Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

The Effect of Mandatory Profit-Sharing on Workers and Firms: Evidence from France

Very preliminary - comments welcome!

Elio Nimier-David (CREST) David Sraer (UC Berkeley) David Thesmar (MIT)

April 25, 2022

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
•00000000000	00000000	0000000000000	00	00	000000000000

Motivation: increased demand for redistribution

- Labor share has gone down globally (Karabarbounis and Neiman, 2013).
- Stagnant income growth for low-skill workers in many developed countries (Piketty et al., 2018; Drechsel-Grau et al., 2021)
- Concerns of increased firm market power in local labor markets (Stansbury and Summers, 2020)
- \Rightarrow Increased demand for redistribution to low-income workers

This paper: we study a non-fiscal form of redistribution – mandatory profit-sharing in France

Institutions: mandated profit-sharing in France

Created by De Gaulle in $\underline{1967}$:

- After 1945, development of strong welfare state for workers:
 - Social security, universal health care, employment protection laws, ...
- Mandatory profit sharing sold as next step for post-war French economic development
 - align interests of workers and shareholders
 - "third way" between capitalism & communism
 - part of broader goal of workers' representation on boards and employee stock-ownership

"Le grand changement qu'il faut apporter à la condition ouvrière, c'est l'association active du travail à l'œuvre économique qu'il contribue à accomplir. (De Gaulle, 1966)"

Mandated profit-sharing: RSP

- Every year, firms with more than 100 employees have to set aside $\in RSP \ge 0$
- $\in RSP$ is then distributed to <u>all</u> employees, proportional to wages
- ∈*RSP* determined by **formula**:

$$\in RSP = \frac{1}{2} \left(\frac{\text{wage bill}}{\text{value added}} \right) (\text{net income} - .05 \times \text{book equity})^+$$

- .05 \times book equity: "fair" compensation for shareholders
- $\frac{\text{wage bill}}{\text{value added}}$: workers receive more when they contribute more to output

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
0000000000000	00000000	0000000000000	00	00	000000000000

Mandated profit-sharing: Tax Implications

- for **workers**, money received is:
 - 1. tax free if held 5 years on dedicated savings account
 - 2. taxable if earned right away
- for firms, two main tax advantages:
 - 1. no payroll taxes paid on $\in RSP$
 - 2. $\in RSP$ is like a cost, i.e. pre-tax
- Firms with fewer than 100 workers can create profit-sharing plan (and benefit from tax advantages)
- Firms can share more than $\in RSP$, up to a threshold ($\approx \in 30k$ per employee/year in 2020)

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
0000000000000000	00000000	0000000000000	00	00	000000000000

Mandated profit-sharing in 2017: some numbers

- $\approx 40\%$ of all employees effectively receive profit-sharing (Dares, 2019)
- Second-highest share of employees receiving profit-sharing in Europe (Batut and Rachiq, 2021) 💽
- − Total amount of profit sharing in 2017 $\approx \in$ 7bn
 - \approx 4% of wages for employees receiving profit-sharing
 - \approx 1.5% of total wages
- 65% paid in (income) tax free accounts

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

Recent policy debates



Hillary Clinton (2015): Companies that share their profits with employees will receive a two-year tax credit from the federal government with the goal of boosting employee wages and incentivizing workers. Emmanuel Macron (2022): No dividend to shareholders without profit-sharing for workers? ("Dividende salarié")



Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

Profit-sharing: a long standing issue in economics

PROFIT SHARING

BETWEEN EMPLOYER AND EMPLOYEE

A STUDY IN THE EVOLUTION OF THE WAGES SYSTEM

BY

NICHOLAS PAINE GILMAN

The present doctrine is that the workman's interests are linked to those of other workmas, and the employer's to those of other employers. Keentrally it still be seen that industrial divisions should be perpendicular, no horizontal. The workman's interests should be bound up with those of his employer, and should be pitted in fair competition against those of other workmass and employers. — W. STAKLEY previous.



BOSTON AND NEW YORK HOUGHTON, MIFFLIN AND COMPANY (Ebs fintersite Perss), Cambridge 1891

The Increase in Industrial Remuneration Under Profit-Sharing

David F. Schloss

THE ECONOMIC JOURNAL

 Sector
 Sector<

The Economic Journal Vol. 1, No. 2 (Jun., 1891), pp. 292-303 (12 pages)

Published by: <u>Oxford</u> <u>University Press</u> on behalf of the <u>Royal Economic Society</u>

MILLY Balant

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
0000000000000	00000000	0000000000000	00	00	000000000000

Main research question and a null hypothesis

What is the impact of mandatory profit-sharing on workers and firms?

- H₀: in a competitive labor market with risk-neutral workers

- workers' total compensation = MPL
- \Rightarrow firms substitute profit sharing for fixed wage and no redistribution
- no payroll taxes on profit-sharing \Rightarrow pure transfer from taxpayers to shareholders

Further questions we ask in this paper

- In practice, rigid wages in France, especially for low skill workers:
 - \Rightarrow regulation can increase workers' total compensation
 - \Rightarrow regulation can reduce shareholder's income, despite tax advantage
- Do firms avoid the regulation?
 - e.g., **bunching** below 100 employee threshold, strategic leverage, consumption through the firm, ...
- How does mandatory profit-sharing affect workers' total compensation?
- How does mandatory profit-sharing affect investment, employment, productivity?

