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Micro-Evidence from Japan's International Investment Agreements

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

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Abstract

This study proposes an empirical strategy to identify the impact of policy uncertainty (PU) at the host economy-sector level on foreign direct investment (FDI) by exploiting the plausibly exogenous exemptions from certain obligations such as national treatment (NT) and the most favored nation (MFN) in international investment agreements (IIAs). To this end, the study evaluates how the activities of Japanese multinational enterprises (MNEs) and their foreign affiliates are affected by Japan's 22 IIAs, including bilateral investment treaties and economic partnership agreements with investment provisions, over 1995–2016 at the microdata level. Our empirical strategy relies on differences in the PU changes that MNEs and their foreign affiliates face after an IIA enters into force, depending on whether the relevant sectors are exempted from NT and MFN in the IIA. We find that the PU regarding the MFN has a stronger effect on FDI than the PU regarding NT. In particular, the former PU discourages the establishment of new foreign affiliates and also reduces the capital investment by an affiliate. However, PU does not necessarily induce the exit of affiliates from the market.

Keywords: policy uncertainty; international investment agreements; negative lists; foreign direct investment.

JEL classification: F15; F21; F23.

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1 Introduction

The impact of policy uncertainty (PU) on various economic activities has attracted considerable interest from both scholars and policymakers (Baker et al., 2016). PU represents uncertainty in the future policies implemented by governments and increases by, for example, a change of government, partisan policy disputes, discretionary operation of fiscal and monetary policies, and trade wars (Azzimonti, 2019; Baker et al., 2016; Handley, 2014; Handley and Limão, 2015; Julio and Yook, 2016). Various PU indexes and methodologies used to analyze the effects of PU on economic activities have been developed (Azzimonti, 2018, 2019; Baker et al., 2016; Davis, 2016).[1]

In the trade literature, several recent studies have investigated the effects of trade policy uncertainty (TPU) on firms' export behaviors (Handley, 2014; Handley and Limão, 2015, 2017). Since foreign direct investment (FDI) involves higher sunk costs than exports, FDI may be more affected by PU than exports (Azzimonti, 2019; Julio and Yook, 2016). Despite the importance of PU for FDI, the empirical studies in this field are still scarce. This study thus aims to contribute to the literature by investigating the impact of PU on FDI through a unique approach based on information on international investment agreements (IIAs). IIAs include bilateral investment treaties (BITs) and treaties with investment provisions (TIPs). IIAs are "one of the few policy instruments that countries can use to directly attract foreign investment" (Egger and Merlo, 2012, p. 1240). On the one hand, from the perspective of host countries, IIAs are expected to "promote FDI to signatory host countries by improving their investment climate" (Egger and Merlo, 2012, p. 1243). On the other hand, from the viewpoint of the home countries of investors, IIAs provide "protection to foreign investments under international laws" and, hence, "reduce the political risks of the foreign investor in the host country" (Egger and Merlo, 2012, p. 1243).

The main obstacle to the studies on the impact of PU on FDI is the lack of disaggregated information on PU relevant to FDI. In the case of the PU relevant to international trade, at the disaggregated product level, PU is popularly measured by the gap between applied and bound tariffs (Handley, 2014). However, no comparable data are available for FDI. Against this backdrop, we propose a new approach to measure the PU relevant to FDI at the host economy-sector level by exploiting information on the negative lists of sectors and obligations in IIAs. Negative lists indicate which sectors are exempted from certain obligations in IIAs, such as national treatment (NT) and the most favored nation (MFN). The premise is that, after an IIA enters into force, the sectors included in the negative lists face different degrees of PU compared to other sectors. In other words, after an IIA enters into

[1]For example, Baker et al.'s (2016) index of economic policy uncertainty (EPU) is based on the frequency of articles in major newspapers that include specific words related to EPU. See `https://www.policyuncertainty.com/` for details. Azzimonti (2019) develops a Trade Partisan Conflict Index (TPCI), which tracks the frequency of articles in newspapers that report political disagreement on trade policy. Davis (2016) constructed the monthly index of Global Economic Policy Uncertainty, which is a GDP-weighted average of national EPU indexes for 16 countries.

force, foreign investors face different degrees of PU depending on whether their sectors are exempt from certain obligations in the IIA, whereas they would face the same degree of PU before the IIA enters into force. Additionally, for firms in sectors included in the negative lists of IIAs, the degree of PU may still change (and possibly increase) even after an IIA enters into force. IIAs include two types of negative lists: (i) lists with "standstill/ratchet obligations" and (ii) lists "without standstill obligations" (METI, 2019a). In this study, we call the first list type as "current reservation" and the second as "future reservation." For sectors included in the first lists, the domestic policy measures in the host economy that exist at the time the IIA becomes effective, which do not conform to a certain obligation, may be maintained, but cannot be revised to become more non-conforming to the IIA (UNCTAD, 2006). By contrast, for sectors included in the second type of list, the domestic policy measures in the host economy that do not conform to certain obligations may be revised to become more non-conforming to the IIA in the future. As a result, sectors in the first list type experience a smaller reduction in the PU degree than sectors not included in the negative lists, while sectors included in the second list type experience no change in the PU degree or even an increase in PU after the IIA enters into force (see Sections 2.2 and 2.3 for details). In our study, we utilize these sectoral differences in the PU degree.

To analyze the impact of PU on FDI, we use microdata on Japanese multinational enterprises (MNEs) and their foreign affiliates, as well as information on Japan's IIAs with the host economies of Japanese MNEs. We focus on 22 IIAs between Japan and its partner economies that entered into force during 1995–2016. We only select IIAs with negative lists and implement a difference-in-differences (DID) estimation to capture the average treatment effect of the changes in PU due to IIAs on FDI. As outcome variables, we use an affiliate entry dummy, an affiliate exit dummy, and capital investment at the foreign affiliate level. Additionally, we use the number of affiliates, of affiliate entries, and of affiliate exits in each host-economy sector aggregated at the parent firm level.[2]

The main findings of this study are as follows. We find evidence that PU negatively affects Japanese outward FDI. In particular, the PU regarding MFN has a stronger effect on FDI than the one regarding NT. Our results indicate that the current reservation of MFN significantly reduces the establishment of new foreign affiliates and the capital investment by an affiliate. Moreover, from the parent firm level estimations, the future reservation of MFN reduces the number of affiliates and the

[2]Our choice of outcome variables is based on the findings of Morikawa (2016). Using data from an original questionnaire survey administered to managers of Japanese companies listed on the Tokyo and Osaka Stock Exchanges, Morikawa (2016) reports that 59.2% of the respondents of manufacturing companies chose to enter or withdraw from overseas markets as one of the two activities that are most significantly affected by policy uncertainty. This share is much higher than that of the respondents in non-manufacturing companies (33.3%). Another activity that is most significantly affected by PU is equipment investment, chosen by 71.7% of the respondents of manufacturing companies. This result implies that, among various business operations, FDI and capital investment are the most significantly affected by PU.

number of affiliate entries in a given host economy-sector. However, neither the affiliate- nor parent firm-level estimations provide robust evidence that PU induces the exit of affiliates from the market.

