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

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The paper

- 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)
⇒ Increased demand for redistribution from capital to labor
The paper

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⇒ Increased demand for redistribution from capital to labor

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

- Question: how does it affect labor share? wages? investment? productivity?
- Challenge: existing literature provides XS evidence
- This paper: leverages the French setting, which is large, to answer these questions causally
Mandated profit-sharing in France: How it works

- Since 1967, all firms with >100 employees set aside an amount $PS$ each year

- $PS$ then distributed to all employees, (mostly) in proportion to wages

- $PS$ is tax exempt: I will not discuss this much for clarity here

- $PS$ determined by formula:

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

- $5\%$ = cost of equity
- $\frac{\text{wage bill}}{\text{value added}}$: workers receive more when they contribute more to output

→ Large transfer – Calibration: labor share $\approx 53\%$; ROE $\approx 10\%$

$$\frac{PS}{\text{Net Income}} = \left( \frac{1}{2} \right) \times .53 \times \left( 1 - \frac{.05}{10\%} \right) \approx 10\%$$
Preview of main results

We exploit one discontinuity and one reform:

- Before 1990, profit sharing mandatory $> 100$ employees
  - firms bunch below 100 employees – avoidance at *extensive* margin
  - not surprising: increase in average “tax rate” (not marginal)
Preview of main results

We exploit one discontinuity and one reform:

- Before 1990, profit sharing mandatory > 100 employees
  - firms bunch below 100 employees – avoidance at extensive margin
  - not surprising: increase in average “tax rate” (not marginal)

- After 1990, threshold down to 50 employees
  - newly treated firms: btw 50 and 100 employees
  - No attempt to reduce PS formula → no avoidance at intensive margin
  - No < 0 effect on base wage except for managers/engineers
    → Total compensation at individual level $\uparrow$ 3.5%; redistributes $\approx$ .7% of value added
  - No impact on investment, leverage, productivity
Roadmap

Simple model

Bunching Analysis

Difference-in-difference
  Firm-level evidence
  Employee-level evidence

Conclusion
Simple model

Bunching Analysis

Difference-in-difference
  Firm-level evidence
  Employee-level evidence

Conclusion

References
How does profit-sharing affect cost of capital?

write simple user cost model of capital:

\[
\frac{\partial F}{\partial k}(k, l) = \frac{r}{1 - \tau} + \delta + \left(1 - \frac{d}{k}\right) (r_e - 5\%) \frac{\gamma}{1 - \gamma(1 - \tau)}
\]

where:

- key assumption: base wage does not respond (holds empirically)
- \(r = \text{WACC}, \tau = \text{corporate tax rate}\)
- \(r_e = \text{cost of equity}, \frac{d}{k} = \text{financial leverage}\)
- \(\gamma = \% \text{ of profit that firm needs to share}\)
How does profit-sharing affect cost of capital?

write simple user cost model of capital:

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\frac{\partial F}{\partial k}(k, l) = \frac{r}{1 - \tau} + \delta + \left(1 - \frac{d}{k}\right) \left(r_e - 5\%\right) \frac{\gamma}{1 - \gamma(1 - \tau)}
\]

where:

- key assumption: base wage does not respond (holds empirically)
- \( r = WACC, \tau = \) corporate tax rate
- \( r_e = \) cost of equity, \( d/k = \) financial leverage
- \( \gamma = \% \) of profit that firm needs to share

→ calibration: increase user cost by .4ppt (compared to pre tax user cost of \( \approx 20\% \))
Simple model

Bunching Analysis

Difference-in-difference
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  Employee-level evidence

Conclusion
Some avoidance at the *intensive* margin

Use post 1990 distribution as counterfactual (or Pareto)

- firms perceive mandatory PS as costly
  - intro calibration: profits drop by 10% when going from 99 to 100
  → avoidance at *extensive* margin
Simple model

Bunching Analysis

Difference-in-difference
  Firm-level evidence
    Employee-level evidence

Conclusion
First stage: Treatment moves .7ppt of value added to workers

- treatment (in black): firms with 55-85 employees in 89-90
- large control (dashed with cross): firms with 120-300 employees in 89-90
- small control (dashed with diamonds): firms with 35-45 employees in 1989

→ large control: always likely to share profits
→ Treated firms more likely to share profits
→ small control: never likely to share profits
No avoidance at the *intensive margin*

• To check if firms avoid sharing profits, compute: $\frac{1}{2} \left( \frac{\text{wage bill}}{\text{value added}} \right) \left( \frac{\text{net income} - 0.05 \times \text{book equity}}{\text{value added}} \right)^+$

• ask if it changes differently for treated firms

→ firms do not change behavior *conditional* on treatment (but as we saw, firms try to *avoid* treatment)
No incidence on wages, total labor share increases

