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The Impact of Export Promotion with Matchmaking on Exports and Service Outsourcing (Revised)

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Abstract

The paper analyzes the effects of support for 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 into the service, I utilize a difference-in-differences matching estimation approach with unique firm characteristics, as well as a linear estimation approach with multiple fixed-effects. The results show that there are positive effects of attending trade-fairs on exporting status. Furthermore, attending a trade fair induces firms to outsource their market research activity.

Keywords: International trade; Export Promotion; Trade fairs; Service outsourcing
JEL classification: D22, F13, F14, F23, L53

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1 Introduction

Information is essential in the market economy for facilitating transactions between sellers and buyers. The same is true in trade fairs, which can be regarded as a miniature of the market economy. Trade fairs originated in on-the-spot markets after public worship in a church in medieval Europe and there have now been 31,000 fairs, 4 million attending firms, and 260 million participants around the world by 2012 according to the Global Association of Exhibition Industry (UFI). Many export promotion agencies (EPAs) encourage firms to attend such fairs. For example, the Department for International Trade in the United Kingdom, the Korea Trade-Investment Promotion Agency in South Korea, and the Japan External Trade Organization (JETRO) in Japan play such a role and expect trade fairs to invigorate firms by facilitating effective meetings between sellers and buyers.

However, the value of such information inside the markets is difficult to establish empirically, because it is essentially unobservable. Does information distributed in the market promote transactions among participants? If so, how much? Does export promotion by supporting a firm to attend trade fairs influence the firms exporting behavior? These questions are important not only for firms in trade fairs trying to globalize their business, but also for many other domestic firms and EPAs. Moreover, the questions are fundamental for understanding the market economy, because information is an essential part of it.

With these motivations, the objective of this study is to empirically investigate the value of information inside markets using observable measures of information transmission. For this purpose, this paper analyzes the causal effects of attending trade fairs and its support program by EPAs on a firms export behavior, foreign direct investment (FDI), and service outsourcing utilizing Japanese firm-level data on trade-fair participation provided by JETRO. An obvious concern with analyzing causal effects is self-selection into attending trade fairs through the EPAs support program. The treatment includes (a) using export promotion service from EPAs and (b) choosing particular support for attending trade fairs among other services (e.g., information provision on foreign markets). Firms using trade-fair support tend to be relatively more prepared to globalize their business than those using other services; therefore, self-selection in my context could be more serious than other existing studies on export promotion.

In this study, I address this problem by exploiting difference-in-differences (DID) matching estimation and fixed effect estimation approaches. Although these methods have been used in existing studies, this study has several advantages. First, it evaluates detailed firm-level characteristics using the DID-matching procedure. To balance the observable characteristics between the treatment

and control groups, I include proxies for the intention to globalize a firms business and for firm-year demand shocks from foreign markets. The former proxy particularly helps me to find a better control group in the context that firms in the treatment group decide to use export promotion programs and select particular support for attending trade fairs among other services. Second, I implement fixed-effect estimations using firm-destination region-year information on export performance and trade fairs. This approach allows me to absorb all observable and unobservable characteristics on firm-year, firm-region, and region-year pairs. In addition, I apply an econometric approach of the coefficient stability proposed by Oster (2019), which allows me to check the robustness of my fixed-effect estimates against unobservable factors. Third, by combining data on firms foreign affiliates, I estimate the treatment effects for the sub-sample with firms having foreign affiliates. I expect fewer self-selection concerns because the firms should be more homogeneous in terms of unobservable characteristics affecting both treatment and exports.

Using these approaches, I find that attending a trade fair raises the probability of exporting by 9.6 percentage points during the year after attending the fair. Furthermore, firms increase their export values by 25.4% during the year after participating. Similar results occur when using the fixed-effect estimation approach and when focusing on the sub-sample with fewer self-selection concerns. In terms of other business activities, I find an increase in market-research outsourcing by 4-5 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 the literature on export promotion policies. A recent trend in the literature has been to use firm-level data on both the use of trade promotion services and exports.[1] Among others, studies by Volpe Martincus and Carballo (2010), Broocks and Van Biesebroeck (2017), and Munch and Schaur (2018) are 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). However, 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. This analysis is important because promoting FDI and outsourcing comprises additional goals for an EPA.

In terms of methodology, I follow the approaches utilized in the extant literature, especially that of Munch and Schaur (2018), who use the DID-matching estimation method and the fixed-

[1]There are studies that use country- or industry-level data, such as Bernard and Jensen (2004), Head and Ries (2010), and Ferguson and Forslid (2019). In the context of Japan, see Hayakawa, Lee, and Park (2014).

effect estimation method. Compared to them, my analysis utilizes a unique covariate among others to balance the treatment and control groups, namely the share of employees in the international business division. This is designed to mitigate concerns of self-selection because firms with 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 the econometric approach of the coefficient stability and a placebo test that adds lead-treatment variables.

Apart from the effect of export promotion policies on exports, several studies investigate 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 Berlingieris (2015) 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 many existing papers utilize data from developing countries (e.g., Volpe Martincus and Carballo 2010c for Uruguay; Volpe Martincus et al. 2011 for Argentina; Volpe Martincus and Carballo 2008 for Peru; Volpe Martincus and Carballo 2010d for Chile; Volpe Martincus and Carballo 2010a 2010b for Costa Rica; and others), those from developed countries are limited. [2] Some exceptions include Munch and Schaur (2018) for Denmark, Broocks and Van Biesebroeck (2017) for Belgium, and Van Biesebroeck et al. (2015) for Canada. 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 second language with other neighboring 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.

The remainder of this paper is organized as follows. Section 2 briefly explains the background of trade fairs and the Japanese EPA. Section 3 introduces the empirical approaches used for firm-level analysis. After clarifying the datasets in Section 4, Section 5 shows the firm-level and the firm-market level results. Section 6 provides several robustness checks. Finally, Section 7 offers some concluding thoughts.

[2] I discuss on the literature in more detail in Makioka (2019).

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

2 Background

According to the UFI, the global association of the worlds leading trade-show organizer and fair-ground 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].

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

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.[5] 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 in 2019 is about $400 million, 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 support comprises, for example, providing information on domestic and foreign trade fairs, partially subsidizing participation fees, helping with decoration and cleaning for a firms booth in a fair, and advertising firm products for trade fairs. They also constantly organize business matchmaking events and provide opportunities for Japanese firms to meet potential foreign buyers. The rest of the paper analyzes the impact of this support on firm exports, FDI, and service outsourcing.

[4]See UFI (2019). Although 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 I label both of them as trade fairs.

[5]The Organization for Small & Medium Enterprises and Regional Innovation (2017) takes a survey of EPAs in Japan. Out of 10,866 small and medium-sized firms that responded to the questionnaire, 70.4% (7,651 firms) recognize JETROs export promotion services, and 18.3% (1,998 firms) have ever used their services, both of which are the top numbers among all EPAs in Japan. For other agencies, export promotion services by the Chamber of Commerce and Industry/the Society of Commerce and Industry (Shoko Kai / Shoko Kaigi Sho in Japanese) are recognized by 65.0% and have ever been used by 14.6%, and those by the Japan International Cooperation Agency (JICA) are recognized by 62.5% and have ever been used by 3.5%. The remaining agencies include commercial banks, embassies, trading companies, private consulting firms, etc., all of which constitute a smaller percentage.

2.1 Theoretical mechanism

The heterogeneous firm trade theory by Melitz (2003) and Chaney (2008) specifies that 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 firms can begin exporting to foreign markets if 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, using Belgian data, find 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 based on the theory of service outsourcing by Berlingieri (2015), who constructs a model of a firm that has to coordinate all tasks in order to produce and sell products. These tasks can be either insourced within the firm or outsourced from an external supplier depending on the level of their market prices and costs for adapting them in the production process. Then, Berlingieri (2015) shows that adding additional tasks, such as an extra export opportunity, raises the coordination and adaptation costs of these service tasks within the firm, resulting in more outsourcing of the tasks. Therefore, attending a trade fair can increase service outsourcing.

3 Empirical Methodology

3.1 Firm-level analysis

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 through an EPAs support hides the true treatment effect. To address this problem, I rely on the 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 ($k \in$Treat,Control) represents an outcome variable for firm i in group k. Using 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 through an EPAs support) 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 further in Section 4.

To perform 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 year t but do not attend them in year $t-1$. On the other hand, the control group is composed of firms not attending trade fairs during years $t-1$ and t.