The main contributions of this study to the literature are as follows. First, using microdata on Japanese MNEs and their foreign affiliates, this study proposes a unique empirical strategy to identify the impact of a change in PU at the host economy-sector level due to the effects of IIAs on FDI. To the best of our knowledge, this study is the first to exploit the information from the negative lists in IIAs to capture the differences in PU that foreign investing firms face in host economies, depending on the sectors to which they belong. Our approach thus provides a new angle for exploring the relationship between PU and FDI at the host economy-sector level, while complementing the approaches in existing empirical studies that mainly utilize national-level indexes, such as national election timing (Julio and Yook, 2016) and partisan conflict (Azzimonti, 2019).

Second, this study provides micro-level evidence that IIAs stimulate FDI by reducing PU. In particular, we find that the PU of the competitive environment with other foreign investors (i.e., regarding MFN), may be more important to foreign investors than the PU of the competitive environment with domestic rivals in the host economy (i.e., regarding NT). This finding, which is new to the literature, suggests that IIA content is important.

There are several previous studies related to this study. First, this study is related to the empirical studies on the impact of IIAs on FDI. Most existing studies in this field have conducted analyses at the aggregated level of bilateral FDI (Busse et al., 2010; Egger and Merlo, 2007; Egger and Pfaffermayr, 2004; Falvey and Foster-McGregor, 2018; Frankel and Walter, 2019; Neumayer and Spess, 2005). An exception is Egger and Merlo (2012), who employ firm-level data on German MNEs and their foreign affiliates over 1996–2005 to examine the effects of BITs. They find that both the signing and ratification of BITs increase the number of investing firms per country, of affiliates, of employees, and of investing sectors. However, their study does not address the issue of PU on FDI through IIAs. Second, this study is also related to the studies on the impact of PU on FDI. Julio and Yook (2016) focus on FDI flows from US firms to their foreign affiliates, and examine the effects of PU on FDI by using national election timing in host countries as a source of PU fluctuations. They find that US firms' FDI decreases significantly in the period just before an election and increases after the uncertainty is resolved. Their baseline results suggest that the FDI flow rates from the US fall in election years by around 13% relative to non-election years, which is a figure much higher than the average reduction in domestic corporate investment around election cycles (approx. 4–5%). Therefore, "FDI is more sensitive to political uncertainty than is domestic investment" (Julio and Yook, 2016, p. 14). Azzimonti (2019) analyzes how partisan conflict about trade policy in the US affects FDI inflows to the US by constructing a new indicator to measure the degree of partisan conflict about the trade policy based on texts from newspapers during 1985–2016, and finds that an increase in partisan conflict about the trade policy lowers FDI inflows to the US. According to her estimation, a

one-standard deviation increase in the TPCI in a given quarter results in a decline in the FDI inflows in the following quarter by around 0.115 standard deviations, which corresponds to about a 9% decline in FDI inflows from the sample mean. However, these two studies only capture PU at the host country level. Instead, we try to measure the differences in PU at the host economy-sector level.

The rest of this paper is organized as follows. Section 2 provides an overview of recent IIA trends. Section 3 explains our empirical strategy. Section 4 introduces the data. Section 5 presents the estimation results and Section 6 discusses robustness checks. Finally, Section 7 concludes the paper.

2 International Investment Agreements

2.1 Trends

As explained in the introduction, IIAs include BITs and TIPs. Figure 1 shows the global IIA trends from 1958 to 2019, based on the United Nations Conference on Trade and Development (UNCTAD) database. The bar chart (measured by the left-hand vertical axis) indicates the number of IIAs that entered into force in each year. The green line (measured by the right-hand vertical axis) shows the cumulative number of IIAs in this period, while the blue line shows the total number of IIAs in force in a given year. As shown in this figure, the number of IIAs increased gradually until the beginning of the 1990s. Then, the number of IIAs increased rapidly in the 1990s and the 2000s. In 1990, the cumulative number of IIAs was 244. However, in the late 1990s and the early 2000s, around 100 IIAs entered into force every year. In the peak year, 1997, 137 IIAs entered into force. The total number of IIAs in force reached 1,912 in 2015. Thereafter, the number has remained almost constant.

(Insert Figure 1 here.)

Among the 2,240 BITs signed by 2018, 55% were signed between OECD and non-OECD countries. Those signed by non-OECD countries account for 43% and only 2% of all BITs were signed by pairs of OECD countries. Therefore, many BITs were signed between high- and low-income countries.

BITs in the early years were intended to protect investment from source countries by "reducing the risk of 'expropriation' by host countries' governments" (Bergstrand and Egger, 2013, p. 108). More recently, BITs have increasingly emphasized the promotion of investment (Bergstrand and Egger, 2013).

Although their contents vary across countries, IIAs cover four main areas: admission of foreign investment, treatment, expropriation, and dispute settlement (Egger and Merlo, 2012). The general standards that foreign investments receive in the host country include: (a) fair and equitable treatment, (b) NT, and (c) the MFN (UNCTAD, 2007). The provisions regarding the free transfer of

payments, conditions under which an expropriation is considered lawful, and compensation in cases of expropriation, armed conflict, or internal disorder are also included (Egger and Merlo, 2012). Dispute settlement provisions ensure the effective implementation and enforcement of a treaty "to reduce uncertainty to foreign investors" (Egger and Merlo, 2012, p. 1244) and "constitute one of the key elements in diminishing the country risk and thus encourage investors of one contracting party to invest in the territory of the other" (UNCTAD, 2007, p. 99). The prohibition of performance requirements is also a main obligation in IIAs. Performance requirements include: (i) export requirement, (ii) restriction of local sales, (iii) technology transfer requirement, (iv) nationality requirement of board members, and (v) local employment requirement.

2.2 Negative lists in IIAs

Many IIAs include negative lists in the annex of their legal texts, which specify which sectors are exempt from which obligations of the treaty for each signatory. Reservation of the obligations may be made at the stage of (a) pre-establishment or (b) post-establishment. In our study, we mainly focus on reservations at pre-establishment. Furthermore, IIAs may include two types of negative lists: (i) lists with standstill/ratchet obligations and (ii) lists without standstill obligations (METI, 2019a). For the former lists, "(1) measures that do not conform to the agreement cannot be newly introduced; (2) measures that do not conform to NT, MFN and PR (performance requirement) obligations that existed at the time the agreement became effective may be 'maintained,' but cannot be revised in a way that makes them more non-conforming to the agreement; and (3) once measures are revised to make them more consistent with the agreement, they cannot be made more inconsistent again (this is called as a 'ratchet' obligation to indicate changes can only be made in one direction)" (METI, 2019a, p. 585). By contrast, the latter lists are not subject to those obligations. In many IIAs, Annex I includes the lists with standstill/ratchet obligations and Annex II the lists without standstill obligations. In this study, we call negative lists with standstill/ratchet obligations "current reservation" and those lists without standstill obligations "future reservation."[3]

2.3 Conceptual framework of this study

Figure 2 summarizes our conceptual framework for a reduction in PU due to current and future reservations in IIAs. As indicated in the figure, we assume that PU can be measured linearly at a level and possible range. On this line, we normalize the mean PU level before an IIA's entry into force to zero.

