RIETI Discussion Paper Series 26-E-017

The Impact of Policy Uncertainty on Inward Foreign Direct Investment: Evidence from Japan's international investment agreements

INADA, Mitsuo
Miyazaki Municipal University

JINJI, Naoto
RIETI

The Research Institute of Economy, Trade and Industry
https://www.rieti.go.jp/en/

RIETI Discussion Paper Series 26-E-017
February 2026

The Impact of Policy Uncertainty on Inward Foreign Direct Investment: Evidence from Japan's International Investment Agreements*

Mitsuo INADA
Miyazaki Municipal University
Naoto JINJI
Research Institute of Economy, Trade and Industry and Kyoto University

Abstract

This study examines the effects of policy uncertainty (PU) on inward foreign direct investment (FDI). We contribute to the literature by addressing a key empirical challenge inherent in the staggered nature of signing international investment agreements (IIAs). We use microdata on foreign affiliates in Japan, combined with information on 27 IIAs between Japan and its partner economies that entered into force during 1995 and 2019. We find that PU primarily affects the intensive margin of inward FDI. Specifically, current reservations regarding most-favored-nation (MFN) treatment, when combined with national treatment (NT), reduce the ownership shares of parent firms. We also find that current NT reservations, as well as combined NT and MFN reservations, reduce employment by foreign affiliates. These results are robust, particularly for the subsample of foreign affiliates in the service sector. Finally, and in contrast to previous studies, we find no effects on the extensive margin.

Keywords: policy uncertainty, IIAs, negative list, inward FDI
JEL classification: F15, F21, F23

* This study is based on the research that was conducted as a part of the project "Studies on the Current Issues for Firms' Global Activities and the Impacts of Foreign Direct Investment" undertaken at Research Institute of Economy, Trade and Industry (RIETI). This study utilizes the microdata of the questionnaire information based on "Survey of Trends in Business Activities of Foreign Affiliates," and "Census of Manufacture," which are conducted by the Ministry of Economy, Trade and Industry (METI), and Kogyotokei-Census converters and firm-plant converters provided by METI. This study also utilizes the microdata of the questionnaire information based on "Economic Census for Business Activity," and "Annual Business Survey," which are jointly conducted by Ministry of Internal Affairs and Communications and METI. The draft of this paper was presented at the RIETI DP seminar for the paper. We thank Banri Ito, Tadashi Ito, Isao Kamata, Seiji Takagi, Kiyoyasu Tanaka, Yasuyuki Todo, Eiichi Tomiura, and the participants of the RIETI DP Seminar for their valuable discussions and suggestions.

1. Introduction

Policy uncertainty (PU) in international trade, driven by factors such as Brexit and rising U.S. protectionism, has become a growing area of interest for researchers, policymakers, and the public (Handley and Limão, 2022). PU in international trade refers to the uncertainty surrounding future government trade policies. It fluctuates with institutional changes—such as tariff-binding commitments at the WTO, the signing of trade agreements, the granting of permanent normal trade relations, and the imposition of antidumping duties—as well as major geopolitical events such as Brexit and the U.S.-China trade war (Handley, 2014; Limão and Maggi, 2015; Handley & Limão, 2017; Crowley et al., 2018; Steinberg, 2019; Graziano et al., 2021; Benguria et al., 2022). Despite this attention, relatively little is known about the impact of such PU on foreign direct investment (FDI).

A few studies have examined how different types of PU affect inward and outward FDI, with most focusing on the effect of PU on inward FDI. Several studies examine the impact of economic PU (EPU), including trade policy, using the widely-cited newspaper-based indicator developed by Baker et al. (2016). For instance, Choi et al. (2021) examine the impact of EPU on FDI inflows from 76 source countries. Similarly, Gao et al. (2024) use a provincial-level EPU indicator (constructed by Yu et al. [2021] building on Baker et al. [2016]) to analyze the effect of provincial EPU on city-level inward FDI. Employing an alternative news-based index developed by Ahir et al. (2022), Jardet et al. (2023) also examine the effects of EPU on FDI inflows. This index provides more exhaustive coverage than that of Baker et al. (2016), spanning 143 countries over the 1995–2019 period.[1] Other studies focus on trade PU (TPU). Building on Baker et al. (2016), Azzimonti (2019) tracks the frequency of newspaper articles discussing trade policy disagreements among policymakers to analyze how such partisan conflict affects inward FDI. Bao et al. (2022) exploit industry-level variation in TPU—resulting from the granting of permanent normal trade relations—to investigate how TPU reduction in the export destination country affects inward FDI (such as export-platform FDI) in the exporting country. Tamberi (2024) analyzes Brexit-induced TPU regarding trade costs between the UK and the rest of the EU, examining its effect on export-platform FDI inflows into UK manufacturing sectors. Additionally, Yu et al. (2023) utilize variations in EPU driven by epidemic outbreaks to examine how this particular uncertainty affects FDI inflows. In contrast, relatively few studies have investigated the effects of PU on outward FDI. Employing Baker et al.'s (2016) index,

[1] While Jardet et al. (2023) focus on the host country's economic policy, including trade policy, the EPU index by Ahir et al. (2022) now includes the World Trade Uncertainty Index, based on the frequency of reports in the Economist Intelligence Unit that contain specific words related to trade PU. See `https://worlduncertaintyindex.com/` for details.

Zhou et al. (2021) analyze the impact of EPU on the choice of outward greenfield FDI vs. cross-border M&A in 24 host countries. Julio and Yook (2016) examine outward FDI flows around national elections in 43 destination countries, using election timing as a proxy for TPU. In a study similar to ours, Inada and Jinji (2024) investigate the impact of PU on outward FDI using microdata on Japanese MNEs and their foreign affiliates in 22 host economies, focusing on sectoral differences in PU before and after international investment agreements (IIAs) the entered into force. This sectoral variation arises because, while IIAs remove PU, sectors on negative lists continue to face PU due to exemptions from obligations, such as national treatment (NT) and most-favored-nation (MFN) treatment. Inada and Jinji (2023) build on this empirical strategy to investigate the impact of PU stemming from regional trade agreements (RTAs) on outward FDI in services. Despite these studies, further research is needed how PU influences FDI. Adopting the empirical strategy of Inada and Jinji (2024), our study contributes to this literature by focusing on the negative lists of IIAs; in particular, it examines the effects of PU resulting from IIAs on inward FDI.

This study advances the literature by addressing a key empirical challenge in estimating staggered difference-in-differences (DID) models. This challenge arises from the staggered nature of signing IIAs. For example, Japan signed bilateral investment treaties (BITs) and multilateral RTAs (i.e., RTAs involving more than two countries with investment chapters) with partner economies at different times. The treatment in this study varies across four dimensions: economy, sector, year, and reservation. Subsequently, the staggered signing of IIAs produces variation in treatment timing, even within the same economy-sector-reservation cohort. This heterogeneity in treatment timing is problematic because standard DID estimators can be biased when comparing later-treated with already-treated groups (De Chaisemartin and d'Haultfœuille, 2020; Borusyak and Spiess, 2024). Our baseline specification overcome this issue by employing a stacked DID framework (Cengiz et al., 2019), which uses only never-treated and not-yet-treated groups as valid counterfactuals for the treated group. Specifically, by organizing economy-sector-reservation-specific data around to event time (the time of an IIA's entry into force), this framework creates an estimation setting, which treatment timing is aligned rather than staggered. This prevents biased weights from being calculated when aggregating the treatment effect across groups and periods (Sun and Abraham 2021).

We analyze the impact of PU on inward FDI by employing microdata on foreign affiliates in Japan combined with information on Japan's IIAs and RTAs with their source economies. Our analysis covers 27 IIAs (including BITs and multilateral RTAs) between Japan and its partner economies that entered into force between 1995 and 2019. Consistent with the methodology of Inada and Jinji (2024), we restrict our sample

to IIAs that include negative lists. We analyze how PU arising from IIAs affects both the extensive and intensive margins of inward FDI, using several affiliate-level outcome variables. The extensive margin of inward FDI is measured using affiliates entry and exit dummies. In contrast, the intensive margin is measured by the ownership share of parent firms, capital investment, sales, employment, and R&D intensity at the foreign affiliate level.

The main findings of this study are as follows. First, PU (proxied by IIA reservations) mainly influences the intensive margin of inward FDI. Specifically, the presence of current MFN and NT reservations reduce ownership shares held by parent firms. We also find that current NT reservations, as well as combined NT and MFN reservation, reduce employment in foreign affiliates. These results are robust, particularly for the subsample of foreign affiliates in service sectors. In contrast to previous studies, we find no significant effects on the extensive margin—namely, affiliate entry and exit.