4 Data

The regression analysis is conducted primarily by merging two datasets. The first dataset is the 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 regional level, but not at the country level. The 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 that satisfy both (1) more than 50 employees and (2) more than 30 million yen (approximately 350 thousand

USD in 2012) capital.[6]

The second dataset is provided by JETRO, a list of firms that attend 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-region-year observations used for fixed-effect estimation analysis. [7] The number of observations in the raw data before aggregating (i.e., firm-trade fair pairs) is 5,547. [8]

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 same information is also represented in Figure 1. The 5,547 observations comprise 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 this period. Figure 2 shows the number of observations per year. The attendance number at trade fairs through JETROs support increases by about seven times over the sample period.[9] Additionally, Figure 3 presents the number of observations in each country. There are 33 countries attended by Japanese firms supported by JETRO. Trade fairs occur most frequently in Japan, and those in other Asian countries are also popular (e.g., Hongkong, Thailand, Taiwan, etc.). This suggests that attending a trade fair follows the law of gravity.

I merge the JETRO data with BSJBSA to construct the firm-year observation data for the DID analysis. The data are 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 ob-

[6]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 classified elsewhere.

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

[8]Although 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 subsample of firms that are less likely to use JETRO service other than trade fairs, that is, those that do not report any usages of service-outsourcing in the BSJBSA. I find a result similar to that of the main one, as reported in Section 6.

[9]This surge should be mostly because of a series of new initiatives in Japan that tried to promote internationalization especially for small and medium-sized firms and that in the agriculture, forestry, fisheries, and food sectors. For example, the central government established a large package of promoting overseas expansion by small and medium-sized firms (Chushokigyo Kaigaitenkai Shien Taiko in Japanese), which tried to strengthen a support system of their internationalization by JETRO and other institutions. Similarly, there was also another growth strategy, the Japan Revitalization Strategy, established in 2013 where the government set a goal of increasing exports of agriculture, forestry, fisheries, and food products from about 450 billion yen (approximately 430 million US dollars) in 2012 to 1 trillion yen (approximately 1 billion US dollars) in 2020. JETRO played one of the largest roles in achieving this goal by increasing the matching opportunities with potential foreign buyers.

servations in the treatment group.[10] Although the number of matches appears slightly smaller than the original number of JETRO observations, the matching percentage is actually about 80% after I focus on observations satisfying the BSJBSA survey criteria on the minimum number of employees and minimum capital.

In an additional analysis, I merge the matched data with the information on Japanese foreign affiliates from Basic Surveys on Overseas Business Activities (BSOBA) provided by METI.[11] The data provide information on whether a firm has foreign subsidiaries in each region and how many employees these foreign subsidiaries have. This allows me to focus on the sub-sample of firms with 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 the 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 that have 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 have not attended a trade fair. Additionally, firms in the treatment group are likely to participate in export activities in terms of both extensive and intensive margins compared with those of the control group. Furthermore, those in the treatment group are more active in FDI and service outsourcing in foreign countries.[12] These statistics motivate me to use the matching method to construct an appropriate control group.

The main outcome variable in the DID matching approach is exporting status (i.e., an indicator variable of exporting) because it is one of the main objectives of trade fairs and JETRO. Additionally, I implement regressions for export values, service outsourcing, FDI status, and the number of employees in foreign affiliates. As part of robustness checks, I use the information on exports to firms related companies as other outcome variables. A firms related companies include its parent company (i.e., another firm that has more than 50% of the firms voting rights), its main subsidiaries (i.e., other firms more than 50% of whose voting rights are owned by the firm), and its other subsidiaries (i.e., other firms 20% to 50% of whose voting rights are owned by the firm). The BSJBSA collects the value of exports to a firms related companies for each region as well as the total export values. 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.

[10] 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 to a sector with some treatment firms.

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

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

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

$$\mathrm{SH}_{it} = \sum_{k \in \Omega_{it}} s_{ikt-1} \frac{M_{kt} - M_{kt-1}}{M_{kt-1}}, \tag{2}$$

where Ω_{it} is the set of industries in which 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 in year t across the world, excluding Japan.[13] The variable controls for 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 firms headquarters. The BSJBSA collects information on the number of employees in each division within a firms headquarters. The international business division is a department that manages trade operations and foreign affiliate businesses in a firm. Because trade operations include not only actual transactions and their aftercare but also the preparation for the transactions, the positive share of employees in the division can be either lead or lag variables of a firms starting exports. Among 1,323 firms that had not exported in years $t-2$ and $t-1$ but started exports in year t, 14.5% already had employees in the international business division in year t, while the remaining 84.5% do not have employees in the international business division in year t.

On the other hand, among the remaining 75,362 firms that had not exported in all the years ($t-2$, $t-1$, and t), only 3.7% of them had employees in the international business division in year t. Hence, the (lag) share variable should reflect a firms intention to globalize its business, irrespective of whether the share is lead or lag variables of starting exports. Controlling for the variable is therefore expected to give unbiased estimators by absorbing unobservable factors affecting both export and trade-fair participation decisions.

Apart from these two explanatory variables, I also include the log total sales, export and import intensities (i.e., the share of exports and imports out of total sales, respectively), and export and import status in the previous year in order to balance out characteristics potentially affecting both

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

firms export behavior and trade fair attendance with JETROs support. For instance, it is known that there are sunk costs of exports and, therefore, exporting history affects the current exporting decision (Roberts and Tybout 1997). In addition, the characteristics of factor usages should be correlated with both firms exporting behavior and trade fair attendance. Therefore, I include the number of employees, the share of employees in the business planning division, capital stock, total wage payment, and total expenditure on intermediate inputs in the previous year. Not only are these lag variables, but I also include their trend variables, that is, the change from years $t-2$ to $t-1$, in order to satisfy the common trend assumption.[14]

5 Results

5.1 Results: firm-level performance

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 in year $t-1$ and the change from year $t-2$ to $t-1$, including proxies for a firms intention to globalize its business and a firm-year specific demand shock. The results are shown in Table 3.

As can be seen in the first column, firms with more employees, more sales, and export experiences over the last year, and older firms are more likely to participate in trade fairs. More importantly, firms with a larger share of employees in the international division and those with larger demand shocks are more likely to attend. This implies that balancing these two variables enables me to account for unobservable differences between the treatment and control groups. Columns 3 and 4 show the average of each variable for the treatment and control groups, respectively, and columns 5 to 7 show the percentage difference in the values, t-statistics for the equality of mean, and its p-value. 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.

I also execute the probit estimation for the sample of firm-region-year observations, which will

[14]Since my PSM-DID approach focuses on the sample of firms not attending a trade fair in year $t-1$, the trade-fair status in the previous year is balanced between treatment and control groups. However, in contrast to Munch and Schaur (2018), I do not include a dummy variable on attending trade fairs in year $t-2$. This is mainly because of the small number of treatment observations in my data. In the later section, I provide results with the sample of firms that attend a trade fair only once during the sample period.

later be used for the firm-destination analysis. Although it is not directly used for the DID-matching estimation, the result offers a sharp contrast between the determinants of attending trade fairs with JETROs support in Japan and those in foreign countries. The results are presented in Table 4. The first and second columns show the results of the probit estimation on a dummy variable of participating in trade fairs in Japan. The third and fourth columns, on the other hand, are the results of the same probit estimation but using a dummy variable of attending trade fairs in foreign countries. Although most of the estimates have similar signs and magnitudes as those of the firm-year observation data in Table 3, 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 with 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 firms that are prepared to incur large costs participate in foreign trade fairs.

5.1.2 Results on firms' exports

Given the estimates of the propensity score, I now present the results of the DID-matching estimation presented in equation (1). The first row in Table 5 shows the results for the full sample, the second row shows those for the sub-sample of small firms, the third row shows those for large firms, the fourth row shows the results for firms without any workers in the international division in year t, and the final row shows those for firms with workers in the international division in year t. Small (large) firms are defined as those with less (more) than 110 employees in 2011. The threshold is approximately the median value of the variable. The first and fifth columns show results in year t (the same year as attending a trade fair), the second and sixth columns are those in year $t+1$, the third and seventh columns are those in year $t+2$, and the remaining columns show the number of firms used in the estimation.

As can be seen in the first column of the top panel, firms that attend trade fairs increase their probability of exporting by 2.1 percentage points during year t compared with those in the control group. Additionally, the positive effect tends to be greater for one to two 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 effect (9.6 percentage points in year $t+1$, for example) is the difference in the average change in exporting status between treatment and control groups by definition. The num-

ber actually comprises a 3.5 percentage-point increase in the exporting probability for the treatment group and a 6.1 percentage-point decrease in the exporting probability for the control group.[15] This implies that the effects of attending trade fairs come from the combination of an increase in entry into foreign markets for non-exporting firms and a decrease in exit from foreign markets for incumbent exporting firms.

The magnitudes of these coefficients are in line with the findings in the literature. For example, Munch and Schaur (2018), using the DID matching estimation with Danish data on exports and export promotion services, find that receiving an export promotion service from the Danish Trade Council raises the probability of exporting by 1.4 percentage points during year t for firms with more than 50 employees (Table 3 in their paper). Furthermore, using a partner-search and matchmaking service, similar to support for attending a trade fair, raises the probability of exporting by 5.5 percentage points during year t for firms with one to 20 employees (Table 6 in their paper). Similarly, Broocks and Van Biesebroeck (2017), using probit estimation of Belgian data, find that receiving an export promotion service raises the probability of participating in an export market by 3.5 percentage points for firms with more than 20 employees.