When an IIA enters into force, the sectors not included in the negative lists benefit fully from the

[3]UNCTAD (2006) calls the former lists "reservations for existing measures and liberalization commitments" and the latter "reservations for future measures" (UNCTAD, 2006, pp. 25–26).

IIA, whereas those included in the negative lists benefit only partially or not at all. Therefore, the sectors not included in the negative lists enjoy a deterministic reduction in PU, while those included experience, at best, a stochastic reduction in PU. In Figure 2, the deterministic reduction in PU experienced by the sectors not included in the negative lists is indicated by a solid arrow to the left with an open circle at zero.

We also distinguish between current and future reservations in the negative lists by including the Annex I and Annex II sectors separately. On the one hand, the sectors included in Annex I (i.e., current reservation) face the same level of regulations regarding the exempted obligations (e.g., NT and MFN) even after the IIA entered into force. Although the firms in Annex I sectors can expect regulations not to become more stringent in the future, these firms do not know whether or when the regulations will be liberalized. In this sense, compared with sectors not included in the annex, Annex I sectors experience a stochastic reduction in PU at the time of an IIA's entry into force. In Figure 2, this issue is illustrated by a broken arrow to the left with a closed circle at zero.

On the other hand, the sectors included in Annex II (i.e., future reservation) may face more stringent regulations in the future. Therefore, the degree of PU for those sectors remains the same or may even increase stochastically after an IIA enters into force. In Figure 2, this is shown by broken arrows to both the left and right with a closed circle at zero.

(Insert Figure 2 here.)

In this way, investors face different PU after an IIA enters into force, depending on the sectors to which they belong. In the next section, we explain how we utilize these sectoral differences in PU due to IIAs to investigate the impact of PU on FDI.

3 Empirical Strategy

We analyze the effect of establishing negative lists in IIAs on FDI. Specifically, we focus on the reservation of NT and MFN at pre-establishment because NT and MFN are popularly included in IIAs and there is an ambiguous effect of the prohibition of performance requirements, which includes various provisions. Additionally, provisions at the pre-establishment stage are regarded as the liberalization of FDI.

Our empirical strategy is a DID estimation:

$$\begin{aligned}\hat{\beta}_{DID} = &\{E[Y_{1ijkct}^{\text{affected}}|j,k't,ct,k'c,\boldsymbol{X}_{it},\boldsymbol{Z}_{kct},\boldsymbol{D}_{kct}] - E[Y_{0ijkct}^{\text{affected}}|j,k't,ct,k'c,\boldsymbol{X}_{it},\boldsymbol{Z}_{kct},\boldsymbol{D}_{kct}]\} \\ &- \{E[Y_{1ijkct}^{\text{unaffected}}|j,k't,ct,k'c,\boldsymbol{X}_{it},\boldsymbol{Z}_{kct},\boldsymbol{D}_{kct}] - E[Y_{0ijkct}^{\text{unaffected}}|j,k't,ct,k'c,\boldsymbol{X}_{it},\boldsymbol{Z}_{kct},\boldsymbol{D}_{kct}]\},\end{aligned} \tag{1}$$

where $E[Y_{0ijkct}^{\text{affected}}|\cdot]$ and $E[Y_{1ijkct}^{\text{affected}}|\cdot]$ denote the conditional expectation of outcome variables in the affected sectors before and after an IIA becomes effective, respectively, while $E[Y_{0ijkct}^{\text{unaffected}}|\cdot]$ and $E[Y_{1ijkct}^{\text{unaffected}}|\cdot]$ indicate the conditional expectation of outcome variables in non-affected sectors before and after an IIA becomes effective, respectively. *Affected* in our analysis comprises sectors in the negative IIA lists, while *unaffected* comprises sectors not included in these lists. i indicates a foreign affiliate, j indicates a parent firm, k is the affiliate's four-digit sector, k' is the affiliate's two-digit sector; c is the host economy, and t is the year. $\boldsymbol{X}_{it}$ represents the time-varying controls of affiliate i, which include sales, employment, and R&D intensity. $\boldsymbol{Z}_{kct}$ is the sector-level GDP and number of workers in host economy c. $\boldsymbol{D}_{kct}$ is a vector of treatment variables.

To implement the DID estimation, we estimate the following equation:

$$\begin{aligned} Y_{ijkct} &= \alpha + \sum_{l} \beta^{l} NegativeList_{kc}^{l} \times Post_{ct} + \boldsymbol{X}_{it} + \boldsymbol{Z}_{kct} \\ &\quad + \lambda_j + \lambda_{k't} + \lambda_{ct} + \lambda_{k'c} + \epsilon_{ijkct}, \end{aligned} \tag{2}$$

where Y_{ijkct} is an outcome variable; $NegativeList_{kc}^{l}$ is an indicator variable that takes one if sector k (created from the Survey on Overseas Business Activities, SOBA, four-digit sector) is included in the negative lists for the reservation of type l in an IIA between Japan and host economy c, and zero otherwise; and $Post_{ct}$ is an indicator variable that takes one for years after an IIA enters into force, and zero otherwise. In Eq. (2), a constant term (i.e., α) and fixed effects, represented by λ_j, $\lambda_{k't}$, λ_{ct}, and $\lambda_{k'c}$, are also included, while ϵ_{ijkct} is the error term.

In this study, we use three outcome variables Y_{ijkct}: (a) an affiliate entry dummy, (b) an affiliate exit dummy, and (c) the logarithm of capital investment by an affiliate. The affiliate entry dummy, $\mathbb{1}_{entry>0,\ ijkct}$, takes one if foreign affiliate i is newly established by parent firm j in sector k of host economy c in year t. and zero otherwise.[4] On the other hand, the affiliate exit dummy, $\mathbb{1}_{exit>0,\ ijkct}$, takes one either for foreign affiliate i for which firm j is a parent firm operating in sector k of host economy c until year $t-1$ and exits from the market in year t, or for foreign affiliate i for which firm j is a parent firm operating in sector k of host economy c until year $t-1$ but the ratio of investment by its parent firm falls to less than 10% in year t, and zero otherwise. We use the affiliate entry dummy to capture new investment from Japan to the host economy and the affiliate exit dummy to capture divestment by Japanese parent firms. These two variables can measure the extensive margins of FDI. By contrast, capital investment by an affiliate can capture one aspect of the intensive margin of FDI, as it is associated with the size of an affiliate's activity in the future.

For $NegativeList_{kc}^{l}$, we include the reservations in NT and MFN separately. We further dis-

[4]Notably, the dummy takes zero in year t and one in year $t+1$ if foreign affiliate i is newly established from October to December in year t. Our data is based on the Japanese fiscal year running from April in year t until March in year $t+1$. As for the dummy, therefore, the period from the beginning of October in year t until the end of March in year $t+1$ is counted as the second half of the current year.

tinguish between current and future reservation. Therefore, we include the following four variables as $NegativeList^{l}_{kc}$: (i) $NT\_current_{kc}$, (ii) $MFN\_current_{kc}$, (iii) NT_future_{kc}, and (iv) MFN_future_{kc}. For example, $NT\_current_{kc}$ takes one if sector k is included in the negative lists in Annex I (i.e., current reservation) for the reservation of NT in an IIA between Japan and host economy c, and zero otherwise.

