Minimum wages

AE318 - Labour Economics

Roland Rathelot

Minimum wages

The debate

- As an "heterodox" policy, economists are not traditionally fond of minimum wages
- Large literature, both theoretical and empirical to clarify the trade-off faced by policy makers
- Main effects:
  - Increases the wage of affected workers $(+)$
  - Reduces employment of some workers $(-)$
- Additional effects:
  - Redistributes economic rent from stockholders to workers $(+)$
  - Increases output price (increased input cost) which hurts customers $(-)$

Simple models

- Competitive model with 1 labor type: negative effects of a binding minimum wage (Stigler, 1946)
  - Direct effect: employers substitute capital for labour
  - Macro loop: increased input cost reduces output and labour demand
- If 2 labour types
  - Overall negative labour effect mitigated by unskilled-skilled substitution
  - Still: employment reduction for unskilled
- Monopsony: workers' mobility is limited and employers have some power to set wages lower than marginal productivity
  - Impact of minimum wage ambiguous

A history of (empirical) violence

- Older papers
  - 1960s: Didn't find an effect on employment (Lester)
  - 1970s: found an effect (surveys by Brown and Wellington)
- Burgeoning literature in the early 1990s, with the emergence of case studies and new data (e.g. Card and Krueger 1994)
- 1990s-2000s: Still many panel data papers (using diff-in-diff across states and changes of minimum wage rates)
- Still two sides:
  - Neumark and Wascher: evidence of a negative effect on employment is overwhelming
  - Card/Krueger, Dube/Reich...: no evidence for a significant effect

Early 2010s

- Dube, Lester, Reich (2010): diff-in-diff might be flawed
  - States might have different trends (which could be correlated with minimum wages)
- Idea: generalise case studies: restrict the analysis to a narrow ribbon around state borders
- Focus on restaurants and other low-wage sectors (to maximise power)
- Employment elasticity to minimum wage insignificant and no great than -.15
- Neumark, Salas and Wascher (2014): nearby states may not be perfect controls
  - with other control states: elasticity between -.1 and -.2

Harasztosi and Lindner (2019)

Who Pays for the Minimum Wage? *American Economic Review*. 2019

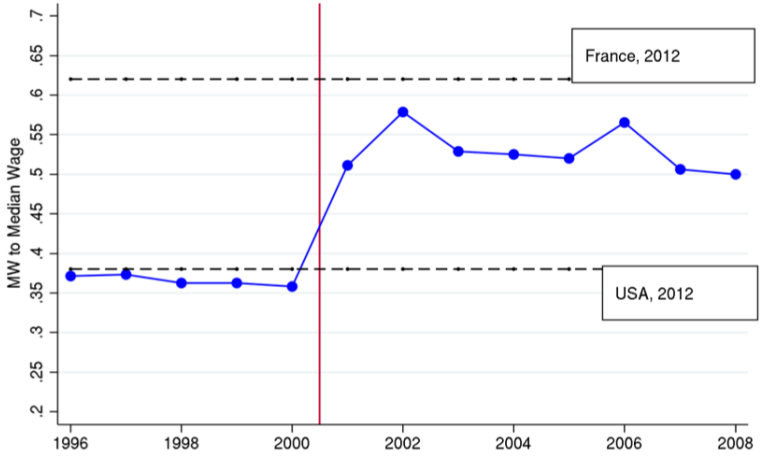
Péter Harasztosi
Joint Research Center, European Commission

Attila Lindner
UCL

Contributions

- Analyse a very large (60%) minimum-wage increase in Hungary in 2001
- Results:
  - Limited effect on employment (elasticity of -.03, with a s.e. of .004)
  - Incidence: 80% on the final consumer, 20% on firms owners
  - Labour-capital substitution going on
  - Heterogeneity of the employment effect: tradable-sector firms experience larger effect than non-tradable sector ones