In addition to the effects on the extensive margins of exports, there may also be some effects on their intensive margin.[16] For example, column 6 in the top panel shows that the value of exports increases as a result of attending trade fairs by 25.4% during year t+1. The magnitude of the effect seems to be comparable to that obtained by Munch and Schaur (2018). Their DID-matching estimation finds a 12.0% increase in export values in year t+1 for firms with 20 to 50 employees.[17] Additionally, when focusing on a partner-search and matchmaking service, their estimate gives a 16.9% increase in export values during year t+1 for firms with one to 20 employees. Furthermore, Van Biesebroeck et al. (2015), using the fixed-effect estimation with Canadian data, find that receiving export promotion services increases a firms export value by 9.8-18.5%.

Table 6 shows the results from the same DID-matching regressions but using exports to the firms related companies in foreign countries (i.e., a parent company, main, and other subsidiaries, as explained in Section 4). This is part of robustness checks, because attending trade fairs is expected to reduce information asymmetry across sellers and buyers, and thus does not affect exports to related

[15]The change in exporting status for treated firms is calculated as a 3.5 percentage-point (i.e., 61.58% in year $t+1$ minus 58.06% in year $t-1$, the latter of which is reported in Table 2), obtained from the data. Since the ATT of a 9.6 percentage-point is the difference in this change for the treatment group and that for the control group, the change in exporting status for control firms is a 6.1 percentage-point.

[16]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.

[17]Munch and Schaur (2018) also tend to obtain insignificant estimates on the intensive margin of exports, like mine, for some specifications, such as coefficients in year t, $t+1$, and $t+2$ for firms with more than 50 employees.

companies. As expected, I do not find notable effects of attending trade fairs on these activities.

5.1.3 Results for different sub-samples

The results reported above are average effects and hence can mask heterogeneous impacts among firms in the treatment group. To investigate heterogeneity, the same regression is implemented for the sub-samples. The results are shown in the second to fifth rows in Table 5. As shown in the second and third rows, the effect of trade fairs on the extensive margin is mostly greater for small firms than for large firms. For example, attending trade fairs raises the probability of exporting in year $t+1$ by 8.9 percentage points for small firms, while the same effect is only 4.5 percentage points for large firms. This pattern is consistent with our intuition that small firms suffer more from large sunk costs for globalizing their business due to information asymmetry, and therefore the effect of trade fairs is greater for them.

In contrast, the effect of trade fairs on the intensive margin is mixed. For instance, attending trade fairs raises the value of exports in year $t+1$ by 42.0% for small firms, while the corresponding number for large firms is -3.7% and the effect is statistically insignificant. The larger and more significant estimates for small firms could be because exporters encounter large fixed costs to enter foreign markets, which is hard to be incurred especially by small firms. Therefore, the support from JETRO is more effective for them. Note that the sub-sample analysis with a change in log variables as an outcome consists of a small number of treated firms, for example, 76 treated small firms in year $t+1$, and thus the estimates can be somewhat unstable.

The fourth and fifth rows show that the positive effect of trade-fair support on the extensive margin tends to be larger for firms without employees in the international division than those with employees in the division. For example, attending trade fairs with support from JETRO raises the probability of exporting in year $t+1$ by 8.1 percentage points for firms without employees in the international divisions, while it does not show a statistically significant effect for firms with employees in the divisions. This pattern suggests that attending trade fairs with JETROs support plays a similar role as having their employees in the international division to reduce export fixed costs. The results on the intensive margin of exports are insignificant for both sub-samples, consistent with the unstable results from the sub-sample of small and large firms.

Table 7 shows a sub-sample analysis for firms with (or without) affiliates in a foreign country. Because firms without foreign affiliates are likely to have less information on foreign markets, I expect a greater positive effect of trade fairs among them. This is actually the case when comparing

the first and second rows of Table 7. In particular, while attending trade fairs raises the probability of exporting by 4.1 percentage points in year $t+1$ for firms with foreign affiliates, the effect is 11.8 percentage points for those without foreign affiliates in the corresponding years.

5.1.4 Results on FDI and service outsourcing

This subsection reports the effect of attending trade fairs with JETROs support on FDI and service outsourcing. As I mentioned in Section 2, there could be a complementarity between exports and other business activities, such as establishing foreign affiliates and service outsourcing. Table 8 shows the result of FDI using the DID-matching approach (first row) and other matching methods (second and third rows). The first three columns show the effect on having foreign affiliates measured by a dummy variable being equal to 1 if a firm has a foreign affiliate, while the fifth to seventh columns show the effect on the number of employees in a firms foreign affiliates. As the table shows, there are no clear patterns on the activities of foreign affiliates. While the two specifications provide significant coefficients (i.e., the positive coefficient on the number of employees in foreign affiliates in year t+2 from the nearest-neighbor matching with the Mahalanobis distance, and the negative coefficient on the same outcome variable in year $t+1$ from the PSM combined with coarsened exact matching [CEM]), they have the opposite signs and all other specifications show insignificant coefficients. Therefore, the coefficients should not be conclusive. This lack of the effect of attending trade fairs with JETROs support for FDI could be partly because of a limited time lag between treatment and these outcomes. Conconi et al. (2016), for example, show that 74% of all FDI entries by Belgian manufacturing firms start investing in a foreign country after at least a 5-year experience of exporting in that country.

Compared to the activities of foreign affiliates, service outsourcing should require a shorter period before reaping the effects of trade fairs. Table 9 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.[18] Two things are worth mentioning in the results. First, firms that attend trade fairs tend to increase their probability of market research outsourcing by 4.1-5.1 percentage points in year $t+2$. Second, logistics outsourcing does not show a noticeable pattern after attending trade fairs. These results are consistent with Berlingieris (2015) empirical results, where he shows that the number of firms export destination countries is related more positively to

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

its advertising outsourcing than to its transportation service and logistics outsourcing (e.g., packaging and transportation).

Once I focus on small firms that should be more constrained by their own management resources, the results are sharper and stronger, as shown in Table 10. In particular, small firms that attend trade fairs with JETROs support increase the probability of using market-research outsourcing by 4.1-7.8 percentage points in years $t+1$ and $t+2$. These results are consistent with Berlingieris (2015) prediction that adding additional tasks, such as an extra export opportunity in my case, increases the coordination and adaptation costs of service tasks, thus increasing the incentive to outsource a task.

5.2 Results: Firm-region level performance

The analysis using the DID-matching approach relies on a variation in trade-fair attendance and outcome variables across firms with similar observable characteristics. Therefore, it does not provide the heterogeneous effect of attending trade fairs in different export markets. In addition, the DID-matching approach does not control for firm-year-specific unobservable factors, such as changes in firm productivity. In fact, a change in productivity can affect both exporting behavior and trade-fair participation, thus causing an endogeneity problem.

To address the potential endogeneity problem and investigate heterogeneous effects across export markets, I adopt a fixed-effect estimation by utilizing information on export destination regions and those holding trade fairs. This approach allows for the inclusion of fixed effects, including firm-year, firm-region, and region-year. For example, the firm-year fixed effect 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 for the fixed-effect estimation approach is,

$$Y_{ijt} = \beta \text{Treatment}_{ijt} + \gamma_{it} + \eta_{jt} + \delta_{ij} + \epsilon_{ijt}, \tag{3}$$

where Y_{ijt} is an outcome variable for firm i in region j in year t, and $Treatment_{ijt}$ is a dummy variable equal to 1 if firm i attends a trade fair in region j during year t. γ_{it}, η_{jt}, and δ_{ij} are firm-year, region-year, and firm-region paired fixed effects, respectively. For example, the firm-year fixed effect γ_{it} controls for all observable and unobservable characteristics specific to the firm-year, such as their time-variant productivity and the number of employees. Similarly, the region-year fixed

effect controls for all observable and unobservable factors specific to the region-year, such as a rise in demand in the region. Finally, the firm-region fixed effect δ_{ij} takes into account all observable and unobservable time-invariant variables specific to the firm-region combination (e.g., a pre-existing business connection of the firm to a destination region). Therefore, the identification of the key parameter, β, comes from a variation of treatment and outcome variables over time within the firm-region while absorbing firm-year and region-year differences.

In the fixed-effect approach, the sample comprises firms in the dataset during all periods (i.e., a balanced panel from 2009 to 2016 including zero export values) and those having experience with exports at least once during the sample period.

