Family-Friendly Amenities and Firm-Level Labor Dynamics: Evidence from On-Site Childcare in Korea

Tammy Lee[1] Jungmin Lee[2] Ross Chu[3]

[1]U of Michigan [2]Seoul National University and IZA [3]Lyft

May 28th, 2025

This research was supported in part by an NIA(T32AG000221) and NICHD (T32HD007339). training grant to the Population Studies Center at the University of Michigan. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Table of Contents

What impacts do corporate family-friendly policies have?

- Increasingly, firms have introduced family-friendly measures (Goldin et al., 2020, on paid parental leave)
  - ... to attract and retain workers with non-wage benefits (Dube et al., 2022; Liu et al., 2023;)
- Few empirical evidence on the effects of *family-friendly amenities* at workplace
  - Defining "family-friendliness" is challenging (Hotz et al., 2018).
  - Wage and amenity changes are endogenous or even unobservable
  - Higher-paying firms provide *better* amenities (Roussille and Scuderi, 2024)
- This project studies the effects of the onsite corporate childcare on employment dynamics
  - ... exploiting the 2015 policy change in Korea regarding corporate childcare mandate

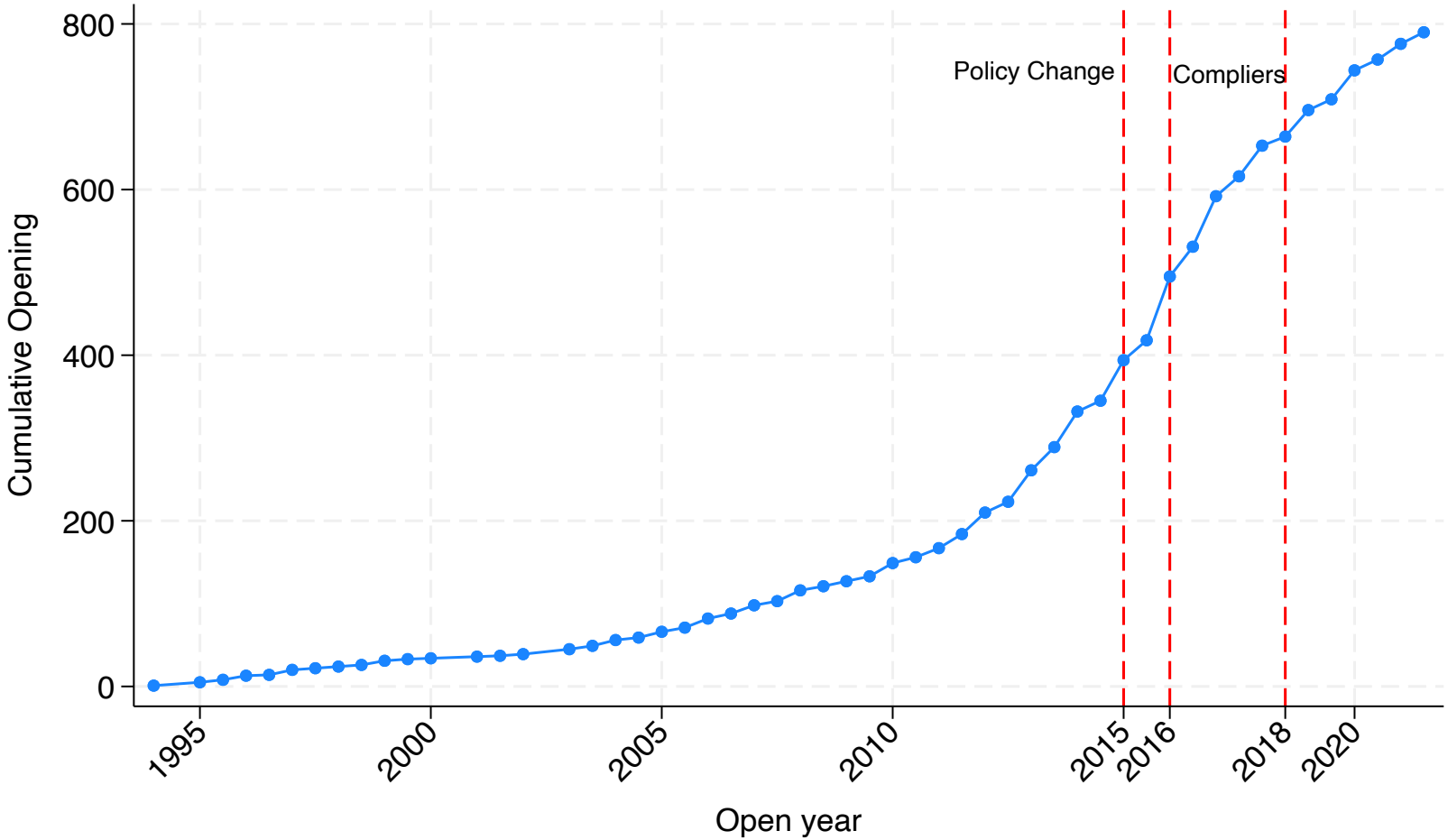
Onsite Childcare Mandate in Korea

- Establishments with $>$ 500 employees (or $>$ 300 women) have to provide on-site childcare since 2006
  - No practical enforcement device
  - Government subsidizes approx. 50% of total costs
  - 750 - 850 establishments are subject to the mandate every year
  - Parents rate on-site childcare as their most preferred option

  ▸ ChildcareDetail
- Policy change in 2015 to increase compliance rate
  - Implemented since January, 2016
  - Cash transfer no longer accepted
  - Penalty for non-compliance (max \$150K per year)
- Increased compliance rate from 46.9% (2015) $\rightarrow$ 68.2% (2018) among mandated establishments

Childcare Installation Date Distribution

- Our admin data covers between 2015 - 2019
- In this project, we will focus on firms installing childcare between 2016 - 2018
  - 246 (approx. 26%) complied between 2016 - 2018



Research Overview

- **RQ:** Do on-site childcare amenities help firms retain workers?

