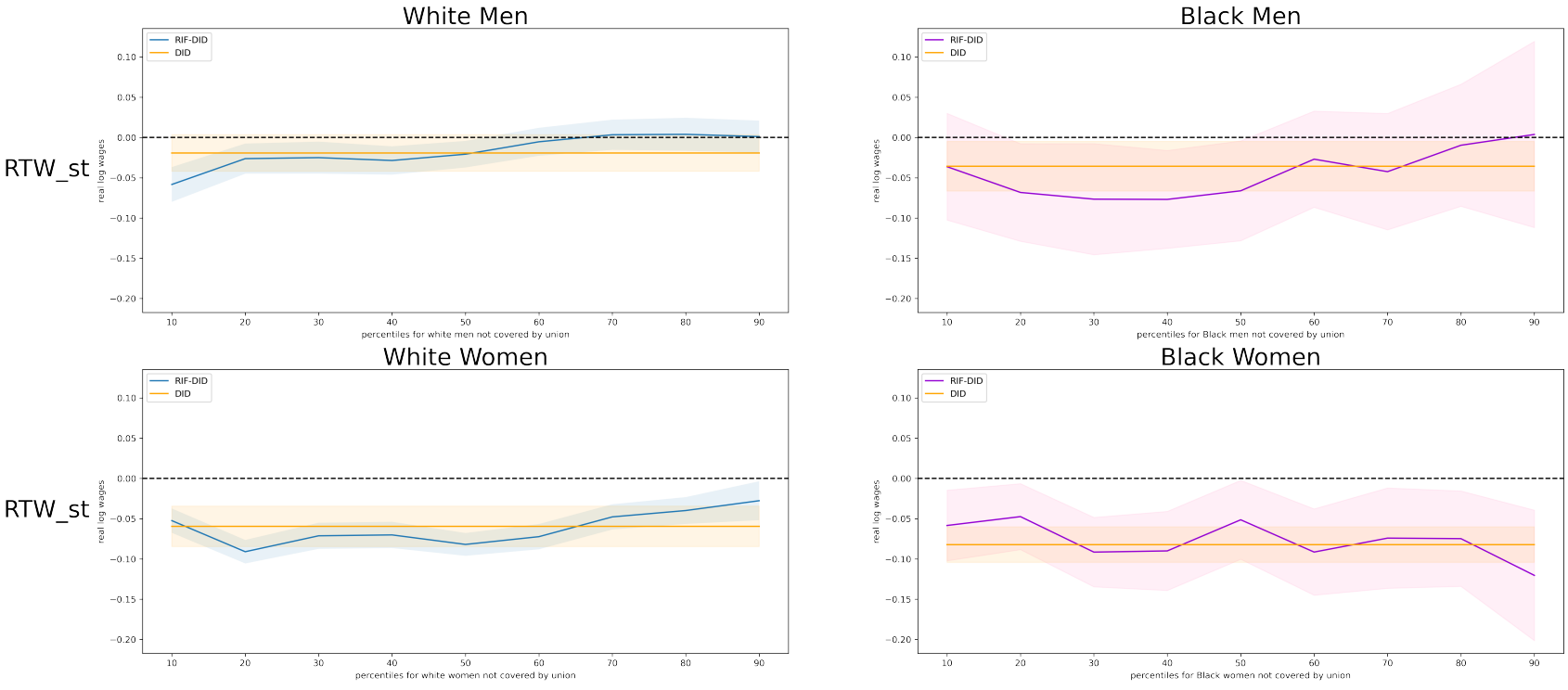
- Estimates of the disproportionate effect are robust to the inclusion of state linear time trends.

