Many thanks to our outstanding RA team, Nikhil Basavappa, Raymond Han, Ida Kankaanranta, Nelson Mesker, Shakked Noy, and Dalton Zhang!
Worker Exit vs. Voice

Exit: workers discipline firms through external labor market (quits etc.)

Voice: workers influence firms from within (feedback, co-decisionmaking)

“Adversarial" industrial relations systems

Ex.: United States, United Kingdom, Australia, ...

- Workers’ primary mechanism of influence is exit
- Unions provide some voice but are mainly focused on collective bargaining

“Cooperative" industrial relations systems

Ex.: Many European countries, e.g. Germany, Sweden, Finland

- Law mandates worker voice institutions: board-level representation, works councils
- Worker representatives have rights to information, consultation, and even co-decisionmaking
Board-Level Representation

Source: survey article (Jäger, Noy and Schoefer 2021); own visualizations based on CBR Labor Regulation Index (2016).
Source: survey article (Jäger, Noy and Schoefer 2021); own visualizations based on CBR Labor Regulation Index (2016).
Worker Exit vs. Voice

Even though lacking codetermination, in “adversarial" systems...

Workers express demand for more voice  
Bryson Freeman 2013; Kochan Yang Kimball Kelly 2019

Recent policy proposals for expanding voice through shared governance in the United States, United Kingdom, Australia,...

2019 U.S. Business Roundtable statement, 2019 WEF Davos Manifesto

Key question: what are the effects of expanding voice? On...

Job quality (from workers’ perspectives)

Firm performance
Two Views of Worker Voice

**Power:** co-decisionmaking rights expand worker power

- Equalizes power between employers and workers (e.g. in monopsonistic settings)
  - Rent-seeking & hold-up: worker bargaining power $\uparrow \Rightarrow$ wages $\uparrow \Rightarrow$ investment $\downarrow$
    

- Collusion with managers, deterioration of governance, overinvestment,...

**Information:** voice facilitates information-sharing and cooperation

- Information exchange, productivity $\uparrow$, turnover $\downarrow$
  
  **Hirschman 1970, Freeman Medoff 1984**

- Ability to enforce implicit contracts through better information
  
  **Malcomson 1983, Freeman Lazear 1995**

$\sim$ If mutually beneficial, why isn’t worker voice adopted voluntarily?

**Jensen Meckling 1979**

Ideal experiment: randomly assign firms (countries?) to expanded worker voice
This Paper: Effects of Worker Voice on Job Quality & Firm Performance

Context: Finland & 1991 introduction of worker voice mandate, following size cutoff:

Cutoffs:

$\geq 150$: statutory right for workers to elect board representatives (20% of seats) to participate in corporate decisions
alternative forms of worker representation can be negotiated if workers & employer agree

$< 150$: no such right

Research design: DiD (pre/post reform, $\leq 150$)

• Secondary design: 2008 reform of shop-floor representation

Key outcomes: separations (voluntary and involuntary), job quality, wages and wage distribution, rent sharing, survival, productivity, capital intensity, investment, profits, dividends

Data: universe of firms and workers, admin/tax/survey
1. Institutions and Reform
2. Separations and Job Quality
3. Wages, the Wage Structure, and the Labor Share
4. Firm Performance
5. Additional Analysis: 2008 Expansion of Shop-Floor Representation
6. Discussion, Interpretation, Interview Evidence
Outline

1. Institutions and Reform
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Corporate Governance in Finland w/o Worker Representation

Shareholders

Elect

Board of Directors

Major Decisions

Appoint
Control
Dismiss
Compensation

Management

Report

Workforce

Workforce
Corporate Governance in Finland w/ Worker Representation

- Shareholders
  - Elect Board of Directors
  - Elect
  - Major Decisions
  - Appoint Control Dismiss Compensation
  - Report
  - Advisory Committee
  - Or

- Management
  - Or
  - Workforce
Corporate Governance in Finland w/o & w/ Worker Representation