  If so, do firms shift costs onto benefitting workers?
- **Data**: (new!) Korean Administrative Data
- **Methodology:** Stacked Difference-in-differences
  - Using childcare opening as an exogenous change in firm amenity
  - *Within-firm* analysis - compare incumbents based on parental status
  - Workers with preschool kids are *direct* beneficiaries
  - Amenity access is exogenous to the worker's original job choice
- **Results:**
  - First causal evidence linking a family amenity to both retention and wage trajectories of *incumbent* workers
  - Document that firms can shift amenity costs unevenly *among workers*—parents stay more but face flatter earnings growth

Overview of Results

1. Earnings grow more slowly for parents who stay at firms offering childcare.
   - On average, 3.1 pp lower earnings growth over 5 years.
   - Coworkers who stay experience 12.7% growth, versus 9.6% for parents with preschoolers (a 24% reduction).
   - Effects are present for both fathers ($\beta = 0.021^{***}$) and mothers ($\beta = 0.031^{***}$), with larger reductions for mothers.
2. Wage growth for job switchers is unaffected, ruling out unobserved ability or changes in outside options.
3. Parents of preschoolers are 9.2 pp more likely to remain with their employer five years after the center opens.
4. Retention is 69.1% for non-parents, compared to 88.3% for parents ($\approx$8.7 pp higher).

   $\rightarrow$ Stronger parental attachment to employers that provide childcare access.

Relations to existing literature

- Family-friendly policies at workplace (Hotz et al., 2018; Goldin et al., 2020; Liu et al., 2023) ⇒ Exogeneity in the provision and effects on both genders
- Labor market impacts of mandated benefit provision (Becker, 1994; Dey and Flinn, 2005; 2008; Kolstad and Kowalski, 2016; Aizawa and Fang, 2020)

  ⇒ Mandated corporate childcare
- Labor market sorting on amenities and willingness to pay
  - Parametric approach and search model estimation (Sullivan and To, 2014; Hall and Mueller, 2018; Sorkin, 2018; Bonhomme et al., 2019; Lamadon et al., 2022; Sockin, 2023)
  - Survey and experiments (Flory et al., 2015; Mas and Pallais, 2017; Wiswall and Zafar, 2017; 2018; Barbanchon et al., 2020; He et al., 2021; Fluchtmann et al., 2021; Maestas et al., 2023)

  ⇒ Natural experiment setting
- Effects of childcare provision (Baker et al., 2008; Bick, 2016; Bauernschuster and Schlotter, 2015; Krapf et al., 2020; Müller and Wrohlich, 2020; Cortes and Pan, 2023; Kleven et al., 2023) ⇒ Effects of childcare provision at workplace

Data: (New!) Korean Admin Datasets

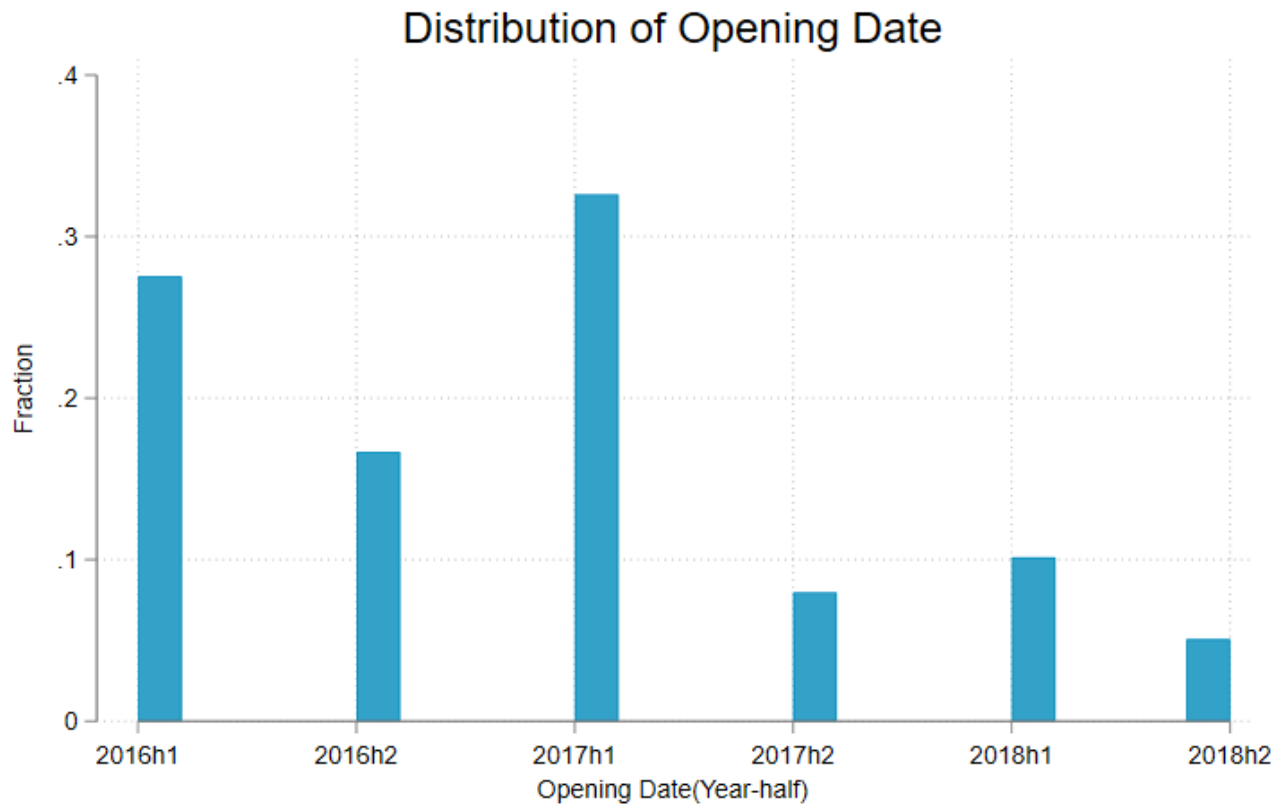
- *Among first to merge across multiple admin datasets*
- Time Period: 2015 - 2019
- Information on Workers:
  1. Employer-Employee Matched Data: worker ID, owner ID, job spell, earnings
  2. Household Census: marital status, parental status, spouse ID
  3. Child Registry: child birth year, parental leave usage
  4. **1983-1995 Cohort Data**: pregnancy periods, child birth date
- Information on Firms:
  1. Business Registry: owner ID, establishment ID
- Information on Childcare installation:
  1. The list of onsite child care facilities on government website
  2. Hand-collected owner ID to merge with administrative data

