Overseas Expansion of Japanese Firms and Domestic Women's Active Engagement

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1. Introduction
2. Literature Review
3. Data and Empirical Strategy
4. Results & Further Issues
5. Conclusions

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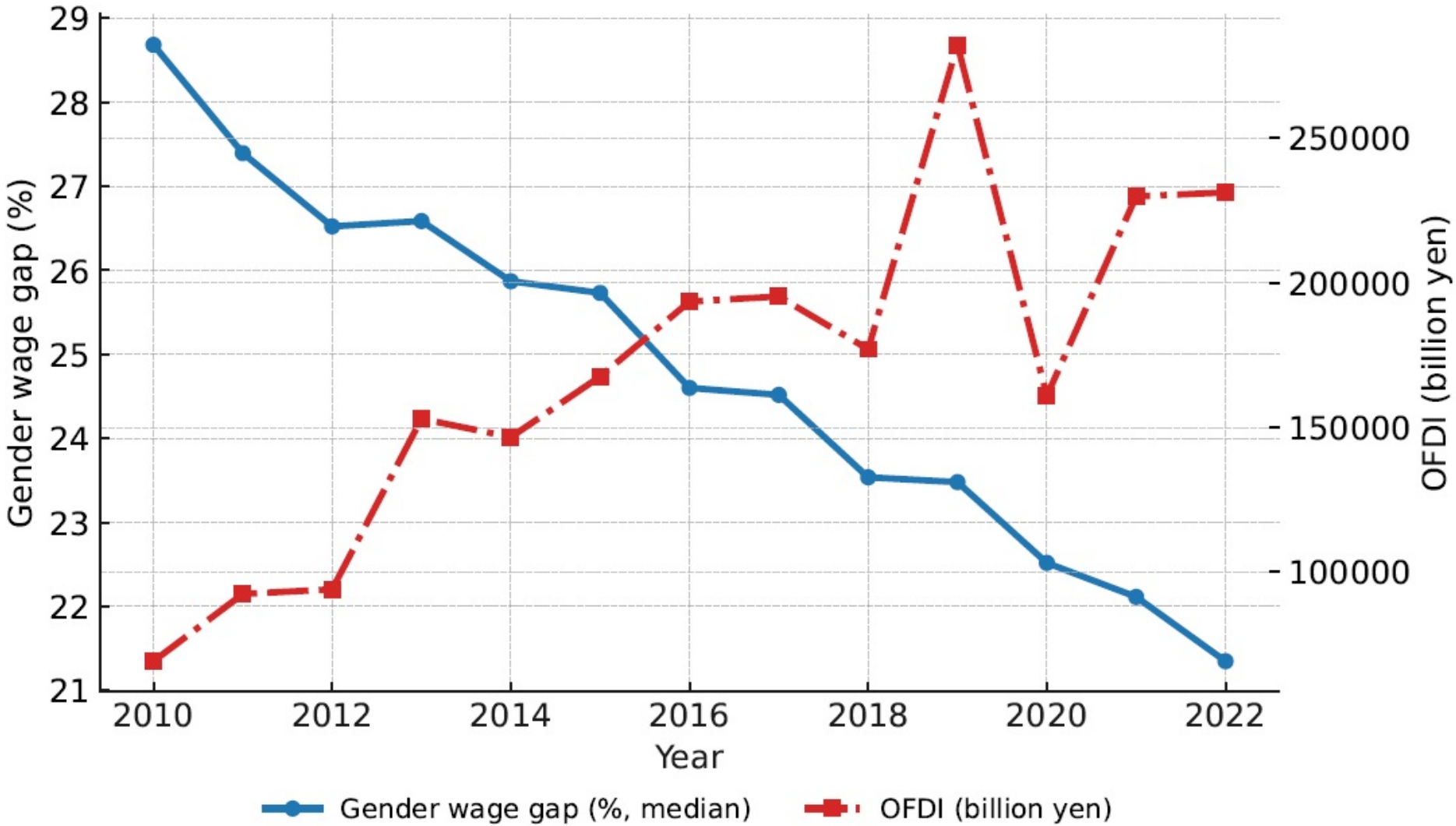
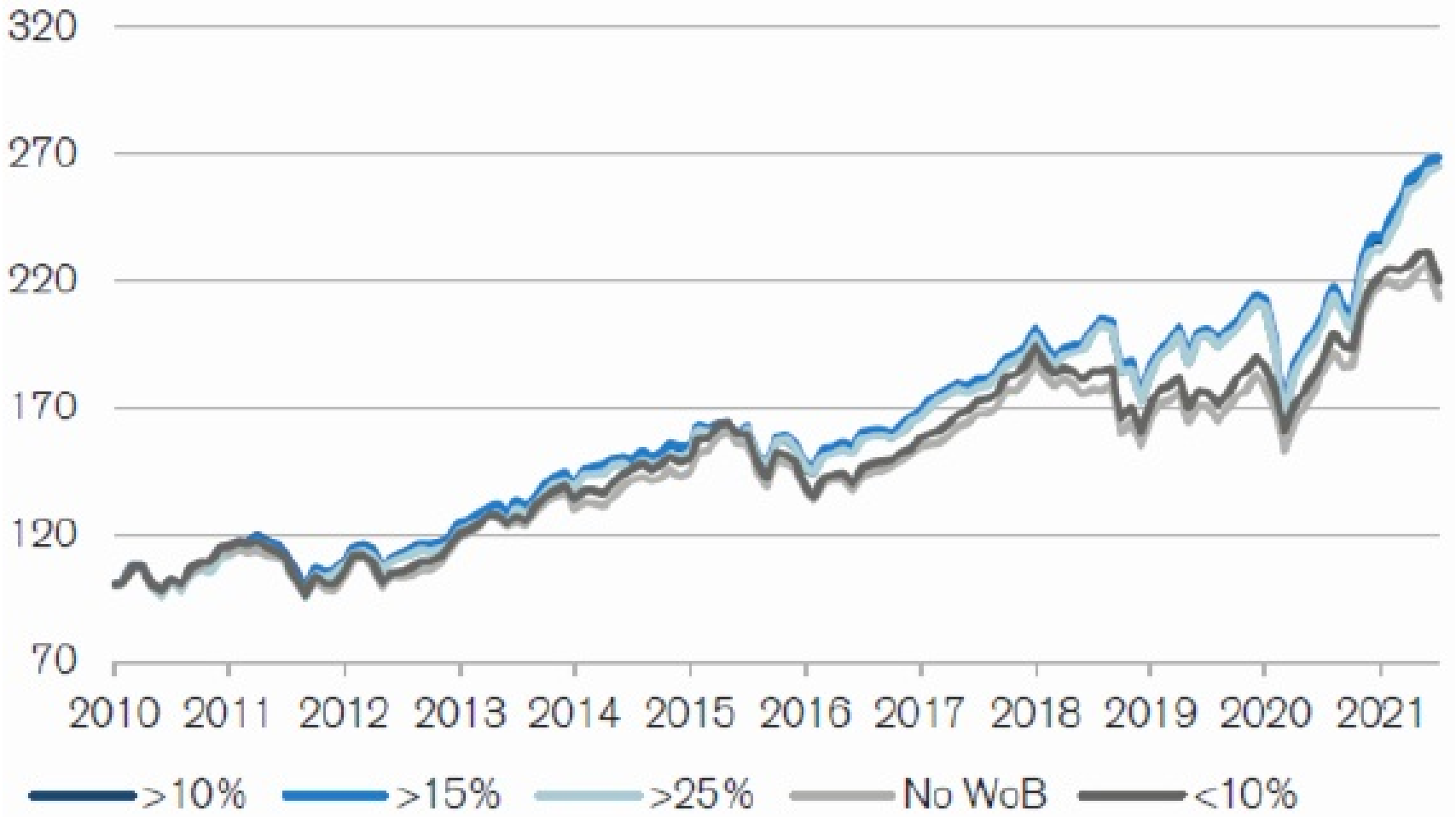
Figure 1. Wage Gap and Outward FDI Trends in Japan



