Dissecting the Returns to Job Mobility in Japan:

How Firm-boundary Moderates the Consequence of Occupational Change

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Outline

1. Introduction and Background
2. Methods
3. Results
4. Tentative conclusion

Introduction and Background

Why job mobility matters

Job mobility and inequality over the life-course

Job mobility is an important mechanism to generate inequality among workers over the life-course (Ruhm, 1987; Keith and McWilliams, 1995; Bernhardt et al., 2001; Fuller, 2008; Mouw and Kalleberg, 2010; Schmelzer, 2012; Schmelzer and Veira-Ramos, 2016; Choi, 2016).

Changing job mobility and its implication

Studies (mainly in the U.S.) indicate that intra-generational occupational mobility and employer mobility have increased (For occupational mobility, see Kambourov and Manovskii, 2008; Moscarini and Thomsson, 2008; Hollister, 2012; Jarvis and Song, 2017; For employer mobility, see Bernhardt et al., 2001; Farber, 2010; Hollister and Smith, 2014).

Occupation and firm as components of a job

Occupation and employer change should be analyzed simultaneously

"A job is a particular kind of work with a particular employer."

(Rosenfeld, 1992, 40)

Job matching is jointly decided by an employer and an employee with specific skills (Granovetter, 1981; Sørensen and Kalleberg, 1981; Coleman, 1991; Logan, 1996).

However, little is known about **how the returns to job mobility differ by its occupation/firm change pattern** (As exceptions, see Le Grand and Tåhlin, 2002; Hollister, 2012; Fasang et al., 2012).

Japanese context: Importance of firm-boundary

Also in Japan, employer and occupational change increased (Nakazawa, 2008; Yu, 2010; Kambayashi and Kato, 2017; Watanabe, 2018).

Firm-specific skill development (Estevez-Abe et al., 2001; Thelen, 2004; Busemeyer, 2009)

Job relocation within organization - Over half of job mobility occurs within firm (Seiyama, 1994).

Employers' strong reliance on firm-specific expertise - High premium on tenure (Kalleberg and Lincoln, 1988).

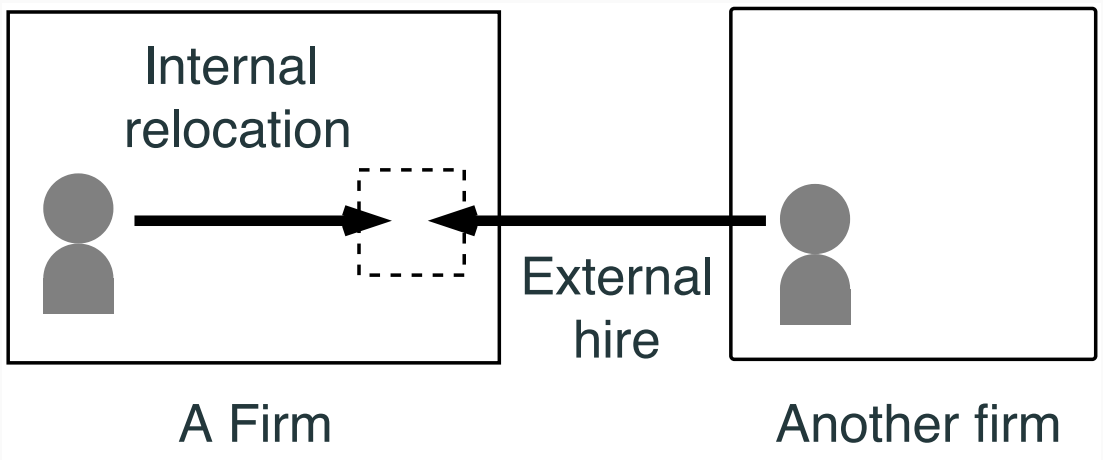
Research Question

We argue that **the role of firm-boundary in the returns to job mobility by analyzing employer change and occupational change simultaneously**.

Specific questions

1. How do the returns to job mobility differ by inter-occupation, inter-firm, and inter-occupation-inter-firm mobility?
2. To what degree do the returns to job mobility differ over the distribution of wage change?

Two options to fill a job vacancy (Stewman and Konda, 1983; Bidwell, 2011)



Internal relocation

It satisfies firm-specific skill match, accompanied with some certainty of general skill for employers.