Shareholders
- Elect
- Major Decisions
- Appoint
- Control
- Dismiss
- Compensation
- Board of Directors
- Management
- Workforce
- Shareholders (or Advisory Committee)

- Shareholders
- Elect
- Major Decisions
- Appoint
- Control
- Dismiss
- Compensation
- Board of Directors
- Management
- Workforce
- Shareholders (or Advisory Committee)
Worker Voice in Firm Governance

- Employees have right for representation in firms with $\geq 150$ employees
  - Introduced by 1991 reform

- Typically through cooperation agreement between workers and firms

- Statutory provision in case of disagreement: 20% worker representation
  - Board of directors, or
  - Division-level management, or
  - Board of supervisors (uncommon)

- Worker representatives must be employees

- Co-equal to other shareholder-appointed directors, except no direct say in wage negotiations, labor disputes, and appointment/diss dismissal of senior management
Worker Representation in Firms ≥ 150 Employees: Survey Evidence

Administrative Data on Universe of Firms & Workers

  • Variables: assets, value added, labor costs
  • Additional variables 1994–2016: investment, dividends
  • Pre-1994 sampling: firms with $\geq$ 100 employees in manufacturing and trade; $\geq$ 50 employees in construction and road transport

• Matched employer-employee data from 1988–2016: employment, wages (uncensored), executive compensation, etc.
  • Assignment variable: number of employees at the firm level
    • To mirror policy rule/practice: end-of-year count

• No sampling restrictions (except firm size)
Sort Firms By Employment $\geq$, $< 150$ in 1988

- Treated Firms, $150 \leq \text{Emp}_{1988} < 250$
- Control Firms, $50 < \text{Emp}_{1988} < 150$
Sort Firms By Employment $\geq$, < 150 in 1988

- Treated Firms, $150 \leq \text{Emp}_{1988} < 250$
- Control Firms, $50 < \text{Emp}_{1988} < 150$
Fraction with Employment $\geq 150$

1991 Reform: Introduction of Worker Representation in Firms with $\text{Emp} \geq 150$
Fraction with Employment $\geq 150$

- Treated Firms, $150 \leq \text{Emp}_{1988} < 250$
- Control Firms, $50 < \text{Emp}_{1988} < 150$

First Stage
DiD: Fraction with Worker Representation

Year-Specific DiD Effects

No Controls

Pooled Post-Reform DiD Effects
No Controls : 0.459 (SE 0.028)
DiD: Fraction with Worker Representation

Year-Specific DiD Effects
- Year FEs
- Industry-Year + Firm FEs

Pooled Post-Reform DiD Effects
- Year FEs: 0.459 (SE 0.028)
- Industry-Year + Firm FEs: 0.452 (SE 0.027)
Outline

1 Institutions and Reform

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Separations: Motivation

Exit-voice hypothesis: worker voice $\uparrow \Rightarrow$ turnover $\downarrow$

Job-to-job transitions as a revealed-preference measure of job quality

Separations to nonemployment as a measure of employment security/job stability
All Separations (Levels)

- **Treated Firms, $150 \leq \text{Emp}_{1988} \leq 250$$
- **Control Firms, $50 \leq \text{Emp}_{1988} < 150$**
All Separations (DiD)

Baseline Year
Pooled Post-Reform DiD Effects
Year FEs : -0.018 (SE 0.014)
Industry-Year + Firm FEs : -0.029 (SE 0.013)

Robustness
Job-to-Job Transitions (Levels and DiD)

- Treated Firms, $150 \leq \text{Emp}_{1988} \leq 250$
- Control Firms, $50 \leq \text{Emp}_{1988} < 150$

**Baseline Year**
- Pooled Post-Reform DiD Effects:
  - Year FEs: $-0.012$ (SE 0.011)
  - Industry-Year + Firm FEs: $-0.007$ (SE 0.010)

**Robustness**

**Year-Specific DiD Effects**
- Year FEs
- Industry-Year + Firm FEs
Separations into Nonemployment (Levels and DiD)

Robustness

Baseline Year

Pooled Post-Reform DiD Effects
Year FEs : -0.006 (SE 0.008)
Industry-Year + Firm FEs : -0.022 (SE 0.007)
Revealed-Preference Job Quality from Worker Flows

Idea: use worker flows to calculate a revealed-preference ranking of firm quality

Sorkin (2018) extends Google’s PageRank algorithm to labor markets

“Good firms hire from other good firms and have few workers leave.”

