

The Effects Of Pay Transparency On The U.S. Labor Market

Raymond He & Suryansh Upmanyu

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University of Texas at Austin

The Gender Wage Gap And Pay Transparency

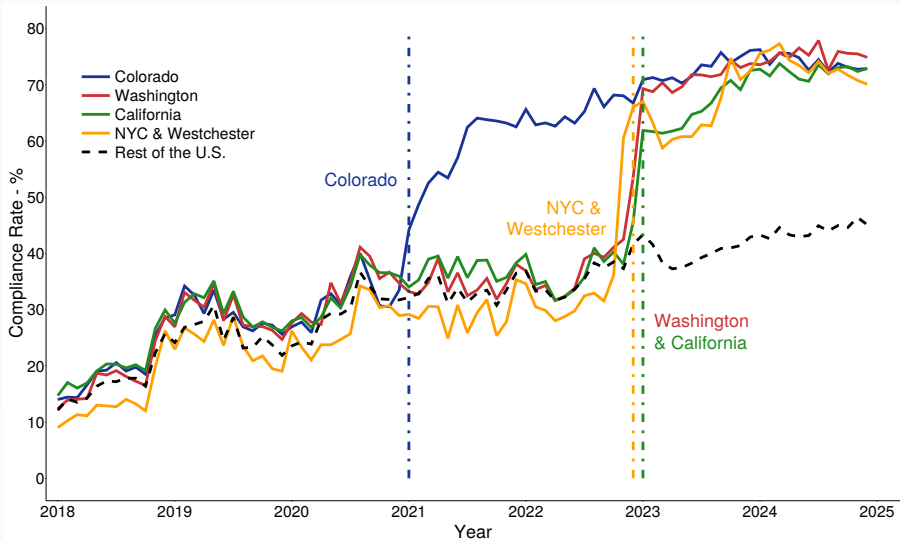
- For every \$100 a man earns, a woman in the same job earns \$77 (Goldin, 2014).
- Pay transparency laws are considered an important tool in achieving equal pay.
- **Intuition:**
 - Pay transparency laws allow workers to receive information on the wages received by other workers in the same job.
 - If a worker is paid less than her peers, she can switch jobs or renegotiate her wages, improving her compensation (Cullen, 2024).

Pay Transparency In The U.S.

*It is the intent of the general assembly to pass legislation that helps to close the pay gap in Colorado and **ensure that employees with similar job duties are paid the same wage rate regardless of sex**, or sex plus another protected status.*

*Effective January 1, 2021, Part 2 of the Equal Pay for Equal Work Act, C.R.S. § 8-5-101 et seq., **requires employers to include compensation in job postings**, notify employees of promotional opportunities, and keep job description and wage rate records. - Colorado Department of Labor and Employment*

Treated Units Saw An Increase In Job Postings Containing Wage Information



What Is The Impact Of These Pay Transparency Laws?

1. **First Stage:** Does wage information increase due to pay transparency laws?
 - Yes, the [share of job postings with wage offers](#) increases by 25 percentage points.
 - [Posted wages](#) increase by 5% as well.
2. **Second Stage:** What happens to labor market outcomes?
 - [Wages](#) increase by 3-4% on average in Colorado.
 - Muted effects on wages in California and Washington ($< 1\%$).
 - There is a minimal effect on [hours and employment](#).
 - The effect on [wage dispersion](#) is insignificant.

