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Do Trade Fairs Promote Export?

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Abstract

The paper analyzes the effects of attending trade fairs on exports, foreign direct investments (FDI), and service outsourcing, using Japanese firm-level data on both performances and trade-fair participation. To solve self-selection problem, I utilize a difference-in-differences matching estimation approach with unique firm characteristics, as well as a linear estimation approach with paired fixed-effects. The results show that there are positive effects of attending trade-fairs on exporting status. Additionally, the positive results are mainly associated with attending trade fairs in geographically and culturally farther markets such as Europe or the U.S., but not from attending the nearest markets, such as Asian countries or China. Furthermore, attending a trade fair induces firms to outsource their market research activity.

Keywords: International trade, Export promotion, Trade fairs, Outsourcing

JEL classification: D22, F13, F14, F23, L53

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1 Introduction

Export promotion policies are worldwide. Such policies are usually organized by public export promotion agencies (EPAs) that apply direct subsidies to exporting firms, information provisions on foreign countries via holding seminars, and trade-fair attendance support. According to Lederman, Olarreaga, and Payton (2010), at least 103 countries in the world employed EPAs in 2005. Because EPAs are so ubiquitous, it is natural to ask whether the policy is effective.

Compared to its pervasiveness, however, research on export promotion policies seems to be limited. Furthermore, analysis of specific types of export promotion support is extremely limited. Volpe Martincus and Carballo (2010), Broocks and Van Biesebroeck (2017), and Munch and Schaur (2018) are some exceptions. They compare the effectiveness of different types of export promotion support, reaching a consensus that more direct support (e.g., matchmaking or subsidies) is more likely to encourage firms to export. Therefore, I dig into a particular type of such export promotion support: support for attending a trade fair.This study examines the trade-fair attendance support type of promotion.

It has been well documented in literature both theoretically and empirically that there are complementarities between several margins of international activities (Bernard et al. 2018). For example, a firm that starts exporting by incurring export fixed costs receives more revenue, finding it more profitable to pay additional fixed costs of foreign direct investments (FDI). Exports can have a spillover effect to international business activities within a firm, because they reduce informational barriers for other activities. Therefore, attending a trade fair can affect other margins of business activities (e.g., FDI and outsourcing). Moreover, the Japan External Trade Organization (JETRO) provide anecdotal evidence of firms having established foreign affiliates after first generating exports at trade fairs[1]. However, the effects of export promotion on FDI and outsourcing have not been well-analyzed.

Under the motivations, this paper analyzes the causal effects of attending trade fairs on a firm's exporting behavior, FDI, and service outsourcing by utilizing Japanese firm-level data on a trade-fair participation provided by JETRO. An obvious concern with analyzing causal effects is self-selection. I address this problem by exploiting difference-in-differences matching estimation and fixed effect estimation approaches. Although these methods have been used by existing studies, this particular analysis has several advantages. First, it evaluates detailed firm-level characteristics using the DID-matching procedure. For balancing the observable characteristics between treatment and control groups, I include proxies for the intention to globalize a firm's business and for firm-year demand shocks from foreign markets. Second, I implement the paired fixed-effect estimations using firm-destination-year information on export performance and trade fairs. This approach allows me to absorb all observable and unobservable characteristics on firm-year, firm-destination, and destination-year pairs. Third, by combining this with data on firms' foreign affiliates, I regress the estimations for the sub-sample of firms having foreign affiliates. Because they should be more homogeneous in terms of unobservable characteristics affecting both treatment and exports, I expect there to be fewer self-selection concerns.

Using these approaches, I find that attending a trade fair raises the probability of exporting by 11.3 percentage points during the year after attending the fair. Furthermore, firms increase the

[1] See JETRO (2019).

value of their exports by 24.1% during the year after participating. Similar results hold when using the paired fixed-effect estimation approach and when focusing on the sub-sample having fewer self-selection concerns. In terms of other business activities, I find an increase in market-research outsourcing by 3-4 percentage points during the year following attendance. However, it is not associated with FDI and logistics outsourcing during the short run.

This paper is related to literature on export promotion policies. A recent trend in the literature has been to use firm-level data on both the usage of trade promotion services and exports[2]. Among others, Volpe Martincus and Carballo (2010), Broocks and Van Biesebroeck (2017), and Munch and Schaur (2018) conduct research closely related to mine because they use information about various types of export promotion services (e.g., information provisions, management consulting services, and matchmaking with buyers). Compared to them, my analysis focuses on the effects of a particular type of support (i.e., attending trade fairs) on exports. Additionally, it analyzes the impact of export promotion on FDI and service outsourcing, which has, to my knowledge, never been analyzed in the literature. Because promoting FDI and outsourcing comprise additional goals for an EPA, this analysis is important.

In terms of methodology, I follow approaches utilized in extant literature, especially that of Munch and Schaur (2018). They use the DID-matching estimation method and the fixed-effect estimation method. Compared to them, my analysis utilizes a unique covariate among others for balancing the treatment and control groups: the share of employees in the international business division. This is designed to mitigate concerns of self-selection, because firms having the same share are expected to have similar intentions regarding global business. Moreover, I implement an additional analysis by focusing on a sub-sample of fewer self-selection concerns, as done by Broocks and Van Biesebroeck (2017). Furthermore, the validity of this identification assumption for the fixed-effect estimation is investigated using a placebo test which adds lead-treatment variables.

Apart from the effect of export promotion policies on exports, there has been literature that investigates the determinant of service outsourcing (e.g., Abraham and Taylor 1996, Berlingieri 2015, and others). Among them, Berlingieri (2015) constructs a model to analyze the effect of extra export opportunities on service outsourcing. My paper is related to this and contributes to the literature by showing an empirical result consistent with his theory.

The use of Japanese firm-level data on both exports and support for attending trade fairs is unique for at least two reasons. First, whereas there are many existing papers that utilize data from developing countries (e.g., Volpe Martincus and Carballo 2010 for Costa Rica), those from developed countries are limited. Some exceptions include Munch and Schaur (2018) for Denmark and Broocks and Van Biesebroeck (2017) for Belgium. Second, even within studies that use data from developed countries, these countries tend to be culturally and geographically closer to other developed countries. Furthermore, they tend to share their native or a second language with other surrounding countries. Thus, they are expected to have a relatively easier time accessing potential foreign buyers[3]. In contrast, Japan is culturally and geographically distant from most developed countries and uses a unique language. Thus, export promotion support in such a country is crucial for accessing foreign markets.

[2]There are studies using the country- or industry-level data, such as Bernard and Jensen (2004) and Head and Ries (2010). In the context of Japan, see Hayakawa, Lee, and Park (2014).

[3]Melitz (2008) shows the importance of sharing common language to promote international trade.

The paper proceeds as follows. Section 2 briefly explains the background of trade fairs and the Japanese EPA. Section 3 introduces the empirical approaches used in the paper. After clarifying datasets in Section 4, Section 5 shows my main results. Section 6 provides some robustness checks. Finally, Section 7 offers some concluding thoughts.

2 Background

According to the Global Association of Exhibition Industry (UFI), the world's leading trade-show organizer and fairground owner, trade fairs are defined as

market events of a specific duration, held at intervals, at which a large number of companies present the main product range of one or more industry sectors and mainly sell it on the basis of samples[4].

Its main function is to provide a place for personal contacts and face-to-face communication between buyers and suppliers. Furthermore, trade fairs provide critical information on market trends and future industry directions.

In Japan, a series of government-affiliated agencies and local governments have provided support to exporting firms and those planning to expand their businesses globally. Among them, JETRO is the major agency. It is a government-related organization headquartered in Tokyo, established in 1952, and it promotes mutual trade and investment between Japan and the rest of the world. Its total budget is about $400 million in 2019, and it has more than 70 foreign offices and about 50 offices in Japan. The main activities are to (1) promote inward FDI to Japan, (2) promote food-product exports, (3) support global business, especially for small- and medium-sized firms, (4) contribute to Japanese trade policies through research, and (5) contribute to the local economies under globalization.