We check whether treated firms increase their relative rank because of the reform
## Job Quality Measure: Revealed-Preference Index

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| Year             | Control                       | Treated                       |                       |                       |                                  |
|------------------|-------------------------------|-------------------------------|-----------------------|-----------------------|                                  |
| 1990 Average     | -0.008                        | 0.070                         | 0.070                 | 0.057                 | 0.041                            |
| **N, Firm-Years**| **Control: 4,402**            | **Treated: 1,409**            |                       |                       |                                  |

**Notes:**

- Standard errors are in parentheses.
- **Significance:** *p < 0.10, **p < 0.05, ***p < 0.01.
## Other Job Quality Measures: Worker Health

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Note: **DiD** stands for Difference-in-Differences.
Subjective Job Quality

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Taking Stock: Job Quality

No effects on:

- job-to-job transitions
- worker health
- revealed-preference measure of firm quality
- labor relations

Small reduction in separations to nonemployment (increased job security?)

Small increase in subjective job quality

Crucial aspect of job quality: wages
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Mean Log Wages (Levels and DiD)

- **Treated Firms, 150 ≤ Emp_{1988} ≤ 250**
- **Control Firms, 50 ≤ Emp_{1988} < 150**

Baseline Year

Pooled Post-Reform DiD Effects

Year FEs: 0.033 (SE 0.016)

Industry-Year + Firm FEs: 0.024 (SE 0.012)

Robustness
AKM Pay Premia (Levels and DiD)

Baseline Year
Pooled Post-Reform DiD Effects
Year FEs : 0.019 (SE 0.009)
Industry-Year + Firm FEs : 0.016 (SE 0.010)

Robustness
Within-Firm Wage Percentiles and Executive Compensation

-0.15 -0.1 -0.05 0 0.05 0.1 0.15

p10 p20 p30 p40 p50 p60 p70 p80 p90

Executive Earnings

Executive Earnings + Capital Income

Pooled Post-Reform DiD Effects
- Year FEs
- Industry-Year + Firm FEs
Labor Share (Levels and DiD)

- **Treated Firms**: 150 ≤ Emp_{1988} ≤ 250
- **Control Firms**: 50 ≤ Emp_{1988} < 150

### Year-Specific DiD Effects

Baseline Year
Pooled Post-Reform DiD Effects
- Year FEs: -0.010 (SE 0.014)
- Industry-Year + Firm FEs: -0.022 (SE 0.014)

**Robustness**
Rent Sharing

Slope of Control Group: 0.063 (SE 0.006)
Treatment Effect: 0.017 (SE 0.012)

Residualized AKM Pay Premium

Residualized Firm-Level Mean of Log Value Added per Worker

- Treated Firms with 150-250 Employees
- Control Firms with 50-149 Employees

Slope of Control Group: 0.063 (SE 0.006)
Treatment Effect: 0.017 (SE 0.012)
Taking Stock: Wages and Rent Sharing

Slight positive effects on composition-adjusted pay premia

Slight wage compression effects

Consistent with small increases in worker bargaining power
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Firm Survival (Levels and DiD)

- Treated Firms, $150 \leq \text{Emp}_{1988} \leq 250$
- Control Firms, $50 \leq \text{Emp}_{1988} < 150$