Identifying Firms with Onsite Childcare

- Main Task: Identifying the *treated establishments*
  - Matched employee-employer at *Owner (Firm)* level
  - Policy implemented at *Establishment* level
- Steps for data merge:
  1. Match with Business Registry based on (firm id , *sigoongu*) pair
     - ★ Policy implemented at *sigoongu* level, a size of township
  2. Assign the first open date matched to the pair if multiple facilities are matched
- Criteria: Only 1 (large) estab within a commuting area
  - Large establishment: second-largest establishment has ¡10% of the employees of the largest
  - Establishment is located within the same residential district, *sigoongu*, as the childcare
- Define an establishment as an (owner ID, commuting area) ▸ Detail
  - Spatial distribution of establishments similar after trimming ▸ AreaDist
  - 27% are identified ($N = 243/904$)

Resulting Event Dates

Figure: Childcare Installation Date (Number of establishments)



- Number of newly complying estabs in sample: 86

Resulting Event Dates: Affected Employees

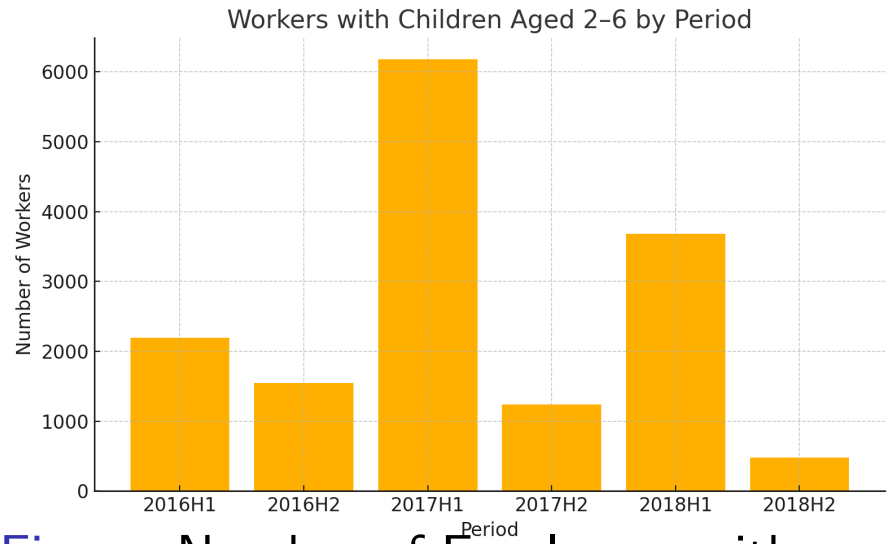


Figure: Number of Employees with Preschool Kids

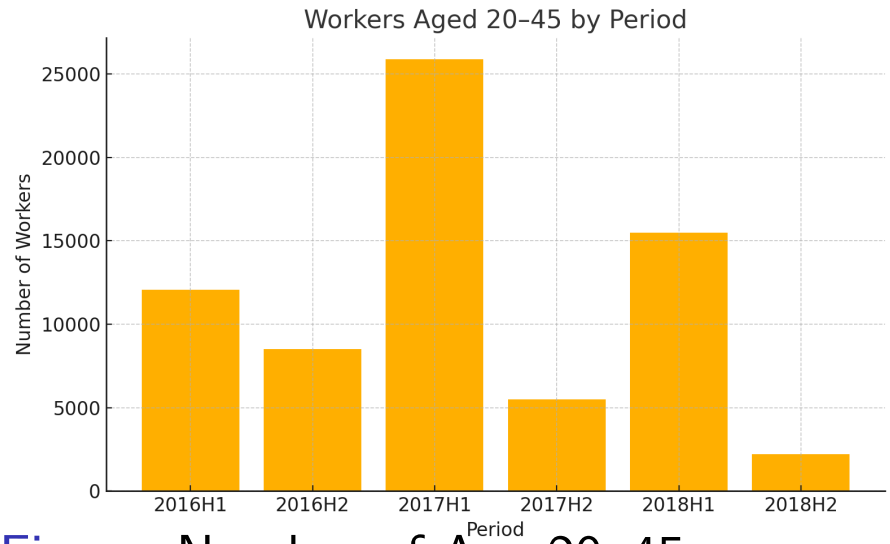


Figure: Number of Age 20–45 Employees

Methodology: Stacked DiD

- Stacked difference-in-differences following Cengiz et al. (2019)

$$Y_{it} = \alpha_i + \sum_k PreSchool_i \times 1(Evt_f = t + k) + \gamma_{ft} + \varepsilon_{it}$$

- Sample: Incumbent workers age 20-45
  - Treated if has preschool age kids (2-6 years old)
  - Control if childless or youngest child age $\geq$ elementary school
  - Exclude parents to infants (0-1 year old)
- Outcome of interest : Earnings, Retention
- Controls: Firm by Calendar time fixed effects, Individual FE, Income rank specific linear time trends
- Standard errors clustered at firm level

Simple Model of Retention with Childcare

- Workers receive wage offers and choose :(1) stay, or (2) switch
  - disregard non-employment option for simplicity
- Unobserved heterogeneity in the value of non-wage amenities, ϵ_{if} - childcare, across worker i and firms f
- The utility of accepting a job offer with wage w and childcare ϵ_{if} is

$$u(w, \delta_i | w_0) = (w - w_0) + \delta_i \cdot \mathbf{1}(ChilcdCare_f)$$

- where w_0 is the current wage and $w \sim G_w(\cdot)$ follows offer distribution
- $\delta_i \sim F_\delta(\cdot)$ is the relative value of childcare at the new job compared with the current job
- By construction, $E(\delta_i | No\ Preschool) \simeq 0$, $E(\delta_i | Preschool) > 0$

Simple Model of Retention with Childcare

- Probability of switch, then, is given by

$$P(switch) = P(\delta_i > -(w - w_0))$$

- which differs by parental status

$$P(switch|No\ Preschool) = 1 - G(w_0)$$

$$P(switch|Preschool) = \mathbf{1}(ChilcdCare_f)(1 - F(\delta_i)) \times (1 - G(w_0))$$

- Then, $P(switch|Childcare) < P(switch|No\ Childcare)$ for *Preschool*
- The introduction of Childcare at firms leads to
  1. $P(switch) \downarrow$ for those with pre schoolers
  2. A counter offer for w lower for those with pre schoolers, resulting in slower wage growth for *stayers with pre-schoolers*