Activities (2) and (3), in particular, provide support for trade-fair attendance. Actual supports comprise of, for example, providing information on domestic and foreign trade fairs, partially subsidizing participation fees, helping with decoration and cleaning for a firm's booth in a fair, and advertising firm products for trade fairs. They also constantly organize and provide opportunities for Japanese firms to meet with potential foreign buyers. The rest of the paper analyzes the impact of these supports on firm exports, FDI and service outsourcing.

2.1 Theoretical mechanism

Based on the heterogeneous firm trade theory by Melitz (2003) and Chaney (2008), a firm must incur fixed and variable costs to export its product to foreign markets. Fixed export costs reflect those required for initial customs-clearance procedures, information acquisition, and locating appropriate buyers in foreign markets. Because of these costs, only high productivity firms serve both domestic and foreign markets, while low productivity firms are usually active only domestically.

Attending a trade fair is expected to lower fixed export costs by facilitating matching with buyers. Thus, non-exporting (relatively unproductive) firms can begin exporting to foreign markets if

[4]See UFI (2019). Though UFI defines trade fairs and trade exhibitions separately, the latter of which is mainly for the general public rather than for trade and business visitors, I do not distinguish them and label both of them as "trade fairs."

their business becomes profitable enough to do so (extensive margin effect). Additionally, incumbent exporters can increase the value of their exports (the intensive margin effect). According to a standard specification with Pareto distribution, as in Chaney (2008), theory actually predicts no effects of reducing the fixed export costs on average export values.

Attending a trade fair can impact other business activities including FDI and service outsourcing. The former is predicted by, for example, Conconi et al (2016) who find, using Belgian data, that FDI entry into a foreign market tends to be preceded by exports. Therefore, encouraging firms to export by supporting their trade-fair attendance could, in turn, help launch an FDI entry afterward. The latter prediction is given using a theory of service outsourcing by Berlingieri (2015). He constructs a model showing that an extra export opportunity raises the coordination complexity of service tasks within a firm, resulting in more outsourcing of these tasks. Therefore, attending a trade fair can increase service outsourcing.

3 Empirical Methodology

3.1 DID approach

When estimating the effect of attending trade fairs on international activities, there is concern about the identification problem. In other words, self-selection into trade-fair attendance hides the true treatment effect. To address this problem, I rely on DID-matching estimation approach following Heckman, Ichimura, and Todd (1997). In particular, by following Munch and Schaur (2018), I first utilize propensity score matching (PSM) to find appropriate control-group firms by balancing their observable characteristics. Then, in the second step, the average treatment effect on the treated (ATT) is estimated by

$$\text{ATT} = \frac{1}{N}\sum_{i}^{N}(\Delta Y_i^{\text{Treat}} - \Delta Y_i^{\text{Control}}), \tag{1}$$

where Δ denotes the difference between pre- and post-treatment periods, N is the number of observations in the treatment group, and $Y_i^k (k \in \{\text{Treat, Control}\})$ represents an outcome variable for firm i in group k. Taking the difference of an outcome variable allows me to absorb all observed and unobserved time-invariant additive firm characteristics.

Identification of the treatment effect comes from the conditional independence assumption. This means that, after controlling for observable variables, treatment assignment (i.e., trade-fair attendance) and (potential) outcomes (e.g., exporting status) are independent. This assumption can be slightly strong because there should be some unobservable factors that affect both treatment assignments and outcomes, including firm-year specific demand shocks and time-varying firm intentions to globalize business. To account for these unobservable factors, I include detailed and unique firm characteristics in the first-stage estimations of propensity scores. This is discussed in Section 4.

To perform the DID estimation using PSM, I focus on the sample of firms that do not attend trade fairs during year $t-1$. Therefore, the treatment group in the DID-matching approach comprises firms that attend trade fairs during period t, but do not attend them in period $t-1$. On the other hand, firms in the control group before the use of PSM are those that do not attend trade fairs during periods $t-1$ and t.

3.2 Fixed effect approach

The analysis using DID-matching approach relies on a variation in trade-fair attendance and outcome variables across firms having similar observable characteristics. Therefore, it does not control for firm-year specific unobservable factors such as changes in firm productivity. A change in productivity can potentially affect both outcome variables and a trade-fair participation, causing an endogeneity problem.

To address the potential endogeneity problem, I alternatively adopt a fixed-effect estimation by utilizing information on export destination regions and those holding trade fairs. This approach allows for the inclusion of paired fixed-effects, including firm-year, firm-destination, and destination-year. For example, by including the firm-year fixed effect, it absorbs all observable and unobservable characteristics for a particular firm-year pair. Therefore, the identification comes from a comparison across destination regions within the firm-year observations.

The estimation equation in the fixed effect estimation approach is,

$$Y_{ijt+1} = \beta \text{Treatment}_{ijt} + \gamma_{it} + \eta_{jt} + \delta_{ij} + \epsilon_{ijt}, \tag{2}$$

where Y_{ijt+1} is an outcome variable for firm i in destination region j in year $t+1$, and Treatment_{ijt} is a dummy variable equal to 1 if firm i attends a trade fair in destination region j during year t. γ_{it}, η_{jt}, and δ_{ij} are firm-year, destination-year, and firm-destination paired fixed-effects, respectively. In the fixed-effect approach, the sample comprises firms in the dataset during all periods (i.e., a balanced panel from 2009 to 2016) and those having experience with exports at least once during the sample period.

4 Data

The regression analysis is conducted primarily by merging two datasets. The first is Basic Survey of Japanese Business Structure and Activities (BSJBSA), provided by the Ministry of Economy, Trade and Industry (METI). The data include a firm-level annual survey of detailed business information, such as sales, employment, capital stock, intermediate purchases, a variety of production and non-production outsourcing, and export and import activities. The export and import information is reported only at a destination-region level, but not at a country level. The destination region categories include Asia excluding China, China, North America, Europe, the Middle East, and others. The data cover the full population of manufacturing and some non-manufacturing firms satisfying both (1) more than 50 employees and (2) more than 30 million yen capital[5].

The second data are provided by JETRO, a list of firms attending trade fairs organized or supported by JETRO from 2012 to 2016. These firms are mainly in the manufacturing sector or in the agriculture, forestry, fisheries, and food sectors. The data also include information about the country holding the fair, enabling me to construct firm-destination-year observations used for fixed-effect

[5]Non-manufacturing firms included are those in Mining and Quarrying of Stone and Gravel; a part of Electricity, Gas, Heat Supply and Water; a part of Information and Communications; Wholesale and Retail Trade; a part of Finance and Insurance; a part of Real Estate and Goods Rental and Leasing; a part of Scientific Research, Professional and Technical Services; a part of Accommodation, Eating and Drinking Services; a part of Living-related and Personal Services and Amusement Services; a part of Education, Learning Support; a part of Services not else classified.

estimation analysis[6]. The number of observations in the raw data before aggregating (i.e., firm-trade fair pairs) is 5,548[7].

Although the following analysis is conducted by merging these two datasets, it is of interest to examine the characteristics of trade-fair raw data. Table 1 shows the number of firms in each group (third column) and the number of observations in each group (second column) from the raw data. The 5,548 observations comprises 2,682 firms (bottom row), more than half of which attend a trade fair via JETRO only once during the sample period. On the other hand, 50 firms attend more than 10 trade fairs via JETRO during the period. Figure 1 shows the number of observations per year. The attendance number at trade fairs increases about 7 times over the sample period. Additionally, Figure 2 presents the number of observations in each country. As can be seen, there are 33 countries attended by Japanese firms supported by JETRO. The most attendance occurs trade fairs in Japan, and those in other Asian countries are also popular (e.g., Hongkong, Thailand, Taiwan, and etc). This suggests that attending a trade fair follows the law of gravity.

With these two datasets, I construct two different merged datasets: the firm-year observation data, and the firm-destination-year observation data. The former sample is constructed by merging 4,101 firm-year observations aggregated from the JETRO raw data and the BSJBSA from 2009 to 2016. It turns out that the final data include 887 observations in the treatment group[8]. Although the number of matches appears slightly small compared with the original number of JETRO observations, the matching percentage is actually about 80% after I focus on observations satisfying the BSJBSA criteria on the minimum size of employees and capital. The latter dataset is constructed by merging 4,909 firm-destination-year observations in the aggregated JETRO data with the BSJBSA. The data merged include 806 observations in the treatment group. Because the firm-destination-year observation data use the information on destination regions of exports, the matched data do not include information on trade fairs held in Japan.