This study contributes to the literature on the effects of IIA treaty content on inward and outward FDI (For a recent comprehensive survey on the relationship between IIAs—including their treaty content—and FDI, see Egger et al., 2023). Berger et al. (2013) and Neumayer et al. (2016) consider the effects of obligations related to the liberalization and protection of FDI in IIAs and RTAs on outward FDI. Dixon and Haslam (2016) investigate the impact of IIA content on inward and outward FDI by constructing variables that measure the quality of investment protection derived from the IIA content. Urata and Baek (2022) also build variables to measure the regulatory quality of IIAs based on treaty content and investigate their impact on outward FDI. Frenkel and Walter (2019) examine the effects of the strength of international dispute settlement provisions within IIAs on inward FDI. Ozawa (2023) considers how IIAs affect outward FDI in the knowledge-intensive sectors excluded from the negative lists of IIAs. In contrast with these studies, this work employs microlevel data to investigate how PU regarding IIA treaty content affects both the extensive and intensive margins of inward FDI. One exception is Bao et al. (2022), which analyze the effects of TPU on the intensive and extensive margins of inward FDI in a developing country using foreign manufacturing affiliate-level data in China. However, they do not consider the effects of the IIA treaty content. Furthermore, we analyze the impact of negative lists on NT and MFN reservations on the intensive and extensive margins of inward FDI in Japan, a developed country. Using microdata enables us to conduct disaggregated analyses by service and manufacturing sectors. Attracting FDI to the service sector may be crucial for developed countries, as this sector is a major source of local employment and is expected to generate technology spillovers in knowledge-intensive services (Baum-snow et al., 2024). Such a disaggregated analysis enables us to expand our understanding of

how foreign affiliates react to PU stemming from IIA treaty content.[2]

This study is also closely related to the literature on inward FDI in Japan. Despite being the fourth largest economy in terms of GDP—according to the authors' calculations based on statistics from the United Nations Conference on Trade and Development (UNCTAD) and the International Monetary Fund (IMF)[3]—Japan's inward FDI stock accounted for only 5.3%[4] of its GDP in 2023, ranking 183rd out of 185 economies. Identifying the factors hindering FDI inflows to Japan has been a major topic in policy debates. Early research examined the determinants of inward FDI in Japan (Head and Ries, 2005; Kimino et al., 2007; Hoshi and Kiyota, 2019) and the characteristics of foreign affiliates in Japan relative to Japanese firms (Ito and Fukao, 2005; Kimura and Kiyota, 2007). More recent studies employ machine learning techniques to examine the determinants of inward FDI in Japan, using a large number of explanatory variables (Kiyota, 2022; Cen and Jinji, 2023). Behavioral analysis of FDI determinants is another recent research direction. Ito et al. (2023) consider both economic and noneconomic attributes that influence public acceptance of inward FDI, examining the determinants of individuals' attitudes toward inward FDI using data from a questionnaire survey on preferences, distinguishing between greenfield investments and M&As. Tanaka et al. (2023) further investigate individual policy preferences for inward FDI. They conduct a vignette survey experiment to determine whether individuals agree with an FDI project, depending on their assessment of its multidimensional attributes, and analyze the relationship between FDI preferences and actual FDI stocks. We extend this body of research by addressing the question from a different angle. We explore the relationship between PU and inward FDI in Japan at the source economy-sector-reservation level. This study also analyzes how FDI in both the service and manufacturing sectors is affected by an IIA-induced second-moment uncertainty shock, distinguishing it from first-moment shocks.

The rest of this study is organized as follows. Section 2 presents the empirical strategies. Section 3 introduces the data. Section 4 presents the estimation results, and Section 5 discusses the robustness checks. Finally, Section 6 concludes the study.

[2]A small number of recent studies explore how IIA terminations affect inward and outward FDI. Hartmann and Spruk (2023) examine the effects of IIAs on inward FDI by focusing on the random timing of 44 unilateral IIA terminations in India. Kim and Steinbach (2025) study the impact of IIA termination on inward FDI. Both studies find that terminating an IIA reduces FDI inflows. These results highlight the important role IIAs play in promoting FDI.

[3]UNCTAD, *UNCTADstat Data centre* available at `https://unctadstat.unctad.org/datacentre/dataviewer/US.FdiFlowsStock`.
IMF, *IMFDataMapper* available at `https://www.imf.org/external/datamapper/NGDPD@WEO/OEMDC/ADVEC/WEOWORLD`.

[4]According to the Japan External Trade Organization ([JETRO], 2024, p.13), this is 8.5% in terms of domestic currency.

2. Empirical strategy

2.1. Conceptual framework for detecting second-moment shocks

(Insert Figure 1 here)

This study distinguishes between IIA-induced second-moment and first-moment shocks. We isolate the second-moment shock by comparing reservations with and without standstill obligations. Identification relies on the fact that our IIAs sample contains no reservations with ratchet commitments, which would otherwise generate first-moment shocks. Figure 1 illustrates the relationship between policy changes and these reservations within the negative lists of IIAs. We assume that the initial level of policy restriction before the IIA enters into force is X. Solid arrows indicate a reservation with a standstill obligation. This reservation prevents host governments from adopting investment policies that are more restrictive than those in place when the agreement becomes effective. This is illustrated in Figure 1 by a solid arrow that can move downward from X (liberalization) and return to level X, but is prohibited from moving above X. This indicates that, while policies can be liberalized, they can also revert to their prior level of restriction, but no further. Dashed arrows indicate a reservation without a standstill obligation, which allows host governments to adopt any investment policy after the agreement becomes effective. This is illustrated by dashed arrows moving either above or below level X. That is, policies can become either more liberalized or more restrictive than the initial policy level X, representing unbounded uncertainty. Finally, dotted arrows indicate a reservation with a ratchet obligation, which imposes a unidirectional path toward liberalization, allowing only host governments to lower policy restrictions. Once a policy is liberalized under the agreement, this change is irreversible; the government cannot revert to a less liberal stance than that just established. This is illustrated by a dotted arrow originating at level X and moving exclusively downward (although the arrow may remain stationary). Since this irreversible movement represents a first-moment shock, the absence of ratchet obligations in our sample IIAs allows us to isolate uncertainty-driven (second-moment) shocks from first-moment effects.

2.2. Empirical strategy

We analyze the effects of negative lists of IIAs on inward FDI. We focus on reservations for liberalization and protection obligations, namely NT and MFN. Our empirical strategy employs the following stacked DID estimation:

$$
\begin{aligned}
Y_{ijkcpt} &= \alpha + \sum_{l} \beta^{l} NegativeList^{l}_{kd} \times \mathbb{1}_{TSE_{td} \geq 0} + \boldsymbol{X}_{it} \\
&\quad + \lambda_j + \lambda_{kt} + \lambda_{ct} + \lambda_{kc} + \lambda_{pt} + \epsilon_{ijkcpt}. \qquad (1)
\end{aligned}
$$

Our stacked DID design involves constructing several subexperiments (i.e., policy events) in which a treated group is compared to both a never-treated and a not-yet-treated group over a prespecified event window. The data from each of these subexperiments are vertically stacked to construct a dataset. Let d index the policy events, defined by the entry into force of an IIA with a partner economy. A_d denotes the cohort year of the d-th policy event. For each period in the subexperiment, we define $TSE_{td} = t - A_d$ to measure the time since the event.[5] t denotes the calendar year. Therefore, $\mathbb{1}_{TSE_{td} \geq 0}$ is an indicator variable that takes a value of one for years on or after an IIA enters into force, and zero otherwise within the subexperiment. Here, i denotes a foreign affiliate, j denotes a parent firm, k is the affiliate's four-digit sector, c is the source economy, and p represents the municipality. Y_{ijkcpt} is an outcome variable; $NegativeList^{l}_{kd}$ is an indicator variable that takes a value of one if sector k (based on the four-digit sector codes from the Survey of Trends in Business Activities of Foreign Affiliates) is included in the negative lists for a reservation of type l in policy event d, and zero otherwise. $\boldsymbol{X}_{it}$ denotes the time-varying controls of affiliate i, including sales, employment, total capital, and other firm-level investment policies for foreign affiliates.[6] In Eq.(1), a constant term (i.e., α) and fixed effects denoted by λ_j, λ_{kt}, λ_{ct}, λ_{kc}, and λ_{pt}, are included, while ϵ_{ijkcpt} is the error term. Including λ_{pt} is important because municipal governments offer time-varying incentives for foreign affiliates.[7]

[5]Notably, the indicator variable is set to zero for year A_d and one starting from year $A_d + 1$ if an IIA is either signed or entered into force between July and December of year A_d. This effectively treats the period from July to December of year A_d as the latter half of the fiscal year for assignment purposes. This adjustment produces the necessary variation to empirically disentangle the impacts of PU following an IIA's signing from those following its entry into force.

[6]For example, we control for the effects of affiliate-level government incentives for foreign affiliates, such as the "Program for Promoting Japan as an Asian Business Center" and the "Program for Promoting Japan as a Global Innovation Cluster." Controlling for these incentives is crucial because most recipient affiliates belong to treated sectors in our stacked DID setting, which could lead to omitted-variable bias. A total of 24 foreign affiliates received at least one of these two incentives, and nineteen of them belong to treated sectors. In contrast, the few affiliates in the control sectors that received these incentives are not included in our dataset, likely due to survey nonresponse. Our dataset is derived from a nonmandatory government survey, which may account for the nonresponses. While we acknowledge the potential for attrition bias, given that only four affiliates in the control sectors are nonrespondents, the impact is likely minimal.

[7]For example, JETRO (2016, p.23) summarizes the subsidies and/or incentives provided by local governments for foreign affiliates.

For $NegativeList^{l}_{kd}$, we focus on reservations regarding NT and MFN. However, as will be discussed in Section 3, almost all MFN reservations are imposed jointly with NT. Consequently, our estimates capture the combined effects of MFN and NT reservations, as it is not possible to identify the effects of MFN-only reservations. We further distinguish between current and future reservations and conduct an in-depth analysis. The following four variables of interest are included in $NegativeList^{l}_{kd}$: (i) $NT\_current_{kd}$, (ii) NT_future_{kd}, (iii) $MFN\_current_{kd}$, and (iv) MFN_future_{kd}. $NT\_current_{kd}$ takes a value of one if sector k is included in the negative lists as a current NT reservation in an IIA between Japan and a source economy in policy event d, and zero otherwise. Similarly, MFN_future_{kd} takes a value of one if sector k is included in the negative lists as a future MFN reservation in an IIA between Japan and a source economy in policy event d, and zero otherwise.

