RIETI Discussion Paper Series 18-E-057

Networks of Foreign Affiliates: Evidence from Japanese micro-data (Revised)

SPINELLI, Francesca
OECD

ROUZET, Dorothée
OECD

ZHANG, Hongyong
RIETI

RIETI
Research Institute of Economy, Trade & Industry, IAA

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

RIETI Discussion Paper Series 18-E-057
First draft: September 2018
Revised: June 2020

Networks of Foreign Affiliates: Evidence from Japanese Micro-Data*

Francesca SPINELLI Dorothée ROUZET ZHANG Hongyong†

Abstract: The paper provides evidence of the investment patterns of Japanese multinational enterprises (MNEs) across countries and industries and analyses the main drivers of their location strategies, using detailed micro-data on Japanese parents and their affiliates including the final destination of affiliate sales. The main stylised facts point to differences in size and productivity depending on parents' and affiliates' main industry groups. The breakdown of affiliate sales by destination market reveals that Japanese MNEs establish services affiliates primarily to maximise proximity to local customers, while foreign affiliates in manufacturing sectors tend to engage more widely with third countries. Yet, some economies emerge as strategic gateways to other destinations in their region. The empirical analysis delves into the drivers of host country attractiveness for FDI that is seeking new markets, production efficiency and to act as regional or global platforms. Important factors shaping Japanese FDI decisions include parent characteristics and host market specificities such as market size, proximity, labour costs, technology and trade policy barriers. The largest and most productive parents are more likely to invest in FDI-export platforms, particularly in host countries with efficient customs procedures and more favourable services trade and investment regulation. Distance and comparative advantage in terms of skills and digital infrastructure play a stronger role in intra-firm trade, while the size of the domestic market and the local trade regulatory environment are important drivers for affiliates that sell mostly locally. Overall, the paper stresses the factors behind better integration into global production networks and the policy priorities that are suitable for attracting various types of FDI inflows.

Keywords: Trade in services, Multinational production networks, Foreign affiliates
JEL classification: D22, F61

* This research was conducted as a part of the project "Studies on Firm Management and Internationalization under the Growing Fluidity of the Japanese Economy" at the Research Institute of Economy, Trade and Industry. The authors acknowledge helpful comments on an earlier draft from Zornitsa Kutlina-Dimitrova, Keisuke Kondo, Masayuki Morikawa, Yukiko Saito, Eiichi Tomiura, Makoto Yano and other participants at the GTAP, REDLAS conferences and RIETI seminars in 2018. The authors are also grateful to Richard Kneller, Andrea Lassmann, Sébastien Miroudot and Chang Sun who provided very useful comments. We are grateful to the Ministry of Economy, Trade and Industry for providing the micro-data of the Basic Survey on Overseas Business Activities. Financial support from the JSPS KAKENHI (grant numbers: 17H02531, 17H02554) and RIETI is greatly appreciated.
† Spinelli: OECD. Francesca.SPINELLI@oecd.org Rouzet: OECD. Dorothee.ROUZET@oecd.org Zhang: RIETI. zhang-hong-yong@rieti.go.jp

1. Introduction

Multinational firms face complex decisions regarding where and how to set up their activity across multiple locations and markets. With the rising role of global value chains in the production of goods and services, advances in technology as well as a complex landscape of trade and investment agreements, these strategies go well beyond a "proximity-concentration" trade-off between exporting and establishing to capture a given market, or exploiting cost differences to determine an optimal production site. Location choices are likely to take into account complementarities between markets, for instance by establishing in a host country offering a favourable environment to deal with local customers but also to export to third countries within a regional bloc. They are also influenced by complementarities between activities, reinforced by the blurring of boundaries between physical products and services as digitalisation progresses, and the role of services in adding value to the provision of manufacturing goods. Multinational enterprises (MNEs) set up affiliates in industries different from their own, and can exploit synergies between their production plants and services affiliates, for instance in distribution or logistics, to gain efficiency and market share in their various markets. This complex web of considerations makes it more challenging for policymakers to identify well-targeted levers to effectively boost their country's attractiveness to FDI.

This paper sheds light on these complementarities between locations and between activities using micro-data from Japan's Basic Survey of Overseas Business Activities, which contains detailed information on the activities of foreign affiliates of Japanese companies. Compared to affiliate sales data from other countries, Japanese data stands out for its fine breakdown of sales and purchases by destination. Japanese micro-data on firms' international activities has been previously used mostly for the manufacturing sector and to study the productivity and size premium of multinational enterprises; but to the best of our knowledge, much less attention has been paid to how policies can affect location choices in services and taking into account interdependences between potential destinations.

We explore the unique granularity of the Japanese microdata to analyse in more depth the location choices for both foreign manufacturing and services affiliates, distinguishing between three main motives: serving the local market, providing goods and services within their corporate group, and providing goods and services to third countries regionally or globally. The early literature on FDI drivers set out a distinction between horizontal and vertical FDI. On the one hand, FDI can be driven by *market access motives*.[1] In these cases, the primary goal is to serve the local market: the parent firm replicates its production process for goods and services in the host market to serve local demand, in order to save on transaction and transport costs and gain more reactivity to local market conditions, at the expense of lower economies of scale. On the other hand, FDI can respond to *efficiency-seeking motives* or *comparative advantage motives*.[2] This type of FDI consists in offshoring all or part of the production process by undertaking either the production of goods and services inputs, or final product assembly abroad to serve the firm's home country, and differences in factor endowments and factor prices should shape its distribution across countries. More generally, FDI related to slicing up global value chains is well captured by the existence of affiliates whose clients are either the parent firm itself or other affiliates within the parent firm's corporate network.

[1] Firms that decide to substitute trade with FDI by locating their plants in multiple countries to maximise their proximity to local customers and to skip the costs associated with international trade, being those transportation/transactional costs or policy induced trade barriers (Markusen and Venables, 2000[32]).

[2] Firms that fragment their production process across multiple locations where the resources, assets or factors used more intensively are relatively cheaper than in the home country, in other words where the main rationale for investing abroad is to exploit factor endowment differences and the differential in their relative costs (Helpman, 1984[33]).

However, in many instances FDI location choices are of a more complex nature than this dichotomy.[3] In particular, this paper aims to shed new light on the importance and drivers of *export platform FDI*, which mixes market-serving and production offshoring motives: it consists in producing goods and services in a given host market to further export to third countries, or acting as a distributional hub. Export platforms are likely to be chosen based on both cost and efficiency of production conditions (labour, taxation, logistics, business environment, etc.), and ease of access to destination markets (e.g., proximity to regional demand centres).

The paper explores the structural and policy determinants of FDI attractiveness. It identifies significant policy drivers that influence the location patterns of not only foreign establishments directed towards the local market, but also MNE affiliates that help host countries integrate into segments of global value chains and enhance their export performance. The novel contribution of our analysis is three-fold. First, we provide a consistent empirical framework to study the relationship between a number of potential structural, geographical and policy drivers of host country attractiveness across the three motives of FDI and across goods and services sectors, allowing us to test existing theories of FDI drivers at a more granular level than most existing studies. Second, we provide new evidence on the policy factors of location choices for export platform FDI, which has been relatively under-studied in the empirical literature. Third, we also provide new insights on how services FDI differs from manufacturing FDI, both in terms of parent and affiliate descriptive characteristics and in its sensitivity to trade policy and other policy tools. In particular, while there is a large empirical literature on manufacturing FDI, intra-firm trade and export-platform FDI in services have to our knowledge received little attention in the existing literature.

Our data first reveals several interesting stylised facts on the nexus between parent and affiliate activity. On average, MNEs with services affiliates are significantly larger, and have twice as many affiliates, as MNEs with affiliates producing goods, suggesting large fixed costs of international expansion in services. Regarding the final destination of affiliate sales, we find that export platform activity accounts for a large share of affiliate sales in some host countries, both in manufacturing and services, mostly to serve regional destinations, though serving the local market is the primary motive in the majority of host countries. These differences across countries suggest a role for specific policies to encourage export-platform FDI.

We then turn to our main empirical analysis to uncover the role of trade policies in influencing host country FDI attractiveness, particularly for export platforms. We confirm, in the case of Japanese multinationals, that important factors shaping FDI decisions include parent size and productivity and host market specificities such as market size and proximity. Regarding trade policy, while we find a similar effect of FTAs across the three types of FDI, export platform location is found particularly responsive to trade facilitation measures and customs efficiency. In manufacturing sectors, we find some evidence of tariff-jumping FDI, but the most productive MNEs are discouraged by high tariff rates in the affiliate's sector. In services, we uncover four main patterns. First, while higher restrictions to foreign firms' establishment are strongly associated with a lower probability of observing foreign affiliates across FDI types, the impact is particularly high on export platforms. Second, there is strong heterogeneity in the effects of FDI restrictions across parent firms: more productive MNEs are less deterred by these restrictions, suggesting that services investment barriers raise the productivity threshold for MNEs to invest in the country. Third, the most productive MNEs are encouraged to set up affiliates by higher restrictions to cross-border services trade, suggesting that high-productivity MNEs are able to tilt their location choices to circumvent restrictions to direct exports. Fourth, location choices are also sensitive to the regional regulatory environment, especially for horizontal and export platform FDI: a country is more likely to host foreign affiliates if neighbouring countries apply more restrictive or discriminatory regulations to foreign firms. Furthermore, we

[3] The knowledge-capital model introduced by Markusen (1997[34]) was an early contribution to bridging the dichotomy between horizontal and vertical FDI. See Carr et al. (2000[35]) for an empirical application of this model.

find that restrictions to digitally-enabled trade across borders are negatively associated with the probability of hosting foreign affiliates in countries with high R&D spending and extensive broadband infrastructure, partly negating the benefits of these factors for FDI attractiveness in high-tech industries. Lastly, we show that export platforms in services are the most sensitive type of FDI to host country corporate tax rates, indicating that MNEs may particularly exploit tax competition across countries for this type of FDI.