In an additional analysis, I merge the matched data with the information on Japanese foreign affiliates from Basic Surveys on Overseas Business Activities provided by METI[9]. The data provide me information on whether a firm has foreign subsidiaries in each destination region and how many employees these foreign subsidiaries have. This allows me to focus on the sub-sample of firms having foreign affiliates, which are expected to be relatively active in the global market. Thus, they suffer less from the self-selection problem. Additionally, I analyze the impact of attending a trade fair on entering a foreign market through FDI.

To grasp features of the merged data, Table 2 shows the summary statistics on the firm-year observation data before implementing the matching procedure. It can be seen that firms having attended a trade fair tend to be larger in terms of numbers of employees, total sales, export values, the value of inputs, and value-added compared to those that do not attend a trade fair. Additionally, firms in the treatment group are likely to participate in export activities in terms of both exten-

[6]While I know the specific country holding each trade fair, I aggregate information into a regional level in order to match an observation unit with that in the BSJBSA.

[7]Though the data are a list of firms using support for attending a trade fair, they may also utilize other export promotion services according to anecdotal evidence by JETRO (2019). In the robustness check, I focus on the sub-sample of firms that are less likely to use JETRO service other than trade fairs: those that do not report any usages of related service-outsourcing in the BSJBSA. I find a similar result as the main one.

[8]In the actual analysis below, I further restrict the firm-year observation sample into those with the balanced panel. I additionally restrict the control group to those belonging in a sector with some treatment firms.

[9]I also use a BSJBSA-BSOBA converter provided by RIETI.

sive and intensive margins compared with those of the control group. Furthermore, those in the treatment group are more active in FDI and non-production activities to foreign countries[10]. These statistics motivate me to use the matching method for constructing an appropriate control group.

The summary statistics on the firm-destination-year observation data are reported in Table 3. Similar to the firm-year observation data, firms in the treatment group tend to be larger in terms of numbers of employees, total sales, and input values. More importantly, there is heterogeneity in terms of performances across destination regions within the treatment group. For instance, firms that attend trade fairs in Europe tend to be larger in terms of numbers of employees, total sales, input values, and export values than those attending Asian trade fairs. Therefore, taking the heterogeneity across destinations into account can mitigate a potential mis-measurement of the aggregated firm-year observation data.

The main outcome variable in both the DID matching and the fixed-effect approaches is exporting status (i.e., an indicator variable of exporting), because it is one of the objectives of trade fairs and JETRO. Additionally, I implement regressions for export values, non-production outsourcing, FDI status, and numbers of employees in foreign affiliates. As part of robustness checks, I use the information on exports to firms' related companies (i.e., parent companies and subsidiaries) as other outcome variables. Because the role of attending trade fairs is to reduce information friction and to help firms find transaction partners, I expect that there are no effects on exports with related companies.

In the DID-matching approach, a key point is including detailed firm characteristics so that the conditional independence assumption would likely hold. Therefore, I include the following two variables among others, which seem to be unique compared to most of the existing studies. First, by following Munch and Schaur (2018), I incorporate a firm-year specific demand shock constructed as,

$$\mathrm{SH}_{it} = \sum_{k \in \Omega_{it}} s_{ikt-1} \frac{M_{kt} - M_{kt-1}}{M_{kt-1}}, \tag{3}$$

where Ω_{it} is the set of industries wherein firm i has positive sales, s_{ikt-1} is the share of sales in industry k during year $t-1$ within firm i, and the last term $(M_{kt} - M_{kt-1})/M_{kt-1}$ is the growth rate of total imports in industry k at year t across the world excluding Japan[11]. The variable captures a part of unobservable firm-year specific demand shocks that affect both export and trade-fair participation decisions.

The second variable is the share of employees in the international business division within a firm. The BSJBSA collects information on the number of employees in each division within a firm. The international business division is a department that manages trade transactions and foreign affiliate businesses in a firm. Hence, the variable should partly reflect a firm's intention of globalizing its business, which is therefore expected to absorb unobservable factors affecting both export and trade-fair participation decisions.

[10] "FDI dummy (BSOBA)" is defined as firms having foreign affiliates with more than 10% stock shares.

[11] Aggregate trade data are from UN Comtrade and the industry classification is in the Japan Standard Industrial Classification (JSIC) 3-digit level.

5 Results

5.1 Results: DID approach

5.1.1 Results on the propensity score estimates

The first stage of the DID-matching approach is to estimate the propensity score to construct an appropriate control group. I first estimate the probit model of attending a trade fair. The outcome variable is an indicator variable for a firm attending a trade fair in a year. The explanatory variables comprise a list of firm characteristics, including proxies for a firm's intention to globalize its business and a firm-year specific demand shock. The results are reported in Table 4.

As can be seen in the first column of the table, firms having more employees, more sales, and export experiences over the last year, and younger firms are more likely to participate in trade fairs. More importantly, firms having a larger share of employees in the international division and those having larger demand shocks are more likely to attend. This implies that, by balancing these two unique variables, I can account for unobservable differences between treatment and control groups. Columns 2 and 3 in Table 4 show standardized differences in the average of each variable between the treatment and control groups. As can be seen in all rows, using the propensity scores balances the observable variables between these groups on average, thus achieving the main purpose of the estimation[12].

As a comparison, I execute the probit estimation for the sample of firm-destination-year observations. Although it is not directly used for DID-matching estimation, it offers a sharp contrast between determinants of attending trade fairs in Japan and those in foreign countries. The results are presented in Table 5. The first column shows the result of the probit estimation on a dummy variable of participating in trade fairs in Japan. The second column, on the other hand, is the result of the same probit estimation but using a dummy variable of attending trade fairs in a foreign country. Although most of the estimates have similar signs and magnitudes as those with the firm-year observation data in Table 4, there are some interesting differences.

First, demand shocks have a large positive effect on attending trade fairs in foreign countries, but not in Japan. Second, although firms having a declining trend in the share of employees in international divisions tend to participate in domestic trade fairs, those with a growing trend are more likely to attend trade fairs in a foreign country. This implies that more well-prepared firms participate in foreign trade fairs by incurring larger costs.

5.1.2 Results on the DID estimates

Given the estimates on the propensity score, I now present the results of the DID-matching estimation presented in equation (1). The first row of Table 6 shows the results for the full sample; the second row shows the sub-sample of small firms; the third row shows it for large firms; the fourth row shows it for young firms, and the last row shows it for old firms. The small (large) firms are defined as those having less than (more than) 110 employees in 2011, and young (old) firms are those younger than (older than) 47 years old. Both thresholds are approximately median values of the variables. The first and fourth columns are for results in year t (the same year as attending a

[12]Columns 2 and 3 in Table 4 are the result from the DID-PSM estimation when using an export dummy in period t as an outcome variable. Balancing tests while using other outcome variables are available upon request.

trade fair), the second and fifth columns are for year $t+1$, and the remaining columns are for year $t+2$.

As can be seen in the first column in the top panel, firms attending trade fairs increase their probability of exporting by 5.1 percentage points during year t compared with those in the control group. Additionally, the positive effect tends to be larger for 1 and 2 years following trade-fair attendance, as shown in the second and third columns. Overall, the effect on the extensive margin is largely positive and statistically significant.

The treatment effects (5.1 percentage points) is a difference in the average of a change in exporting status between treatment and control groups by definition. The number actually comprises a 3.2 percentage-point increase in the exporting probability for the treatment group and a 1.9 percentage-point decrease in the exporting probability for the control group. These imply that the effects of attending trade fairs come from the combination of an increase of entry into foreign markets and an avoidance of incumbents exiting foreign markets.

The magnitudes of these coefficients are in line with what the literature finds. For example, Munch and Schaur (2018) find, using the DID matching estimation with Danish data on exports and export promotion services, that receiving an export promotion service from the Danish Trade Council raises the probability of exporting by 1.41 percentage points during year t for firms having more than 50 employees. Furthermore, using a partner-search and matchmaking service, similar to attending a trade fair, raises the probability of exporting by 5.5 percentage points during year t for firms having 1 to 20 employees. Similarly, Broocks and Van Biesebroeck (2017) find, using probit estimation of Belgian data, that receiving an export promotion service raises the probability of participating in an export market by 3.5 percentage points for firms having more than 20 employees.

