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Abstract

This study applies Davis, Haltiwanger, and Schuh's method (1996) to measure job creation/destruction rates of establishments in manufacturing firms using Japanese Economic Census data in 2006 and 2009. Results state that the net domestic employment decrease mainly arises from firms without subsidiary companies, overseas, and non-expanding multinational enterprises (MNEs). Domestic employment increases when the number of overseas subsidiaries increases. Both job creation/destruction rates of MNEs are high, and the globalization of Japanese firms accelerates de-industrialization in Japan. The job creation and the net employment growth rates of establishments belonging to small-sized firms are lower than those in large-sized firms.

Keywords: Multinational enterprises (MNEs), Job creation and job destruction, Small and medium enterprises (SMEs), New entrant and exit

JEL classification codes: F66, F23, F61

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1. Introduction

The 1980s and 1990s witnessed a relocation of Japanese manufacturing sites from Japan to East Asian countries, such as China, Malaysia, and Thailand, that has added an international dimension to the division of labor between these countries and Japan. However, this rapid increase in the relocation of activities to a foreign country has led to growing concerns among policymakers since it may reduce Japanese employment demand and lead to de-industrialization, particularly in the areas where many local small and medium enterprises are located.

Several empirical studies, particularly focusing on multinational enterprises (MNEs), have examined the effects of overseas operations on MNEs' home operations by investigating their sales, investments, employment, employee compensation, and other performance measures both at home and abroad. Using parent-affiliate linked data, the previous studies examined whether the MNEs' overseas operations and home operations complemented or substituted one another. Although the evidence is rather mixed,[1] more recent studies (Barba Navaretti et al. 2010; Hijzen et al. 2011; Desai et al. 2009; Hayakawa et al. 2013) show that overseas operations and home operations are complementary. Moreover, Harrison and McMillan (2011) indicate that the effect of overseas activities on employment at home differs depending on the tasks performed both at home and abroad. In addition, overseas employment and home employment are complementary in cases where operations at overseas affiliates are different at domestic operations. Harrison and McMillan (2011) also show that although the increase in U.S.-based MNEs' offshoring activities has been associated with a decline in manufacturing employment in the U.S., the impact was limited. Overall, these recent studies

[1] Brainard and Riker (1997) and Riker and Brainard (1997) show the negative relationship between MNEs' overseas and home operations.

do not support the widespread perception that the expansion of overseas operations comes at the cost of domestic labor demand. On the contrary, they indicate that such expansion tends to have a positive effect on domestic performance and employment in the case of MNEs.[2] However, there are three particular issues in these studies: (1) they utilized data that did not include a sample of small-sized firms in each country; (2) they only focused on the effect of firms' change from domestic to MNEs; and (3) they failed to provide a comprehensive view regarding the effect of overseas investment on domestic labor demand.

Against these backdrops, this paper addresses a related set of questions using Japanese economic census data in 2006 and 2009, which cover the entire gamut of Japanese firms and include observations of a significant number of small and medium firms. Moreover, we focus not only on domestic companies that convert into MNEs but also companies that increase/remain/decrease the number of foreign affiliates, those that have only domestic affiliates, and those that have neither domestic nor foreign affiliates. Many MNEs tend to increase procurements from local companies in the host country and decrease those from Japanese parent companies after several years of being established (METI, 2012). As long as new foreign affiliates continue to be established, the demand for exports and procurements from the Japanese parent company can increase. However, once the number of newly-established foreign companies reaches a peak, procurements will gradually decrease. Therefore, in the long run, MNEs' overseas activity will likely decrease domestic output and employment demand.

We begin by examining the effects of an increase in multinational firms' overseas

[2] Using Japanese data, studies such as Yamashita and Fukao (2010), Hijzen et al. (2007), Edamura et al. (2011), Hayakawa et al. (2013), and Ando and Kimura (2011) show complementarity, or no strong evidence of substitution between overseas expansion of Japanese firms and home employment.

activities on Japanese employment demand in the manufacturing sector. Then we examine whether the effects depend on the firms' size by dividing our sample into two groups: (1) small and medium firms and (2) large firms. We also examine whether the effects differ between urban and rural establishments.