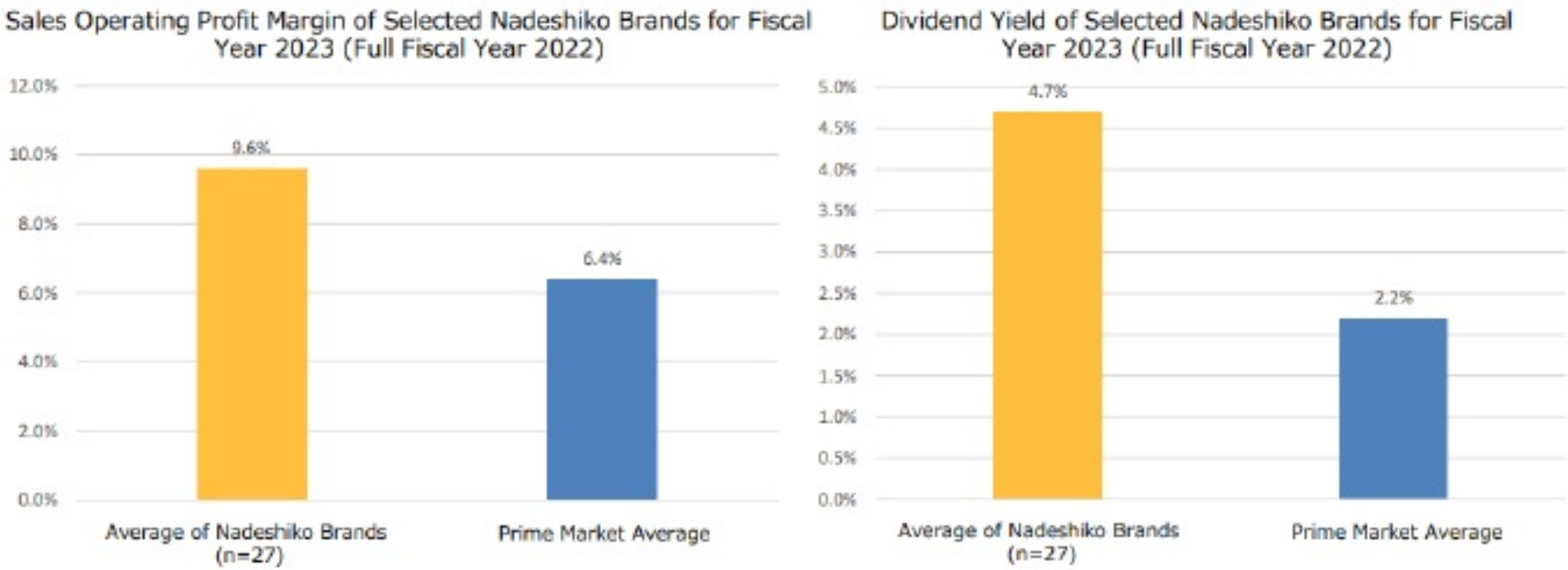
Source: OECD and Ministry of Finance.

