# Are $15 Minimum Wages Too High?

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Prepared for LERA@ASSA 2023

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# MW research is unclear how large, widespread increases affect workers

**On January 1, 2022 California became first state with a $15 MW**

- 87.5% increase since 2014q2 (from $8 per hour)
- In some California counties the MW/median wage is 0.82

**Several other jurisdictions also rose to $15+ for fast food workers + others**

- Chicago, DC, Denver, NYC, NY state, Seattle
- 86.6%+ increases since 2013

**Previous research disagrees on effects, uses smaller increases, other methods**

- Cengiz et al 2019: stacked DiD; highest MW $12, avg 10% increase
- Clemens and Strain 2022: DiD, DDD, stacked DiD; avg 42% for "large" increases

# Summary

**What we do**

- Effects on California restaurant workers, teens, and by wage-bin for all workers
- Effects on fast food workers in all jurisdictions
- All 42 "large" treated counties: 26 in CA, 12 in NY*, + DC, Denver, & Seattle
- Where data allow, prefer a *stacked* (county-level) *synthetic control* method (SCM)
  - → Counterfactual estimates matched on local conditions for each county
  - → Present average estimated effects in each policy jurisdiction
  - → Exploits regional wage variation among treated counties
- Focus on period since last federal MW increase (2009q4 - present)
- Donor pool counties from states without a MW increase since 2009q4

# Overview

**Preview of main results**

- Positive wage & earnings effects, no negative employment effects
- Rule out negative employment elasticities $<$ -0.05 through 2022q1 (California)

**Check for external validity, confounds, robustness, estimator bias**

- Many robustness checks and consideration of Covid-era confounds
  - $\rightarrow$ Widespread confirmation, with a few spurious, Covid-era negative employment effects in most affluent counties most affected by Covid/WFH
- Also confirm results with DiD and synthetic DiD (SDiD) estimators

# Contributions

**We bring several contributions to the minimum wage literature, including:**

(1) First study to widely examine impact of very large U.S.-based ΔMWs

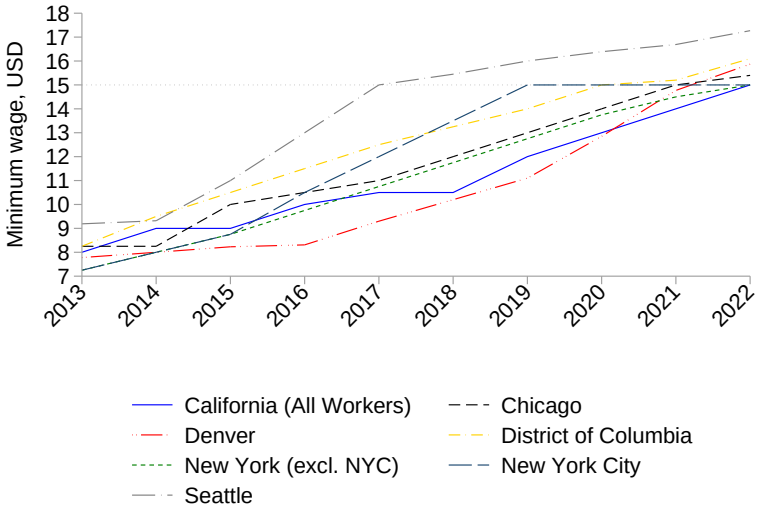
(2) Novel strategy to estimate wage bin-by-bin effects using synthetic controls

(3) Leverage county-level variation using stacked SCM, adding to sparse literature

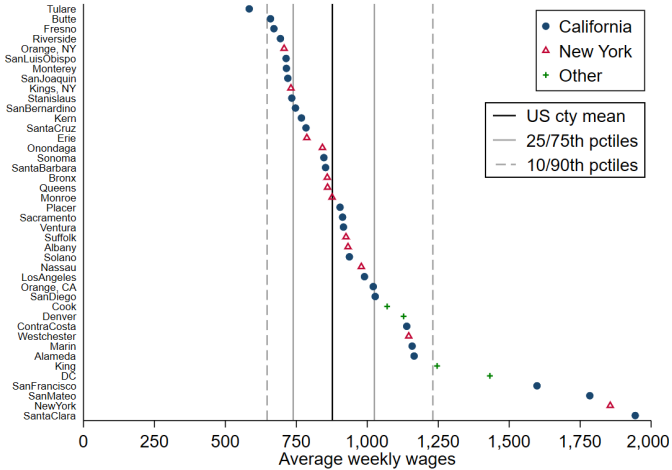
(4) Stacked SC leveraging local data provides more precision than other MW studies