The remainder of this paper is organized as follows. Section 2 describes the data used in this study, while Section 3 presents the methodology. Section 4 discusses the findings, and Section 5 concludes the paper.

2. Data

The dataset used in this research for the calculation of job creation/destruction rates comes from the 2006 Establishment and Enterprise Census and the 2009 Economic Census (hereafter referred to jointly as *Census*). The 2006 and 2009 *Census*, held by the Statistics Bureau of the Japanese Ministry of Internal Affairs and Communications, covered approximately six million establishments each year. In addition, the *Census* covers all of the establishments across all industries and sizes in Japan, and collects information regarding basic establishment characteristics such as the number of employees,[3] the industry and the location, and the number of domestic and foreign affiliate subsidiaries of the firm with which an establishment is affiliated.

The unit of analysis used in this study is an establishment, which is defined as an economic unit operating in a single physical location that sells or produces goods/services. The existing establishments in the 2009 *Census* include the same identification number used in the

3 The number of employees is defined as the total number of regular employees, non-regular workers, paid directors, individual proprietors, and non-paid family employees.

2006 *Census,* which allowed us to track their entry, exit, and employment changes since the information also included data regarding the firm possessing the establishments, such as the firm's size and whether it is a MNE in each year.[4]

The greatest strength of our data is that it includes the complete census that covers all of the establishments across all industries and sizes in Japan. Some recent studies on foreign direct investment (FDI) and employment in Japan utilized data from the Basic Survey of Japanese Business Structure and Activity, the Basic Survey of Overseas Japanese Business Activity, or the Employment Trend Survey.[5] The Basic Survey of Japanese Business Structure and Activity only covers firms with 50 or more employees and with capital of 30 million yen or more. Thus, they only cover approximately 30,000 medium and large companies. The Employment Trend Survey is a sampling survey that includes approximately 10,000−13,000 establishments. One advantage for using data from the *Census*, as in this study, allows the measurement of the job creation rate of new entrants as well as the job destruction rate of exiting establishments, which was not possible in the previous studies.

A further strength of our data is that the unit of analysis is at the establishment level that allows us to observe the employment dynamics from one establishment to another within the same firm as a result of either job creation or destruction.

The sample of establishments used in this study consists of Japanese manufacturing firms, which are defined as those having at least 30 percent of their employees in manufacturing establishments (in either 2006 or 2009). We consider that the ordinary industry classification

4 Establishments that are coded as inactive were excluded.

5 For example, Yamashita and Fukao (2010) use the Basic Survey of Japanese Business Structure and Activity, and the Basic Survey of Overseas Japanese Business Activity, while Ando and Kimura (2014) apply the Basic Survey of Japanese Business Structure and Activity.

method for the firm is problematic in the following two ways: (1) a portion of the recorded decline in manufacturing employees or firms is partly due to the firms switching their main activities from the manufacturing to the service sector; and (2) some companies whose value added production mainly arises from manufacturing activities, even though their gross sales are larger in wholesale or retail activities, are classified in the wholesale or retail industries.[6] Thus, we consider that our method can mitigate this classification problem to some extent.

Table 1 presents the dataset of 1,755,833 establishments belonging to manufacturing companies of which 21.5 percent are in retail, and 8.7 percent are in wholesale.[7] 23.9 percent of the sample is establishments belonging to firms with five or less employees, 31.7 percent includes 6−50 employees, and 23.9 percent are affiliated with firms consisting more than 300 employees.[8]

Table 1. Number of establishments by industry

[6] The amount of sales is used to decide the industrial classification.

[7] The industry codes in 2006 are used for the existing establishments, and those in 2009 are used for the entrants.

8 This includes independently operated business samples. It is assumed that they have neither domestic nor foreign subsidiaries. The number of employees used here for the classification is the average number of employees in 2006 and 2009.