Empirical Evidence

Data: Online Job Postings In The US

- **Data source:** Lightcast (formerly EMSI Burning Glass Technologies)
- $> 45,000$ online job boards and individual websites
- $\approx 75\%$ of the universe of online job postings in the U.S.
- January 1st, 2018 - December 31st, 2024
- $n \approx 239$ million job postings (post-cleaning)

- **Treatment Group:**

- 2021: Colorado
- 2022: Jersey City, Ithaca City, New York City, Westchester County
- 2023: California, Washington, New York State

- **Control Group:**

1. All untreated states: Larger sample size
2. States with similar worker rights: Comparable to treated states

- **Datasets:**

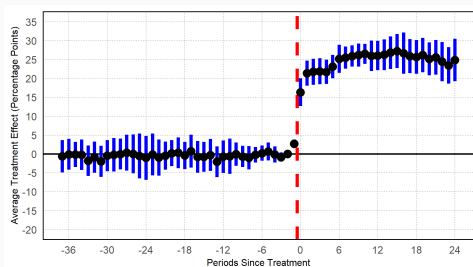
- First stage analysis: Lightcast (2018-2024)
- Second stage analysis: American Community Survey (2016-2024)

Event Study Specification: First Stage

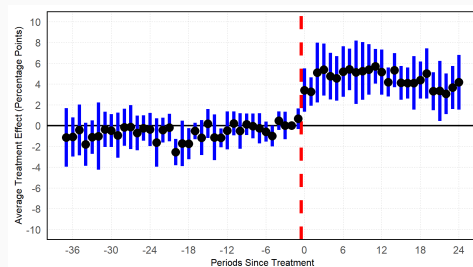
$$y_{igt} = \lambda_g + \theta_t + \Gamma \mathbf{X}_i + \sum_{\tau=-36}^{-3} \delta_{\tau} \mathbb{I}(t - t_g = \tau) + \sum_{\tau=-1}^{24} \phi_{\tau} \mathbb{I}(t - t_g = \tau) + \nu_{igt}.$$

1. **Outcomes (y_{igt}):** Wage information, median range width, posted wages
2. **Groups (g):** (i) State/County or (ii) State/County x SOC3 x NAICS3 Level
3. **Frequency (t):** Yearly, and (ii) Monthly
4. **Control Variables ($\mathbf{X}_i$):** None
5. **Weights:** Number of vacancies
6. **Unit of observation:** State/County x SOC3 x NAICS3 level (unbalanced panel)
7. **Estimator:** (i) Two-Way Fixed Effects, (ii) Sun & Abraham

How Does Wage Information Change Due To Pay Transparency Laws?



(a) Wage Information Increases By 25 p.p.



(b) Posted Wages Rise By 5%

- **Wage information:** Share of job postings that contain any wage offer.
- **Posted wages:** Wage offer if it's a point wage, midpoint, if it's a wage range.

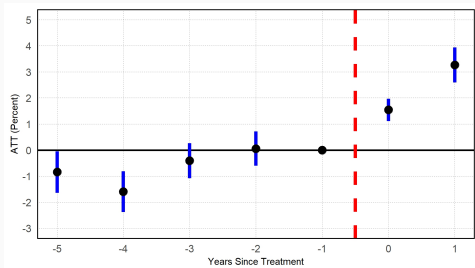
Wage Ranges

Event Study Specification: Second Stage

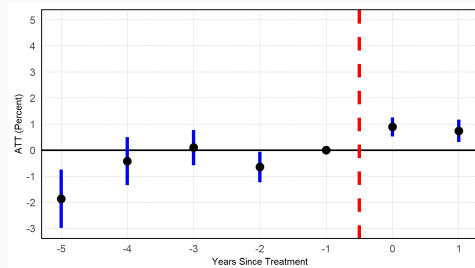
$$y_{igt} = \lambda_g + \theta_t + \Gamma \mathbf{X}_i + \sum_{\tau=-5}^{-2} \delta_{\tau} \mathbb{I}(t - t_g = \tau) + \sum_{\tau=0}^1 \phi_{\tau} \mathbb{I}(t - t_g = \tau) + \nu_{igt}.$$

1. **Outcomes (y_{igt}):** Wages, Hours Worked, Employment status
2. **Groups (g):** (i) State/County or (ii) State/County + SOC3 + NAICS3 Level
3. **Frequency (t):** Yearly
4. **Control Variables ($\mathbf{X}_i$):** Gender, marital status, race, education, age (quadratic)
5. **Weights:** Yes
6. **Unit of observation:** Individual level (repeated cross-section)
7. **Estimator:** (i) Two-Way Fixed Effects, (ii) Sun & Abraham

Do Pay Transparency Laws Affect Labor Market Outcomes?