The remainder of the paper is organised as follows. Section 2 summarizes the related literature. Section 3 presents the BSOBA dataset and describes the patterns of where foreign manufacturing and services affiliates of Japanese MNEs realise their sales, highlighting the complex network nature of FDI and the heterogeneous behaviour of parent companies. Section 4 presents our empirical strategy. Section 5 reports the results of the econometric analysis of the main determinants of foreign affiliate location, broken down between manufacturing and services and between establishments directed towards local sales, intra-firm activity and sales to third countries. The final section concludes.

2. Related literature

Our analysis is related to several strands of literature. First, an empirical literature has looked into the determinants of exports and FDI at the firm level, testing the heterogeneous firm model of Helpman, Melitz and Yeaple (2004[1]). Most of these studies have focused on manufacturing, and there is an ample literature on factors impacting multinational firms' location choices in goods. Antràs and Yeaple (2014[2]) provide a good overview of the international trade literature on multinational firms, identifying the reasons why only some firms operate in multiple countries and the main determinants that shape the location of multinationals' international activity.[4] A size and productivity premium of exporters has also been found in the services sector starting with the findings of Breinlich and Criscuolo (2011[3]) on UK data.[5] For Japan, Tanaka (2011[4]) shows that the productivity distribution of services MNEs stochastically dominates that of non-MNE exporters and purely domestic firms. Tanaka (2015[5]) finds that more productive Japanese wholesalers and retailers have a higher probability of investing in a foreign market, are more likely to establish in less attractive destinations with smaller market size, and their foreign affiliates generate larger volume of sales.[6] Rouzet, Benz and Spinelli (2017[6]) analyse the drivers of exports and affiliate sales in services using micro-data from eight OECD countries, focusing on the discouraging effect of regulatory barriers to services. We contribute to the literature on firm heterogeneity and FDI location choice by examining the patterns and determinants of Japanese MNEs location choices in services versus goods sectors. Our findings can explain the importance and ubiquity of various government and trade

[4] These determinants include also taxation considerations, where there is a substantial theoretical and empirical literature on the impact of taxation on the decisions taken by multinationals (see Devereux (2007[37]) for an overview of the empirical literature). More recently, Lawless et al. (2018[38]) looked at the effects of corporate tax on the location decisions of newly established multinational subsidiaries across 26 European countries and found large variations in the sensitivity to tax rates across sectors and firm size. Egger et al. (2013[39]) find that high labour taxes and social contributions impact on the international location of headquarters.

[5] Firm-level data also explain export and FDI patterns in more specific service sectors. For example, Buch and Lipponer (2007[42]) find that large and profitable banks are more likely to engage in FDI in addition to cross-border financial services.

[6] Yamazawa (1979[43]) and Yoshino and Lifson (1986[44]) are the first to document the important role of Japanese *sogo shosha* (trading intermediaries) in Japan's expanding trade. Rauch (1996[45]) provides a network view of international trade in differentiated products to explain the importance of business ties in trade and the success of Japan's *sogo shosha*. Furthermore, Tanaka (2013[46]) reports that wholesalers and retailers accounted for 23 percent of Japanese exports in 2008.

policies affecting FDI in services and goods, such as corporate tax, free trade agreements (FTAs) and trade barriers.

Second, a few studies have documented the export platform role of affiliates in the broader context of multinational firms undertaking complex location strategies.[7] Ekholm, Forslid and Markusen (2007[7]) showed the importance of exporting to third countries for US manufacturing affiliates, and how the structure of trade costs affects the choice between FDI for local sales, exports back to the parent country and export platform. Baltagi, Egger and Pfaffermayr (2007[8]), while not looking at export platform sales directly, find significant third-country demand and supply effects in the determination of bilateral FDI, highlighting dependency among host markets in MNE decisions. Ito (2013[9]) built a model of export-platform FDI showing that a reduction in trade costs induces firms to opt for FDI export-platform. Using US outward FDI data, he finds that regional trade agreements, such as the EU integrated market, have a positive impact on export-platform FDI. More recently, Tintelnot (2017[10]) developed a general equilibrium framework of multinational firms' location and production decisions, where firms face fixed costs of setting up foreign establishments and simultaneously decide the set of countries in which to establish plants, which markets to serve from each plant, and how much to sell to each market. A calibrated version of his model yields strong third-party effects of bilateral trade liberalisation due to the possibility of export platform sales. Lastly, Kondo (2018[11]) shows that there is a difference in the sourcing patterns of Japanese affiliates located in Mexico, depending on whether they sell to North America or locally, and that one of the main motives for export-platform FDI in Mexico is related to saving labour costs. This literature, however, has focused on manufacturing and to our knowledge has not specifically explored the role and importance of export platforms in services. Our study fills in this gap by exploring the export platform dimension of FDI in both services and goods across a wide range of countries and industries.

Third, a number of papers have analysed Japanese micro-data with a comparison of internationalised firms operating in goods and services. Morikawa (2019[12]) highlights several stylised facts about services trade by Japanese firms: (i) the number of firms engaged in service trade is far less than that engaged in goods trade, and among service exporting firms, the large majority of these firms exports both goods and services; (ii) more than 70% of service exports are directed to overseas affiliate firms, while for goods trade the share is lower; (iii) service trading firms have higher productivity and wages than domestic firms and goods trading firms; (iv) the productivity of firms that export services beyond the boundary of their corporate groups is higher than for those that only export services intra-firm. Tanaka (2011[4]) also finds that a lower fraction of services firms are MNEs than in manufacturing. Wakasugi et al. (2014[13]) compare the characteristics of Japanese exporters and MNEs with those of European countries, but their sample is limited to the manufacturing sector. Their findings on the productivity ordering of internationalized and domestic firms confirm earlier work by Tomiura (2007[14]) and Kimura and Kiyota (2006[15]). A paper closely related to ours is Baldwin and Okubo (2014[16]). The authors highlight that motives for FDI are more complex than a choice between horizontal (local sales by affiliates) and vertical (processing of intermediates sourced elsewhere). In 2005, across manufacturing and services affiliates, they find that 25% of affiliate sales and 28% of purchased inputs are neither to/from the host nation nor to/from Japan, with wide variation across sectors and host markets. We complement this literature by focusing on the

[7] Among studies going beyond the horizontal vs vertical dichotomy, Herger and Mccorriston (2016[17]) also argue that a significant part of cross-border acquisitions, another way of looking at FDI besides greenfield investment, has a conglomerate nature to it; it occurs in related or unrelated industries and is not motivated by the proximity-concentration trade-off nor the factor cost saving rationale, rather it is driven by financial arbitrage opportunities. Even among vertical FDI, there might be different reasons beyond the theoretical "make-or-buy" argument. Atalay et al. (2014[18]) find very small shares of intra-firm trade between upstream and downstream firms and that vertical ownership often serves the purpose of promoting efficient intra-firm transfers of intangible inputs (e.g. managerial oversight, marketing know-how, R&D capital, etc.) rather than physical ones. We further contribute to this strand of work through a detailed exploration of the patterns and determinants of FDI driven by these different motives.

sales patterns of both service and manufacturing affiliates while taking into consideration the main activities of parent firms, especially the interconnections between services and goods trade.

3. Data and key stylised facts

Firm-level data on parent firms and foreign affiliates are drawn from the Basic Survey on Overseas Business Activities (BSOBA), conducted annually by the Ministry of Economy, Trade and Industry (METI). The survey targets Japanese corporations from all sectors that own one or more overseas affiliates, defined as either foreign affiliates in which Japanese companies have a direct invested capital of at least 10% or foreign affiliates indirectly controlled by majority-owned Japanese subsidiaries abroad that have an invested capital of more than 50%.[8] The survey mainly targets companies that have 50 or more employees and a capital of 30 million yen or more. Despite not having a mandatory nature, the BSOBA has an average response rate of about 73% during the time period considered in this analysis (see Table A.1 for more details). The survey includes a wide range of questions on aspects related to employment, investment and business activities, including sales and purchases.[9] It also includes information on the main sector of the overseas affiliate and the breakdown of its sales and purchases by destination/sourcing country.[10] The estimation sample for this analysis covers the period 2008-2016 and all financial variables are converted in constant 2015 yen.

The main variables of interest are the volume of local sales and exports of foreign affiliates in goods and services sectors. The survey is unique in distinguishing, for each foreign affiliate, between local sales, sales back to Japan (including to the parent company), or to third countries. The latter component is further broken down into regional groups (Asia, Europe, North America, and other regions). This decomposition is particularly interesting to explore the FDI-export platform phenomenon and more broadly the potentially different impact of policies on FDI depending on whether it seeks to maximise proximity to customers, to establishing a gateway to neighbouring destinations or to help advance Japanese products through global value chains.

Table 1 reports descriptive statistics on the activity of Japanese parents and their overseas affiliates from 2008 to 2016.The number of Japanese corporations with foreign affiliates in both manufacturing and services covered by the survey has mostly increased over time. On average, parent firms have nearly twice as many services affiliates, present in a larger number of host economies than parents with affiliates producing goods. However, manufacturing affiliates are marginally larger (in terms of average turnover) than affiliates whose main activity is in services sectors, while at the parent level, MNEs whose affiliates provide services are significantly larger than parents with affiliates in goods-producing sectors, suggesting significant fixed costs of becoming a MNE in services.

[8] Japanese parents in finance and real estate activities are excluded from the BSOBA. Based on the US Bureau of Economic Analysis outwards Foreign Affiliates Trade Statistics (FATS), affiliates in finance and real estate represented about 16% and 6% respectively of the total number of US foreign affiliates and accounted for 8% and 3% of all US foreign affiliate sales in 2014. While the contribution of these sectors might not be negligible, the main determinants for investing in these fields are likely to differ from those underlying investment decisions in the other sectors covered in the BSOBA.

