Racial Inequality

Jesse Wursten[1] Michael Reich[2]

AEA Panel: Racial Inequality in Housing and Labor Markets

December 2021

[1]Faculty of Economics and Business
KU Leuven
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Racial Inequality and Minimum Wages in Frictional Labor Markets

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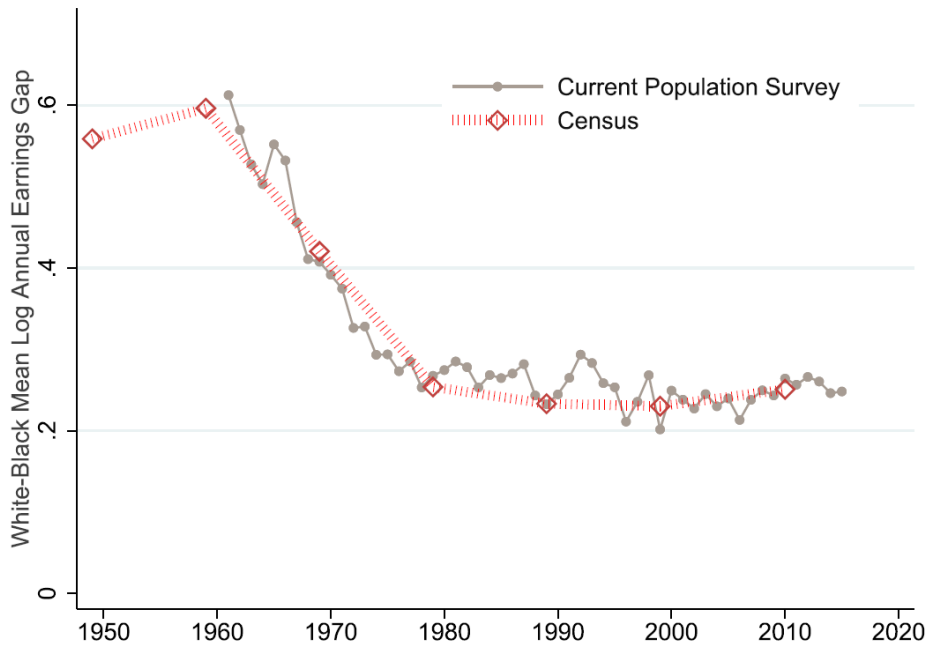
Introduction

Purpose of this paper

- Earnings gaps between white and black workers have remained sizeable
- Role for minimum wage policy?



Source: Derenoncourt and Montialoux (2020)

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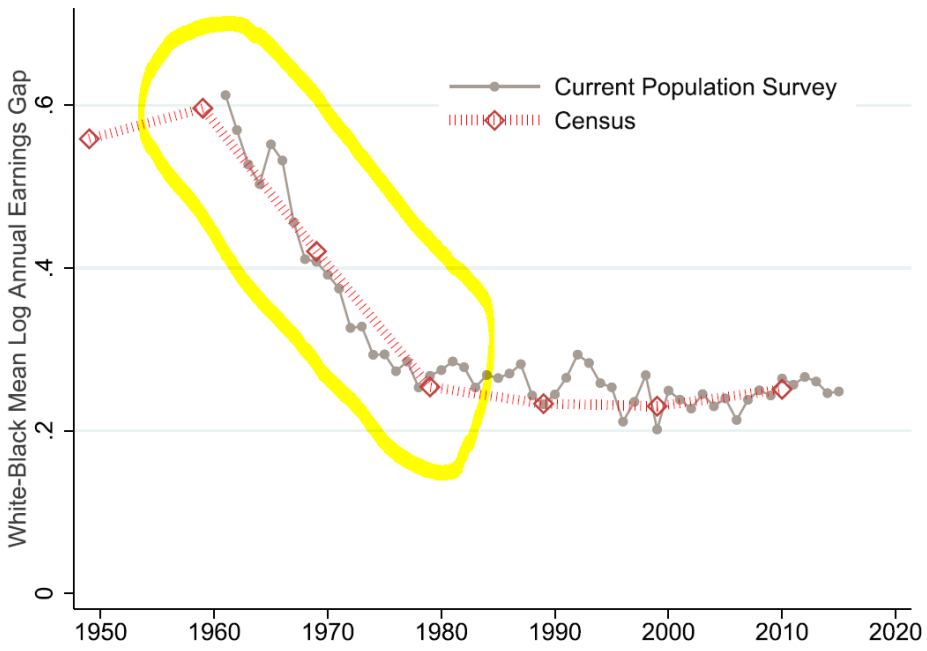