Baseline Year

Pooled Post-Reform DiD Effects

- Year FEs: $0.035$ (SE $0.022$)
- Industry-Year + Firm FEs: $0.037$ (SE $0.021$)

Robustness
Log Value Added per Worker (Levels and DiD)

- Treated Firms, 150 ≤ Emp_{1988} ≤ 250
- Control Firms, 50 ≤ Emp_{1988} < 150

Baseline Year
Pooled Post-Reform DiD Effects
Year FEs: 0.043 (SE 0.035)
Industry-Year + Firm FEs: 0.067 (SE 0.031)

Robustness
Capital Intensity (Levels and DiD)

- Treated Firms, \(150 \leq \text{Emp}_{1988} \leq 250\)
- Control Firms, \(50 \leq \text{Emp}_{1988} < 150\)

Baseline Year
Pooled Post-Reform DiD Effects
Year FEs: 0.099 (SE 0.078)
Industry-Year + Firm FEs: 0.035 (SE 0.048)

Robustness
Total Factor Productivity (Levels and DiD)

- **Baseline Year**
  - Pooled Post-Reform DiD Effects: -0.038 (SE 0.060)
  - Industry-Year + Firm FEs: 0.063 (SE 0.034)

- **Robustness**

- **Year-Specific DiD Effects**
  - Year FEs
  - Industry-Year + Firm FEs

- **Graphs**
  - Key markers indicate significant changes post-reform.

- **Legend**
  - Treated Firms, 150 ≤ Emp<sub>1988</sub> ≤ 250
  - Control Firms, 50 ≤ Emp<sub>1988</sub> < 150
  - Year FEs
  - Industry-Year + Firm FEs

- **Notes**
  - Graphical representation of baseline and pooled post-reform DiD effects with standard errors.
Profit Margin (Levels and DiD)

- Baseline Year
- Pooled Post-Reform DiD Effects
  - Year FEs: 0.006 (SE 0.008)
  - Industry-Year + Firm FEs: -0.001 (SE 0.008)

Robustness
Revealed Preference Evidence: Bunching at Size Threshold

**Disc. Estimate:** -0.194 (SE 0.124)  
**p = 0.118**

![Graph showing the distribution of firms by employment size post-reform and pre-reform. The graph indicates a significant bunching at the size threshold before the reform, with a disc. estimate of -0.158 (SE 0.145), and a slight reduction in bunching post-reform with a disc. estimate of -0.044 (SE 0.063).](image-url)
Taking Stock: Firm Performance

Null or slightly positive effects on measures of firm performance

No evidence of attempted avoidance
Outline

1 Institutions and Reform
2 Separations and Job Quality
3 Wages, the Wage Structure, and the Labor Share
4 Firm Performance
5 Additional Analysis: 2008 Expansion of Shop-Floor Representation
6 Discussion, Interpretation, Interview Evidence
Additional Analysis: Motivation

We estimate limited effects of the board-level representation mandate

Perhaps board-level representation duplicates existing worker voice institutions?

Shop-floor representation is widespread in Finland

- Information rights: financials, wages, use of temporary workers
- Negotiation rights (⇒ delay, no veto): reorganization of tasks, staffing, training

Idea: separately estimate the effects of shop-floor representation in firms uncovered by board-level representation

Strategy: identical DiD strategy, but exploiting 2008 reform
2008 Introduction of Shop-Floor Representation in Firms Sized 20-29

Act on Co-Operation Within Undertakings

- Mandates the election of a shop-floor “cooperation representative” in cases where no collective bargaining agreement stipulates shop-floor representation

Pre-2008: mandate for firms with 30+ employees

2008 reform: introduction in firms with 20 to 29 employees

Substantial bite: \( \approx 50\% \) of 20-29 employee firms had no shop-floor representation pre-reform
Job-to-Job Transitions

- Treated Firms, 20 ≤ Emp_{2005} < 30
- Control Firms, 30 ≤ Emp_{2005} < 40
- Control Firms, 10 ≤ Emp_{2005} < 20