[9] In the case of affiliates in the manufacturing sector, the survey also distinguishes between final products and intermediate inputs sourced or sold by the affiliate.

[10] The data are organised following a BSOBA-specific industry classification broken down into 84 sectors. The BSOBA industry classification is comparable to JSIC Rev. 13 and ISIC Rev. 4.

Table 1. General characteristics of Japanese parents and affiliates, 2008-2016

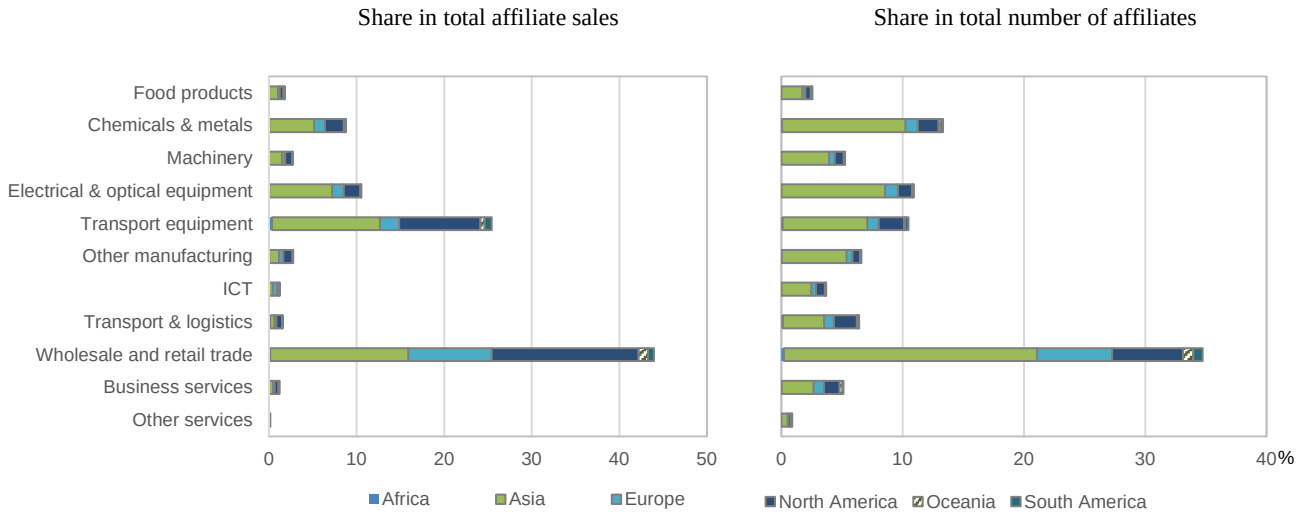
By year and affiliate's sector

Affiliate's sector	Year	No. of parents	No. of affiliates	Average no. of affiliates per parent	Average no. of countries per parent	Average no. of sectors per parent	Average affiliate turnover	Average parent turnover
Manufacturing	2008	2,287	7,722	12	7.2	2.7	11,890	119,162
Manufacturing	2009	2,684	8,402	11	6.8	2.4	10,376	84,392
Manufacturing	2010	2,826	8,641	11	6.7	2.4	11,973	84,407
Manufacturing	2011	2,909	8,883	11	6.7	2.4	11,738	84,773
Manufacturing	2012	3,515	9,754	11	6.3	2.4	11,660	72,482
Manufacturing	2013	3,725	10,178	10	6.2	2.3	13,901	73,075
Manufacturing	2014	3,666	10,212	10	6.2	2.3	14,851	71,951
Manufacturing	2015	3,454	9,917	10	6.4	2.3	15,261	70,532
Manufacturing	2016	3,049	9,059	10	6.6	2.4	14,553	71,794
Services	2008	1,972	7,955	20	11.3	2.6	13,844	172,838
Services	2009	2,270	8,649	21	11.1	2.7	11,029	128,249
Services	2010	2,378	8,913	19	10.8	2.6	11,709	129,216
Services	2011	2,444	9,173	18	10.5	2.5	11,927	128,078
Services	2012	3,132	10,394	18	10.1	2.5	10,909	102,084
Services	2013	3,278	10,837	18	10.2	2.5	12,844	105,180
Services	2014	3,206	10,964	20	10.6	2.6	14,088	105,265
Services	2015	3,102	10,706	18	10.5	2.6	13,598	99,874
Services	2016	2,719	9,847	19	10.7	2.6	12,797	103,211

Note: Monetary values are expressed in constant 2015 million YEN.
Source: Own calculations based on the micro-data from the Basic Survey on Overseas Business Activities (BSOBA), Japan Ministry of Economy, Trade and Industry (METI).

Regarding the geographic distribution of Japanese foreign affiliates in our sample (Figure 1), two thirds of foreign affiliates are located in Asia, generating nearly half (46%) of foreign affiliate sales. North America (largely the United States) is another important investment region for Japan, hosting over 15% of all its overseas affiliates and being responsible for one third of all affiliates sales. In terms of sectoral distribution, almost a quarter of affiliate sales is generated in the transport equipment sector, but the electronic and optical equipment sector are also important. This is hardly surprising considering that Japan is home to some of the world's largest vehicle manufacturing multinationals, such as Toyota, Nissan, Honda, Suzuki, Mazda, etc. and many high-end electronic companies, with Hitachi, Mitsubishi, Panasonic, Toshiba to name a few. The importance of services in Japanese firms' model of establishing FDI hubs is stressed by the fact that distribution is the most prevalent sector, accounting for one third of all foreign affiliates and 42% of total affiliate sales. Most of these affiliates are based in Asian markets; however, those located in North America, although representing only 5% of all Japanese affiliates, sell slightly more than the Asian subsidiaries. Many affiliates belong to or have business ties with Japan's *sogo shosha*, such as Mitsui Bussan, Mitsubishi Shoji, Itochu, Marubeni, etc. They serve as coordinators of worldwide product and service networks, and provide an extensive array of goods and services.

Figure 1. **Foreign affiliate activity by region and sector, 2016**



Note: The figure reports the shares in total affiliate sales (right) and in the total number of affiliates (left), broken down by the region where the affiliate is located. The aggregate 'Other manufacturing' includes the 'Textile & apparel' and 'Wood, pulp & paper' sectors as well, while 'Other services' covers also 'Construction', 'Finance and insurance', 'Real estate and renting activities', and 'Audio-visual services' sectors.
Source: Own calculations based on the micro-data from the BSOBA, Japan METI.

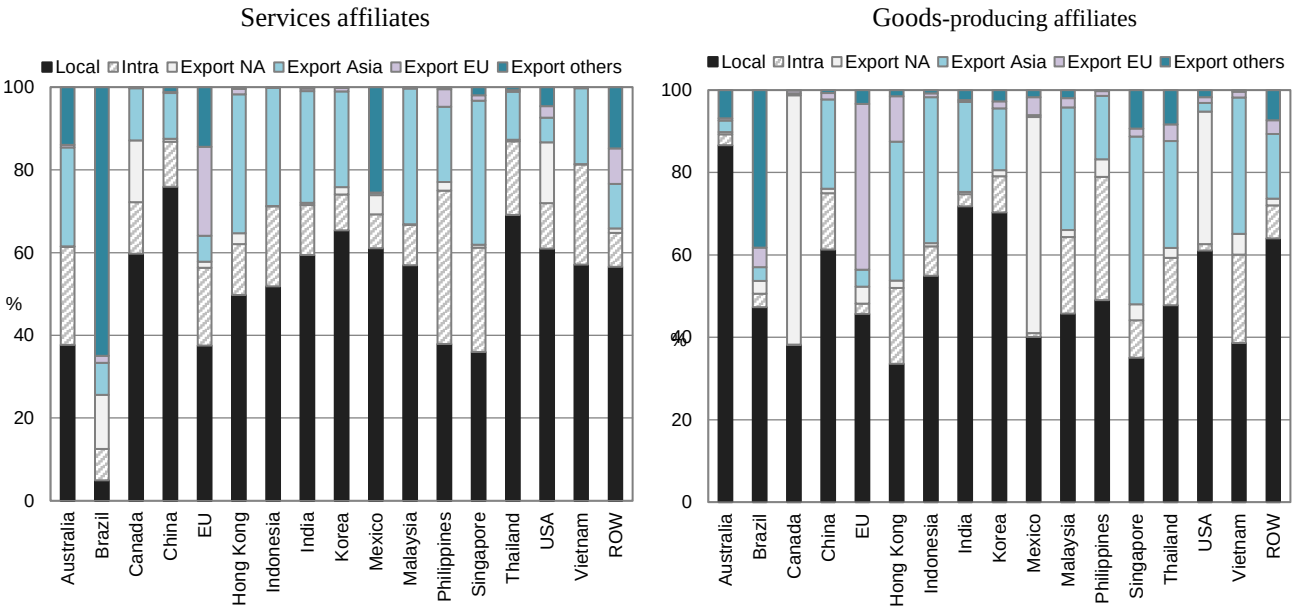
As mentioned above, the BSOBA further allows us to analyse the decomposition of Japanese affiliate sales by final destination, i.e. local sales, sales to the parent country and sales to third countries. This breakdown is shown in Figure 2 for 2016, the latest year in our sample.

Services foreign affiliates are predominantly oriented towards the local market in most countries. Sales to domestic customers (horizontal motives) account for more than two thirds of affiliate sales in some countries, such as China, Korea and Thailand. Intra-firm transactions (pure vertical motives) are particularly large between Japanese parents and services affiliates located in some key countries for Japanese value chains, such as the Philippines (nearly 40% of total affiliate sales). Most importantly for this paper, export platform sales, mainly to regional destinations, represent a sizeable share of the activity of services affiliates in a number of countries. For instance, Singapore and Hong-Kong, China function as regional hubs for other Asian markets; the United States serves mostly the rest of North America; Brazil is a focal point for the rest of South America; and the integrated EU market makes it easy to sell in the region through a single entry point.