Our empirical setting: shock and data

- Regulatory shock: in November 1990, eligibility threshold reduced from 100 to 50 employees:
 - only regulatory threshold at 100 employees (many at 50, some at 10 (Garicano et al. (2016)))

Our empirical setting: shock and data

- Regulatory shock: in November 1990, eligibility threshold reduced from 100 to 50 employees:
 - only regulatory threshold at 100 employees (many at 50, some at 10 (Garicano et al. (2016)))
- Administrative Data:
 - Corporate tax files for all firms with more than 20 employees for 1984-99
 - \star Employment, wage bill, ${\in}RSP,$ value added, sales, investment, capital, etc.
 - Employer-employee panel containing 1/24 of working population (DADS) for 1984-99
 - daily wage, occupation, firm id, tenure, experience
 - $\bullet\,$ sample: private sector, workers aged between 16 and 62 working full time

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
00000000000	00000000	0000000000000	00	00	000000000000

Literature review

- Large literature on adoption of profit-sharing, although (1) small sample (2) endogeneity issue
 - mixed evidence on wage incidence
 - * Ugarkovic (2008), Black et al. (2004), Delahaie and Duhautois (2019), Mabile (1998)
 - large effect on labor productivity / TFP
 - ★ FitzRoy and Kraft (1987); Kruse (1992); Cahuc and Dormont (1997); Prendergast (1999); Knez and Simester (2001); Doucouliagos et al. (2020)
 - mixed evidence on employment effect
 - * Weitzman (1985, 1987), Wadhwani and Wall (1990); Bell and Neumark (1993)
- Immense literature on labor market institutions (and their incidence on workers and firms)
- Large literature on **ESOP** and productivity, but different population of firms

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
00000000000	00000000	0000000000000	00	00	000000000000

Roadmap

Introduction

Bunching Analysis

Difference-in-difference evidence

Employee-level evidence

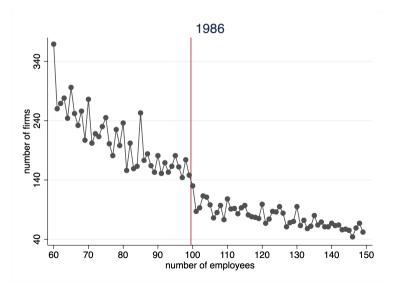
conclusion

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	●00000000	0000000000000	00	00	000000000000

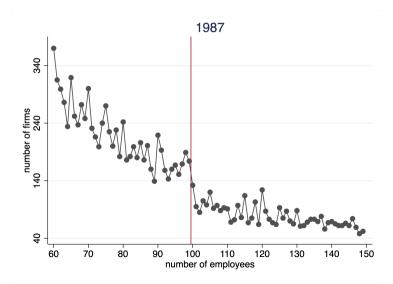
Bunching analysis at 100 employee threshold

- Mandatory profit-sharing is the only regulatory constraint specific to 100 threshold
- If firms perceive mandatory profit-sharing as a cost \Rightarrow bunching at 100
- Caveat about data vs. regulation:
 - Employment count in data: average of end-of-quarter employment
 - Regulation: eligible if employment count at end-of-month is greater than 100 at least $\overline{6 \text{ months}}$
 - \Rightarrow some measurement error

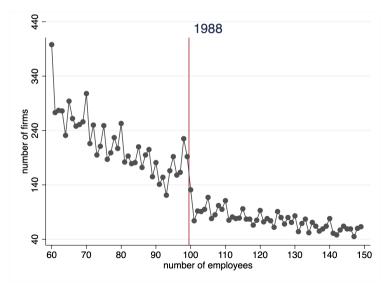
Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
00000000000	00000000	0000000000000	00	00	000000000000



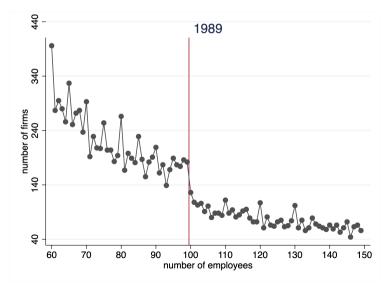
Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
00000000000	00000000	0000000000000	00	00	000000000000



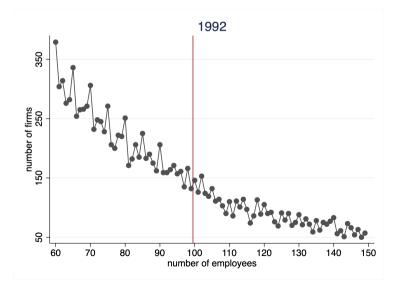
Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000



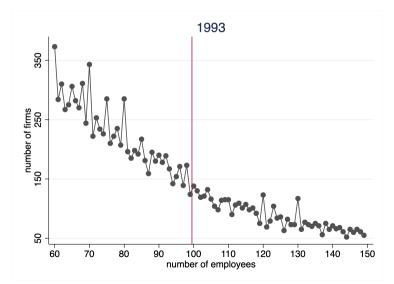
Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000