External hire

It can satisfy occupation-specific skill match if applicants have the occupational experience (Bills, 1990). But general and firm-specific skills are uncertain for employers (Akerlof, 1970).

Wage determination under organizational logic

Not only mean wage change, but variance in wave change is another important point on the returns to job mobility (Polsky, 1999; Bernhardt et al., 2001; Stevens, 2001; Hollister, 2012).

Closeness to job vacancy and wage change

Job relocation occurs within a certain job cluster (Dunlop, 1957; Doeringer and Piore, 1971), thus wages of new occupants do not change a lot.

But in external hire, such rules are less likely to work because comparing jobs across firms are different (Baron and Kenny, 1986).

Hypothesis

	Type of job mobility		
	Inter-occ-intra-firm	Inter-firm-intra-occ	Inter-occ-inter-firm
Mechanism 1: Uncertainty on worker's skill			
General & Firm-specific	Low	High	High
Occupation-specific	High	Low	High
Mechanism 2: Organizational logic			
Pressure to suppress wage change	High	Low	Low
Predicted results (vs. no move)			
Mean change in wage	0 or +	0 or +	–
Variance in wage change	Small +	Medium +	Large +

Methods

Data and sample

Data

Japan Life-course Panel Survey (JLPS), 2009–2018, consists of those who were born in 1966–1986. Added sample included.

Sample

18,122 person-years nested within 3,489 persons of **25–49 aged employees, employed at both** $t-1$ **and** t.

- Self-employed and family-workers are excluded.

- Cases with missing-values are list-wise deleted.

Main dependent and independent variable

Change in Logged hourly wage

Difference in hourly wage (adjusted by 2018 CPI) between t and $t-1$. Top 1% and bottom 99% values are top- and bottom-coded.

Type of job mobility

no move (reference), inter-occupation-intra-firm, inter-firm-intra-occupation, inter-occupation-inter-firm between t and $t-1$.

- Occupation is measured by detailed SSM classification.

- Occurred by involuntary reasons (respondents who choose at least following one item: “bankruptcy, discontinuation of business, or displacement,” “the end of contract period,” or “health reasons”), about 30% of total inter-firm mobility, are coded as missing.

Other controll variables

Log hourly wage at $t-1$.

Age: Continuous, linear and square term.

Gender: Men and women.

Educational attainment: Junior high, senior high, vocational school, junior college, university or more.

Mobility in type of employment: Regular to regular, regular to non-regular, non-regular to regular, non-regular to non-regular between $t-1$ and t.

Firm size at $t-1$: $\leqslant 299$ employees, > 300 employees or government office, and DKNA.

Statistical models

Linear regression

$$\Delta \log Y_{it} = \beta_0 + \beta_1 \Delta M_{it}^{O} + \beta_2 \Delta M_{it}^{F} + \beta_3 \Delta M_{it}^{OF} + \boldsymbol{X}_{it}\boldsymbol{\beta} + \varepsilon_{it}$$

Change in logged hourly wage between $t-1$ and t is regressed on type of mobility between $t-1$ and t and control variables.

Quantile regression (Hao and Naiman, 2007; Machado et al., 2017)

$$\Delta \log Y_{it} = \beta_{0\theta} + \beta_{1\theta} \Delta M_{it}^{O} + \beta_{2\theta} \Delta M_{it}^{F} + \beta_{3\theta} \Delta M_{it}^{OF} + \boldsymbol{X}_{it}\boldsymbol{\beta}_{\theta} + \varepsilon_{it}$$

Coefficients for the θth quantile is estimated as follows:

$$\min \frac{1}{n} \left[\sum_{it: Y_{it} \geqslant \boldsymbol{X}_{it}\boldsymbol{\beta}_{\theta}} \theta |y_{it} - \boldsymbol{X}_{it}\boldsymbol{\beta}_{\theta}| + \sum_{it: Y_{it} \geqslant \boldsymbol{X}_{it}\boldsymbol{\beta}_{\theta}} (1-\theta) |y_{it} - \boldsymbol{X}_{it}\boldsymbol{\beta}_{\theta}| \right]$$