Industry	Freq.	Percent
Rice, wheat production	490	0.0
Livestock and sericulture farming	1,444	0.1
Agricultural services	1,261	0.1
Forestry	261	0.0
Fisheries	333	0.0
Mining	1,070	0.1
Livestock products	3,295	0.2
Seafood products	10,132	0.6
Flour and grain mill products	1246	0.1
Miscellaneous foods and related products	38,250	2.2
Prepared animal foods and organic fertilizers	1,606	0.1
Beverages	6,622	0.4
Tobacco	15	0.0
Textile products	62,336	3.6
Lumber and wood products	17,657	1.0
Furniture and fixtures	28,053	1.6
Pulp, paper, and coated and glazed paper	938	0.1
Paper products	12,493	0.7
Printing, plate making for printing and bookbinding	42,158	2.4
Leather and leather products	7,432	0.4
Rubber products	6,529	0.4
Chemical fertilizers	222	0.0
Basic inorganic chemicals	1,418	0.1
Basic organic chemicals	1,626	0.1
Chemical fibers	180	0.0
Miscellaneous chemical products	4,257	0.2
Pharmaceutical products	1,780	0.1
Petroleum products	398	0.0
Coal products	1051	0.1
Glass and its products	2,243	0.1
Cement and its products	7,452	0.4
Pottery	6,573	0.4
Miscellaneous ceramic, stone, and clay products	6,236	0.4
Pig iron and crude steel	423	0.0
Miscellaneous iron and steel	6,880	0.4
Smelting and refining of non-ferrous metals	5,329	0.3
Fabricated constructional and architectural metal products	28,004	1.6
Miscellaneous fabricated metal products	43,798	2.5
General industry machinery	15,956	0.9
Special industry machinery	25,632	1.5
Miscellaneous machinery	22,770	1.3
Office and service industry machines	3,800	0.2
Electrical generating, transmission, distribution, and industrial apparatus	12,103	0.7
Household electric appliances	2,051	0.1
Electronic data processing machines, digital and analog computer equipment and accessories	1,553	0.1
Communication equipment	3,016	0.2
Electronic equipment and electric measuring instruments	2,856	0.2
Electronic parts	12,291	0.7
Miscellaneous electrical machinery equipment	3,411	0.2

Industry	Freq.	Percent
Motor vehicles	18,009	1.0
Other transportation equipment	26,334	1.5
Precision machinery & equipment	11,430	0.7
Plastic products	25,040	1.4
Miscellaneous manufacturing industries	11,041	0.6
Construction	20,812	1.2
Civil engineering	41,755	2.4
Electricity	1,388	0.1
Gas, heat supply	514	0.0
Waterworks	42	0.0
Water supply for industrial use	1,637	0.1
Waste disposal	3,566	0.2
Wholesale	152,823	8.7
Retail	377,412	21.5
Finance	34,016	1.9
Insurance	16,832	1.0
Real estate	28,782	1.6
Railway	4,103	0.2
Road transportation	35,863	2.0
Water transportation	2,347	0.1
Air transportation	473	0.0
Other transportation and packing	16,974	1.0
Telegraph and telephone	7,858	0.5
Mail	24,057	1.4
Education (private and non-profit)	6,386	0.4
Medical (private)	12,335	0.7
Hygiene (private and non-profit)	341	0.0
Other public services	12,062	0.7
Advertising	3,079	0.2
Rental of office equipment and goods	17,088	1.0
Automobile maintenance services	14,359	0.8
Other services for businesses	49,595	2.8
Entertainment	21,956	1.3
Broadcasting	1,033	0.1
Information services and internet-based services	9,737	0.6
Publishing	1,827	0.1
Video picture, sound information, character information production and distribution	2,941	0.2
Eating and drinking places	119,080	6.8
Accommodation	13,422	0.8
Laundry, beauty and bath services	53,035	3.0
Other services for individuals	52,149	3.0
Public administration	545	0.0
Social insurance and social welfare (non-profit)	28,813	1.6
Research (non-profit)	2,074	0.1
Other (non-profit)	3,855	0.2
Unclassified	83	–
Total	1,755,833	100.0

Table 2. Number of establishments by firm size

Number of employees	Number of establishments	Percent	Total number of employees	Percent
1–5	316,243	23.9	748,731	2.9
6–50	418,948	31.7	4,405,197	17.2
51–100	112,773	8.5	2,415,996	9.5
101–300	158,418	12.0	4,388,328	17.2
301–500	58,772	4.4	1,926,765	7.5
501–1000	65,584	5.0	2,298,215	9.0
1001–5000	116,552	8.8	4,750,982	18.6
5001–	75,882	5.7	4,605,077	18.0
Unclassified	432,661	–	–	–
Total	1,755,833	100.0	25,539,291	100.0