In this study, we use seven outcome variables, denoted as Y_{ijkct}: (a) an affiliate entry dummy, (b) an affiliate exit dummy, (c) affiliate's ownership share of Japanese parent firms, (d) the logarithm of capital investment by an affiliate, (e) affiliate sales, (f) affiliate employment, and (g) R&D intensity at the foreign affiliate level. The affiliate entry dummy, $\mathbb{1}_{entry>0,\ ijkcpt}$, takes a value of one if foreign affiliate i is newly established by parent firm j from source economy c in sector k, municipality p, and year t, and zero otherwise. With regard to the expected results, the sign of β^{l} is expected to be negative. This is because foreign investors may be reluctant to invest in sectors facing higher PU within a competitive environment with domestic rivals (related to NT) or with both domestic rivals and other foreign investors (related to MFN combined with NT). In contrast, the expected sign of β^{l} for affiliate exit is ambiguous, as PU may not directly affect the decision to exit or stay, as noted by Inada and Jinji (2024).

2.3. Identifying assumption

We test the parallel trends assumption, which is crucial for stacked DID estimators, by estimating the following equation (Nasseh et al., 2024):

$$\begin{aligned} Y_{ijkcpt} \;=\; & \alpha + \sum_{l}\sum_{\sigma=-q}^{-1} \beta^{l}_{\sigma} NegativeList^{l}_{kd} \times \mathbb{1}_{TSE_{td}=\sigma} \\ & + \sum_{l}\sum_{\tau=0}^{Q} \beta^{l}_{\tau} NegativeList^{l}_{kd} \times \mathbb{1}_{TSE_{td}=\tau} \\ & + \boldsymbol{X}_{it} + \lambda_{j} + \lambda_{kt} + \lambda_{ct} + \lambda_{kc} + \lambda_{pt} + \epsilon_{ijkcpt}, \end{aligned} \tag{2}$$

where $\mathbb{1}_{TSE_{td}=\sigma}$ is an indicator variable that takes a value of one in year σ before an IIA between Japan and the source economy enters into force in subexperiment d.

The coefficient β_{σ}^{l} captures the differential trend in the treatment group during the pretreatment period.[8] If β_{σ}^{l} is not significantly different from zero, then there is no deviation from the parallel trends associated with the treatment by $NegativeList_{kc}^{l}$. In our estimation, σ takes on integer values ranging from -24 to -1, and τ takes on integer values ranging from 0 to 16 in each of the subexperiment d. However, following Crescenzi et al. (2021) and Hollingsworth et al. (2024), we plot the coefficients within ± 10 and omit more extreme values, although they are included in the estimation. We apply this cutoff because the number of treated affiliates observed at event times beyond ± 10 is relatively small.

3. Data

In constructing the dataset for inward FDI, we extract data on foreign affiliates in Japan for the period 1995–2019. Data on the activities of these foreign affiliates are sourced from the Survey of Trends in Business Activities of Foreign Affiliates (SFA), or *Gaishikei Kigyo Doko Chosa*, conducted by the Japanese Ministry of Economy, Trade and Industry (METI). The survey was conducted annually until 2019 and covers companies that meet three criteria: (i) foreign investors own more than one-third of the company's shares or equity, (ii) combined direct and indirect ownership exceeds one-third, and (iii) the principal foreign investor holds at least 10% ownership. We use the establishment date of a foreign affiliate to create an affiliate-entry dummy. When the establishment date is missing in the SFA data, or the presence of a foreign affiliate cannot be verified within the SFA, we supplement the information using Toyo Keizai's Foreign Affiliated Companies database.

This study examines greenfield investment through the establishment of a new affiliate. The SFA includes a survey question about why foreign investors' shareholding exceeds one-third of a company's shares, to which there are four options:[9] (i) independent new establishment, i.e., greenfield investment; (ii) joint-venture new establishment; (iii) merger or acquisition; and (iv) other reasons. For our analysis, we extract foreign affiliates that selected greenfield investment as their response.[10]

The data on Japanese IIAs are sourced from the legal texts of individual treaties. Our sample comprises 27 BITs and RTAs (namely, economic partnership agreements [EPAs]) with investment chapters signed by Japan that adopt a negative-list approach

[8] Similarly, $\mathbb{1}_{TSE_{td}=\tau}$ is an indicator variable that takes a value of one in the τ-th year after an IIA between Japan and the source economy enters into force in subexperiment d. The coefficient β_{τ}^{l} captures the differential trend in the treatment group during the posttreatment period.

[9] We thank Kiyoyasu Tanaka for pointing out this.

[10] Since we focus on greenfield investments by foreign affiliates, the affiliate-entry dummy is treated as missing before the establishment date.

and entered into force by the end of 2019. Table 1 reports the host economies, together with the year and month of each IIAs' signing and entry into force. Notably, Japan signed BITs and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) with partner countries at different times. The staggered timing is relevant to eight CPTPP member countries: Singapore, Vietnam, Mexico, Malaysia, Chile, Brunei, Peru, and Australia.

(Insert Table 1 here)

Table 2 presents the number of sectors listed in the current and future reservations of the 27 IIAs. Although the distribution of the listed sectors is similar for both reservations, more sectors are listed under current than under future reservations.

(Insert Table 2 here)

Table 3 presents the number of sectors exempt from individual liberalization and protection obligations under current and future reservations, showing that more sectors are exempt from NT obligations than from MFN obligations under both current and future reservations. The MFN exemptions are concentrated in agriculture, transport, and other service sectors. As almost all MFN reservations are applied in conjunction with NT in our data, we construct $MFN\_current_{kd}$ and MFN_future_{kd} based on the NT&MFN category in Table 3 at the four-digit sector level.

(Insert Table 3 here)

We selected our sample as follows: We included foreign affiliates located in any of the 55 host economies covered by the 27 IIAs. We control for parent-firm fixed effects using parent-firm identification codes for foreign affiliates in the SFA; however, the database does not provide additional parent-firm-level control variables. We excluded foreign affiliates located outside the 55 host economies. The summary statistics for the main variables for the full sample and the sector-disaggregated sample are reported in Panels A and B of Table 4, respectively.

(Insert Table 4 here)

4. Empirical results

4.1. Full sample analysis

4.1.1. Baseline results

This section reports the estimation results. Columns (1)–(7) of Table 5 report the stacked DID estimates using the full sample. As shown, current MFN reservations

negatively affect several dependent variables, consistent with our conceptual framework. In particular, they significantly reduce the ownership share of parent firms, as shown in Column (3) and affiliate employment in Column (6). Current NT reservations also negatively affect affiliate employment in Column (6). Moreover, consistent with our framework, the coefficients for future reservations are generally larger than those for current reservations. However, while future MFN reservations reduce the probability of affiliate entry (Column (1)), they unexpectedly show positive associations with ownership shares (Column (3)) and affiliate employment (Column (6)). Notably, these positive coefficients for future reservations are largely statistically insignificant.

(Insert Table 5 here)

The negative effects in Table 5 are economically small. When a sector is included in the negative list for current MFN reservations, the ownership share of parent firms falls by 0.03%, and affiliate employment decreases by 0.63%. These findings indicate that a reduction in PU regarding the combination of NT and MFN statuses for foreign investors in the host country, due to the entry into force of an IIA, increases the ownership share of parent firms by 0.03% and affiliate employment by 0.63%. We also find that when a sector is included in the negative list for current NT reservations, affiliate employment falls by 0.17%. Although Inada and Jinji (2023, 2024) found that PU due to current reservations plays an important role in the extensive margin of outward FDI, we find that PU stemming from current reservations primarily affects the intensive margin of inward FDI. Furthermore, when a sector is included in the negative list for future reservations combining NT and MFN, the probability of an affiliate entry falls by 0.18%, consistent with the result in Inada and Jinji (2023).

4.1.2. Identification assumption and checks in the full sample

We now examine whether the parallel trends assumption holds for the ownership shares of parent firms and the employment of affiliates shown in Table 5. In Panel A of Figure 2, we plot the set of coefficients derived from Eq.(2) for $MFN\_current_{kd} \times \mathbb{1}_{TSE_{td}=\sigma}$ and $MFN\_current_{kd} \times \mathbb{1}_{TSE_{td}=\tau}$, showing the differences in ownership share (left panel) and affiliate employment (right panel) between the affected and unaffected sectors over time. In the pretreatment period, the coefficients are statistically insignificant; in contrast, in the posttreatment period, the coefficients tend to decline for ownership share and affiliate employment. This decline in affiliate employment appears to be temporary, which is consistent with the response to a second-moment shock. In Panel B of Figure 2, we also plot the set of coefficients derived from Eq.(2) for $NT\_current_{kd} \times \mathbb{1}_{TSE_{td}=\sigma}$ and $NT\_current_{kd} \times \mathbb{1}_{TSE_{td}=\tau}$, showing the differences in affiliate employment between the affected and unaffected sectors over time. In the

pretreatment period, the coefficients are again statistically insignificant; in contrast, in the posttreatment period, the coefficients tends to decline for affiliate employment. These results suggest that our stacked DID estimations generally satisfy the parallel trend assumption, except for the coefficients on the future reservation variables.

(Insert Figure 2 here)

4.2. Disaggregated sample analysis

4.2.1. Disaggregated results: Foreign affiliates in the service and manufacturing sectors

We next conduct the analysis disaggregated by the service and manufacturing sectors. Table 6 presents the estimated results for the service sector. Consistent with our conceptual framework and the baseline results in Table 5, current MFN reservations negatively affect the dependent variables. We also find robust evidence that future MFN reservations reduce the probability of affiliate entry, as shown in Column (1). Unexpectedly, current MFN reservations appear to increase affiliate entry, and future MFN reservations positively affect the dependent variables. Table 7 presents the estimated results in the manufacturing sector. Although the coefficients for current MFN reservations are negative for some dependent variables, most are statistically insignificant. These findings indicate that the baseline results are primarily driven by the service sector subsample of foreign affiliates, not by manufacturing.