Figure 2. Firms with a higher percentage of female board representation show stronger share-price performance



Source: The Credit Suisse Research Institute (base=2010).

Figure 3. Companies empowering women tend to record better financial results



Source: Ministry of Economy, Trade and Industry, FY2023 Nadeshiko Brands.
Note: Nadeshiko Brands refers to 27 outstanding firms that encourage women's empowerment in the workplace.

Motivation

- Global production networks and outward FDI reshape firm organization and HR policies.
- Japan's Act on the Promotion of Women's Active Engagement in Professional Life (Women's Active Engagement Act) imposes disclosure and action-plan obligations, progressively strengthened since 2016.
- **What's at stake?:** Whether internationally active firms respond differently to domestic gender-equality reforms

Research Questions & Contributions

Research Questions

1. Did the 2016 introduction and the 2020 strengthening of Women's Active Engagement Act affect within-firm gender wage gaps?
2. Do effects vary with the status, scale, and geography of outward FDI?
3. Are effects limited to firms subject to the statutory mandate?

Contributions

- Link worker-level wages to parent firms' outward FDI; estimate *institutional reform* $\times$ *internationalization* interactions.
- DDD with Female$\times$Post$\times$FDI; 4D extensions with statutory threshold; event-study and diagnostic checks.
- Policy-relevant effects and heterogeneity that speak to complementary HR practices.

Institutional Reform: What Changed

Year	Type	Key Features
2016	**Entry into force (2015 Act enacted)**	Diagnose, set at least 1 target in an Action Plan, disclose at least 1 item ($\geq$300 employees under statutory mandate; smaller firms under best-efforts).
2020	**Strengthening (2019 amendment effective)**	Targets ≥ 2 and disclosure ≥ 2 for $\geq$300; Platinum Eruboshi exemptions for the "2" requirement.
2022	**Extension**	Coverage expanded to 100–299 employees; add disclosure of the gender wage gap (from FY ending after July 8, 2022).

- Clear treatment assignment via statutory size thresholds and dated enforcement.
- Compliance generates observable changes in disclosure/targets and HR practices.
- Limited reverse causality exactly at enforcement dates.

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Literature at a Glance

- **Internationalization and Internal Resource Allocation**
  - FDI and offshoring enhance internal capital–labor allocation efficiency (Groizard et al., 2014; Chen et al., 2021).
  - Diversified firms exhibit greater flexibility and efficiency in internal labor reallocation (Tate & Yang, 2015).