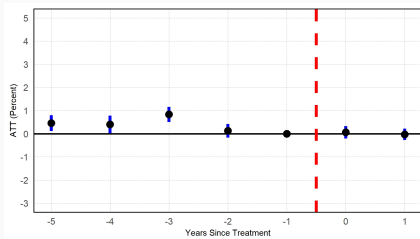


(c) Colorado: Wages Increase By 3.2%

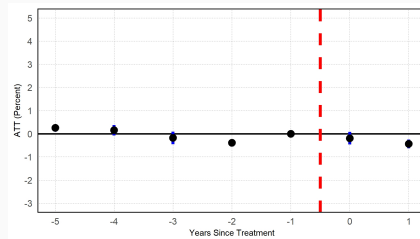


(d) CA, WA: Wages Increase By 0.7%

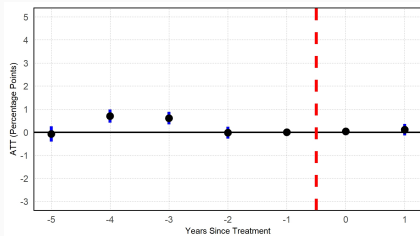
- CA = California, WA = Washington



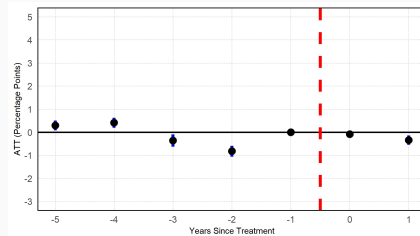
(e) Hours: Colorado



(f) Hours: California, Washington



(g) Employment: Colorado



(h) Employment: California, Washington

Figure 1: We See No Significant Changes In Hours Or Employment

Which Groups Benefit More?

Both Men And Women Benefit From Pay Transparency Laws

Sample	Gender		Education		Age		Race	
	Female	Male	≥ BA	< BA	≤ 40 Years	> 40 Years	Whites	Non-Whites
Overall	0.659 (0.188)	1.683 (0.176)	1.643 (0.228)	0.827 (0.232)	1.105 (0.225)	1.373 (0.221)	0.781 (0.225)	1.355 (0.277)
Colorado	2.658 (0.209)	2.704 (0.443)	4.868 (0.260)	1.186 (0.398)	2.424 (0.312)	3.235 (0.355)	3.572 (0.276)	0.094 (0.407)
California + Washington	0.118 (0.231)	1.405 (0.188)	0.636 (0.269)	0.739 (0.256)	0.734 (0.277)	0.890 (0.222)	-0.522 (0.298)	1.524 (0.297)

All Groups Of People (Weakly) Benefit From Pay Transparency Laws

Sample	Gender		Education		Age		Race	
	Female	Male	$\geq$ BA	$<$ BA	$\leq$ 40 Years	$>$ 40 Years	Whites	Non-Whites
Overall	0.659 (0.188)	1.683 (0.176)	1.643 (0.228)	0.827 (0.232)	1.105 (0.225)	1.373 (0.221)	0.781 (0.225)	1.355 (0.277)
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- We analyze the effects of pay transparency laws that require employers to provide **wage information in job postings**.
- We find that **wages increase in Colorado**, but not in California or Washington, and there is no effect on hours and employment either.
- Our results are **different from Cullen and Pakzad-Hurson (2023)**, where intra-firm pay transparency laws lead to a negative effect on wages.
- We believe **competition between employers** is an important channel for the positive wage effect in our analysis.