Results

Job mobility mainly occurs within firm

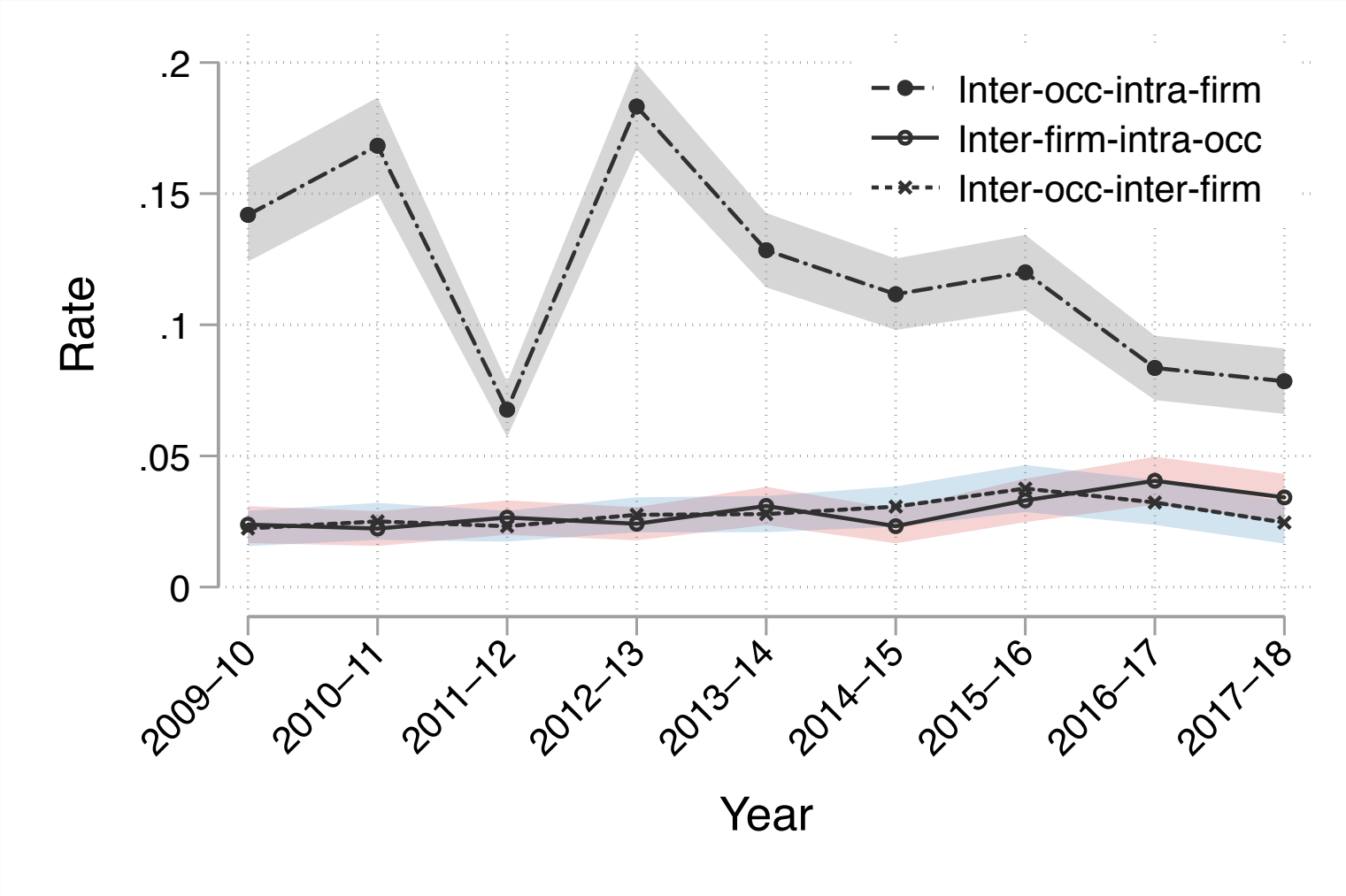


Figure 1: Trends in inter-occupation and inter-firm job mobility

Note: Predicted probability and 95% CI using cluster-robust standard errors are plotted. They are estimated by multinomial logit model predicting each job mobility controlling 1-year interval age dummies and gender.