DiD Effects
- Control 10-19: -0.000 (SE 0.003)
- Control 30-39: -0.004 (SE 0.005)
**Mean Log Wages**

- Treated Firms, $20 \leq \text{Emp}_{2005} < 30$
- Control Firms, $30 \leq \text{Emp}_{2005} < 40$
- Control Firms, $10 \leq \text{Emp}_{2005} < 20$

**DiD Effects**

- Control 10-19: $0.013$ (SE $0.007$)
- Control 30-39: $0.001$ (SE $0.010$)
Firm Survival

DiD Effects

Control 10-19: 0.003 (SE 0.006)
Control 30-39: 0.001 (SE 0.010)
Log Value Added per Worker

- Treated Firms, 20 ≤ Emp_{2005} < 30
- Control Firms, 30 ≤ Emp_{2005} < 40
- Control Firms, 10 ≤ Emp_{2005} < 20

DiD Effects
- Control 10-19 : 0.003 (SE 0.012)
- Control 30-39 : 0.002 (SE 0.017)
Effects of shop-floor representation are similarly limited

⇒ Presence of shop-floor representatives unlikely to explain our main results

So what does explain the limited effects of board-level worker voice?
Outline

1. Institutions and Reform
2. Separations and Job Quality
3. Wages, the Wage Structure, and the Labor Share
4. Firm Performance
5. Additional Analysis: 2008 Expansion of Shop-Floor Representation
6. Discussion, Interpretation, Interview Evidence
Two Views of Worker Voice

**Power:** co-decisionmaking rights expand worker power

- Equalizes power between employers and workers (e.g. in monopsonistic settings)
- Rent-seeking & hold-up: worker bargaining power $\uparrow \Rightarrow$ wages $\uparrow \Rightarrow$ investment $\downarrow$
  

- Collusion with managers, deterioration of governance, overinvestment, ...

**Information:** voice facilitates information-sharing and cooperation

- Information exchange, productivity $\uparrow$, turnover $\downarrow$
  
  Hirschman 1970, Freeman Medoff 1984

- Ability to enforce implicit contracts through better information
  
  Malcomson 1983, Freeman Lazear 1995

$\sim$ If mutually beneficial, why isn’t worker voice adopted voluntarily?

Jensen Meckling 1979
Power

Reform conveyed relatively little formal authority

• Only 20% of seats on the board
• Firm chooses which board

Reform also conveyed little real authority...

• Only $\approx 60\%$ of above-threshold firms adopt worker representation – employers may be able to bargain away or block the institution
Worker Representation in Firms $\geq$ 150 Employees: Survey Evidence

If you meet the threshold, why is there no worker representation?

<table>
<thead>
<tr>
<th>Reason</th>
<th>2001*</th>
<th>2017</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>The employer did not want it</td>
<td>34%</td>
<td>40%</td>
<td>45%</td>
<td>49%</td>
</tr>
<tr>
<td>The employees did not want it</td>
<td>-</td>
<td>1%</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>Not aware of the right</td>
<td>14%</td>
<td>6%</td>
<td>8%</td>
<td>11%</td>
</tr>
<tr>
<td>Can’t say</td>
<td>27%</td>
<td>19%</td>
<td>22%</td>
<td>-</td>
</tr>
<tr>
<td>Other reason</td>
<td>25%</td>
<td>33%</td>
<td>22%</td>
<td>38%</td>
</tr>
<tr>
<td>N</td>
<td>203</td>
<td>288</td>
<td>164</td>
<td>111</td>
</tr>
<tr>
<td>Restricted to $\geq$ 150 employees</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Power

Reform conveyed relatively little formal authority

• Only 20% of seats on the board
• Firm chooses which board

Reform also conveyed little real authority...