The expected sign of β^l is $\beta^l < 0$ because sectors included in the negative list experience a smaller reduction in PU than others, or even an increase in PU by the entry into force of IIAs.

The affiliate level analysis may not be able to fully capture the impact of the change in PU due to IIAs on FDI, because parent firms may change the locations of their foreign affiliates in response to the change in PU, but unchosen locations are not observed in the data. Taking this into account, it may be more appropriate to analyze the parent firm level. Therefore, we conduct further analyses at the Japanese parent firm level and estimate the following equation:

$$\begin{aligned} Y'_{jkct} &= \alpha + \sum_{l} \beta^l NegativeList^{l}_{kc} \times Post_{ct} + \boldsymbol{X}_{jt} + \boldsymbol{Z}_{kct} \\ &\quad + \lambda_j + \lambda_{k't} + \lambda_{ct} + \lambda_{k'c} + \epsilon_{jkct}. \end{aligned} \tag{3}$$

As outcome variables, for Japanese parent firms Y'_{jkct}, we use: (a) the logarithm of (one plus) the number of affiliates, (b) the logarithm of (one plus) the number of affiliate entries, and (c) the logarithm of (one plus) the number of affiliate exits. On the one hand, the number of affiliates for Japanese parent firm j includes the total number of affiliates that firm j has in sector k in host economy c in year t. On the other hand, the number of affiliate entries for firm j is the number of affiliates newly established by firm j in sector k in host economy c in year t. Finally, the number of affiliate exits for firm j measures the number of affiliates that are owned by firm j and operated in sector k in host economy c until year $t-1$ and withdrew in year t or whose ratio of investment by its parent firm fell to less than 10% in year t. Using these outcome variables, we can capture the average treatment effect by the negative lists in an IIA between host economy c and Japan on Japanese firm j's investment in sector k in host economy c in year t. As control variable, in this specification, $\boldsymbol{X}_{jt}$ includes parents' sales, employment, and capital-labor ratio.

Finally, our DID estimator is unbiased under the following assumption: the trend of an outcome variable is parallel between our treatment group (i.e., affected sectors) and the control group (i.e., unaffected sectors) in the absence of IIAs. This parallel trend assumption is expressed by the following conditional expectation:

$$\begin{aligned} E[Y^{\text{affected}}_{0ijkct} | j, k't, ct, k'c, \boldsymbol{X}_{it}, \boldsymbol{Z}_{kct}, \boldsymbol{D}_{kct}] &= E[Y^{\text{unaffected}}_{0ijkct} | j, k't, ct, k'c, \boldsymbol{X}_{it}, \boldsymbol{Z}_{kct}, \boldsymbol{D}_{kct}] \\ &= \lambda_j + \lambda_{k't} + \lambda_{ct} + \lambda_{k'c} + \boldsymbol{X}_{it} + \boldsymbol{Z}_{kct}, \end{aligned} \tag{4}$$

where $Y^{\text{affected}}_{0ijkct}$ and $Y^{\text{unaffected}}_{0ijkct}$ denote the outcome variables in the affected and unaffected sectors, respectively, in the pre-treatment period (i.e., the years before an IIA entered into force). This

expectation is invalid if there is a significant difference in an outcome variable between the affected and unaffected sectors during the pre-treatment period. For example, FDI inflows to the sectors in which the host economy has comparative advantage may be smaller than those to the other sectors; this would result in a bias toward a negative effect of PU on the outcome variable.

To deal with the identification problem, we verify whether IIAs induce a deviation from the parallel trend by estimating the following equation:

$$\begin{aligned} Y_{ijkct} =& \alpha + \sum_{l} \sum_{s=-4}^{4} \beta_{t+s}^{l} NegativeList_{kc}^{l} \times Year_{c,t+s} + \boldsymbol{X}_{it} + \boldsymbol{Z}_{kct} \\ &+ \lambda_j + \lambda_{k't} + \lambda_{ct} + \lambda_{k'c} + \epsilon_{ijkct}, \end{aligned} \tag{5}$$

where $Year_{c,t+s}$ is an indicator variable that takes one in year $t+s$, $s = -4, -3, \ldots, 4$, with t being the year in which an IIA between Japan and the host economy c enters into force, and zero otherwise. If β_{t+s}^{l} is not significantly different from zero for $s = -4, -3, -2, -1$, there is no deviation from the parallel trend with respect to the treatment by $NegativeList_{kc}^{l}$.

4 Data

We obtained our data from various sources. The data on Japanese MNEs' outward FDI and the activities of foreign affiliates are from the Survey on Overseas Business Activities (SOBA), or *Kaigai Jigyo Katsudo Kihon Chosa*, conducted by the Ministry of Economy, Trade and Industry (METI). Foreign affiliates covered by this survey include: (a) a foreign affiliate in which a Japanese corporation has invested capital of 10% or more; (b) a foreign affiliate in which a "subsidiary," funded more than 50% by a Japanese corporation, has invested capital above 50%; and (c) a foreign affiliate in which a Japanese corporation and a subsidiary, funded more than 50% by a Japanese corporation, have invested capital above 50%. Detailed information is included in this dataset, such as establishment date, sales, employment, R&D, and capital investment. In the dataset, Japanese parent firms and their foreign affiliates are matched. Our observation period is 1995–2016. We use information on the establishment date of a foreign affiliate to create the affiliate entry dummy. When the information on the establishment date is missing in the SOBA data or the presence of a foreign affiliate cannot be verified by the SOBA, we supplement the information using Toyo Keizai's Overseas Japanese Companies database.

Since the information on Japanese parent firms in the SOBA is limited, we also obtain Japanese parent firm level data from the Basic Survey of Japanese Business Structure and Activities (BSJBSA), or *Kigyo Katsudo Kihon Chosa*, conducted by the METI as well. The BSJBSA is a mandatory survey for all firms with 50 or more employees and whose paid-up capital or investment funding is over 30 million yen. The BSJBSA covers the mining, manufacturing, wholesale and retail trade, and service

industries. Approximately 26,000 firms responded to the survey in 1995 and the number of respondents increased to around 30,000 in the 2010s. From this survey, information on parent firms' time-varying characteristics, such as sales, employment, and capital–labor ratio, as well as their FDI patterns, are obtained.

The data on Japanese IIAs are from the legal texts of the individual treaties. Specifically, we focus on 22 IIAs, which include BITs and economic partnership agreements (EPAs) with an investment chapter, signed by Japan that include negative lists and entered into force by the end of 2016. Detailed information on the negative lists is extracted from the legal texts of each treaty. We call the economies that signed one of the 22 IIAs with Japan host economies. Table 1 shows the list of the host economies with the year and month of signing the IIA and its entry into force.