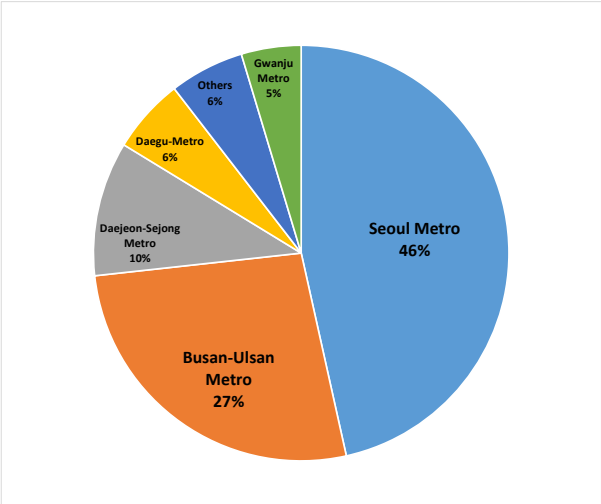
Complier Firm Characteristics

Table: Descriptive Statistics

Variables	Mean (SD)
Firm Characteristics	
Number of Firms	86
Employment Size	1,549.2
	(2,095.7)
Employment (Regular Full-time)	1,476.2
	(1,913.9)
Total Payroll (10,000 KRW)	367,348.2
	(574,453.7)
Revenue (1 million KRW)	1,119,478.6
	(2,342,790.5)
Earnings	
Average Monthly Earnings (10,000 KRW)	528.3
	(177.8)
Avg. Earnings — Age 20–45 (10,000 KRW)	464.8
	(138.7)
Demographics and Utilization	
Female Share	0.42
	(0.30)
Age 20–45 Worker Share	0.78
	(0.15)
Workers with Preschoolers	0.13
	(0.05)
Leave Utilization | Eligible Workers	0.02
	(0.02)

Table: Industry Composition

Industry Category	Share (%)
Manufacture	29
Social Service	36
Professional Service	12
Retail/Logistics/Hospitality/Education	12
Others	12



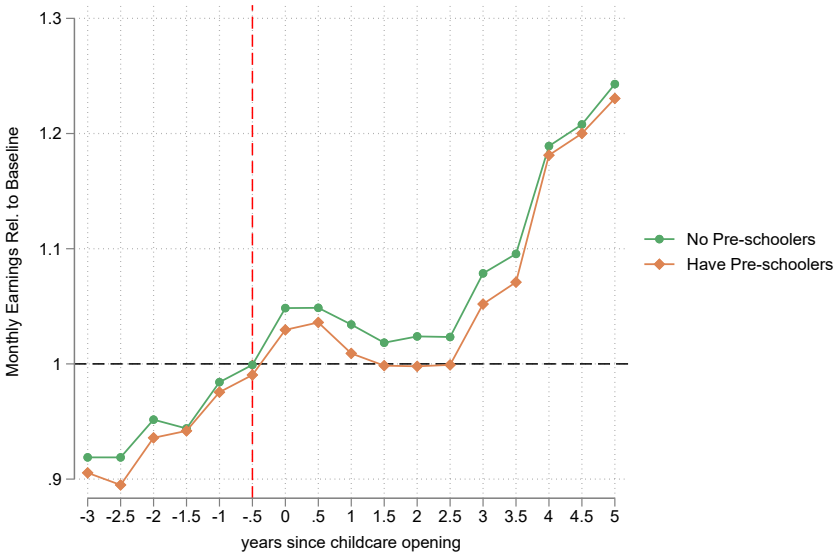
Descriptive Statistics: Incumbent Employees

Table: By Parental Status at Baseline

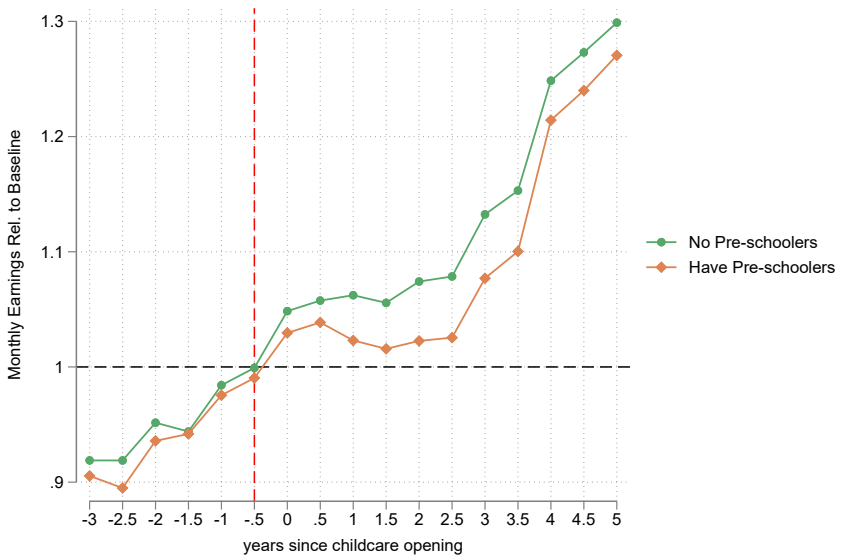
	Young Parent	**No Preschoolers**	**(1)-(2)**
N Observation	14,356	45,988	60,344
Age	37.77	34.56	3.21***
	(3.62)	(6.91)	(0.00)
Female	0.24	0.43	-0.19***
	(0.43)	(0.50)	(0.00)
Tenure (months)	116.11	91.11	25.01***
	(59.29)	(70.06)	(0.00)
Monthly Earnings	655.77	553.40	102.37***
	(268.66)	(271.16)	(0.00)
Parent	1.00	0.29	0.71***
	(0.00)	(0.46)	(0.00)
Number of Children	1.76	0.51	1.25***
	(0.65)	(0.85)	(0.00)
Seoul Metro	0.47	0.50	-0.02
	(0.50)	(0.50)	(0.46)