The minimum wage reform



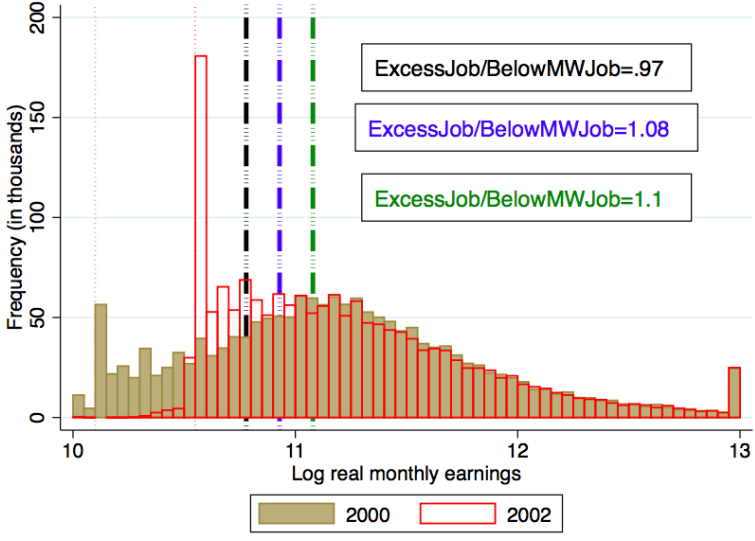
Effect on employment and wages

- Difference in difference at the firm-year level:

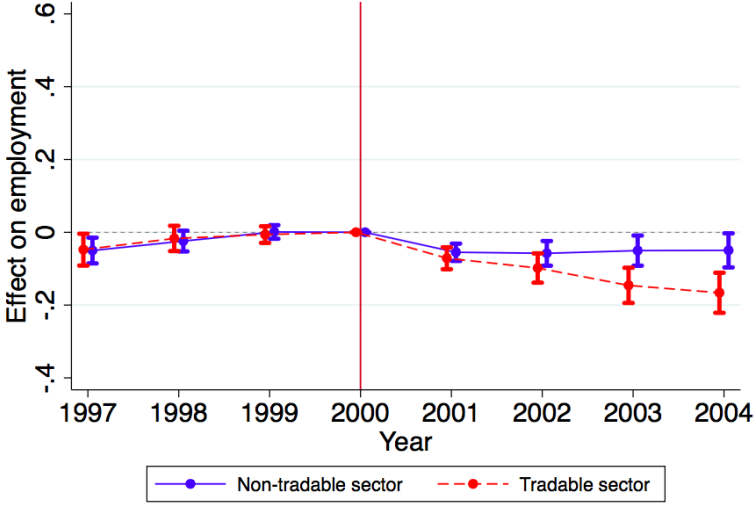
$$\frac{y_{it} - y_{i2000}}{y_{i2000}} = \alpha_t + \beta_t FA_i + \gamma_t X_{it} + \varepsilon_{it}$$

  with y the employment level, FA the fraction of workers for whom the 2002 min wage is binding
  - They keep in the sample firms that shut down after 2000
  - Test pre-trends between high-FA and low-FA firms
- Point estimate of -8% (decrease of employment when FA goes from 0% to 100%)
  - Elasticity of employment wrt min wage: -.03
  - Elasticity of employment wrt average wage: -.15
- Same analysis for wages: 50% increase