(Insert Tables 6 and 7 here)

4.2.2. Identification assumption and checks in the disaggregated sample

Using the results in Table 6, we examine the validity of the parallel trends assumption for the parent-firm ownership shares, affiliate employment, and affiliate entry. Panel A of Figure 3 confirms that the coefficients are statistically insignificant in the pretreatment period but exhibit significant changes in the posttreatment period. The lack of significant pretrends for parent-firm ownership share and affiliate employment supports the validity of the parallel trends assumption. Nevertheless, the coefficients for affiliate-entry tend to increase during the posttreatment period. We recognize that this finding is inconsistent with our conceptual framework. In Panel B of Figure 3, we similarly confirm that the coefficients are statistically insignificant in the pretreatment period and change in the posttreatment period. However, the parallel trends assumption does not appear to hold for the other statistically significant coefficients in Table 6.

Second, we examine the validity of the parallel trends assumption for affiliate employment and affiliate sales, as shown in Table 7. However, we observe a significant coefficient in year −8 in Panel A of Figure 4 and in year −9 in Panel B of Figure 4. The presence of significant pretrends for affiliate employment undermines the validity of the parallel trends assumption. Although we confirm that the coefficients are statistically insignificant in the pretreatment period in Panel C of Figure 4, it is unclear whether the coefficients for affiliate sales decrease in the posttreatment period. This demonstrates that our results are strong in the service sector but are negligible in the manufacturing sector.

(Insert Figures 3 and 4 here)

5. Robustness checks

To assess the robustness of the baseline results, we examine whether the estimates change when we define the treatment timing by the date of signing rather than the date of entry into force. In Eq.(1), we replace $\mathbb{1}_{TSE\geq 0}$ with $\mathbb{1}_{TSE_{sign}\geq 0}$, which is an indicator variable that takes a value of one for years after an IIA is signed, and zero otherwise in the subexperiment. The estimated results obtained using the timing of IIA signing (captured by $\mathbb{1}_{TSE_{sign}\geq 0}$) are reported in Tables 8–10. The results in Tables 8 and 9 are qualitatively similar to those in Tables 5 and 6, although the coefficient on the current MFN reservation becomes statistically insignificant in Column (3) of Table 8. However, as discussed by Inada and Jinji (2023), this result is expected because IIA obligations become effective (or legally binding) only upon the IIA's entry into force. Finally, all the estimated coefficients are statistically insignificant in Table 10.[11]

(Insert Tables 8, 9 and 10 here)

[11] To check the robustness of the results in Table 7, we analyze a subsample of foreign affiliates with multiple manufacturing plants using Japanese plant-level data from the Census of Manufacture, or Kogyo Tokei Chosa, conducted by METI and the Economic Census for Business Activity, or Keizai Sensas Katsudo Chosa, jointly conducted by and Ministry of Internal Affairs and Communications and METI. Table A1 presents the estimation results for this group. Most estimated coefficients on current MFN reservations are statistically insignificant, except for the coefficients on current and future MFN reservations in Columns (2), (6), and (7), which remain significant. These results suggest that PU due to IIAs generally does not affect foreign affiliates with multiple manufacturing establishments. This implies that IIA-induced second-moment uncertainty—a temporary rather than a persistent shock—does not alter the behavior of such affiliates, likely because they are deeply integrated into local supply chains and committed to long-term local human resource development.

6. Conclusions

In this study, we investigate the impact of PU on inward FDI using the negative lists of IIAs. We address the identification challenges arising from the staggered signing of IIAs by employing a stacked DID framework. This framework allows us to align treatment timing and avoid the aggregation biases often typically associated with staggered adoption designs.

Our empirical results provide robust evidence that PU primarily affects the intensive margin of inward FDI rather than the extensive margin. Specifically, we find that current MFN reservations, combined with NT, reduce parent firms' ownership shares, while current NT reservations—, as well as current MFN reservations combined with NT—, reduce employment in foreign affiliates. These results are especially pronounced in the service sector, yet are absent in the manufacturing sector.

These findings provide novel insights into the heterogeneous impact of PU. First, taken together with the findings of Inada and Jinji (2023, 2024), we conclude that the effect of PU varies across institutional contexts, acting as an entry barrier (extensive margin) in developing economies, while influencing investment depth (intensive margin) in Japan. This variation likely stems from Japan's robust legal institutions developed over long-term political stability, which allow foreign investors to perceive Japan as having lower PU when deciding whether to invest. This stability facilitates market entry and shifts the burden of uncertainty to postestablishment decisions.

Second, our results underscore the need to address PU in the service sector rather than in manufacturing. We demonstrate that while PU arising from Japanese IIAs influences neither the intensive nor the extensive margin of inward FDI in the manufacturing sector, it significantly hinders the intensive margin of inward FDI in the service sector. This sector-specific heterogeneity is a novel finding and contribution to the literature on the determinants of inward FDI in Japan. Given that services are a primary driver of local employment and technology spillovers in developed countries such as Japan, policies intended to reduce at reducing PU in this sector are essential to stimulate inward FDI that fosters these spillovers.

An important caveat of this study relates to the generalizability of our findings to other developed economies. Japan has unique characteristics compared to other developed economies in terms of inward FDI: while the fourth-largest economy by GDP, it hosts one of the lowest levels of inward FDI stock worldwide. Although other developed economies experience political instability, such as partisan conflict and regime changes, they generally absorb a larger amount of FDI stock than Japan. Thus, investigating the heterogeneous impact of PU on inward FDI in other developed economies is left for future research.

References

Ahir, H., Bloom, N., & Furceri, D. (2022). The world uncertainty index. NBER Working Paper 29763.

Azzimonti, M. (2019). Does partisan conflict deter FDI inflows to the US?. *Journal of International Economics*, 120, 162–178.

Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *The Quarterly Journal of Economics*, 131(4), 1593–1636.

Bao, X., Deng, J., Sun, H., & Sun, J. (2022). Trade policy uncertainty and foreign direct investment: Evidence from China's WTO accession. *Journal of International Money and Finance*, 125, 102642.

Baum-Snow, N., Gendron-Carrier, N., & Pavan, R. (2024). Local productivity spillovers. *American Economic Review*, 114(4), 1030–1069.

Benguria, F., Choi, J., Swenson, D. L., & Xu, M. J. (2022). Anxiety or pain? The impact of tariffs and uncertainty on Chinese firms in the trade war. *Journal of International Economics*, 137, 103608.

Berger, A., Busse, M., Nunnenkamp, P., & Roy, M. (2013). Do trade and investment agreements lead to more FDI? Accounting for key provisions inside the black box. *International Economics and Economic Policy*, 10(2), 247–275.

Borusyak, K., Jaravel, X., & Spiess, J. (2024). Revisiting event-study designs: robust and efficient estimation. *Review of Economic Studies*, 91(6), 3253–3285.

Cen, X., & Jinji, N. (2023). Disentangling country fixed effects in the structural gravity model for foreign direct investment: A machine learning approach. A Paper Presented at the 12th Spring Meeting of the Japan Society of International Economics.

Cengiz, D., Dube, A., Lindner, A., & Zipperer, B. (2019). The effect of minimum wages on low-wage jobs. *The Quarterly Journal of Economics*, 134(3), 1405–1454.

Choi, S., Furceri, D., & Yoon, C. (2021). Policy uncertainty and foreign direct investment. *Review of International Economics*, 29(2), 195-227.

Crescenzi, R., Di Cataldo, M., & Giua, M. (2021). FDI inflows in Europe: Does investment promotion work?. *Journal of International Economics*, 132, 103497.

Crowley, M., Meng, N., & Song, H. (2018). Tariff scares: Trade policy uncertainty and foreign market entry by Chinese firms. *Journal of International Economics*, 114, 96–115.

De Chaisemartin, C., & d'Haultfœuille, X. (2020). Two-way fixed effects estimators with heterogeneous treatment effects. *American Economic Review*, 110(9), 2964–2996.

Dixon, J., & Haslam, P. A. (2016). Does the quality of investment protection affect FDI flows to developing countries? Evidence from Latin America. *The World Economy*, 39(8), 1080–1108.

Egger, P., Pirotte, A., & Titi, C. (2023). International investment agreements and foreign direct investment: A survey. *The World Economy*, 46(6), 1524–1565.

Frenkel, M., & Walter, B. (2019). Do bilateral investment treaties attract foreign direct investment? The role of international dispute settlement provisions. *The World Economy*, 42(5), 1316–1342.

Gao, H., Chen, W., Li, J., & Zhou, T. (2024). Economic policy uncertainty and foreign direct investment: Evidence from China. *Structural Change and Economic Dynamics*, 70, 178–191.

Graziano, A. G., Handley, K., & Limão, N. (2021). Brexit uncertainty and trade disintegration. *The Economic Journal*, 131(635), 1150–1185.

Handley, K. (2014). Exporting under trade policy uncertainty: Theory and evidence. *Journal of International Economics*, 94(1), 50–66.

Handley, K., & Limão, N. (2017). Policy uncertainty, trade, and welfare: Theory and evidence for China and the United States. *American Economic Review*, 107(9), 2731–2783.

Handley, K., & Limão, N. (2022). Trade policy uncertainty. *Annual Review of Economics*, 14(1), 363–395.

Hartmann, S., & Spruk, R. (2023). The impact of unilateral BIT terminations on FDI: Quasi-experimental evidence from India. *The Review of International Organizations*, 18(2), 259–296.

Head, K., & Ries, J. (2005). Judging Japan's FDI: The verdict from a dartboard model. *Journal of the Japanese and International Economies*, 19(2), 215–232.

Hollingsworth, A., Karbownik, K., Thomasson, M. A., & Wray, A. (2024). The gift of a lifetime: The hospital, modern medicine, and mortality. *American Economic Review*, 114(7), 2201–2238.

Hoshi, T., & Kiyota, K. (2019). Potential for inward foreign direct investment in Japan. *Journal of the Japanese and International Economies*, 52, 32–52.

