

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

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The views expressed in this paper are solely those of the authors, and do not necessarily represent those of the organisations to which the authors belong.

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## Abstract

The paper provides evidence on the investment patterns of Japanese multinational enterprises (MNEs) across countries and industries and analyses the main drivers of Japanese FDI location strategies, using detailed micro-data on Japanese parents and affiliates statistics. The main stylised facts point to the high degree of concentration of the activity of Japanese multinationals and differences in size and productivity depending on parents' and affiliates' main industry groups. The breakdown of affiliate sales by destination markets reveals that Japanese MNEs establish services affiliates primarily to maximise the proximity to local customers, while foreign affiliates in manufacturing sectors tend to engage more with third countries. Yet, some economies emerge as strategic gateways to other destinations in the region. The econometric analysis further analyses the drivers of Japanese MNEs' expansion abroad in search of new markets, production efficiency, and regional or global platforms. Important factors shaping Japanese FDI decisions include firm 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 regulatory environment are important attractive points for affiliates that sell mostly locally. Overall, the paper stresses the importance of better integration into global production networks and the policy priorities to attract and maximise the benefits of FDI inflows.

## 1. Introduction

Multinational firms face complex decisions about where and how to set up their activity across multiple locations and markets. The rising role of global value chains in the production of goods and services, advances in technology as well as the landscape of trade and investment agreements mean that these strategies are likely to go 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 also take into account complementarities between activities and 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, undertaking some activities locally but also sourcing inputs from home or from other affiliates, etc. The blurring of boundaries between physical products and services as digitalisation progresses, and the role of complementary services in adding value to manufacturing goods provision, further create interlinkages between sectors. 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 paper sheds light on these complex MNE strategies 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 (MNEs); but to the best of our knowledge, much less attention has been paid to the sales strategies of Japanese MNEs through their foreign affiliates.

The novel contribution of the paper is to analyse in more depth the role of foreign manufacturing and services affiliates, distinguishing between three main motives: serving the local market, providing goods and services within their corporate group, and acting as export platforms regionally or globally. In particular, intra-firm trade and export-platform FDI in services have so far been little studied in the existing literature. The paper establishes stylised facts across affiliates as well as parents that are active in goods and services sectors, and explores the structural and policy determinants of FDI attractiveness. It identifies significant policy drivers and priorities to attract not only foreign establishments directed towards the local market, but also MNE affiliates that help host countries integrate into segments of global value chains, benefit from technology and knowledge spillovers from multinational parents, and enhance their export performance.

The paper is organised as follows. The next section reviews the theoretical and empirical literature on the location determinants of FDI. Section 3 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 heterogeneity of behaviour according to parent firms’ characteristics. Section 4 reports the results of the econometric analysis of the main determinants of foreign affiliate location, overall and broken down into establishments directed towards local sales, intra-firm activity and sales to third countries. The final section concludes.

## 2. Related literature

This paper 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<sub>[11]</sub>). While most of these studies have focused on manufacturing, the size and productivity premium of exporters has also been found in the services sector starting with the findings of Breinlich and Criscuolo (2011<sub>[2]</sub>) on UK data. For Japan, Tanaka (2011<sub>[3]</sub>) shows that the productivity distribution of services MNEs stochastically dominates that of non-MNE exporters and purely domestic firms. Tanaka (2015<sub>[4]</sub>) 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. Rouzet, Benz and Spinelli (2017<sub>[5]</sub>) 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.

Second, a few studies have documented the export platform role of affiliates in the broader context of multinational firms undertaking complex location strategies. Ekholm, Forslid and Markusen (2007<sub>[6]</sub>) 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<sub>[7]</sub>), 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. More recently, Tintelnot (2017<sub>[8]</sub>) 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. This literature, however, has focused on manufacturing and to our knowledge has not specifically explored the role and importance of export platforms in services.

Third, a number of papers have analysed Japanese micro-data with a comparison of internationalised firms operating in goods and services. Morikawa (2015<sub>[9]</sub>) 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, nearly 70% export 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) the productivity and wage distributions of service trading firms are higher than those of 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<sub>[3]</sub>) also finds that a lower fraction of services firms are MNEs than in manufacturing. Wakasugi et al. (2014<sub>[10]</sub>) 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<sub>[11]</sub>) and Kimura and Kiyota (2006<sub>[12]</sub>). Lastly, Kondo (2018<sub>[13]</sub>) 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.

A paper closely related to ours is Baldwin and Okubo (2014<sub>[14]</sub>). The authors show 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 further contribute to this strand of work through a detailed exploration of the patterns and determinants of FDI driven by these different motives.

### 3. Data and stylised facts on Japanese affiliates

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.<sup>1,2</sup> The BSOBA has a good response rate (about 70%), although not mandatory, and includes a wide range of questions on aspects related to employment, investment and business activities, including sales and purchases.<sup>3</sup> The survey also includes information on the main sector of the overseas affiliate and the breakdown of its sales and purchases by destination/sourcing country.<sup>4</sup> In particular, the survey distinguishes foreign affiliates that sell locally, 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.

#### 3.1. Main characteristics of Japanese parents and overseas affiliates

Table 1 reports the aggregate patterns emerging from the activity of Japanese parents and their overseas affiliates between 2008 and 2014. During the period, the number of Japanese corporations with foreign affiliates has increased, suggesting a more widespread presence in foreign markets through foreign subsidiaries as well as a larger number of smaller parents. On average, a parent firm has a more widespread presence through affiliates engaged in services provision that are present in a larger number of host economies than affiliates producing goods. However, affiliates in manufacturing employ almost four times more workers than affiliates whose main activity is in services sectors. At the parent level, MNEs whose affiliates are engaged in the provision of services are significantly larger (in terms of average number of employees and average turnover) than Japanese parents with affiliates in goods-producing sectors. Looking at the evolution over time, parents' average sales have been on a downward trend up until 2012, perhaps reflecting the entry of new smaller MNEs that sell conceivably less than well-established multinationals. Similarly, the average sales of overseas affiliates have gone through a moderate reduction over the crisis period before picking up again starting in 2012.

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<sup>1</sup> Overseas affiliates include foreign affiliates in which Japanese companies have a direct invested capital of at least 10% and, foreign affiliates indirectly controlled by majority-owned Japanese subsidiaries abroad that have an invested capital of more than 50%.

<sup>2</sup> 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.

<sup>3</sup> 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.

<sup>4</sup> 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.

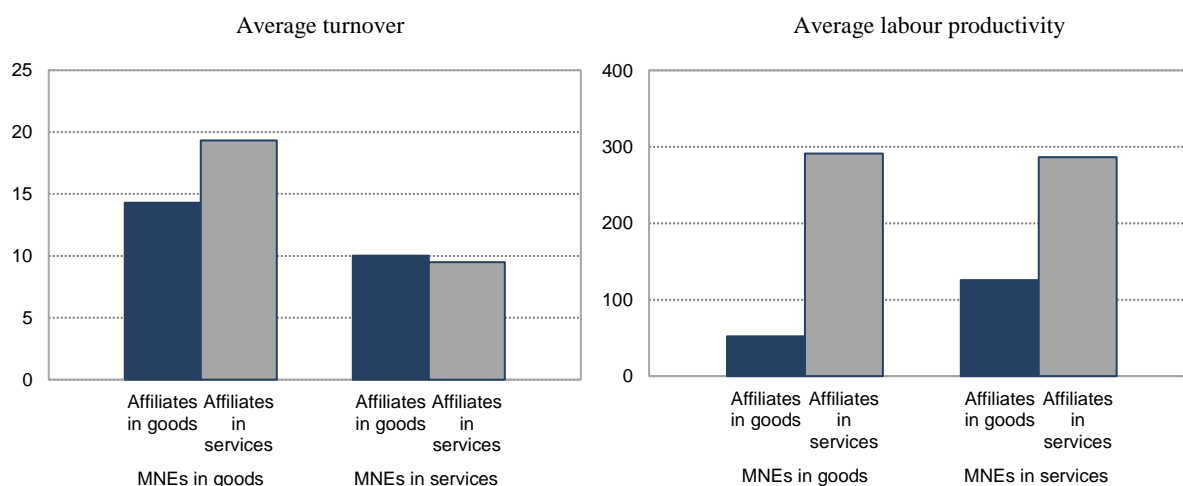
**Table 1. General characteristics of Japanese parents and affiliates, 2008-2014**

By year and affiliate's sector

Affiliate's sector	Year	No. of parents	No. of affiliates	Countries per parent	Sectors per parent	Average affiliate turnover	Average affiliate purchases	Average affiliate number of employees	Average parent turnover	Average parent number of employees
Manufacturing	2008	2,208	7,280	2.3	1.3	14,297	10,954	483	116,810	16,912
Manufacturing	2009	2,594	7,484	2.2	1.3	12,320	9,217	490	82,305	13,899
Manufacturing	2010	2,731	7,518	2.1	1.3	13,308	9,072	533	82,733	13,261
Manufacturing	2011	2,784	7,745	2.2	1.3	12,103	8,091	532	85,577	13,518
Manufacturing	2012	3,436	8,887	2.0	1.2	11,495	8,036	497	70,427	11,312
Manufacturing	2013	3,528	9,138	2.0	1.2	13,074	8,967	491	73,695	11,197
Manufacturing	2014	3,345	9,038	2.0	1.2	13,797	9,472	506	73,641	10,646
Services	2008	1,926	7,466	2.9	1.2	16,387	13,818	121	167,767	17,823
Services	2009	2,239	7,725	2.8	1.2	12,610	11,283	115	123,549	15,682
Services	2010	2,363	7,979	2.7	1.2	12,885	10,840	124	123,715	15,614
Services	2011	2,415	8,178	2.8	1.2	12,230	9,699	125	123,914	15,096
Services	2012	3,126	9,682	2.5	1.2	10,761	9,013	115	98,303	11,954
Services	2013	3,214	10,110	2.5	1.2	12,688	10,354	108	103,043	12,138
Services	2014	3,000	9,569	2.6	1.2	13,721	11,233	114	105,542	11,320

*Note:* Monetary values are expressed in constant 2013 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).