3. Methodology

This study follows the basic methodology introduced by Davis, Haltiwanger, and Schuh (1996) to measure the job creation/destruction rate. First, the employment growth in establishment *i* between *t−1* and *t* is given by:

$$Growth_{\mathrm{it}} = \frac{(\mathrm{N_{it}} - \mathrm{N_{i\,t-1}})}{\frac{1}{2}(\mathrm{N_{it}} + \mathrm{N_{i\,t-1}})}, \qquad (1)$$

where $\mathrm{N_{it}}$ denotes the number of employees working in an establishment *i* at time *t*. Dividing by average employment ensures that *Growth* is constrained between −2 and 2 in the presence of entry and exit.[9] To aggregate employment growth across establishments, *Weight* is defined as:

$$Weight_{\mathrm{it}} = \frac{(\mathrm{N_{it}} + \mathrm{N_{i\,t-1}})}{\sum_{\mathrm{i}\in\varepsilon_{\mathrm{jt}}}(\mathrm{N_{it}} + \mathrm{N_{i\,t-1}})} \qquad (2)$$

where ε_{jt} is the set of establishments in group *j* at time *t* or *t−1*. ε_{jt} includes the establishments

9 Taking the average number of employees at time t−1 and t as a denominator has the advantage of making the growth measure symmetric (Moscarini and Postel-Vinay, 2012). *Growth* is the unitless number and takes 2/3 when there is a twofold increase in employee numbers and 1 when there is a threefold increase.

that exit and enter between *t−1* and *t*. In the analysis, group *j* could represent elements, such as a sector, a region, or the firm size category. The job creation rate (JCR_{jt}) within any group can then be calculated by taking the sum of employment-weighted employment growth for the positive values of $Growth_{it}$:

$$JCR_{jt} = \sum_{i \in \varepsilon_{jt}, Growth>0} Weight_{it} * Growth_{it} \qquad (3)$$

Conversely, the job destruction rate, JDR_{jt}, in group *j* is given by taking the sum of employment-weighted employment growth for negative values of $Growth_{it}$:

$$JDR_{jt} = \sum_{i \in \varepsilon_{jt}, Growth<0} Weight_{it} * |Growth_{it}| \qquad (4)$$

The job creation rate can arise from either the growth of existing establishments or establishment entry. Likewise, the job destruction rate can arise from existing establishments that reduce employment or exit.

The gross job reallocation rate, JRR_{jt}, can be expressed as:

$$JRR_{jt} = JCR_{jt} + JDR_{jt} \qquad (5)$$

This measure, which is based on the establishments, does not incorporate two potentially important aspects of job reallocation. First, it does not observe the job reallocation within establishments from the inflows and outflows of different positions within the same establishment. Even within establishments, gross flows are unlikely to equal the net

employment change. Second, the job reallocation that occurs between *t−1* and *t* is not captured by changes in N_{it}. A firm that creates and destroys a job between *t−1* and *t* is recorded as having zero job reallocation. Hence, the job reallocation rates in this study could be underestimated compared to actual job reallocations.

Finally, gross job reallocation can be considered as the maximum number of employee movements needed to adjust to changes in employment opportunities across establishments. In contrast, the minimum employee reallocation for a given job reallocation rate is shown by the net employment growth rate as follows:

$$NRR_{jt} = JCR_{jt} - JDR_{jt} \qquad (6)$$

4. Globalization and job creation/job destruction

Previous studies have shown that a positive relationship exists between FDI and domestic employment. However, we observed that the manufacturing MNEs have expanded their overseas operations and that the number of domestic employment in the manufacturing industry has been decreasing over the past 20 years in Japan. Thus, this study addresses the gap between our observation and the literature.