5.2.1 Results with the market-specific treatment

The results of the extensive margin using fixed-effect estimation are shown in Table 11.[19] The first two columns show the results on exporting status in year t, the third and fourth columns show the results in year $t+1$, and the fifth and sixth columns show those in year $t+2$. In addition, the results in odd columns are derived from the regression with the firm-year and region-year fixed effects, and those in even columns are from the regression with the fixed effects of firm-year, region-year, and firm-year. The latter group has my preferred specifications.

As can be seen in Table 11, attending a trade fair with JETROs support in a particular region increases the probability of exporting to that region, especially in a year after attending trade fairs. For example, column 4 in the top panel shows an increase in the probability of exporting in year $t+1$ by 5.0 percentage points for firms that attend trade fairs. The size of the coefficient is broadly comparable to those of Table 5 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 effects in years t and $t+2$ are positive but tend to be statistically insignificant. For example, while column 1 shows the positive and statistically significant effect of attending trade fairs on exporting status in year t, columns 2, 5, and 6 provide positive but insignificant results. This could be partly because the effect of attending trade fairs takes time to come out, as observed in Broocks and Van Biesebroeck (2017); hence the effect showing up in year t+1 or later. Simultaneously, the effect of trade fairs may also not last long according to the finding by Cadot et al. (2015), who show that the benefit of export promotion becomes no longer significant three years after the support. Therefore, my results are consistent with these findings in the literature.

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

The positive effect on the extensive margins of exports is also generally obtained among subgroups. I provide results on the fixed-effect estimation with the interaction term for subgroups in the second and third panels of Table 11. For example, the second panel shows that large firms that attend a trade fair increase the probability of exporting by 7.1 percentage points during year t+1. In addition, the third panel provides results for firms with foreign affiliates in the destination region. The dummy variable of having a foreign affiliate is equal to 1 for a firm-region-year observation if a firm has a foreign affiliate in a particular region in the year. If a firm has a foreign affiliate in the year but not in the corresponding region, the dummy variable is 0 in the firm-region-year observation. Consistent with the results thus far, 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 for those with foreign affiliates, as suggested by the statistically significant negative coefficients on the interaction term in columns 4 and 6. This should be because firms without foreign affiliates face larger costs of exporting than firms with foreign affiliates.

However, most estimates from the fixed-effect approach seem to be slightly smaller than those obtained from the DID-matching approach. This is probably because the fixed-effect estimation additionally controls for time-invariant firm-region, firm-year, and region-year specific effects, thus increasing precision. Furthermore, the DID-matching estimations investigate the effects of attending a trade fair on aggregate exports, including regions other than the region holding the trade fair, because the data are aggregated into a firm-year level, whereas the fixed-effect estimation using the firm-region-year data analyzes a pair-specific effect.

The results of the intensive margin, in contrast, seem to be slightly unstable. Table 12 shows the results on the effect of trade fairs on export values using the Poisson pseudo-maximum likelihood (PPML).[20] The PPML estimation approach allows us to include zero export values without taking logarithms. The outcome variable in the first two columns indicates export values in year t, the one in the third and fourth columns indicates export values in year $t+1$, and the one in the last two columns indicates export values in year $t+2$. As shown in the table, the effects of trade fairs are positive and statistically significant for years t and $t+2$ when I use only the firm-year and region-year fixed effects. Once I add the firm-region fixed effect, the treatment effect becomes smaller and insignificant, suggesting no effect of trade fairs on the intensive margin of exports. Therefore, I focus on analyses of the extensive margin in the fixed-effect estimation.

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

Although the estimates on the extensive margins are obtained under the currently available, most disaggregated data in Japan (i.e., firms exports to each region), it is still concerning that firm-country-specific components affect both firms export behavior and their use of support for trade fair attendance, thus potentially biasing the estimates. Munch and Nguyen (2014) show that firm-country-specific heterogeneity, such as demand shock, plays an important role in explaining the variation in a firms export sales. To mitigate the concern and derive the bias-adjusted estimates, I apply Osters (2019) methodology that evaluates the robustness of estimates against unobservable factors, under the assumption that the selection on unobservables is proportional to the selection on observables.[21] In other words, the idea of her methodology is that we can infer the robustness of estimates against unobservable factors by checking (a) the movement of the estimates after adding extra observable explanatory variables and (b) the quality of the added explanatory variables, measured by a change in R-squared.

The bias-adjusted coefficient on the treatment effect β is approximately

$$\beta^* = \tilde{\beta} - \delta[\beta^\circ - \tilde{\beta}]\frac{R_{max} - \tilde{R}}{\tilde{R} - R^\circ}, \tag{4}$$

where β, $\tilde{\beta}$, and β° are estimates of the effect of attending a trade fair on exporting status, obtained from a regression with all explanatory variables including both observable and unobservable variables, with all observable variables including firm-region fixed effects, or with observable variables without the firm-region fixed effects. R_{max}, $\tilde{R}$, and R° are R-squareds in each regression specification. δ denotes a parameter on the proportional selection relationship: $\delta\frac{\sigma_{To}}{\sigma_o^2} = \frac{\sigma_{Tu}}{\sigma_u^2}$, where σ_{To} and σ_{Tu} are the covariances between the treatment variable and observable control variables, and between the treatment variable and unobservable variables, respectively. σ_o^2 and σ_u^2 are the variances of the observable and unobservable covariates, respectively. Unobservable components on the right-hand side of equation 4 are the proportional selection parameter δ and the R-squared achieved with all observable and unobservable explanatory variables R_{max}.

In the current analysis, I assume $\delta = 1$ and $R_{max} = 1$, where the former assumption suggests that the observable variables (i.e., the firm-year, region-year, and firm-region fixed effects) are at least as important as the unobservable variable (e.g., firm-country-year specific demand shocks). The reason to favor this assumption is that the effect of unobservable factors is residualized with respect to the firm-year, region-year, and firm-region fixed effects; therefore, their effect should be

[21] Another robustness check against time-varying firm-region-specific factors is by controlling for a firm-year-specific regional demand shock in the fixed effect regressions. The regional demand shock is constructed in a similar manner as equation (2). The estimation results do not change at all, as reported in the bottom of Table 11.

at most the same as the effect of observables.[22] The latter assumption suggests that once the full set of observable and unobservable variables are included in the regression, the variance in exporting status would be perfectly explained. Although the maximum achievable R-square can be less than 1 because of measurement error in the outcome variable, I conservatively assume this value.

The results on the bias-adjusted coefficients are shown in the bottom row of each panel of Table 11. As shown in column 4 of the top panel, the bias-adjusted estimate is 0.031, suggesting that attending a trade fair with JETROs support still has a positive effect on exporting status in year $t+1$, even after adjusting for unobservable factors. While columns 2 and 6 in the top panel show the negative bias-adjusted coefficients, they are derived from the statistically insignificant estimates and thus should not be decisive. In addition, column 4 in the second and third panels shows 9.9 and 5.7 percentage-point increases in the probability of exporting, respectively, thereby supporting the robust effect of attending trade fairs.

5.2.2 Results in different regions

Although the above results utilize information on trade fairs and exports at the level of destination regions, they provide the average treatment effect (or the average treatment effect within a subsample). To explore the heterogeneous impacts of attending trade fairs across regions, I construct dummy variables on regions, Asia (excluding China)-China, and Europe-North-America, respectively, and include their interactions with $Treatment_{ijt}$ into equation (3). 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 costs more than exporting to short-distance markets, the effect of trade fairs is expected to be greater for them. The results are shown in the bottom panel of Table 11.

Column 4 in the bottom 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 greater positive effect for Europe and North America may come from geographic and cultural distance effects (i.e., export to a farther region incurs greater fixed costs; therefore, the effect of support for attending trade fairs is greater) or from the effectiveness of European and North American

[22] $\delta = 1$ is also a value suggested by Oster (2019).

trade fairs. The UFI (2014) reports that 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. Another potential mechanism behind the difference is selection. A firm that receives support for attending European or North American trade fairs could be more serious about entering these markets, while that who attends Chinese or Asian trade fairs is not. This selection effect is not fully absorbed by the multiple fixed effects. Other specifications show insignificant but positive effects of attending trade fairs in Europe and North America, though negative and insignificant effects in Asia and China.

These results, though statistically significant at the 10 percent level, could contrast with those of Broocks and Van Biesebroeck (2017) in the case of Belgian firms, who find that the positive effect of export promotion services on the probability of starting exports is constant across regions. This difference could partly be attributed to the difference in observation units in the treatment variable. While their analysis uses a treatment variable at the firm-year level, my analysis uses it at the firm-region-year level. Therefore, my estimation might more precisely take into account heterogeneity in the treatment effect across regions.