Slower Income Growth for *Parent Stayers*

Normalized Earnings



Normalized Earnings | Stayers



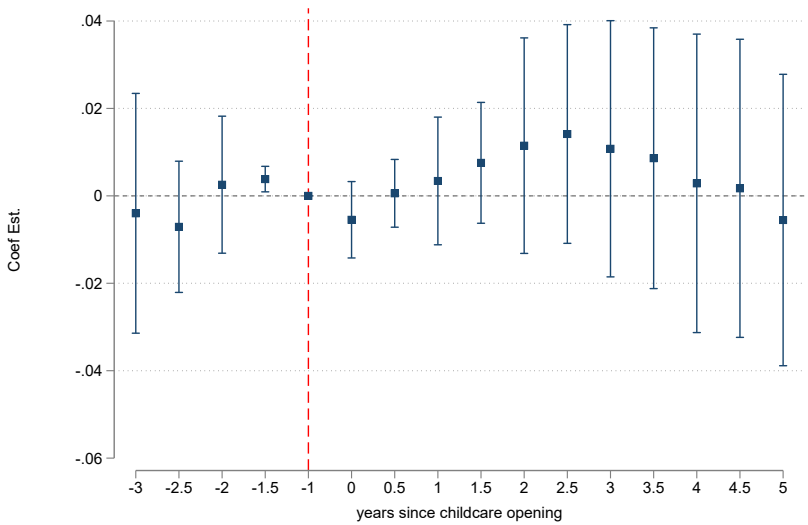
- (L) Unconditional on *retention*, earnings rise at similar rates.
- (R) Conditional on stayers, parent wages level off while peers keep climbing.

  This suggests those who value childcare remain employed despite flatter pay growth, indicating sorting among incumbents.

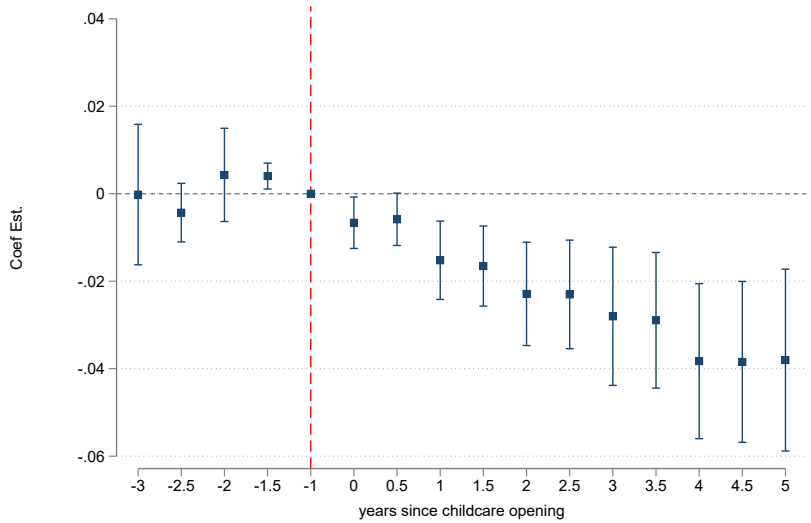
Event study: Earnings

$$Y_{it} = \alpha_i + \sum_k PreSchool_i \times 1(Evt_f = t - k) + \gamma_{ft} + \varepsilon_{it}$$

Normalized Earnings



Normalized Earnings | Stayers



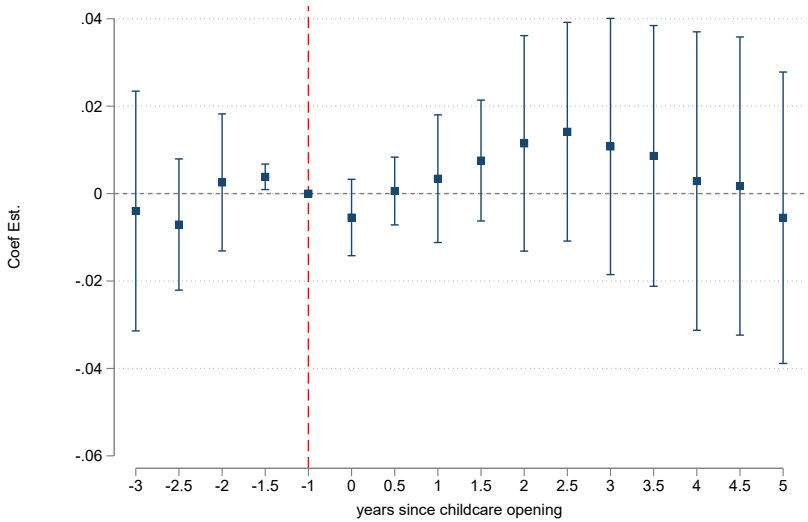
- Unconditional earnings do not evolve differently

  $\rightarrow$ suggests incumbents are not differentially selected in earnings potential *prior to the event*
- Earnings diverge only when condition on stayers

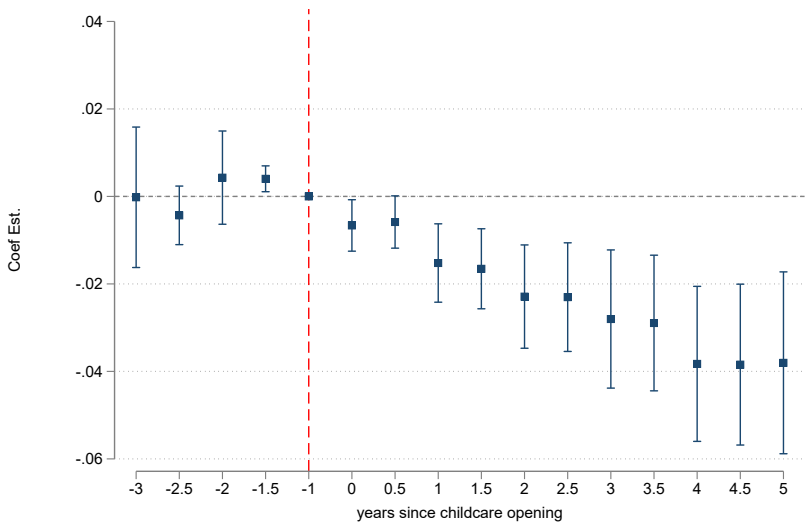
Event study: Earnings

$$Y_{it} = \alpha_i + \sum_k PreSchool_i \times 1(Evt_f = t - k) + \gamma_{ft} + \varepsilon_{it}$$