**Figure 1. Foreign affiliate sales and labour productivity, by main activity**

*Note:* Monetary values are expressed in constant 2013 billion YEN. Labour productivity is the affiliate's turnover divided by its number of employees.

*Source:* Own calculations based on the micro-data from the BSOBA, Japan METI.

A closer look at the parents' and affiliates' sectors of main activity reveals some interesting aspects. Japanese manufacturing MNEs realise, on average, significantly larger sales abroad through their affiliates (regardless of whether those affiliates are themselves active in goods or services) than MNEs engaged in service sectors (Figure 1, left side). Another interesting feature is that services affiliates of manufacturing parents earn twice as much their services peers owned by services MNEs. This may partly reflect manufacturing MNE products distributed via their affiliates abroad to cut on transport costs or may relate to

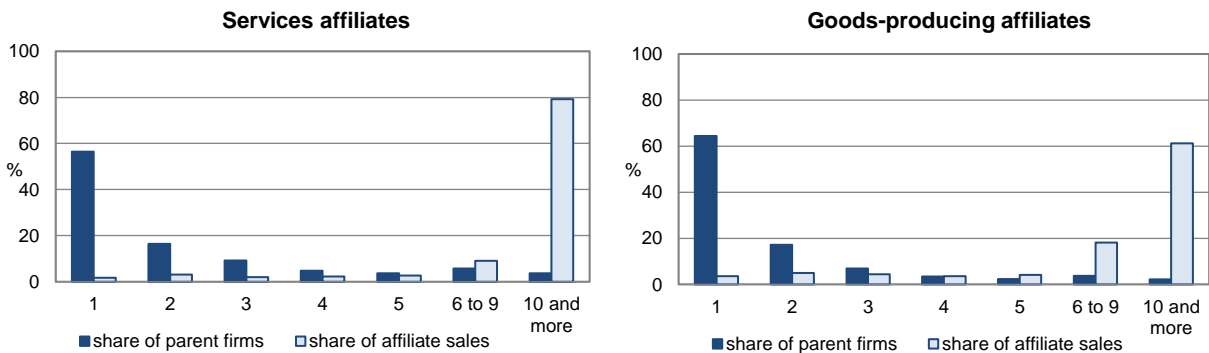


the services segments of global value chains, whereby parent companies offshore services activities (such as back-office functions but also some higher-value activities including R&D) on an intra-firm basis. It is also worth noting that affiliates in services are, on average, much more productive than their manufacturing peers, irrespective of the main activity of their parents.

### 3.2. The concentration of Japanese foreign affiliate activity

The international performance of multinational firms relies on relatively few global players and very few markets per firm. Figure 2 shows that the activity of Japanese multinationals abroad is highly concentrated. The level of concentration is higher for MNEs with affiliates operating in services sectors, where there is only a handful of parent firms with a global footprint (4%), which make up for nearly 80% of total foreign affiliates sales. The majority of Japanese multinationals are only present in one foreign market, and these firms contribute to just 2% of all services affiliate sales. The activity of affiliates in goods-producing sectors is also concentrated. A very small minority of Japanese MNEs with affiliates located in ten or more countries account for over 60% of total affiliates sales, while most parent companies go for one foreign market where their activity contributes to just 4% of total affiliates sales.

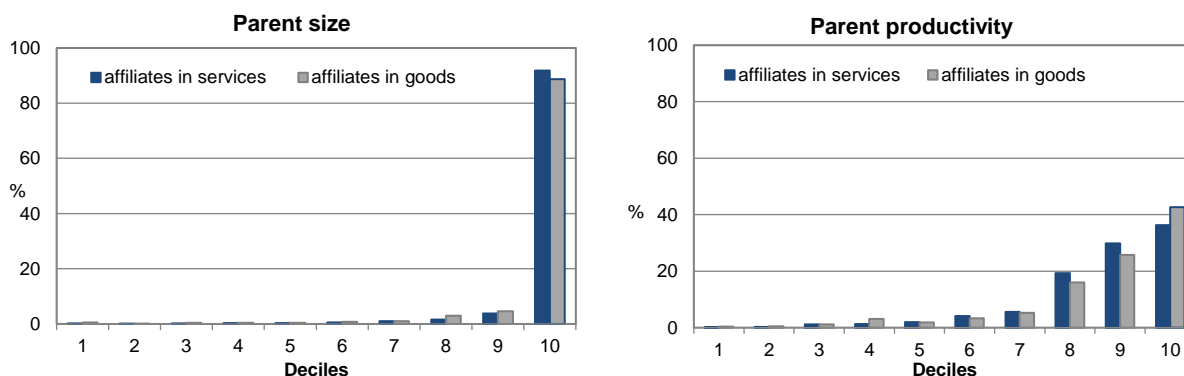
**Figure 2. Concentration of foreign affiliate activity by number of destinations, 2008-2014 %**



Source: Own calculations based on the micro-data from the BSOBA, Japan METI.

As expected, the largest multinational firms are responsible for the lion share of Japanese foreign affiliate sales (Figure 3). The largest parents falling in the top size decile – corresponding to MNEs with between 17,500 and 40,350 employees – are usually present in multiple markets and account for about 90% of total affiliate sales. Parents that are more productive also account for larger shares of affiliate sales, although the level of concentration is less pronounced than for the parent size.

**Figure 3. Concentration of foreign affiliate activity by parent size and productivity, 2008-2014, %**

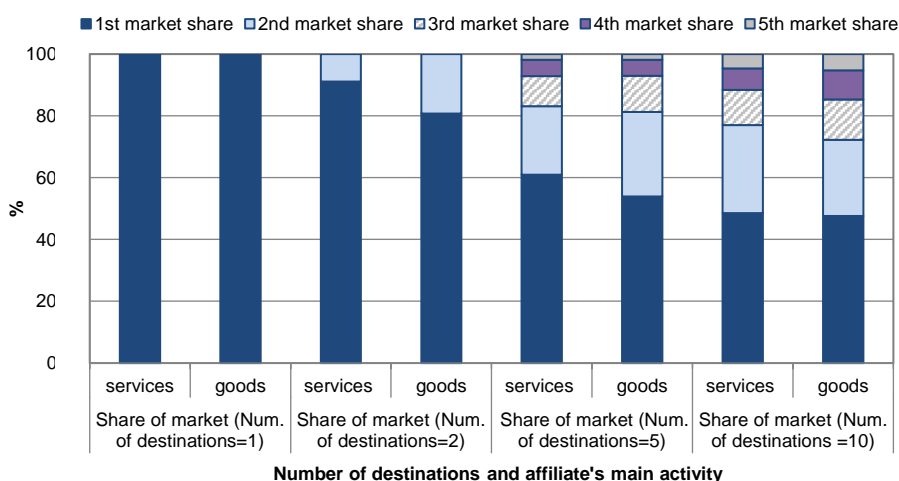


*Note:* Parent size is measured in terms of number of employees. The horizontal axis shows the deciles of parent company size and labour productivity levels. The vertical axis reports for each decile, the share of its affiliate sales in total affiliate sales.

*Source:* Own calculations based on the micro-data from the BSOBA, Japan METI.

The concentration analysis also reveals that the performance of multinational firms is highly dependent on their top host market. Almost half of total sales across a firm’s whole network of foreign affiliates is generated in the most important host country, regardless of their main activity. As discussed, most parents have affiliates in just one host country, and therefore that market absorbs all of their affiliate sales (first two bars of Figure 4). As parents spread their affiliates across multiple countries, the distribution of their affiliate sales becomes more dispersed. Nevertheless, even for MNEs that are highly globally integrated, the top host country is always more important than the runner-up, which tends to be about twice as important as the third most important country and so on (Figure 4, last two bars). Overall, these findings confirm that a firm’s primary investment market remains a critical source of income, even when its affiliates are scattered across multiple locations.

**Figure 4. Concentration of foreign affiliate activity within firms, 2008-2014, %**



*Note:* The breakdown shown on the graph includes each firm’s five most important destination markets by value of affiliate sales.

*Source:* Own calculations based on the micro-data from the BSOBA, Japan METI.

### 3.3. The geographical-sectoral distribution of Japanese affiliate sales

Table 2 presents the main characteristics of Japanese parents and foreign affiliates located in the top five hosting economies by value of affiliate sales in 2014 (country shares reported in the third column). In manufacturing sectors, the largest share of total affiliate sales (24%) comes from Japanese plants established in the United States, followed by China (23%), Thailand (11%), the EU (10%) and Indonesia (5%). For affiliates in the services sector, the distribution is slightly more polarised, as the United States are responsible for nearly 40% of total affiliates sales, followed by the European Union (17%), China and Singapore (10%, each) and Hong-Kong, China (5%). China is by far the host market with the largest number of Japanese affiliates, although these affiliates are amongst the least productive, especially compared to those based in the United States or in certain other Asian markets. The European Union remains a large investment market for large Japanese MNEs (measured by average parent turnover), where they open plants and establish affiliates providing services.