6 Robustness

One of the biggest concerns in the analyses above is self-selection into trade fairs even after controlling for observable characteristics. For example, the matching DID estimates could potentially suffer from self-selection if there are some time-varying firm-specific unobservable shocks affecting both treatment and outcome variables conditional on observable variables. Similarly, the fixed-effect estimates could be affected by a time-varying firm-region-specific shock that induces firms to attend a trade fair and export in a region. To mitigate this concern, the first robustness check utilizes a sub-sample of firms with foreign affiliates. I expect that they are already active in the global market, and therefore self-selection to attend trade fairs seems to be relatively weak within the sub-group.[23] As already shown in the first row of Table 7, there is a positive and statistically significant coefficient for firms with foreign affiliates, thus suggesting the robustness of the effect. The fixed-effect estimates in the third panel of Table 11 also show similar positive effects among firms with foreign affiliates.

The second robustness check for the DID-matching approach is to replace PSM with other match-

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

ing 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 first 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.[24] The PSM method is then implemented for the remaining matching variables.[25] The results are shown in Table 14, confirming the robustness of the positive effects of trade-fair attendance support on the extensive and intensive margins of exports.

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 period of study). Thus, focusing on the sample used in the main analysis, which excludes firms that attend trade fairs during year t-1, is not enough to exclude the repeater effect. Table 14 shows that 232 out of 434 observations in the treatment group of the DID-matching approach are from firms that attend trade fairs multiple times during the period. Hence, to exclude the repeater effect, I execute the same DID-matching regression while focusing on the remaining 202 firms that attend only once during the period. The results are shown in the top panel of Table 15. The basic results reported in the previous section hold. Furthermore, the bottom panel of the table shows the results for repeating firms. The estimate for the repeaters is positive and statistically significant from year t, suggesting that repeaters could reap the benefit of trade fairs more quickly.

A similar exercise for repeaters is implemented for the fixed-effect estimation where I include two treatment variables: one for the firms first trade-fair attendance in a region during the sample period and the other for any subsequent attendance. The results are shown in Table 16. Consistent with the findings shown in Table 15, the coefficient on the treatment variable of any subsequent attendance (Treatment2) tends to diminish over time, suggesting that the effect of any subsequent attendance could come out quickly. In addition, after controlling for the firm-region fixed effect, the decrease in the coefficient on subsequent attendance tends to be greater than the decrease in the coefficient on the first attendance in the region. This could imply that using support for the subsequent attendance of trade fairs in a region could be derived from firm-region-specific factors, such as a pre-existing business connection, and therefore controlling for the firm-region fixed effects

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

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

absorbs the factors.

The fourth robustness check is for firms using only one support from JETRO. As noted in footnote 8, it is not uncommon to utilize other export promotion services from JETRO together with support for trade-fair attendance. Unfortunately, the data does not have that information and therefore cannot control for the usage of other services. Alternatively, I implement the same DID-matching regression while focusing on the sub-sample of firms that do not use any service outsourcing over the entire sample period. In particular, I focus on firms that do not use outsourcing of information processing, market research, external affairs, logistics, product planning, office work, tax accounting, or employee education over the sample period. If other export promotion services are correctly reported in these service-outsourcing variables, this sub-sample of firms can be regarded as those not using them. The results for the sub-sample are presented in Table 17. The overall results on the extensive and intensive margin of exports are in line with the main analysis.

The fifth robustness check implements placebo tests for the fixed-effect estimations. The first placebo test investigates 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 attending a European trade fair), most buyers in the fair should be 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 trade-fair participation.[26] The second placebo test examines the effect of attending a trade fair during years $t+1$ and $t+2$ (rather than year t) on exports during years t, $t+1$, and $t+2$. If I were to get positive coefficients on the lead treatment status (e.g., the positive effect of attending a trade fair in year $t+2$ on exporting status in year $t+1$), the positive estimates would suggest 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 18 and 19. As shown in Table 18, if a firm attends a trade fair in one region, it does not increase its probability of exporting to another region, which supports my identification assumption. Table 19 shows that the lead treatment status during year $t+2$ does not affect export status in years t and $t+1$ after controlling for multiple fixed effects. On the other hand, attending a trade fair during year t or $t+1$ has a positive and significant effect on export probability in years $t+1$ and $t+2$, respectively. These results confirm my identification assumption.

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

The final robustness check is for the fixed-effect estimation using the information on trade-fair countries rather than regions. While Table 11 shows the effect of attending trade fairs in different regions on exporting status in each region, the firm-level trade-fair information in each region is aggregated from the country-level information. To check the plausibility of the results, I implement the fixed-effect estimation on the effect of attending trade fairs in each country (rather than region) on exporting status in each region. Table 20 shows the results. The effect on the regional exporting status is positive and statistically significant for treatment in European countries such as Belgium, France, Germany, and the UK in year t+1, while the effect is smaller or statistically insignificant in most Asian countries.[27] This result is, therefore, in line with my main results presented in Table 11.

7 Conclusion

This study analyzes the impact of attending trade fairs with EPAs support 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 with the support, I rely on the DID-matching estimation and the fixed-effects approaches. The former method utilizes detailed information on firm characteristics to balance 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 with foreign affiliates. The sub-sample 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 firms. Furthermore, the positive effect on the extensive margin can be mainly from geographically and culturally more distant 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 in the short run. These results suggest the value of information distributed within the market for facilitating transactions between buyers and sellers, and therefore the benefits of export promotion programs by supporting firms to attend trade fairs.

[27] The high negative coefficients on South Korea could be due to its food import restrictions after the Great East Japan Earthquake in March 2011. Since some firms in our sample are in the agriculture, forestry, fisheries, and food sectors, the effect of attending trade fairs in South Korea on exporting status could be small. However, even if I exclude coefficients on treatment in South Korea, the treatment effect in Europe and North America is greater than that in Asia on average.