Compared with services affiliates, Japanese foreign affiliates engaged in manufacturing sectors tend to favour local sales mostly in remote areas (*e.g.* Australia) or for large markets (*e.g.* India) while the main centres for vertical activity are similar to those for services (*e.g.* Philippines, Vietnam). Focusing on export platforms activity, Canada and Mexico emerge as important distributional hubs to sell affiliates' products in the rest of North America (with about 60% of total affiliate sales).[11] Singapore is another important export platform for goods-producing affiliates, reaching out to other markets in Asia and beyond.

[11] This finding is in line with the existing literature on the activity of Japanese foreign affiliates. For instance, Kondo (2018[11]) shows that Japanese foreign affiliates based in Mexico and selling to North America are part of a vertical production network within NAFTA, by sourcing their intermediate inputs primarily from the United States and Canada; instead, Japanese affiliates serving the local market import their inputs not only within NAFTA countries but also Japan.

Figure 2. Geographical breakdown of foreign affiliate sales, 2016, %



Note: The shares show the percentage of sales of foreign affiliates that are destined to the local markets (local), to the parent (intra-firm) and to third countries or unrelated parties in the home country (export). The latter group is further decomposed into exports addressed to North America (export NA), Asia (export Asia), Europe (export EU) and other regions (export other).
Source: Own calculations based on the micro-data from the BSOBA, Japan METI.

In short, the descriptive analysis confirms that selling strategies of Japanese MNEs across countries and industries are of complex nature. Overall, and to some extent contrary to common priors, the share of local sales is not higher on average for services affiliates than for manufacturing: services do not appear to be more local in nature than goods in FDI activity. The share of exports to third countries is only slightly lower than for manufacturing, which justifies a stronger focus on the relatively understudied export platforms in services. Irrespective of the sector of main activity of the foreign affiliate, some economies are favoured to serve as gateways to other destinations in their region. This heterogeneity of motives for FDI between countries and the diversity of this mix across countries motivate our analysis of the drivers of attractiveness for export platform FDI, which is likely to go beyond the search for a favourable geographical position and be influenced by the regulatory and policy environment of the host market.

4. Empirical strategy

The econometric analysis aims to analyse the drivers Japanese FDI, and particularly whether the establishment of export platforms, horizontal FDI and vertical FDI are associated with different trade and tax policies of the host country. A discrete choice model (binary probit) is used to estimate the probability of observing international sales of a specific service or product by a Japanese firm in a given country at a given point in time. To this end, zero affiliate sales are imputed to countries and sectors that are not served in a given year, provided that the firm reports having an affiliate in the same sector in at least one country in the same year. In other words, this takes into account the extensive margins in terms of destination countries.[12] The probability of international activity is estimated with the following model, run separately for each of the three types of sales:

[12] It is not possible to assess effectively other types of extensive margins because the BSOBA does not cover the full population of Japanese MNEs. Hence, it is impossible to distinguish from year to year whether

$$P(X_{ict}^{s*} > 0) = \Phi(a + \beta_1 F_{it} + \beta_2 Z_{ct} + \beta_3 Y_c + \beta_4 W_{ct}^{s} + \varphi_s + \theta_t + \varepsilon_{ict}^{s})$$

where the outcome variable takes a value of one if positive foreign affiliate sales in sector *s* by Japanese firm *i* is observed in country *c* in a given year t, and zero otherwise. The explanatory variables, detailed below, include firm-level variables F_{it}; host country variables Z_{ct}; time-invariant gravity variables Y_c;[13] and host country-sector specific variables W_{ct}^{s}.[14] Sector and time fixed effects φ_s and θ_t are included in the regressions to control for all sector-specific factors (e.g. technological characteristics) and global time-specific shocks.

We carry out the panel data analysis separately on the sales of affiliates having their primary activity in manufacturing and services, over the period 2008-2016.[15] As the dataset does not include information on affiliates' secondary activities, it is not possible to identify affiliates that may sell bundles of goods and services jointly. Foreign affiliates are differentiated based on the final destination of their sales (*i.e.* sales destined to the host market, sales back to the parent firm and sales addressed to third countries).

The regression equations include a number of potential determinants of international orientation at the parent firm level. These include: productivity, measured as the firm's total turnover per employee[16], following the findings of Helpman, Melitz and Yeaple (2004[1]) who point to the most productive firms self-selecting into becoming multinational companies; size, measured by the parent's total number of employees and capturing the benefits of scale for international expansion;[17] and whether the parent firm's primary activity is in goods or services, to account for the fact that services affiliates of manufacturing multinationals and vice versa may have different behaviours than affiliates whose primary sector is the same as their parent's core activity.

The firm-level data is merged with several country-level databases to account for the role of host country characteristics in establishment decisions (see annex Table A.3 for a complete list of variable definitions and sources). Explanatory variables at the host country level in the baseline equation include market size, measured by the GDP of the host economy; the distance between Japan and the host economy; the existence and depth of

a given parent starts or stops selling abroad, whether it enters or exits the survey sample, or whether the firm is born or liquidated. However, when a parent firm reports affiliate sales to at least one destination, it can be reliably inferred that it was sampled that year and it answered the survey, thus would have been required to report the existence of affiliates in other countries had these existed. The remaining margin of error concerns activity below reporting thresholds, which is indistinguishable from true zeroes.

[13] While the gravity framework has been developed in the context of trade in goods, it has been shown to be a good fit also for trade in services and foreign affiliate sales – see Ceglowski (2006[47]); Kimura and Lee (2006[30]); Kleinert and Toubal (2010[29]); Rouzet, Benz and Spinelli (2017[6]).

[14] As one of the main variables of interest is the restrictiveness of services regulation, captured by the OECD STRI which is defined at the country-sector level and does not yet have a sufficiently long time series to allow robust inference from time variation in policies, the regressions do not include country fixed effects. This could introduce some bias in the coefficients on the OECD STRI as multilateral resistance effects are omitted (Anderson and van Wincoop, 2003[28]).

[15] Given the large number of zero affiliate sales generated to estimate extensive margins at the sector level, the sample used for the empirical analysis is restricted to those countries where there Japanese MNEs have a critical number of foreign affiliates. The final regression sample includes 28 economies.

[16] The regression analyses consider only MNEs with at least ten employees to filter holdings and outliers.

[17] Firm size is also expected to be correlated with productivity within a country unless allocative inefficiencies are high.

free trade agreements (FTAs) between Japan and the host country;[18] the efficiency of customs procedures; and corporate profit tax rates in the host economy.

Subsequent specifications consider other potential determinants of FDI attractiveness emerging from the existing literature on FDI location choice. Given that the additional variables restrict the size of the sample further, they are introduced sequentially in the equation. First, we include industry-specific measures of R&D intensity, as well as fixed broadband penetration rates (covering both cable and fiber) to proxy for the level of innovation and digital infrastructure in the host economy. This captures the fact that the proximity to the innovation frontier and connectivity of the host market may influence FDI location, for instance driven by agglomeration economies, particularly in high-tech industries. We also consider labour costs and labour market regulation in the host country, with the average wage rate in the host country and the OECD indicator of employment protection stringency.[19]

Our main interest is in how policy-induced trade barriers in the host economy may influence investment decisions, and may do so differently depending on whether the ultimate goal is to serve the host market, the parent or third countries. In manufacturing sectors, the applied average tariff rate in the host country and in the affiliate's broad industry are included to test whether high tariffs incite firms to locate their production plants within the destination market to avoid tariffs on their products (tariff-jumping FDI), or discourage FDI for instance where affiliates rely on imported inputs. In services sectors, we include the OECD Services Trade Restrictiveness Index (STRI), capturing regulatory barriers to services trade and investment that restrict the market access or recurrent operations of foreign exporters and MNEs.[20] Furthermore, restrictions to digital trade, which could tilt the decision towards establishing in a country rather than trading with it both in manufacturing and services, are captured by the OECD Digital STRI.[21]

[18] Ito (2013[9]) finds that Japan's economic partnership agreement with Malaysia facilitates FDI export-platform. Urata (2015[40]) reports that Japan's FTAs have positive impact on Japanese firms' FDI location decision.

[19] Fukao and Cheng (1996[48]) and Fukao and Wei (2008[25]) find that labour costs have a strong negative impact on the location choice in case of vertical FDI of Japanese MNEs. Urata and Kawai (2000[26]) show that the availability of low wage labour plays a considerable role for investment location decisions by Japanese manufacturing firms, especially for SMEs. Amoroso et al. (2015[27]) analyses how labour market features influence MNEs FDI decisions, showing that labour market regulation (which they approximate with labour union negotiations and collective bargaining) exert a toll on greenfield FDI activity in manufacturing sectors.

[20] The OECD STRI is a composite indicator that summarises regulatory information on services trade and investment restrictions in 22 sectors across 44 countries. The indices account for restrictions to foreign entry, limitations to the temporary movement of people, barriers to competition, other discriminatory measures, and red tape and regulatory transparency, and can be broken down by mode of supply. The indices are available from 2014 onwards. However, as the dataset used in this analysis ends in 2014, the indices for that period are applied to the whole sample, considering that the STRI data is not available for earlier years and regulation is to a large extent persistent over a period of a few years.

[21] The OECD Digital Services Trade Restrictiveness Index (Digital STRI) identifies and catalogues cross-cutting barriers that affect trade in digitally enabled services across 46 countries (including OECD countries, G20, and BRICS countries).

5. Estimation results

5.1.1. Baseline results on location choices by final destination

Table 2 reports the baseline results of our estimation with the largest sample. The results are presented separately for goods and services affiliates, broken down by final destination of their sales, allowing us to look at the FDI decision in a comparable way with more granularity along these dimensions than the existing literature.