**Table 2. Main characteristics of Japanese parents and affiliates in their top five host markets, 2014**

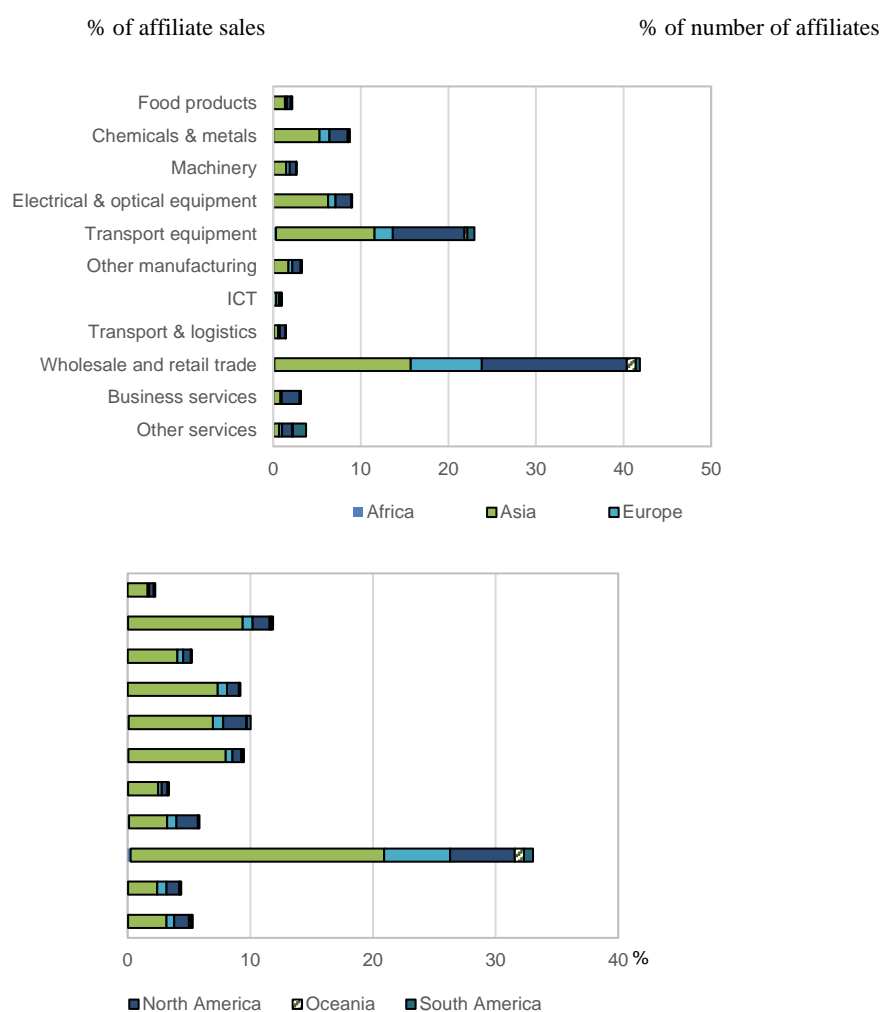
Top five host markets	Number of parents	Number of affiliates	Share of total affiliate turnover	Average affiliate turnover	Average affiliate purchases	Average affiliate labour productivity	Average affiliate number of employees	Average parent turnover	Average parent labour productivity	Average parent number of employees
<b>Affiliates in manufacturing sectors</b>										
United States	633	957	24%	31,274	20,673	102	489	280,962	99	2,578
China	2,183	3,542	23%	8,217	5,958	21	436	92,394	71	1,001
Thailand	884	1,107	11%	12,105	8,677	21	573	181,648	79	1,775
EU	347	665	10%	18,662	12,746	78	443	341,196	100	3,665
Indonesia	457	551	5%	10,636	8,236	15	657	284,849	99	2,442
<b>Affiliates in services sectors</b>										
United States	1,108	1,552	39%	32,729	30,397	355	161	211,044	139	1,988
EU	631	1,529	17%	14,805	13,341	357	119	342,482	181	2,826
China	1,655	2,397	10%	5,505	4,527	72	91	142,532	180	1,472
Singapore	611	751	10%	17,239	15,548	417	73	305,971	164	2,487
Hong Kong	758	864	5%	7,584	7,022	435	44	188,212	148	1,561

*Note:* Monetary values are expressed in constant 2013 million YEN.

*Source:* Own calculations based on the micro-data from the BSOBA, Japan METI.

Figure 5 shows the share of total affiliate sales, on the left side, and the share of number of foreign affiliates, on the right side, by region and sector in 2014. Two thirds of Japanese 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.

Distribution services are 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. Almost a quarter of affiliate sales is generated in the transport equipment sector, but also important is the electronic and optical equipment sector. 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.

**Figure 5. Foreign affiliate activity by region and sector, 2014**

*Note:* 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.

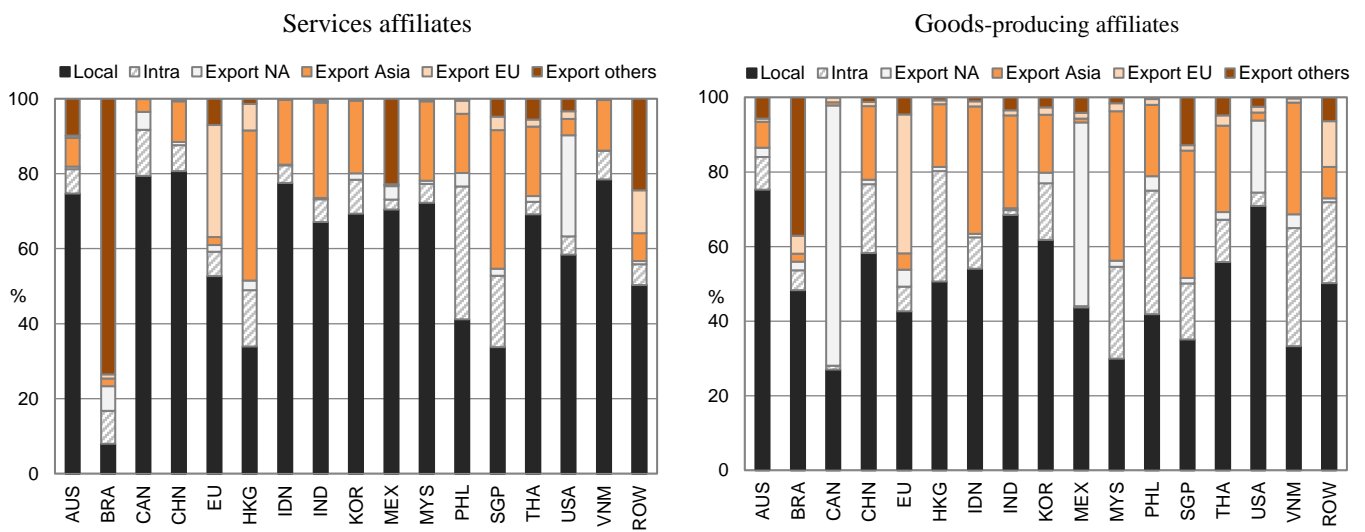
*Source:* Own calculations based on the micro-data from the BSOBA, Japan METI.

### 3.4. Decomposition of Japanese foreign affiliate sales

Japanese companies may establish affiliates overseas to maximise proximity to their customers, to become the gateway to neighbouring destinations or to help move Japanese products through global value chains. The breakdown of Japanese foreign affiliate sales by main host country and final destination in 2014 provides a snapshot of these different motives (Figure 6). Services foreign affiliates are mostly oriented towards the local market. Those located in Canada, China, Indonesia and Vietnam provide services predominantly to domestic customers (around 80% of their sales). Local sales are also relatively high for services affiliates based in India, Korea, Malaysia and Mexico, while intra-firm transactions are particularly large between Japanese parents and services affiliates located in the Philippines and in Singapore (35% and almost 20% of total affiliate sales, respectively).

Nevertheless, some markets emerge as gateways to neighbouring destinations. For instance, exports to third markets are particularly high for services affiliates located in Brazil, but are also large for subsidiaries based in Hong Kong, China; Singapore, the United States and the European Union. These markets act to a notable extent as export platforms to provide Japanese services to destinations that are further away from the host market and help Japanese MNEs extend the reach of their global production networks. In fact, Singapore and Hong-Kong, China function as regional hubs for other Asian markets; the United States serves mostly the rest of North America; Brazil focuses on the rest of South America; and the integrated EU market makes it easy to sell in the region through a single entry point. Whether it is because of their strategic geographical position, a less complex regulatory environment, or a combination of these and other factors, Japanese MNEs select these locations as bridgeheads from where their affiliates provide services to neighbouring markets.

**Figure 6. Geographical breakdown of foreign affiliate sales, 2014, %**



*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). Table A.1 in the annex details the country codes used in this figure.

*Source:* Own calculations based on the micro-data from the BSOBA, Japan METI.