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A1 Figures

Figure 1. Number of firms and number of trade-fairs attended during the sample

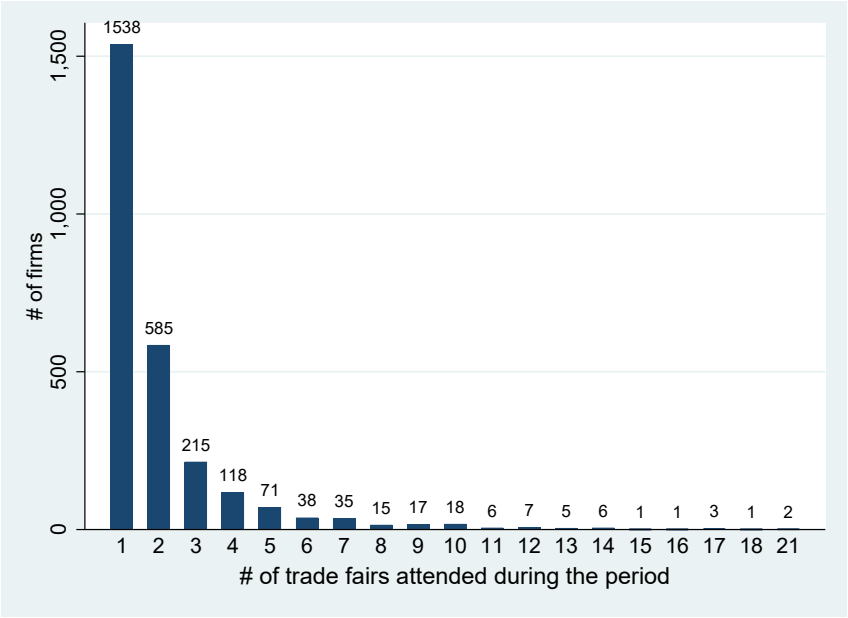


Figure 2. Number of observations over time in raw data

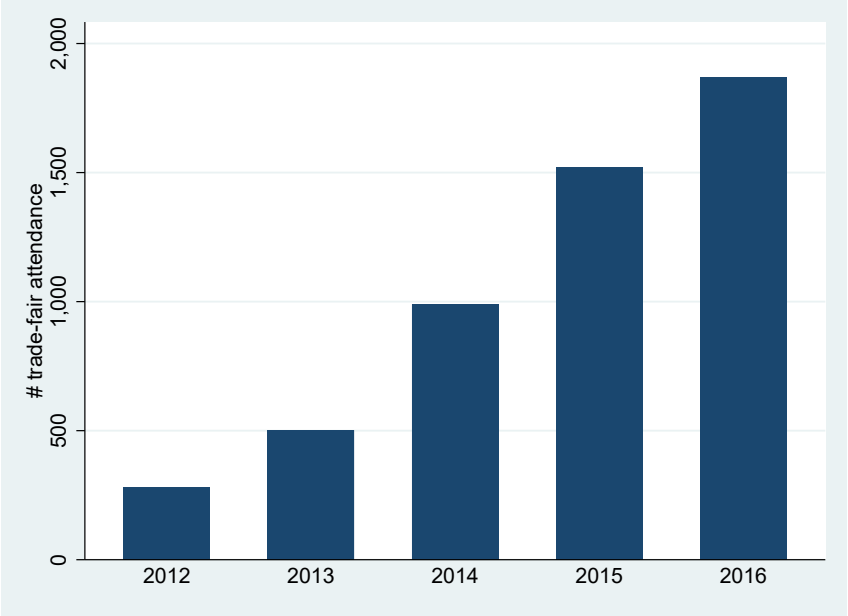
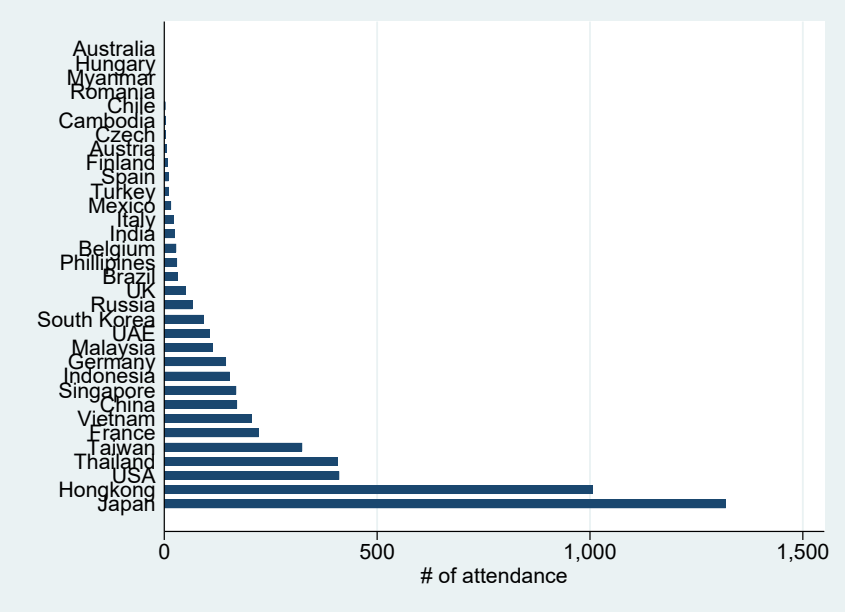


Figure 3. Number of observations in each country in raw data



A2 Table

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

# fairs attended	Observations	# firms
1	1,538	1,538
2	1,170	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	5,547	2,682

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	64,421	28,252	-4.10
Input total	48,766	19,257	-3.96
Value added	8,467	4,931	-2.93
Export			
Export values	9,661	3,642	-1.86
Export values related	3,801	1,688	-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	139,500	

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

Table 3: Probit estimation and the balancing tests for firm-year obs.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Outcome:			**1{attend a trade fair}**				
Variable	Probit coeff.	SE	Treated	Control	% bias	t-stat	$p > \|t\|$
$\log(\text{employee}_{t-1})$	0.107***	0.0227	4.7073	4.7272	-1.8	-0.26	-0.793
$\log(\text{capital}_{t-1})$	-0.0469***	0.0161	19.301	19.454	-8.5	-1.11	0.793
$\log(\text{wage\_all}_{t-1})$	-0.125***	0.0386	7.0581	7.118	-5.0	-0.67	0.501
$\log(\text{sales\_total}_{t-1})$	0.237***	0.0441	9.2331	9.2726	-2.6	-0.35	0.723
$\log(\text{input\_total}_{t-1})$	-0.0983***	0.0235	8.3423	8.3413	0.1	0.01	0.994
$\text{Export intensity}_{t-1}$	-0.377***	0.146	0.07567	0.0764	-0.5	-0.07	0.946
$\text{Import intensity}_{t-1}$	0.257	0.181	0.05432	0.04367	9.6	1.39	0.166
$1\{\text{export}_{t-1}\}$	0.362***	0.0468	0.58102	0.55556	5.4	0.75	0.451
$1\{\text{import}_{t-1}\}$	-0.0864*	0.0487	0.43981	0.44676	-1.5	-0.21	0.837
$\text{Share international}_{t-1}$	1.231***	0.320	0.02077	0.02208	-2.7	-0.32	0.748
$\text{Share planning}_{t-1}$	0.586***	0.178	0.05198	0.06287	-11.1	-1.39	0.164
Demand shock	0.422	0.443	-0.00572	-0.00539	-0.6	-0.10	0.920
Age_{t-1}	0.00504***	0.000891	57,773	57.887	-0.6	-0.08	0.933
$\Delta \log(\text{sales\_total}_{t-1})$	0.131	0.129	0.02399	0.0304	-4.5	-0.70	0.482
$\Delta \log(\text{input\_total}_{t-1})$	0.0287	0.0340	0.00191	0.02669	-4.7	-0.64	0.520
$\Delta \log(\text{employee}_{t-1})$	0.0629	0.0632	0.0249	0.01935	1.8	0.32	0.749
$\Delta \log(\text{wage\_all}_{t-1})$	-0.0388	0.0797	0.00361	0.01097	-3.5	-0.45	0.656
$\Delta \log(\text{capital}_{t-1})$	0.132	0.125	0.00337	0.00495	-1.1	-0.24	0.814
$\Delta \text{ Share international}_{t-1}$	-1.494***	0.533	-0.00106	-0.00204	2.7	0.34	0.732
$\Delta \text{ Share planning}_{t-1}$	-0.105	0.332	0.00173	0.00308	-2.5	-0.42	0.677
$\Delta \text{ Export intensity}_{t-1}$	0.422	0.303	0.00621	0.00398	3.3	0.48	0.631
$\Delta \text{ Import intensity}_{t-1}$	0.260	0.378	0.00546	0.00221	6.2	0.87	0.383
Year FE	YES						
Industry FE	YES						
Observations	97,969		434	434			

Note: Coefficients from the probit estimation are reported in the first column. Standard errors are reported in the second column. The third and fourth columns report the averages of each variable for treated and control groups, respectively, the fifth column shows the percentage difference in the means, and the sixth and seventh columns are their t-statistics for the equality of means and the p-values. Δ denotes a change in a variable from years t-2 to t-1. *** p<0.01, ** p<0.05, * p<0.1 .

Table 4: Probit estimation for firm-region-year obs.

	(1)	(2)	(3)	(4)
Outcomes:	**1{attend in Japan}**		**1{attend in foreign}**	
Variable	Probit coeff.	SE	Probit coeff.	SE
$\log(\text{employee}_{t-1})$	0.0656***	0.0123	0.0683***	0.0195
$\log(\text{capital}_{t-1})$	-0.0402***	0.00878	-0.0381***	0.0138
$\log(\text{wage\_all}_{t-1})$	-0.0795***	0.0214	-0.284***	0.0306
$\log(\text{sales\_total}_{t-1})$	0.134***	0.0262	0.375***	0.0343
$\log(\text{input\_total}_{t-1})$	-0.0351**	0.0148	-0.102***	0.0188
$\text{Export intensity}_{t-1}$	-0.223***	0.0729	-0.864***	0.168
$\text{Import intensity}_{t-1}$	0.234**	0.0925	-0.200	0.181
$1\{\text{Export}_{t-1}\}$	0.288***	0.0269	0.227***	0.0420
$1\{\text{Import}_{t-1}\}$	0.0578**	0.0269	-0.0190	0.0427
$\text{Share international}_{t-1}$	0.197***	0.0267	0.266***	0.0426
$\text{Share planning}_{t-1}$	0.136***	0.0233	0.154***	0.0359
Demand shock	-0.214	0.235	1.099***	0.372
Age_{t-1}	0.00392***	0.000510	0.00359***	0.000746
$\Delta \log(\text{sales\_total}_{t-1})$	-0.0362	0.0776	0.0701	0.109
$\Delta \log(\text{input\_total}_{t-1}$	-0.00891	0.0207)	0.0773***	0.0259
$\Delta \log(\text{employee}_{t-1})$	0.00187	0.0364	0.0239	0.0606
$\Delta \log(\text{wage\_all}_{t-1})$	-0.0456	0.0474	0.0284	0.0618
$\Delta \log(\text{capital}_{t-1})$	0.276***	0.0618	0.0284	0.0965
$\Delta \text{ Share international}_{t-1}$	-0.265***	0.0483	0.125*	0.0736
$\Delta \text{ Share planning}_{t-1}$	0.0137	0.0446	-0.0669	0.0672
$\Delta \text{ Export intensity}_{t-1}$	-0.0145	0.175	0.849***	0.325
$\Delta \text{ Import intensity}_{t-1}$	-0.305	0.202	0.410	0.354
Year FE	YES		YES	
Industry FE	YES		YES	
Region FE	YES		YES	
Observations	490,982		463,724	

Note: Coefficients from the different probit estimations are reported in the first (for the dummy variable on attending a trade fair in Japan) and third (for the dummy variable on attending a trade fair abroad) columns. Standard errors are reported in the second and fourth columns. Δ denotes a change in a variable from years t-2 to t-1. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 5: DID with propensity score matching