A major shift is on the horizon for the European labour market. The **EU Pay Transparency Directive (2023/970)** introduces binding rules aimed at closing the gender pay gap. All EU member states, including Cyprus, must incorporate the Directive into national law by 7 June 2026.

Transparency Starts at Recruitment

One of the most impactful changes will affect how companies approach hiring. **Employers will be required to include the starting salary or salary range in job postings**—or, at the very least, share this information with candidates before interviews. In addition, they will no longer be allowed to ask candidates about their current or previous salaries.

Thank You!

References

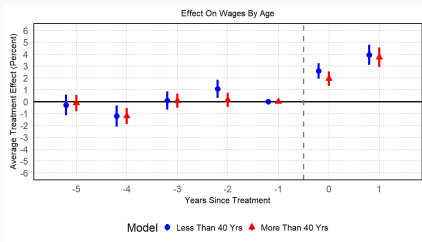
- Baker, Michael, Yosh Halberstam, Kory Kroft, Alexandre Mas, and Derek Messacar**, “Pay transparency and the gender gap,” *American Economic Journal: Applied Economics*, 2023, 15 (2), 157–183.
- Bennedsen, Morten, Elena Simintzi, Margarita Tsoutsoura, and Daniel Wolfenzon**, “Do firms respond to gender pay gap transparency?,” *The Journal of Finance*, 2022, 77 (4), 2051–2091.
- Cullen, Zoë B and Bobak Pakzad-Hurson**, “Equilibrium effects of pay transparency,” *Econometrica*, 2023, 91 (3), 765–802.
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Gulyas, Andreas, Sebastian Seitz, and Sourav Sinha, “Does pay transparency affect the gender wage gap? Evidence from Austria,” *American Economic Journal: Economic Policy*, 2023, 15 (2), 236–255.

Obloj, Tomasz and Todd Zenger, “The influence of pay transparency on (gender) inequity, inequality and the performance basis of pay,” *Nature Human Behaviour*, 2022, 6 (5), 646–655.

Seitz, Sebastian and Sourav Sinha, “Pay transparency, workplace norms, and gender pay gap: early evidence from Germany,” *Workplace Norms, and Gender Pay Gap: Early Evidence from Germany (February 25, 2022)*, 2023.