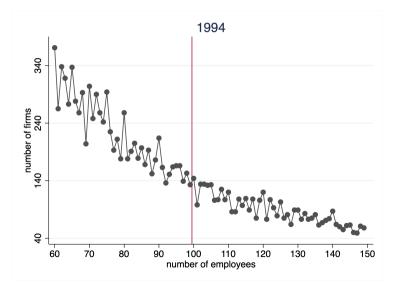
Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
00000000000	00000000	0000000000000	00	00	000000000000



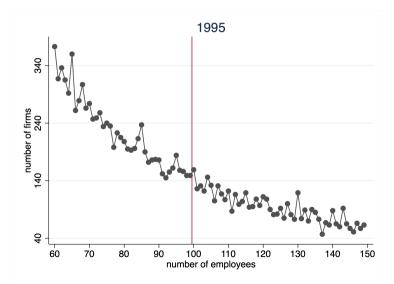
Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000



Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

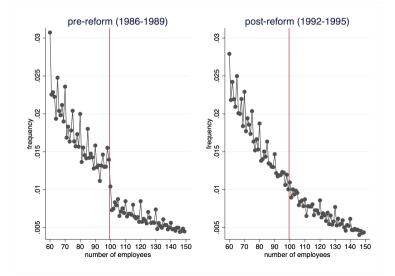


Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000



Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

Conditional distribution of firm size: pre- vs. post- reform



Conditional distribution of firm size: pre- vs. post- reform with Pareto counterfactuals

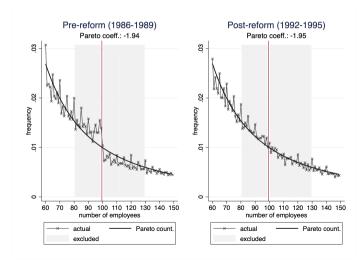
- We vizualize excess bunching / missing mass by fitting Pareto counterfactual distributions:
 - No binning; exclude 81-129 range
 - If p_j is the share of firms with j employees, $j \in [60, 149]$, we estimate:

$$\log(p_j) = \alpha + \beta \log(j) + \epsilon_j^{pre}, \text{ for } j \in [60, 80] \cup [130, 149]$$

- For both pre- and post period

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

Conditional distribution of firm size: pre- vs. post- reform with Pareto counterfactuals



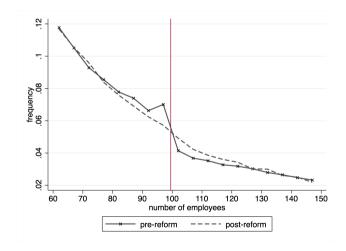
Introduction B	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
00000000000 O	00000000	0000000000000	00	00	000000000000

Round number reporting

- Firms tend to report multiples of five for employment counts
- \Rightarrow we bin the size distribution: 60-64, 65-69,...

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

Round number reporting



Employment effect of bunching

- Using counterfactual distribution (e.g., Pareto or post-reform distribution), we can count the employment loss directly due to bunching
 - \approx 4,300 employees lost to eligibility at 100 employee threshold
- We can also use a bunching estimator to quantify potential employment distortion induced by regulation beyond bunching
 - in progress

Introduction Bur	nching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
00000000000 000	0000000	0000000000000	00	00	000000000000

Some simple economics of mandatory profit-sharing

- Firm generate revenues $p_i y_i = z_i l^{\theta}$. No corporate income tax to simplify
- Profit without regulation: $p_i y_i w l_i$
- $-RSP_i = \tau \left(p_i y_i w l_i \right) \text{ (assume } \tau \text{)}$
- Profit with regulation: $(1 \tau) (p_i y_i w l_i)$ (assuming same wage)
 - \Rightarrow bunching at 100 for firms with $z \in [z_L, z_U]$
 - \Rightarrow no distortion in labor demand beyond bunching. Intuition: labor cost tax-deductible
 - similar intuition with capital input if $ROE \approx 5\%$ formula deducts a 5% equity cost

Introduction Bur	nching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
00000000000 000	0000000	0000000000000	00	00	000000000000

Some simple economics of mandatory profit-sharing

- Firm generate revenues $p_i y_i = z_i l^{\theta}$. No corporate income tax to simplify
- Profit without regulation: $p_i y_i w l_i$
- $RSP_i = \tau \left(p_i y_i w l_i \right)$ (assume τ)
- Profit with regulation: $(1 \tau) (p_i y_i w l_i)$ (assuming same wage)
 - \Rightarrow bunching at 100 for firms with $z \in [z_L, z_U]$
 - \Rightarrow no distortion in labor demand beyond bunching. Intuition: labor cost tax-deductible
 - similar intuition with capital input if $ROE \approx 5\%$ formula deducts a 5% equity cost
- if fixed wage adjusts downward with profit-sharing, more incentives to hire above threshold

"Reduced-form" model and bunching estimator (in progress)

- In practice, regulation may lead to distortion in labor demand beyond bunching:
 - Investment incentives: true ROE > 5% \Rightarrow lower incentives to invest \Rightarrow lower MPL
 - A symmetry: firm only pays ${\in}RSP$ when profits are positive
 - Non-deductible inputs: e.g., managerial effort
 - τ decrease with firm labor share, providing incentives to reduce labor demand