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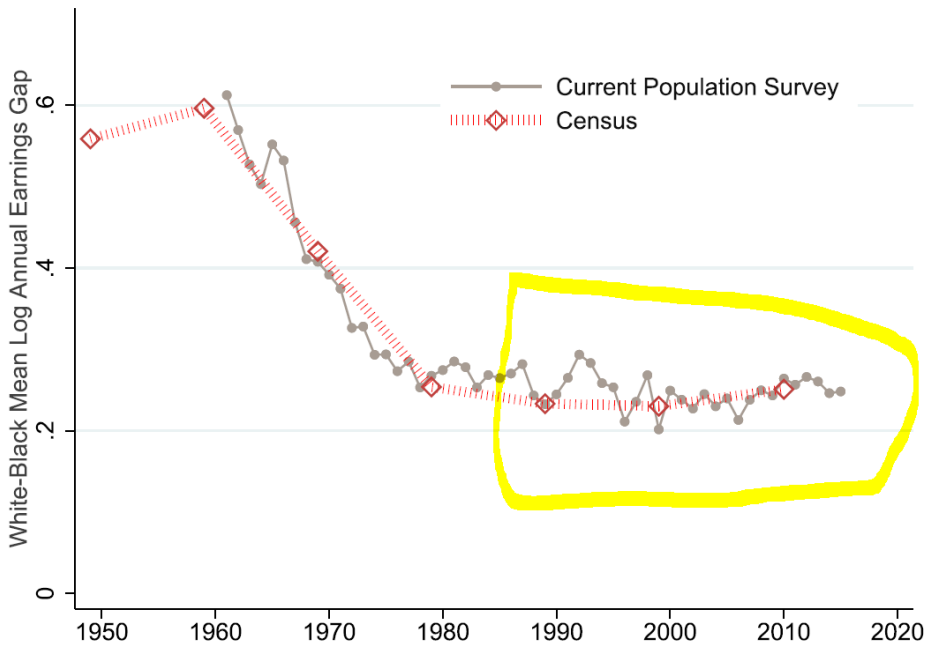

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Introduction

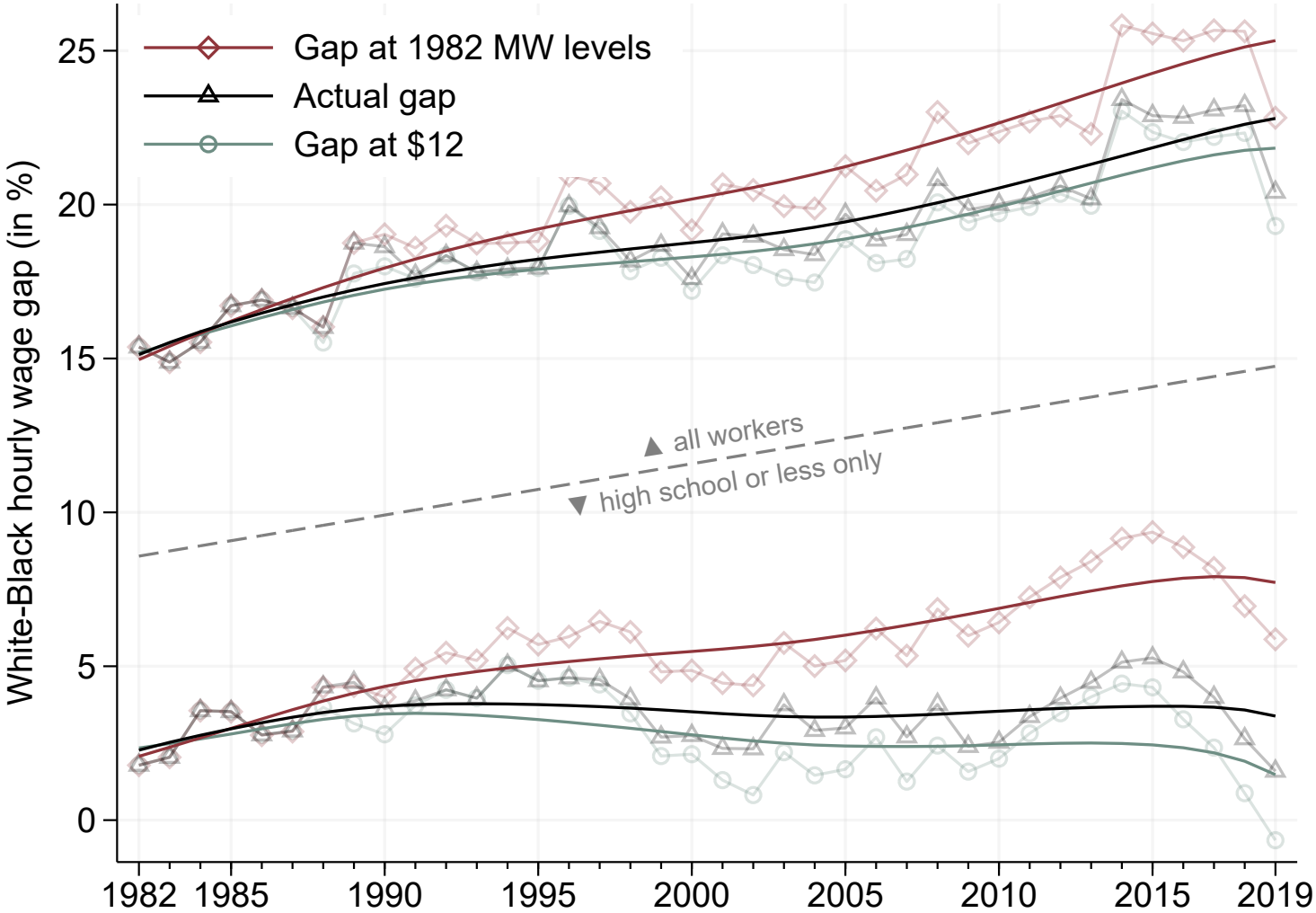
Not obvious that modern minimum wage policy reduces inequality

- Federal minimum wage declined since 1980s (in real terms)
- State-level increases mainly in affluent states since 1990s
- Could leave behind black workers in the Old South
- See e.g. unemployment insurance disparities (Edwards, 2020)

  Cengiz et al. (2019) find smaller wage effects for black workers than average

Introduction

Minimum wages continue to reduce racial wage inequality



Source: this paper, inspired by Derenoncourt and Montialoux (2020)

Leader

Can minimum wage policies reduce racial inequality?