Normalized Earnings



Normalized Earnings | Stayers

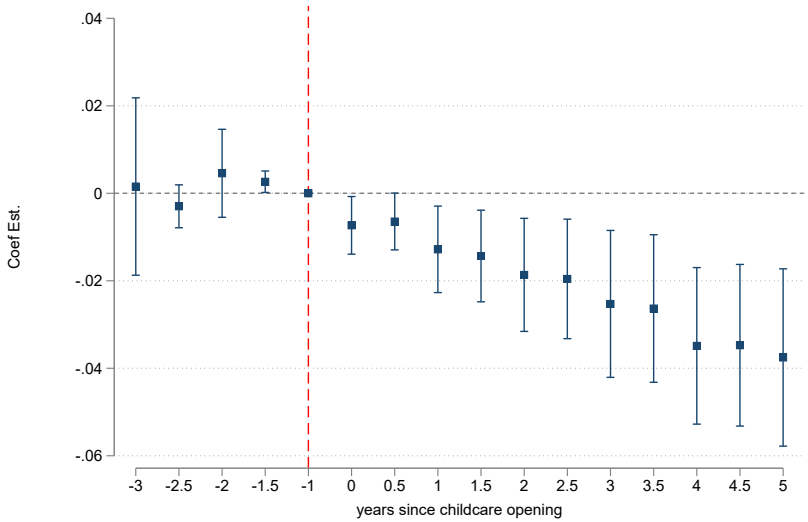


- $\beta^{stayer} = 0.031^{***}$: On average, 3.1 pp lower earnings growth over 5 years for benefittig workers who stay
- i.e. Coworkers who stay experience 12.72% growth over 5 years

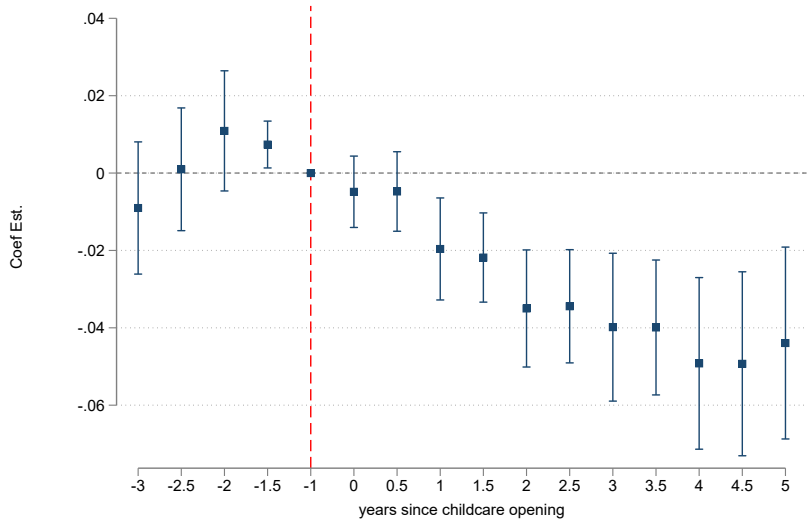
  $\rightarrow$ Those with kids experience 24% lower (potential) earnings growth on average over 5 years

Event study: Earnings by Gender

Normalized Earnings | Men



Normalized Earnings | Women



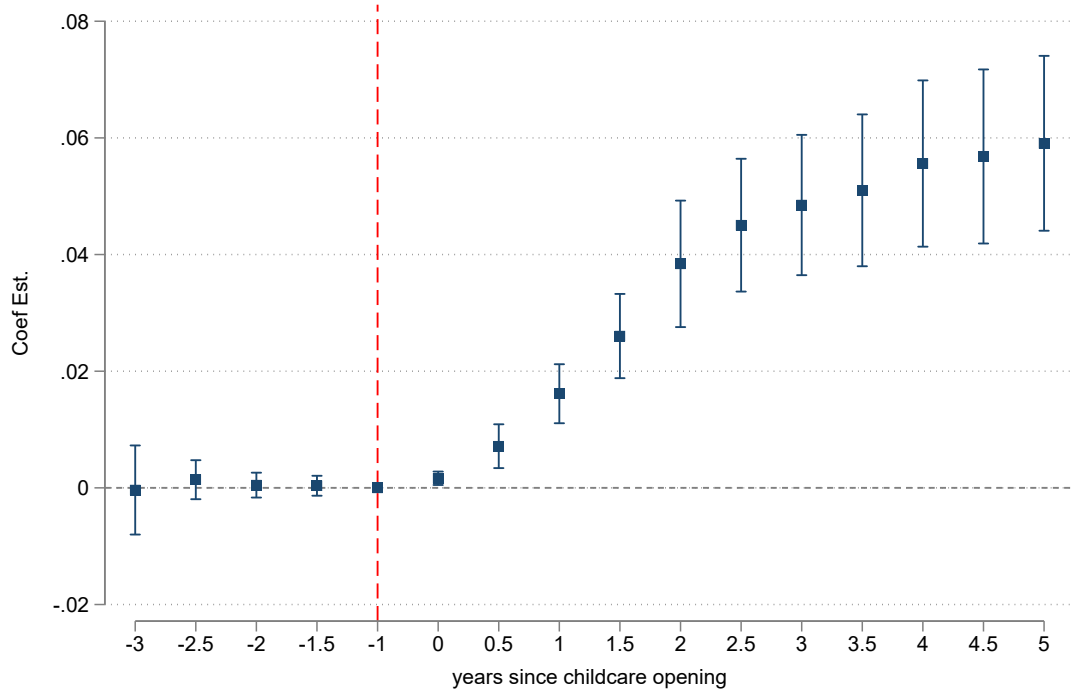
- Monthly earnings decrease both fathers and mothers.
- The reduction is larger for mothers.
  - $\beta^{stayer}_{men} = 0.021^{***}$, $\beta^{stayer}_{women} = 0.031^{***}$

DiD Estimates

Table: Effect of Childcare Access on Monthly Earnings (Stayers)

	All		Father		Mother	
	(1)	(2)	(3)	(4)	(5)	(6)
1(Preschool Kid) × Post	-0.015**	-0.031***	-0.016**	-0.021**	-0.015**	-0.031***
	(0.007)	(0.009)	(0.006)	(0.008)	(0.007)	(0.009)
1(Preschool Kid)	0.008		0.001		0.008	
	(0.005)		(0.003)		(0.005)	
Age	-0.002***		-0.002***		-0.002***	
	(0.001)		(0.001)		(0.001)	
Tenure (base)	-0.000**		-0.000**		-0.000**	
	(0.000)		(0.000)		(0.000)	
Parent (base)	0.010**		0.008***		0.010**	
	(0.004)		(0.003)		(0.004)	
Constant	1.212***	1.117***	1.109***	1.079***	1.212***	1.117***
	(0.040)	(0.001)	(0.076)	(0.002)	(0.040)	(0.001)
Observations	274,270	274,269	523,999	523,999	274,270	274,269
R-squared	0.513	0.727	0.537	0.742	0.513	0.727
Indiv FE	N	Y	N	Y	N	Y
Income Rank Trend	Y	Y	Y	Y	Y	Y
Firm × Time FE	Y	Y	Y	Y	Y	Y