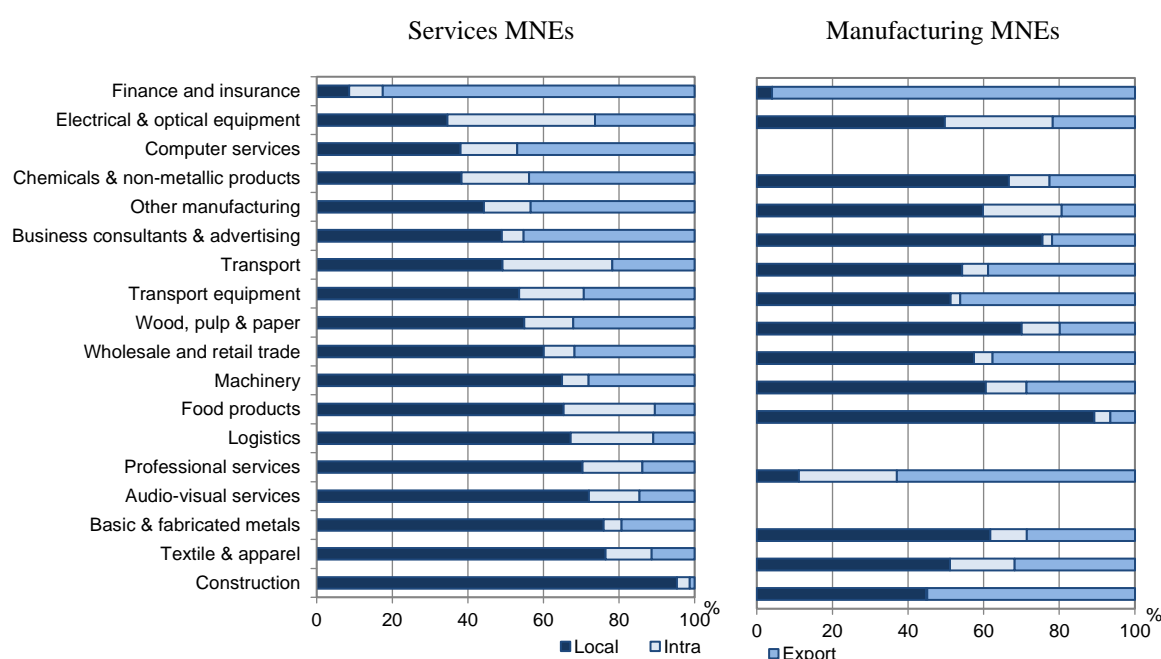
On the contrary, Japanese foreign affiliates engaged in manufacturing sectors tend to favour local sales mostly in remote areas (*e.g.* Australia) or for very large markets (*e.g.* the United States). Canada and Mexico emerge as important distributional hubs for affiliates’ products sold in the rest of North America (with about 70% and 50% of total affiliate sales, respectively).<sup>5</sup> Singapore is another important export platform for goods-producing affiliates, reaching out to other markets in Asia and beyond. Finally, MNEs with manufacturing plants in Vietnam, the Philippines and Hong Kong, China have the highest rate of intra-firm activity, with about one third of their output being sold back to their parents.

Foreign affiliate activity across sectors and final destinations varies with the parent company’s main activity. Figure 7 presents the distribution of the sales of foreign affiliates engaged in various sectors,

<sup>5</sup> This finding is in line with the existing literature on the activity of Japanese foreign affiliates. For instance, Kondo (2018<sub>[13]</sub>) 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.

distinguishing between local sales, intra-firm trade and exports and according to the main activity of the parent company in 2014. Japanese services MNEs establish their foreign affiliates mostly to serve the local market, and particularly so if the affiliates are also in non-financial services sectors. Local sales are particularly large for affiliates that are engaged in construction activities, provide audio-visual services or offer professional services, but also for those that produce textile and apparel or processed metals, with shares above 70% of total affiliate sales. Conversely, intra-firm trade is more common between Japanese services parents and foreign affiliates producing electrical and optical equipment (almost 40%) or offering transport services (about 30%). Finally, exports to third countries are large for foreign affiliates of Japanese services MNEs engaged in the provision of computer services and business consulting, but mostly so for those providing financial services, which serve almost entirely as export platforms with over 80% of their sales destined to foreign markets.<sup>6</sup>

**Figure 7. Sectoral breakdown of foreign affiliate sales, 2014, %**



*Note:* The shares represent the sales of Japanese foreign affiliates by sector destined to the local markets (local), to the parent (intra-firm) or to third countries/unrelated parties in the home country (exports), in total affiliate sales in 2014.

*Source:* Own calculations based on the micro-data from the BSOBA, Japan METI.

Similarly, Japanese manufacturing parents with foreign subsidiaries in finance provided services predominately outside the host market; in 2014, over 95% of their total affiliate sales were destined to third markets, mainly in North America. This could reflect funding strategies of manufacturing MNEs across their corporate networks, where they may establish an affiliate in a region's main financial centre from where it would channel funds to other plants in the region by relying on internal capital markets at lower cost than if raising funds for each affiliate separately by borrowing on local terms. Intra-firm trade is large for affiliates producing electrical or optical equipment (nearly 30%) and for those providing professional services (26%), the latter possibly linked to offshoring of activities within corporate groups. Unsurprisingly, local sales

<sup>6</sup> It should be kept in mind that parent firms in the financial sector are excluded from the BSOBA survey. Therefore, the financial affiliates of services MNEs shown on the figure do not include the branches and subsidiaries of Japanese banks, insurance companies and non-bank financial intermediaries.

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represent the largest component for foreign plants producing food products (nearly 90%) and working wood, pulp and paper (70%).

In short, the selling strategies of Japanese MNEs across countries and industries are of complex nature. The main stylised facts emerging from the descriptive analysis can be summarised as follows:

- The number of Japanese corporations with foreign affiliates, particularly in services, has increased over the past decade, suggesting a more widespread presence abroad through foreign subsidiaries;
- The activity of Japanese foreign affiliates is highly concentrated, particularly in services industries but, even when affiliates are quite geographically dispersed, a firm's primary investment market remains a critical source of income;
- Nearly half of affiliate sales originate in distribution and from affiliates mainly located in Asia. Foreign affiliates producing transport equipment or electronics also contribute markedly to total affiliate sales;
- Foreign affiliates in services sectors are established predominantly to serve local customers, while manufacturing affiliates tend to engage more with third countries. Yet, irrespective of the sector of main activity of the foreign affiliate, some economies emerge as strategic gateways to other destinations in the region;
- The parent's main activity plays a role in determining the local market penetration or exporting strategies of their affiliates abroad.

## 4. Empirical analysis: what determines the location of foreign affiliates?

### 4.1. Empirical strategy

The econometric analysis relies on the gravity framework and aims at explaining the underlying motives for Japanese FDI.<sup>7</sup> 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.<sup>8</sup> The probability of international activity can be approximated by the following equation:

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

In the estimation equation, 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.  $\Phi$  is the cumulative distribution function of the normal distribution, while the explanatory variables include  $F_{it}$ , a vector of firm-level variables;  $Z_{ct}$ , a vector of country-level time-varying controls on the affiliate host country;  $Y_c$ , time-invariant gravity variables; and  $W_{ct}^S$ , a vector of sector-specific time varying controls observed in the affiliate host country.<sup>9</sup> To control for common trends across sectors and time,  $\varphi_s$  and  $\theta_t$ , matrices of sector and year dummy variables, are included in the pooled regressions. Standard errors are clustered by host economy.

The analysis is carried out separately on the sales of affiliates engaged primarily in services sectors and the sales of affiliates active in goods-producing sectors, on a panel covering the period 2008-2014.<sup>10</sup> 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. The analysis is initially performed on the existence of affiliates engaged in either services or goods sectors and irrespective of which market they ultimately serve.

<sup>7</sup> 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 Kimura and Lee (2006<sub>[25]</sub>); Kleinert and Toubal (2010<sub>[24]</sub>); Rouzet, Benz and Spinelli (2017<sub>[5]</sub>).

<sup>8</sup> 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 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.

<sup>9</sup> As one of the main variables of interest is 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<sub>[23]</sub>).

<sup>10</sup> Given the large number of zero affiliate sales generated to estimate extensive margins, 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.



Foreign affiliates are then further 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), to assess whether the underlying motives for intra-firm trade and FDI-export-platform activity are different from those associated with pure horizontal FDI.

#### 4.2. Determinants of foreign affiliate activity

Several factors may contribute to explain the location of Japanese FDI.<sup>11</sup> Building on the literature on firm heterogeneity and trade, a number of potential determinants of the parent firm's international orientation are considered (both on their own and interacted with other variables). These include:

- Parent firm productivity, measured as the firm's total turnover per employee, following the findings of Helpman, Melitz and Yeaple (2004<sub>[11]</sub>), which point to the most productive firms self-selecting into becoming multinational companies;
- Parent firm size, measured by the parent's total number of employees and capturing the benefits of scale for international expansion;<sup>12</sup>
- Parent firm's primary activity in goods or services, to account for the fact that multinationals engaged in goods-producing industries also establish affiliates in services sectors and vice versa.

At the host country level, important drivers of FDI attractiveness include market size, measured by the GDP of the host economy; the distance between Japan and the host economy; the existence (and the content) of Free Trade Agreements (FTAs) with the host country; and the efficiency of customs procedures. Fiscal cost factors, captured by labour and corporate tax differentials between Japan and the host economy, could also play a role in attracting Japanese FDI.