1. Estimate wage elasticities by race
    - Stacked event study (Cengiz et al., 2019; Godoey et al., 2021)
    - Binned estimator (Cengiz et al., 2019)
    - Within-individual estimates on CPS-MORG (in-out-in scheme of CPS)
    - Standard panel regressions (2FE + trends)
        - CPS-MORG (individual-month level)
        - QWI (county-quarter level)
2. Headline results
3. Mechanism
4. Counterfactual racial inequality simulations

Leader

Can minimum wage policies reduce racial inequality?

1. Estimate wage elasticities by race
2. Headline results
    - Higher wage elasticities for black workers
    - Difference cannot be explained by initial wage differences
    - No disemployment effects
3. Mechanism
4. Counterfactual racial inequality simulations

Leader

Can minimum wage policies reduce racial inequality?

1. Estimate wage elasticities by race
2. Headline results
3. Mechanism
    - Wage determination model (cf. Card et al., 2018)
    - Increased access to car transportation (cf. Cooper, Luengo-Prado and Parker, 2020; Aaronson, Agarwal and French, 2012)
    - Turnover decreases (cf. Dube, Lester and Reich, 2016)
4. Counterfactual racial inequality simulations

Leader

Can minimum wage policies reduce racial inequality?

1. Estimate wage elasticities by race
2. Headline results
3. Mechanism
4. Counterfactual racial inequality simulations
    - Start from standard panel estimates
    - Simulate minimum wage freeze in 1982
    - Actual minimum wage policy reduced inequality by 11% (2.4pp) [-73% in affected population]

Data

1. Current Population Survey (CPS, 1982-2019) [table]
    - 4 months in - 8 months out - 4 months in
    - Worker characteristics + hourly wages
    - Two samples of particular interest
        - Workers with at most a high school diploma
        - Workers earning less than 1.5x the MW during their first interview
2. Quarterly Workforce Indicators (QWI, 1990-2020) [table]
3. American Community Survey, Journey To Work Files (ACS, 2000-2019)

Data

1. Current Population Survey (CPS, 1982-2019) [table]
2. Quarterly Workforce Indicators (QWI, 1990-2020) [table]
    - Administrative, county-quarter level
    - Restrict to food services sector (NAICS 722)
    - Non-random entry of states
    - Includes employment flows (hires and separations)
    - Race/ethnicity endpoint
3. American Community Survey, Journey To Work Files (ACS, 2000-2019)

Data

1. Current Population Survey (CPS, 1982-2019) [table]
2. Quarterly Workforce Indicators (QWI, 1990-2020) [table]
3. American Community Survey, Journey To Work Files (ACS, 2000-2019)
    - Commuting modes, individual-year level
    - 70-85% commute by car
    - Focus on ages 26-35 [figure]

Wage elasticities by race/ethnicity

1. **CPS Stacked Event Study**: earnings elasticity +0.15 vs +0.09
   - Sample: respondents with high school diploma or less earning less than $20
   - Based on Cengiz et al. (2019)
   - Events: all $> 5\%$, including federal

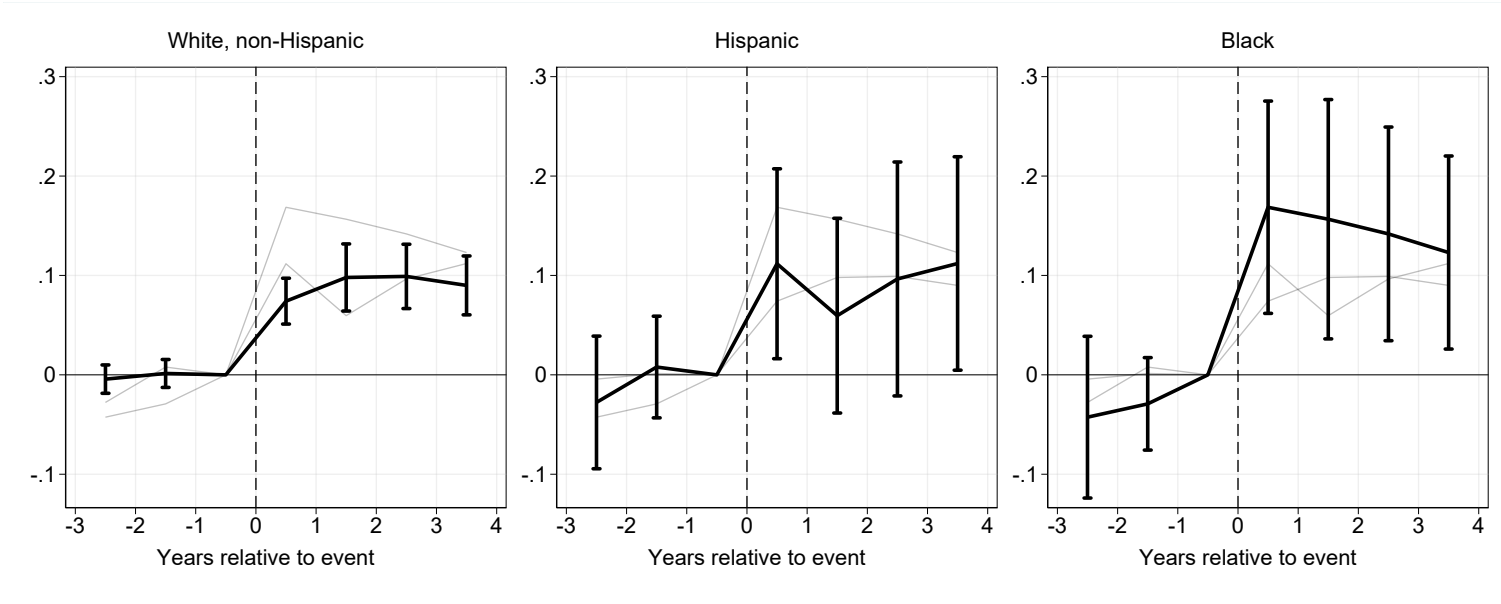
$$y_{sqe} = \sum_{\tau=-3}^{4} \alpha_\tau I_{sqe}^{\tau} \Delta mw_{sqe} + \mu_{se} + \mu_{qe} + \omega_{sqe} + \epsilon_{sqe}$$