• Only $\approx 60\%$ of above-threshold firms adopt worker representation – employers may be able to bargain away or block the institution
• Worker representatives’ self-assessed influence is low
Worker Representatives’ Self-Assessed Influence
Anecdotally:

*The body where I work is [...] really a way for the company to share information. [...] Providing information is our main task, and we can’t make any decisions, everything comes already decided.*

*I personally think that the role of an administrative representative is to convey information [...]*

*Often implemented as an advisory council/nonvoting board membership*
Two Interpretations

1. Worker voice $\Rightarrow$ information sharing $\uparrow \not\Rightarrow$ firm performance $\uparrow$

2. Worker voice $\not\Rightarrow$ information sharing $\uparrow$
   - Information sharing widespread independently of formal worker voice?
Consultation/Involvement of Workers by Firm Size

Source: 2013 European Company Survey (own calculations)
Conclusion

1991 expansion of worker voice in Finland ⇒ limited effects

Slight increase in job quality, reduction in separations to nonemployment, increases in survival and productivity

Explanations: limited power, primarily information sharing and cooperation
Firm-level hold-up:

Upon gaining control of the firm the workers will begin “eating it up” by transforming the assets of the firm into consumption or personal assets.

Macro consequences:

It will become difficult for the firm to obtain capital in the private capital markets. [...] The result of this process will be a significant reduction in the country’s capital stock, increased unemployment, reduced labor income, and an overall reduction in output and welfare.

Essence of the underlying hold-up (Grout 1984): wage is endogenous to $K$, distorting $K$ much like a distortionary profit tax:

$$F_K = c + \bar{L} \frac{\partial w^*}{\partial K}$$

(1)

Underlying story: wage bargaining/rent sharing
Policy Proposals: Board-Level Codetermination to Boost Wages

Markets

To Help Improve U.S. Wages, Check Out Germany

Giving workers a say on boards helps them without harming companies.

By Nir Kaissar
March 29, 2019, 5:00 AM EDT
Main Research Design: DiD Around 1991 Introduction

• Sort firms into two categories based on *pre-reform employment in 1988*
  • **Treatment group**: 150 to 250 employees in 1988
  • **Control group**: 50 to 100 employees in 1988
  • Assess persistence of categorization (first stage)
  • Probe robustness to bandwidth choice, donut hole

• Difference-in-differences specification for outcome $y$ of firm $i$ in year $t$:

$$y_{it} = \alpha + \sum_{k=1988}^{1998} \psi_k^{Treated} \cdot 1[N_{1988} \geq 150] \times 1_{t=k} + \sum_{k=1988}^{1998} \psi_k \cdot 1_{t=k} + X_{it} \beta + \epsilon_{it}$$

• Coefficients of interest: $\psi_k^{Treated}$
• Normalize $\psi_{1990}^{Treated} = 0$
• Baseline time period effects $\psi_k$
• Control variables $X_{it}$: year, industry, industry-year effects
• Winsorize outcomes at 1% level (robustness 0%, 5%)
• Cluster standard errors at firm level
Additional Research Design: RD in Post-1991 Period

- RD estimating equation:

\[ y_{it+1} = \alpha + \beta_1 1[N_{it} \geq 150] + \beta_2 \cdot (N_{it} - 150) + \beta_3 1[N_{it} \geq 150](N_{it} - 150) + X_{it}\beta_4 + \epsilon_{it} \]

- \( y_{it} \) is the outcome of interest for firm \( i \) in year \( t + 1 \)
- \( N_{it} \) is the number of employees
- \( \beta_1 \) is coefficient of interest, capturing effect of worker representation

- Linear and quadratic specifications, bandwidth choice following Calonico et al. (2014)
- Control variables \( X_{it} \): year, industry, industry-year effects
- Additional specifications:
  - Vary bandwidth and donut hole of observations around 150 employees
  - Placebo specifications in pre-reform period and at other cutoffs
Fraction of Firms with Worker Right to Shared Governance (Robustness Checks): Robustness

(Including Firms With 1988 Employment Within Interval of the 150 Threshold)