Overall, the first goal of this study is to investigate the impact of outward FDI on net employment growth and job creation/destruction rates. It further seeks to examine job creation from new establishment entry and job destruction from establishment exit. Based on the results, the second goal is to explore the effect of globalization by industry and firm size. Previous studies on small- and medium-sized firms were hampered due to data limitations, but the present study leverages data covering establishments of all sizes. The third goal is to estimate the job creation/destruction rates through establishment location. In recent years, rural

employment has declined more severely than in urban areas, which may be caused by the proceeding globalization of Japanese firms. This study examines whether MNEs are likely to achieve efficient resource allocations within firms by relocating employment from rural to urban areas.

The dataset used in this study contains 1,755,833 observations composed of new entrant establishments (153,377), exit establishments (267,625), and existing establishments (1,334,831), as seen in Table 3.

Table 3. Establishment numbers: job creation/destruction

	Freq.	Percent
JCR from new entry	153,377	8.7
JCR from existing	356,877	20.3
JCR and JDR are zero	546,777	31.1
JDR from existing	431,177	24.6
JDR from exit	267,625	15.2
Total	1,755,833	100.0
Abbreviations: JCR = job creation rate; JDR = job destruction rate		

4.1 Role of outward FDI on employment

The establishments are divided into five categories: (1) non-subsidiary companies; (2) expanding MNEs; (3) non-expanding MNEs; (4) expanding domestic companies; and (5) non-expanding domestic companies.[10]

Table 4 presents the job creation, destruction, and reallocation rates as well as the net employment growth rate. The job creation rates of expanding MNEs, non-expanding MNEs,

[10] The following definitions are used in this study: MNEs are companies that increase their number of foreign affiliates; non-expanding MNEs are companies that do not increase their number of foreign affiliates; expanding domestic companies are those that increase their number of domestic affiliates and have no foreign affiliates; non-expanding domestic companies are companies that do not increase their number of domestic affiliates and have no foreign affiliates; and non-subsidiary companies that have neither domestic nor foreign affiliates in both years.

expanding domestic companies, non-expanding domestic companies and non-subsidiary companies are 0.202, 0.181, 0.185, 0.153, and 0.147, respectively.[11] The job creation rate of expanding MNEs is higher than that of expanding domestic companies, and the difference is statistically significant.[12] The job creation rate of non-expanding MNEs is higher than that of non-expanding domestic companies and the difference is also statistically significant. In summary, the job creation rates of MNEs are higher than those of domestic companies.

The job destruction rates of expanding MNEs, non-expanding MNEs, expanding domestic companies, non-expanding domestic companies, and non-subsidiary companies are 0.180, 0.241, 0.154, 0.141, and 0.162, respectively. The job destruction rates of MNEs are also higher than those of domestic firms. The difference between expanding MNEs and expanding domestic companies, as well as between non-expanding MNEs and non-expanding domestic companies are statistically significant.

The job reallocation rates of expanding MNEs, non-expanding MNEs, expanding domestic companies, non-expanding domestic companies, and non-subsidiary companies are 0.382, 0.422, 0.339, 0.294, and 0.310, respectively.[13] The job destruction rates of non-

[11] We conducted an additional analysis using all samples including the firms in the service sector (see Tables A1 and A2 in the Appendix). There are few differences between the manufacturing samples and all of the samples, except for non-subsidiary companies. We assume that this is because the definition of manufacturing firms used in this study is already broad and includes many non-manufacturing firms.

12 To investigate the differences in the distribution of establishments, this study applied the Kolmogorov-Smirnov (K-S) test.

[13] For robustness check, we added analyses that only used the samples that had no foreign company in 2006 and had at least one in 2009, and those that had at least one foreign company in 2006 and none in 2009 (see Tables A3 and A4 in the Appendix). These samples seem to have a similar tendency as the expanding MNEs and non-expanding MNEs in Tables 4 and 5. We also performed an analysis that divided the samples into manufacturing and non-manufacturing establishments using domestic establishments' industry information, although we do not have the information regarding foreign subsidiaries. According to Tables A5 to A8 in the Appendix, the net employment growth of manufacturing establishments in manufacturing non-subsidiary companies and non-expanding MNEs are largely negative, whereas the net

expanding and expanding MNEs are much higher than those of domestic companies. Hence, the job reallocation rates of MNEs are higher.

