

Long-term effect of job displacement in Japan

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Definition of job displacement

“Involuntary job separations due to economic or technological reasons as a result of structural change (OECD, 2013)”.

Background (1)

Displacement rate in Japan

- Low compared to North-American countries (Abe et al., 2002; Kambayashi and Kato, 2013) and some other OECD countries with comparable data such as New Zealand, France, Australia, and South Korea (OECD, 2013).
- Increased through 1990s and in 2009 corresponding to the increase in stock of unemployment.

Background (2)

Japanese employment system

With regard to regular full-time jobs,

- Strong preference of firms for recruiting new graduates.
- Prevailing practice of long-term employment (strong job protection) and seniority-based wage system.

→ Development of the external labor market is likely to be hindered (e.g., Ono and Rebeck, 2003).

→ Job displacement can have persistent negative effects on labor market outcomes.

Objective

Investigate long-term earnings effects of being displaced in the Japanese labor market using the panel data from the Japanese Longitudinal Survey on Employment and Fertility (LOSEF).

Outline

- Previous literature
- Data
- Method
- Results
- Summary of results and future work

Previous literature (1)

Countries other than Japan

- Use panel data from household surveys or administrative records.
- US (Ruhm, 1991; Jacobson, et al., 1993; Stevens, 1997; Couch and Placzek, 2010)
 - Significant earnings losses that persist at least 4 to 6 years after displacement.
- Other OECD countries (OECD, 2013)
 - Magnitudes and persistency of earnings losses after displacement vary by country (tend to be small in Nordic countries).
 - Negative effects on job quality and skill use

Previous literature (2)

Japan

- Depend heavily on **cross-sectional datasets due to lack of panel data.**
- **Probability of being displaced** is higher for the (1) short-tenured, (2) female, (3) lower-educated, and (4) elderly (Kambayashi and Kato, 2012).
- **One-shot wage penalty of displacement** is higher for (1) elder employees, (2) employees displaced from a larger firm, and (3) employees changed industry after displacement (Bognanno and Kambayashi, 2013; Bognanno and Delgado, 2008; Abe et al., 2002).

Data (1)

The Japanese Longitudinal Survey on Employment and Fertility (LOSEF)

- Pooled data from the 4 internet-based surveys conducted by the Project on Intergenerational Equity at the Research Institute for Policies on Pension and Aging.
- Survey respondents were selected from individuals registered as monitors at an Internet survey company.

Data (2)

Name	Sample	Survey year
LOSEF: the 2011 Internet Version	6,000 males and females aged 30 to 59	2011
LOSEF for the middle-aged and elderly	2,000 males and females aged 50 to 69	2012
LOSEF for the youth	3,000 males and females aged 21 to 35	2013
LOSEF for displaced workers	1,400 male and female displaced workers < if separated due to bankruptcy, layoff, voluntary redundancy, or ordinal dismissal >	2013

Data (3)

Contents of the LOSEF (Detailed explanations are provided by Takayama et al, 2013)

Part 1:

- Respondents are asked to copy their pension enrollment records issued by the government to public pension enrollees.
 ⇒ Monthly salary in April every year and the timing of job changes (max. 15)

Part 2:

- Respondents retrospectively answer questions on major life events.
 ⇒ Characteristics of jobs held (e.g., industry, occupation, contracting term, and title) and a reason for each job change (if any).

Part 3:

- Respondents provide information on various aspects of current life.

Data (4)

Identifying job displacement

- Job change due to **bankruptcy, layoff, voluntary redundancy, or ordinal dismissal.**
- Do not include job change due to mandatory retirement/transfer to affiliated firm/termination of contract/marriage, childbirth, and child-raising/caregiving for elderly parents/others.

Data (5)

Disadvantage/advantage of the LOSEF

- **Disadvantage:**

- Information on the history of monthly salary and job changes available only for **employees whose job is covered with the employees' pension.**
(= exclude self-employed, public servant, and many nonstandard workers.)
- Monthly salary recorded is “standard monthly compensations” which is **categorical and excludes bonus and extra allowance.**

- **Advantage:**

- Accurate information on the history of monthly salary and the timing of job changes based on administrative records.
- Oversampling displaced workers.

Data (6)

Original sample size

11,962 individuals, 318,251 person-year obs.

Sample selection

- Enrolled in the employees' pension (EP) at least once in their career.
- Experienced job separation.
 - Displaced only once in their career.
 - Had at least 3 yrs of tenure before displacement.
 - Worked as a standard employee before and after displacement.
 - Found the next EP-covered job within 1 yr after displacement.

⇒ **86 displaced workers (2139 person-year obs.).**

- Never experienced job separation.
 - Had at least 3 yrs of tenure.
 - Worked as a standard employee.