Inada, M., & Jinji, N. (2023). The impact of policy uncertainty on foreign direct investment in services: Evidence from firm-level data and the role of regional trade agreements. RIETI Discussion Paper Series 23-E-021.

Inada, M., & Jinji, N. (2024). The impact of policy uncertainty on foreign direct investment: Micro-evidence from Japan's international investment agreements. *Review of International Economics*, 32(3), 934–957.

Ito, K., & Fukao, K. (2005). Foreign direct investment and trade in Japan: An empirical analysis based on the Establishment and Enterprise Census for 1996. *Journal of the Japanese and International Economies*, 19(3), 414–455.

Ito, B., Tanaka, A., & Jinji, N. (2023). Why do people oppose foreign acquisitions? Evidence from Japanese individual-level data. *Japan and the World Economy*, 66, 101187.

Jardet, C., Jude, C., & Chinn, M. (2023). Foreign direct investment under uncertainty evidence from a large panel of countries. *Review of International Economics*, 31(3), 854–885.

Japan External Trade Organization (JETRO). (2016) *JETRO Invest Japan Report 2015*. JETRO.

Japan External Trade Organization (JETRO). (2024) *JETRO Invest Japan Report 2024*. JETRO.

Julio, B., & Yook, Y. (2016). Policy uncertainty, irreversibility, and cross-border flows of capital. *Journal of International Economics*, 103, 13–26.

Kim, D., & Steinbach, S. (2025). Rising protectionism and foreign direct investment. *Review of World Economics*, 161(2), 469–510.

Kimino, S., Saal, D. S., & Driffield, N. (2007). Macro determinants of FDI inflows to Japan: An analysis of source country characteristics. *The World Economy*, 30(3), 446–469.

Kimura, F., & Kiyota, K. (2007). Foreign-owned versus domestically-owned firms: economic performance in Japan. *Review of Development Economics*, 11(1), 31–48.

Kiyota K. (2022) Why inward FDI is so low in Japan? An insight from machine learning. A Paper Presented at the 81st Annual Meeting of the Japan Society of International Economics.

Limão, N., & Maggi, G. (2015). Uncertainty and trade agreements. *American Economic Journal: Microeconomics*, 7(4), 1–42.

Ministry of Economy, Trade and Industry (METI). (2020). *The 2019 report on compliance by major trading partners with trade agreements—WTO, EPA/FTA and IIA.*

Nasseh, K., Bowblis, J. R., & Wing, C. (2024). How do dental practices respond to changes in scope of practice regulations?. *Health Economics*, 33(11), 2508–2524.

Neumayer, E., Nunnenkamp, P., & Roy, M. (2016). Are stricter investment rules contagious? Host country competition for foreign direct investment through international agreements. *Review of World Economics*, 152(1), 177–213.

Ozawa, S. (2023). Do international investment agreements attract foreign direct investment in knowledge intensive industries?. *The World Economy*, 46(7), 2080–2101.

Steinberg, J. B. (2019). Brexit and the macroeconomic impact of trade policy uncertainty. *Journal of International Economics*, 117, 175–195.

Sun, L., & Abraham, S. (2021). Estimating dynamic treatment effects in event studies with heterogeneous treatment effects. *Journal of Econometrics*, 225(2), 175–199.

Tamberi, N. (2024). Export-platform foreign direct investment and trade policy uncertainty: Evidence from brexit. *Economica*, 91(361), 33–69.

Tanaka, A., Ito, B., & Jinji, N. (2023). Individual preferences toward inward foreign direct investment: A survey experiment. *Journal of Asian Economics*, 88, 101644.

Urata, S., & Baek, Y. (2023). Impact of International Investment Agreements on Japanese FDI: A firm-level analysis. *The World Economy*, 46(8), 2306–2334.

Yu, J., Shi, X., Guo, D., & Yang, L. (2021). Economic policy uncertainty (EPU) and firm carbon emissions: Evidence using a China provincial EPU index. *Energy Economics*, 94, 105071.

Zhou, K., Kumar, S., Yu, L., & Jiang, X. (2021). The economic policy uncertainty and the choice of entry mode of outward foreign direct investment: Cross-border M&A or Greenfield Investment. *Journal of Asian Economics*, 74, 101306.

Table 1. IIAs with an investment chapter signed by Japan that include negative lists and entered into force by the end of 2019

Partner	BIT/EPA	Date signed	Date of entry into force
Singapore	EPA	January 2002	November 2002
Korea	BIT	March 2002	January 2003
Vietnam	BIT	November 2003	December 2004
Mexico	EPA	September 2004	April 2005
Malaysia	EPA	December 2005	July 2006
Philippines	EPA	September 2006	December 2008
Chile	EPA	March 2007	September 2007
Cambodia	BIT	June 2007	July 2008
Brunei	EPA	June 2007	July 2008
Indonesia	EPA	August 2007	July 2008
Laos	BIT	January 2008	August 2008
Uzbekistan	BIT	August 2008	September 2009
Peru	BIT	November 2008	December 2009
Switzerland	EPA	February 2009	September 2009
India	EPA	February 2011	August 2011
Colombia	BIT	September 2011	September 2015
Taiwan	BIT	September 2011	January 2012
Kuwait	BIT	March 2012	January 2014
Mozambique	BIT	June 2013	August 2014
Myanmar	BIT	December 2013	August 2014
Australia	EPA	July 2014	January 2015
Uruguay	BIT	January 2015	April 2017
Mongolia	EPA	February 2015	June 2016
Israel	BIT	February 2017	October 2017
Armenia	BIT	February 2018	May 2019
CPTPP	EPA	March 2018	December 2018
EU	EPA	July 2018	February 2019

Note: The BITs and EPAs with an investment chapter signed by Japan and partner economies that include negative lists and entered into force by the end of 2019 are listed. The CPTPP consists of 11 member countries, including Singapore, Vietnam, Mexico, Malaysia, Chile, Brunei, Peru, Australia, Canada, New Zealand and Japan. The EPA between EU and Japan in July 2018 and entered into force in February 2019. Therefore, the EU's 28 member countries and the UK's foreign affiliates are included in our observation.
Source: METI (2020, pp. 617–618).

Table 2. Number of sectors listed in the current and future reservation of IIAs

	Current reservation	Future reservation	Total
1. Agriculture	59	59	118
2. Mining	59	42	101
3. Construction	0	0	0
4. Food, beverages, and tobacco	0	0	0
5. Textile	0	0	0
6. Paper and pulp products	0	0	0
7. Chemical and allied products	113	59	172
8. Petroleum and coal products	91	0	91
9. Ceramic, stone, and clay products	27	0	27
10. Iron and steel	0	0	0
11. Non-ferrous metals and products	27	42	69
12. Fabricated metal products	27	0	27
13. General machinery	54	42	96
14. Electrical machinery	27	126	153
15. Communication equipment	54	84	138
16. Transportation equipment	39	101	140
17. Precision instruments and machinery	0	59	59
18. Miscellaneous manufacturing	113	54	167
19. Electricity, gas, heat supply and water	59	59	118
20. Communication	129	59	188
21. Transport	59	39	98
22. Wholesale and retail trade	71	0	71
23. Finance and insurance	54	2	56
24. Real estate	27	0	27
25. Accommodation and food	0	0	0
26. Education and medical treatment	27	38	65
27. Other services	86	56	142
Total	1,202	921	2,123

Note: Sectors are classified by two-digit SFA sector codes.

Table 3. Number of sectors exempted from NT or MFN in the negative IIA lists

	Current reservation			Future reservation		
	NT	MFN	NT & MFN	NT	MFN	NT & MFN
1. Agriculture	59	57	57	59	57	57
2. Mining	59	1	1	42	1	1
3. Construction	0	0	0	0	0	0
4. Food, beverages, and tobacco	0	0	0	0	0	0
5. Textile	0	0	0	0	0	0
6. Paper and pulp products	0	0	0	0	0	0
7. Chemical and allied products	113	0	0	59	0	0
8. Petroleum and coal products	91	0	0	0	0	0
9. Ceramic, stone, and clay products	27	0	0	0	0	0
10. Iron and steel	0	0	0	0	0	0
11. Non-ferrous metals and products	27	0	0	42	1	1
12. Fabricated metal products	27	0	0	0	0	0
13. General machinery	54	0	0	42	1	1
14. Electrical machinery	27	0	0	126	3	3
15. Communication equipment	54	0	0	84	2	2
16. Transportation equipment	39	0	0	101	2	2
17. Precision instruments and machinery	0	0	0	59	0	0
18. Miscellaneous manufacturing	113	0	0	54	0	0
19. Electricity, gas, heat supply and water	59	2	2	59	2	2
20. Communication	129	0	0	59	0	0
21. Transport	59	58	58	39	39	39
22. Wholesale and retail	44	0	0	0	0	0
23. Finance and insurance	54	0	0	2	0	0
24. Real estate	0	0	0	0	0	0
25. Accommodation and food	0	0	0	0	0	0
26. Education and medical treatment	27	0	0	38	0	0
27. Other services	59	54	54	56	54	54
Total	1,121	172	172	921	162	162

Note: Sectors are classified by two-digit SFA sector codes.