**Large, widespread minimum wage increases, even to $15+, do not decrease employment for workers in low-wage industries, teens, or overall**

# Minimum Wage Evolution in Areas with $15+ Minimum Wages

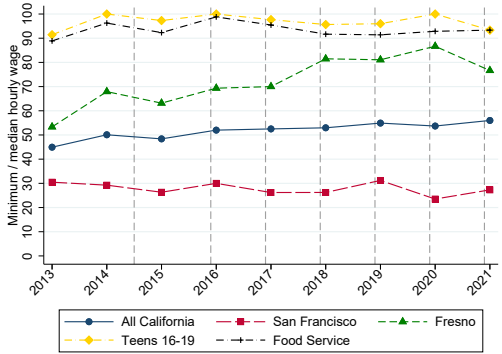


# The 42 treated counties reflect the national distribution of local earnings

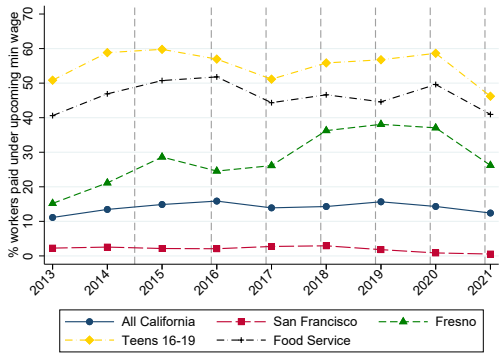


# Reach of California Minimum Wages, 2013-2021

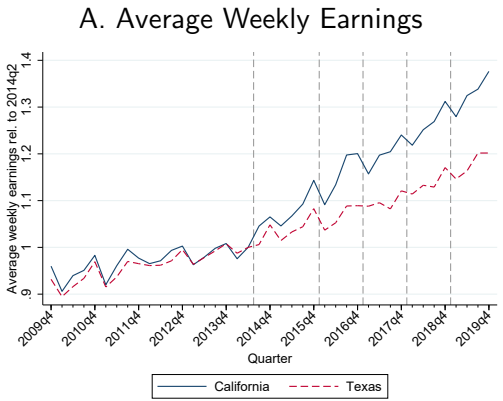
A. Ratio of Minimum Wage to Median Wage

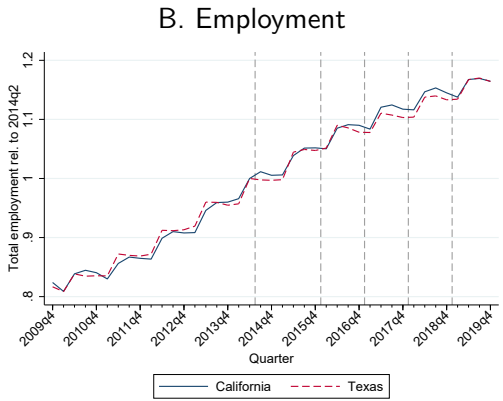



B. Fraction of Workers Earning < Upcoming Minimum Wage



# Descriptive example: California vs Texas, Restaurant workers (QCEW)



# Methods

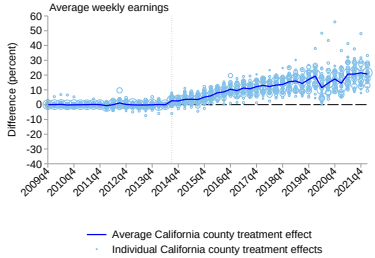
We estimate effects on earnings and employment using several strategies:

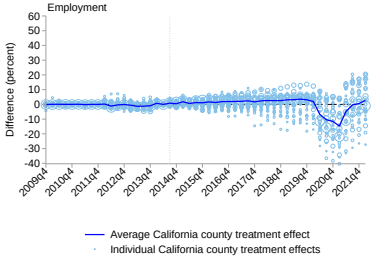
- Synthetic control / stacked synthetic control (preferred approach)
  - → Especially for stacked SC, we have excellent pre-treatment fit
  - → Inference: RMSPE *p-values* and variance of average in-space placebo effects
- Difference-in-differences (TWFE and Callaway & Sant'Anna, and synthetic DiD)

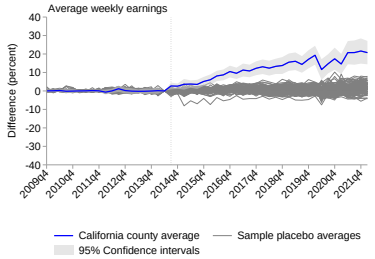
Look at dynamic effects on:

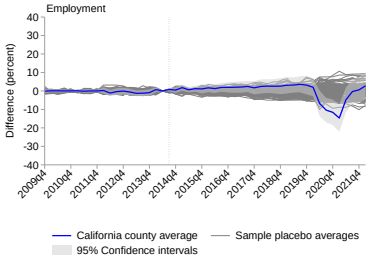
- All workers, wage bin-by-bin, CPS (California)
- Restaurant workers, QCEW (California counties)
- Fast food workers, QCEW (California + NY counties, DC, Denver, Seattle)
- Teen workers, CPS (California)

# Stacked synthetic control estimates, California restaurant workers

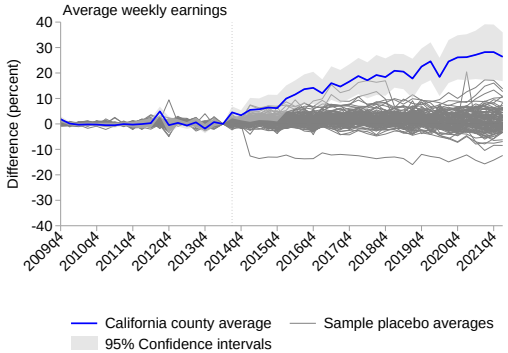


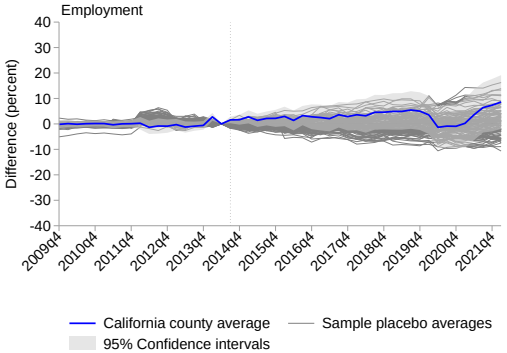



# Stacked synthetic control effects, California fast food workers



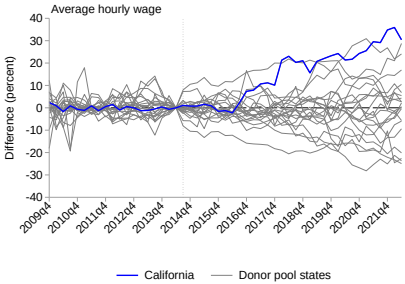



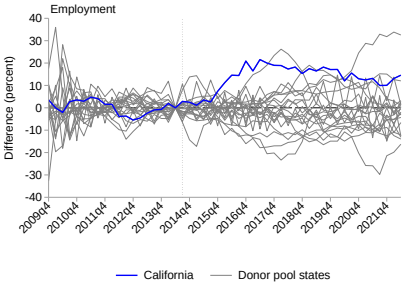
# Results for restaurant and fast food workers in California

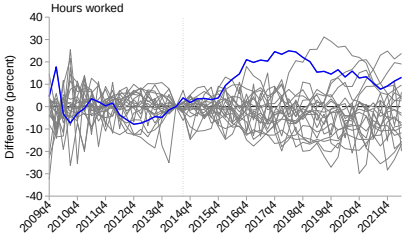
**Average Effects Over All California Treated Counties, Restaurant and Fast Food Workers, CSDiD & Stacked SC**

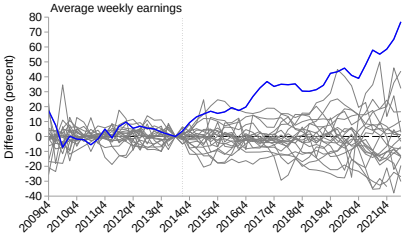
| | 2022q1 | | |
|---|---|---|---|
| | Avg. weekly earnings | Employment | Own-wage Elasticity |
| **CSDiD** | | | |
| *Restaurant Workers* | | | |
| Treatment Effect (%) | 13.05 | 3.71 | 0.28 |
| Elasticity | 0.15 | 0.04 | |
| 95% Confidence Interval | [0.13, 0.17] | [-0.01, 0.1] | |
| **Stacked Synthetic Control** | | | |
| *Restaurant Workers* | | | |
| Treatment Effect (%) | 20.07 | 2.75 | 0.14 |
| Elasticity | 0.23 | 0.03 | |
| 95% Confidence Interval | [0.16, 0.31] | [-0.05, 0.11] | |
| RMSPE p-value | 0.01 | 0.11 | |
| *Fast Food Workers* | | | |
| Treatment Effect (%) | 26.36 | 8.59 | 0.33 |
| Elasticity | 0.3 | 0.1 | |
| 95% Confidence Interval | [0.19, 0.41] | [-0.02, 0.22] | |
| RMSPE p-value | 0.02 | 0.19 | |