In addition to the effects on the extensive margins of export, there may also be some effects on their intensive margin[13]. For example, Column 5 in the top panel shows that the value of export increases as a result of attending trade fairs by 24.1% during year $t+1$. The magnitude of the effect is comparable to that which Munch and Schaur (2018) obtain. Their DID-matching estimation finds a 12% increase in export values in year $t+1$ for firms having 20 to 50 employees. Additionally, when focusing on partner-search and matchmaking, their estimate gives a 16.9% increase in export values during year $t+1$ for firms having 1 to 20 employees. Furthermore, Van Biesebroeck et al. (2015) find, using the fixed-effect estimation with Canadian data, that receiving export promotion services increases a firm's export value by 9.8-18.5%.

Table 7 shows the results from the same DID-matching regressions but using exports to the firm's related companies in foreign countries. This is part of robustness checks, because it is expected that attending trade fairs reduces information asymmetry across sellers and buyers, and thus does not affect exports to related companies. As expected, I do not find notable effects of attending trade fairs on these activities.

5.1.3 Results on sub-samples

The results reported above are average effects and hence can mask heterogeneous impacts among firms in the treatment group. In order to investigate the heterogeneity, the same regression is implemented for sub-samples. The results are shown in the second to fifth rows in Tables 6. As you

[13]Because the estimate is calculated from a difference in log export values between pre- and post-treatment, the sample is restricted to firms exporting positively in both periods.

can see, the effect of trade fairs on the extensive margin is mostly larger for small and young firms compared with other groups of firms. For example, attending trade fairs raises the probability of exporting in year $t+1$ by 10.1 percentage points for small firms, while the same effect is only 6.8 percentage points for large firms. Similarly, young attendees raise their exporting probability by 13.8 percentage points in year $t+1$, whereas old attendees raise the probability by 7.0 percentage points. These patterns are consistent with our intuition that small and young firms suffer more from large sunk costs for globalizing their business due to information asymmetry, and therefore the effect of trade fairs is larger for them.

In contrast, the effect of trade fairs on the intensive margin is mixed and generally insignificant. For instance, attending trade fairs raises the value of exports in year $t+1$ by 25.4% for old firms, while the corresponding number for young firms is 40.7%.

Table 8 provides a sub-sample analysis for firms having (or not having) affiliates in a foreign country. Because firms without foreign affiliates are expected to have less information on foreign markets, I expect a larger positive effect of trade fairs on them. As you can compare the first and second rows of Table 8, this is actually the case. In particular, while attending trade fairs raises the probability of exporting in year t by 4.0 and decreases in year $t+1$ by 2.0 percentage points respectively (and the latter being statistically insignificant) for firms having foreign affiliates, the treatment effects are 5.0 and 11.3 percentage points for those without foreign affiliates in the corresponding years.

5.2 Results: Fixed effect approach

The results of the extensive margin using fixed-effect estimation are reported in Table 9[14]. As can be seen in the panel, attending a trade fair in a particular destination region raises the probability of exporting to that region. For example, Column 6, my preferred specification, shows an increase in the probability of exporting by 4.96 percentage points. The size of the coefficients is broadly comparable to those of Table 6 using the DID-matching approach and the fixed-effect results of Munch and Schaur (2018) (i.e., 2 percentage points in Table 7 of their paper).

The positive effect on the extensive margins of exporting is also found generally among subsamples, as reported in the second to the bottom panels of Table 9. For example, large firms attending a trade fair raise their probability of exporting by 7.3 percentage points during year $t+1$, and old trade-fair attendees raise their probability by 4.7 percentage points. However, most estimates seem to be slightly smaller than those obtained from the DID-matching approach. This is probably because the fixed-effect estimation controls additionally for a time-invariant firm-destination effect and firm-year and destination-year specific effects, thus increasing precision. Furthermore, the DID-matching estimations investigate the effects of attending a trade fair in a region on aggregate exports, including other regions, because the data is aggregated into a firm-year level, whereas the fixed-effect estimation using the firm-destination-year data analyzes a pair-specific effect.

In contrast to the results of extensive margin, those on the intensive margin seem to be slightly unstable. Table 10 shows the results on the effect of trade fairs on the value of exports using the Poisson pseudo-maximum likelihood[15]. The first two columns use export values of year t, the third

[14] I use a method of a linear regression with high-dimensional fixed effects by Guimaraes and Portugal (2010).

[15] I use STATA code **ppml_panel_sg** produced by Larch et al (2019).

and fourth columns use those of year $t+1$, and the last two columns use those of year $t+2$. As can be seen, the effects of trade fairs are positive and significant for years t and $t+2$ only when I use the firm-year and destination-year fixed effects. On the other hand, when I additionally use the firm-destination paired fixed-effect, the treatment effect becomes insignificant, suggesting no effect of trade fairs on the intensive margin of exports. Therefore, I focus on analyses on the extensive margin in the fixed-effect estimation.

Table 11 provides a sub-sample analysis for firms with (or without) foreign affiliates in a destination region. I define a dummy variable of having a foreign affiliate equal to one for a firm-destination-year observation if a firm has a foreign affiliate in the particular destination region in the year. If a firm has a foreign affiliate in the year, but not in the corresponding region, the dummy variable is zero in the firm-destination-year observation. The top panel shows the effects on the extensive margin of exports. As consistent with the results from the fixed-effect approach in Table 9, there are overall positive and statistically significant effects of attending trade fairs on the extensive margin of exports. More importantly, the treatment effect on the extensive margin of exports is larger for firms without foreign affiliates than those with affiliates (the first and second rows). This should be because the former faces larger costs of exporting than the latter firms, thus support for attending a trade fair being more effective.

5.2.1 Results on destinations

Though the above results utilize information on trade fairs and exports in the level of destination regions, they basically provide the average treatment effect (or the average treatment effect within a sub-sample). In order to explore the heterogeneous impacts of attending trade fairs across destination regions, I construct dummy variables on destination regions, Asia (excluding China)-China and Europe-North-America respectively, and include their interactions with Treatment_{ijt} into equation (2). The identification of the interaction term, for example in the case of an interaction with the Europe-North-America dummy variable, comes from a comparison of the treatment effects between Europe-North-America and the remaining regions within a firm-year pair (if I include the firm-year fixed effect). Because exporting to markets with a long distance from Japan requires larger costs than those to short-distance markets, the effect of trade fairs is expected to be larger for them. The results are reported in Table 12.

The top panel of the table shows the extensive-margin effect with the interaction terms. The column 6 in the top panel shows that there is a positive and statistically significant effect of attending trade fairs in Europe and North America (i.e., 12.5 percentage points in year $t+1$), while the effect of trade fairs in Asia (excluding China) or China is smaller and statistically insignificant. The larger positive effect for Europe and North America may come from geographic and cultural distance effects (i.e., export to a farther destination requires larger fixed costs and therefore the effect of support for attending trade fairs is larger) or just the effectiveness of European and North American trade fairs. As UFI (2014) reports, Europe and North America are the two largest players in the trade-fair industry, and hence could probably play a more efficient function in matching between buyers and sellers. The bottom panel shows the effect on the intensive margin of exports with the interaction terms. As consistent with the results on the fixed-effect estimation reported above, the results depend on specifications.

These results are in contrast to what Broocks and Van Biesebroeck (2017) find for the case of

Belgian firms. They find that the positive effect of export promotion services on the probability of starting export is constant across destination regions. The difference could partly come from a difference in observation units in the treatment variable. While their analysis uses a treatment variable in the firm-year level, my analysis uses it in the firm-destination-year level. Therefore, my estimation might take more precisely into account heterogeneity in the treatment effect across destinations.

5.3 Results: FDI and service outsourcing

This subsection reports the effect of attending trade fairs on FDI and service outsourcing. As I mentioned above, there is a complementarity between exports and other business activities, such as establishing foreign affiliates and service outsourcing. Table 13 reports the result of FDI using the DID-matching approach (first row) as well as other matching methods (second and third rows). The first three columns show the effect on having foreign affiliates, while the remaining columns report the effect on the number of employees employed in foreign affiliates. As you can see from the table, there is no significant effect on the activities of foreign affiliates. Similar patterns are observed when it is analyzed by the fixed-effect estimation approach, as reported in Table 14. While it is true that this could be because of a limited time lag between treatment and these outcomes, I do not observe any significant impacts of attending trade fairs on activities in foreign affiliates.