(Insert Table 1 here.)

Table 2 presents the number of sectors listed in the current and future reservation of the 22 IIAs. It also shows that there are more sectors listed as current reservation than future reservation; however, the distribution of sectors listed are similar for both reservations. The listed sectors seem to be sensitive in domestic affairs. For example, agriculture and mining have been a matter of controversy for investment liberalization. Policymakers are willing to regulate transport and energy supply sectors as infrastructure. Other services include education, broadcasting, and advertising services. These services seem likely to relate to national security issues. For domestic reasons, these sectors may remain exempted from any obligations.

(Insert Tables 2 and 3 here.)

To be more specific about the contents of negative lists, Table 3 presents the number of sectors exempted from NT and MFN obligations in current and future reservations. It shows that there are more sectors exempted from NT than MFN in both current and future reservations; again, the distribution of sectors is similar for both reservations.

The exemptions from MFN and NF can be applied simultaneously, meaning that the government in a host economy can give domestically owned firms an advantage over foreign affiliates; further, it can give a foreign affiliate from one country an advantage over a foreign affiliate from the other country. Such exemptions make it difficult for sensitive sectors to be harmed not only by the competition with foreign affiliates but also by national security threats via education, broadcasting, advertising, or other services.

We selected our sample in the following way. We first chose Japanese parent firms that have at least one foreign affiliate in one of the 22 host economies and their foreign affiliates in these host economies in our sample. For parent firms, we exclude their foreign affiliates located outside the 22

host economies in our sample. We then excluded affiliates whose capital investment is missing from our affiliate level sample. The summary statistics of the main variables are reported in Table 4.

(Insert Table 4 here.)

The numbers of foreign affiliates and Japanese parent firms in our sample in each year during the observation period (1995–2016) are shown in Table 5. Table 6 displays the number of observations for foreign affiliates and parent firms in our sample across two-digit industries.

(Insert Tables 5 and 6 here.)

5 Empirical Results

5.1 Foreign affiliate level analysis

5.1.1 Main results

Here, we report our estimation results. We first examine the affiliate level to establish whether PU has any impact on FDI. The results are reported in Table 7. As shown in the table, the current MFN reservation affects the dependent variables negatively. While it significantly reduces the probability of affiliate entry in column (1) and capital investment by foreign affiliates in column (3), it unexpectedly decreases the probability of affiliate entry in column (2). By contrast, the future NT reservation positively affects the probability of affiliate entry in column (1). This is also an unexpected result.

(Insert Table 7 here.)

As we show below, the negative effects of the current reservation of MFN on the affiliate entry and capital investment are robust but the other effects are not necessarily robust. We check them by parent firm level estimations and perform robustness checks at the affiliate level.

Considering the magnitude of the effects in column (1) and (3) in Table 7, we find that, when a sector is included in the negative list for the current reservation of MFN, the probability of affiliate entry falls by 3.7% and that capital investment by a foreign affiliate declines by 40.9%. Put differently, those findings imply that a reduction in PU regarding the MFN status of foreign investors in the host country due to the entry into force of an IIA *increases* the probability of affiliate entry by 3.7% and capital investment by a foreign affiliate by 40.9%. This is novel evidence to show that PU negatively affects FDI.

5.1.2 Identification assumption and checks

We now examine whether the parallel trend assumption is valid for the two key variables: affiliate entry and capital investment by affiliates by estimating Eq. (5). In Figure 3, we plot the set of

estimated coefficients from the DID estimation of Eq. (5) for $MFN\_current_{kc} \times Year_{c,t+s}$, showing the differences in the affiliate entry dummy (left panel) and capital investment (right panel) between affected and unaffected sectors over time. In the pre-treatment period, the coefficients are insignificant. By contrast, in the post-treatment period, the coefficients tend to decline for both affiliate entry and capital investment, although the changes in capital investment are rather gradual. These findings indicate that the trends of the treatment and control groups are likely to be parallel in the pre-treatment period and gradually divergent in the post-treatment period. Their results imply that our DID estimations generally satisfy the parallel trend assumption.

(Insert Figure 3 here.)

5.2 Parent firm level analysis

We next examine the impact of PU on FDI at the parent firm level. The outcome variable includes the numbers of affiliates, of affiliate entries, and of affiliate exits. Table 8 reports the estimated results. The estimated coefficient on $MFN\_current \times Post$ is significantly negative in column (2) and that on $MFN\_future \times Post$ is also significantly negative in columns (1) and (2). The results suggest that the current reservation of MFN has a negative impact on the number of affiliate entries and that the future reservation of MFN has negative impacts on the number of affiliates and the number of affiliate entries. The negative impact of the current reservation of MFN on the number of affiliate entries is consistent with our findings from the affiliate level analysis. Moreover, the negative impacts of the future reservation of MFN on the number of affiliates and the number of affiliate entries suggest that the future reservation of MFN may have a stronger effect on affiliate entry. In contrast to the results from the affiliate level analysis, the impact of the current reservation of MFN on affiliate exits and that of the future reservation of NT on affiliate entries are both insignificant.

(Insert Table 8 here.)

6 Robustness Checks

To check the robustness of the results in the previous section, we address two issues. First, the "unaffected" group in our framework may contain various types of affiliates. Some sectors are excluded from the reserved provisions because the host economy may want to attract FDI actively. By contrast, some other excluded sectors may attract little FDI and, hence, might not need to be protected. To address this issue, we adopt the following strategy. We exclude observations with a low Japanese capital share or a small amount of capital because, in such cases, a parent firm might not respond sensitively to a

change in the investment environment. Excluding observations with those characteristics helps control for the possible heterogeneity in the response to changes in PU among those in the "unaffected" group.

We then select observations in the following way. For a given economy and sector, we exclude: (i) those whose Japanese capital share is among the lowest 10% in the distribution and (ii) those whose capital is among the lowest 10% in the distribution.

The estimated results using a selected sample are reported in columns (1)–(3) of Tables 9 and 10. Table 9 reports the results of the affiliate level estimations and Table 10 those of the parent firm level estimations. Regarding the affiliate level estimations, whereas the negative effects of the current reservation of MFN on affiliate entry and capital investment are still significant in Table 9, the estimated coefficient on the current reservation of MFN becomes insignificant in column (2) in Table 9. Except for this, the results are qualitatively similar to those in Tables 7 and 8.

(Insert Tables 9 and 10 here.)

Our second robustness check addresses the timing of the treatment. In the previous section, we considered the date of an IIA's entry into force as the timing of the treatment. However, IIAs may affect PU when they are signed. As shown in Table 1, for most IIAs in our sample, the date of entry into force is close to that of signing, but it sometimes takes more than one year from signing to the entry into force. Therefore, it is important to check how the results change if we set the date of signing rather than the date of entry into force as the timing of the treatment.