All these factors are part of the baseline equation. Subsequent specifications consider other potential determinants emerging from the existing literature on FDI location choice. Previous studies have shown that the availability of a well-educated and highly skilled workforce is an important driver of FDI inflows from advanced economies in more technologically sophisticated industries.<sup>13</sup> Furthermore, in a pure vertical FDI model, MNE location strategies rely on differences in resource endowments and costs. Firms might shift production activities to countries where factors are relatively cheaper to contain their production costs; thus, the wage differentials between the host country and Japan could play a significant role.<sup>14</sup> Therefore, labour costs and labour market regulation in the host country could influence the decisions of Japanese MNEs to establish affiliates.<sup>15</sup> The degree of innovation and connectivity of the host market may also influence FDI

<sup>11</sup> Table A.2 in the annex provides more information on the explanatory variables.

<sup>12</sup> Firm size is also expected to be correlated with productivity within a country unless allocative inefficiencies are high.

<sup>13</sup> Yeaple (2003<sub>[15]</sub>) finds that the volume of US multinational sales in a country varied based on the effect of that country's relatively skilled-labour abundance across industries. In other words, US MNEs active in industries that are high skilled-labour intensive favour skilled-labour abundant countries over countries with less skilled labour force, and vice versa.

<sup>14</sup> Fukao and Wei (2008<sub>[20]</sub>) 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<sub>[21]</sub>) show that the availability of low wage labour plays a considerable role for investment location decisions by Japanese manufacturing firms, especially for SMEs.

<sup>15</sup> Amoroso et al. (2015<sub>[22]</sub>) 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.

decisions, particularly in high-tech industries. In that respect, industry-specific measures of R&D intensity, as well as fixed broadband penetration rates (covering both cable and fiber), are good proxies for the level of innovation, dynamicity and digital readiness of industries in the host economy.<sup>16</sup>

Besides structural and geographical factors, policy-induced trade barriers in the host economy may influence investment decisions whether the ultimate goal is to serve the host market, the parent or third countries altogether. For instance, high tariffs could incite firms to locate their production plants within the destination market to avoid tariffs on their products (tariff-jumping FDI); or conversely, could discourage FDI where affiliates rely on imported inputs. The applied average tariff rate in the host country and in the affiliate's broad industry is therefore included to test if Japanese FDI tends to be driven by tariff-jumping motives or discouraged by higher input costs in host countries with high tariffs.<sup>17</sup> Services barriers may also affect MNEs' location strategies by creating a business environment that discourages foreign investment, either through restrictive market access conditions or through uncompetitive domestic policies. This channel is tested by including the OECD Services Trade Restrictiveness Index (STRI), to assess the role played by barriers to services trade and investment.<sup>18</sup>

### 4.3. Econometric results

The main findings from the empirical analysis are first reported on the overall presence of affiliates, before being broken down by final purpose of affiliate activity.

#### 4.3.1. Foreign affiliate location choices

Table A.3 in the annex shows the results of the empirical analysis on the location of Japanese foreign affiliates, estimated separately for those engaged in the provision of services and those in manufacturing sectors. The first two columns report estimates from the baseline specification, while the following ones present the results of additional specifications including other control variables. The main findings are discussed below.

##### *Heterogeneous firm behavior:*

- More productive and larger Japanese parent companies are more likely to establish affiliates abroad. This is consistent with the main findings of the literature on heterogeneous firms and trade.
- The relationship between the parent firm's labour productivity and its likelihood of branching out in foreign countries is stronger in services. This may indicate that the transmission of productivity-

<sup>16</sup> Effective corporate governance and good-quality local institutions were also considered as potential FDI determinants as these increase certainty and create a reliable business climate that would encourage foreign investment. The overall macroeconomic stability of the host country could also play a role in attracting foreign capital. Governance indicators and inflation rates were therefore included in the analysis, weakly confirming these hypothesis but not yielding statistically significant coefficients.

<sup>17</sup> 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 and yielded similar results.

<sup>18</sup> 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. 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.

enhancing processes, organisational know-how and hard-to-codify knowledge from the parent to its affiliates is more relevant in services sectors, which tend to rely more strongly on intangible capital.

- Parent firms more often establish affiliates in the same broadly defined sector they are operating in, though this is far from a systematic mapping as highlighted in the descriptive analysis. In the baseline specification, manufacturing parents are more likely to have an overseas affiliate producing goods than in services and conversely services parents are more likely to establish affiliates in services. However the latter result is relatively fragile to controlling for other variables.

*Host country characteristics and openness:*

- The probability of observing foreign affiliates of Japanese firms consistently increases with the market size of the host economy and decreases with distance, even more so for foreign affiliates engaged in manufacturing industries. Besides transport costs for inputs and outputs, distance is likely to capture cultural differences, transactional costs and informational asymmetries that are relevant to the operation of both manufacturing plants and service centres abroad.
- The existence of free trade agreements between Japan and the host country, and how comprehensive the FTA is, raise the probability of opening up subsidiaries in that country. In addition to tariff and NTM reductions and services chapters, provisions that deal with competition, investment, movement of capital and data protection policies create a favourable environment for FDI.
- Speed, simplicity and predictability of formalities by border control agencies appear to positively influence Japanese FDI. In other words, countries with more efficient border procedures and less red tape are more likely to attract foreign affiliates. This result holds for both manufacturing and services, and in particular when there are both goods-producing and distribution affiliates in the same host country and when the latter import products and ship to third markets.

*Taxation and other location factors:*

- The levels of corporate and labour taxes in the host country relative to those levied in Japan do not appear to have a strong effect on plant expansion abroad.<sup>19</sup> The coefficients are not robust across specifications and most often are not statistically significant.
- Japanese MNEs are less likely to invest in countries with higher average wages and stricter employment protection laws, as this would translate into higher labour costs and lower flexibility to adjust capacity to market conditions, which could be a strong deterrent for investment projects that are very cost-sensitive and labour-intensive.
- Innovative and digitally-connected markets are more likely to attract Japanese FDI.<sup>20</sup> In particular, Japanese firms appear to offshore more innovation intensive activities in foreign countries that undertake more R&D in high-tech services sectors, pointing to complementarity between the parent's and the host economy's innovative activities. A well-developed digital infrastructure also helps bring FDI by facilitating the flow of information and the management of supply chains and trade networks.

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<sup>19</sup> One possible explanation for this is that statutory tax rates might not be a complete measure of the tax incentives faced by multinational firms. Better measures, such as the effective tax rate, would need to take into account special tax breaks, accelerated depreciation schemes, and other tax incentives (Benassy-Quere, Fontagné and Lahrèche-Révil, 2005<sup>[26]</sup>). Moreover, it is plausible to expect greater variability in tax sensitivity the more disaggregated services and manufacturing sectors become, as some sectors are more likely to provide MNEs with opportunities for profit shifting across jurisdictions.

<sup>20</sup> Owing to a more aggregated sectoral classification for the R&D expenditure data, the estimation sample for the specification including this variable is composed of fewer observations. Nevertheless, the results are broadly in line with the existing literature on the role of innovation among the main drivers of foreign affiliate activities.

*Skill endowments:*

- Japanese FDI in skilled-labour intensive manufacturing industries is more likely to be attracted by countries that are skilled-labour abundant, while Japanese MNEs operating in low-skilled labour intensive manufacturing industries are more likely to invest in skilled-labour scarce countries. This is in line with the theory of factor-driven comparative advantage and previous studies on revealed comparative advantage of host countries (Yeaple, 2003<sub>[15]</sub>).<sup>21</sup>
- However, on their own, the coefficients on the skilled labour intensity of the industry are negative for manufacturing affiliates, though not statistically significant, suggesting that more skilled-intensive industries in a skill-scarce host countries may be less likely these are to attract Japanese FDI. This may be because Japanese firms, often operating in high-skill industries, tend to pursue the activities where they have a comparative advantage at home and outsource more unskilled labour-intensive tasks abroad.

*Trade frictions:*

- Barriers to merchandise trade are captured by average tariff rates. These are included in levels and interacted with firm size and productivity. The estimated coefficients associated with tariffs reported in Table A.4 in the annex indicate that tariffs act as a deterrent to the establishment of affiliates by the most productive Japanese MNEs. This suggests that imposing high tariff barriers deprives the host economy of the technology and productivity spillovers induced by FDI inflows from the best-performing MNEs.
- Services trade and investment restrictions are also likely to contribute to shape the presence of foreign affiliates in a given country.<sup>22</sup> Previous studies have shown that trade costs (both fixed and variable) act as strong deterrents to FDI (Rouzet, Benz and Spinelli, 2017<sub>[5]</sub>). The coefficients associated with the OECD STRI show that there is strong heterogeneity in the effects of these restrictions across parent firms (Table A.4 in the annex, last column). Countries with higher STRI scores appear to be less likely to attract foreign investment in services from a wide range of MNEs than countries with relatively more open regulatory environment; but more productive MNEs appear to be better equipped to deal with the cost of services trade and investment barriers.

In summary, the analysis of overall affiliate location strategies suggests that Japanese FDI is not only driven by *market access motives*;<sup>23</sup> factor endowment differences also play a role in shaping the distribution of Japanese FDI across countries, which may respond to *efficiency-seeking motives* or *comparative advantage motives*.<sup>24</sup> In other words, a combination of these motives, in line with the integrated knowledge-capital model,

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<sup>21</sup> The correlation between skill intensity (defined at the country-industry level) and human capital (defined at the country level) is 0.24. To check the robustness of the results to an exogenous measure of an industry's technical requirements for skills, the regressions were also run using the United States' skill intensity of each industry rather than that of the host country, with very similar results.

<sup>22</sup> This result is in line with findings from previous studies, even though the estimation sample for the specifications with the OECD STRI is limited by the sectoral and geographical coverage of the latter index.