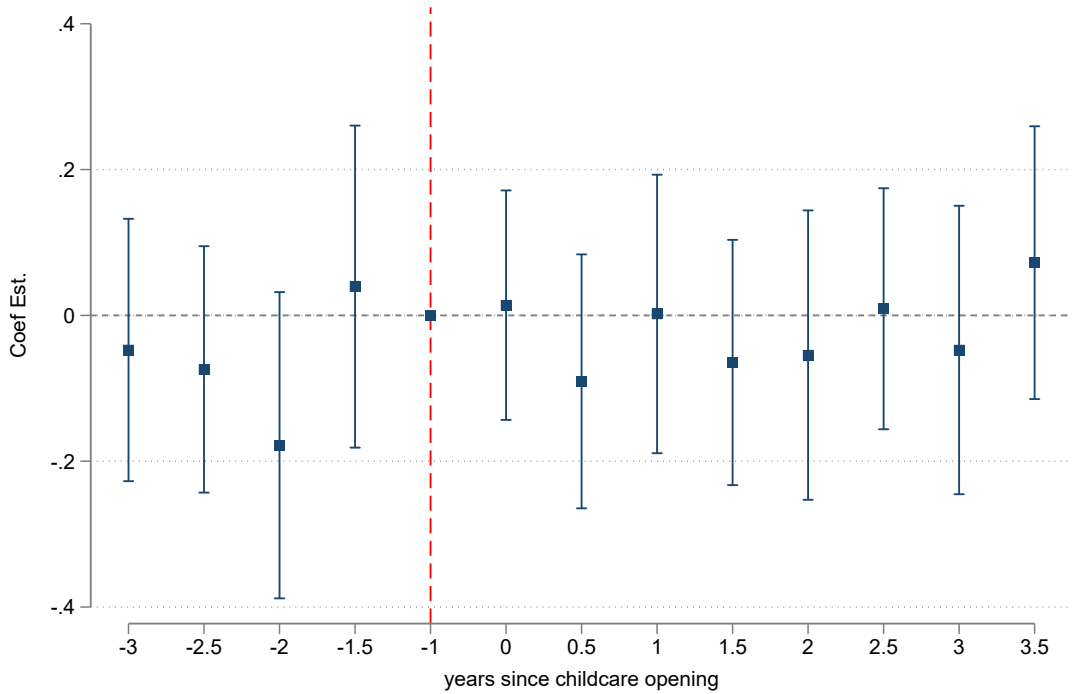
Event study: Retention



- Outcome: $Y_{it} = 1$ if the worker remains with the same firm.
- Graph plots event-time changes in that share, normalized to zero at baseline.
- Five years after childcare opens, parents of preschoolers are 9.2 percentage points more likely to remain with their employer.

Event study: Quitter Analysis

Log(New Salary / Previous Salary) | Switchers (leavers)



- Compare wage gains of job switchers before vs. after the childcare rollout, by parental status.
- If parents are more negatively selected, *post-switchers'* gains would increase
- We observe no differential change in log salary growth between parent and non-parent switchers.

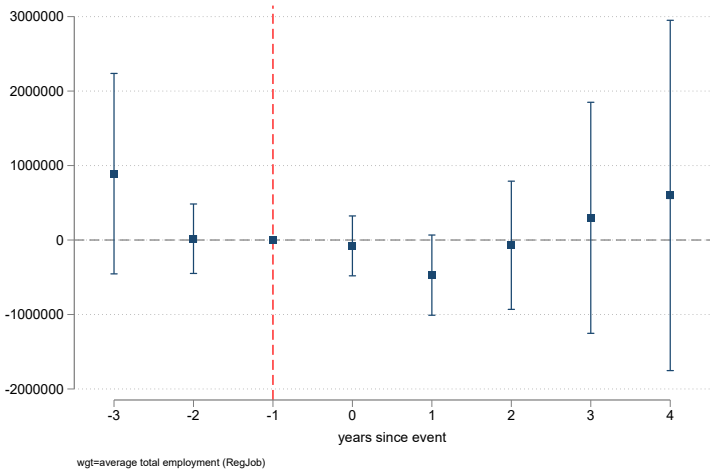
Complementary Firm Level Analysis

- We evaluate firm level outcomes to evaluate discernible effects on firms
  - Available at annual frequency
- Control group: similar sized firms with childcare installed *before* the policy change
  - located within the same area-industry pair
  - very few firms below threshold
  - Observationally similar in pre-period

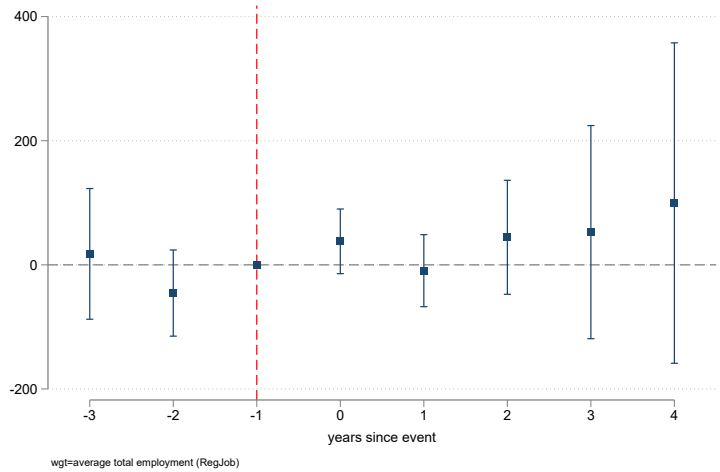
	(1) Treat	(2) Control	(1) - (2) (p-value)
Female	0.42	0.45	-0.030
Monthly Income	505	527	-22.003
(10,000 KRW)	(165)	(169)	(0.37)
Parental Leave Usage (2015)	0.10	0.09	0.010
(Among parents 0-8 years old)	(0.08)	(0.07)	(0.31)
	(0.14)	(0.13)	(0.88)
Employment Size	1,846	1,619	226.410
	(2,538)	(2,171)	(0.46)
Number of Firms	96	93	