The coefficients on firm-level variables and gravity controls first confirm, across sectors and types of FDI, a number of well-established patterns in the literature. Larger and productive firms are more likely to establish more affiliates abroad, consistently with the size and productivity premium already documented in Japan and other countries for multinationals. The probability of observing foreign affiliates consistently increases with the market size of the host economy and decreases with distance to Japan, even more so for foreign affiliates engaged in manufacturing industries. Distance captures transport costs for inputs and outputs, but also cultural differences, transactional costs and informational asymmetries that are relevant to FDI activity. It also conforms to intuition that parent firms more often establish affiliates in the same broadly defined sector they are operating in. Manufacturing parents are more likely to have overseas affiliates producing goods and conversely services parents are more likely to establish affiliates in services sectors.

A novel finding is that export-platform FDI is the most sensitive to parent size and productivity. This is consistently the case across goods and services but even more so in services. In other words, not only do large and productive firms tend to self-select into outward FDI while others export or remain domestic, as in e.g. Helpman, Melitz and Yeaple (2004[1]) and Tanaka (2011[4]), but this selection is stronger for export platforms, especially in services sectors. This indicates that the fixed costs of establishing export platforms are larger than for FDI purely oriented towards the local market or production offshoring, possibly because it entails the establishment of more complex buyer-seller relationships in several countries. It also suggests that policies that encourage the establishment of foreign services export platforms could yield larger productivity spillovers and technology transfers than for other forms of FDI. In addition, export-platform FDI is found to be the least sensitive to local market size as well as to distance to Japan, which is expected as its sales target third countries rather than the host or parent country.[22]

We then turn to the main question this paper aims to investigate: do policies, in particular trade and tax policies, have a different influence on FDI location choices depending on their main motive, and on whether it occurs in services or goods?

[22] It is also consistent with priors that the largest coefficients on local market size are found for horizontal FDI, which is destined to serve the local market, and the largest point estimates on distance for intra-firm trade in manufacturing, where transportation costs for inputs shipped between the affiliate and the parent are particularly relevant.

Table 2. Baseline results

	Local		Intra-firm trade		Exports to third countries	
	Affiliates in goods	Affiliates in services	Affiliates in goods	Affiliates in services	Affiliates in goods	Affiliates in services
Lab prod (log)	0.040***	0.094***	0.025***	0.133***	0.053***	0.163***
	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Size (log)	0.119***	0.152***	0.090***	0.138***	0.138***	0.165***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Main activity in goods	0.255***	-0.121***	0.213***	-0.184***	0.266***	0.002
	(0.009)	(0.006)	(0.010)	(0.007)	(0.010)	(0.007)
Distance (log)	-0.617***	-0.516***	-0.622***	-0.493***	-0.505***	-0.382***
	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)
GDP (log)	0.378***	0.307***	0.298***	0.265***	0.266***	0.217***
	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)
FTA depth	0.154***	0.109***	0.121***	0.079***	0.135***	0.099***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
LPI customs	0.017***	0.463***	-0.040***	0.474***	0.073***	0.650***
	(0.006)	(0.006)	(0.006)	(0.008)	(0.006)	(0.009)
Corporate tax	-0.712***	-0.807***	-0.370***	-0.833***	-0.428***	-1.131***
	(0.051)	(0.05)	(0.058)	(0.062)	(0.057)	(0.062)
Constant	-8.258	-4.016***	-6.516	-4.474***	-8.036	-5.894***
	(99.348)	(0.048)	(97.877)	(0.06)	(165.837)	(0.065)
Observations	1,049,589	856,591	1,049,589	855,019	1,049,589	856,227
R-squared	0.231	0.194	0.204	0.191	0.175	0.183
Time FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Note: The figures above are estimated coefficients from the probit regressions (not the marginal effects). The panel covers the period 2008 to 2016. The dependent variable is a binary indicator for strictly positive foreign affiliate sales. The standard errors are reported below the estimated coefficients. ***, ** and * mean statistical significance at 1%, 5% and 10% levels respectively.

The baseline includes two measures of trade policy: the existence and depth of free trade agreements between Japan and the host country, and the extent of trade facilitation as captured by the LPI index.[23] These variables account for the interdependence between FDI and trade, based on the empirical literature that has shown that affiliates of multinational firms are more likely to be importers and exporters than domestic firms.

We find that bilateral FTAs are associated with a higher probability of opening up subsidiaries in that country. Our measure takes into account how comprehensive the FTA is, including whether in addition to tariff and NTM reductions and services chapters, the agreement comprises provisions that deal with competition, investment, movement of capital and data protection policies, which are important to create a favourable environment for FDI. Free trade agreements are associated with more establishment of affiliates, with a somewhat larger magnitude of the coefficients on manufacturing affiliate sales. This is likely to reflect the fact that FTAs tend to entail more significant liberalisation and preferential treatment in goods sectors (tariffs and non-tariff measures) than in services, where they tend to lock in the status quo. However, we do not find significant differences in the estimated effect of FTAs between horizontal, vertical and export-platform FDI.

[23] Additional specific measures for manufacturing and services, where data availability restricts the sample further, are introduced later in the paper.

The LPI customs index, capturing speed, simplicity and predictability of border procedures, is also positively associated with the establishment of foreign affiliates. This result holds for both manufacturing and services, with larger point estimates in services, which may reflect the prevalence of distribution subsidiaries relying on imports and exports. Among types of FDI, the strongest effect of LPI is found for sales to third markets, which confirms the importance of speedy and reliable customs procedures for the competitiveness of an export platform and hence for a country's ability to attract this type of FDI.

Statutory corporate tax rates in the host country, which add to the cost of operating an affiliate and are an important element of competition across countries to attract FDI, are indeed associated with a lower probability of locating affiliates in this country.[24] This holds across all specifications, but the estimated elasticity is higher for services and particularly for export platforms in services. A potential explanation for this new finding is that location choices for export platforms are more responsive to tax competition across countries, as export platforms are more "footloose" than other types of FDI, not being tied to a specific local market. Yet, this would not explain the difference between manufacturing and services. It is therefore likely that our findings also reflect the higher potential for MNE profit shifting across jurisdictions in services sectors and use of tax optimisation strategies within a parent's affiliate network.

5.1.2. Tariffs and services trade barriers

As stated above, one of our main interests, and an innovation of our paper, is to consider the role of trade policies in attracting FDI both in manufacturing and services, and in relation to whether the affiliate is established to produce for the local market, the parent or third countries. We delve further into this analysis by introducing industry-level trade policy variables in our specifications for manufacturing and services affiliates.

For manufacturing affiliates, barriers to merchandise trade are captured by average tariff rates applied by the host country in their industry (Table 3, top panel). These are included in levels and interacted with firm size and productivity to capture heterogeneous effects on firms. The estimated coefficients indicate that FDI may be associated with tariff-jumping motives for some MNEs, substituting FDI for exports where tariffs are higher, but tariffs act as a deterrent to the establishment of affiliates by the most productive MNEs. This suggests that imposing high tariff barriers deprives the host economy of the technology and productivity spillovers induced by FDI inflows from the highest-productivity Japanese firms. The estimated coefficients have similar magnitudes for FDI oriented towards local sales, intra-firm transactions and export to third markets.[25]

[24] Better measures, such as the effective tax rate, would need to take into account special tax breaks, accelerated depreciation schemes, and other tax incentives faced by multinational firms (Benassy-Quere, Fontagné and Lahrèche-Révil, 2005[31]), but are not available as time series in a comparable manner for a large set of countries.

[25] Note that Hayakawa and Matsuura (2015[41]) find that tariff reductions in Asian countries lowered the trade cost and productivity cut-off for vertical FDI and induced the surge of Japanese FDI in developing countries.

Table 3. Further determinants of location choices, trade policy measures

Manufacturing affiliates

	Local			Intra-firm trade			Exports to third countries		
Tariff	0.006***	0.002	0.020***	0.004***	0.013***	0.018***	0.004***	0.003*	0.017***
	(0.000)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
Tariff* Firm size		0.001**			-0.001***			0.000	
		(0.000)			(0.000)			(0.000)	
Tariff* Firm lab prod			-0.003***			-0.003***			-0.003***
			(0.000)			(0.000)			(0.000)
Observations	859,497	859,497	859,497	859,497	859,497	859,497	859,497	859,497	859,497
R-squared	0.232	0.232	0.233	0.208	0.208	0.208	0.178	0.178	0.178
Time FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Services affiliates

	Local		Intra-firm trade		Exports to third countries	
STRI mode 1	-0.324	-1.509	-1.106	-2.799*	-1.405	-0.797
	(1.208)	(1.320)	(1.464)	(1.580)	(1.456)	(1.580)
STRI mode 3	-1.363***	-2.686***	-1.024***	-2.171***	-2.408***	-3.378***
	(0.127)	(0.137)	(0.163)	(0.173)	(0.168)	(0.181)
STRI mode 1 * Firm lab prod	1.864***	0.749***	1.649***	1.213***	2.455***	1.291***
	(0.258)	(0.284)	(0.301)	(0.328)	(0.300)	(0.331)
STRI mode 3 * Firm lab prod	0.480***	0.511***	0.367***	0.401***	0.606***	0.621***
	(0.026)	(0.028)	(0.032)	(0.034)	(0.033)	(0.035)
Region STRI mode 1		23.351***		14.909***		16.464***
		(0.902)		(1.032)		(1.051)
Region STRI mode 3		4.098***		1.825***		3.221***
		(0.128)		(0.158)		(0.166)
Observations	555,497	441,335	555,497	441,335	555,497	441,335
R-squared	0.253	0.262	0.253	0.250	0.213	0.212
Time FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Note: All control variables included in Table 2 are also included in these regressions, with coefficients very similar to those of Table 2, but not reported for conciseness of presentation. The figures above are estimated coefficients from the probit regressions (not the marginal effects). The panel covers the period 2008 to 2016. The dependent variable is a binary indicator for strictly positive foreign affiliate sales. The standard errors are reported below the estimated coefficients. ***, ** and * mean statistical significance at 1%, 5% and 10% levels respectively.