Outcomes:	**Export dummy**				**Log (export values)**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Period				Period		
Sample	t	$t+1$	$t+2$	# firm	t	$t+1$	$t+2$	# firm
All firms	0.0208*	0.0960***	0.0881***	16892	0.0178	0.254***	0.0895	5519
	(0.0125)	(0.0219)	(0.0277)		(0.0531)	(0.0975)	(0.136)	
Small firms	0.0638***	0.0893***	0.0841***	11249	0.0265	0.420***	0.430*	2898
	(0.0193)	(0.0216)	(0.0257)		(0.0792)	(0.140)	(0.225)	
Large firms	0.0303*	0.0448**	0	5551	0.191*	-0.0365	-0.0339	2211
	(0.0168)	(0.0224)	(0.0382)		(0.0991)	(0.0698)	(0.171)	
No intl. firms	0.0390**	0.0812***	0.174***	15472	0.102	0.123	0.217	3870
	(0.0170)	(0.0253)	(0.0369)		(0.0934)	(0.0940)	(0.152)	
Intl. firms	0.0397*	0.0381	0	2822	0.0729	0.123	0.0144	2015
	(0.0227)	(0.0279)	(0.0433)		(0.0641)	(0.102)	(0.174)	

Note: The row No intl. firms reports the results for the sample of firms with no employees in international divisions. The row Intl. firms reports the results for the sample of firms with the positive number of employees in international divisions. Standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: DID with propensity score matching: transactions with related firms

Outcomes:	**Export dummy: related**				**Log(export values): related**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Period					Period	
Sample	t	$t+1$	$t+2$	# firm	t	$t+1$	$t+2$	# firm
All firms	0.0185	0.00993	0	16892	0.0693	0.105	0.138	2755
	(0.0129)	(0.0174)	(0.0227)		(0.104)	(0.112)	(0.149)	

Note: The export dummy to related firms is equal to 1 if a firm exports its product to its parent company, its main subsidiaries, or its other subsidiaries, and 0 otherwise. Log export values to related firms are the log of export values to these firms. The information is obtained from the BSJBSA. Standard errors are reported in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 7: 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)	(7	(8)
		Period				Period		
Sample	t	$t+1$	$t+2$	# firm	t	$t+1$	$t+2$	# firm
Firms w/ foreign affiliates	0.0200	0.0408**	-0.0159	3718	0.0440	-0.157	0.206*	2752
	(0.0213)	(0.0186)	(0.0409)		(0.0623)	(0.101)	(0.113)	
Firms w/o foreign affiliates	0.0389**	0.118***	0.138***	14916	0.0776	0.144	0.272	3375
	(0.0154)	(0.0250)	(0.0333)		(0.0872)	(0.138)	(0.204)	

Note: Standard errors are reported in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 8: DID with propensity score matching: FDI

Outcomes:	**Foreign establishment dummy**				**Log(# foreign employee)**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Period				Period		
Methodology	t	$t+1$	$t+2$	# firm	t	$t+1$	$t+2$	# firm
PSM	-0.0185	0.0132	0.0155	16892	0.0259	-0.121	0.0530	2922
	(0.0144)	(0.0200)	(0.0274)		(0.0483)	(0.0790)	(0.0828)	
NNMATCH	-0.00723	0.00808	0.0286	16892	0.000107	-0.111	0.335**	2922
	(0.0136)	(0.0158)	(0.0278)		(0.0363)	(0.0927)	(0.133)	
PSM + CEM	-0.00479	0.0135	0.0274	16892	-0.0223	-0.208*	-0.201	2922
	(0.0122)	(0.0168)	(0.0273)		(0.0437)	(0.125)	(0.177)	

Note: Standard errors are reported in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 9: DID with propensity score matching: outsourcing

Outcomes:	**Logistics outsourcing dummy**				**Market-research outsourcing dummy**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Period				Period		
Methodology	t	$t+1$	$t+2$	# firm	t	$t+1$	$t+2$	# firm
PSM	-0.0185	0.00662	0.0155	16892	-0.00231	0.00662	0.0415**	16892
	(0.0158)	(0.0225)	(0.0297)		(0.0104)	(0.0185)	(0.0201)	
NNMATCH	-0.0284*	0.0151	0.00742	16892	-0.00346	0.0217	0.0168	16892
	(0.0164)	(0.0240)	(0.0337)		(0.0122)	(0.0168)	(0.0254)	
PSM + CEM	-0.0123	0.00192	0.00988	16892	0.0109	0.0245	0.0509**	16982
	(0.0140)	(0.0206)	(0.0297)		(0.00947)	(0.0170)	(0.0247)	

Note: 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. Logistics outsourcing dummy variable is equal to 1 if a firm outsources its logistics task, such as sales order management, distributive processing, inventory control, and having logistics center. It is equal to 0 otherwise. Market-research outsourcing dummy is equal to 1 if a firm outsources its market-research task, and otherwise 0. Standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 10: DID with propensity score matching: outsourcing (small firms)

Outcomes:	**Logistics outsourcing dummy**				**Market-research outsourcing dummy**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Period				Period		
Methodology	t	$t+1$	$t+2$	# firm	t	$t+1$	$t+2$	# firm
PSM	-0.0128	0.0357	0.00935	11249	0.00851	0.0417**	0.0748***	11249
	(0.0241)	(0.0364)	(0.0454)		(0.0155)	(0.0175)	(0.0171)	
NNMATCH	-0.0368	0.0282	0.0489	11249	0.00351	0.0567***	0.0784***	11249
	(0.0231)	(0.0310)	(0.0457)		(0.0162)	(0.0212)	(0.0316)	
PSM + CEM	-0.0331*	0.0508*	0.0143	11249	0.00937	0.0659***	0.0595*	11249
	(0.0192)	(0.0278)	(0.0463)		(0.0125)	(0.0217)	(0.0345)	

Note: 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. Standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 11: Fixed effect estimation: the extensive margin in year t to $t+2$

	(1)	(2)	(3)	(4)	(5)	(6)
	Export dummy					
Variable \ Period	t		$t+1$		$t+2$	
Treatment	0.0513*	0.0165	0.0849***	0.0496***	0.0528	0.00790
	(0.0263)	(0.0165)	(0.0295)	(0.0217)	(0.0387)	(0.0286)
Observations	279,360	279,360	244,440	244,440	209,520	209,520
R-squared	0.575	0.840	0.575	0.851	0.576	0.864
Bias-adj		-0.00451		0.0305		-0.0133
Treatment	-0.00553	0.0318	0.0176	0.0706**	-0.0678	-0.0104
	(0.0277)	(0.0235)	(0.0357)	(0.0314)	(0.0538)	(0.0410)
Treatment×Small	0.103**	-0.0294	0.116**	-0.0380	0.208***	0.0329
	(0.0498)	(0.0329)	(0.0559)	(0.0434)	(0.0731)	(0.0584)
Observations	279,360	279,360	244,440	244,440	209,520	209,520
R-squared	0.575	0.840	0.575	0.851	0.576	0.864
Bias-adj		0.054		0.0992		0.0167
Treatment	0.0525*	0.0314	0.0969***	0.0712***	0.0724*	0.0382
	(0.0307)	(0.0202)	(0.0340)	(0.0261)	(0.0431)	(0.0338)
Treatment×Affiliate	-0.00525	-0.0674	-0.0608	-0.106**	-0.131	-0.194***
	(0.0571)	(0.0411)	(0.0664)	(0.0467)	(0.0846)	(0.0556)
Observations	279,360	279,360	244,440	244,440	209,520	209,520
R-squared	0.575	0.840	0.575	0.851	0.576	0.864
Bias-adj		0.0187		0.0573		0.0221
Treatment	0.107*	0.0370	0.116	-0.00737	0.0724	-0.0421
	(0.0625)	(0.0521)	(0.0749)	(0.0552)	(0.0985)	(0.0765)
Treatment×EUUS	0.0303	0.0370	0.0688	0.125*	0.0449	0.0727
	(0.0868)	(0.0699)	(0.0928)	(0.0678)	(0.110)	(0.0855)
Treatment×Asia	-0.0922	-0.0426	-0.0720	0.0379	-0.0455	0.0496
	(0.0692)	(0.0551)	(0.0838)	(0.0610)	(0.106)	(0.0802)
Observations	279,360	279,360	244,440	244,440	209,520	209,520
R-squared	0.575	0.840	0.575	0.851	0.576	0.864
Bias-adj		-0.0053		-0.0740		-0.0962
Treatment	0.0513*	0.0165	0.0849***	0.0496***	0.0528	0.0079
	(0.0263)	(0.0165)	(0.0295)	(0.0217)	(0.0007)	(0.0003)
Regional demand shock	0.0013**	0.0007	0.0009	0.0004	0.0003	0.0001
	(0.0005)	(0.0005)	(0.0008)	(0.0003)	(0.0007)	(0.0003)
Observations	279,360	279,360	244,440	244,440	209,520	209,520
R-squared	0.575	0.840	0.575	0.851	0.576	0.864
Firm-year FE	YES	YES	YES	YES	YES	YES
Region-year FE	YES	YES	YES	YES	YES	YES
Firm-region FE		YES		YES		YES