y_{sqe}: average hourly wage (2019$) in state s, quarter q, duplicated for each event e (if in window)
$\alpha_\tau I_{sqe}^{\tau}$: one if event e happened in state s in year $t + \tau$
Δmw_{sqe}: event size (log difference of MW)
$\mu_{se} + \mu_{qe} + \omega_{sqe}$: state-event, quarter-event and confounding event controls

Wage elasticities by race/ethnicity

1. **CPS Stacked Event Study**: earnings elasticity +0.15 vs +0.09
   - Sample: HSOL, $< \$20$

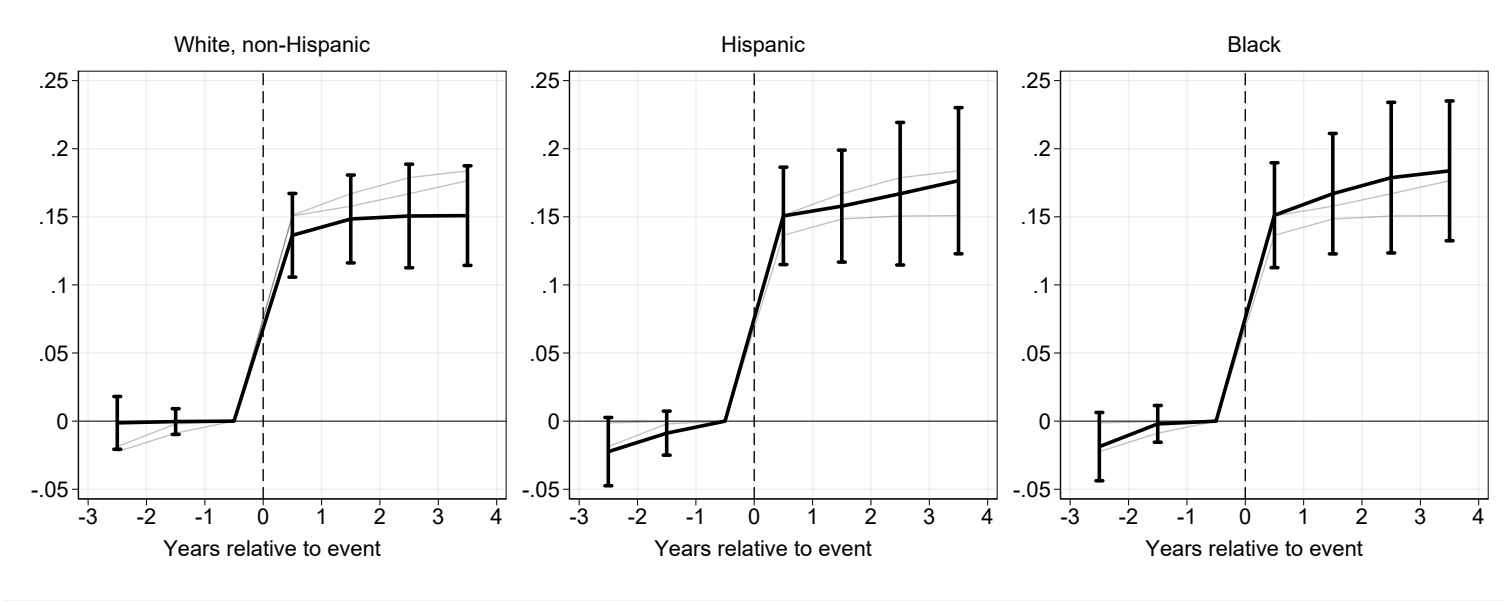
$$y_{sqe} = \sum_{\tau=-3}^{4} \alpha_\tau I_{sqe}^{\tau} \Delta mw_{sqe} + \mu_{se} + \mu_{qe} + \omega_{sqe} + \epsilon_{sqe}$$