For services affiliates, we introduce OECD indices of services trade and investment restrictions for countries and sectors where they are available.[26] Previous studies have shown that trade costs (both fixed and variable) act as strong deterrents to FDI in services (Rouzet, Benz and Spinelli, 2017[6]). The indices are split between restrictions to cross-border services trade ("mode 1") and restrictions to commercial establishment by foreign firms ("mode 3").

Our results are three-fold (Table3, bottom panel). First, higher restrictions to foreign firms' establishment are strongly associated with a lower probability of observing foreign affiliates in the sector. This finding is

[26] The estimation sample for the specifications with the OECD STRI is considerably smaller than in other specifications as it is limited by the sectoral and geographical coverage of the index.

intuitive but interestingly, the impact is particularly high on export platforms. Restrictions to cross-border services trade in the affiliate's sector, on the other hand, only have a statistically significant negative effect for affiliates engaged in intra-firm trade, which are more likely to import services from the parent or other affiliates.

Second, the coefficients associated with the STRI suggest strong heterogeneity in the effects of these restrictions across parent firms. Countries with higher regulatory restrictions to FDI in services ("mode 3") are less likely to host foreign affiliates in services overall, but the effect is less strong for more productive MNEs. This suggests that services investment barriers raise the productivity threshold for MNEs to invest in the country, lowering inwards FDI overall and truncating the productivity distribution of MNEs still present in the country. The estimated sensitivity of location choices to investment barriers is largest for export platforms. We also find that the most productive MNEs are encouraged to set up affiliates by higher restrictions to cross-border trade ("mode 1"), suggesting that high-productivity MNEs are able to tilt their location choices to circumvent restrictions to direct exports, equivalently to the tariff-jumping effect for goods.

Third, location choices are also sensitive to the regional regulatory environment, especially for horizontal and export platform FDI. Setting up an affiliate in one country as an export platform is often a choice of not setting up an affiliate in the neighbouring country to serve it directly; or conversely, setting up an affiliate in one country to serve the local market is also a decision not to sell there through an export platform in the region. We therefore expect that if multinationals compare regulatory costs between countries to decide where to establish, a country is more likely to be chosen if, *ceteris paribus*, its neighbours apply more restrictive or discriminatory regulations to foreign firms. We test this channel by including in the regressions the average STRI value for the region excluding the country itself.[27] Our results confirm that a higher sector-level restriction to trade and FDI in other countries of the region are associated with a higher probability of receiving FDI for a given country.

Overall, our findings highlight that the choice of where to locate export platforms in services is highly sensitive to investment restrictions, including in comparison to other types of FDI. We find evidence consistent with the idea that MNEs compare the conditions offered in different potential host countries in a given region and pick those with lower entry costs and less red tape as regional or global platforms for services than can be delivered from anywhere.

5.1.3. Digital trade barriers

In many sectors, digitalisation raises the importance of technological readiness, but also the potential influence of restrictive policies to digital trade in many sectors. We test whether this affects location choices by including the OECD digital STRI, which covers regulations related to digital infrastructure, electronic transactions, payment systems and intellectual property; as well as variables on industry-level R&D expenditure and fixed broadband coverage (Table 4).[28] We find that both of these are associated with higher probabilities of Japanese affiliate establishment in the host country across specifications. Japanese MNEs appear to offshore more innovation intensive activities in foreign countries that undertake more R&D in these sectors, pointing to a likely complementarity between the parent's and the host economy's innovative activities. The largest point estimates on the degree of industry-specific R&D intensity in the host market are found for intra-firm trade, where comparative advantage motives are most at play. The benefits of a well-developed digital infrastructure also appear in terms of FDI attractiveness. However, importantly, the gains from both high R&D intensity and more

[27] Regional STRIs are defined as average values for the continent of the host country (Asia, Europe, North America and South America) where the information is available, excluding the host country itself from the calculation of the average.

[28] The results (available upon request) are extremely similar when including data and voice broadband coverage instead of fixed broadband coverage.

extensive broadband coverage in terms of inward FDI but they are muted if the country imposes restrictive regulations on digital activities. The positive coefficient on the digital STRI on its own appears somewhat surprising. It may reflect forced data localisation requirements that induce firms to locate in a country in order to do business there in relatively low-tech industries, while in more digital-intensive production processes restrictive regulation on data and electronic activities act as a deterrent. Therefore, there appears to be strong complementarities, in order to attract foreign investment in innovative and digitally-enabled sectors, between investing in high-speed internet infrastructure and ensuring that digital regulations do not discriminate against foreign providers, especially for services sectors. There are complementarities as well between developing local R&D-intensive sectors and non-discriminatory digital rules.

Table 4. Digital trade restrictions and technological readiness

	Local		Intra-firm trade		Exports to third countries	
	Affiliates in goods	Affiliates in services	Affiliates in goods	Affiliates in services	Affiliates in goods	Affiliates in services
Lab prod (log)	0.061***	0.090***	0.053***	0.143***	0.046***	0.150***
	(0.006)	(0.004)	(0.007)	(0.004)	(0.006)	(0.005)
Size (log)	0.200***	0.186***	0.199***	0.177***	0.220***	0.202***
	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)
Main activity in goods	0.348***	0.147***	0.307***	0.033***	0.317***	0.208***
	(0.018)	(0.009)	(0.022)	(0.012)	(0.020)	(0.012)
Distance (log)	-0.308***	-0.382***	-0.330***	-0.498***	-0.207***	-0.312***
	(0.010)	(0.009)	(0.012)	(0.012)	(0.011)	(0.011)
GDP (log)	0.403***	0.436***	0.331***	0.433***	0.337***	0.362***
	(0.008)	(0.005)	(0.010)	(0.007)	(0.008)	(0.006)
FTA depth	-0.012*	0.043***	-0.030***	0.030***	-0.039***	0.037***
	(0.007)	(0.005)	(0.010)	(0.008)	(0.009)	(0.007)
LPI customs	-0.179***	0.600***	-0.063	0.966***	-0.198***	0.863***
	(0.037)	(0.033)	(0.047)	(0.047)	(0.040)	(0.041)
Corporate tax	-0.114	0.609***	0.347**	0.922***	-0.231*	0.655***
	(0.114)	(0.090	(0.139)	(0.120)	(0.119)	(0.104)
R&D Exp share GO	16.431***	-1.06	12.610***	20.666***	11.919***	3.472
	(1.077)	(2.494)	(1.313)	(2.815)	(1.226)	(3.061)
Broadband coverage	0.012***	0.022***	0.002	0.014***	0.016***	0.013***
	(0.003)	(0.002)	(0.004)	(0.003)	(0.003)	(0.003)
Digital STRI	1.091***	3.676***	-0.151	5.064***	1.717***	3.597***
	(0.393)	(0.289)	(0.559)	(0.430)	(0.440)	(0.380)
DSTRI*R&D	-111.582***	10.603	-54.267***	-159.121***	-61.170***	-10.385
	(11.803)	(24.637)	(14.335)	(28.269)	(13.304)	(30.061)
DSTRI*Broadband	-0.077***	-0.232***	-0.017	-0.188***	-0.087***	-0.161***
	(0.022)	(0.015)	(0.029)	(0.021)	(0.025)	(0.018)
Constant	-11.337	-9.238***	-10.342	-10.561***	-11.342	-10.894***
	(77.793)	(0.105)	(109.530)	(0.149)	(90.635)	(0.141)
Observations	573,847	468,825	571,271	466,429	573,847	459,627
R-squared	0.258	0.235	0.244	0.241	0.229	0.231
Time FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Note: The figures above are estimated coefficients from the probit regressions (not the marginal effects). The panel covers the period 2008 to 2016. The dependent variable is a binary indicator for strictly positive foreign affiliate sales. The standard errors are reported below the estimated coefficients. ***, ** and * mean statistical significance at 1%, 5% and 10% levels respectively.

5.1.4. Robustness checks

We check the sensitivity of our results to introducing other potential policy and structural determinants of FDI, which are not in the baseline because data is not available for our full sample. In particular, we include labour market-related variables (Table A.4), as higher labour costs and lower flexibility in labour market regulation are considered to act as a deterrent for investment projects. Indeed, higher wage costs and stricter employment protection regulation are found to be negatively associated with attractiveness for Japanese MNEs, especially in manufacturing. The coefficients suggest that holding other factors constant, FDI oriented towards the local market and towards intra-firm trade are the most sensitive to local labour market conditions, especially in manufacturing. The rest of our findings are unchanged.

A number of other robustness checks have been carried out to test that the results are robust to the sample composition and alternative choice of variables.[29] Table A.2 in the annex shows that most Japanese foreign affiliates are located in China and in the United States. To test that our results are not driven by these two destinations, we run the baseline specification excluding these two economies and got very similar results, indicating that our estimates are not sensitive to host markets with large numbers of Japanese affiliates. We also tested the robustness of our estimates to the time period used in the analysis by excluding the years associated with the financial crisis; estimates for the period 2010-2016 were almost identical to the ones obtained on the 2008-2016 sample. To proxy for transactional costs, one specification also included a dummy variable equal to one if the host economy has English as an official language; we found that the probability of observing foreign affiliates was higher in host economies that use English as one of the main official languages, but the rest of our results were unaffected.