The net employment growth rate is much lower than the job creation/destruction rates in any category. The net employment growth rate of expanding MNEs, non-expanding MNEs, expanding domestic companies, non-expanding domestic companies, and non-subsidiary companies are 0.022, −0.060, 0.030, 0.012 and −0.015, respectively.[14] Net employment growth rates are high in expanding domestic companies and expanding MNEs. There was also a total net change of −161,793 in employee numbers during 2006−2009 across the five subsidiary categories: non-subsidiary companies (−198,010), non-expanding MNEs (−143,113), expanding MNEs (+69,956), expanding domestic companies (+72,427), and non-expanding domestic companies (+36,947), as shown in Table 4. The net employment growth rate of the expanding MNEs is positive; however, that of the non-expanding MNEs is negative and the absolute value of it is larger than that of domestic companies. In the expanding MNEs, the overseas operations seem to complement home operations in terms of employment.

Table 4. Job creation/destruction rates by subsidiary category

employment growth rate of non-manufacturing establishments in manufacturing non-subsidiary companies is positive. The net employment growth rate of non-manufacturing establishments in manufacturing domestic companies is also positive, which suggests that many manufacturing companies proceed by switching industries from the manufacturing to the service sector within the same firms.

14 The differences between expanding MNEs and expanding domestic companies and between non-expanding MNEs and non-expanding domestic companies are not significant.

Category	JCR	JDR (−)	JRR	NRR	Changes in number of employees	Sample size	Average number of employees
Non-subsidiary company	0.147	−0.162	0.310	−0.015	−198,010	934,233	14.3
Expanding MNE	0.202	−0.180	0.382	0.022	69,956	66,829	46.8
Non-expanding MNE	0.181	−0.241	0.422	−0.060	−143,113	62,203	38.3
Expanding domestic company	0.185	−0.154	0.339	0.030	72,427	79,141	30.2
Non-expanding domestic company	0.153	−0.141	0.294	0.012	36,947	98,110	30.5
Total					−161,793	1,240,516	19.5
Abbreviations: JCR = job creation rate; JDR = job destruction rate; JRR = job reallocation rate;							
NRR = net employment growth							

The job creation rate can be divided into the contributions of new entries and those of existing establishments. The job creation rates from the new entry of expanding MNEs, non-expanding MNEs, expanding domestic companies, non-expanding domestic companies and non-subsidiary companies are 0.048, 0.045, 0.000, 0.000, and 0.000, respectively (see Table 5). The job creation rates from the existing establishments of expanding MNEs, non-expanding MNEs, expanding domestic companies, non-expanding domestic companies and non-subsidiary companies are 0.154, 0.136, 0.184, 0.153, and 0.147, respectively. The job creation rates of MNEs from existing establishments are lower than those of domestic companies. However, the job creation rates from new establishments are much higher.

The job destruction rates from the exit of expanding MNEs, non-expanding MNEs, expanding domestic companies, non-expanding domestic companies, and non-subsidiary companies are 0.065, 0.087, 0.004, 0.002, and 0.012, respectively. The job destruction rates of existing expanding MNEs, non-expanding MNEs, expanding domestic companies, non-expanding domestic companies, and non-subsidiary companies are 0.115, 0.154, 0.150, 0.139, and 0.150, respectively. Although the job destruction rate of exiting MNEs is also higher than that of domestic companies, the job destruction rate from existing establishments of expanding MNEs is significantly lower than that of the other categories.

Although the establishments belonging to the firms that remained in the domestic

market have low probability of exit, even if they continue existing, their employment decreases. Conversely, MNEs become polarized when firms expanding their foreign activities show minor decrease in domestic employment, and those firms either in status quo or shrinking their foreign activities have large decreases in domestic employment.