Appendix



(a) Age (40): Colorado



(b) Age (40): California, Washington

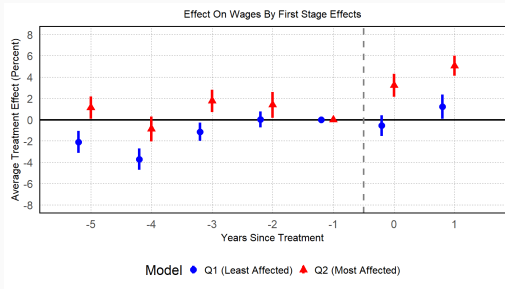


(c) Age (30): Colorado

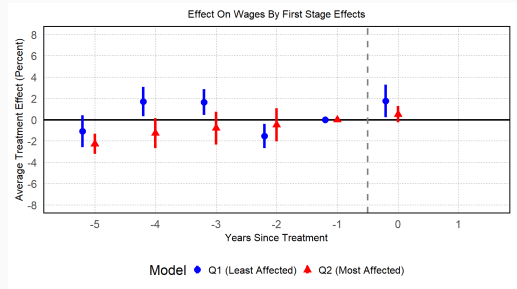


(d) Age (30): California, Washington

Figure 2: Workers Below The Age of 30 Seem To Benefit More



(a) Occupations: Colorado

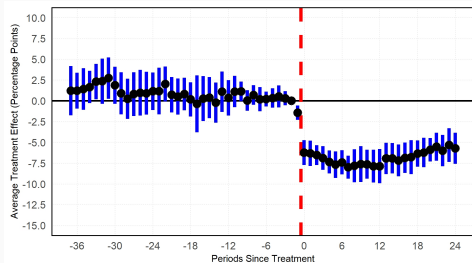


(b) Occupations: California, Washington

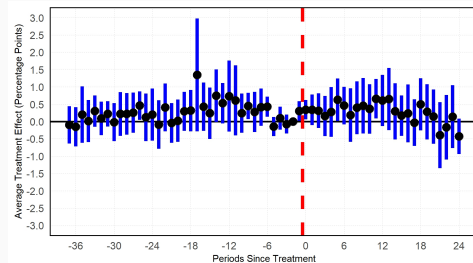
Figure 3: Occupations With More Wage Information Experience Higher Wage Increases

SOC Classification

Wage Offers: Point Wages vs Wage Ranges



(a) Share Of Point Wage Offers Falls By 6%



(b) Median Range Width Remains Unchanged

- **Point wage offers:** For example, a wage offer of \$20,000 per year
- **Wage range offers:** For example, a wage offer of \$18,000-\$22,000 per year
- **Range width:** $\frac{\text{Upper bound} - \text{Lower bound}}{\text{Midpoint}}$

Why is New York Behaving Oddly?