"Reduced-form" model and bunching estimator (in progress)

- In practice, regulation may lead to distortion in labor demand beyond bunching:
 - Investment incentives: true ROE > 5% \Rightarrow lower incentives to invest \Rightarrow lower MPL
 - A symmetry: firm only pays ${\in}RSP$ when profits are positive
 - Non-deductible inputs: e.g., managerial effort
 - τ decrease with firm labor share, providing incentives to reduce labor demand
- We model these distortions in "reduced-form" and estimate them with bunching estimator:
 - profit without RSP: $z_i l_i^{\theta} w l_i$; profit with RSP: $(1 \tau) \left(z_i l_i^{\theta} w(1 + \lambda) l_i \right)$
 - Calibrate θ at .7; use diff-in-diff estimate for $\tau :$ 5%
 - Recover marginal buncher from data (Kleven and Waseem (2013)) and infer λ
 - $\widehat{\lambda} \approx 2\%$
 - reduction in labor demand $\approx \frac{\widehat{\lambda}}{1-\theta} \approx 6\%$
- Alternative: estimate a full structural model as in Garicano et al. (2016)

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	●0000000000000	00	00	000000000000

Difference-in-differences analysis

- How does mandatory profit sharing affect workers' compensation? firm outcomes?

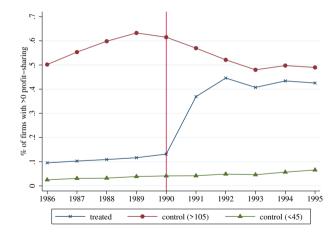
Difference-in-differences analysis

- How does mandatory profit sharing affect workers' compensation? firm outcomes?
- We implement a simple intent-to-treat, difference-in-difference strategy:
 - 5-year window around regulatory change (1986-1995), balanced sample of firms
 - Treatment group: firms with 55-95 employees in 1989-90 (4,014 firms per year)
 - Two control groups:
 - 1. Firms with 105-500 employees in 1989-90 (5,192 firms per year)
 - 2. Firms with 25-45 employees in 1989-90 (6,638 firms per year).
- Specification: (i firm, j industry, t year)

$$\begin{aligned} Y_{ijt} &= \alpha_i + \delta_{jt} + \beta^T \mathbb{1}_{\{i \in \text{treatment}\}} \times \mathbb{1}_{\{t \ge 1991\}} + \beta^C \mathbb{1}_{\{i \in \text{control}(\le 45)\}} \times \mathbb{1}_{\{t \ge 1991\}} \\ &+ \gamma^T \mathbb{1}_{\{i \in \text{treatment}\}} \times t + \gamma^C \mathbb{1}_{\{i \in \text{control}(\le 45)\}} \times t + \epsilon_{ijt} \end{aligned}$$

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

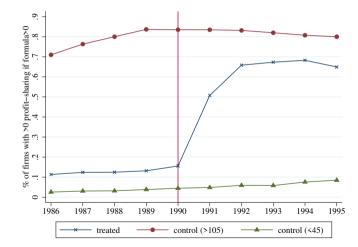
1st-stage: share of firms with > 0 profit-sharing



- low take-up for smaller firms consistent with scheme being a net cost for firms

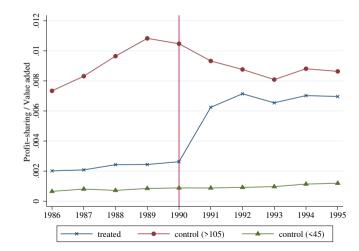
Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

1st-stage: share of firms with > 0 profit-sharing if formula > 0



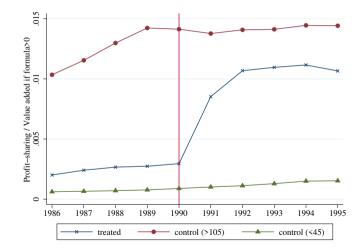
Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

Mandated profit-sharing \approx .5 ppt of value-added on average



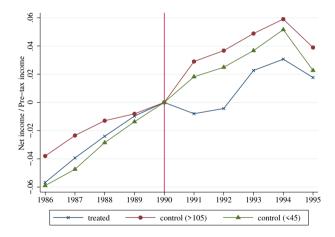
Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	00000000000

If formula > 0, mandated profit-sharing ≈ 1 ppt of value-added



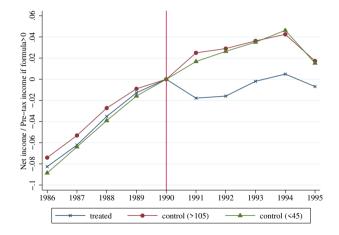
Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

Effect for owners: Net-income / pretax-income $\searrow \approx 3$ ppts



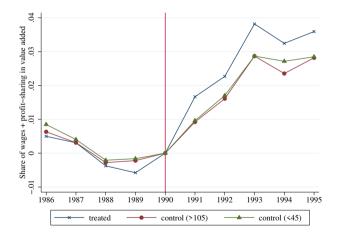
Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