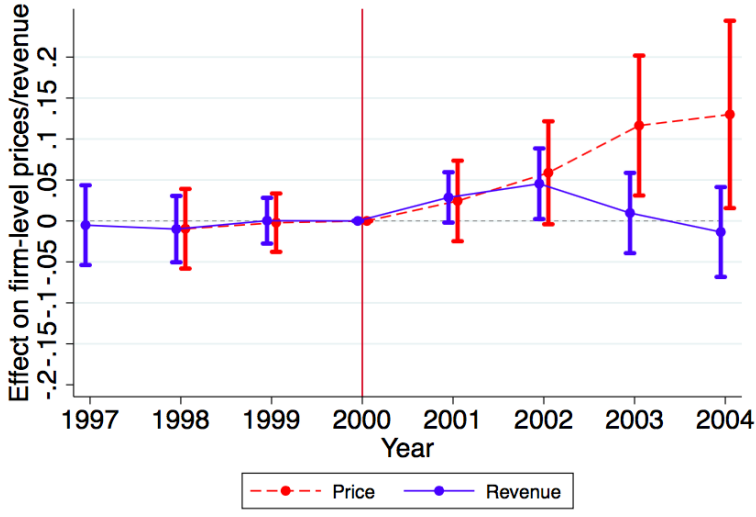
Log earnings and bunching



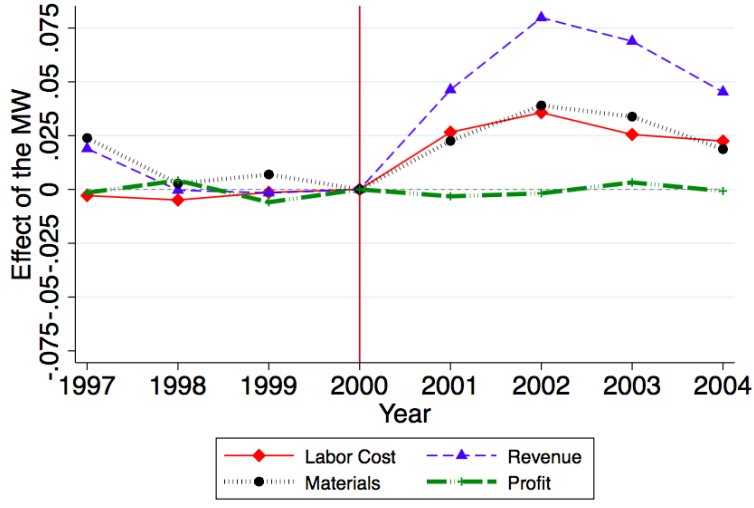
Heterogeneity of the effect on employment



Price and revenue



Balance-sheet components



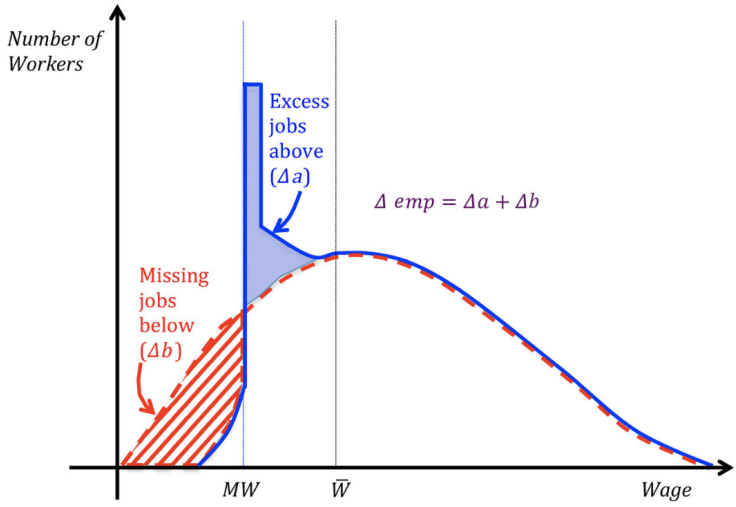
Back to the neoclassical model

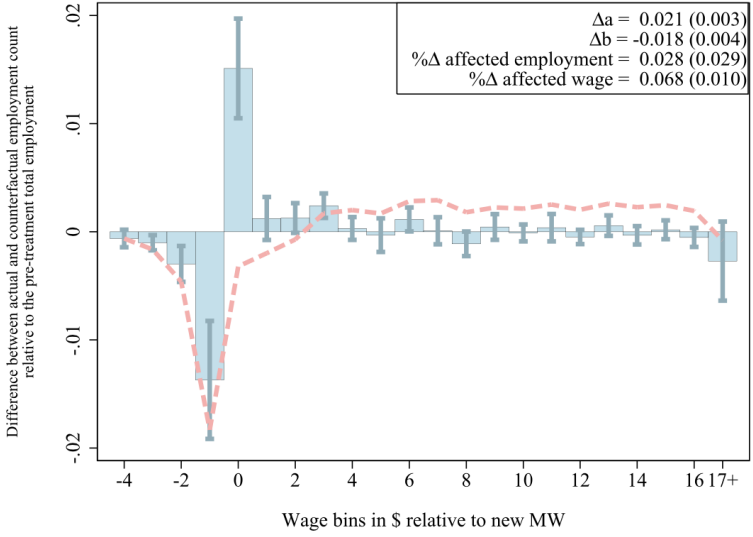
- Using empirical moments:
  - Employment elasticity
  - Revenue elasticity
  - Materials elasticity
  - Capital elasticity
  - Price elasticity
- they estimate structural parameters for several sectors
  - output demand
  - capital-labour elasticity
  - material-labour elasticity

Cengiz, Dube, Lindner and Zipperer (2017)

The effect of minimum wages on the total number of jobs: Evidence from the United States using a bunching estimator, 2017