<sup>23</sup> 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. Cases where the location choice is driven by market-access factors are referred to in the literature as horizontal FDI (Markusen and Venables, 2000<sub>[28]</sub>).

<sup>24</sup> 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. Cases where the main

would be more suited to explain Japanese MNEs location strategies.<sup>25</sup> The following section reports the results from the analysis on the breakdown of Japanese foreign affiliate activity by final purpose.

#### 4.3.2. Breakdown by final purpose of foreign affiliate activity

Tables A.5-A.9 in the annex present the results of the empirical analysis carried out on the presence of foreign affiliates broken down by final purposes of their activity, to assess whether the main drivers of affiliate sales depend on which market – home, host or third – these are addressed to.

The more granular analysis confirms that some of the drivers identified in the previous section hold across all types of FDI. For instance, larger Japanese firms are more likely to engage in horizontal, vertical and export-platform FDI. Gravity factors are also important determinants of all forms of Japanese FDI: closer and larger host markets are more attractive to set up affiliates overall. Closer markets are particularly favoured in manufacturing industries for intra-firm trade, where transportation costs could otherwise add up to considerable amounts with inputs going back and forth between the affiliate and the mother company, but also for local sales where even final goods produced locally may require substantive amounts of inputs imported from the home country. Comprehensive FTAs facilitate the establishment of Japanese overseas subsidiaries regardless of where these sell. The larger magnitude of the coefficients estimated on manufacturing affiliate sales reflects the fact that first, FTAs tend to remove more barriers related to tariffs and NTMs than in services, where they tend to lock in the status quo; and second, FTA provisions related to competition policy, investment conditions and other aspects of domestic regulation significantly affect goods-producing foreign affiliates. As the digital revolution unfolds, unlimited access to broadband connections and faster internet services help affiliates better integrate in global networks and take advantage of new technological developments. Lastly, labour market institutions and wages appear to matter across forms of FDI, although in some cases the magnitudes of their effect differs depending on the destination of the affiliate's sales. The rest of this section focuses on more specific determinants of each type of FDI.

Affiliates set up to sell to the local market capture the *horizontal FDI* motive. In its simplest form, 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. It therefore conforms to intuition that this is the FDI motive for which the strongest effect of market size, as measured by GDP, is found: firms tend to locate these affiliates near the largest pools of potential customers. Compared with other FDI motives, horizontal FDI may also require hiring a relatively larger number of workers across different occupations, which could explain its high sensitivity to local labour market conditions and labour costs: holding market size constant, lower wages and less stringent labour regulation have the strongest impact on the establishment of affiliates serving local markets.

Furthermore, in services, high-productivity parents appear to establish services affiliates to serve the local market if the host country has a stricter services trade and investment regulatory environment, with the idea of enjoying higher mark-ups from rent-creating regulation after recovering higher entry costs, while less productive parents are more easily deterred from establishing in these countries by the same restrictions.<sup>26</sup> Similarly, although the estimated coefficients of average tariff rates are not all statistically significant, they

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rational for investing abroad is to exploit factor endowment differences and the differential in their relative costs are typically referred to in the literature as vertical FDI (Helpman, 1984<sub>[29]</sub>).

<sup>25</sup> The knowledge-capital model introduced by Markusen (1997<sub>[30]</sub>), bridges the dichotomy between horizontal and vertical FDI. See Carr et al. (2000<sub>[31]</sub>) for an empirical application of this model.

<sup>26</sup> Rouzet and Spinelli (2016<sub>[32]</sub>) analyse the relationship between services trade policies and mark-ups at the firm level and find that restrictive regulations enable firms to charge higher prices for a given cost structure.

provide some support to a tariff-jumping motive. Japanese parents are more likely to establish manufacturing plants in countries with higher tariffs to avoid their products being taxed when entering the country – hence substituting trade with FDI – though this strategy is less pursued by high-productivity parents.

At the other end of the spectrum, *vertical FDI* consists in offshoring 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. 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. Compared to horizontal FDI, it is more "footloose" in the sense that firms can choose their optimal location without needing to locate in a large market, and is more than other types of FDI driven by the logic of specialisation into production stages according to comparative advantage. This may explain why FDI for intra-firm sales of services is found to be where parents in skill-intensive industries (respectively, unskilled labour-intensive industries) are most responsive to the availability of local highly-educated labour (respectively, local low-skill labour). In services specifically, and in contrast to affiliates serving local or third markets, the degree of industry-specific R&D intensity in the host market appears to play a stronger role, suggesting that Japanese parents offshore more innovative services inputs (product development, engineering, design, etc.), while keeping more basic services at home.

*Export-platform FDI* 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. Only the most productive and largest Japanese parents engage in this more complex establishment of affiliate networks, especially in services, as evidenced by larger coefficients on parent firm size and productivity than for the other two types of FDI. Export platforms are likely to be chosen based on two categories of determinants: 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). As proximity to target third countries matters more and proximity to home matters less in this case, the effect of distance to Japan is more muted than for local or intra-firm sales. However, it is essential for manufacturing and distribution affiliates to be able to ship rapidly and efficiently to destination markets; more efficient and less burdensome customs procedures thus have the strongest effect on attracting export-platform FDI in the baseline specification.

A striking finding on the choice of where to locate export platforms in services is its high sensitivity to the regulatory environment for services, as measured by the STRI. More stringent services trade and investment barriers strongly discourage this type of establishment, while host markets with less entry barriers and a more welcoming regulatory environment for foreign investors are privileged as location choices for export platforms. As their primary objective is not to sell locally, Japanese parents are able to compare the conditions offered in different potential host countries and pick those with lower entry costs and less red tape as regional or global platforms for services than can be delivered from anywhere. This is especially the case for smaller and less highly performing MNEs. Larger and more productive parents are less likely to be discouraged by higher barriers to establishment, possibly because they can spread these costs on larger foreign sales or absorb them by producing more efficiently, or because they have more developed legal capacity and networks of local partners to help deal with regulatory hurdles, but the overall effect of services restrictions across all MNEs remains to deter FDI for export.

In summary, the results confirm that there are mixed motives for Japanese MNEs expansion abroad and that these differ depending on the final destination of affiliate sales. Japanese MNEs are more likely to establish foreign affiliates to sell locally when the host market is larger, more favourable to Japanese foreign investment (thanks to negotiated conditions in FTAs), and has lower labour-related costs. Trade restrictions tend to discourage Japanese FDI, although with heterogeneous effects across firms; the most productive services MNEs appear to be sometimes driven to circumvent restrictions in order to enjoy higher rents in the

host market. Furthermore, Japanese companies that are active in more sophisticated industries are more likely to set up affiliates to sell intra-firm in countries with a skilled labour force. Distance is another important determinant of intra-firm trade, as Japanese multinationals are more likely to invest in closer markets to minimise transport costs. The largest and more productive parents are more likely to invest in FDI-export platforms. Host countries with efficient customs procedures are more likely to attract this type of FDI, as faster and more reliable border agencies facilitate trade with third markets. However, high services trade and investment barriers strongly reduce a country's attractiveness for export platforms.

## 5. 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 2014.

Firstly, it provides evidence of the broad investment patterns of Japanese MNEs across countries and industries. The main findings highlight the high level of concentration of the activity of Japanese foreign affiliates, particularly in services industries, and diverse patterns depending on both the parent's and the affiliate's industry. 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. Sectoral analysis highlights that nearly half of affiliate sales come from affiliates in distribution, mainly in Asia. The breakdown of affiliate sales by destination market reveals that Japanese MNEs establish their foreign services affiliates primarily to maximise their proximity to local customers. By contrast, Japanese foreign affiliates in manufacturing sectors tend to engage more with third countries. Yet, some economies consistently emerge as strategic gateways to other destinations in the region.

Secondly, the econometric analysis reveals mixed motives for Japanese firms' expansion abroad, in search of markets, production efficiency, or regional or global platforms. Larger host markets, with more favourable environments to Japanese foreign investment and flexible labour market institutions, attract more Japanese FDI when the ultimate goal is to serve the local market. There is also evidence of possible tariff-jumping motives for establishing affiliates that would respond to domestic demand. Distance and comparative advantage play a stronger role in intra-firm trade, with Japanese multinationals being more likely to invest in closer markets to minimise transport costs, and in those with workforce skills best suited to the industry's requirements. The largest and most productive parents are more likely to invest in FDI-export platforms. This type of investment is also more likely in host countries with efficient customs procedures that facilitate trade with third markets, but is discouraged by high services trade and investment barriers.

These findings shed light on policy priorities for countries to attract and maximise the benefits of FDI inflows. All three types of FDI are sources of employment, activity and technological spillovers to the host country. In addition, FDI directed towards the local market helps expand the variety of products and services available to consumers and businesses and lower their costs. FDI for intra-firm trade and FDI-export platforms bring benefits in terms of knowledge and skills needed for successful internationalisation, and thus 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, 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. Second, investing in skills and digital infrastructure decisively contributes 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.



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## Annex

**Table A.1. Country codes and description**

ISO 3 Country code	Country name description
AUS	Australia
BRA	Brazil
CAN	Canada
CHN	People's Republic of China
EU	European Union
HKG	Hong Kong, China
IDN	Indonesia
IND	India
KOR	Korea
MEX	Mexico
MYS	Malaysia
PHL	Philippines, The
RoW	Rest of the World
SGP	Singapore
THA	Thailand
USA	United States
VNM	Viet Nam

*Note:* Table A.1 spells out the country codes used in Figure 6.

