

Offshoring and the Decline of Labor Unions

How Globalization Fosters Technological Change

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October 27, 2023

Motivation

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- PE debates
 - | Automation (e.g. Gallego et al 2022, Mansfield and Rudra 2021)
 - | Globalization (e.g. Walter 2021, Milner 2021a)
 - | Democratic capitalism (e.g. Iversen & Soskice 2020, Milner 2021b)

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- | Rise of global production, automation
- | Two strategies to reduce labor costs

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- Workers

- | Decline in economic opportunity
- | Decline in unions

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 - 2 offshoring, unions $\overset{+}{\leftarrow}$ the adoption of automation

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 - 2 offshoring, unions $\overset{+}{\sim}$ the adoption of automation
 - 3 offshoring $\overset{-}{\sim}$ bargaining power of domestic workers, unions

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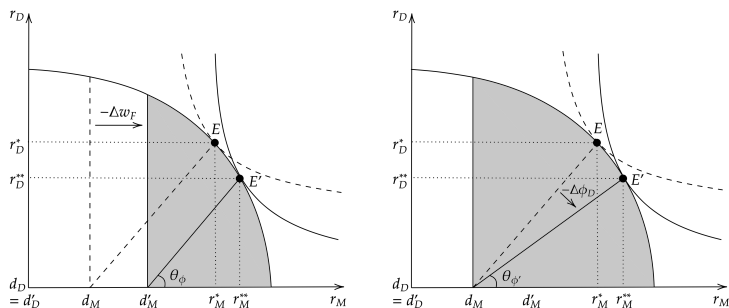


Figure: Offshoring and the Decline of Domestic Labor Unions

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- 4 regular vs. non-regular workers

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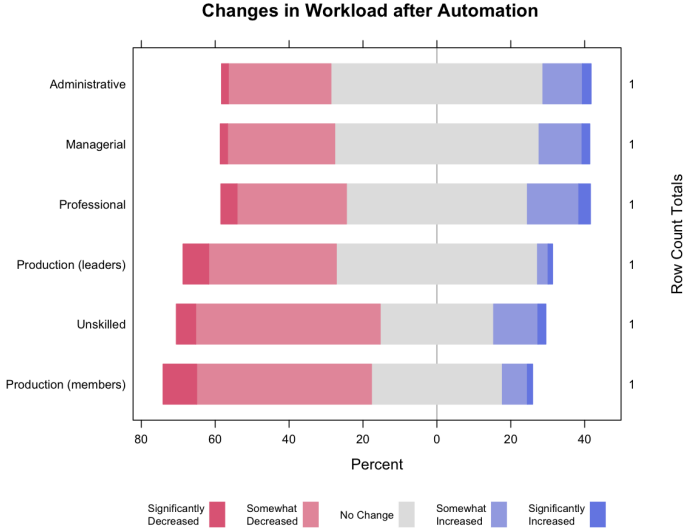
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- Sample: limited to non-public sectors (e.g. transportation excluded)

Job Losses due to Automation in Korea



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Measurements

DV: **o shoring** =1 if pursued/implemented, 0 otherwise

IV: **union** =1 if at least one active union, 0 otherwise

IV: **low-skill** =1 if low-skill workers majority (production, unskilled, technicians, etc.)

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Model: logit

control: # of employees, foreign capital ratio, manufacturing

unobservable: year FE, cluster SEs by workplace

Unions incentivize o shoring

Unions incentivize offshoring

Unions + Low skill) offshoring

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Empirical Analysis

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Hypothesis 2: θ shoring⁺ automation

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Hypothesis 2: σ shoring \uparrow automation

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DV: automation level 1-5: (0% 20% < :: < 80% 100%)

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Empirical Analysis

Hypothesis 2: α shoring \uparrow automation

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DV: automation level 1-5: (0% < 20% < 40% < 60% < 80% < 100%)

IV: α shoring = 1 if pursued/implemented, 0 otherwise

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Model: ordered logit

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DV: worker influence on [automation, layoffs]

=1 if workers have influence in the decision (opinions reflected, joint decision, veto)

=0 if no influence (not informed, not consulted)

IV: outsourcing =1 if pursued/implemented, 0 otherwise

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 - ① union elections (e.g. voter turnout, electoral turnover, regional membership)

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 - ① union elections (e.g. voter turnout, electoral turnover, regional membership)
 - ② regular vs. irregular workers and government redistributive policies

Additional slides

Question wording

- 1 Worker influence: “Decision-making of workers on the introduction of [new machinery and equipment, layoffs], through either official channels or other unofficial channels”
 - not informed before the decision
 - only informed of the decision
 - can express their opinions on the decision
 - labor unions' opinions are reflected in the decision
 - labor unions can veto the decision made
 - managers and labor unions jointly make the decision
- 2 Offshoring: “Overseas advancement strategy for its core businesses”
 - has never been discussed
 - discussed, but was not pursued
 - discussed, and is now being pursued
 - currently being undertaken
- 3 Automation: Level of work process 'automated'
 - 0 20%
 - 20 40%
 - 40 60%
 - 60 80%
 - 80 100%