Alternative policy variables to the trade policy variables were also considered. For services affiliates, the OECD Product Market Regulation index, which captures restrictions in domestic regulations but is less focused on trade and investment barriers, was included in the baseline regression (including the interactions with firm size and productivity), yielding similar but less precise results than the OECD STRI. For affiliates in manufacturing sectors, to account for imported inputs outside of the firm's own industry, the analysis was also performed with the average tariff applied by the host country across all products rather than in the affiliate's own sector, producing comparable results. Furthermore, effective corporate governance and good-quality local institutions were considered as potential FDI determinants, as they increase certainty and create a reliable business climate that would encourage foreign investment. These hypotheses were confirmed by including world governance indicators in the baseline specification; the baseline results were not affected and rule of law and regulatory quality were associated with higher probabilities of observing affiliate sales, as well as control for corruption for affiliates in the services sector. Lastly, the overall macroeconomic stability of the host country could also play a role in attracting foreign capital as does the exchange rate, and these variables could potentially be correlated with some of our variables of interest. To test for that, the volatility of inflation rates and exchange rates were considered in the main specification, yielding similar estimates as in the baseline and expected signs on inflation and exchange rate deviations from their sample mean; hence, a stable inflation rate and an exchange rate that doesn't fluctuate too much are associated with higher chances of establishing a foreign affiliate in that market, but they do not interfere with the estimated effects of our main policy and structural variables.

6. Conclusion

This paper analyses the main patterns and underlying motives for Japanese multinational activity exploiting a highly disaggregated sample of foreign affiliate sales statistics on Japanese-owned firms from 2008 to 2016. It

[29] Detailed estimation results are available from the authors upon request.

provides evidence of the broad investment patterns of Japanese MNEs across countries and industries. The main descriptive findings highlight that affiliates of manufacturing parents, whether their own primary area of operation is goods or services, are larger than affiliates of services parents; but services affiliates are the most productive, regardless of their parent's main activity. The breakdown of affiliate sales by destination market reveals that while Japanese MNEs establish their foreign affiliates primarily to maximise their proximity to local customers in the majority of countries, they also set up affiliates to engage with third countries. Some economies consistently emerge as strategic gateways to other destinations in the region, highlighting the role of export platforms in global trade and investment.

Our empirical analysis on the policy determinants of where MNEs establish affiliates reveals differences in the effect of trade policies depending on the motives for Japanese firms' expansion abroad, in search of markets, production efficiency, or regional or global platforms. These findings shed light on policy priorities for countries to attract and maximise the benefits of FDI inflows. All three types of FDI can be sources of employment, and in most cases, activity and technological spillovers to the host country. In addition, FDI-export platforms can bring benefits in terms of knowledge and skills needed for successful internationalisation, and help countries participate in and gain from global value chains.

In order to reap these benefits, two broad categories of policy levers emerge from the analysis. First, open trade and investment policies in goods and services, deep FTAs, as well as streamlined customs procedures, are central to a country's attractiveness as FDI destination. This is particularly the case for smaller countries where market size is not a decisive factor, and for those that rely on multinational presence to enhance their export performance and therefore need to attract export-platform FDI. Second, well-calibrated rules for digital commerce and investments in digital infrastructure and innovation contribute to attracting MNEs, especially in technologically advanced industries, which offer the highest potential for host countries to learn from the affiliate's parents. As technological change and digitalisation increasingly transform the nature of trade and value chains and allow customers to be served from any location, these aspects are likely to become more and more prominent in MNEs' location choices.

References

Amoroso, S., M. Dosso and P. Moncada Paterno Castello (2015), "The impact of skill endowments and collective bargaining on knowledge-intensive greenfield FDI", *IPTS Working Papers on Corporate R&D and Innovation*, Vol. 8. [27]

Anderson, J. and E. van Wincoop (2003), "Gravity with Gravitas: A Solution to the Border Puzzle", *The American Economic Review*, Vol. 93/1, pp. 170-192. [28]

Antràs, P. (2003), "Firms, Contracts, and Trade Structure", *The Quarterly Journal of Economics*, Vol. 118, pp. 1375–1418. [22]

Antràs, P. and S. Yeaple (2014), *Multinational Firms and the Structure of International Trade*, Handbook of International Economics, Elsevier. [2]

Atalay, E., A. Hortaçsu and C. Syverson (2014), "Vertical Integration and Input Flows", *American Economic Review*, Vol. 104/4, pp. 1120-1148. [18]

Baldwin, R. and T. Okubo (2014), "Networked FDI: Sales and Sourcing Patterns of Japanese Foreign Affiliates", *The World Economy*, Vol. 37/8, pp. 1051-1080, https://doi.org/10.1111/twec.12116. [16]

Baltagi, B., P. Egger and M. Pfaffermayr (2007), "Estimating models of complex FDI: Are there third-country effects?", *Journal of Econometrics*, Vol. 140/1, pp. 260-281, http://dx.doi.org/10.1016/J.JECONOM.2006.09.009. [8]

Benassy-Quere, A., L. Fontagné and A. Lahrèche-Révil (2005), "How Does FDI React to Corporate Taxation?", *International Tax and Public Finance*, Vol. 12/5, pp. 583-603. [31]

Bösenberg, S. (2014), "On the distribution of tax effects on headquarters location", *Economics Letters*, Vol. 124/2, pp. 308–313. [21]

Breinlich, H. and C. Criscuolo (2011), "International trade in services: A portrait of importers and exporters", *Journal of International Economics*, Vol. 84/2, pp. 188-206, http://dx.doi.org/10.1016/J.JINTECO.2011.03.006. [3]

Buch, M. (2007), "FDI versus exports: Evidence from German banks", *Journal of Banking and Finance*, Vol. 31/3, pp. 805-826. [42]

Carr, D., J. Markusen and K. Maskus (2000), "Estimating the knowledge-capital model of the multinational enterprise", *American Economic Review*, Vol. 91, pp. 691-708. [35]

Ceglowski, J. (2006), "Does Gravity Matter in a Service Economy?", *Review of World Economics*, Vol. 142/2, pp. 307-329. [47]

Devereux, M. (2007), "The Impact of Taxation on the Location of Capital, Firms and Profit: A Survey of Empirical Evidence", *Oxford University Centre for Business Taxation (OUCBT)*, Vol. Working Paper 0702. [37]

Egger, P., D. Radulescu and N. Strecker (2013), "Effective labor taxation and the international location of headquarters", *International Tax and Public Finance, Springer*, Vol. 20/4, pp. 631-652. [39]

Ekholm, K., R. Forslid and J. Markusen (2007), "Export-Platform Foreign Direct Investment", *Journal of the European Economic Association*, Vol. 5/4, pp. 776-795, http://dx.doi.org/10.1162/JEEA.2007.5.4.776. [7]

Fukao, K. (1996), "Location Determinants of FDI: Evidence from Japanese Manufacturing Industries", *Financial Review*, pp. 1-33 (in Japanese), http://warp.da.ndl.go.jp/info:ndljp/pid/8379094/www.mof.go.jp/pri/publication/financial_review/fr_list2/r38/r_38_001_031.pdf. [48]

Fukao, K. and Y. Wei (2008), "How do the Location Determinants of Vertical FDI and Horizontal FDI Differ?", *Institute of Economic Research, Hitotsubashi University*, Vol. Hi-Stat Discussion Paper Series d07-233. [25]

Hayakawa, K. (2015), "Trade liberalization in Asia and FDI strategies in heterogeneous firms: evidence from Japanese firm-level data", *Oxford Economic Papers*, Vol. 67/2, pp. 494-513. [41]

Head, K., T. Mayer and J. Ries (2010), "The erosion of colonial trade linkages after independence", *Journal of International Economics*, Vol. 81/1, pp. 1-14. [20]

Helpman, E. (1984), "A simple model of trade with multinational corporations", *Journal of Political Economy*, Vol. 92, pp. 452-471. [33]

Helpman, E., M. Melitz and S. Yeaple (2004), "Export Versus FDI with Heterogeneous Firms", *American Economic Review*, Vol. 94/1, pp. 300-316, http://dx.doi.org/10.1257/000282804322970814. [1]

Herger, N. and S. Mccorriston (2016), "Horizontal, Vertical, and Conglomerate Cross-Border Acquisitions", *IMF Economic Review*, Vol. 64/2, pp. 319-353, http://dx.doi.org/10.1057/imfer.2015.42. [17]

Ito, T. (2013), "Export-Platform Foreign Direct Investment: Theory and Evidence", *The World Economy*, Vol. 36(5), pp. 563-581. [24]

Ito, T. (2013), "FTA and Export Platform Foreign Direct Investment: Evidence from Japanese Firm Level Data", *RIETI Discussion Paper Series* 13-E-100. [9]

Kimura, F. and K. Kiyota (2006), "Exports, FDI, and Productivity of Firm: Dynamic Evidence from Japanese Firms", *Review of World Economics*, Vol. 142(4), pp. 695-719. [15]

Kimura, F. and H. Lee (2006), "The Gravity Equation in International Trade in Services", *Review of World Economics*, Vol. 142/1, pp. 92-121. [30]

Kleinert, J. and F. Toubal (2010), "Gravity for FDI", *Review of International Economics*, Vol. 18/1, pp. 1–13. [29]

Kondo, K. (2018), "Sourcing patterns of export-platform foreign affiliates: the case of Japanese affiliates in Mexico", *The World Economy*, Vol. 41/5, pp. 1437-1456, https://doi.org/10.1111/twec.12579. [11]

Lawless, M. et al. (2018), "Corporate tax and location choice for multinational firms", *Applied Economics*, pp. 2920-2931. [38]

Markusen, J. (1997), "Trade versus Investment liberalisation", *NBER working paper no. 6231*. [34]

Markusen, J. and A. Venables (2000), "The theory of endowment, intra-industry and multinational trade", *Journal of International Economics*, Vol. 52, pp. 209-234. [32]

Morikawa, M. (2019), "Firm Heterogeneity and International Trade in Services", *The World Economy*, Vol. 42, pp. 268-295. [12]

Rauch, J. (1996), "Trade and Search : Social Capital, Sogo Shosha, and Spillovers", *NBER working paper no. 5618*. [45]