The estimated results using the timing of signing IIAs as $Post_{ct}$ are reported in columns (4)–(6) in Tables 9 and 10. The results are qualitatively similar to those in Tables 7 and 8, suggesting that PU changes may occur when IIAs are signed, even before they enter into force. However, the coefficient on the current reservation of MFN becomes insignificant in column (4) in Table 9 and in columns (5) and (6) in Table 10, while they are both significant in Tables 7 and 8. By contrast, the negative coefficient on the future reservation of MFN remains significant in columns (4) and (5) in Table 10 for the parent firm level analysis. These results imply that the changes in PU due to the current reservation in the negative lists are stronger when IIAs enter into force than when they are signed. However, the changes in PU due to the future reservation in the negative lists may occur when IIAs are signed. These results seem reasonable because a future change in PU is perceived by foreign investors once the contents of an IIA are disclosed by signing, whereas the actual obligations are not valid until the IIA enters into force. Therefore, the changes in the current PU are small or negligible between the sectors included in the negative lists as well as other sectors until the time of an IIA's entry into force.

7 Conclusions

In this study, we examine the impact of PU on FDI by using microdata on Japanese MNEs and their foreign affiliates. We focus on the IIAs that Japan signed and entered into force during 1995–2016. Based on the information included in the negative lists of each IIA regarding which obligations are reserved for which sectors, we conduct DID estimations to analyze the causal effects of PU on FDI. We find evidence that PU matters for Japanese outward FDI. In particular, signing an IIA stimulates FDI, which is measured by entry, exit, and capital investment by foreign affiliates through a reduction in PU, although the impact depends on the content of the IIA.

The impacts may differ between NT and MFN. It may also matter whether sectors are subject to current or future reservations. We find that the current reservation of MFN decreases both the probability of affiliate entry and capital investment at the affiliate level. Despite the negative impact the current reservation of MFN has on the probability of exit, it became insignificant in the robustness check, indicating PU does not necessarily induce the exit of affiliates from the market. Additionally, the current as well as the future reservation of MFN decreases the number of affiliate entries at the parent firm level. By contrast, more affiliates in the current NT reservation may come from considerably fewer exits, but the effect of the current NT reservation on FDI seems ambiguous. Overall, we conclude that the PU regarding MFN has a stronger effect on FDI than the PU regarding NT, therefore providing a broader picture of the effect of PU on FDI.

The policy implications of the findings are straightforward. PU in host economies discourages inward FDI and signing an IIA helps reduce PU. However, the content of an IIA matters. Therefore, to encourage outward FDI, it is important for the government to sign an effective IIA with potential host economies. Meanwhile, from the perspective of the host economies of FDI, policies that reduce PU, including IIAs with potential source economies of the FDI, should be implemented to attract further FDI.

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Data Appendix

A. Gross Domestic Product (GDP)

The following sources have been used to obtain the sector-level GDP:

Chile: DataChile (https://es.datachile.io/geo/chile).
Colombia: The National Administrative Department of Statistics (https://www.dane.gov.co/index.php/en/).
Mexico: National Institute of Statistics and Geography (https://www.inegi.org.mx/).
Mozambique: Mozambique National Institute of Statistics (http://www.ine.gov.mz/estatisticas/estatisticas-economicas/contas-nacionais/anuais-1).
Peru: Peru National Institute of Statistics and Informatics (http://webapp.inei.gob.pe:8080/sirtod-series/).
Switzerland: Federal Statistical Office (https://www.bfs.admin.ch/bfs/en/home.html).
Uzbekistan: State Committee of the Republic of Uzbekistan on statistics (https://stat.uz/).
Other countries: APO productivity database (https://www.apo-tokyo.org/).

B. Number of workers

The number of workers at the sector level are obtained from International Labour Organization Data Explorer (https://www.ilo.org/shinyapps/bulkexplorer26/?lang=en&segment=ref_area&id=TWN_A).

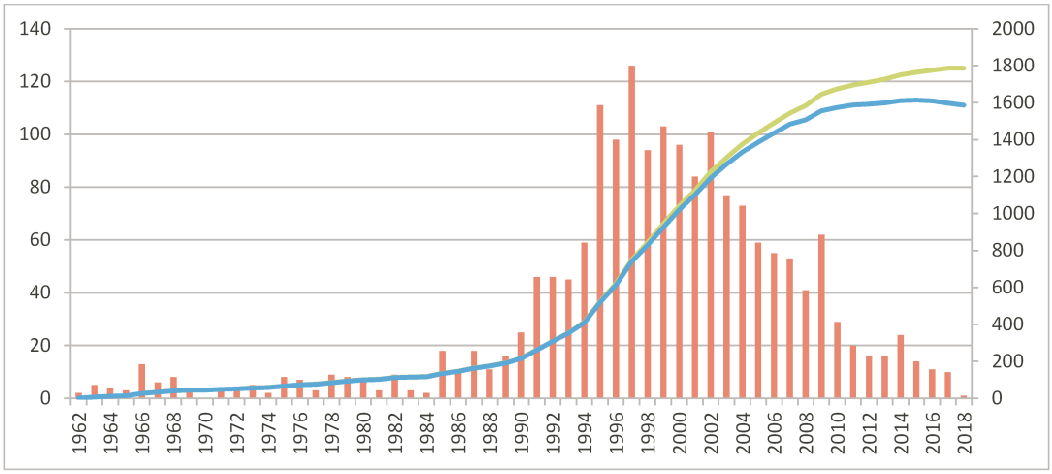

Figure 1: The number of IIAs worldwide, 1958–2019

Source: Authors' calculation based on data from the UNCTAD database.

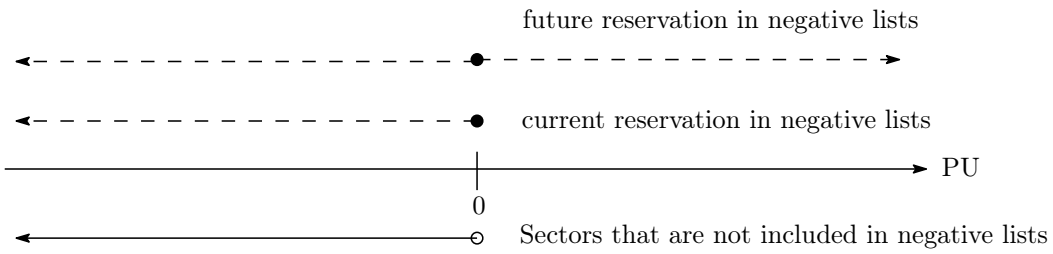

Figure 2: Conceptual framework of the change in PU due to current and future reservation

Note: A solid arrow denotes the deterministic change of PU and a dashed one denotes stochastic change. An open circle does not include zero, but a closed circle does.