Summary statistics by the type of job mobility

	No move	Inter-occ-intra-firm	Inter-firm-intra-occ	Inter-occ-inter-firm	Total
$\Delta \log(\text{wage})$	0.018	0.027	0.023	0.006	0.019
Hourly wage, t	1503.271	1500.031	1368.934	1153.809	1489.399
Hourly wage, $t-1$	1476.058	1457.357	1332.358	1152.424	1460.788
Age	38.416	38.385	37.169	36.713	38.330
Female	0.497	0.475	0.643	0.617	0.502
Educational Attainment					
Junior high	0.020	0.022	0.027	0.024	0.021
Senior high	0.256	0.274	0.209	0.289	0.258
Vocational school	0.192	0.164	0.244	0.182	0.190
Junior college	0.134	0.142	0.145	0.146	0.135
Univesity or more	0.398	0.398	0.374	0.359	0.396
Mobility of type of employment					
Regular to regular	0.714	0.714	0.444	0.311	0.695
Regular to non-regular	0.005	0.006	0.093	0.130	0.011
Non-regular to regular	0.012	0.018	0.107	0.134	0.019
Non-regular to non-regular	0.269	0.262	0.357	0.425	0.275
Firm size, $t-1$					
$\leqslant$ 299 employees	0.516	0.502	0.640	0.601	0.520
$>$ 300 employees or gov	0.416	0.435	0.260	0.267	0.410
DKNA	0.068	0.063	0.101	0.132	0.070
N of person-years	14943	2162	516	501	18122