# State-level effects, California teen workers



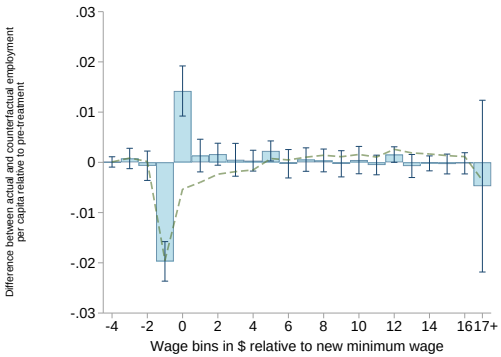



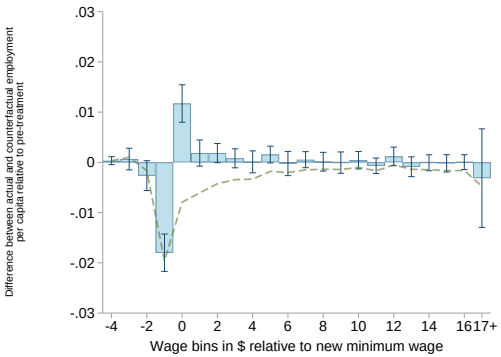
# Hourly wage bin-by-bin analysis, all workers

**Bin-by-bin Employment Effects Using State-level Data, All Workers**

A. Through 2019q4 (pre-Covid)



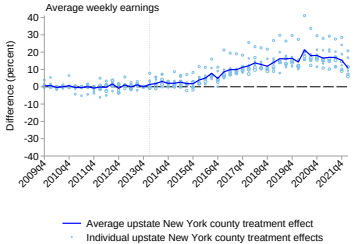

B. Through 2022q2 (Covid-inclusive)

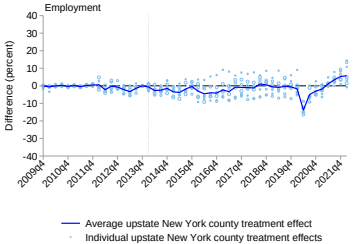


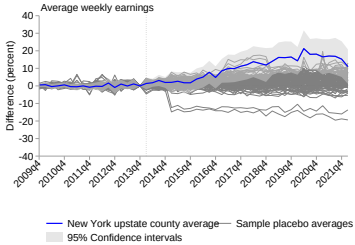

▸ Contributing elements

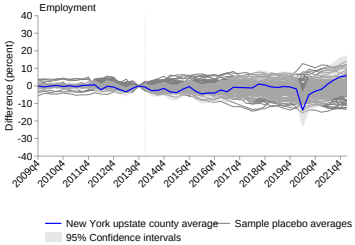
# Other places also raised their MWs to $15+ for fast food+ workers

## Stacked synthetic control estimates, upstate NY fast food workers



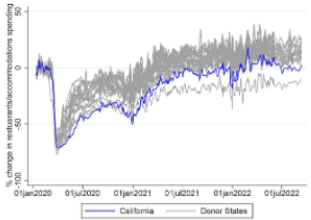



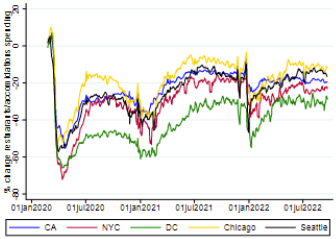



# Lockdown policies/WFH explain much of Covid-era employment dip

A. Spending at Restaurants and Hotels by State

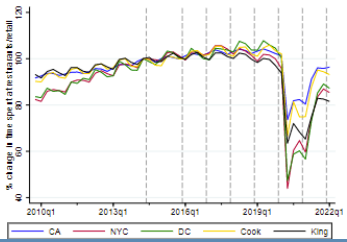



B. Spending at Restaurants and Hotels by Area




C. Fraction of Employment at Restaurants by State


D. Fraction of Employment at Restaurants by Area



# Possible explanations for no negative employment effects?

- Price pass-through (demand for restaurant meals is price-inelastic)
- Employer market (monopsony) power, especially in lower-wage / rural counties where labor markets are thinner (Wiltshire 2022):
  - $\rightarrow$ Local outside options are fewer
  - $\rightarrow$ Worker mobility costs and competition with other workers increase with employer distance from residence, and non-local employers are more distant