Table 4. Summary statistics

Panel A. Full sample

Variables	No. of obs.	Mean	Std. dev.	Min.	Max.
$\mathbb{1}_{entry>0}$	38,765	0.038	0.192	0	1
$\mathbb{1}_{exit>0}$	38,765	0.051	0.221	0	1
Ownership share	38,548	0.874	0.215	0	1
Log(invest)	25,521	2.039	2.436	0	12.508
Log(sales)	31,498	6.830	2.379	0	15.182
Log(employment)	34,544	3.080	1.690	0	10.716
R&D intensity	18,861	0.023	0.763	0	87.5

Panel B. Sample of foreign affiliates in the service and manufacturing sectors

Sample of service sectors

Variables	No. of obs.	Mean	Std. dev.	Min.	Max.
$\mathbb{1}_{entry>0}$	30,361	0.037	0.190	0	1
$\mathbb{1}_{exit>0}$	30,361	0.052	0.222	0	1
Ownership share	30,198	0.893	0.202	0	1
Log(invest)	19,346	1.606	2.125	0	12.446
Log(sales)	24,492	6.612	2.286	0	14.545
Log(employment)	26,995	2.883	1.552	0	10.716
R&D intensity	14,338	0.018	0.845	0	87.5

Sample of manufacturing sectors

Variables	No. of obs.	Mean	Std. dev.	Min.	Max.
$\mathbb{1}_{entry>0}$	8,292	0.042	0.201	0	1
$\mathbb{1}_{exit>0}$	8,292	0.049	0.216	0	1
Ownership share	8,239	0.805	0.244	0	1
Log(invest)	6,100	3.418	2.820	0	12.508
Log(sales)	6,911	7.617	2.531	0	15.182
Log(employment)	7,448	3.801	1.956	0	10.405
R&D intensity	4,463	0.040	0.408	0	19

Notes: The observation period covers 1995–2019. This table reports the number of observations, means, and standard deviations for the following variables: affiliate entry dummy, affiliate exit dummy, ownership share, log of capital investment, log of affiliate sales, log of affiliate employment, and R&D intensity. The sum of observations in Panel B does not match the observations in Panel A, as the agriculture and mining sectors have been excluded.

Table 5. Main results: Full sample

Dep. var.	(1) $\mathbb{1}_{entry>0}$	(2) $\mathbb{1}_{exit>0}$	(3) Ownership share	(4) Log(invest)	(5) Log(sales)	(6) Log(emp)	(7) R&D intensity
NT_current $\times\mathbb{1}_{TSE\geq 0}$	0.0002	−0.0002	0.0001	−0.0003	−0.0036	−0.0017**	0.0000
	(0.0003)	(0.0001)	(0.0001)	(0.0011)	(0.0026)	(0.0006)	(0.0001)
MFN_current$\times\mathbb{1}_{TSE\geq 0}$	0.0012	−0.0003	−0.0003*	−0.0002	−0.0044	−0.0063***	0.0000
	(0.0006)	(0.0002)	(0.0002)	(0.0016)	(0.0051)	(0.0013)	(0.0000)
NT_future $\times\mathbb{1}_{TSE\geq 0}$	0.0005	−0.0002	0.0004	−0.0021	−0.0001	−0.0006	0.0011
	(0.0005)	(0.0002)	(0.0003)	(0.0017)	(0.0024)	(0.0007)	(0.0007)
MFN_future $\times\mathbb{1}_{TSE\geq 0}$	−0.0018**	0.0002	0.0004**	−0.0024	0.0054	0.0030*	0.0001
	(0.0006)	(0.0001)	(0.0001)	(0.0017)	(0.0033)	(0.0014)	(0.0001)
Firm FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipality × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country × Sector FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other firm-level policies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.590	0.688	0.960	0.848	0.921	0.963	0.985
Number of observations	345,558	345,558	345,414	282,390	345,534	345,558	226,655

Notes: ***, **, and * denote significance at the 0.1%, 1%, and 5% levels, respectively. Standard errors clustered by sector are in parentheses.

Table 6. Disaggregated results: Foreign affiliates in the service sector

Dep. var.	(1) $\mathbb{1}_{entry>0}$	(2) $\mathbb{1}_{exit>0}$	(3) Ownership share	(4) Log(invest)	(5) Log(sales)	(6) Log(emp)	(7) R&D intensity
NT_current $\times\mathbb{1}_{TSE\geq 0}$	0.0002	−0.0002	0.0001	−0.0005	−0.0035	−0.0016*	0.0000
	(0.0003)	(0.0001)	(0.0001)	(0.0011)	(0.0027)	(0.0006)	(0.0001)
MFN_current$\times\mathbb{1}_{TSE\geq 0}$	0.0022***	−0.0003*	−0.0005**	0.0002	−0.0058	−0.0069**	0.0000
	(0.0003)	(0.0001)	(0.0001)	(0.0016)	(0.0053)	(0.0012)	(0.0000)
NT_future $\times\mathbb{1}_{TSE\geq 0}$	0.0014	−0.0004	0.0010	−0.0009	−0.0014	−0.0013	0.0025*
	(0.0008)	(0.0003)	(0.0005)	(0.0029)	(0.0062)	(0.0018)	(0.0011)
MFN_future $\times\mathbb{1}_{TSE\geq 0}$	−0.0029**	0.0002*	0.0007***	−0.0031	0.0085*	0.0044**	0.0002
	(0.0005)	(0.0001)	(0.0001)	(0.0028)	(0.0038)	(0.0014)	(0.0001)
Firm FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipality × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country × Sector FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other firm-level policies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.561	0.681	0.955	0.808	0.913	0.956	0.998
Number of observations	283,546	283,546	283,450	229,863	283,522	283,546	184,124

Notes: ***, **, and * denote significance at the 0.1%, 1%, and 5% levels, respectively. Standard errors clustered by sector are in parentheses.

Table 7. Disaggregated results: Foreign affiliates in the manufacturing sector

Dep. var.	(1) $\mathbb{1}_{entry>0}$	(2) $\mathbb{1}_{exit>0}$	(3) Ownership share	(4) Log(invest)	(5) Log(sales)	(6) Log(emp)	(7) R&D intensity
NT_current $\times\mathbb{1}_{TSE\geq 0}$	0.0000129	0.0000000	−0.0000001	0.0000258	−0.0000341	−0.0000283*	−0.0000007
	(0.0000160)	(0.0000000)	(0.0000097)	(0.0000405)	(0.0000299)	(0.0000111)	(0.0000045)
MFN_current$\times\mathbb{1}_{TSE\geq 0}$	0.0000190	−0.0000000	−0.0000008	−0.0000324	−0.0000192	−0.0000213*	−0.0000027
	(0.0000240)	(0.0000000)	(0.0000007)	(0.0000380)	(0.0000215)	(0.0000085)	(0.0000065)
NT_future $\times\mathbb{1}_{TSE\geq 0}$	−0.0000083	−0.0000000	0.0000000	0.0000134	−0.0000162*	0.0000016	0.0000027
	(0.0000075)	(0.0000000)	(0.0000005)	(0.0000136)	(0.0000079)	(0.0000044)	(0.0000029)
MFN_future $\times\mathbb{1}_{TSE\geq 0}$	−0.0000332	0.0000000	0.0000007	0.0000556	−0.0000142	0.0000035	0.0000041
	(0.0000327)	(0.0000000)	(0.0000010)	(0.0000546)	(0.0000224)	(0.0000058)	(0.0000088)
Firm FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipality × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country × Sector FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other firm-level policies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.933	1.000	0.991	0.990	0.990	0.998	0.958
Number of observations	61,296	61,296	61,248	51,926	61,296	61,296	42,091

Notes: ***, **, and * denote significance at the 0.1%, 1%, and 5% levels, respectively. Standard errors clustered by sector are in parentheses.

Table 8. Treatment signing: Full sample

Dep. var.	(1) $\mathbb{1}_{entry>0}$	(2) $\mathbb{1}_{exit>0}$	(3) Ownership share	(4) Log(invest)	(5) Log(sales)	(6) Log(emp)	(7) R&D intensity
NT_current $\times\mathbb{1}_{TSE_{sign}\geq 0}$	−0.0000	−0.0001	0.0000	0.0003	−0.0020	−0.0007*	0.0000
	(0.0002)	(0.0001)	(0.0000)	(0.0005)	(0.0019)	(0.0003)	(0.0000)
MFN_current$\times\mathbb{1}_{TSE_{sign}\geq 0}$	0.0012**	−0.0002	−0.0003	0.0012	0.0029	−0.0055***	−0.0001
	(0.0004)	(0.0001)	(0.0002)	(0.0011)	(0.0042)	(0.0011)	(0.0001)
NT_future $\times\mathbb{1}_{TSE_{sign}\geq 0}$	0.0000	−0.0001	0.0003	0.0038	0.0009	0.0003	0.0008
	(0.0004)	(0.0001)	(0.0002)	(0.0040)	(0.0018)	(0.0006)	(0.0006)
MFN_future $\times\mathbb{1}_{TSE_{sign}\geq 0}$	−0.0013**	0.0002*	0.0004**	0.0002	0.0052*	0.0029*	0.0001
	(0.0004)	(0.0001)	(0.0001)	(0.0013)	(0.0026)	(0.0013)	(0.0001)
Firm FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipality × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country × Sector FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other firm-level policies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.593	0.689	0.960	0.848	0.921	0.963	0.985
Number of observations	342,549	342,549	342,405	279,613	342,525	342,549	224,065

Notes: ***, **, and * denote significance at the 0.1%, 1%, and 5% levels, respectively. Standard errors clustered by sector are in parentheses.