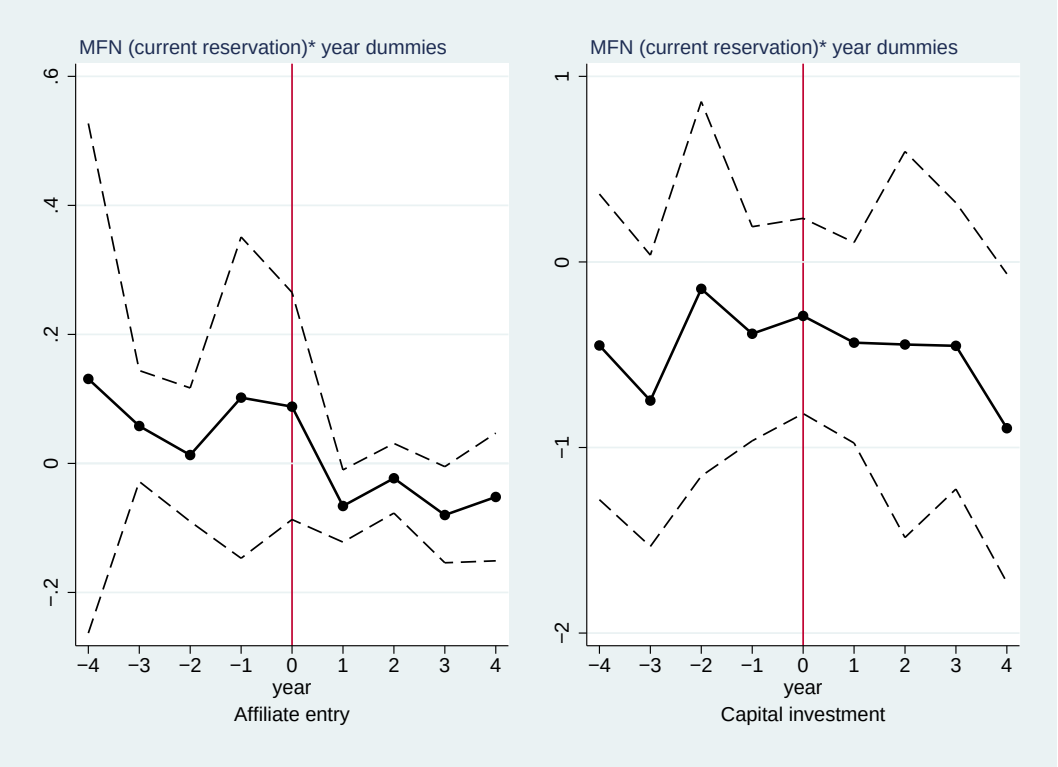

Figure 3: Estimated coefficients on the interactions between affected sectors and year dummies

Note: The solid line is the trends of affiliate entry (left panel) and capital investment (right panel) difference between affected (treatment group) and unaffected sectors (control group) for specification (5). The dashed lines represent the 95% confidence interval of the estimated effect.

Table 1: BITs and EPAs with an investment chapter (and negative lists) signed by Japan that entered into force by the end of 2016

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	June 2008
Brunei	EPA	June 2007	June 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	September 2015
Mozambique	BIT	June 2013	August 2014
Myanmar	BIT	December 2013	August 2014
Australia	EPA	July 2014	January 2015
Mongolia	EPA	February 2015	June 2016

Note: 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 2016 are listed.
Source: Extracted from METI (2019b, pp. 559–560).

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

	Current reservation	Future reservation	Total
1. Agriculture	34	26	60
2. Mining	39	15	54
3. Textile	4	3	7
4. Lumber and wood products	4	3	7
5. Printing	3	0	3
6. Chemical and allied products	9	24	33
7. Petroleum and coal products	5	2	7
8. Rubber products	1	0	1
9. Leather tanning and leather products	0	1	1
10. Ceramic, stone, and clay products	2	6	8
11. Iron and steel	7	0	7
12. Non-ferrous metals and products	3	0	3
13. Fabricated metal products	2	3	5
14. General machinery	2	1	3
15. Electrical machinery	3	1	4
16. Transportation equipment	13	5	18
17. Precision instruments and machinery	2	3	5
18. Miscellaneous manufacturing	2	7	9
19. Food, beverages, and tobacco	17	7	24
20. Construction	6	3	9
21. Wholesale and retail	9	6	15
22. Finance and insurance	10	5	15
23. Real estate	5	2	7
24. Transport and energy supply	78	40	118
25. Other services	64	49	113
Total	324	212	536

Note: Sectors are classified by two-digit SOBA 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	34	9	9	24	6	6
2. Mining	39	5	5	10	0	0
3. Textile	4	0	0	2	0	0
4. Lumber and wood products	4	0	0	1	0	0
5. Printing	3	1	1	0	0	0
6. Chemical and allied products	8	0	0	24	3	3
7. Petroleum and coal products	4	0	0	2	0	0
8. Rubber products	1	0	0	0	0	0
9. Leather tanning and leather products	0	0	0	0	0	0
10. Ceramic, stone, and clay products	2	0	0	4	0	0
11. Iron and steel	7	0	0	0	0	0
12. Non-ferrous metals and products	3	1	1	0	0	0
13. Fabricated metal products	2	0	0	0	0	0
14. General machinery	2	0	0	0	0	0
15. Electrical machinery	3	1	1	0	0	0
16. Transportation equipment	13	0	0	0	0	0
17. Precision instruments and machinery	2	0	0	3	1	1
18. Miscellaneous manufacturing	2	0	0	5	1	1
19. Food, beverages, and tobacco	17	1	1	3	1	1
20. Construction	6	0	0	3	1	1
21. Wholesale and retail	9	0	0	6	0	0
22. Finance and insurance	10	2	2	4	2	1
23. Real estate	5	1	1	2	0	0
24. Transport and energy supply	73	11	11	38	9	9
25. Other services	61	8	8	43	17	14
Total	314	40	40	174	41	37

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

Table 4: Summary statistics

Panel A. Affiliate level variables

Variables	No. of obs.	Mean	Std. dev.	Min.	Max.
$\mathbb{1}_{entry>0}$	42,542	0.024	0.156	0	1
$\mathbb{1}_{exit>0}$	42,542	0.001	0.041	0	1
Log(invest)	42,542	2.578	2.429	0	11.548

Panel B. Parent firm level variables

Variables	No. of obs.	Mean	Std. dev.	Min.	Max.
Log(Number of affiliates)	31,397	0.791	0.238	0.693	2.833
Log(Number of affiliate entry)	31,397	0.013	0.097	0	1.609
Log(Number of affiliate exit)	31,397	0.012	0.094	0	1.609

Notes: The observation period covers 1995–2016. This table reports the number of observations, means, and standard deviations for the following variables: affiliate entry dummy, affiliate exit dummy, log of capital investment, log of (one plus) the number of affiliates, log of (one plus) the number of affiliate entry, and log of (one plus) the number of affiliate exit.