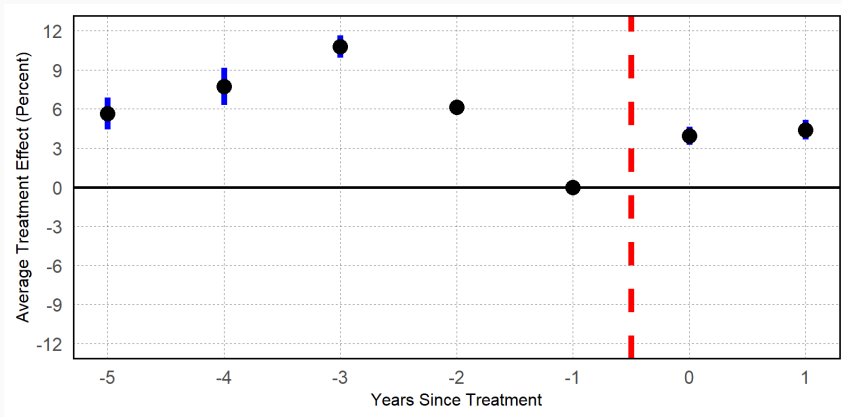


Figure 4: Event Study For Wages In New York

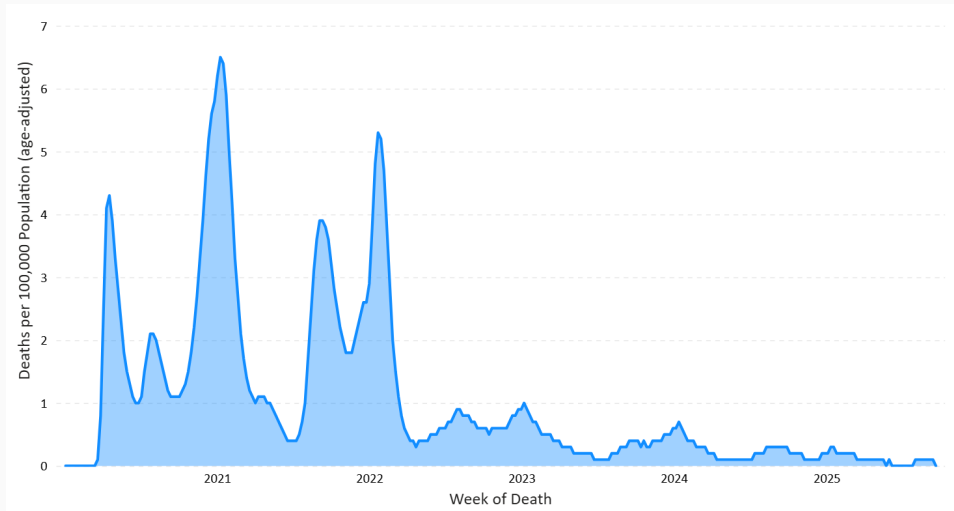


Figure 5: Covid Weekly Death Rates - US Total

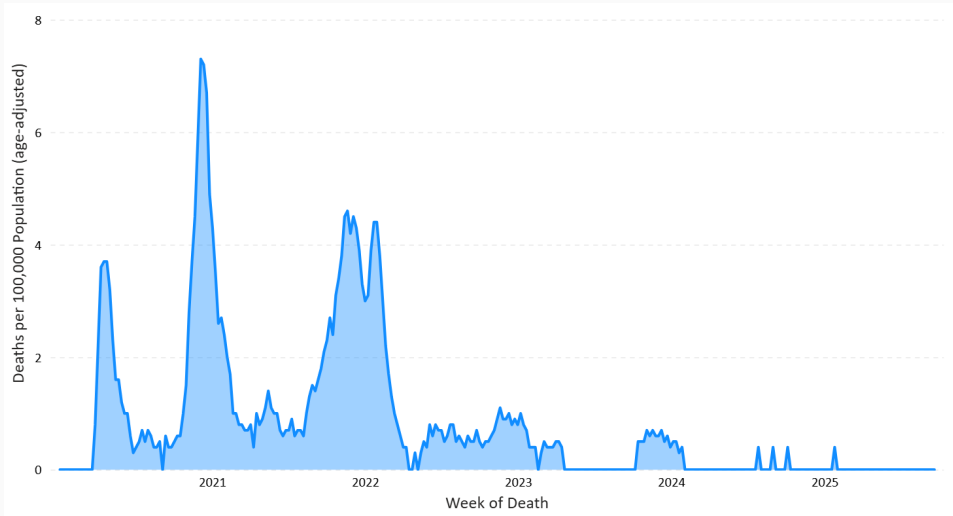


Figure 6: Covid Weekly Death Rates - Colorado

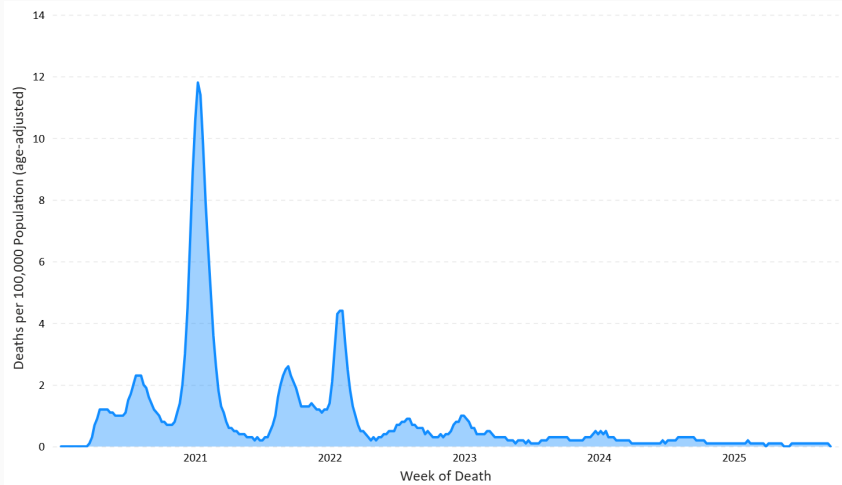


Figure 7: Covid Weekly Death Rates - California

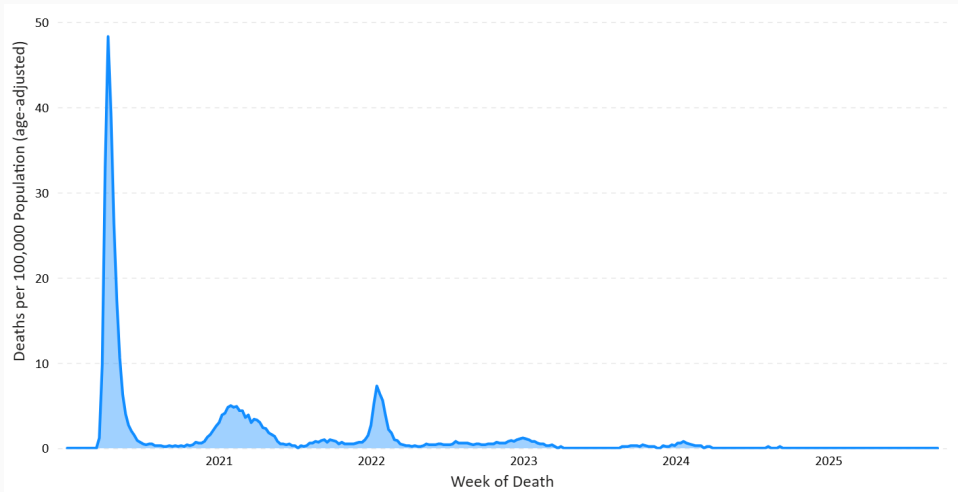


Figure 8: Covid Weekly Death Rates - New York City

Which Occupations Are Affected More?

More Affected	Intermediate	Less Affected
Management	Production	Farming, Fishing
Business and Finance	Installation and Maintenance	Cleaning and Maintenance
CS and Math	Office and Admin Support	Education and Libraries
Architecture and Engineering	Sales	Construction
Sciences	Personal Care	Transportation
Health and Health Support	Food Prep	
	Protective Services	
	Arts, Sports, and Media	