- **Foreign Exposure & Norm Diffusion and Gender Equality**
  - Exporting and FDI firms tend to voluntarily adopt gender-related standards, driven by foreign consumer pressure (Greenhill et al., 2009; Neumayer and De Soysa, 2011).
  - Exposure to alternative gender norms abroad through outward FDI contributes to shifts in domestic gender norms (Halvarsson et al., 2023; Heckl et al., 2025) (Inward FDI version: Kodama et al., 2018; Choi and Greaney, 2022).

- **Internationalization and Widening Gender Wage Gap**
  - As firms expand across multiple time zones, the greater demand for personnel capable of accomodating flexible working hours may disadvantage female workers (Bøler et al., 2018).

Related Literature and This Paper

- **Research Gap:** Few studies integrate firms' internationalization with domestic gender policies in a causal framework.
- **Additional insight:** *FDI-active firms experience greater wage-gap narrowing in response to domestic institutional reform*,
  by examining how outward FDI interacts with Japan's gender equality reform;
  but the effect weakens with larger time-zone distance.

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Data Overview

- **Worker-level wages**: MHLW Basic Survey on Wage Structure (Wage Census), 2015–2022.
- **Firm attributes & FDI**: METI Basic Survey of Japanese Business Structure and Activities (BSJBSA).
- Link worker information to parent-firm FDI using Corporate Numbers (available from 2018; inferred earlier).

Estimation Strategy (Baseline: DDD)

$$\ln w_{ift} = \beta_0 + \underbrace{\gamma(\text{Female}_i \times \text{Post}_t \times \text{FDI}_{ft})}_{\text{DDD of interest}} + \text{single/two-way terms} + \alpha_f + \eta_{k\times t} + \varepsilon_{ift}$$

- **Outcome** w_{ift}: worker i's wage at firm f in year t. (12×regular cash + special payments; winsorize top/bottom 2%)
- **Treatment:** Female indicator; Post indicators (post-2016; post-2020); FDI dummy or $\ln(1 + \#\,\text{subsidiaries})$.
- $\gamma > 0$: gender gap narrows more at FDI firms post reform.
- **Controls:** industry×year FE, parent firm FE; worker i's scheduled working hours.

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Table 1: DDD Results (2015–22)

Table 1: Dependent variable: ln(Total wages)

	(1) FDI dummy	(2) ln(Subs.)
Female × Post(2016) × FDI	−0.0314***	0.0244***
	(0.0121)	(0.00876)
Female × Post(2020) × FDI	0.0171***	0.0300***
	(0.00534)	(0.00386)
Female dummy	✓	✓
FDI variable	✓	✓
Female × Post	✓	✓
Female × FDI	✓	✓
Post × FDI	✓	✓
Industry × Year FE	✓	✓
Parent firm FE	✓	✓
Obs.	1,122,249	276,117
R^2	0.5970	0.6260

Source: Wage Census; BSJBSA; authors' calculations.

Note: Cluster SE at firm level in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table 2: 4D Results (2015–22, DDD with Target Dummy)

Table 2: Dependent variable: ln(Total wages)

	(1) FDI dummy	(2) ln(Subs.)
Female × Post(2016) × Target × FDI	−0.0657**	−0.2030***
	(0.0333)	(0.0521)
Female × Post(2020) × Target × FDI	−0.0141	0.0126
	(0.0143)	(0.0232)
single/two-way/three-way terms	✓	✓
Industry × Year FE	✓	✓
Parent firm FE	✓	✓
Obs.	1,122,249	276,117
R^2	0.5970	0.6260

Source: Wage Census; BSJBSA; authors' calculations.

Note: Cluster SE at firm level in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Additional treatment: Target indicator for firms ($\geq$300 employees) under statutory mandate.

Table 3: Parallel Trend Test (2015–19, DDD)

Table 3: Dependent variable: ln(Total wages)

	(1) FDI dummy	(2) ln(Subs.)
Female × Trend × FDI	0.00613	−0.00247
	(0.00428)	(0.00283)
Female	−0.475***	−0.578***
	(0.0109)	(0.0277)
single/two-way terms	✓	✓
Industry × Year FE	✓	✓
Parent firm FE	✓	✓
Obs.	371,940	112,446
R^2	0.6250	0.6380

Source: Wage Census; BSJBSA; authors' calculations.

Note: Cluster SE at firm level in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Trend is a linear year trend used to test the parallel-trend assumption prior to 2020.

Table 4: Parallel Trend Test (2015–19, 4D)

Table 4: Dependent variable: ln(Total wages)

	(1) FDI dummy	(2) ln(Subs.)
Female × Trend × Target × FDI	−0.0122	0.0232
	(0.00997)	(0.0155)
Female	−0.485***	−0.705***
	(0.0137)	(0.0744)
single/two-way/three-way terms	✓	✓
Industry × Year FE	✓	✓
Parent firm FE	✓	✓
Obs.	481,767	122,099
R^2	0.6130	0.6330

Source: Wage Census; BSJBSA; authors' calculations.