Summary Statistics

Table: Summary Statistics (2005-2013)

Variable	Mean	St. Dev.	Min	Max
<i>Plant-by-year level</i>				
Offshoring				
– never discussed	3106			
– discussed but not implemented	428			
– discussed and being implemented	959			
– implemented	1613			
Rate of automation				
– 0 20%	87			
– 20 40%	196			
– 40 60%	1240			
– 60 80%	1043			
– 80 100%	340			
– not answered	3200			
# employees	2,005.895	5,159.909	3	57,105
Major occupation: low-skilled	0.690	0.462	0	1
Labor productivity: relatively high	0.895	0.307	0	1
Foreign capital ratio	0.096	0.234	0	1
Sales (in millions, KRW)	1,499,539	4,209,123	107	42,774,077
Assets (in millions, KRW)	2,844,751	12,248,717	0	237,991,539

Summary Statistics

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Variable	Mean	St. Dev.	Min	Max
<i>Plant-by-year level</i>				
how much involved workers are in firm-level decision making through unions: <i>Automation</i>				
– not informed before the decision	870			
– only informed of the decision	2064			
– can express their opinions	1921			
– their opinions are reflected	860			
– can veto the decision made	14			
– jointly make the decision	377			
Union chairman reelected: yes	0.529	0.499	0	1
% Turnout in the election: 50%	0.029	0.168	0	1
# candidates in the election: 1	0.447	0.497	0	1
Age of chairman: 50	0.686	0.464	0	1
Gender of chairman: male	0.976	0.153	0	1
Occupation the chairman: low-skilled	0.599	0.490	0	1

Logit analysis of offshoring

Table: Logit analysis of offshoring

	(1)	(2)
Union	-0.017 (0.052)	-0.210 (0.087)
Low skill	-0.594 (0.047)	-0.675 (0.055)
Union X Low skill		0.283 (0.097)
Manufacturing=1	1.094 (0.051)	1.088 (0.051)
# Employees (log)	0.364 (0.016)	0.363 (0.016)
Foreign share	0.005 (0.001)	0.005 (0.001)
Constant	-2.365 (0.094)	-2.306 (0.096)
Observations	9580	9580
# plants	3438.00	3438.00
log likelihood	-4540.87	-4532.47
BIC	9191.76	9184.12

Standard errors clustered workplace in parentheses. Year fixed effects included

$p < 0.1$, $p < 0.05$, $p < 0.01$

Ordered logit analysis of automation

Table: Ordered logit analysis of automation

	(1)	(2)	(3)	(4)
Automation				
Union	0.164 (0.037)	0.128 (0.046)	0.230 (0.053)	0.232 (0.087)
Low skill	-0.070 (0.036)	-0.071 (0.036)	0.101 (0.118)	0.102 (0.127)
Union X Low skill				-0.003 (0.102)
Offshore	0.097 (0.036)	0.060 (0.045)		
Union × Offshore		0.099 (0.065)		
Manufacturing	0.546 (0.037)	0.542 (0.037)	0.285 (0.210)	0.285 (0.210)
# Employees (log)	0.082 (0.012)	0.081 (0.012)	0.028 (0.069)	0.028 (0.069)
Foreign share	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)
Constant	2.706 (0.073)	2.727 (0.075)	3.293 (0.694)	3.293 (0.694)
Offshoring				
Union			-0.017 (0.052)	-0.017 (0.052)
Manufacturing			1.094 (0.051)	
Majority low-skill			-0.595 (0.047)	-0.595 (0.047)
Manufacturing			0.000 (.)	1.094 (0.051)
# Employees (log)			0.364 (0.016)	0.364 (0.016)
Foreign share			0.005 (0.001)	0.005 (0.001)
Constant			-2.366 (0.094)	-2.366 (0.094)
Observations	8122	8122	9580	9580
# Clusters	3139.00	3139.00	3438.00	3438.00
Log likelihood	-12352.64	-12350.94	-8660.99	-8660.99
BIC	24822.30	24827.92		

Standard errors clustered by workplace in parentheses. Year fixed effects included

$p < 0.1$, $p < 0.05$, $p < 0.01$

Ordered logit analysis of influence

Table: Logit analysis of influence

	Machines (1)	Layoffs (2)
Union	0.624 (0.082)	1.299 (0.078)
Offshoring	0.217 (0.087)	0.222 (0.084)
Union X Offshoring	-0.384 (0.129)	-0.264 (0.121)
Low skill	-0.124 (0.069)	0.017 (0.065)
Manufacturing	-0.106 (0.072)	-0.098 (0.067)
Employees (log)	-0.001 (0.022)	0.011 (0.020)
Foreign share	0.001 (0.002)	0.002 (0.001)
Constant	-1.605 (0.133)	-1.584 (0.123)
Observations	10118	10118
# Clusters	3497.00	3497.00
Log likelihood	-4792.07	-5414.67
BIC	9713.24	10958.45

Standard errors clustered by workplace in parentheses. Year fixed effects included

$p < 0.1$, $p < 0.05$, $p < 0.01$