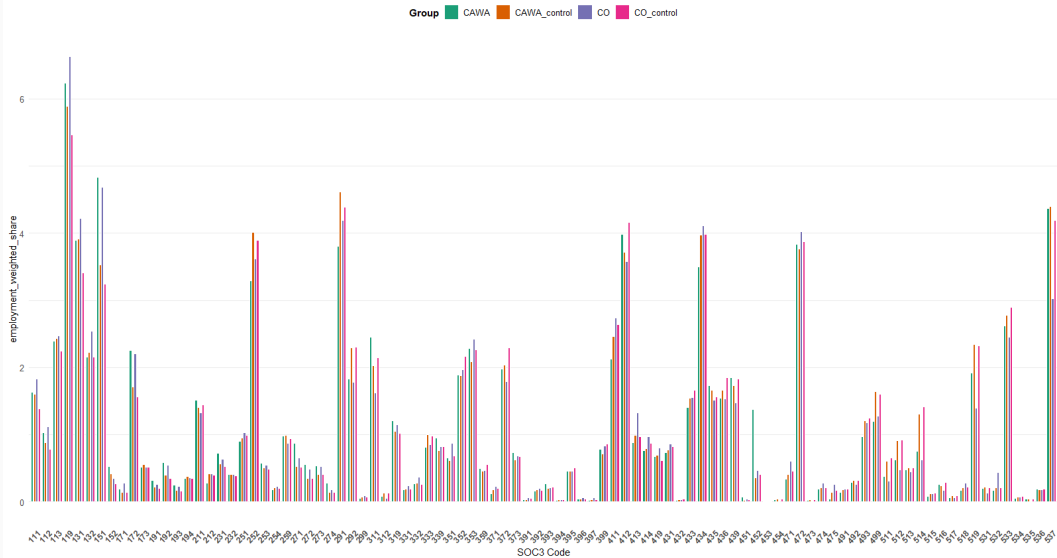
- SOC2 level
- More affected occs/inds had less wage info before (correlation $\in [-0.81, -0.46]$)

1. **Pay transparency in other countries:** Denmark (Bennedsen et al., 2022), Canada (Baker et al., 2023), UK (Duchini et al., 2020), Austria (Gulyas et al., 2023), Germany (Seitz and Sinha, 2023), US (Obloj and Zenger, 2022)
 - **Mixed Effects:** Depends on how transparent the information is
 - PT in job postings can provide more transparent information
2. **Pay transparency in job postings:** U.S. (Arnold et al., 2022; Feng, 2024), Slovakia (Skoda, 2022), Austria (Frimmel et al., 2024)
 - U.S.: Analysis focuses on Colorado
 - Slovakia and Austria: No ideal control group available, the law only requires a lower bound on wages, find minimal effects of pay transparency laws.
 - We extend the analysis to California, Washington, and New York.