**Table A.2. 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 <sup>[16]</sup> )
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 tax diff	The variable is the difference between the statutory tax rate on corporate profits applied in Japan and that of the host country.	World Bank, Doing Business project.
Labour tax diff	The variable is the difference between the labour tax and mandatory contributions paid by a business in Japan versus that paid by a similar business located in the host country.	World Bank, Doing Business project.
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.
HC	Human capital endowment is proxied by the gross enrolment ratio for tertiary school as a share of the population of the age group that officially corresponds to tertiary education.	World Bank, Development Indicators database, based on UNESCO data on education
Skill Lab int	In each host country, the industry skilled-labour intensity measures the share of high-skilled employees in a given industry among the total number of employees in that industry.	ILO Statistics, Employment by economic activity and occupation/broad skill levels
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, available for 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.

**Table A.3. Main determinants of location choices, all foreign affiliates**

	Baseline		Labour costs		Technology		Skill endowments	
	Affiliates in goods	Affiliates in services	Affiliates in goods	Affiliates in services	Affiliates in goods	Affiliates in services	Affiliates in goods	Affiliates in services
Lab prod (log)	0.029*** (0.011)	0.098*** (0.013)	0.029** (0.014)	0.102*** (0.017)	0.041** (0.019)	0.110*** (0.014)	0.036*** (0.012)	0.102*** (0.013)
Size (log)	0.136*** (0.019)	0.168*** (0.014)	0.153*** (0.028)	0.186*** (0.017)	0.229*** (0.025)	0.204*** (0.02)	0.154*** (0.021)	0.173*** (0.016)
Main activity in goods	0.199*** (0.034)	-0.160** (0.074)	0.233*** (0.04)	-0.151 (0.11)	0.272*** (0.069)	0.115*** (0.042)	0.238*** (0.046)	-0.112 (0.073)
Distance (log)	-0.731*** (0.195)	-0.585*** (0.19)	-0.575*** (0.082)	-0.459*** (0.064)	-0.143** (0.056)	-0.178** (0.081)	-0.185 (0.173)	-0.162 (0.137)
GDP (log)	0.448*** (0.098)	0.397*** (0.09)	0.502*** (0.041)	0.510*** (0.033)	0.413*** (0.054)	0.466*** (0.042)	0.109 (0.072)	0.209** (0.085)
FTA depth	0.253*** (0.079)	0.169*** (0.063)	0.145** (0.063)	0.128*** (0.048)	-0.063 (0.063)	0.040 (0.071)	0.186** (0.079)	0.080 (0.08)
LPI customs	0.223 (0.147)	0.604*** (0.114)	1.193*** (0.175)	1.004*** (0.164)	-0.848*** (0.271)	-0.041 (0.368)	0.006 (0.359)	0.326 (0.22)
Corporate tax diff	-0.011 (0.012)	-0.002 (0.007)	-0.003 (0.005)	-0.008* (0.004)	-0.009 (0.006)	-0.016*** (0.005)	-0.003 (0.012)	-0.002 (0.012)
Labour tax diff	-0.011 (0.008)	0.002 (0.007)	-0.017*** (0.003)	-0.010*** (0.004)	0.010** (0.004)	0.008* (0.004)	0.020** (0.008)	0.027*** (0.008)
Wage (log)			-0.752*** (0.117)	-0.455*** (0.08)				
EPL			-0.555*** (0.067)	-0.405*** (0.083)				
R&D Exp sh GO					5.902** (2.327)	9.901** (4.275)		
Broadband coverage					0.017** (0.007)	0.018* (0.010)		
Skill Lab Int							-3.047 (2.188)	0.386 (0.444)
HC							-0.004 (0.01)	0.001 (0.005)
HC * Skill Lab int							0.055* (0.032)	0.003 (0.005)
Constant	-3.737 (2.426)	-5.677** (2.286)	-2.538** (1.063)	-5.721*** (0.934)	-5.879*** (0.716)	-9.538*** (0.744)	-3.079 (1.932)	-5.884*** (1.789)
Observations	706,098	590,838	531,395	443,500	385,837	311,016	539,512	452,561
R-squared	0.264	0.218	0.375	0.308	0.272	0.262	0.171	0.183
Time FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES

*Note:* The figures above are estimated coefficients from the probit regressions (not the marginal effects). The panel goes from 2008 to 2014. The dependent variable is a binary indicator for foreign affiliate sales. The standard errors, reported below the estimated coefficients, are clustered by host economy. \*\*\*, \*\* and \* mean statistical significance at 1%, 5% and 10% levels respectively.

*Source:* Own calculations based on the micro-data from the BSOBA, Japan METI.

**Table A.4. Impact of trade barriers on the presence of foreign affiliates, all affiliates**

Tariffs

	Tariffs		
	Affiliates in goods		
Tariff	0.005	0.000	0.018
	(0.008)	(0.011)	(0.011)
Tariff * Firm size		0.001	
		(0.001)	
Tariff * Firm lab prod			-0.003***
			(0.001)
Observations	584,944	584,944	584,944
R-squared	0.27	0.27	0.27
Time FE	YES	YES	YES
Industry FE	YES	YES	YES

Services trade and investment barriers (affiliates in services)

	Services restrictions		
	Affiliates in services		
STRI score	0.207	-0.652	-1.833**
	(0.263)	(0.639)	(0.858)
STRI score * Firm size		0.124	
		(0.113)	
STRI score * Firm lab prod			0.421**
			(0.177)
Observations	29,912	29,912	29,912
R-squared	0.127	0.127	0.129
Time FE	YES	YES	YES
Industry FE	YES	YES	YES

*Note:* The specifications above include all control variables listed in the basic specification in Table A.3. The figures above are estimated coefficients from the probit regressions (not the marginal effects). The panel goes from 2008 to 2014. The dependent variable is a binary indicator for foreign affiliate sales. The standard errors, reported below the estimated coefficients, are clustered by host economy. \*\*\*, \*\* and \* mean statistical significance at 1%, 5% and 10% levels respectively.

*Source:* Own calculations based on the micro-data from the BSOBA, Japan METI.

**Table A.5. Main determinants of foreign affiliate location by final destination - baseline**

	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)	0.024** (0.012)	0.086*** (0.011)	-0.002 (0.016)	0.101*** (0.013)	0.033** (0.013)	0.143*** (0.010)
Size (log)	0.117*** (0.018)	0.146*** (0.014)	0.085*** (0.024)	0.131*** (0.014)	0.132*** (0.017)	0.165*** (0.014)
Main activity in goods	0.198*** (0.034)	-0.144** (0.073)	0.171*** (0.036)	-0.200*** (0.068)	0.187*** (0.052)	-0.038 (0.067)
Distance (log)	-0.696*** (0.174)	-0.567*** (0.175)	-0.701*** (0.162)	-0.566*** (0.155)	-0.551*** (0.139)	-0.431*** (0.146)
GDP (log)	0.456*** (0.086)	0.395*** (0.083)	0.367*** (0.092)	0.335*** (0.086)	0.343*** (0.072)	0.272*** (0.072)
FTA depth	0.255*** (0.076)	0.172*** (0.060)	0.238*** (0.075)	0.147** (0.063)	0.219*** (0.060)	0.137** (0.055)
LPI customs	0.244* (0.137)	0.588*** (0.099)	0.237 (0.148)	0.630*** (0.119)	0.251** (0.123)	0.731*** (0.118)
Corporate tax diff	-0.011 (0.012)	-0.003 (0.007)	-0.010 (0.012)	-0.004 (0.007)	-0.009 (0.010)	-0.002 (0.007)
Labour tax diff	-0.009 (0.007)	0.002 (0.006)	-0.011 (0.008)	0.001 (0.006)	-0.006 (0.006)	0.004 (0.006)
Constant	-4.183* (2.201)	-5.599*** (2.104)	-2.727 (2.280)	-5.594*** (2.071)	-4.164** (1.851)	-6.956*** (1.850)
Observations	706,098	590,838	706,098	589,970	706,098	590,754
R-squared	0.255	0.211	0.231	0.205	0.188	0.199
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 goes from 2008 to 2014. The dependent variable is a binary indicator for foreign affiliate sales, broken down by final destination market. The standard errors, reported below the estimated coefficients, are clustered by host economy. \*\*\*, \*\* and \* mean statistical significance at 1%, 5% and 10% levels respectively.

*Source:* Own calculations based on the micro-data from the BSOBA, Japan METI.