Rouzet, D., S. Benz and F. Spinelli (2017), "Trading firms and trading costs in services: Firm-level analysis", *OECD Trade Policy Papers*, No. 210, OECD Publishing, Paris, http://dx.doi.org/10.1787/b1c1a0e9-en. [6]

Rouzet, D. and F. Spinelli (2016), "Services Trade Restrictiveness, Mark-Ups and Competition", *OECD Trade Policy Papers*, No. 194, OECD Publishing, Paris, http://dx.doi.org/10.1787/5jln7dlm3931-en. [36]

Tanaka, K. (2015), "Firm Heterogeneity and FDI in Distribution Services", *The World Economy*, Vol. 38, pp. 1295-1311. [5]

Tanaka, A. (2013), "Firm productivity and exports in the wholesale sector: evidence from Japan", *RIETI Discussion Paper 13-E-007*. [46]

Tanaka, A. (2011), *Multinationals in the Services and Manufacturing Sectors: A firm-level analysis using Japanese data*, RIETI Discussion Paper Series 11-E-059. [4]

Tintelnot, F. (2017), "Global Production with Export Platforms", *The Quarterly Journal of Economics*, Vol. 132/1, pp. 157-209, http://dx.doi.org/10.1093/qje/qjw037. [10]

Tomiura, E. (2007), "Foreign Outsourcing, Exporting, and FDI: A Productivity Comparison at the Firm Level", *Journal of International Economics*, Vol. 72(1), pp. 113-127. [14]

Urata, S. (2015), "Impacts of FTAs and BITs on the Locational Choice of Foreign Direct Investment: The Case of Japanese Firms", *RIETI Discussion Paper Series* 15-E-066. [40]

Urata, S. and H. Kawai (2000), "The Determinants of the Location of Foreign Direct Investment by Japanese Small and Medium-sized Enterprises", *Small Business Economics*, Vol. 15/2, pp. 79–103. [26]

Wakasugi, R. (ed.) (2014), *Features of Japanese Internationalized Firms: Findings Based on Firm-Level Data*, Springer: Tokyo. [13]

Yamazawa, I. (1979), "Sogo Shosha and Trade Expansion", *Hitotsubashi University Economics Research Series*, Vol. 22, https://doi.org/10.15057/9324 (in Japanese). [43]

Yeaple, S. (2003), "The Role of Skill Endowments in the Structure of U.S. Outward Foreign Direct Investment", *The Review of Economics and Statistics*, Vol. 85/3, pp. 726-734. [19]

Yoshino, Y. (1986), "The Invisible Link: Japan's Sogo Shosha and the Organization of Trade", *MIT Press*. [44]

Annex A.

Table A.1. BSOBA Survey response rates, 2008-2016

Year	Targeted companies	Submitted forms	Response rate
2008	5,718	3,956	69.2%
2009	6,001	4,456	74.3%
2010	6,021	4,402	73.1%
2011	6,127	4,431	72.3%
2012	8,662	6,615	76.4%
2013	9,382	6,689	71.3%
2014	unknown	unknown	69.4%
2015	9,601	7,171	74.7%
2016	9,654	6,903	71.6%

Source: METI annual report on BSOBA (in Japanese) https://www.meti.go.jp/statistics/tyo/kaigaizi/result-1.html..

Table A.2. Main characteristics of Japanese parents and affiliates in the top five host markets, 2016

Top five host markets	Number of parents	Number of affiliates	Affiliates turnover share	Affiliates average turnover	Parents average turnover
Affiliates in manufacturing sectors					
United States	711	1,127	27%	31,527	237,656
China	2,280	3,719	21%	7,305	83,790
Thailand	999	1,248	11%	11,036	149,591
EU	400	825	10%	16,085	324,813
Indonesia	500	608	5%	10,021	240,390
Affiliates in services sectors					
United States	1,148	1,662	37%	27,981	193,368
EU	656	1,647	17%	13,618	300,122
China	1,603	2,333	10%	5,268	139,606
Singapore	637	796	8%	12,803	281,334
Hong Kong	751	855	5%	6,595	178,455

Note: Monetary values are expressed in constant 2015 million YEN. For instance, in manufacturing sectors, the largest share of total affiliate sales (27%) comes from Japanese plants established in the United States, followed by China (21%), Thailand (11%), the EU (10%) and Indonesia (5%).
Source: Own calculations based on the micro-data from the BSOBA, Japan METI.

Table A.3. Definition of variables and data sources

Variable label	Measurement	Source
Lab prod (log)	Firm labour productivity is the ratio of the Japanese parent company's annual turnover to its total number of employees. Variable measured in logs.	BSOBA data
Size (log)	Firm level size is the total number of employees of the Japanese parent company. Variable measured in logs.	BSOBA data
Main activity in goods	Indicator variable that takes value one if the main activity of the Japanese parent company is manufacturing industries and zero otherwise.	BSOBA data
GDP (log)	GDP of the host country, in current USD, million. The variable, in logs, is used as a proxy for the size of the host market	World Bank, World Development Indicators database.
Distance (log)	Geographical distance in km between Tokyo and the capital of the host country. Variable measured in logs.	CEPII Gravity database, (Head, Mayer and Ries, 2010[20])
FTA depth	The variable takes the value of one if Japan has an FTA with the host country with a chapter on services and zero otherwise. If the FTA exists, the variable is incremented by one each time the FTA includes additional provisions, such as: requirements for local content and export performance of FDI; harmonisation of standards and enforcement of intellectual property rights; competition policy; investment; movement of capitals; and data protection policies.	World Bank Group Database on the Content of Preferential Trade Agreements.
LPI customs	The index varies between 1 (low) and 5 (high) and measures the efficiency of customs and border management clearance. The variable reflects the accomplishment of customs formalities necessary to allow goods to enter home use, to be exported or to be placed under another customs procedure.	World Bank, Logistic Performance Indicator, Customs sub-component.
Corporate profit tax rate	The variable is the statutory tax rate on corporate profits applied in the host country.	Bösenberg et al. (2014[21]).
R&D Exp sh GO	R&D intensity is the industry expenditure on Research and Development (R&D) as a share of the industry's total Gross Output (GO).	OECD Analytical Business Enterprise Research and Development database, and OECD Structural Analysis database.
Broadband coverage	Broadband coverage is measured as total fixed broadband subscriptions per 100 inhabitants.	OECD broadband statistics.
Wage (log)	Mean nominal monthly earnings of employees in the host country. Log of the aggregate measure expressed in USD.	ILO statistics.
EPL	The Employment Protection Legislation is a synthetic indicator that measures the strictness of regulation on individual and collective dismissals (regular contracts) and on the use of temporary contracts.	OECD Indicators of Employment Protection.
Tariff	Weighted mean applied tariff is the average of industry-level tariffs at the 4-digit HS level, weighted by the product import shares corresponding to each industry-country pair.	UNCTAD TRAINS and UN COMTRADE databases.
STRI score	OECD Services Trade Restrictiveness Index measures barriers to services trade and investment in 22 services sectors and 44 economies. The indices go from zero (most liberal regulatory framework) to one (a sector closed to services trade and investment) and are available from 2014 onwards.	OECD STRI Regulatory database.
DGSTRI score	OECD Digital Services Trade Restrictiveness Index measures obstacles to digital trade in 46 economies. The indices go from zero (most liberal regulatory framework towards digital trade) to one, and are available from 2014 onwards.	OECD DGSTRI Regulatory database.

Table A.4. Further determinants of location choices, labour markets

	Local		Intra-firm trade		Exports to third countries	
	Affiliates in goods	Affiliates in services	Affiliates in goods	Affiliates in services	Affiliates in goods	Affiliates in services
Lab prod (log)	0.044***	0.095***	0.028***	0.141***	0.052***	0.165***
	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)
Size (log)	0.129***	0.160***	0.101***	0.153***	0.152***	0.179***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Main activity in goods	0.295***	-0.084***	0.259***	-0.165***	0.284***	0.021**
	(0.011)	(0.007)	(0.012)	(0.009)	(0.012)	(0.009)
Distance (log)	-0.530***	-0.434***	-0.542***	-0.434***	-0.426***	-0.290***
	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.006)
GDP (log)	0.559***	0.509***	0.505***	0.482***	0.429***	0.391***
	(0.004)	(0.004)	(0.005)	(0.005)	(0.004)	(0.004)
FTA depth	0.132***	0.135***	0.144***	0.139***	0.146***	0.143***
	(0.003)	(0.004)	(0.004)	(0.005)	(0.004)	(0.005)
LPI customs	0.928***	0.804***	1.000***	0.789***	0.827***	0.719***
	(0.012)	(0.013)	(0.016)	(0.018)	(0.014)	(0.017)
Corporate tax	-0.963***	-0.112*	-0.695***	-0.395***	-0.448***	-0.260***
	(0.072)	(0.068)	(0.088)	(0.09)	(0.08)	(0.082)
Wage	-0.630***	-0.381***	-0.590***	-0.311***	-0.477***	-0.215***
	(0.006)	(0.007)	(0.007)	(0.009)	(0.007)	(0.009)
EPL	-0.304***	-0.243***	-0.219***	-0.210***	-0.233***	-0.167***
	(0.006)	(0.006)	(0.008)	(0.008)	(0.007)	(0.007)
Constant	-9.948	-5.879***	-9.382	-6.978***	-9.69	-8.033***
	(122.165)	(0.081)	(100.805)	(0.109)	(70.698)	(0.105)
Observations	790,011	643,070	790,011	641,890	790,011	641,890
R-squared	0.33	0.281	0.31	0.276	0.257	0.236
Time FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Note: The figures above are estimated coefficients from the probit regressions (not the marginal effects). The panel covers the period 2008 to 2016. The dependent variable is a binary indicator for strictly positive foreign affiliate sales. The standard errors are reported below the estimated coefficients. ***, ** and * mean statistical significance at 1%, 5% and 10% levels respectively.