Wage elasticities by race/ethnicity

1. **CPS Stacked Event Study**: earnings elasticity +0.15 vs +0.09
2. **QWI Stacked Event Study**: earnings elasticity +0.17 vs +0.15
   - Sample: food services industry (NAICS 722)

$$y_{sqe} = \sum_{\tau=-3}^{4} \alpha_\tau I_{sqe}^{\tau} \Delta mw_{sqe} + \mu_{se} + \mu_{qe} + \omega_{sqe} + \epsilon_{sqe}$$



Wage elasticities by race/ethnicity

1. **CPS Stacked Event Study**: earnings elasticity +0.15 vs +0.09
2. **QWI Stacked Event Study**: earnings elasticity +0.17 vs +0.15
3. **CPS binned estimator**: gains at \$4/\$3 vs \$1
    - Based on Cengiz et al. (2019)
    - State treatment events $>$ 0.25c (excludes fed and small)
    - \$0.25 bins, indicator if bin is within k dollar of new MW
    - bin-quarter, bin-state FE and omitted MW event FE

Wage elasticities by race/ethnicity

1. **CPS Stacked Event Study**: earnings elasticity +0.15 vs +0.09
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White

Black *or* Hispanic

Wage elasticities by race/ethnicity

1. **CPS Stacked Event Study**: earnings elasticity +0.15 vs +0.09
2. **QWI Stacked Event Study**: earnings elasticity +0.17 vs +0.15
3. **CPS binned estimator**: gains at \$4/\$3 vs \$1
4. **Summary Table**: black earnings elasticities always larger

Dataset - Method	White	Black	Relative difference
CPS - Stacked Event Study (HSOL, <20\$)	0.09 (0.01)	0.15 (0.05)	+63%
QWI - Stacked Event Study (food services)	0.15 (0.02)	0.17 (0.02)	+16%
CPS - Binned estimator	0.46 (0.07)	0.68 (0.12)	+48%
CPS - Within Individual	0.13 (0.03)	0.22 (0.08)	+64%
CPS - Classic Panel	0.13 (0.01)	0.18 (0.03)	+41%

Race neutrality

Initial wage differences cannot explain differences in earnings elasticities

- Exploit longitudinal pattern of CPS
  - CPS Interview Pattern: III**A**xxxxxxxxIII**B**
  - Select workers earning less than 1.5x smoothed MW at **A**
  - Regression equation (pooled cross section, separate per race)

$$\left(hourlyWage_{it}^{\mathbf{B}} - hourlyWage_{it}^{A}\right) = \beta \times \left(mw_{st}^{\mathbf{B}} - mw_{st}^{A}\right) + \frac{hourlyWage_{it}^{A}}{medianWage_{st}^{A}} + \left(\frac{hourlyWage_{it}^{A}}{medianWage_{st}^{A}}\right)^{2} + state_{i}^{A} + month_{t}^{A} + state_{i}^{A} \times month_{t}^{A} + \text{individual controls}_{it}^{A} + \epsilon_{it}$$

Race neutrality

Initial wage differences cannot explain differences in earnings elasticities

- Exploit longitudinal pattern of CPS
- Effect on affected workers (incumbents only!)

DV: Difference in real log wage	Initial wage $< 1.5\times$ MW			... between $1.5 - 2.5\times$ MW		
	White	Hispanic	Black	White	Hispanic	Black
Log Minimum Wage	0.13	0.20	0.22	0.02	0.03	-0.01
	(0.03)	(0.06)	(0.08)	(0.02)	(0.04)	(0.06)
N	205393	30243	30853	340063	30343	39889

- Large boost to wage growth, especially for minorities

Race neutrality

Initial wage differences cannot explain differences in earnings elasticities

- Compare B to A (CPS pattern: lll**A**xxxxxxxxlll**B**)
- Placebo on higher wage workers