No discernible change in revenue and employment size

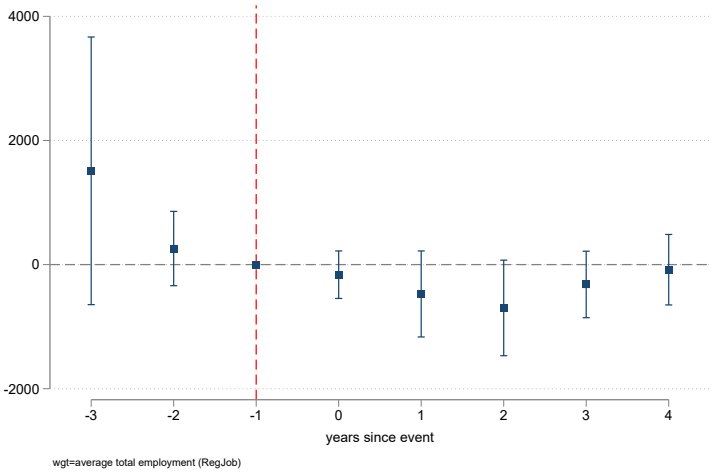
Total revenue



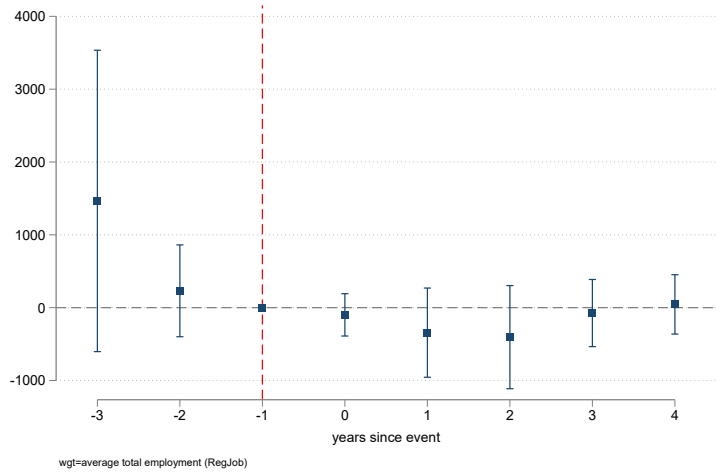
revenue per workers



Total employment



Full-time employment



Conclusion

- Exploiting a onsite childcare policy change in Korea, we study how a family-friendly amenity reshapes employment dynamics *within* firms.
- Once the childcare opens :
  - Parents who stay experience **slower wage growth**.
  - Yet, they are *more likely to remain* at firms by roughly 6 p.p. five years since the opening
  - Wage gains for **job switchers** are unchanged, implying no negative selection on ability .
- These findings imply :
  - Childcare access lowers parents' quit elasticity.
  - Firms offset part of the amenity's cost through flatter pay paths for those parents—consistent with a compensating-differential model.
- We provide the *within-firm* evidence that family amenities jointly affect turnover and wage setting,

  ... highlighting how costs can be shifted back onto the very workers who value the benefit.

Appendix

Onsite Childcare is the most preferred type of care

- Parents rate on-site childcare as their most preferred option
  - Accessibility from workplace
  - Longer service hours (average of 9 hours vs. 7 hours).
  - A better quality (teachers are more educated)
  - Only 4-5% were enrolled in the onsite childcare in 2017.
- Childcare is heavily subsidized by the government, covering 90% of the cost.
  - Average childcare spending by HH \$150 (almost \$0 if enrolled in a public childcare)
  - In 2017, 70.4% of children aged 0-6 were enrolled in some form of childcare.
  - Specifically, 91% of 2-5 year olds were enrolled
- All parents are eligible for paid parental leave of 1 year period

Back

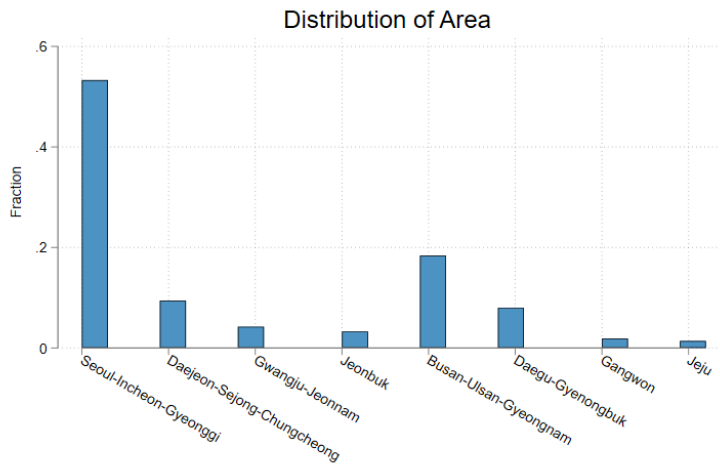
Identified Sample

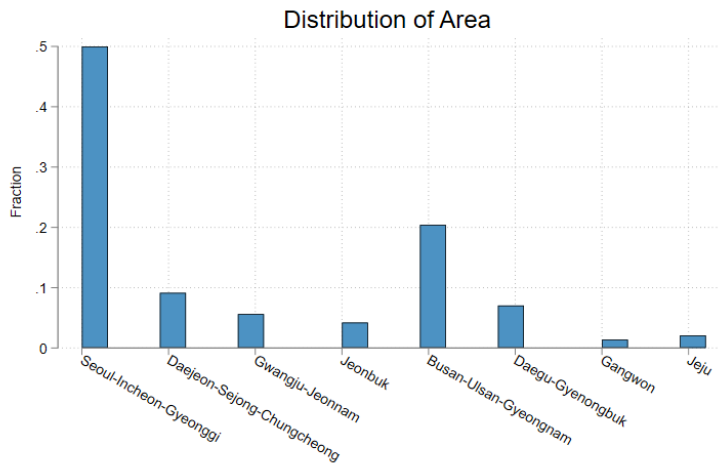
- UPDATE ON DETAILS BASED ON NOTES FROM June 3rd, 2024
- N firms

Process	Total	Matched	(%)
Bizmatch	904	878	97.1%
Area Restriction	904	409(Comp:142)	45%
Matched with Employee Roster	904	243(Comp:96)	26.9%

Back

Identified establishments share similar spatial distribution





- South Korea is about the size of Virginia, or Ohio
- Commuting areas defined as 6 regions

▸ Back