- Back to the US: use variation in state minimum wages between 1979 and 2016
- Bunching estimates: compare the number of missing jobs paying below the new minimum during the five years following implementation to the excess number of jobs paying just above minimum
- Rule out minimum wage elasticities of total employment below -0.06


Number of Workers
Excess jobs above (Δa)
$\Delta\ emp = \Delta a + \Delta b$
Missing jobs below (Δb)
MW
$\bar{W}$
Wage


Δa = 0.021 (0.003)
Δb = -0.018 (0.004)
%Δ affected employment = 0.028 (0.029)
%Δ affected wage = 0.068 (0.010)
Difference between actual and counterfactual employment count relative to the pre-treatment total employment
.02
.01
0
-.01
-.02
-4
-2
0
2
4
6
8
10
12
14
16
17+
Wage bins in $ relative to new MW

Draca, Machin, and Van Reenen (2011)

Minimum Wages and Firm Profitability, American Economic Journal: Applied Economics, 2011

- Use the introduction of a national minimum wage in the UK in 1999
- Same empirical strategy as Harasztosi and Lindner (2017)
- Test a simple model in which firms do not react
  - Minimum wages increase labour cost and reduce profits

$$\Delta\left(\frac{\Pi}{S}\right) = -\left(\frac{WL}{S}\right)\left(\frac{\Delta W}{W}\right)$$

	Period before and after NMW introduction, 1997–2002 ($N = 4{,}112$)	
	Change in $\ln(\textit{average wage})$, $\Delta \ln W$	Change in gross profit margin, $\Delta(\Pi/S)$
Panel A. Treatment = low-wage firm		
Pre-NMW low wage firm	0.090***	−0.029**
	(0.026)	(0.012)
Test of no behavioral response	p-value = 0.663	
Panel B. Treatment = –pre-policy $\ln(W)$		
− Pre-NMW $\ln(W)$	0.188***	−0.032**
	(0.033)	(0.015)
Test of no behavioral response	p-value = 0.144	

Minimum wages... in China

- Fang and Lin (2015)
  - Look at the impact of minimum wage changes (across counties and years) over the 2002-09 period
  - Find significant adverse impact on employment
- Dautovic, Hau, Huang (2017)
  - Investigate the impact on consumption over the same period, with a similar strategy
  - Find an 1:1 increase in consumption
  - Do not confirm the adverse impact on employment

Minimum wages... in China

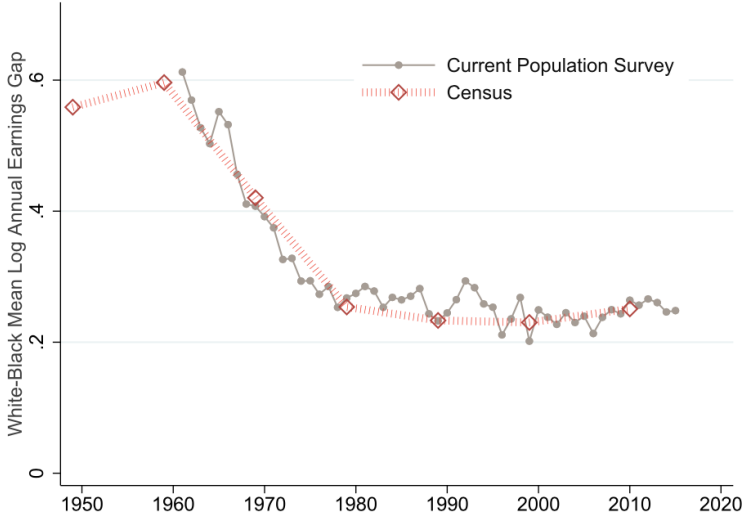
- Mayneris, Poncet and Zhang (2014)
  - Study how the 2004 reform of minimum wage rules in China has affected the survival, average wage, employment and productivity of local firms
  - For surviving firms, wage costs increased without negative repercussions on employment
  - Minimum wage growth allows more productive firms to replace the least productive ones and forces incumbent firms to strengthen their competitiveness, these two mechanisms boosting the aggregate efficiency of the economy

Derenoncourt and Montialoux (2021)