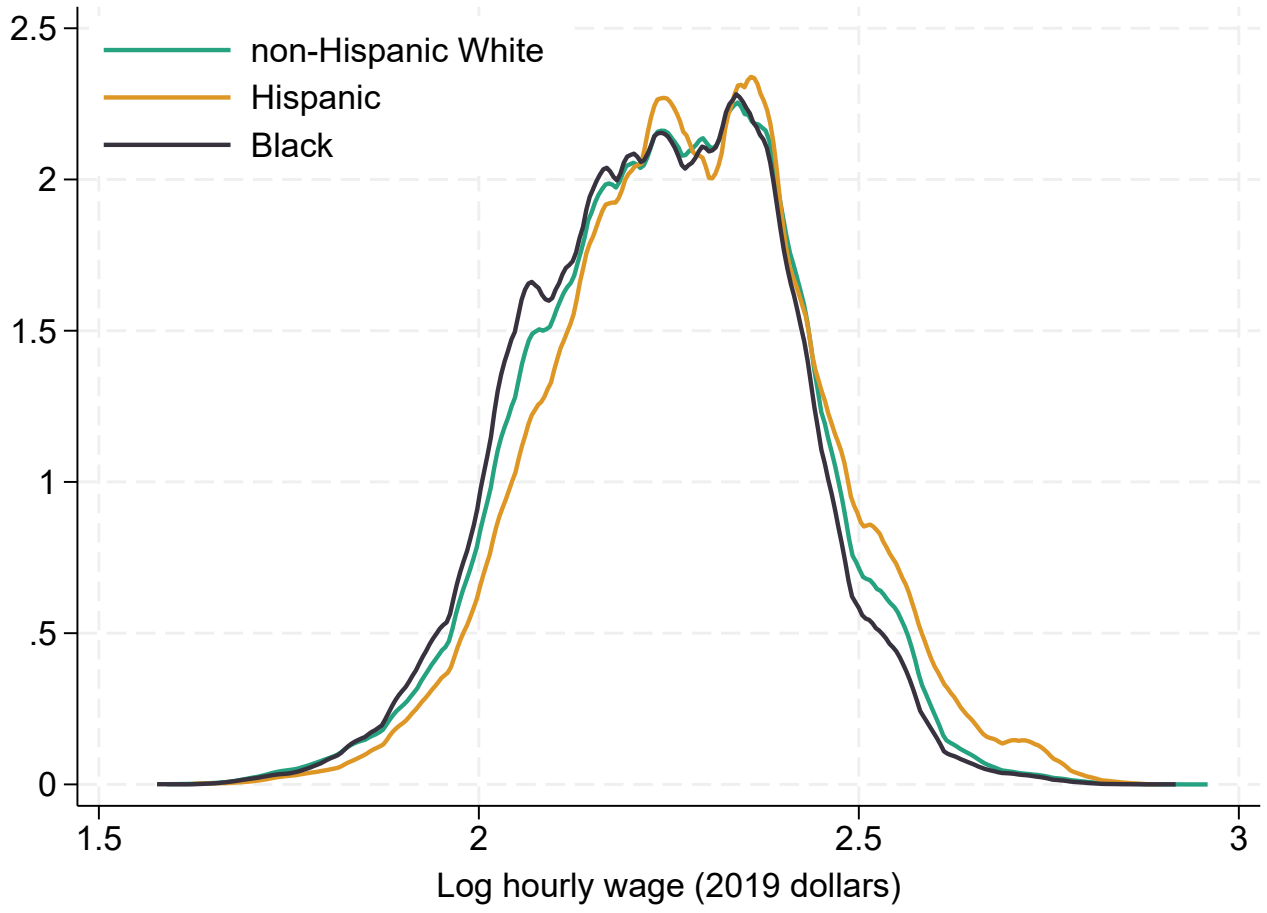
DV: Difference in real log wage	Initial wage $< 1.5\times$ MW			... between $1.5 - 2.5\times$ MW		
	White	Hispanic	Black	White	Hispanic	Black
Log Minimum Wage	0.13	0.20	0.22	0.02	0.03	-0.01
	(0.03)	(0.06)	(0.08)	(0.02)	(0.04)	(0.06)
N	205393	30243	30853	340063	30343	39889

- No extra wage growth in placebo group

Race neutrality

Initial wage differences cannot explain differences in earnings elasticities

- Kernel density plot of $< 1.5\times$ MW worker wages by race



- Wage distribution highly similar (black: -1.4%, hispanic: +2.7%)

Race neutrality

Initial wage differences cannot explain differences in earnings elasticities

- Formally: (entropy) balance initial wages

DV: Difference in real log wage	Baseline ($< 1.5 \times MW$) White	Hispanic	Black	Entropy balanced ($< 1.5 \times MW$) White	Hispanic	Black
Log Minimum Wage	0.13	0.20	0.22	0.13	0.21	0.22
	(0.03)	(0.06)	(0.08)	(0.03)	(0.06)	(0.08)
N	205393	30243	30853	205393	30243	30853

- Results identical

Mechanism - Concept

Black workers struggle to reach high paying jobs (literally)

1. Black workers concentrated in central cities (Massey and Denton, 1993)
2. Wages higher in suburbs (*ibid.*)
3. Black workers 5x more likely to be carless (24%, Raphael et al., 2001)

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(Minimum) Wage gains allow them to escape that poverty trap

1. Minimum wages increase income, wealth and credit scores (Cooper, Luengo-Prado and Parker, 2020; Aaronson, Agarwal and French, 2012)
2. Used to buy automobiles (*ibid.*)
3. Improves outside option of workers
4. Increases extracted share of surplus (Raphael and Riker, 1999; Johnson, 2006; Stoll and Covington, 2012)

Mechanism - Theory

Theoretical model is extension of Card et al. (2018)

- Value of outside option decreasing in distance and disutility of commute length

$$\underbrace{b_i}_{\substack{\text{value of} \\ \text{outside option}}} = \underbrace{w_i^b}_{\substack{\text{wage of} \\ \text{outside option}}} - \underbrace{\alpha s_i}_{\substack{\text{disutility of} \\ \text{commuting}}} * \underbrace{d_i^b}_{\substack{\text{distance to} \\ \text{outside option}}}$$

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- Worker mobility type depends on car ownership (skipping some steps)

$$\text{wealth}(w_i, e_i) + \text{credit}(w_i, e_i) > P_{car}$$

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- Minimum wage can make worker of high mobility type
  $\rightarrow$ outside option becomes more valuable