(Excluding Firms With 1988 Employment Within Interval of the 150 Threshold)
Job-to-Job Transitions: Robustness

Bandwidth (Including Firms With 1988 Employment Within Interval of the 150 Threshold)

Size of Donut Hole (Excluding Firms With 1988 Employment Within Interval of the 150 Threshold)
Separations into Nonemployment: Robustness

Bandwidth
(Including Firms With 1988 Employment Within Interval of the 150 Threshold)

Size of Donut Hole
(Excluding Firms With 1988 Employment Within Interval of the 150 Threshold)

Back
Sickness Spell (Older than 40): Robustness

Bandwidth
(Including Firms With 1988 Employment Within Interval of the 150 Threshold)

Size of Donut Hole
(Excluding Firms With 1988 Employment Within Interval of the 150 Threshold)
Survival: Robustness

Bandwidth (Including Firms With 1988 Employment Within Interval of the 150 Threshold)

Size of Donut Hole (Excluding Firms With 1988 Employment Within Interval of the 150 Threshold)
Total Factor Productivity: Robustness

Bandwidth (Including Firms With 1988 Employment Within Interval of the 150 Threshold)

Size of Donut Hole (Excluding Firms With 1988 Employment Within Interval of the 150 Threshold)
Log Capital Intensity: Robustness

Bandwidth (Including Firms With 1988 Employment Within Interval of the 150 Threshold)

Size of Donut Hole (Excluding Firms With 1988 Employment Within Interval of the 150 Threshold)
Profit Margin: Robustness

Bandwidth
( Including Firms With 1988 Employment Within Interval of the 150 Threshold)

Size of Donut Hole
( Excluding Firms With 1988 Employment Within Interval of the 150 Threshold)

Back
Mean Log Wage: Robustness

( Including Firms With 1988 Employment Within Interval of the 150 Threshold)
Labor Share: Robustness

Bandwidth (Including Firms With 1988 Employment Within Interval of the 150 Threshold)

Size of Donut Hole (Excluding Firms With 1988 Employment Within Interval of the 150 Threshold)
Wage Premium Composition Adjustment: AKM Firm Effect: Robustness

- Bandwidth (Including Firms With 1988 Employment Within Interval of the 150 Threshold)
- Size of Donut Hole (Excluding Firms With 1988 Employment Within Interval of the 150 Threshold)
2008 Shop-Floor Representation Reform – First Stage

Treated Firms, 20 ≤ Emp_{2005} < 30
Control Firms, 30 ≤ Emp_{2005} < 40
Control Firms, 10 ≤ Emp_{2005} < 20

DiD Effects
Control Group 10-19 : 0.207 (SE 0.012)
Control Group 30-39 : 0.319 (SE 0.017)
Main Research Design: DiD Around 1991 Introduction

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- Difference-in-differences specification for outcome \( y \) of firm \( i \) in year \( t \):
  \[
  y_{it} = \alpha + \sum_{k=1988}^{1998} \psi_k^{\text{Treated}} \cdot 1[N_{1988} \geq 150] \times 1[t=k] + \sum_{k=1988}^{1998} \psi_k \cdot 1[t=k] + X_{it}\beta + \epsilon_{it}
  \]

  - Coefficients of interest: \( \psi_k^{\text{Treated}} \)
  - Normalize \( \psi_{1990}^{\text{Treated}} = 0 \)
  - Baseline time period effects \( \psi_k \)
  - Control variables \( X_{it} \): year, industry, industry-year effects
  - Winsorize outcomes at 1% level (robustness 0%, 5%)
  - Cluster standard errors at firm level
Additional Research Design: RD in Post-1991 Period

• RD estimating equation:

\[ y_{it} = \alpha + \beta_1 \mathbb{1}[N_{it} \geq 150] + \beta_2 \cdot (N_{it} - 150) + \beta_3 \mathbb{1}[N_{it} \geq 150](N_{it} - 150) + X_{it} \beta_4 + \epsilon_{it} \]