Minimum Wages and Racial Inequality. *Quarterly Journal of Economics*. 2021

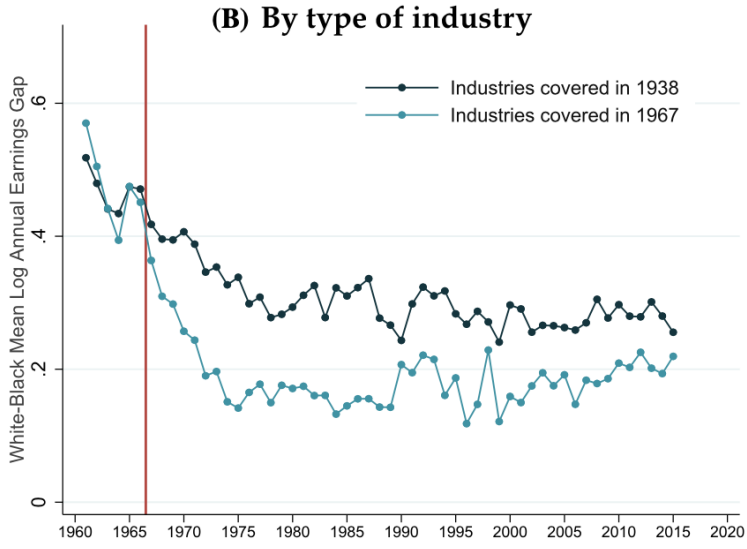
Ellora Derenoncourt
Princeton

Claire Montialoux
Sciences Po


White-Black Mean Log Annual Earnings Gap
0
.2
.4
.6
1950
1960
1970
1980
1990
2000
2010
2020
Current Population Survey
Census

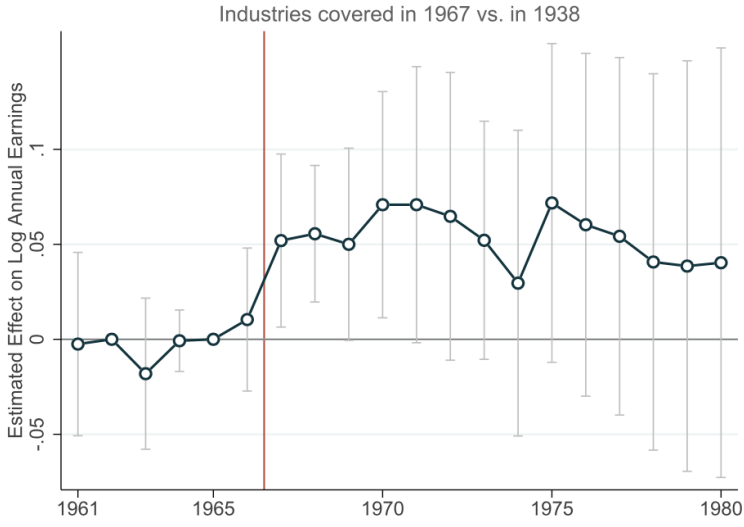
What are the main determinants of the decline?

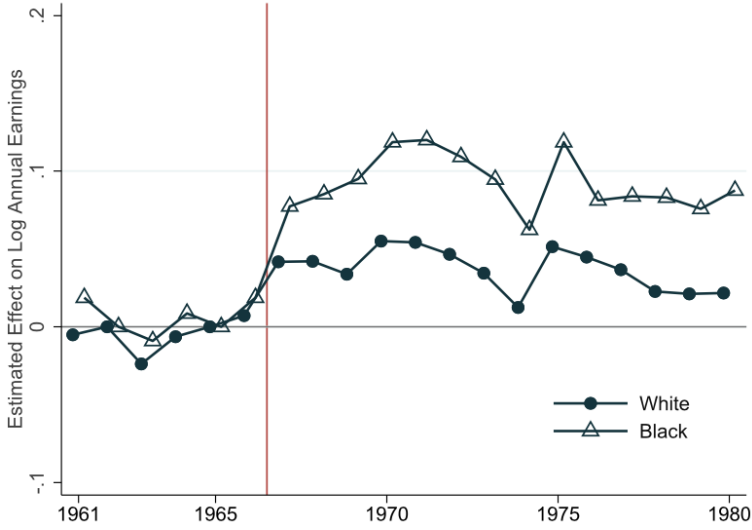
- Many hypotheses already around in the literature
- New hypothesis: the extension of the federal minimum wage to new industries
- Fair Labor Standard Act of 1966: introduces federal min wage to uncovered sectors: agriculture, hotels, restaurants, schools, hospitals, entertainment, other services
- Black workers tended to be over-represented in these industries (20% of the overall workers, and a third of black workers)
- Paper assembles new dataset on hourly wages by industry, occupation, gender, and region between the 1960s and the 1980s (digitalising paper reports from the Bureau of Labor Statistics)