Why Do We See An Increase In Wages Only In Colorado?

- 1. Are Colorado and California different in the composition of jobs?**
 - We find that the distributions of occupations and industries in Colorado and California are quite similar. **SOC3**
 - The P-value from a Kolmogorov-Smirnov Test > 0.99
- 2. Is there a larger increase in wage information in job postings in Colorado?**
 - The first stage effects are quite similar **First Stage Heterogeneity**
- 3. We believe that labor market conditions play a role**
 - Colorado implemented its law in Jan 2021, when the labor market was tight.
 - California and Washington implemented their laws in Jan 2023, when hiring had started to slow down. **Evidence**

Composition Across Occupations



	Wage Info Share		Point Offers Share		Median Range Size		Wage Info Index		Log(Posted Wages)	
	TWFE	SA	TWFE	SA	TWFE	SA	TWFE	SA	TWFE	SA
Overall	24.253*** (1.143)	25.800*** (0.623)	-7.164*** (0.880)	-8.073*** (0.568)	0.352 (0.417)	0.239 (0.363)	21.048*** (1.023)	22.359*** (0.653)	5.820*** (1.043)	5.179*** (0.258)
Colorado	25.599*** (0.421)	27.361*** (0.586)	-6.708*** (0.395)	-8.207*** (0.450)	-0.304* (0.177)	-0.469** (0.189)	22.664*** (0.353)	24.069*** (0.520)	8.575*** (0.400)	7.733*** (0.371)
CA & WA	23.583*** (1.341)	24.573*** (0.892)	-7.326*** (1.173)	-7.864*** (0.907)	0.583 (0.519)	0.806 (0.807)	20.233*** (1.007)	21.004*** (1.006)	4.747*** (0.414)	3.073*** (0.377)

Table 1: Average Treatment Effects of Pay Transparency Laws On Job Postings

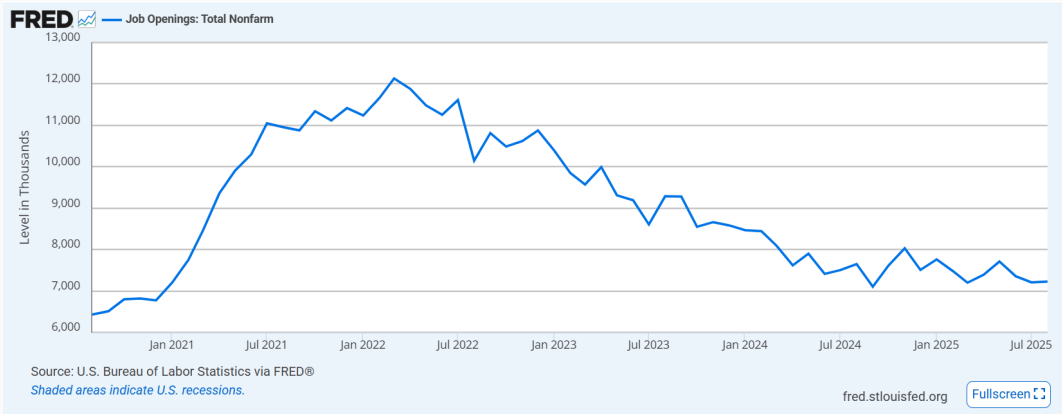


Figure 9: Colorado and California-Washington Implemented Their Laws In Different Conditions