- Wage bill (excl. profit-sharing) does *not* respond
  - no < 0 incidence overall, wage rigidity (collective agreements)

→ (wage bill + profit-sharing) ↑ .6 ppt of VA
No effect on investment and TFP

- No effect on investment, leverage, $K/L$ substitution
- consistent with small distortion of the cost of capital
Simple model

Bunching Analysis

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Conclusion
Incidence by skill: Evidence from Employer-employee data

\[ Y_{wijlt} = \alpha_i + \delta_{jt} + \mu_{lt} + \beta \cdot 1_{\{\text{profit-sharing}_{ijlt}>0\}} + \gamma X_{wijlt} + \epsilon_{wijlt}, \]

where we instrument \( 1_{\{\text{profit-sharing}_{ijlt}>0\}} \) with \( T_{it} \times POST90_t \)

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<tr>
<th></th>
<th>log(wage)</th>
<th>log(total compensation)</th>
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<tbody>
<tr>
<td>( 1_{{\text{profit-sharing}&gt;0}} )</td>
<td>0.0072</td>
<td>0.0136*</td>
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<tr>
<td></td>
<td>(0.0075)</td>
<td>(0.0079)</td>
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<td>( 1_{{\text{profit-sharing}&gt;0}} \times 1_{{\text{Intermediate}}} )</td>
<td>-0.0058</td>
<td>-0.0072</td>
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<td>(0.0209)</td>
<td>(0.0211)</td>
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<tr>
<td>( 1_{{\text{profit-sharing}&gt;0}} \times 1_{{\text{High-skill}}} )</td>
<td>-0.0823*</td>
<td>-0.0941**</td>
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<td>(0.0429)</td>
<td>(0.0438)</td>
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- K-P F stat 1,166 391 1,166 391
- K-P F stat (Intermediate) 194 194
- K-P F stat (High-skill) 67 66
- Nul effect on high-skill (p-value) 0.102 0.226
- Observations 436,215 436,215 436,186 436,186

- noisy, but indicative of stronger incidence on skilled wages
Simple model

Bunching Analysis

Difference-in-difference
  Firm-level evidence
  Employee-level evidence

Conclusion
Conclusion

Mandated profit-sharing is non-distorsionary way of redistributing income to low-skill workers:

- labor share increase by $\approx 0.6$ ppt

- mostly driven by increase in low-skill workers' compensation
  - collective agreements, minimum wage $\rightarrow$ wages rigid

- no discernible effects on investment, TFP

- low-distortion but not costless
  - profit-sharing is tax exempt
  - if it were not, it'd be distortionary
References I


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. little/no payroll tax paid on $PS$
  2. $PS$ is an expense, i.e. corporate tax exempt

- Firms with fewer than 100 workers can create profit-sharing plan (and benefit from tax advantages)

- Firms can share more than $PS$, up to a threshold ($\approx \€30k$ per employee/year in 2020)
Profit-sharing in Europe (2015)

Avoidance at the 50 employee threshold

(a) Treatment: 1988 vs. 1990

(b) Placebo: 1987 vs. 1988

- Probability of having fewer than 50 employees at $t + 1$, by firm size in $t$
- active avoidance of passing the 50 threshold increases after reform
Conditional distribution of firm size: Pareto counterfactual

(c) Pre-reform (1985-1989)

(d) Post-reform (1992-1997)
Mis-reporting?

- Firms may avoid regulation by misreporting their employment
- However, accounting items are certified by external auditors ⇒ harder to manipulate
- If bunching reflects misreporting, labor costs per employee should spike up left of the 100 threshold

→ next slide
Total labor cost per employee at the 100 threshold

Y-axis: \( \text{asinh} \left( \frac{\text{labor cost}}{\# \text{ of employees}} \right) \)

(e) Pre-reform (1985-1989)  
Intent-to-treat and actual treatment

- “treated” = employment btw 55 & 85 in 1989-90
- “actually treated” = employment > 50 after 1990, > 100 before
  → message: employment is persistent enough
Reconstituting the formula

coef: 0.67 ; se: 0.0005 ; R-sq: .998
Attrition
Robustness: alternative measures of effort

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<td></td>
<td>(Sick leave)</td>
<td>(Overtime)</td>
<td>Actual hours - Usual hours</td>
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<td>Panel A: Relative to large control</td>
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<td>Treatment x Post</td>
<td>-0.0012</td>
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<td>(0.0021)</td>
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<td>Panel B: Relative to small control</td>
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<td>Treatment x Post</td>
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<td>0.0022</td>
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<td>(0.0022)</td>
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<td>Panel C: Relative to both groups</td>
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