Table 9. Treatment by signing: Foreign affiliates in service sector

Dep. var.	(1) $\mathbb{1}_{entry>0}$	(2) $\mathbb{1}_{exit>0}$	(3) Ownership share	(4) Log(invest)	(5) Log(sales)	(6) Log(emp)	(7) R&D intensity
NT_current $\times\mathbb{1}_{TSE_{sign}\geq 0}$	0.0000	−0.0001	0.0000	0.0003	−0.0015	−0.0007*	−0.0000
	(0.0002)	(0.0001)	(0.0000)	(0.0007)	(0.0018)	(0.0003)	(0.0001)
MFN_current$\times\mathbb{1}_{TSE_{sign}\geq 0}$	0.0019***	−0.0003	−0.0005**	0.0016	−0.0033	−0.0059***	0.0000
	(0.0003)	(0.0001)	(0.0002)	(0.0015)	(0.0040)	(0.0009)	(0.0000)
NT_future $\times\mathbb{1}_{TSE_{sign}\geq 0}$	0.0004	−0.0002	0.0008	0.0141	0.0022	0.0010	0.0021*
	(0.0004)	(0.0002)	(0.0004)	(0.0080)	(0.0042)	(0.0017)	(0.0009)
MFN_future $\times\mathbb{1}_{TSE_{sign}\geq 0}$	−0.0021***	0.0002*	0.0007***	0.0013	0.0084*	0.0044*	0.0002
	(0.0005)	(0.0001)	(0.0001)	(0.0028)	(0.0038)	(0.0014)	(0.0001)
Firm FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipality × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country × Sector FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other firm-level policies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.561	0.681	0.955	0.808	0.913	0.956	0.998
Number of observations	280,699	280,699	280,603	227,225	280,675	280,699	181,625

Notes: ***, **, and * denote significance at the 0.1%, 1%, and 5% levels, respectively. Standard errors clustered by sector are in parentheses.

Table 10. Treatment by signing: Foreign affiliates in manufacturing sector

Dep. var.	(1) $\mathbb{1}_{entry>0}$	(2) $\mathbb{1}_{exit>0}$	(3) Ownership share	(4) Log(invest)	(5) Log(sales)	(6) Log(emp)	(7) R&D intensity
NT_current $\times\mathbb{1}_{TSE_{sign}\geq 0}$	0.0000245	0.0000000	0.0000013	−0.0000235	−0.0000927	−0.0000352	0.0000037
	(0.0000188)	(0.0000000)	(0.0000016)	(0.0000701)	(0.0000536)	(0.0000208)	(0.0000073)
MFN_current$\times\mathbb{1}_{TSE_{sign}\geq 0}$	0.0000450	−0.0000000	0.0000000	−0.0000664	−0.0000383	−0.0000241	−0.0000015
	(0.0000390)	(0.0000000)	(0.0000011)	(0.0000653)	(0.0000368)	(0.0000149)	(0.0000103)
NT_future $\times\mathbb{1}_{TSE_{sign}\geq 0}$	−0.0000092	−0.0000000	−0.0000002	0.0000066	0.0000308	0.0000093	0.0000014
	(0.0000084)	(0.0000000)	(0.0000007)	(0.0000228)	(0.0000239)	(0.0000104)	(0.0000027)
MFN_future $\times\mathbb{1}_{TSE_{sign}\geq 0}$	−0.0000336	0.0000000	0.0000007	0.0000551	0.0000076	0.0000048	0.0000040
	(0.0000328)	(0.0000000)	(0.0000010)	(0.0000541)	(0.0000218)	(0.0000062)	(0.0000087)
Firm FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipality × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country × Sector FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other firm-level policies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.933	1.000	0.991	0.990	0.990	0.998	0.958
Number of observations	61,115	61,115	61,107	51,806	61,115	61,115	42,022

Notes: ***, **, and * denote significance at the 0.1%, 1%, and 5% levels, respectively. Standard errors clustered by sector are in parentheses.

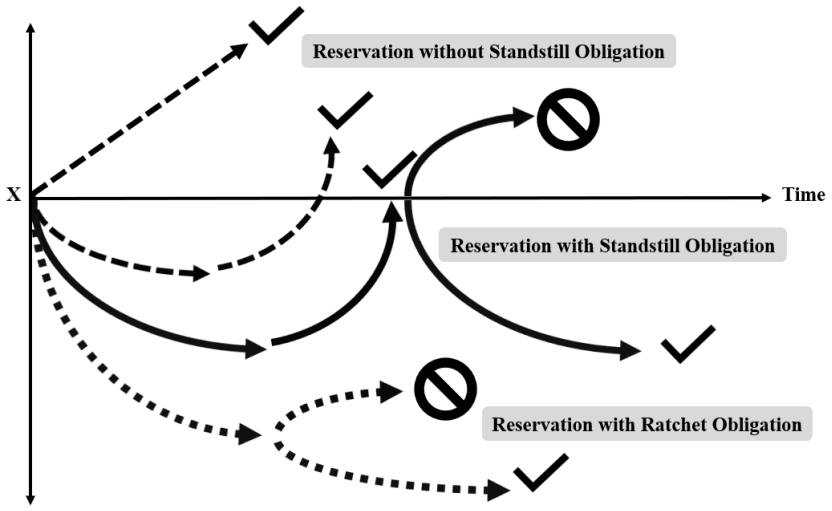

Figure 1. Potential policy changes in sectors subject to specific reservations

Source: Modified by the author from `https://www.mofa.go.jp/mofaj/files/000448068.pdf`
Notes: The vertical axis represents the level of policy restriction: upward movement from the initial policy level X indicates increased restriction, whereas downward movement indicates liberalization. The horizontal axis represents the time elapsed since the entry into force of an IIA, with the intersection of the axes marking the precise moment of entry. The different arrow types illustrate potential policy changes in sectors subject to specific reservations: solid arrows indicate sectors with a standstill obligation, dashed arrows indicate sectors without a standstill obligation, and dotted arrows indicate sectors with a ratchet obligation.

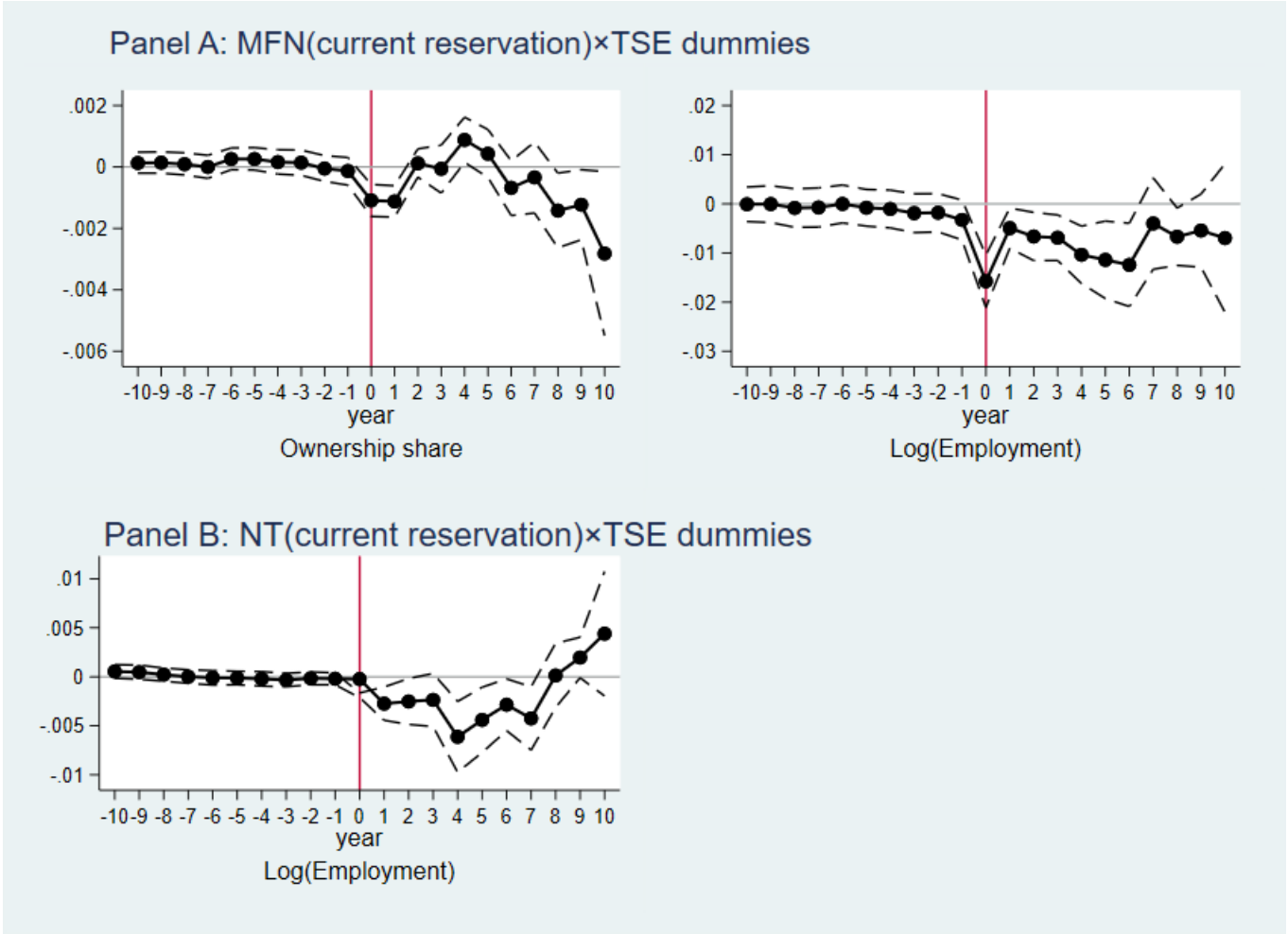

Figure 2. Estimated coefficients on the interactions between the current reservation and TSE dummies are presented in Table 5

Note: The solid line is the trend of ownership share and the affiliate employment difference between the sectors included in the current reservation and those that are not included in negative lists before and after an IIA enters into force for specification Eq.(2) in Table 5. Dashed lines represent 95% confidence intervals of the estimated effects.