Compared to establishing foreign affiliates, service outsourcing should require a shorter time period before reaping the effects of trade fairs. Table 15 shows the effects of trade fairs on logistics and market-research outsourcing activities. The outcome is a dummy variable on each outsourcing activity domestically, abroad, or both[16]. There are two things worth mentioning. First, firms that attend trade fairs tend to increase their probability of market research outsourcing (e.g., about 3-4 percentage points increase in year $t+1$). Second, outsourcing of logistics does not show a noticeable pattern after attending trade fairs.

Once I focus on the sub-sample of small firms that should be more constrained by their own management resource, the results tend to be larger, as shown in Table 16. In fact, firms attending trade fairs raise their probability of using market-research outsourcing by 4.3-6.5 percentage points depending on the specifications. These results are consistent with what Berlingieri (2015) shows using his model and French data.

6 Robustness

One of the biggest concerns in the analyses above is self-selection into trade fairs even after controlling for observable characteristics. For the matching DID approach, it could potentially be the case if there are some time-varying firm-specific unobservable shocks affecting both treatment and outcome variables conditional on observable variables. Similarly, for the fixed-effect estimation, there could be a time-varying firm-destination specific shock that induces firms to attend a trade fair and exporting in a destination region. In order to mitigate the concern, I utilize a sub-sample of

[16] I can not analyze domestic and foreign outsourcing separately, because the number of observations reporting foreign outsourcing is very small. Gary and Zeng (2001) show that the logit regression with a binary dependent variable with a lot of zeros can be imprecise due to a rare-event problem.

firms with foreign affiliates. I expect that they are already active in the global market, and therefore self-selection to attending trade fairs seems to be relatively weak within the sub-group[17].

As you can see in the first row of Table 8, attending trade fairs raises the probability of exporting in year t by 4.0 percentage points for firms with foreign affiliates, compared with no-attendees with foreign affiliates. Though the positive coefficients become marginally insignificant in years $t+1$ and $t+2$, the size of these coefficients are reasonable (i.e., 0.0323 in year $t+2$). Because these firms already have affiliates in foreign countries when attending trade fairs, it is natural to expect that they are relatively quick to reap the benefit of trade fairs. The fixed-effect estimates in the first row of Table 11 show similar positive and significant effects among firms having foreign affiliates.

Another robustness check for the firm-year observation data is to replace PSM with other matching methods. The first alternative approach is the large-sample bias-corrected estimator of the nearest-neighbor matching (NNMATCH) method proposed by Abadie and Imbens (2006). The second approach uses PSM combined with coarsened exact matching (CEM). CEM is implemented for key matching variables, such as the share of employees in the international section within a firm, and dummy variables on using domestic and foreign market-research outsourcing, which should absorb unobservable characteristics affecting both treatment and outcome variables[18]. PSM is then implemented for the remaining matching variables[19]. The results are reported in Table 17, confirming the robustness of the positive effects of trade fairs on the extensive and intensive margins of export.

The third robustness check is for repeaters in the DID-matching approach. One may think that our results come from the existence of repeaters (i.e., firms that attend a trade fair several times during the sample). Thus, focusing on the sample used above, which excludes firms attending trade fairs during year $t-1$, is not enough to exclude the repeater effect. Actually, as can be seen in Table 18, 232 out of 434 observations are from firms attending trade fairs several times during the period. Hence, to exclude the repeater effect, I execute the same DID-matching regression while focusing on the remaining 202 firms attending only once during the period. These results are reported in Table 19. The basic results reported in the previous section hold.

The fourth robustness check is for firms using only one support from JETRO. As noted in footnote 7, it is not uncommon to utilize other JETRO services with support for trade-fair attendance. Unfortunately, my data include only a list of firms attending trade fairs and therefore can not control for the usage of other JETRO services. Alternatively, I implement the same DID-matching regression while focusing on the sub-sample of firms that do not use any service outsourcing related to JETRO's service over the entire sample period. In particular, I focus on firms that use outsourcing on neither information processing, market research, external affairs, logistics, product planning, office work, tax accounting, nor employee education over the sample period. If other JETRO services are correctly reported in these service-outsourcing variables, the sub-sample of firms can be regarded as those not using other JETRO services. The results with the sub-sample are presented in Table 20. The overall results on the extensive and intensive margin of exports are in line with the main

[17]Combes et al. (2005) use information on plains belonging to the same business group as a proxy for business networks, and empirically show that the business networks have trade-creating effects through reducing information problems. My robustness check uses a similar idea.

[18]I coarsen the share of employees in the international division into 10 equally-spaced ranges and then exactly match the range between treatment and control groups. Other dummy variables are exactly matched between the groups.

[19]I use STATA code **kmatch** produced by Jann (2017).

analysis.

The final robustness check is to implement placebo tests for the fixed-effect estimations. The first placebo test is to investigate the effect of attending a trade fair in one region on exports in another region. Although there are potential buyers at a trade fair from other regions (e.g., American buyers attend a European trade fair), most buyers are from their own region. Therefore, if attending a trade fair in one region had a positive effect on exports to another region, it would suggest some unobserved factors affecting both exports and a trade-fair participation[20]. Similarly, the second placebo test is to examine the effect of attending a trade fair during years $t+1$ and $t+2$ (rather than year t) on exports during year $t+1$. If I were to get positive coefficients on the lead treatment status, it would suggest that the positive effect captures a pre-treatment pattern (e.g., a treated firm already had globalized its business before attending the fair), thus casting doubt on the positive treatment effect of trade fairs on exports.

The results are presented in Tables 21 and 22. As can be seen from Table 21, if a firm attends a trade fair in one region, it does not increase its probability of exporting in another region, supporting my identification assumption. Table 22 shows that, after controlling for several fixed-effects, the lead treatment status during year $t+2$ does not affect export status, although attending a trade fair during year t or $t+1$ has a positive and significant effect on export probability. These results support my identification assumption.

7 Conclusion

The paper analyzes the impact of attending trade fairs on export performance, FDI, and service outsourcing, using Japanese firm-level data of both trade and trade-fair participation. To handle self-selection when attending trade fairs, I rely on the DID-matching estimation approach and that of the paired fixed-effects. The former method utilizes the detailed information of firm characteristics for balancing observable variables between treatment and control groups, especially information about the share of employees in the international business division. Additionally, both approaches focus their additional analyses on the sub-sample of firms having foreign affiliates. They should suffer less from the self-selection problem than the full sample. The results show positive effects of attending trade fairs on the extensive margin of exports, especially for small and young firms. Furthermore, the positive effect on the extensive margin is mainly from geographically and culturally farther markets, such as those in North America and Europe, rather than closer markets, such as Asia (excluding China) and China. Moreover, attending a trade-fair induces firms to outsource their market research, although it does not affect the existence of foreign affiliates and logistics outsourcing at least during the short run.

[20]Therefore, I swap a treatment status in a region for that in another region in the following way. A treatment status in North America is replaced by the status in Asia, that in Other region by China, Asia by Europe, China by the Middle East, Europe by North America, and the Middle East by Other region. Hence, the placebo regression examines, for example, the effect of attending a trade fair in Asia on exports to North America.