⇒ **1,317 non-displaced workers (2139 person-year obs.).**

Method

Follow Jacobson et al, (1993).

Wage equation (Fixed effect model):

$$y_{it} = \alpha_i + \gamma_t + X_{it}\beta_x + \sum_{k=-3}^4 \delta_k D_{it}^k + \varepsilon_{it}$$

y_{it} : the natural log of earnings

X_{it} : set of time-variant control variables such as age and age squared

D_{it}^k : a dummy variable that takes a value of one if individual i was displaced k years prior to time t

γ_t : a set of year dummy variables

α_i : time-invariant individual characteristics

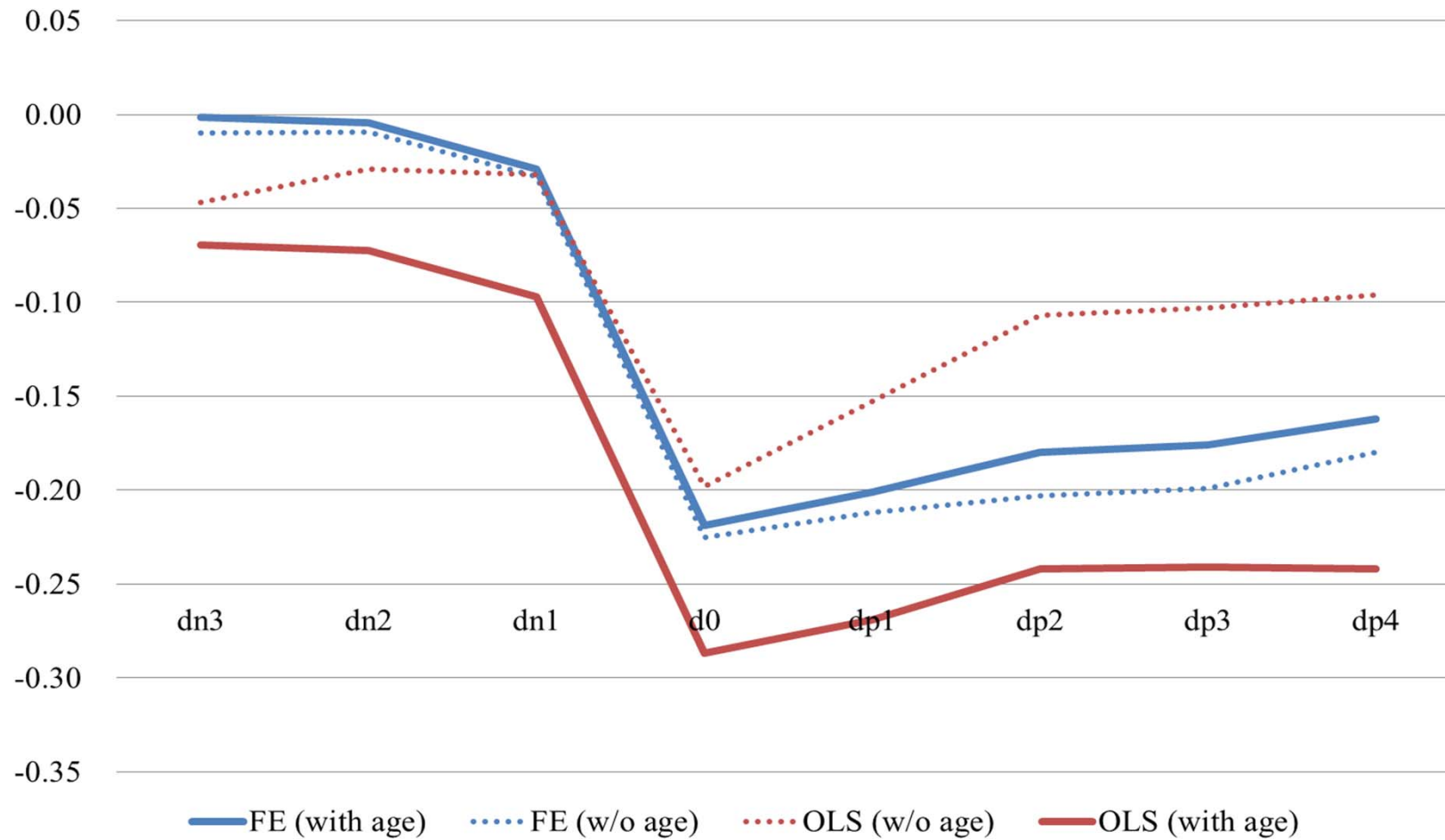
Results: Basic model (1)