\( y_{it} \) is the outcome of interest for firm \( i \) in year \( t \)
\( N_{it} \) is the number of employees
\( \beta_1 \) is coefficient of interest, capturing effect of worker representation

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• Control variables \( X_{it} \): year, industry, industry-year effects
• Additional specifications:
  • Vary bandwidth and donut hole of observations around 150 employees
  • Placebo specifications in pre-reform period and at other cutoffs
Hold-Up: Basic Idea

Profits:

\[ \pi = F(K, \bar{L}) - w\bar{L} - cK \]  

(2)

Wage-taking firm’s capital investment:

\[ F_K = c \]  

(3)

Essence of hold-up is that wage is endogenous to \( K \):

\[ F_K = c + \bar{L}\frac{\partial w^*}{\partial K} \]  

(4)

Underlying story: wage bargaining

- Rent sharing
- Outside option (resale value of \( K \) is \( c' < c \))
Hold-Up: Wage Bargaining (Grout 1984)

• Time structure:
  1 Capital choice by firm
  2 Bargaining over wages

Workers’ surplus:

\[ S^W(w, \bar{L}, K) = \bar{L}(w - b) \]  \hspace{1cm} (5)

Firm surplus:

\[ S^F(w, \bar{L}, K) = F(K, \bar{L}) - w\bar{L} - c'K \]  \hspace{1cm} (6)

Nash solution for wage bargain:

\[ w^*(K, \bar{L}) = b + \phi \frac{1}{\bar{L}} \left( \text{Total Surplus} \right) \]  \hspace{1cm} (7)
Hold-Up: Worker Bargaining Power Depresses Investment

• First stage: capital choice by firm (incorporating wages set in second stage)

\[ F_K(\bar{L}, K^*) = c + (c - c') \left[ \frac{\phi}{1 - \phi} \right] > 0 \]  

\[ \phi_1 - \phi_2 > 0 \]  

• Firm selects lower capital stock (and higher marginal product of capital)

• Bargaining power increases lower investment
Hold-Up: Beyond Wage Bargaining

- Previously: firm sets capital unilaterally in first stage
- Now: firm and workers bargain over capital in first stage (Manning, 1987)
  - Nests previous case (zero worker bargaining power $\iota$ over capital)

\[
\max_K \{ \iota \log S_W^i (w^*, \bar{L}, K^*), K) + (1 - \iota) \log S^F_I (w^*, \bar{L}, K) \} \tag{9}
\]

- Worker bargaining power increases investment
  - No worker control: $\iota = 0 \Rightarrow F_K > c \Rightarrow$ underinvestment
  - Full worker control: $\iota = 1 \Rightarrow F_K = c' < c \Rightarrow$ overinvestment
1991 Reform: Board Representation $\geq$ 150 Employees

- Pre-1991: no board representation
  - Throughout: shop-floor representation through union representative with information and consultation rights, no active decision rights

- 1990 reform by centrist gov. introduces board representation $\geq$ 150 employees
  - Center-right party’s PM Holkeri, Social Democrats, smaller parties

- Timing:
  - Law becomes active 01/01/1991, *permitting* board representation
  - Statutory provision in case of disagreement becomes *binding* 07/01/1992
  - Law still on books today without major changes since 1991
Wage Setting in Finland

• High coverage of collective bargaining
  • Wage floors rarely binding and most employees receive pay premia above CBA floor (Uusitalo and Vartiainen 2009)

• Performance pay prevalent, e.g., half of white-collar employees (Snellman et al. 2003)

• Idiosyncratic rent-sharing elasticity: 0.051
  Typical range of rent sharing elasticities in meta study: 0.05 to 0.15 (Jäger, Schoefer, Young and Zweimüller, 2020)

• Firms’ pay premia have similar dispersion compared to Germany (cf. Card, Heining and Kline 2013)
Wage Dispersion and Pay Premia in Finland