Effect for owners: if formula > 0, net-income / pretax-income $\searrow \approx 5$ ppts



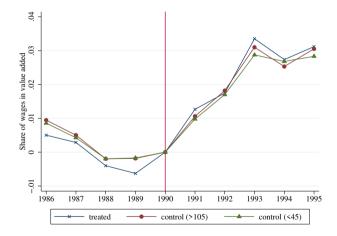
Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	00000000000000	00	00	000000000000

Effect for workers: wages+profit-sharing $\nearrow \approx .8ppt$ of value-added



Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

Effect for workers: wage labor share stays unchanged



Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

Regression evidence: quantification

	D(Profit-sharing)	Profit-sharing/	Profit-sharing/	Net income/
		Value added	Wages	Pre-tax income
$Control(< 45) \ge Post$	0.092^{***}	0.002^{***}	0.005^{***}	-0.016***
	(0.007)	(0.000)	(0.000)	(0.004)
Treatment x Post	0.356***	0.006***	0.013***	-0.048^{***}
	(0.011)	(0.000)	(0.001)	(0.005)
Treatment-Control (< 45)	0.264***	0.004***	0.009***	-0.032***
P-value	0.000	0.000	0.000	0.000
Industry-Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Treatment \times trend	Yes	Yes	Yes	Yes
Observations	154,510	153,000	$154,\!510$	122,228
$Adj R^2$	0.57	0.48	0.57	0.36

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	00000000000000	00	00	000000000000

Potential avoidance mechanisms

$$\in RSP = \frac{1}{2} \left(\frac{\text{wage bill}}{\text{value added}} \right) (\text{net income} - .05 \times \text{book equity})^+$$

- Consumption through the firm
 - Reduction in net income
- Increased leverage
 - Dividend financed by debt
 - Future net income decrease
- Substitution between capital and labor
 - Reduction in labor share

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	000000000000000000000000000000000000000	00	00	000000000000

Regression evidence: avoidance

	Materials/	Leverage	K / L	Pre-tax income/	D(Formula > 0)	Formula,
	Sales	Ratio		Sales		Sales
$Control(< 45) \ge Post$	0.005^{***}	-0.003	-0.008	-0.001	0.022**	0.002
	(0.002)	(0.002)	(0.006)	(0.001)	(0.010)	(0.006)
Treatment x Post	0.004^{*}	0.001	-0.001	-0.001	0.026^{**}	0.002
	(0.002)	(0.003)	(0.007)	(0.001)	(0.011)	(0.006)
Treatment-Control (< 45)	-0.001	0.005 *	0.007	-0.000	0.003	0.001
P-value	0.508	0.053	0.267	0.668	0.760	0.752
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Treatment \times trend	Yes	Yes	Yes	Yes	Yes	Yes
Observations	153,981	150, 136	149,486	128,381	154,182	154,082
$Adj R^2$	0.89	0.67	0.92	0.60	0.36	0.18

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	000000000000000000000000000000000000000	00	00	000000000000

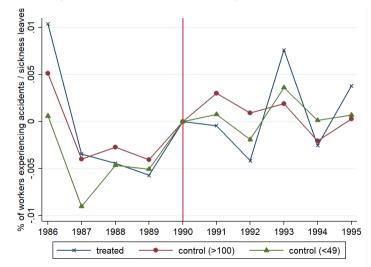
Impact of profit-sharing on economic activity

	Wages/	Total compensation/	Investment	Labor	TFP
	Value added	Value added	Ratio	Productivity	
$Control(< 45) \ge Post$	-0.000	0.002	0.009***	-0.012**	-0.013**
	(0.002)	(0.002)	(0.003)	(0.005)	(0.006)
Treatment x Post	0.003	0.009***	0.004	-0.005	-0.017***
	(0.002)	(0.002)	(0.003)	(0.006)	(0.006)
Treatment-Control (< 45)	0.003	0.007***	-0.004	0.007	-0.004
P-value	0.130	0.000	0.174	0.177	0.528
Industry-Year FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Treatment \times trend	Yes	Yes	Yes	Yes	Yes
Observations	$151,\!437$	151,388	147,518	$154,\!347$	145,879
$\operatorname{Adj} \mathbb{R}^2$	0.63	0.63	0.25	0.92	0.68

> Placebo > Manufacturing > Services > Additional outcomes

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	000000000000000000000000000000000000000	00	00	000000000000

Impact on sick leaves (from labor force survey)



Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

Robustness checks

- Sample
 - Allowing exits: all firms observed 5 year before the policy
 - Unbalanced panel: all firms observed in 1989-1990
- Size of the treatment/control groups
 - Variations in the lower-bound of the never-treated group and upper-bound of the always-treated group
- Years used to compute firm size
 - Firms staying in the same treatment/control group over the whole pre-treatment period
- Heterogeneity by industry (Manufacturing vs. services & retail)

The elasticity of labor earnings w.r.t. profit-sharing

- Previous result on worker compensation may conceal heterogeneity. Wages more flexible at the top \Rightarrow we analyze worker-level wage data
- Match balance sheet and Employer-Employee data

- Compute
$$\frac{Wage}{Day}$$
 & $\frac{Wage + Prof. sharing}{Day}$ for full-time workers