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A1 Figure

Figure 1. Number of observations over time in raw data

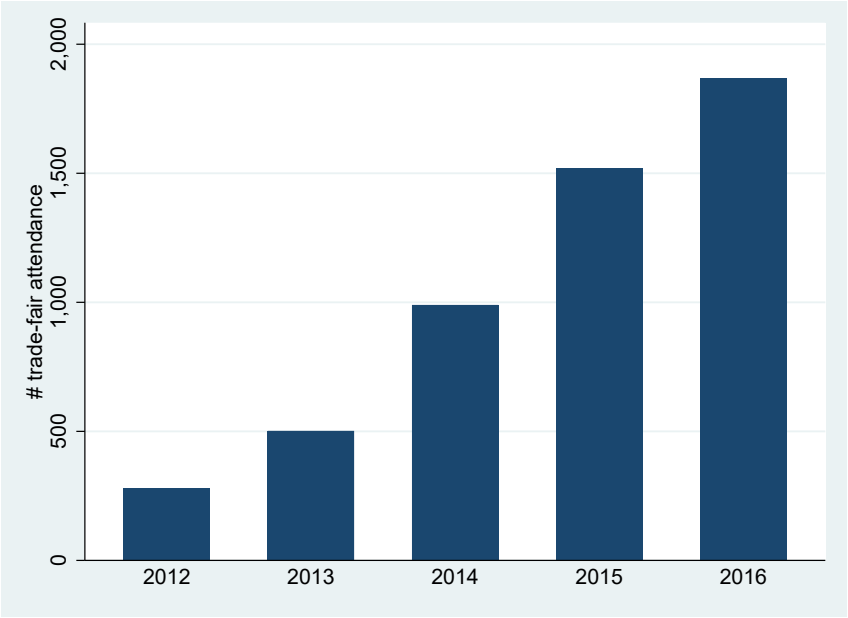
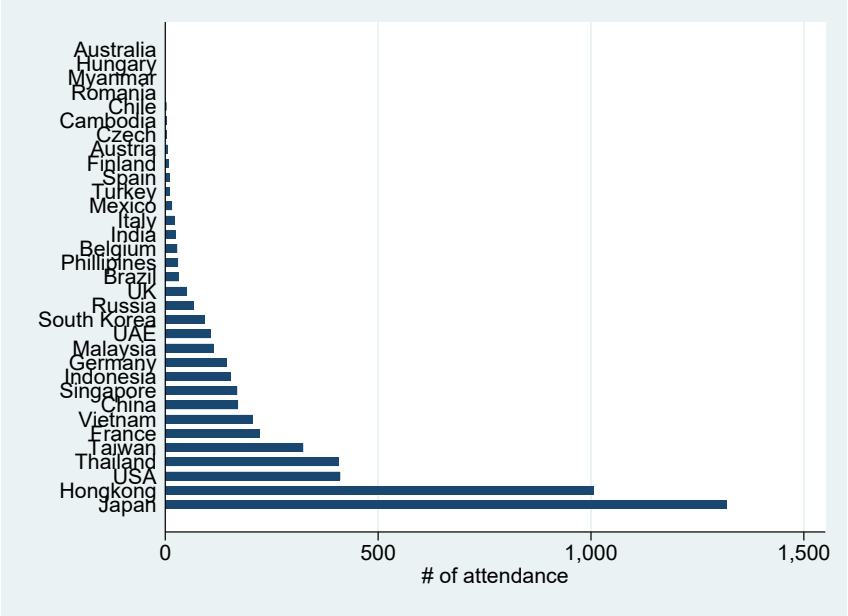


Figure 2. Number of observations in each country in raw data



A2 Table

Table 1: Number of firms and the number of trade fairs attended

# fairs attended	Observations	# firms
1	1538	1538
2	1170	585
3	645	215
4	472	118
5	355	71
6	228	38
7	245	35
8	120	15
9	153	17
10	180	18
11	66	6
12	84	7
13	65	5
14	84	6
15	15	1
16	16	1
17	51	3
18	18	1
21	42	2
Total	5547	2682

Table 2: Summary statistics: firm-year observation data

Mean in t-1	Treatment	Control	t-stats
# of employee	194.34	154.70	-1.88
Share of employees in international section	0.02	0.007	-7.67
Share of employees in planning section	0.05	0.04	-2.35
Age	58	47	-12.55
Sales total	64421	28252	-4.10
Input total	48766	19257	-3.96
Value added	8467	4931	-2.93
Export			
Export values	9661	3642	-1.86
Export values related	3801	1688	-0.98
Export dummy	0.58	0.25	-15.49
FDI and Outsourcing			
FDI dummy (from BSOBA)	0.35	0.16	-10.26
Outsource marketing dummy	0.15	0.07	-6.71
Outsource marketing foreign dummy	0.028	0.012	-3.09
Outsource logistics dummy	0.32	0.25	-3.56
Outsource logistics foreign dummy	0.018	0.008	-2.39
Obs.	434	139500	

Values of Sales, Input, Value added, and Export are in million yen

Table 3: Summary statistics: firm-destination-year observation data

Mean in t-1	Treatment						Control
Region	Asia	China	Europe	M. East	N. America	Others	
# of employee	147	218	314	191	131	229	210
Sales total	28709	65746	202148	110560	29300	68632	50209
Input total	20798	50855	168716	77564	19661	46124	35278
Value added	3586	6845	11919	7581	3880	7427	7959
Age	60	59	57	50	52	64	51
Export							
Export values	1426	1171	1877	23	237	29	1850
Export values related	358	644	487	0	142	9.9	855
Export dummy	0.70	0.53	0.46	0.14	0.52	0.58	0.38
FDI							
FDI dummy	0.22	0.30	0.17	0	0.21	0.17	0.14
Obs.	184	86	51	14	48	18	244039

Values of Sales, Input, Value added, and Export are in million yen

Table 4: Probit estimation and the balancing tests for firm-year obs.

		Averages without PSM	Average with PSM
	(1)	(2)	(3)
VARIABLES	Probit	Standardized diff.	Standardized diff.
Log(employee), lag	0.0794***	0.40	-0.005
	(0.0220)		
Log(capital), lag	-0.0511***	0.25	0.02
	(0.0158)		
Log(wage all), lag	-0.183***	0.25	0.03
	(0.0371)		
Log(sales total), lag	0.260***	0.27	0.02
	(0.0436)		
Log(input total), lag	-0.0890***	0.20	0.02
	(0.0237)		
1{export}, lag	0.301***	0.65	-0.05
	(0.0459)		
1{import}, lag	-0.0836*	0.35	0.02
	(0.0448)		
Share of international, lag	0.241***	0.56	0.01
	(0.0485)		
Share of planning, lag	0.196***	0.39	0.06
	(0.0410)		
Demand shock	0.433	-0.29	-0.07
	(0.440)		
Age	0.00487***	0.50	0.01
	(0.000895)		
Δ log(sales total)	0.0950	0.03	-0.03
	(0.128)		
Δ log(input total)	0.0377	-0.02	0.004
	(0.0338)		
Δ log(employee)	0.0659	0.07	0.03
	(0.0652)		
Δ log(wage all)	0.00751	-0.03	-0.03
	(0.0782)		
Δ log(capital)	0.136	0.06	-0.03
	(0.123)		
Δ share international	-0.0358	0.04	-0.06
	(0.0892)		
Δ share planning	-0.115	0.003	0
	(0.0774)		
Year FE	YES		
Industry FE	YES		
Observations	81,470	434	434

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Δ denotes a change in a variable from periods t-2 to t-1.

Table 5: Probit estimation for firm-destination-year obs.

VARIABLES	(1) Probit 1{attend in Japan}	(2) Probit 1{attend in foreign}
Log(employee), lag	0.0615***	0.0576***
	(0.0121)	(0.0184)
Log(capital), lag	-0.0381***	-0.0403***
	(0.00858)	(0.0130)
Log(wage all), lag	-0.0803***	-0.260***
	(0.0209)	(0.0287)
Log(sales total), lag	0.134***	0.356***
	(0.0259)	(0.0326)
Log(input total), lag	-0.0304**	-0.0997***
	(0.0147)	(0.0179)
1{export}, lag	0.271***	0.160***
	(0.0257)	(0.0390)
1{import}, lag	0.0790***	-0.0435
	(0.0247)	(0.0377)
Share international, lag	0.212***	0.253***
	(0.0264)	(0.0406)
Share planning, lag	0.146***	0.164***
	(0.0231)	(0.0345)
Demand shock	-0.218	1.093***
	(0.233)	(0.353)
Δ log(sales total)	-0.0518	0.0291
	(0.0751)	(0.102)
Δ log(input total)	-0.0135	0.0789***
	(0.0206)	(0.0250)
Δ log(employee)	0.000503	0.0222
	(0.0354)	(0.0572)
Δ (wage all)	-0.0461	0.0187
	(0.0466)	(0.0583)
Δ log(capital)	0.255***	0.0314
	(0.0600)	(0.0866)
Δ share international	-0.267***	0.119*
	(0.0481)	(0.0705)
Δ share planning	0.00613	-0.0718
	(0.0442)	(0.0642)
Year FE	YES	YES
Industry FE	YES	YES
Observations	490,982	463,724

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Δ denotes a change in a variable from periods t-2 to t-1.