(B) By type of industry
Industries covered in 1938
Industries covered in 1967
White-Black Mean Log Annual Earnings Gap
0
.2
.4
.6
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020

Analysis

1. The 1967 reform had a large effect on wages for workers at the bottom of the earnings distribution
   - annual earnings of workers working in 1967 jumps 5.3% compared to those working in previously covered industries (CPS)
   - 16% of workers are impacted and receive a 34% wage increase on average (BLS)


Industries covered in 1967 vs. in 1938
Estimated Effect on Log Annual Earnings
-.05
0
.05
.1
1961
1965
1970
1975
1980


Estimated Effect on Log Annual Earnings
-.1
0
.1
.2
1961
1965
1970
1975
1980
White
Black

Analysis

1. The 1967 reform had a large effect on wages for workers at the bottom of the earnings distribution
2. The 1967 reform had a limited effect on employment
   - DiD (using states that has a higher min wage in 1966) employment elasticities wrt average wage greater than -.16 can be ruled out
   - Bunching estimates confirm this conclusion

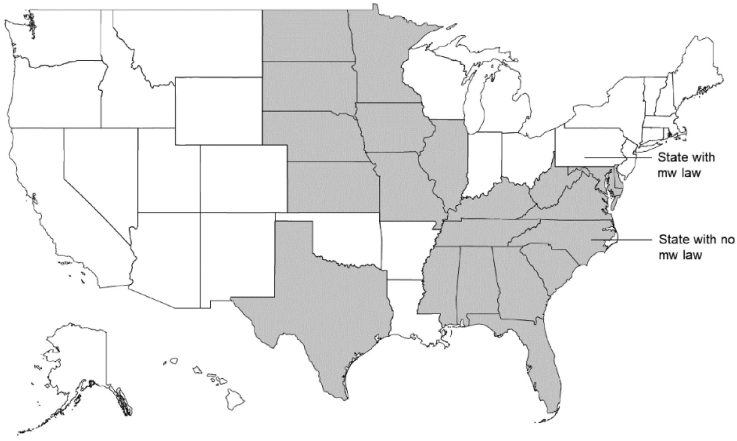
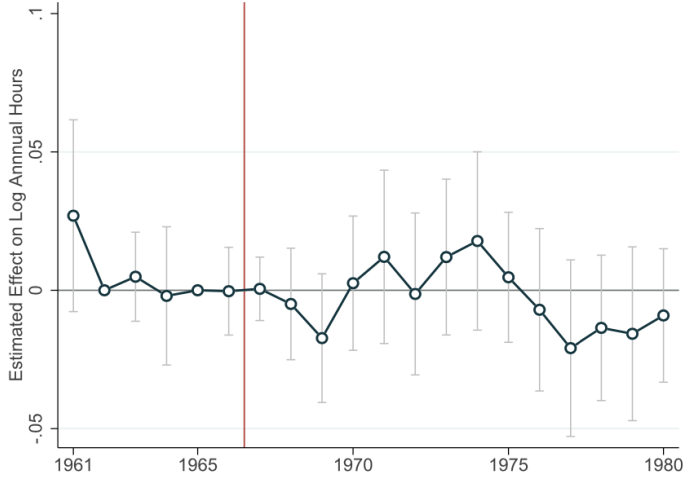