Estimated mean returns to job mobility

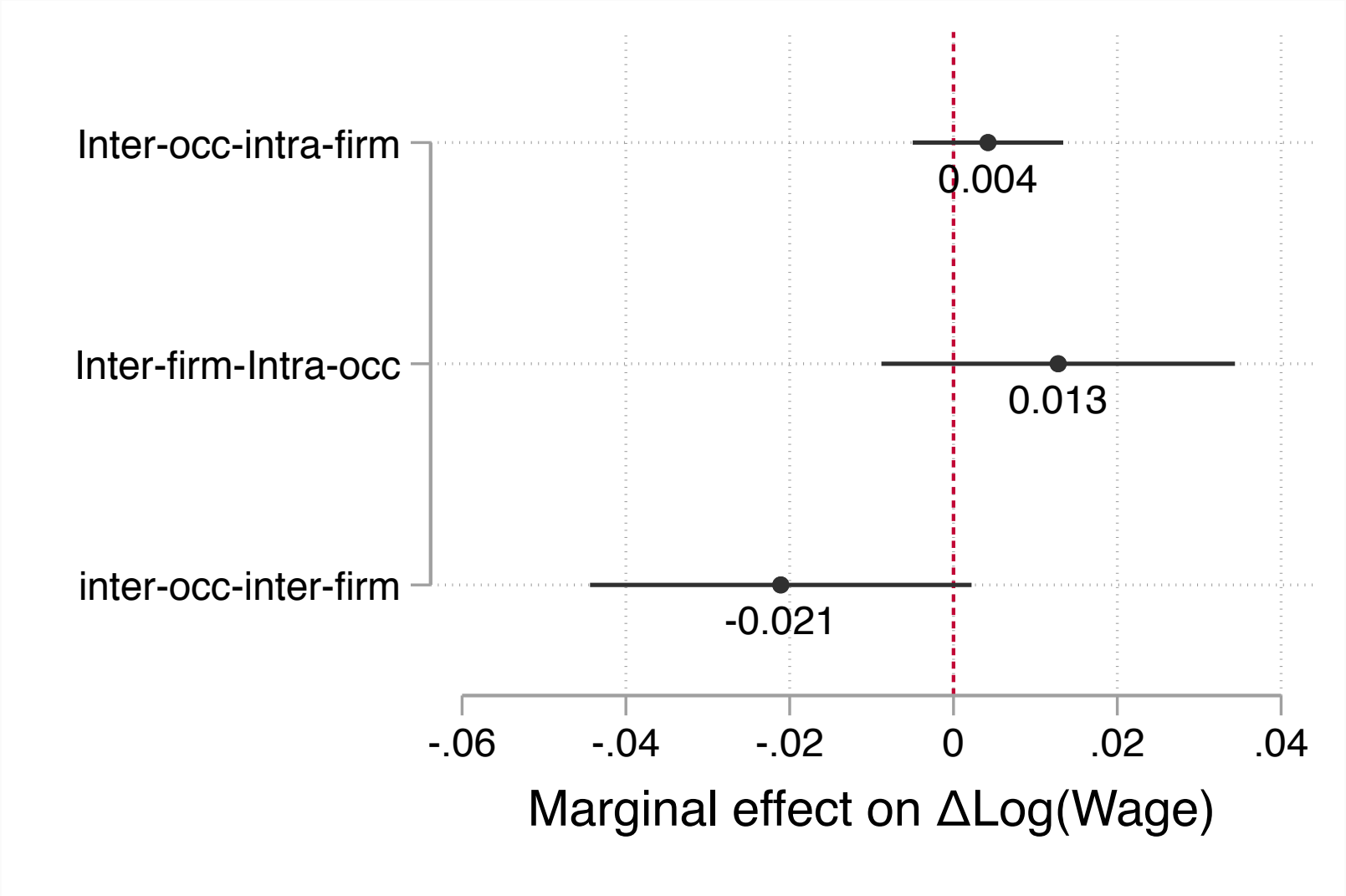


Figure 2: Mean wage returns to job mobility

Variation in wage change by job mobility

Figure 3: Cumulative density plot for wage change by types of job mobility

Various returns: Quantile regression estimates

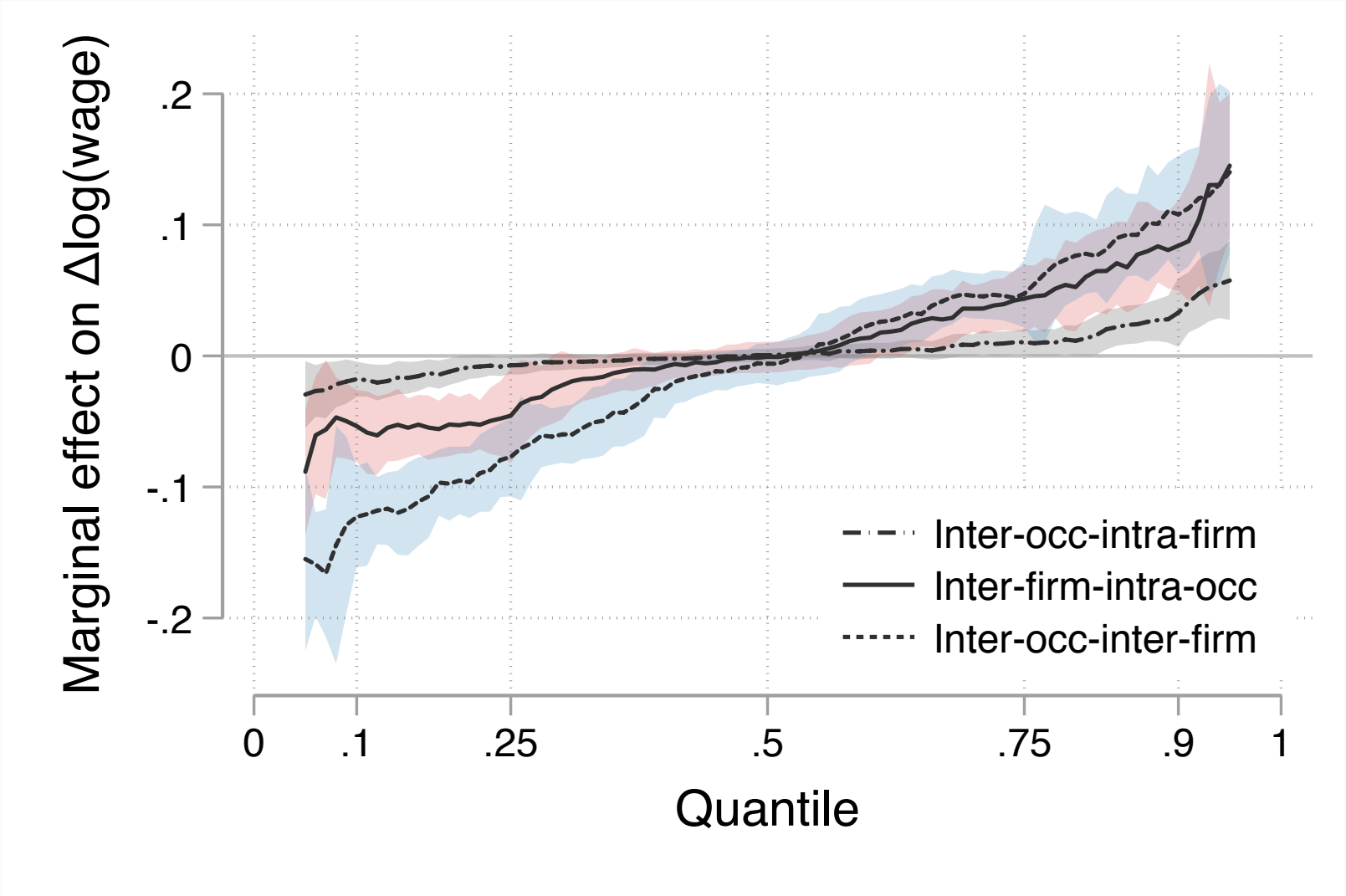


Figure 4: Estimated effects on quantiles in wage change distribution

Tentative conclusion

Summary

Main findings

1. Mean returns to inter-firm and inter-occupation move are not different with no move. In contrast, inter-occupation-inter-firm move degrades wage than these moves.
2. Variations in return are different by types of mobility; inter-occupation-inter-firm > inter-firm-intra-firm > inter-occupation-intra-firm > no move.

Discussion

Firm-boundary shapes the consequence of job mobility

In external job matching, The returns to job mobility become more uncertain than internal matching.

The Implication of increasing job mobility on process of generating inequality **depends on where it increases**.

Future steps

- Adjust sample selection and attrition bias.
- Explore sub-group differences.
- Compare with other societies with occupation-based skill development system.

Appendix

Acknowledgment

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Increasing inter-firm job mobility