- For all employees, low-skill workers, and high-skill workers separately
- Two stage least squares using the regulatory change as an instrument

$$\log(Y_{ijt}) = \alpha_i + \delta_{jt} + \beta \times IHS \ (\widehat{\text{Prof. Sharing}_{ijt}}) + \epsilon_{ijt}$$

IHS (Prof. Sharing_{*ijt*}) =
$$\alpha_i + \delta_{jt} + \gamma \times \mathbb{1}_{\{i \in \text{treatment}\}} \times \mathbb{1}_{\{t \ge 1991\}} + \eta_{ijt}$$

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	0•	00	000000000000

Elasticity (2SLS)

	$\log(Wage)$	$\log(Wage+P.S.)$	log(Wage) Low-Skill	log(Wage+P.S.) Low-Skill	log(Wage) High-Skill	log(Wage+P.S.) High-Skill
					8	
IHS(Prof. Sharing)	0.001	0.009^{***}	0.002	0.010^{***}	-0.022*	-0.013
	(0.003)	(0.003)	(0.003)	(0.003)	(0.012)	(0.012)
FEs	. ,	· · ·	. ,	· · ·	. ,	
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
First Stage F	289	289	279	279	68	68
Observations	398777	398777	358806	358806	35996	35996

• OLS

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	•0	000000000000

Conclusion

- Mandated profit-sharing in France:
 - acts as $\approx 5\%$ tax on corporate income
 - redistributed to workers, representing $\approx 0.8\%$ of value-added
 - mostly for low-wage workers, presumably because of wage-rigidity
 - little avoidance mechanisms
 - no significant effect on labor productivity / TFP

– Many open questions:

- impact on worker's risk exposure?
- persistent effect on workers' earnings?
- conflicts within the firm (strikes)& employee turnover?

- ...

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	0.	000000000000

The Effect of Mandatory Profit-Sharing on Workers and Firms: Evidence from France

Very preliminary - comments welcome!

Elio Nimier-David (CREST) David Sraer (UC Berkeley) David Thesmar (MIT)

April 25, 2022

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

References I

- Batut, Cyprien and Chakir Rachiq, "Les dispositifs de partage de la valeur en France et en Europe," Technical Report, Insee 2021.
- Bell, Linda A. and David Neumark, "Lump-sum Payments and Profit-sharing Plans in the Union Sector of the United States Economy," *The Economic Journal*, 1993, 103 (418), 602–619.
- Black, S.E., L.M. Lynch, and A. Krivelyova, "How workers fare when employers innovate," *Industrial Relations*, 2004, 43 (1), 44 66.
- Cahuc, Pierre and Brigitte Dormont, "Profit-sharing: Does it increase productivity and employment? A theoretical model and empirical evidence on French micro data," *Labour Economics*, 1997, 4 (3), 293-319.
- Dares, "Participation, intéressement, et épargne salariale en 2017," Technical Report, Dares 2019.
- Delahaie, Noélie and Richard Duhautois, "Profit-Sharing and Wages: An Empirical Analysis Using French Data between 2000 and 2007," British Journal of Industrial Relations, 2019, 57 (1), 107–142.
- Doucouliagos, Hristos, Patrice Laroche, Douglas L. Kruse, and T. D. Stanley, "Is Profit Sharing Productive? A Meta-Regression Analysis," British Journal of Industrial Relations, June 2020, 58 (2), 364–395.
- Drechsel-Grau, Moritz, Andreas Peichl, Johannes Schmieder, Kai D. Schmid, Hannes Walz, and Wolter Stefanie, "Inequality and Income Dynamics in Germany," Technical Report 2021.
- FitzRoy, Felix and Kornelius Kraft, "Cooperation, Productivity, and Profit Sharing," The Quarterly Journal of Economics, 1987, 102 (1), 23–35.
- Garicano, Luis, Claire Lelarge, and John Van Reenen, "Firm Size Distortions and the Productivity Distribution: Evidence from France," *American Economic Review*, November 2016, *106* (11), 3439-79.