Table 5: Number of foreign affiliates and Japanese parent firms in the sample in each year over the observation period (1995–2016)

	Affiliates	Parents
1995	950	389
1996	1,147	455
1997	1,259	465
1998	1,063	367
1999	1,328	471
2000	1,424	454
2001	1,329	432
2002	1,848	639
2003	1,811	705
2004	2,007	791
2005	2,158	856
2006	2,499	1,027
2007	2,823	1,168
2008	2,961	1,273
2009	2,985	1,255
2010	2,091	841
2011	1,968	804
2012	2,135	939
2013	2,150	979
2014	2,191	984
2015	2,227	950
2016	2,188	963

Table 6: Number of observations at the affiliate and the parent firm levels by sectors

		Affiliate level	Parent firm level
1.	Agriculture	275	182
2.	Mining	107	68
3.	Textile	757	559
4.	Lumber and wood products	481	335
5.	Printing	174	122
6.	Chemical and allied products	3,878	3,033
7.	Petroleum and coal products	157	128
8.	Rubber products	456	317
9.	Leather tanning and leather products	21	16
10.	Ceramic, stone, and clay products	912	704
11.	Iron and steel	732	603
12.	Non-ferrous metals and products	988	724
13.	Fabricated metal products	1,092	902
14.	General machinery	2,043	1,607
15.	Electrical machinery	6,153	4,822
16.	Transportation equipment	3,374	2,496
17.	Precision instruments and machinery	627	502
18.	Miscellaneous manufacturing	1,555	1,200
19.	Food, beverages, and tobacco	569	476
20.	Construction	1,359	1.10
21.	Wholesale and retail	11,685	9,709
22.	Finance and insurance	282	179
23.	Real estate	381	211
24.	Transport and energy supply	1,833	366
25.	Other services	2,651	1,771
Total		42,542	31,397

Table 7: Main results: Affiliate level estimations

Dep. var.	(1) $\mathbb{1}_{entry>0}$	(2) $\mathbb{1}_{exit>0}$	(3) Log(invest)
NT_current × Post	0.008	0.000	−0.029
	(0.005)	(0.001)	(0.115)
MFN_current × Post	−0.037**	−0.004**	−0.409**
	(0.017)	(0.002)	(0.203)
NT_future × Post	0.026**	0.001	0.076
	(0.012)	(0.001)	(0.196)
MFN_future × Post	0.016	0.005	−0.238
	(0.035)	(0.003)	(0.677)
Firm FEs	Yes	Yes	Yes
Sector × Year FEs	Yes	Yes	Yes
Country × Year FEs	Yes	Yes	Yes
Country × Sector FEs	Yes	Yes	Yes
Sector-level controls	Yes	Yes	Yes
Time-varying affiliate controls	Yes	Yes	Yes
R^2	0.110	0.012	0.548
No. of obs.	42,542	42,542	42,542

Notes: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. Standard errors clustered by sector are in parentheses. Estimations include time-varying controls at the affiliate level, sector-year, country(economy)-year, and country(economy)-sector fixed effects, as well as the host economy's sector GDP and number of workers.

Table 8: Parent firm level estimations

Dep. var.	(1) Log(# of affiliates)	(2) Log(# of affiliate entry)	(3) Log(# of affiliate exit)
NT_current × Post	0.025*	0.002	−0.006*
	(0.013)	(0.004)	(0.003)
MFN_current × Post	−0.059	−0.044*	0.062*
	(0.074)	(0.024)	(0.034)
NT_future × Post	−0.040	-0.000	0.009
	(0.037)	(0.011)	(0.009)
MFN_future × Post	−0.283***	−0.027*	−0.025
	(0.055)	(0.015)	(0.026)
Firm FEs	Yes	Yes	Yes
Sector × Year FEs	Yes	Yes	Yes
Country × Year FEs	Yes	Yes	Yes
Country × Sector FEs	Yes	Yes	Yes
Sector-level controls	Yes	Yes	Yes
Time-varying parent firm controls	Yes	Yes	Yes
R^2	0.335	0.093	0.112
No. of obs.	31,397	31,397	31,397

Notes: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. Standard errors clustered by sector are in parentheses. Estimations include time-varying controls at the parent firm level, sector-year, country(economy)-year, and country(economy)-sector fixed effects as well as the host economy's sector GDP and number of workers.

Table 9: Robustness checks (affiliate level): Selected sample and treatment by signing

	Selected sample			Treatment by signing		
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var.	$\mathbb{1}_{entry>0}$	$\mathbb{1}_{exit>0}$	Log(invest)	$\mathbb{1}_{entry>0}$	$\mathbb{1}_{exit>0}$	Log(invest)
NT_current × Post	0.011*	−0.001	−0.023	0.005	0.000	−0.052
	(0.007)	(0.001)	(0.122)	(0.004)	(0.001)	(0.115)
MFN_current × Post	−0.038*	−0.003	−0.389*	−0.013	−0.006**	−0.405**
	(0.017)	(0.002)	(0.221)	(0.027)	(0.003)	(0.173)
NT_future × Post	0.024*	0.000	0.016	0.025**	0.001	0.077
	(0.012)	(0.001)	(0.186)	(0.009)	(0.001)	(0.196)
MFN_future × Post	0.013	0.004	−0.476	0.016	0.005	−0.240
	(0.038)	(0.003)	(0.641)	(0.035)	(0.003)	(0.677)
Firm FEs	Yes	Yes	Yes	Yes	Yes	Yes
Sector × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Country × Sector FEs	Yes	Yes	Yes	Yes	Yes	Yes
Sector-level controls	Yes	Yes	Yes	Yes	Yes	Yes
Time-varying affiliate controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.118	0.008	0.556	0.110	0.012	0.548
No. of obs.	37,464	37,464	37,464	42,542	42,542	42,542

Notes: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. Standard errors clustered by sector are in parentheses. Estimations include time-varying controls at the affiliate level, sector-year, country(economy)-year, and country(economy)-sector fixed effects as well as the host economy's sector GDP and number of workers.

Table 10: Robustness checks (parent firm level): Selected sample and treatment by signing

	Selected sample			Treatment by signing		
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var.	Log(# of affiliates)	Log(# of aff. entry)	Log(# of aff. exit)	Log(# of affiliates)	Log(# of aff. entry)	Log(# of aff. exit)
NT_current × Post	0.028*	0.007*	−0.008**	0.027*	0.002	−0.005
	(0.015)	(0.004)	(0.003)	(0.014)	(0.004)	(0.003)
MFN_current × Post	−0.063	−0.052**	0.062*	−0.054	−0.027	0.057
	(0.076)	(0.025)	(0.034)	(0.082)	(0.020)	(0.037)
NT_future × Post	−0.036	0.005	0.008	−0.050	0.002	0.005
	(0.039)	(0.013)	(0.010)	(0.037)	(0.010)	(0.010)
MFN_future × Post	−0.297***	−0.041**	−0.025	−0.283***	−0.027*	−0.025
	(0.059)	(0.016)	(0.026)	(0.055)	(0.015)	(0.026)
Firm FEs	Yes	Yes	Yes	Yes	Yes	Yes
Sector × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Country × Sector FEs	Yes	Yes	Yes	Yes	Yes	Yes
Sector-level controls	Yes	Yes	Yes	Yes	Yes	Yes
Time-varying parent firm controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.342	0.105	0.110	0.335	0.093	0.112
No. of obs.	28,009	28,009	28,009	31,397	31,397	31,397

Notes: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. Standard errors clustered by sector are in parentheses. Estimations include time-varying controls at the parent firm levels, sector-year, country(economy)-year, and country(economy)-sector fixed effects as well as the host economy's sector GDP and number of workers.