Note: Bias-adj estimates and Bias-adj interaction are bias-adjusted estimates derived using Osters (2019) methodology. The regional demand shock is constructed in a similar manner as equation (2). Clustered robust standard errors at the firm level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 12: Fixed effect estimation: the intensive margin using PPML

	(1)	(2)	(3)	(4)	(5)	(6)
	Export values					
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

Note: Clustered robust standard errors at the firm level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

A3 Robustness Checks

Table 13: DID with other matching methods

Outcomes:	**Export dummy**				**Log(export values)**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Period				Period		
Methodology	t	$t+1$	$t+2$	# firm	t	$t+1$	$t+2$	# firm
NNMATCH	0.0286**	0.0826***	0.0890***	16892	0.144**	0.0940	0.253*	5119
	(0.0140)	(0.0204)	(0.0273)		(0.0524)	(0.0991)	(0.135)	
PSM + CEM	0.0457***	0.0946***	0.0826***	16892	0.0750*	0.141*	0.323***	5119
	(0.0129)	(0.0196)	(0.0263)		(0.0455)	(0.0791)	(0.0866)	

Note: 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. Standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 14: 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 15: DID with several matching methods: firms attending only once & more than once during 2012-2017

Outcomes:	**Export dummy**				**Log(export values)**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Period				Period		
Sample	t	$t+1$	$t+2$	# firm	t	$t+1$	$t+2$	# firm
Firms attending once	0.0260	0.0635*	0.111***	16732	0.0370	0.315***	0.122	5026
	(0.0164)	(0.0346)	(0.0272)		(0.0753)	(0.0938)	(0.103)	
Repeater firms	0.0495***	0.0966***	0.0496	16661	0.151*	0.232*	0.297**	4965
	(0.0176)	(0.0260)	(0.0341)		(0.0875)	(0.127)	(0.137)	

Note: Standard errors are reported in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 16: Fixed effect estimation in year t to $t+2$ with first and more-than second attendances

Variable	(1)	(2)	(3)	(4)	(5)	(6)
			Export dummy			
Variable \ Period	t		$t+1$		$t+2$	
Treatment1	0.0123	0.00454	0.0710**	0.0544***	0.0309	0.00824
	(0.0251)	(0.0176)	(0.0283)	(0.0207)	(0.0398)	(0.0280)
Treatment2	0.123***	0.0448	0.120**	0.0338	0.146*	0.00605
	(0.0426)	(0.0335)	(0.0508)	(0.0490)	(0.0763)	(0.0910)
Observations	279,360	279,360	244,440	244,440	209,520	209,520
R-squared	0.575	0.840	0.575	0.851	0.576	0.864
Firm-year FE	YES	YES	YES	YES	YES	YES
Region-year FE	YES	YES	YES	YES	YES	YES
Firm-region FE		YES		YES		YES

Note: Treatment1 is a dummy variable for attending a trade fair for the first time within a particular region during the sample period. Treatment2 is a dummy variable for any subsequent attendance in a region during the sample period. Clustered robust standard errors at the firm level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 17: DID with several matching methods: firms without other export promotion services during the sample period

Outcomes:	**Export dummy**				**Log(export values)**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Period				Period		
Methodology	t	$t+1$	$t+2$	# firm	t	$t+1$	$t+2$	# firm
PSM	0.0559***	0.0781***	0.0370	7064	0.0308	-0.00730	0.529***	1949
	(0.0214)	(0.0243)	(0.0295)		(0.0883)	(0.198)	(0.174)	
NNMATCH	0.0194	0.0766**	0.102**	7064	-0.554	-0.0418	0.273	1949
	(0.0238)	(0.0316)	(0.0476)		(0.610)	(0.159)	(0.233)	
PSM + CEM	0.0546***	0.0740***	0.0579	7064	-0.00579	-0.0614	0.328**	1949
	(0.0179)	(0.0236)	(0.0354)		(0.0792)	(0.130)	(0.162)	

Note: 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. Standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 18: Fixed effect estimation in year t to $t+2$ with placebo-region

	(1)	(2)	(3)	(4)	(5)	(6)
	Export dummy					
Variable \ Period	t		$t+1$		$t+2$	
placebo treat	-0.00737	0.00279	-0.0455**	-0.0295*	-0.0478*	-0.000902
	(0.0208)	(0.0159)	(0.0228)	(0.0165)	(0.0276)	(0.0202)
Observations	279,360	279,360	244,440	244,440	209,520	209,520
R-squared	0.575	0.840	0.575	0.851	0.576	0.864
Firm-year FE	YES	YES	YES	YES	YES	YES
Region-year FE	YES	YES	YES	YES	YES	YES
Firm-region FE		YES		YES		YES

Note: Clustered robust standard errors at the firm level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 19: Fixed effect estimation in year t to $t+2$ with placebo-timing

	(1)	(2)	(3)	(4)	(5)	(6)
			Export dummy			
Variable \ Period	t		$t+1$		$t+2$	
Treatment in t	0.0425**	0.0135	0.0705***	0.0495**	0.0171	0.00365
	(0.0208)	(0.0166)	(0.0239)	(0.0211)	(0.0331)	(0.0293)
Treatment in $t+1$	0.0297	0.00537	0.0264	0.0105	0.0704***	0.0504***
	(0.0208)	(0.0159)	(0.0187)	(0.0154)	(0.0228)	(0.0198)
Treatment in $t+2$	0.00840	-0.0206	0.0263	0.00694	0.0309	0.0108
	(0.0239)	(0.0169)	(0.0243)	(0.0166)	(0.0218)	(0.0148)
Observations	279,360	279,360	244,440	244,440	209,520	209,520
R-squared	0.575	0.840	0.575	0.851	0.576	0.864
Firm-year FE	YES	YES	YES	YES	YES	YES
Region-year FE	YES	YES	YES	YES	YES	YES
Firm-region FE		YES		YES		YES

Note: Clustered robust standard errors at the firm level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 20: Fixed effect estimation attending trade fairs in a country on regional exports

VARIABLES	(1) t	(2) t+1	(3) t+2
Belgium	0.471***	0.446**	0.563***
	(0.128)	(0.217)	(0.00336)
Brazil	0.126*	-0.0108	-0.146
	(0.0713)	(0.0770)	(0.110)
China	0.0883	0.120**	0.0208
	(0.0628)	(0.0518)	(0.0844)
France	0.0386	0.396***	-0.0282
	(0.0684)	(0.148)	(0.131)
Germany	-0.0220	0.251***	-0.0789
	(0.102)	(0.0789)	(0.167)
Hongkong	-0.0594	0.0610	-0.0624
	(0.0408)	(0.0571)	(0.0674)
India	-0.0895	0.0597	0.0706
	(0.119)	(0.0671)	(0.152)
Indonesia	0.00626	-0.0252	-0.0586
	(0.0408)	(0.0460)	(0.0406)
Malaysia	-0.0141	-0.0253	0.0418
	(0.0858)	(0.116)	(0.0557)
Russia	-0.00222	-0.0751	0.224
	(0.0680)	(0.0847)	(0.235)
Singapore	0.0105	-0.0326	-0.0479
	(0.0595)	(0.0635)	(0.108)
South Korea	-0.311**	-0.312**	-0.0396
	(0.133)	(0.132)	(0.299)
Taiwan	0.0111	0.0769	0.158
	(0.0493)	(0.107)	(0.0963)
Thailand	-0.0114	-0.0265	0.00564
	(0.0464)	(0.0706)	(0.163)
UAE	-0.165*	-0.0311	0.0826
	(0.0960)	(0.0959)	(0.117)
UK	0.0762	0.284*	-0.0799
	(0.0509)	(0.167)	(0.0678)
USA	0.0949	0.0344	0.0429
	(0.0707)	(0.0560)	(0.0708)
Vietnam	0.0560	0.0851	0.0390
	(0.0589)	(0.0737)	(0.0736)
Observations	279,357	244,439	209,520
R-squared	0.840	0.851	0.864
Firm-year FE	YES	YES	YES
Region-year FE	YES	YES	YES
Firm-region FE	YES	YES	YES

Note: Each variable denotes a dummy variable for treatment in each country. Clustered robust standard errors at the firm level are in parentheses. I drop treatment in Austria, Cambodia, Italy, Chile, Czech, Philippines, Mexico, and Turkey because of the small number of observations and therefore the confidential reason. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.