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

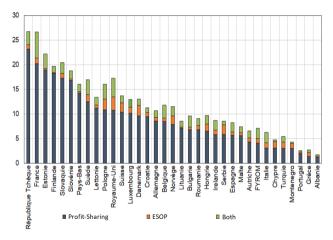
References II

- Karabarbounis, Loukas and Brent Neiman, "The Global Decline of the Labor Share*," The Quarterly Journal of Economics, 10 2013, 129 (1), 61–103.
- Knez, Marc and Duncan Simester, "Firm-Wide Incentives and Mutual Monitoring at Continental Airlines," Journal of Labor Economics, 2001, 19 (4), 743–72.
- Kruse, Douglas L., "Profit Sharing and Productivity: Microeconomic Evidence from the United States," The Economic Journal, 1992, 102 (410), 24–36.
- Mabile, Sylvie, "Intéressement et salaires : complémentarité ou substitution ?," *Economie et Statistique*, 1998, 316 (1), 45-61.
- Piketty, Thomas, Emmanuel Saez, and Gabriel Zucman, "Distributional National Accounts: Methods and Estimates for the United States," *The Quarterly Journal of Economics*, 2018, 133 (2), 553-609.
- Prendergast, Canice, "The Provision of Incentives in Firms," Journal of Economic Literature, March 1999, 37 (1), 7-63.
- Stansbury, Anna and Lawrence H Summers, "The Declining Worker Power Hypothesis: An explanation for the recent evolution of the American economy," Working Paper 27193, National Bureau of Economic Research May 2020.
- Ugarkovic, Marija, Profit-sharing and company performance, Deutscher Universitätsverlag Wiesbaden, 2008.
- Wadhwani, Sushil and Martin Wall, "The Effects of Profit-Sharing on Employment, Wages, Stock Returns and Productivity: Evidence from UK Micro-Data," *The Economic Journal*, 1990, *100* (399), 1–17.
- Weitzman, Martin L., "The Simple Macroeconomics of Profit Sharing," The American Economic Review, 1985, 75 (5), 937–953.
- _, "Steady State Unemployment Under Profit Sharing," The Economic Journal, 03 1987, 97 (385), 86-105.

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	•00000000000

Profit-sharing in Europe (2015)

 $\P{}_{\rm Back}$



Share of workers covered by profit-sharing schemes vs. ESOP in Europe. Batut and Rachiq (2021). Source: European Working Condition Survey, 2015.

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	00000000000

Placebo tests: quantification

	D(Profit-sharing)	Profit-sharing/	Profit-sharing/	Net income/
		Value added	Wages	Pre-tax income
$Control(< 45) \ge Post 1988$	-0.052***	-0.001***	-0.002***	0.001
	(0.008)	(0.000)	(0.000)	(0.005)
Treatment x Post 1988	-0.054^{***}	-0.001***	-0.002***	0.001
	(0.009)	(0.000)	(0.001)	(0.006)
Treatment-Control (< 45)	-0.002	0.000**	0.001	-0.001
P-value	0.697	0.032	0.110	0.889
Industry-Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Treatment \times trend	Yes	Yes	Yes	Yes
Observations	77,255	$76,\!533$	77,255	64,785
$Adj R^2$	0.71	0.50	0.64	0.45

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000000000000000000000000000000

Regression evidence conditional on formula >0

	D(Profit-sharing)	Profit-sharing/	Profit-sharing/	Net income/
		Value added	Wages	Pre-tax income
$Control(< 45) \ge Post$	0.043***	0.002***	0.005^{***}	-0.009**
	(0.008)	(0.000)	(0.001)	(0.004)
Treatment x Post	0.437^{***}	0.008^{***}	0.017^{***}	-0.051^{***}
	(0.012)	(0.000)	(0.001)	(0.004)
Treatment-Control (< 45)	0.395***	0.006***	0.013***	-0.042^{***}
P-value	0.000	0.000	0.000	0.000
Industry-Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Treatment \times trend	Yes	Yes	Yes	Yes
Observations	103,734	103,239	103,734	96,368
$Adj R^2$	0.73	0.58	0.65	0.30

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000000000000000000000000000000

Placebo tests: avoidance

	Materials/	Leverage	Pre-tax income/
	Sales	Ratio	Sales
$Control(< 45) \ge Post 1988$	-0.006***	0.001	-0.000
	(0.002)	(0.002)	(0.001)
Treatment x Post 1988	-0.003	0.000	0.001
	(0.002)	(0.003)	(0.001)
Treatment-Control (< 45)	0.003	-0.001	0.002
P-value	0.163	0.589	0.115
Industry-Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Treatment \times trend	Yes	Yes	Yes
Observations	76,982	53,975	67,818
$Adj R^2$	0.92	0.79	0.69

 $\P{}_{\rm Back}$

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000000000000000000000000000000

Impact of profit-sharing on economic activity (Manufacturing)

	Wages/	Total compensation/	Investment	Capital/Labor	Labor	TFP
	Value added	Value added	Ratio	Ratio	Productivity	
$Control(< 45) \ge Post$	-0.001	0.002	0.010***	-0.005	-0.005	-0.503
	(0.002)	(0.002)	(0.004)	(0.007)	(0.006)	(0.946)
Treatment x Post	-0.000	0.007**	0.011***	-0.000	-0.007	-1.139
	(0.003)	(0.003)	(0.004)	(0.008)	(0.007)	(1.052)
Treatment-Control (< 45)	0.000	0.005 *	0.001	0.005	-0.002	-0.635
P-value	0.852	0.059	0.812	0.565	0.809	0.509
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Treatment \times trend	Yes	Yes	Yes	Yes	Yes	Yes
Observations	83,803	83,785	81,196	82,056	84,579	81,142
Adj R ²	0.60	0.60	0.22	0.92	0.89	0.74

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

Impact of profit-sharing on economic activity (Services & Retail)