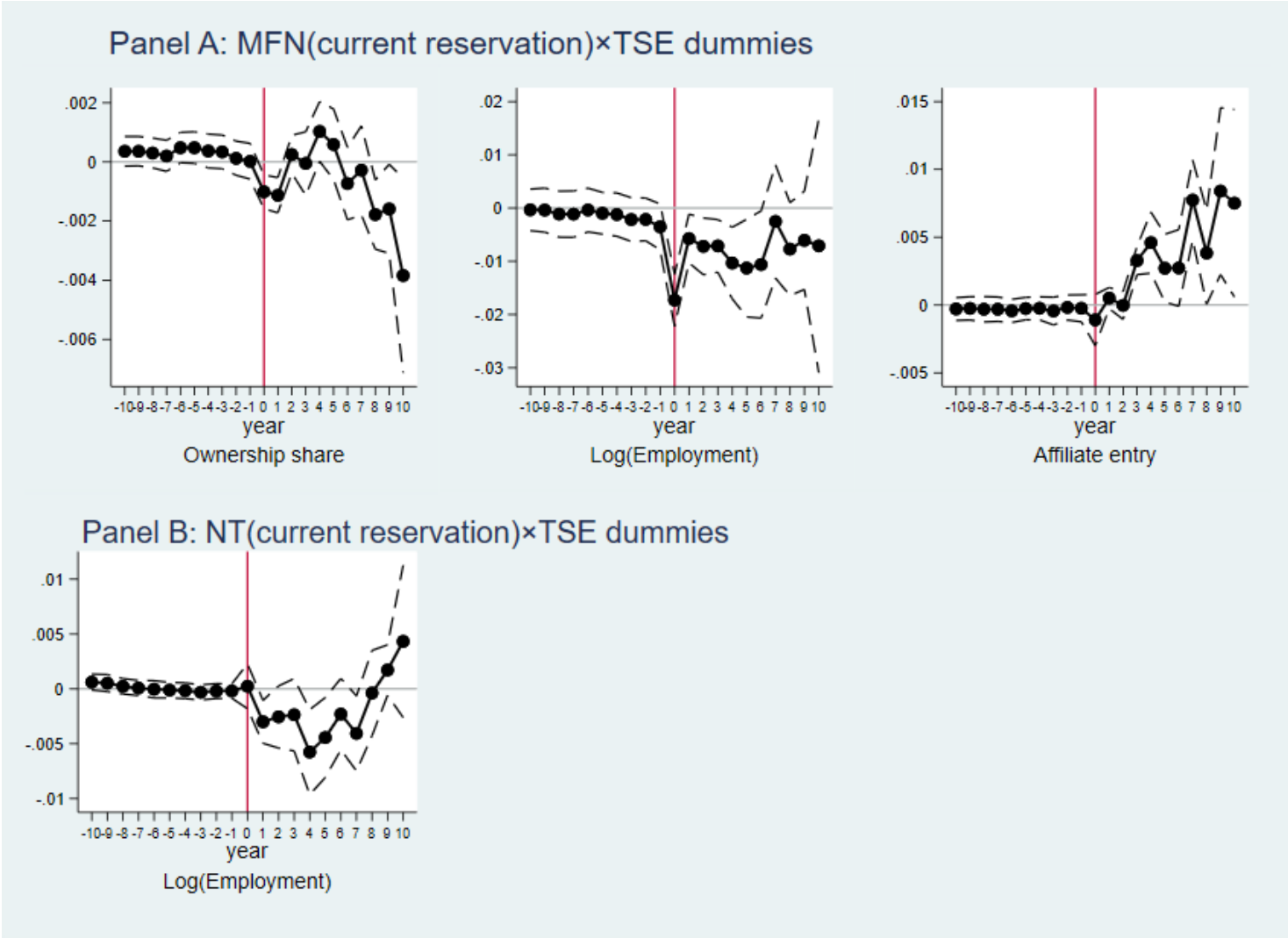

Figure 3. Estimated coefficients on the interactions between the current reservation and TSE are presented dummies in Table 6

Note: The solid line is the trend of ownership share, the affiliate employment and affiliate entry difference between the sectors included in the current reservation and those that are not included in negative lists before and after an IIA enters into force for specification Eq.(2) in Table 6. Dashed lines represent 95% confidence intervals of the estimated effects.

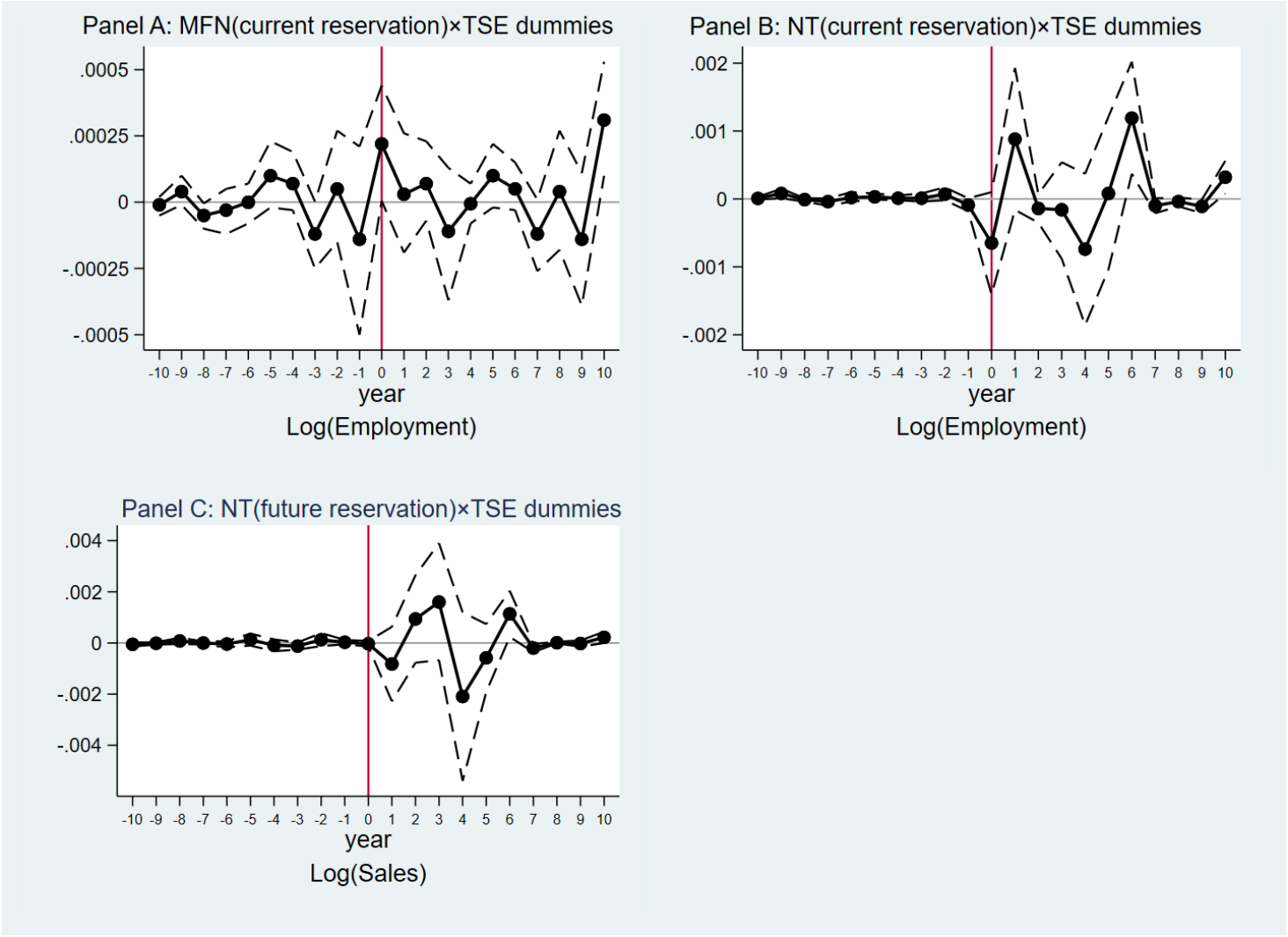

Figure 4. Estimated coefficients on the interactions between reservations and TSE dummies are presented in Table 7

Note: The solid line is the trend of the affiliate employment, and affiliate sales difference between the sectors included in the current and future reservation and those that are not included in the negative lists before and after an IIA enters into force for specification Eq.(2) in Table 7. Dashed lines represent 95% confidence intervals of the estimated effects.

Appendix

Table A1. Disaggregated results: Foreign affiliates with multiple manufacturing plants

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. var.	$\mathbb{1}_{entry>0}$	$\mathbb{1}_{exit>0}$	Ownership share	Log(invest)	Log(sales)	Log(emp)	R&D intensity
NT_current $\times\mathbb{1}_{TSE\geq 0}$	0.0003	−0.0005	0.0003	−0.0000	0.0013	−0.0008	0.0000
	(0.0004)	(0.0004)	(0.0002)	(0.0013)	(0.0011)	(0.0005)	(0.0001)
MFN_current$\times\mathbb{1}_{TSE\geq 0}$	0.0000	−0.0004***	−0.0001	−0.0023	−0.0000	−0.0003	−0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0015)	(0.0008)	(0.0004)	(0.0000)
NT_future $\times\mathbb{1}_{TSE\geq 0}$	0.0014	−0.0005	0.0011	−0.0019	0.0092	0.0021	−0.0001
	(0.0017)	(0.0006)	(0.0009)	(0.0026)	(0.0066)	(0.0021)	(0.0001)
MFN_future $\times\mathbb{1}_{TSE\geq 0}$	−0.0000	0.0002	0.0003	0.0015	0.0002	−0.0006*	−0.0001*
	(0.0003)	(0.0001)	(0.0001)	(0.0009)	(0.0008)	(0.0003)	(0.0000)
Firm FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipality × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country × Sector FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other firm-level policies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.703	0.764	0.970	0.893	0.947	0.973	0.993
Number of observations	147,795	147,795	147,651	127,626	147,771	147,795	112,482

Notes: ***, **, and * denote significance at the 0.1%, 1%, and 5% levels, respectively. Standard errors clustered by sector are in parentheses.