**Table A.6. Main determinants of foreign affiliate location by final destination – labour costs**

	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)	0.025 (0.016)	0.086*** (0.015)	-0.003 (0.022)	0.106*** (0.016)	0.032* (0.018)	0.147*** (0.011)
Size (log)	0.126*** (0.025)	0.153*** (0.018)	0.094*** (0.035)	0.144*** (0.020)	0.143*** (0.023)	0.178*** (0.018)
Main activity in goods	0.229*** (0.041)	-0.117 (0.105)	0.200*** (0.046)	-0.185* (0.103)	0.202*** (0.066)	-0.025 (0.097)
Distance (log)	-0.549*** (0.077)	-0.445*** (0.063)	-0.549*** (0.068)	-0.452*** (0.043)	-0.425*** (0.064)	-0.300*** (0.047)
GDP (log)	0.481*** (0.038)	0.488*** (0.032)	0.440*** (0.036)	0.446*** (0.031)	0.379*** (0.033)	0.367*** (0.029)
FTA depth	0.147** (0.065)	0.134*** (0.048)	0.162** (0.063)	0.116** (0.047)	0.160*** (0.049)	0.125*** (0.040)
LPI customs	1.103*** (0.172)	0.975*** (0.165)	1.108*** (0.194)	0.926*** (0.144)	0.959*** (0.159)	0.853*** (0.167)
Corporate tax diff	-0.005 (0.005)	-0.007* (0.004)	-0.002 (0.006)	-0.013*** (0.005)	-0.003 (0.005)	-0.010* (0.005)
Labour tax diff	-0.015*** (0.003)	-0.008** (0.004)	-0.013*** (0.003)	-0.007* (0.004)	-0.010*** (0.003)	-0.005 (0.004)
Wage (log)	-0.687*** (0.111)	-0.433*** (0.079)	-0.628*** (0.116)	-0.352*** (0.063)	-0.523*** (0.092)	-0.256*** (0.064)
EPL	-0.514*** (0.075)	-0.374*** (0.085)	-0.425*** (0.062)	-0.257*** (0.086)	-0.394*** (0.057)	-0.201** (0.084)
Constant	-2.620** (1.023)	-5.415*** (0.947)	-2.555** (1.025)	-6.195*** (0.876)	-3.542*** (0.896)	-7.744*** (0.831)
Observations	531,395	443,500	531,395	442,849	531,395	442,849
R-squared	0.348	0.290	0.327	0.283	0.261	0.241
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 goes from 2008 to 2014. The dependent variable is a binary indicator for foreign affiliate sales, broken down by final destination market. The standard errors, reported below the estimated coefficients, are clustered by host economy. \*\*\*, \*\* and \* mean statistical significance at 1%, 5% and 10% levels respectively.

*Source:* Own calculations based on the micro-data from the BSOBA, Japan METI.



**Table A.7. Main determinants of foreign affiliate location by final destination – technology**

	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)	0.046*** (0.018)	0.079*** (0.015)	0.024 (0.019)	0.121*** (0.015)	0.037 (0.028)	0.131*** (0.011)
Size (log)	0.195*** (0.020)	0.176*** (0.021)	0.198*** (0.022)	0.162*** (0.016)	0.210*** (0.016)	0.197*** (0.017)
Main activity in goods	0.293*** (0.062)	0.143*** (0.043)	0.292*** (0.076)	0.057 (0.043)	0.244*** (0.084)	0.194*** (0.066)
Distance (log)	-0.149*** (0.057)	-0.174** (0.079)	-0.209*** (0.057)	-0.339*** (0.070)	-0.089 (0.056)	-0.160** (0.068)
GDP (log)	0.417*** (0.049)	0.450*** (0.038)	0.340*** (0.041)	0.447*** (0.033)	0.342*** (0.045)	0.363*** (0.030)
FTA depth	-0.07 (0.060)	0.026 (0.067)	-0.07 (0.057)	0.152** (0.063)	-0.034 (0.054)	0.095 (0.063)
LPI customs	-0.812*** (0.254)	-0.048 (0.346)	-0.559** (0.276)	0.455 (0.324)	-0.655** (0.270)	0.384 (0.314)
Corporate tax diff	-0.009 (0.006)	-0.014*** (0.005)	-0.009 (0.006)	-0.014*** (0.005)	-0.006 (0.006)	-0.013** (0.006)
Labour tax diff	0.009** (0.004)	0.008** (0.004)	0.006 (0.004)	0.004 (0.004)	0.007* (0.004)	0.003 (0.004)
R&D Exp sh GO	5.049** (2.103)	3.886 (3.925)	6.511*** (2.244)	11.378*** (3.985)	4.124** (2.091)	6.024 (4.981)
Broadband coverage	0.018** (0.007)	0.017* (0.010)	0.016* (0.009)	0.012 (0.009)	0.018** (0.009)	0.014* (0.009)
Constant	-5.926*** (0.687)	-8.960*** (0.709)	-5.313*** (0.591)	-9.977*** (0.683)	-6.206*** (0.664)	-10.545*** (0.683)
Observations	385,837	311,016	385,837	309,478	385,837	305,414
R-squared	0.26	0.248	0.246	0.249	0.224	0.241
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 goes from 2008 to 2014. The dependent variable is a binary indicator for foreign affiliate sales, broken down by final destination market. The standard errors, reported below the estimated coefficients, are clustered by host economy. \*\*\*, \*\* and \* mean statistical significance at 1%, 5% and 10% levels respectively.

*Source:* Own calculations based on the micro-data from the BSOBA, Japan METI.

**Table A.8. Main determinants of foreign affiliate location by final destination – skill endowments**

	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)	0.035*** (0.012)	0.086*** (0.014)	0.015 (0.011)	0.106*** (0.014)	0.044*** (0.014)	0.142*** (0.012)
Size (log)	0.133*** (0.018)	0.154*** (0.014)	0.112*** (0.020)	0.139*** (0.014)	0.149*** (0.016)	0.172*** (0.015)
Main activity in goods	0.246*** (0.044)	-0.098 (0.076)	0.219*** (0.046)	-0.144* (0.074)	0.248*** (0.052)	-0.005 (0.077)
Distance (log)	-0.114 (0.173)	-0.140 (0.128)	-0.277* (0.154)	-0.224* (0.120)	-0.104 (0.144)	-0.146 (0.121)
GDP (log)	0.128* (0.071)	0.201** (0.079)	0.058 (0.067)	0.179** (0.077)	0.085 (0.066)	0.153** (0.071)
FTA depth	0.190** (0.080)	0.101 (0.079)	0.198*** (0.072)	0.035 (0.075)	0.190*** (0.069)	0.055 (0.078)
LPI customs	-0.024 (0.356)	0.339 (0.208)	0.286 (0.332)	0.291 (0.227)	0.171 (0.329)	0.500** (0.210)
Corporate tax diff	-0.003 (0.012)	-0.001 (0.012)	0.001 (0.012)	-0.003 (0.013)	0.003 (0.012)	-0.001 (0.012)
Labour tax diff	0.022** (0.009)	0.026*** (0.008)	0.017** (0.008)	0.026*** (0.008)	0.018*** (0.007)	0.022*** (0.007)
Skill Lab Int	-2.032 (2.054)	0.252 (0.393)	-4.394** (1.942)	0.649 (0.582)	-2.623 (1.973)	0.496 (0.487)
HC	0.001 (0.009)	0.003 (0.005)	-0.009 (0.008)	0.000 (0.004)	-0.002 (0.008)	-0.000 (0.005)
HC * Skill Lab int	0.036 (0.031)	0.003 (0.005)	0.073*** (0.028)	0.000 (0.007)	0.044 (0.028)	0.002 (0.006)
Constant	-4.083** (1.863)	-5.945*** (1.641)	-2.159 (1.599)	-5.264*** (1.624)	-4.380*** (1.677)	-6.988*** (1.587)
Observations	539,512	452,561	539,512	451,955	539,512	452,561
R-squared	0.166	0.176	0.144	0.177	0.149	0.194
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 goes from 2008 to 2014. The dependent variable is a binary indicator for foreign affiliate sales, broken down by final destination market. The standard errors, reported below the estimated coefficients, are clustered by host economy. \*\*\*, \*\* and \* mean statistical significance at 1%, 5% and 10% levels respectively.

*Source:* Own calculations based on the micro-data from the BSOBA, Japan METI.

**Table A.9. Impact of trade barriers on foreign affiliate location by final destination**

## Tariffs (affiliates in goods)

	Local			Intra-firm trade			Exports to third countries		
Tariff	0.006	0.002	0.019*	0.002	0.013	0.015*	0.004	0.006	0.016*
	(0.008)	(0.012)	(0.011)	(0.008)	(0.013)	(0.009)	(0.007)	(0.010)	(0.008)
Tariff* Firm size		0.001			-0.002			-0.000	
		(0.001)			(0.002)			(0.001)	
Tariff* Firm lab prod			-0.003***			-0.003**			-0.003***
			(0.001)			(0.001)			(0.001)
Observations	584,944	584,944	584,944	584,944	584,944	584,944	584,944	584,944	584,944
R-squared	0.259	0.259	0.259	0.236	0.236	0.236	0.194	0.194	0.194
Time FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

## Services trade and investment barriers (affiliates in services)

	Local			Intra-firm trade			Exports to third countries		
STRl score	0.408*	0.735	-1.867***	-0.100	-0.508	-0.120	-0.697*	-1.952*	-2.782***
	(0.234)	(0.737)	(0.444)	(0.331)	(0.430)	(0.627)	(0.409)	(1.066)	(0.829)
STRl score* Firm size		-0.047			0.060			0.184	
		(0.113)			(0.066)			(0.140)	
STRl score * Firm lab prod			0.472***			0.004			0.431***
			(0.074)			(0.127)			(0.131)
Observations	29,912	29,912	29,912	29,912	29,912	29,912	29,912	29,912	29,912
R-squared	0.113	0.114	0.116	0.0573	0.0573	0.0573	0.0542	0.0548	0.0562
Time FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

*Note:* The figures above are estimated coefficients from the probit regressions (not the marginal effects). The panel goes from 2008 to 2014. The dependent variable is a binary indicator for foreign affiliate sales, broken down by final destination market. The specifications above include the variables listed in the basic specification in Table A.5. The standard errors, reported below the estimated coefficients, are clustered by host economy. \*\*\*, \*\* and \* mean statistical significance at 1%, 5% and 10% levels respectively.

*Source:* Own calculations based on the micro-data from the BSOBA, Japan METI.