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- Minimum wage can make worker of high mobility type
  $\rightarrow$ outside option becomes more valuable
  $\rightarrow$ worker gains bargaining power
  $\rightarrow$ wage increase can exceed minimum wage top up

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- Worker mobility type depends on car ownership (skipping some steps)

$$\text{wealth}(w_i, e_i) + \text{credit}(w_i, e_i) > P_{car}$$

- Minimum wage can make worker of high mobility type
  $\rightarrow$ outside option becomes more valuable
  $\rightarrow$ worker gains bargaining power
  $\rightarrow$ wage increase can exceed minimum wage top up
- Particularly relevant for black workers

Mechanism - Empirics

Increased car commuting by black workers

- ACS Journey To Work Files
- Workers with at most a high school diploma
- Split by age group-income quartile-race (focus on 26-35 [figure])
- Stacked event study, DV: share commuting by car (0-1)

DV: Share commutes by car	White	Black
Poorest quartile	0.02 (0.02)	0.12 (0.05)
3^{rd} quartile	0.00 (0.02)	0.11 (0.09)
2^{nd} quartile	-0.01 (0.02)	-0.03 (0.11)
Richest quartile	0.01 (0.03)	-0.19 (0.15)

10% increase in MW $\rightarrow$ 1.2pp increase in car commute among poor black workers

Mechanism - Empirics

Increased car commuting by black workers

Black workers' jobs become more stable

Mechanism - Empirics

Increased car commuting by black workers

Black workers' jobs become more stable

- Quarterly Workforce Indicators Dataset
- Food services sector (NAICS 722)
- Stacked event study
  - Weekly earnings (W) and employment counts (E) (log)
  - Quarterly hiring (H), separation (S) and turnover (T) rates (log)

	DV $\rightarrow$	W	E	H	S	T
White	Log Minimum Wage	0.15	-0.02	-0.26	-0.23	-0.24
		(0.02)	(0.03)	(0.06)	(0.06)	(0.06)
	N	347658	347658	347658	347658	347658
Black	Log Minimum Wage	0.17	0.04	-0.35	-0.29	-0.32
		(0.02)	(0.05)	(0.10)	(0.10)	(0.10)
	N	347658	347658	347658	347658	347658

Turnover declines more for black workers (30% difference)

Counterfactual design

Evolution of white-black hourly wage gap under three scenarios

Counterfactual design

Evolution of white-black hourly wage gap under three scenarios

1. Standard panel regression to estimate long-term impact
   - Sample: respondents with high school diploma or less (HSOL), earning less than \$20 (2019\$) per hour
   - Method: Twoway fixed effects with state time trends

$$
\begin{aligned}
y_{it} = \beta * mw_{st} + uRate_{st} \\
+ state_{it} + month_t + state_{it} \times month_t \\
+ \text{individual controls}_{it} + \epsilon_{it}
\end{aligned}
$$

Counterfactual design

Evolution of white-black hourly wage gap under three scenarios

1. Standard panel regression to estimate long-term impact

	DV →	Wage	Employment	Hours/week
White	Log Minimum Wage	0.13	0.00	-0.01
		(0.01)	(0.01)	(0.01)
	N	1115747	2686449	1105043
Hispanic	Log Minimum Wage	0.08	0.01	-0.02
		(0.04)	(0.02)	(0.02)
	N	193443	464298	191931
Black	Log Minimum Wage	0.18	0.03	0.04
		(0.03)	(0.03)	(0.03)
	N	176962	493363	174970

- Wage effects larger for black workers
- Very similar to event study

Counterfactual design

Evolution of white-black hourly wage gap under three scenarios

1. Wage elasticity of 0.18 (black) vs 0.13 (white workers)
2. Predict counterfactual wages (HSOL, $< \$20$)

Counterfactual design

Evolution of white-black hourly wage gap under three scenarios

1. Wage elasticity of 0.18 (black) vs 0.13 (white workers)
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    - ... under actual minimum wage regime
    - ... if minimum wage had been frozen in 1982
    - ... if federal minimum went to \$12 (California path)

Counterfactual design

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    - ... under actual minimum wage regime
    - ... if minimum wage had been frozen in 1982
    - ... if federal minimum went to \$12 (California path)
3. Calculate gap under each regime (HSOL, $< \$20$)