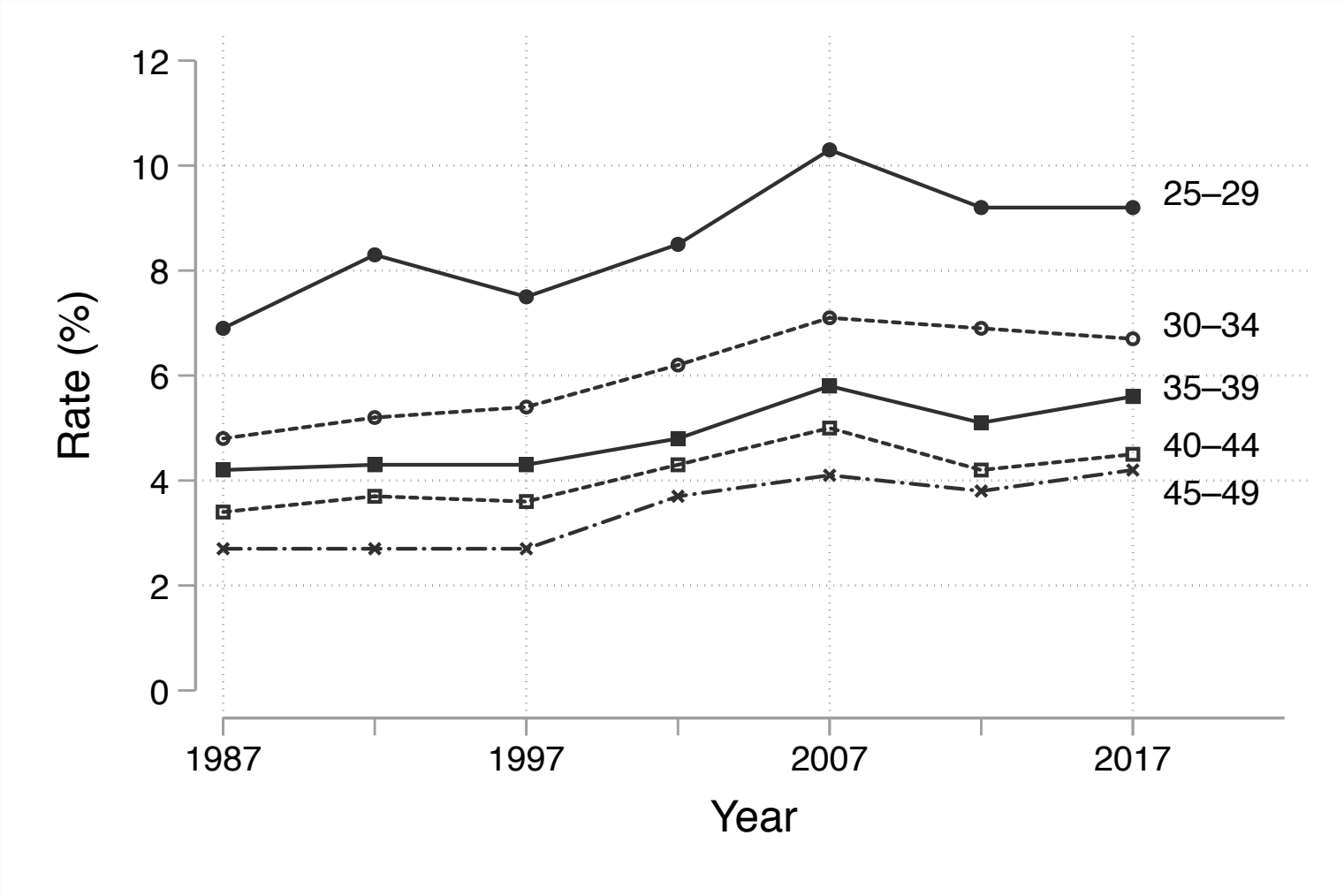

Figure 5: Increasing trend in inter-firm job mobility rate by age group

Source: Employment Status Survey (Ministry of Health, Labor and Welfare).

Estimates for control variables, OLS and QREG

	OLS	p10	p25	p50	p75	p90
Logged hourly wage, t-1	−0.204***	−0.252***	−0.139***	−0.080***	−0.118***	−0.168***
	(0.008)	(0.011)	(0.006)	(0.005)	(0.007)	(0.009)
Age/10	0.077**	0.130**	0.060*	0.023	−0.001	0.032
	(0.026)	(0.046)	(0.024)	(0.016)	(0.031)	(0.055)
$(\text{Age}/10)^2$	−0.007*	−0.013*	−0.007*	−0.003	0.000	−0.003
	(0.003)	(0.006)	(0.003)	(0.002)	(0.004)	(0.007)
Female	−0.027***	−0.004	−0.002	−0.009***	−0.040***	−0.056***
	(0.003)	(0.006)	(0.003)	(0.002)	(0.004)	(0.007)
Senior high	0.007	0.010	0.004	0.008*	0.012	0.002
	(0.009)	(0.021)	(0.007)	(0.004)	(0.008)	(0.015)
Vocational school	0.024**	0.023	0.012	0.017***	0.031***	0.027
	(0.009)	(0.021)	(0.008)	(0.004)	(0.008)	(0.016)
Junior college	0.022*	0.027	0.017*	0.016***	0.018*	0.015
	(0.009)	(0.021)	(0.008)	(0.004)	(0.008)	(0.017)
Univesity or more	0.053***	0.047*	0.025***	0.028***	0.044***	0.055***
	(0.009)	(0.020)	(0.008)	(0.004)	(0.008)	(0.016)
Regular to non-regular	−0.087***	−0.056	−0.078***	−0.057**	−0.073***	−0.048
	(0.018)	(0.037)	(0.021)	(0.022)	(0.017)	(0.028)
Non-regular to regular	−0.029*	−0.070***	−0.021	−0.000	0.000	0.020
	(0.014)	(0.020)	(0.012)	(0.009)	(0.021)	(0.034)
Non-regular to non-regular	−0.070***	0.014	0.002	−0.036***	−0.098***	−0.139***
	(0.004)	(0.007)	(0.004)	(0.003)	(0.004)	(0.008)
$>$ 300 employees or gov	0.033***	0.036***	0.018***	0.013***	0.021***	0.026***
	(0.003)	(0.005)	(0.003)	(0.002)	(0.004)	(0.007)
DKNA	0.006	0.018*	0.004	0.002	0.003	−0.002
	(0.006)	(0.008)	(0.003)	(0.002)	(0.005)	(0.009)
Constant	1.290***	1.295***	0.785***	0.538***	0.959***	1.365***
	(0.069)	(0.120)	(0.062)	(0.042)	(0.075)	(0.122)
R^2	0.104	0.065	0.068	0.098	0.059	0.055

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Cluster robust standard errors are in parentheses.

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