Voice at Work

Jarkko Harju
VATT

Simon Jäger
MIT

Benjamin Schoefer
UC Berkeley

Cornell
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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, information-sharing)

Hypothesis: voice improves job quality and firm performance

+ Information exchange, productivity ↑, turnover ↓

Hirschman 1970, Freeman Medoff 1984

+ Ability to enforce implicit contracts through better information

Malcomson 1983, Freeman Lazear 1995

∼ If mutually beneficial, why isn’t worker voice adopted voluntarily?

Jensen Meckling 1979
Worker Exit vs. Voice

“Adversarial” industrial relations systems

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

- Few formal voice channels
- Unions provide *some* voice but mainly focus on bargaining
- Workers express demand for more voice    Bryson Freeman 2013; Kochan Yang Kimball Kelly 2019

“Cooperative” industrial relations systems

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

- Law mandates worker voice institutions: board-level representation, works councils
- Rights to information/consultation ("voice") usually bundled with rights to co-decisionmaking/codetermination ("power")
Board-Level Representation

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

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

Job quality (from workers’ perspectives)

Firm performance

Identification challenge:

Voice (information/consultation) often bundled with power (codetermination)

How to disentangle the effects of voice?

Ideal experiment: randomly assign firms (countries?) to expanded worker voice (without shifting power)
This Paper: Effects of Worker Voice on Job Quality & Firm Performance

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

Cutoffs:
≥ 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 *De facto*, mostly implemented as a pure voice institution

< 150: No such right

Research design: DiD (pre/post reform, ≤ 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

Data: universe of firms and workers, admin/tax/survey
Context: Research Agenda on Codetermination/Shared Governance

- Voice at Work (WP 2021, Harju Jäger Schoefer)
- Labor in the Boardroom (QJE 2021, Jäger Schoefer Heining)
- What Does Codetermination Do? (ILR Review forthcoming, (Jäger Noy Schoefer)
- Codetermination and Power in the Workplace (invited: EPI “Unequal Power Project” 2021, Jäger Noy Schoefer)
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
Outline

1 Institutions and Reform
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6 Discussion, Interpretation, Interview Evidence
Corporate Governance in Finland w/o Worker Representation

Shareholders

Elect

Board of Directors

Major Decisions

Appoint

Control

Dismiss

Compensation

Management

Report

Workforce
Corporate Governance in Finland w/ Worker Representation

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

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

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

Shareholders
  Elect
  Report
  Board of Directors
    Major Decisions
      Appoint
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      Dismiss
      Compensation
    Management
      Workforce
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)

- Typical *de facto* implementation: advisory councils, board membership without voting rights, regular consultation meetings

Details | Survey Evidence | Wage Setting in Finland
Worker Representation in Firms $\geq$ 150 Employees: Survey Evidence


Why did covered firms not adopt?
Reform Did Not Boost Worker Power

Worker Representatives’ Self-Assessed Influence
Reform Boosted Information Sharing

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*
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 Emp$\geq 150$
Fraction with Employment $\geq 150$

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

Robustness
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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 (DiD)

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

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 ≤ Emp\textsubscript{1988} ≤ 250**
- **Control Firms, 50 ≤ Emp\textsubscript{1988} < 150**

Baseline Year 
- Year FEs: -0.012 (SE 0.011)
- Industry-Year + Firm FEs: -0.007 (SE 0.010)

Robustness
Separations into Nonemployment (Levels and DiD)

Baseline Year

Pooled Post-Reform DiD Effects

Year FEs: -0.006 (SE 0.008)
Industry-Year + Firm FEs: -0.022 (SE 0.007)

Robustness
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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Subjective Labor Relations 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)

- 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: $0.019$ (SE $0.009$)
Industry-Year + Firm FEs: $0.016$ (SE $0.010$)

Robustness
Within-Firm Wage Percentiles and Executive Compensation

Pooled Post-Reform DiD Effects
- Year FEs
- Industry-Year + Firm FEs

Executive Earnings
Executive Earnings + Capital Income
Labor Share (Levels and DiD)

- 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)

-2 -1 0 1 2
-15 -10 -5 0 5 10

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
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
Firm Survival (Levels and DiD)

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

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

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 ≤ Emp_{1988} ≤ 250
- Control Firms, 50 ≤ 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)
Profit Margin (Levels and DiD)

Year FEs
Industry-Year + Firm FEs
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)  \( p = 0.118 \)

Number of Firms: 100, 125, 150, 175, 200

Pre-Reform, Total Obs: 5091:
Disc. Estimate: -0.158 (SE 0.145)

Post-Reform, Total Obs: 49980:
Disc. Estimate: -0.044 (SE 0.063)
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
- Consultation 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: ≈ 50% of 20-29 employee firms had no shop-floor representation pre-reform
DiD Effects

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

Treated Firms, 20 ≤ Emp<sub>2005</sub> < 30
Control Firms, 30 ≤ Emp<sub>2005</sub> < 40
Control Firms, 10 ≤ Emp<sub>2005</sub> < 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)
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 Interpretations

1. Worker voice $\Rightarrow$ information sharing $\uparrow \nRightarrow$ firm performance $\uparrow$

2. Worker voice $\nRightarrow$ information sharing $\uparrow$
   - Information sharing widespread independently of formal worker voice?
Formal vs Informal Voice in Finland

(a) Worker Representatives’ Self-Assessed Voice

(b) Workers’ Self-Assessed Voice

Sources: 2013 European Company Survey and 2015 European Working Conditions Survey (own calculations)
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: pre-existing cultures of informal worker involvement?
APPENDIX
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><strong>N</strong></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>

Main Research Design: DiD Around 1991

- 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 $t$:

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

- Coefficients of interest: $\psi^\text{Treated}_k$
- Normalize $\psi^\text{Treated}_{1990} = 0$
- 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:

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

- Worker Rep.

\( y_{it} \) 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
RD Design: Persistence (This and Next Year Above Cutoff)
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)
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)
Sickness Spell (Male): 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)
Log Value Added Per Worker: 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)
Mean Log Wage: 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)
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)
2008 Shop-Floor Representation Reform – First Stage

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

- 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** $y_{it}$ of firm $i$ in year $t$:

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

- Coefficients of interest: $\psi_{\text{Treated}}^k$
- 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

• 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
Hold-Up: Basic Idea

Profits:

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

Wage-taking firm’s capital investment:

\[
F_K = c
\]

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

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

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} (4)

Firm surplus:

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

Nash solution for wage bargain:

\[
    w^*(K, \bar{L}) = b + \frac{1}{\bar{L}} \left( \text{Total Surplus} \right)
\]  \hspace{1cm} (6)
Hold-Up: Worker Bargaining Power Depresses Investment

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

\[ F_K(\bar{L}, K^*) = c + (c - c') \left[ \frac{\phi}{1 - \phi} \right] > 0 \quad (7) \]

- 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)

\[
\max_K \{ \iota \log S_W^W(w^*, \bar{L}, K^*), K) + (1 - \iota) \log S_F^F(w^*, \bar{L}, K) \} 
\]

• Worker bargaining power increases investment
  • No worker control: \( \iota = 0 \Rightarrow F_K > c \Rightarrow \text{underinvestment} \)
  • Full worker control: \( \iota = 1 \Rightarrow F_K = c' < c \Rightarrow \text{overinvestment} \)
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

![Graph showing trends in wage dispersion and pay premia in Finland from 1990 to 2014. The graph compares mean SD wage, mean SD wage for a connected set, and mean SD AKM for a connected set.](image-url)