Counterfactual design

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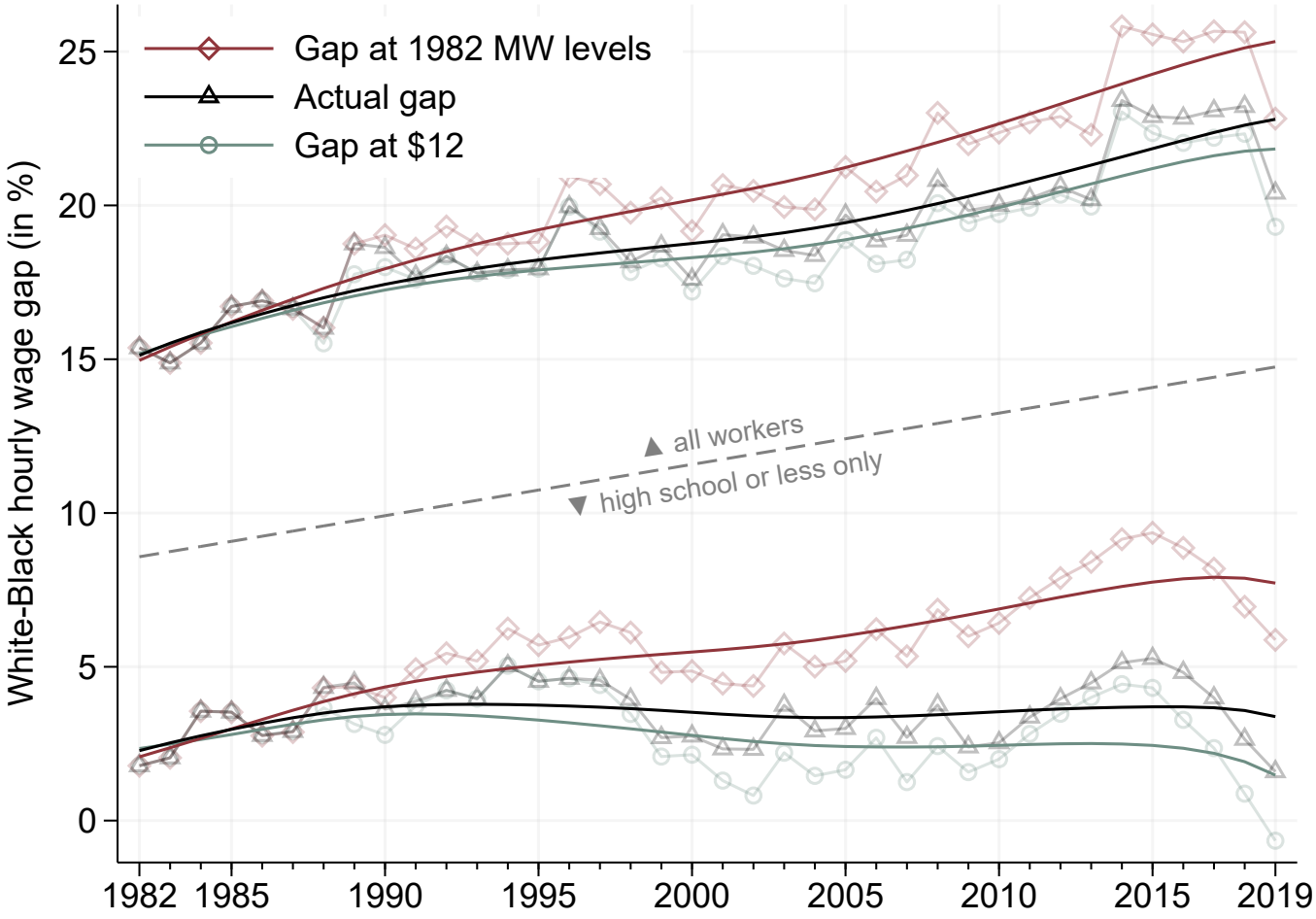
2. Predict counterfactual wages (HSOL, $< \$20$)
   - ... under actual minimum wage regime
   - ... if minimum wage had been frozen in 1982
   - ... if federal minimum went to \$12 (California path)
3. Calculate gap under each regime (HSOL, $< \$20$)
4. Translate to economy wide gap (assume others unaffected)

Counterfactual design

Evolution of white-black hourly wage gap under three scenarios



- Affected: 5.9pp $->$ 1.6pp (-4.3pp, -73%)
- Overall : 22.8pp $->$ 20.4pp (-2.4pp, -11%)

Counterfactual design

Evolution of white-black gap had minimum wage been frozen in 1982

- Affected: 5.9pp $->$ 1.6pp (-4.3pp, -73%)
- Overall : 22.8pp $->$ 20.4pp (-2.4pp, -11%)
- Compare to DM2020: $\sim$ 16% reduction due to 1966 FLSA

Based on strong assumptions

- Inequality reducing effect of minimum wage is additive (overestimation)
- All workers with more than high school diploma are completely unaffected (underestimation)
- Minimum wage policy does not affect schooling (cfr Flinn, Gemici and Laufer, 2017)

Other dimensions

1. Employment and hours worked: no evidence of any disemployment effects (all methods)
2. Heterogeneity by gender and age (and race), stacked event study
    - Wage gains mostly for young workers and Hispanic women
    - No significant disemployment effects, but potentially some labor-labor substitution for black workers (from very young to older and female)
    - No effect on hours worked

Robustness checks

1. Stacked event study
    - MW change perfectly modelled
    - Omitting federal changes: more noise, same ranking
2. Bunching
    - Evolution over time: no pretrends anywhere
    - No effects further up the wage distribution
3. Race neutrality analysis: no pretrends
4. Counterfactual analysis: no pretrends

Conclusion

Minimum wage policy reduces wage gaps between white and black workers

- Black wage elasticities are larger
  - Stacked event studies, binned estimator, panel methods
  - CPS (HSOL, $<$ \$20) and QWI (NAICS 722)
- Gap would have been 11% larger at 1982 minimum wages
  - 22.8pp vs 20.4pp (-11%)
- White workers also see wage increases, just smaller
  - Might affect support for further MW hikes
- Virtuous cycle
  - Higher wages $\rightarrow$ higher mobility $\rightarrow$ higher wages

Questions, criticism and suggestions very welcome!

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