Table 6: DID with propensity score matching

Outcomes:	**Export dummy**			**Log (export values)**		
	(1)	(2)	(3)	(4)	(5)	(6)
		Period			Period	
Sample	t	t+1	t+2	t	t+1	t+2
All firms	0.0509***	0.113***	0.120***	0.0110	0.241***	0.276**
	(0.0138)	(0.0206)	(0.0279)	(0.0540)	(0.0873)	(0.120)
Small firms	0.0809***	0.101***	0.0841***	0.134	-0.0443	0.301*
	(0.0211)	(0.0315)	(0.0272)	(0.0959)	(0.155)	(0.166)
Large firms	0.0406**	0.0677**	0.0353	0.0315	0.00748	0.0727
	(0.0180)	(0.0295)	(0.0377)	(0.0635)	(0.157)	(0.154)
Young firms	0.0358	0.138***	0.102	0.0613	0.150	0.407**
	(0.0239)	(0.0265)	(0.0696)	(0.105)	(0.268)	(0.177)
Old firms	0.0397***	0.0701***	0.0629***	0.0363	0.0336	0.254*
	(0.0148)	(0.0205)	(0.0233)	(0.0501)	(0.0867)	(0.131)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: DID with propensity score matching: transactions with related firms

Outcomes:	**Export dummy: related**			**Log(export values): related**		
	(1)	(2)	(3)	(4)	(5)	(6)
		Period			Period	
Sample	t	t+1	t+2	t	t+1	t+2
All firms	0.0231**	0.0233	0	0.0189	-0.196	-0.0371
	(0.0117)	(0.0211)	(0.0252)	(0.092)	(0.161)	(0.184)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8: DID with propensity score matching: sub-sample of firms w/ (w/o) foreign affiliates

Outcomes:	**Export dummy**			**Log(export values)**		
	(1)	(2)	(3)	(4)	(5)	(6)
		Period			Period	
Sample	t	t+1	t+2	t	t+1	t+2
Firms w/ foreign affiliates	0.0403*	-0.0206	0.0323	-0.0244	0.0299	-0.0018
	(0.0233)	(0.0227)	(0.0388)	(0.0703)	(0.0881)	(0.0987)
Firms w/o foreign affiliates	0.0495***	0.113***	0.100**	0.244**	0.211	0.269
	(0.0154)	(0.0257)	(0.0293)	(0.0996)	(0.193)	(0.212)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9: Fixed effect estimation: the extensive margin in year $t+1$

Sample	(1)	(2)	(3)	(4)	(5)	(6)
			Extensive margin			
All firms	0.259***	0.110***	0.125***	0.0579***	0.0849***	0.0496**
	(0.0322)	(0.0251)	(0.0375)	(0.0216)	(0.0295)	(0.0217)
Observations	244,440	244,440	244,440	244,440	244,440	244,440
R-squared	0.451	0.792	0.125	0.851	0.575	0.851
Small firms	0.329***	0.105***	0.171***	0.0425	0.125***	0.0296
	(0.0475)	(0.0355)	(0.0454)	(0.0300)	(0.0433)	(0.0300)
Observations	140,490	140,490	140,490	140,490	140,490	140,490
R-squared	0.398	0.771	0.138	0.832	0.534	0.832
Large firms	0.163***	0.116***	0.0570	0.0768**	0.0224	0.0731**
	(0.0338)	(0.0353)	(0.0629)	(0.0312)	(0.0345)	(0.0315)
Observations	103,950	103,950	103,950	103,950	103,950	103,950
R-squared	0.489	0.806	0.121	0.867	0.608	0.867
Young firms	0.328***	0.137***	0.131***	0.0651*	0.153***	0.0546
	(0.0537)	(0.0415)	(0.0480)	(0.0367)	(0.0471)	(0.0367)
Observations	122,598	122,598	122,598	122,598	122,598	122,598
R-squared	0.431	0.775	0.125	0.840	0.555	0.840
Old firms	0.208***	0.0897***	0.107*	0.0527**	0.0336	0.0465*
	(0.0373)	(0.0306)	(0.0549)	(0.0261)	(0.0359)	(0.0262)
Observations	121,842	121,842	121,842	121,842	121,842	121,842
R-squared	0.457	0.803	0.130	0.858	0.586	0.858
Firm-year FE	YES			YES	YES	YES
Destination-year FE			YES		YES	YES
Firm-destination FE		YES		YES		YES

Clustered robust standard errors at the firm level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10: Fixed effect estimation: the intensive margin using PPML

	(1)	(2)	(3)	(4)	(5)	(6)
	Intensive margin					
Variable\Period	t		$t+1$		$t+2$	
Treatment	0.357*	0.0466	0.163	0.106	0.385**	-0.0429
	(0.183)	(0.107)	(0.310)	(0.132)	(0.184)	(0.178)
Observations	217,228	132,998	191,713	115,472	165,411	97,810
R-squared	0.640	0.944	0.637	0.960	0.626	0.970
Firm-year FE	YES	YES	YES	YES	YES	YES
Dest-Year FE	YES	YES	YES	YES	YES	YES
Firm-dest FE		YES		YES		YES

Clustered robust standard errors at the firm level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 11: Fixed effect estimation with sub-sample: the extensive margin in year $t+1$

Sample	(1)	(2)	(3)	(4)	(5)	(6)
Extensive margin						
Firms w/ foreign affiliates	0.0209	0.00126	0.00614	0.0691**	0.00279	0.0691**
	(0.0507)	(0.0486)	(0.0508)	(0.0332)	(0.0509)	(0.0338)
Observations	26,080	33,611	33,970	25,754	26,080	25,754
R-squared	0.682	0.695	0.010	0.886	0.694	0.887
Firms w/o foreign affiliates	0.290***	0.135***	0.159***	0.0834***	0.122***	0.0742***
	(0.0373)	(0.0292)	(0.0415)	(0.0265)	(0.0341)	(0.0265)
Observations	209,481	209,713	210,470	208,707	209,481	208,707
R-squared	0.456	0.768	0.094	0.837	0.561	0.838
Firm-year FE	YES			YES	YES	YES
Destination-year FE			YES		YES	YES
Firm-destination FE		YES		YES		YES

Clustered robust standard errors at the firm level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 12: Fixed effect estimation with interaction terms: the extensive margin in year $t+1$

Variable	(1)	(2)	(3)	(4)	(5)	(6)
			Extensive margin			
Treatment	-0.0867	0.0492	0.277**	-0.0150	0.116	-0.00737
	(0.0771)	(0.0455)	(0.139)	(0.0551)	(0.0749)	(0.0552)
Treat×1{Europe or North America}	0.272***	0.133**	-0.0641	0.130*	0.0688	0.125*
	(0.0962)	(0.0586)	(0.144)	(0.0678)	(0.0928)	(0.0678)
Treat×1{Asia or China}	0.415***	0.0401	-0.206	0.0598	-0.0720	0.0379
	(0.0863)	(0.0542)	(0.143)	(0.0610)	(0.0838)	(0.0610)
Observations	244,440	244,440	244,440	244,440	244,440	244,440
R-squared	0.451	0.792	0.125	0.851	0.575	0.851
Firm-year FE	YES			YES	YES	YES
Destination-year FE			YES		YES	YES
Firm-destination FE		YES		YES		YES

Clustered robust standard errors at the firm level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 13: DID with propensity score matching: FDI

Outcomes:	**Foreign establishment dummy**			**Log(# foreign employee)**		
	(1)	(2)	(3)	(4)	(5)	(6)
		Period			Period	
Methodology	t	t+1	t+2	t	t+1	t+2
PSM	-0.00278**	0.0133	0.0206	0.0196	-0.255**	-0.182
	(0.0136)	(0.0181)	(0.0236)	(0.0383)	(0.108)	(0.146)
NNMATCH	-0.0116	-0.0001	0.00282	-0.0137	0.0638	0.105
	(0.0135)	(0.0163)	(0.0268)	(0.0360)	(0.107)	(0.147)
PSM + CEM	-0.00457	0.0208	0.0237	-0.00372	-0.124	-0.124
	(0.0125)	(0.0160)	(0.0253)	(0.0403)	(0.115)	(0.163)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
NNMATCH reports the results from the nearest neighbor matching proposed by Abadie and Imbens (2006). PSM + CEM reports the results from the propensity score matching combined with the coarsened exact matching.