sample dependent variable estimated model	LOSEF											
	log of monthly salary											
	OLS			OLS			FE			FE		
	coeff.	s.e.	p-value	coeff.	s.e.	p-value	coeff.	s.e.	p-value	coeff.	s.e.	p-value
3yr before	-0.047	0.040	0.245	-0.069	0.031	0.026	-0.010	0.020	0.632	-0.002	0.018	0.931
2yr before	-0.029	0.040	0.467	-0.073	0.031	0.020	-0.009	0.020	0.642	-0.004	0.018	0.818
1yr before	-0.032	0.040	0.428	-0.097	0.031	0.002	-0.033	0.020	0.102	-0.029	0.018	0.113
Year of displacement	-0.198	0.040	0.000	-0.287	0.031	0.000	-0.225	0.020	0.000	-0.219	0.018	0.000
1yr after	-0.153	0.042	0.000	-0.269	0.033	0.000	-0.212	0.021	0.000	-0.201	0.019	0.000
2yr after	-0.107	0.046	0.020	-0.242	0.036	0.000	-0.203	0.023	0.000	-0.180	0.021	0.000
3yr after	-0.103	0.049	0.036	-0.241	0.038	0.000	-0.199	0.024	0.000	-0.176	0.022	0.000
4yr after	-0.096	0.053	0.071	-0.242	0.041	0.000	-0.180	0.026	0.000	-0.162	0.024	0.000
age	no			yes			no			yes		
sample size	24526			24526			24526			24526		
Adj. R-sq	0.183			0.51								
F value	104.3			465.7			548.9			730		

Note: All the regressions control for a dummy variable indicating that the individual is female and year dummies.

Results: Basic model (2)

Temporal pattern of earning losses associated with displacement



Results: Basic model (3)

- At the year of displacement, displaced employees lose **about 24%** of monthly salary.
- The negative effects of displacement **does not disappear** even after four years of reemployment.

Results: Controlling for tenure and tenure-squared

sample dependent variable estimated model	LOSEF					
	OLS			FE		
	coeff.	s.e.	p-value	coeff.	s.e.	p-value
3yr before	-0.076	0.031	0.014	-0.022	0.018	0.217
2yr before	-0.081	0.031	0.009	-0.025	0.018	0.155
1yr before	-0.106	0.031	0.001	-0.051	0.018	0.004
Year of displacement	-0.151	0.032	0.000	0.150	0.021	0.000
1yr after	-0.133	0.034	0.000	0.149	0.021	0.000
2yr after	-0.108	0.036	0.003	0.142	0.022	0.000
3yr after	-0.114	0.039	0.003	0.114	0.023	0.000
4yr after	-0.118	0.042	0.005	0.102	0.025	0.000
tenure	yes			yes		
sample size	24526			24526		
Adj. R-sq	0.515					
F value	458.6			761.7		

Note: All the regression control for a dummy variable indicating that the individual is female and year dummies.

- If the length of tenure is the same, salary in the post-displacement job are higher than those in the pre-displacement job.
- A part of human capital accumulated on the pre-displacement transferrable to the post-displacement job?

Results: Following more than 4 yrs after displacement

sample	LOSEF		
dependent variable	log of monthly salary		
estimated model	FE		
	coeff.	s.e.	p-value
3yr before	-0.043	0.018	0.018
2yr before	-0.047	0.018	0.011
1yr before	-0.072	0.018	0.000
Year of displacement	-0.263	0.018	0.000
1yr after	-0.249	0.019	0.000
2yr after	-0.233	0.021	0.000
3yr after	-0.234	0.022	0.000
4yr after	-0.226	0.024	0.000
5yr after	-0.228	0.025	0.000
6yr after	-0.260	0.027	0.000
7yr after	-0.261	0.028	0.000
8yr after	-0.278	0.029	0.000
9yr after	-0.269	0.031	0.000
10yr after	-0.249	0.036	0.000
sample size	24526		
F value	690.3		

Note: The regression control for a dummy variable indicating that the individual is female and year dummies.

- Effects of displacement seem to remain even after 10 yrs.

Results: Subgroup analysis

- Loss of monthly salary tends to be larger if
 - male
 - lower-educated
 - displaced from large firm
 - pre-displacement industry was manufacturing
- Small sample size may hinder reliable estimation.

Results: Relaxing sample selection conditions

- Including employees who obtained a nonstandard job after displacement **increases** the negative effects of displacement.
- Including all of the employees who separated from a job **decreases** the negative effects of displacement.
- Including employees with short tenure **decreases** the negative effects of displacement.

Summary of results and future work

Summary of results

- Displacement leads to an immediate decline in monthly salary of about 24%.
 - The negative effects of displacement persist over time.
- May indicate that the external labor market is under-developed.

Issues to deal with in future work

- Multiple displacement.
- Bias caused by the fact that monthly salary of nonstandard employees is unobserved.