	Wages/	Total compensation/	Investment	Capital/Labor	Labor	TFP
	Value added	Value added	Ratio	Ratio	Productivity	
$Control(< 45) \ge Post$	0.001	0.002	0.007	-0.012	-0.021**	-2.775**
	(0.003)	(0.003)	(0.005)	(0.011)	(0.009)	(1.383)
Treatment x Post	0.007*	0.012***	-0.005	-0.001	-0.004	-4.603^{**}
	(0.004)	(0.004)	(0.006)	(0.012)	(0.010)	(1.546)
Treatment-Control (< 45)	0.006**	0.010***	-0.011^{**}	0.011	0.016**	-1.828
P-value	0.049	0.001	0.026	0.295	0.043	0.158
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Treatment \times trend	Yes	Yes	Yes	Yes	Yes	Yes
Observations	67,003	66,972	65,690	66,793	69,127	64,105
Adj R ²	0.66	0.66	0.26	0.91	0.93	0.78

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000

Additional outcomes

Equity/	$\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/\operatorname{Cash}/Ca$
Assets	Assets
0.007^{***}	0.003
(0.002)	(0.003)
0.004	-0.001
(0.002)	(0.003)
-0.004	-0.004
0.115	0.220
Yes	Yes
Yes	Yes
Yes	Yes
150,083	150, 195
0.73	0.75
	Assets 0.007*** (0.002) 0.004 (0.002) -0.004 0.115 Yes Yes Yes Yes 150,083

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	0000000000000

Placebo tests: economic impact

	Wages/	Total compensation/	Investment	Capital/Labor	Labor	TFP
	Value added	Value added	Ratio	Ratio	Productivity	
$Control(< 45) \ge Post 1988$	0.000	-0.001	-0.003	-0.007	-0.000	-0.539
	(0.002)	(0.002)	(0.004)	(0.008)	(0.006)	(0.887)
Treatment x Post 1988	-0.002	-0.002	0.001	-0.003	0.002	-0.924
	(0.002)	(0.002)	(0.005)	(0.008)	(0.007)	(0.963)
Treatment-Control (< 45)	-0.002	-0.002	0.004	0.004	0.002	-0.385
P-value	0.276	0.392	0.441	0.550	0.695	0.646
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Treatment \times trend	Yes	Yes	Yes	Yes	Yes	Yes
Observations	75,855	75,834	73,778	74,611	76,248	72,776
Adj R ²	0.72	0.72	0.27	0.94	0.83	0.82

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	000000000000000000000000000000000000000

Placebo tests: economic impact (Manufacturing)

	Wages/	Total compensation/	Investment	Capital/Labor	Labor	TFP
	Value added	Value added	Ratio	Ratio	Productivity	
$Control(< 45) \ge Post 1988$	0.002	0.001	-0.004	-0.011	-0.016*	-1.998*
	(0.003)	(0.003)	(0.005)	(0.010)	(0.009)	(1.057)
Treatment x Post 1988	-0.002	-0.003	-0.001	0.002	-0.001	-1.480
	(0.003)	(0.003)	(0.005)	(0.011)	(0.011)	(1.161)
Treatment-Control (< 45)	-0.004	-0.004	0.003	0.013	0.015 *	0.518
P-value	0.160	0.153	0.589	0.173	0.084	0.611
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Treatment \times trend	Yes	Yes	Yes	Yes	Yes	Yes
Observations	41,985	41,978	40,575	41,012	42,287	40,555
$Adj R^2$	0.70	0.70	0.25	0.94	0.92	0.81

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	00000000000000

Placebo tests: economic impact (Services & Retail)

	Wages/	Total compensation/	Investment	Capital/Labor	Labor	TFP
	Value added	Value added	Ratio	Ratio	Productivity	
$Control(< 45) \ge Post 1988$	-0.001	-0.002	-0.000	-0.005	-0.007	1.324
	(0.003)	(0.003)	(0.007)	(0.012)	(0.011)	(1.528)
Treatment x Post 1988	-0.002	-0.002	0.003	-0.010	-0.007	-0.017
	(0.003)	(0.003)	(0.008)	(0.013)	(0.011)	(1.650)
Treatment-Control (< 45)	-0.001	0.000	0.003	-0.005	0.000	-1.342
P-value	0.741	0.990	0.664	0.665	0.989	0.331
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Treatment \times trend	Yes	Yes	Yes	Yes	Yes	Yes
Observations	33,538	33,524	32,874	33,269	34,550	31,888
Adj R ²	0.74	0.74	0.27	0.94	0.95	0.83

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	00000000000

Placebo tests: additional outcomes

Equity/	Cash/
Assets	Assets
-0.002	-0.002
(0.002)	(0.003)
-0.004	-0.002
(0.002)	(0.003)
-0.002	0.000
0.384	0.889
Yes	Yes
Yes	Yes
Yes	Yes
74,932	74,988
0.84	0.82
	Assets -0.002 (0.002) -0.004 (0.002) -0.002 0.384 Yes Yes Yes Yes

Introduction	Bunching Analysis	Difference-in-difference evidence	Employee-level evidence	conclusion	References
000000000000	00000000	0000000000000	00	00	00000000000

Elasticity (OLS)

	$\log(Wage)$	log(Wage+P.S.) Low-Skill	log(Wage) Low-Skill	log(Wage+P.S.) High-Skill	log(Wage) High-Skill	log(Wage+P.S.)
Profit-sharing (IHS)	0.016***	0.023***	0.011***	0.018***	0.011***	0.018***
Controls and FEs	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	398777	398777	358806	358806	35996	35996

A Back
State
State