# Summary

**We consider effects of large ΔMW, to $15+ in counties across U.S.**

- Look at restaurant workers, teen workers, and all workers by wage bin
- Primarily use a stacked (county-level) synthetic control estimation strategy
- Mostly focus on California counties. Donor pool had no ΔMW since 2009q3

**Results**

- Large, significant earnings gains; small, non-significant employment gains
- Robust to a battery of robustness checks
- Employment dipped in several places during Covid. Largely recovered
  - → Negative employment patterns concentrated in affluent counties most affected by Covid/WFH. Seem unrelated with MW; still investigating

**Key takeaways**

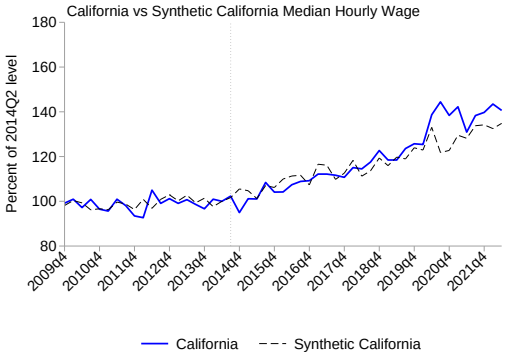
- Large ΔMWs, even through $15+, have clear positive earnings effects, no clear negative employment effects even on most-affected workers
- Stacked SCM is an effective & transparent way to evaluate impact of large ΔMWs
- SCM can be used to conduct wage bin-by-bin analysis of MW effects

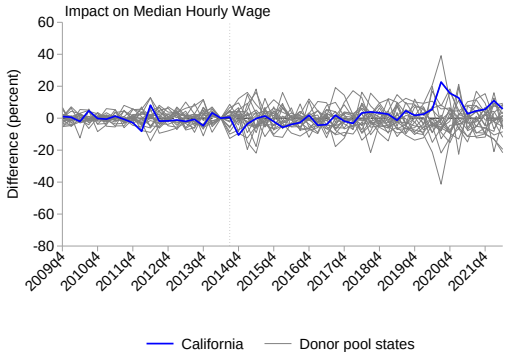
# Thank you

**All comments are appreciated!**

**Email:**
justinwiltshire@berkeley.edu

# All California Worekrs, Effects on Median Hourly Wage, SC



# Several robustness checks, consistent results: restaurant workers

**Robustness Checks, Average Effects Over California Treated Counties, Restaurant Workers, SC**

| | 2019q4 | | | 2022q1 | | |
|---|---|---|---|---|---|---|
| | Avg. weekly earnings | Employment | Own-wage elasticity | Avg. weekly earnings | Employment | Own-wage elasticity |
| **All Counties, w/ SC Bias Correction** | | | | | | |
| Treatment Effect (%) | 18.04 | 2.90 | 0.16 | 21.35 | 3.94 | 0.18 |
| *p*-value | 0.01 | 0.24 | | 0.01 | 0.28 | |
| **Counties with No Local MW** | | | | | | |
| Treatment Effect (%) | 15.31 | 3.28 | 0.21 | 22.1 | 10.67 | 0.48 |
| *p*-value | 0.01 | 0.39 | | 0.01 | 0.25 | |
| **All Counties, w/ GDP Growth Covariates** | | | | | | |
| Treatment Effect (%) | 17.06 | 1.44 | 0.08 | 20.80 | 3.23 | 0.16 |
| *p*-value | 0.01 | 0.40 | | 0.01 | 0.05 | |
| **All Counties, w/ Total Employment Covariates** | | | | | | |
| Treatment Effect (%) | 16.54 | 1.98 | 0.12 | 19.94 | 2.74 | 0.14 |
| *p*-value | 0.01 | 0.18 | | 0.01 | 0.04 | |
| **Non-Bay Area Counties** | | | | | | |
| Treatment Effect (%) | 16.56 | 3.85 | 0.23 | 20.86 | 5.94 | 0.28 |
| *p*-value | 0.01 | 0.36 | | 0.01 | 0.33 | |
| **All Counties, w/ Smoothed Data** | | | | | | |
| Treatment Effect (%) | 14.46 | -0.73 | -0.05 | 21.46 | 4.14 | 0.19 |
| *p*-value | 0.01 | 0.92 | | 0.01 | 0.50 | |