RIF-DID Regressions - Spillover Effects



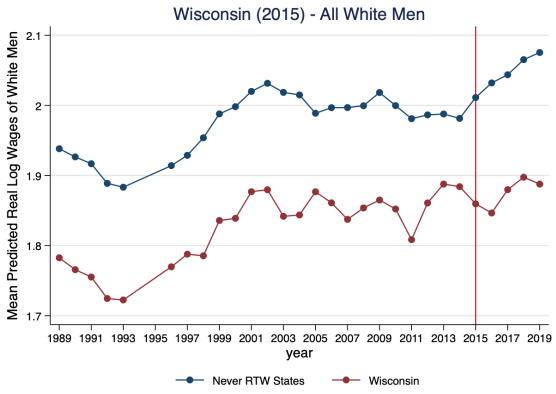
- The laws have their sharpest disproportionate impacts for Black women at the 20th centile of the female wage distribution.
- The shape of the spillovers appears to be a reflection of the shape found earlier in the association.

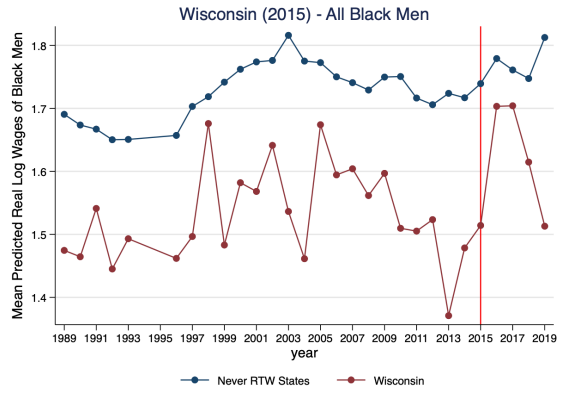
RIF-DID Regressions - Spillover Effects - By Race

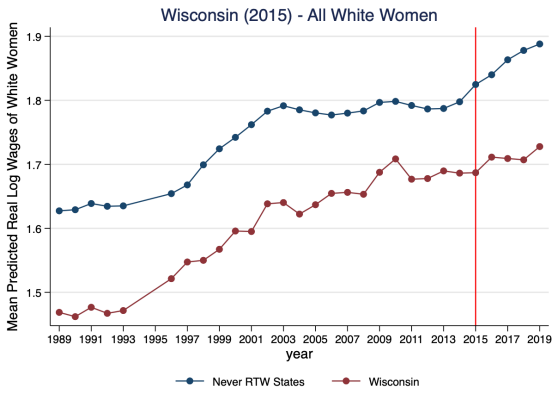


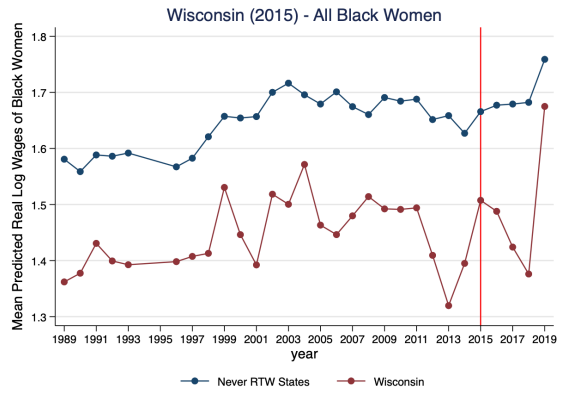
- The effects of the laws appear to be tightly wrapped around the mean of the wage distributions by race and sex.
- Suggests that the concentration of the surplus effect at the bottom of the wage distributions are driven by
  - over-representation of Black people at the bottom of the wage distribution.
  - the interaction between the Black wage distributions and white wage distributions through the Black wage penalty.

Predicted Real Log Wage Trends - Wisconsin (2015)







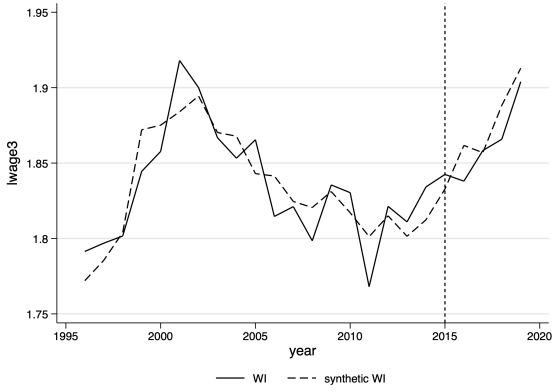


Predicted real log wages obtained from regression of real log wages on covariates and fixed effects separately for each subgroup.