FIGURE VII

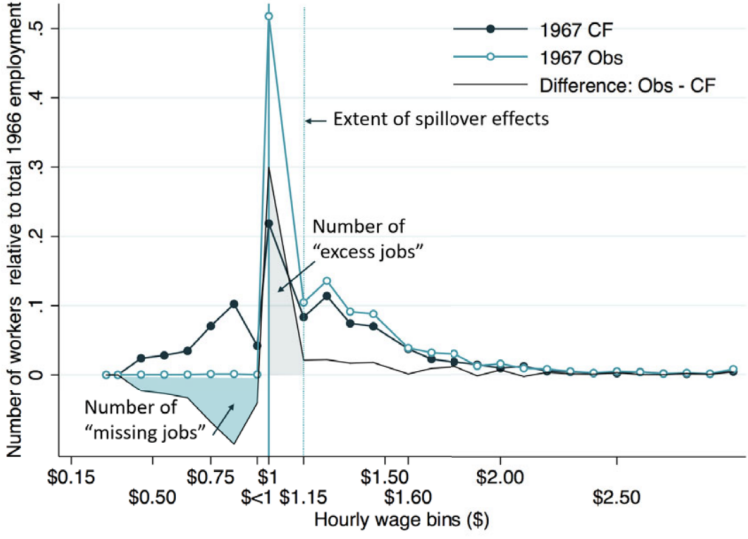
States with No Minimum Wage Laws as of January 1966

(A) Impact on annual number of hours worked (intensive margin)



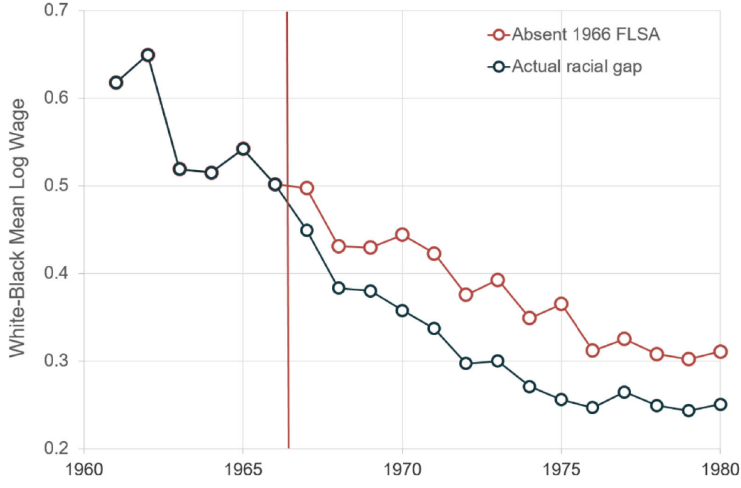
(B) Impact on probability of being employed (vs. unemployed (extensive margin)

(A) Case study: laundries in the South

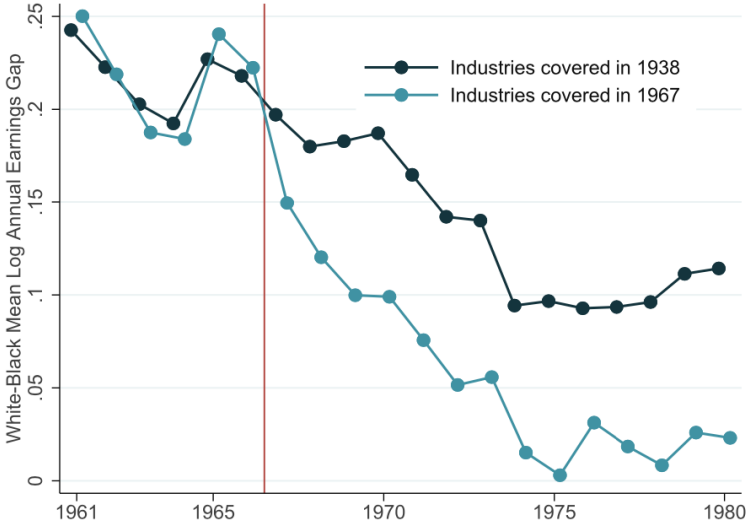


Analysis

1. The 1967 reform had a large effect on wages for workers at the bottom of the earnings distribution
2. The 1967 reform had a limited effect on employment
3. The 1967 reform can account for about 20% of the decline in racial gaps
   - Counterfactual computing by assuming that, absent the reform wages in the impacted industries would have evolved in parallel to that of the control group
   - Considering adjusted racial earnings gap (gender, education, experience, hours and weeks worked, occupation, marital status), racial gap is down to zero


Absent 1966 FLSA
Actual racial gap
White-Black Mean Log Wage
0.7
0.6
0.5
0.4
0.3
0.2
1960
1965
1970
1975
1980

(B) Adjusted racial earnings gaps, by treatment status



Engbom and Moser (2022)

Earnings Inequality and the Minimum Wage: Evidence from Brazil. *American Economic Review*. 2022

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