Table 14: Fixed effect estimation: the extensive margin on FDI in year $t+1$

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Extensive margin on FDI						
Treatment	0.0928***	0.0331**	-0.0131	0.0235*	-0.00172	0.0136
	(0.0288)	(0.0133)	(0.0339)	(0.0134)	(0.0274)	(0.0134)
Observations	244,440	244,440	244,440	244,440	244,440	244,440
R-squared	0.407	0.861	0.086	0.908	0.493	0.909
Firm-year FE	YES			YES	YES	YES
Destination-year FE			YES		YES	YES
Firm-destination FE		YES		YES		YES

Clustered robust standard errors at the firm level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 15: DID with propensity score matching: outsourcing

Outcomes:	**Logistics outsource**			**Market-research outsource**		
	(1)	(2)	(3)	(4)	(5)	(6)
		Period			Period	
Methodology	t	t+1	t+2	t	t+1	t+2
PSM	-0.00926	0.0166	-0.0365	0.0255**	0.0399*	-0.00521
	(0.0170)	(0.0233)	(0.0339)	(0.0129)	(0.0226)	(0.0275)
NNMATCH	-0.0187	-0.0118	0.0165	-0.00296	0.0300*	0.0232
	(0.0176)	(0.0253)	(0.0340)	(0.0111)	(0.0173)	(0.0269)
PSM + CEM	-0.0133	0.0106	-0.00231	0.00725	0.0405***	0.0573**
	(0.0140)	(0.0205)	(0.0309)	(0.00971)	(0.0156)	(0.0229)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
NNMATCH reports the results from the nearest neighbor matching proposed by Abadie and Imbens (2006). PSM + CEM reports the results from the propensity score matching combined with the coarsened exact matching.

Table 16: DID with propensity score matching: outsourcing (small)

Outcomes:	**Logistics outsource**			**Market-research outsource**		
	(1)	(2)	(3)	(4)	(5)	(6)
		Period			Period	
Methodology	t	t+1	t+2	t	t+1	t+2
PSM	-0.0340	0.00595	0.00935	0.0213	0.0655**	0.0935***
	(0.0213)	(0.0307)	(0.0516)	(0.0160)	(0.0256)	(0.0336)
NNMATCH	-0.0147	0.0265	0.0465	0.00146	0.0436**	0.0614*
	(0.0237)	(0.0329)	(0.0444)	(0.0153)	(0.0221)	(0.0333)
PSM + CEM	-0.0380*	0.0400	0.0251	0.00962	0.0560**	0.0817**
	(0.0201)	(0.0258)	(0.0470)	(0.0118)	(0.0219)	(0.0369)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
NNMATCH reports the results from the nearest neighbor matching proposed by Abadie and Imbens (2006). PSM + CEM reports the results from the propensity score matching combined with the coarsened exact matching.

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Table 17: DID with other matching methods

Outcome:	**Export dummy**			**Log(export values)**		
	(1)	(2)	(3)	(4)	(5)	(6)
		Period			Period	
Methodology	t	t+1	t+2	t	t+1	t+2
NNMATCH	0.0338**	0.0789***	0.0962***	0.143**	0.0573	0.339***
	(0.0148)	(0.0211)	(0.0293)	(0.0578)	(0.0975)	(0.124)
PSM + CEM	0.0498***	0.0991***	0.0983***	0.0611	0.186**	0.293***
	(0.0124)	(0.0200)	(0.0279)	(0.0432)	(0.0796)	(0.0861)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
NNMATCH reports the results from the nearest neighbor matching proposed by Abadie and Imbens (2006). PSM + CEM reports the results from the propensity score matching combined with the coarsened exact matching.

Table 18: Number of repeaters in the firm-year observation sample

# of trade fairs attended during the sample by a firm	# Observations
1	202
2	103
3	38
4	31
5	16
6	13
7	6
8	7
9	7
10	4
11	2
12	1
13	2
14	1
17	1
Total	434

Table 19: DID with several matching methods: firms attending only once during 2012-2017

Outcomes:	**Export dummy**			**Log(export values)**		
	(1)	(2)	(3)	(4)	(5)	(6)
		Period			Period	
Methodology	t	t+1	t+2	t	t+1	t+2
PSM	0.0351*	0.0792**	0.121**	0.0881	0.0274*	0.0361
	(0.0193)	(0.0311)	(0.0493)	(0.0774)	(0.157)	(0.244)
NNMATCH	0.0421*	0.200**	0.445	0.161**	0.249*	-4.798
	(0.0223)	(0.099)	(0.330)	(0.081)	(0.134)	(4.798)
PSM + CEM	0.0425**	0.103***	0.148***	0.0476	0.127	0.153*
	(0.0192)	(0.0290)	(0.0540)	(0.0711)	(0.0916)	(0.0909)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
NNMATCH reports the results from the nearest neighbor matching proposed by Abadie and Imbens (2006). PSM + CEM reports the results from the propensity score matching combined with the coarsened exact matching.

Table 20: DID with several matching methods: firms without other JETRO services

Outcomes:	**Export dummy**			**Log(export values)**		
	(1)	(2)	(3)	(4)	(5)	(6)
		Period			Period	
Methodology	t	t+1	t+2	t	t+1	t+2
PSM	0.0391**	0.0781***	0.0494	-0.0725	0.188*	0.626***
	(0.0186)	(0.0277)	(0.0341)	(0.0863)	(0.107)	(0.239)
NNMATCH	0.0319	0.0836***	0.118**	-0.0249	-0.0709	0.233
	(0.0210)	(0.0284)	(0.0501)	(0.112)	(0.195)	(0.240)
PSM + CEM	0.0374**	0.0728***	0.0634*	0.0463	-0.00213	0.342**
	(0.0158)	(0.0258)	(0.0357)	(0.0769)	(0.118)	(0.160)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
NNMATCH reports the results from the nearest neighbor matching proposed by Abadie and Imbens (2006). PSM + CEM reports the results from the propensity score matching combined with the coarsened exact matching.

Table 21: Fixed effect estimation in year $t+1$ with placebo-region

Variable	(1)	(2)	(3)	(4)	(5)	(6)
			Extensive margin			
placebo treat	-0.0518**	0.0399**	0.0235	-0.0311*	-0.0455**	-0.0295*
	(0.0234)	(0.0190)	(0.0403)	(0.0165)	(0.0228)	(0.0165)
Observations	244,440	244,440	244,440	244,440	244,440	244,440
R-squared	0.451	0.792	0.125	0.851	0.575	0.851
Firm-year FE	YES			YES	YES	YES
Destination-year FE			YES		YES	YES
Firm-destination FE		YES		YES		YES

Clustered robust standard errors at the firm level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 22: Fixed effect estimation in year $t+1$ with placebo-timing

Variable	(1)	(2)	(3)	(4)	(5)	(6)
			Extensive margin			
Treatment in t	0.176***	0.105***	0.103***	0.0576***	0.0705***	0.0495**
	(0.0250)	(0.0239)	(0.0281)	(0.0211)	(0.0239)	(0.0211)
Treatment in $t+1$	0.147***	0.0560***	0.0403*	0.0176	0.0264	0.0105
	(0.0201)	(0.0199)	(0.0235)	(0.0153)	(0.0187)	(0.0154)
Treatment in $t+2$	0.160***	0.0293	0.0249	0.0113	0.0263	0.00694
	(0.0253)	(0.0199)	(0.0305)	(0.0166)	(0.0243)	(0.0166)
Observations	244,440	244,440	244,440	244,440	244,440	244,440
R-squared	0.452	0.792	0.125	0.851	0.575	0.851
Firm-year FE	YES			YES	YES	YES
Destination-year FE			YES		YES	YES
Firm-destination FE		YES		YES		YES

Clustered robust standard errors at the firm level in parentheses
*** p<0.01, ** p<0.05, * p<0.1