# Several robustness checks, consistent results: teen workers

**Robustness Checks, Effects in California, Teen Workers, SC**

| | 2019q4 | | | 2022q2 | | |
|---|---|---|---|---|---|---|
| | Hourly wage | Employment | OWE | Hourly wage | Employment | OWE |
| **California, w/ SC Bias Correction** | | | | | | |
| Treatment Effect (%) | 26.99 | 24.62 | 0.91 | 29.29 | 23.28 | 0.79 |
| *p*-value | 0.05 | 0.10 | | 0.05 | 0.05 | |
| **California, w/ no unemployment rate predictor** | | | | | | |
| Treatment Effect (%) | 23.15 | 17.10 | 0.74 | 29.78 | 14.71 | 0.49 |
| *p*-value | 0.05 | 0.14 | | 0.05 | 0.14 | |
| **California, w/ state GDP growth predictor** | | | | | | |
| Treatment Effect (%) | 23.26 | 17.11 | 0.74 | 30.64 | 14.53 | 0.47 |
| *p*-value | 0.05 | 0.10 | | 0.05 | 0.10 | |
| **California, w/ state GDP growth predictor (no Bay Area)** | | | | | | |
| Treatment Effect (%) | 23.00 | 17.21 | 0.75 | 30.44 | 14.64 | 0.48 |
| *p*-value | 0.05 | 0.10 | | 0.05 | 0.10 | |
| **California, placebo treatment date (2012q3)** | | | | | | |
| Treatment Effect (%) | 21.02 | 16.81 | 0.80 | 27.17 | 10.94 | 0.40 |
| *p*-value | 0.14 | 0.24 | | 0.05 | 0.24 | |
| **California, w/ unsmoothed data** | | | | | | |
| Treatment Effect (%) | 18.87 | 23.78 | 1.26 | 14.44 | 27.74 | 1.92 |
| *p*-value | 0.62 | 0.19 | | 0.46 | 0.24 | |

# Results in individual non-California locales

**Effects in All Individual Counties, Fast Food Workers, SC**

| | Average weekly earnings (%) | Employment (%) | Own-wage Elasticity |
|---|---|---|---|
| **DC** | | | |
| Treatment Effect | 13.90 | -43.60 | -3.14 |
| *p*-value | 0.01 | 0.09 | |
| **Cook, IL** | | | |
| Treatment Effect | 6.21 | -4.83 | -0.78 |
| *p*-value | 0.04 | 0.52 | |
| **Albany, NY** | | | |
| Treatment Effect | 7.43 | 6.88 | 0.93 |
| *p*-value | 0.02 | 0.24 | |
| **Monroe, NY** | | | |
| Treatment Effect | 15.54 | 3.00 | 0.19 |
| *p*-value | 0.06 | 0.38 | |
| **Nassau, NY** | | | |
| Treatment Effect | 10.90 | 3.80 | 0.35 |
| *p*-value | 0.03 | 0.76 | |
| **New York City, NY** | | | |
| Treatment Effect | 34.02 | 9.35 | 0.27 |
| *p*-value | 0.04 | 0.18 | |
| **Onandaga, NY** | | | |
| Treatment Effect | 17.26 | -0.52 | -0.03 |
| *p*-value | 0.23 | 0.70 | |
| **Orange, NY** | | | |
| Treatment Effect | 11.93 | 22.03 | 1.85 |
| *p*-value | 0.02 | 0.57 | |
| **Suffolk, NY** | | | |
| Treatment Effect | 10.59 | -0.26 | -0.02 |
| *p*-value | 0.10 | 0.70 | |
| **Westchester, NY** | | | |
| Treatment Effect | 8.43 | 13.18 | 1.56 |
| *p*-value | 0.02 | 0.80 | |
| **Seattle, WA** | | | |
| Treatment Effect | 30.80 | 21.79 | 0.71 |
| *p*-value | 0.02 | 0.01 | |
| **Denver, CO** | | | |
| Treatment Effect | 22.89 | 0.87 | 0.04 |
| *p*-value | 0.03 | 0.42 | |

# Additional takeaways/considerations

(1) We observe some spurious negative effects in the most affluent counties, which are also the ones most affected by Covid/WFH. We are still investigating this potential confound

(2) We observe a pattern of more positive employment effects in rural/poor counties, where employer market power was greater, consistent with Wiltshire 2022