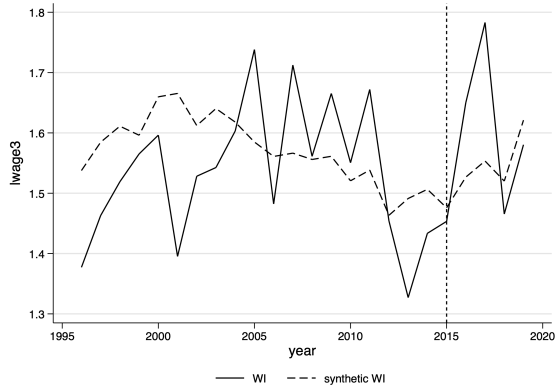
- Parallel trends largely appear to hold for women and white men. For Black men, sampling variation precludes us from coming to the same conclusion.

Synthetic Control Method - Wisconsin (2015)

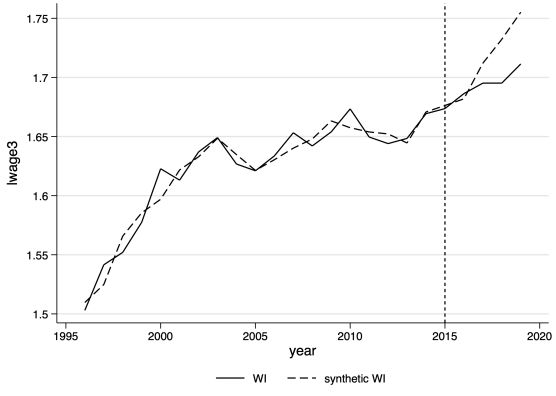
White Men



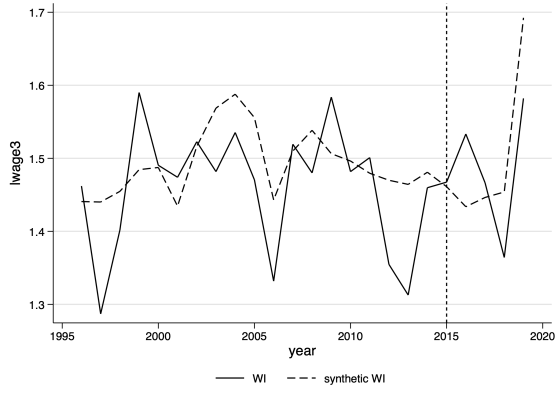
Black Men



White Women



Black Women



Synthetic control implemented using `synth` package with nested optimization and allopt.

- SCM reveal possible underlying heterogeneity in the effect of RTW laws on real log wages across the states that generate policy variation.
- Splitting sample by subgroups - hard to parse effect from noise.

Further Caveats

- West Virginia and variation from its 2016 RTW law are dropped in order to preserve parallel trends.
- Montana, Maine, New Hampshire, and Vermont have been dropped for lack of common support.
- Spillover effects may be sensitive to anticipation in the months leading up to RTW legislation. Also, most RTW laws come into force as existing CBAs expire.
- Results for the surplus effect of RTW laws on wages for Black people remains significant for women when states with existing RTW laws before the sample starts are dropped.

Conclusion

- Laws that weaken unions appear to exacerbate racial wage inequality with the disproportionate effects largely driven by spillovers and the effects concentrated at the bottom of the wage distribution and among women.
- Evidence that prima facie race-neutral changes to labor market institutions including RTW laws that weaken labor unions have disparate impacts on outcomes of people of color.
- Future work is encouraged to
  - decompose the DID specification of the effect of RTW on wages following Goodman-Bacon (2018).
  - replicate the analysis with data that better represents the Black population.
  - turn to further labor market institutions including shared corporate governance following Jäeger et al. (2020).