Note: Cluster SE at firm level in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table 5: 2020 Strengthening DDD (2016–22)

Table 5: Dependent variable: ln(Total wages)

	Without		**With firm-level controls**	
	FDI dummy	ln(Subs.)	FDI dummy	ln(Subs.)
Female × Post × FDI	0.0175***	0.0298***	0.00915**	0.0161***
	(0.00535)	(0.00387)	(0.00369)	(0.00279)
Female × Post	0.0356***	0.00497	0.0542***	0.0363***
	(0.00296)	(0.00869)	(0.00188)	(0.00624)
Female × FDI	−0.00411	0.0357***	−0.0440***	0.0121***
	(0.00417)	(0.00284)	(0.00297)	(0.00218)
Post × FDI	−0.0110***	−0.0109***	−0.0228***	−0.00572***
	(0.00332)	(0.00214)	(0.00264)	(0.00184)
Single terms	✓	✓	✓	✓
Industry × Year FE	✓	✓	✓	✓
Parent firm FE	✓	✓	✓	✓
Obs.	1,068,492	261,179	1,059,091	259,498
R^2	0.597	0.626	0.808	0.764

Source: Wage Census; BSJBSA; authors' calculations.
Note: Cluster SE at firm level in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table 6: 2020 Strengthening DDD (2016–21, Excl. 2022)

Table 6: Dependent variable: ln(Total wages)

	Without		**With firm-level controls**	
	FDI dummy	ln(Subs.)	FDI dummy	ln(Subs.)
Female × Post × FDI	0.0254***	0.0290***	0.00889**	0.0139***
	(0.00600)	(0.00435)	(0.00414)	(0.00312)
Female × Post	0.0238***	0.00147	0.0516***	0.0365***
	(0.00330)	(0.00972)	(0.00210)	(0.00701)
Female × FDI	−0.00410	0.0360***	−0.0437***	0.0140***
	(0.00423)	(0.00286)	(0.00303)	(0.00221)
Post × FDI	−0.0115***	−0.0116***	−0.0269***	−0.00724***
	(0.00378)	(0.00244)	(0.00300)	(0.00210)
Single terms	✓	✓	✓	✓
Industry × Year FE	✓	✓	✓	✓
Parent firm FE	✓	✓	✓	✓
Obs.	1,060,000	1,060,000	1,060,000	1,060,000
R^2	0.60	0.62	0.81	0.76

Source: Wage Census; BSJBSA; authors' calculations.
Note: Cluster SE at firm level in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table 7: 2020 Strengthening 4D (2016–22, with Target D.)

Table 7: Dependent variable: ln(Total wages)

	Without		**With firm-level controls**	
	FDI dummy	ln(Subs.)	FDI dummy	ln(Subs.)
Female × Post × Target × FDI	−0.0140	0.0124	0.0118	−0.0141
	(0.0144)	(0.0232)	(0.0114)	(0.0198)
Single/two-way/three-way terms	✓	✓	✓	✓
Industry × Year FE	✓	✓	✓	✓
Parent firm FE	✓	✓	✓	✓
Obs.	1,060,000	1,060,000	1,060,000	1,060,000
R^2	0.61	0.77	0.61	0.77

Source: Wage Census; BSJBSA; authors' calculations.
Note: Cluster SE at firm level in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Further Issues

- **Geographic and time-zone heterogeneity**
  - Examined how the effects of reform vary with the **geographic distribution** of overseas subsidiaries and their **time zone distance** from Japan.
  - **Female×Post×FDI×TZ:** Negative and significant.
  - Interpretation: Larger time-zone distance dampens the reform's wage-gap–narrowing effect (coordination outside core hours).
  - Implication: Complementary HR practices (asynchronous workflows, shift coordination, childcare support) for large time-zone distance.

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Conclusions

- Post-2020 strengthening, within-firm gender wage gaps narrow more in FDI firms; Larger effects for firms with more overseas subsidiaries; (Event-study: No pre-trend break; effects emerge after 2020 and persist).
- The reform's wage-gap–narrowing effect extends beyond statutorily targeted firms (likely signaling/anticipation).
- Weaker effects for firms with larger time-zone distance between overseas locations and Japan.

Policy takeaways:

- Predictable, socially-legitimate reforms can spill over beyond statutory mandates.
- Consider firms' overseas operations when designing gender-equality policies.