Table 5. Job creation from new entry establishments and job destruction from exiting establishments by subsidiary category

	JCR from new entry	JCR from existing	JDR from existing (−)	JDR from exit (−)	Total
Non-subsidiary company	0.000	0.147	−0.150	−0.012	−0.015
Expanding MNE	0.048	0.154	−0.115	−0.065	0.022
Non-expanding MNE	0.045	0.136	−0.154	−0.087	−0.060
Expanding domestic company	0.000	0.184	−0.150	−0.004	0.030
Non-expanding domestic company	0.000	0.153	−0.139	−0.002	0.012
Abbreviations: JCR = job creation rate; JDR = job destruction rate; MNE = multinational enterprises					

Here, the sample is restricted to establishments that belong to single-establishment firms (see Tables 6 and 7). The job creation and net employment growth rate of single establishments in expanding MNEs are high, as is the case across all samples. However, the job creation rate from new entry and the job destruction rate from exiting establishments in expanding MNEs are quite low. The job destruction rate in non-expanding MNEs and non-expanding domestic companies is low, similar to the job creation rate. These results show that multi-establishment firms actively establish or close their establishments, whereas single-establishment firms have limited possibility of establishment existing or shutdown. [15]

[15] The finding that multi-plant firms are more likely to close down is consistent with previous research (Kneller et al. 2012).

Table 6. Job creation/destruction rates by subsidiary category (single-establishment firms)

Category	JCR	JDR (−)	JRR	NRR	Changes in number of employees	Sample size
Non-subsidiary company	0.104	−0.169	0.273	−0.066	−275,688	468,369
Expanding MNE	0.209	−0.153	0.363	0.056	3,271	730
Non-expanding MNE	0.060	−0.104	0.163	−0.044	−3,865	2,334
Expanding domestic company	0.157	−0.178	0.335	−0.022	−2,542	3,273
Non-expanding domestic company	0.100	−0.114	0.214	−0.014	−2,558	4,893
Total					−281,382	
Abbreviations: JCR = job creation rate; JDR = job destruction rate; JRR = job reallocation rate;						
NRR = net employment growth						

Table 7. Job creation from new entry and job destruction from exiting by subsidiary pattern (single-establishment firms)

	JCR from new entry	JCR from existing	JDR from existing (−)	JDR from exit (−)	Total
Non-subsidiary company	0.000	0.103	−0.142	−0.027	−0.066
Expanding MNE		0.209	−0.153	0.000	0.056
Non-expanding MNE		0.060	−0.104	0.000	−0.044
Expanding domestic company		0.157	−0.177	−0.002	−0.022
Non-expanding domestic company		0.100	−0.114	0.000	−0.014
Abbreviations: JCR = job creation rate; JDR = job destruction rate; MNE = multinational enterprises					

For a detailed factor analysis, the sample is limited to establishments belonging to firms in two major industries (the machinery industry and the transportation equipment industry).[16] Tables 8 and 9 demonstrate that the job creation rate, the job reallocation rate, and the net employment growth of expanding MNEs are high, whereas the job destruction rate is

16 The machinery industry includes: general industry machinery; special industry machinery; miscellaneous machinery; office and service industry machinery; electrical generating, transmission, distribution and industrial apparatus; household electric appliances; electronic data processing machines, digital and analog computer equipment and accessories; communication equipment; electronic equipment and electric measuring instruments; semiconductor devices and integrated circuits; electronic parts; miscellaneous electrical machinery equipment; and precision machinery and equipment. The transportation equipment industry includes: motor vehicles; motor vehicle parts and accessories; and other transportation equipment.

low in the machinery industry. Only expanding MNEs have a positive net employment growth, a high job creation rate and a low job destruction rate from existing establishments. The job creation rate of non-expanding MNEs is as high as those of domestic companies, but, the job reallocation rate is much higher than that of domestic companies. It is important to note that, in this period, the establishment entrants and exits of non-expanding MNEs were active in the machinery industry.

Table 8. Job creation/destruction rates by subsidiary category (machinery industry)

Category	JCR	JDR (−)	JRR	NRR	Sample size
Non-subsidiary company	0.093	−0.163	0.256	−0.071	97,182
Expanding MNE	0.174	−0.131	0.305	0.043	6,504
Non-expanding MNE	0.102	−0.248	0.350	−0.147	5,634
Expanding domestic company	0.097	−0.196	0.293	−0.100	1,720
Non-expanding domestic company	0.095	−0.170	0.265	−0.075	2,898
Abbreviations: JCR = job creation rate; JDR = job destruction rate; JRR = job reallocation rate;					
NRR = net employment growth; MNE = multinational enterprises					

Table 9. Job creation rate from new entry and job destruction rate from exiting by subsidiary category (machinery industry)

Category	JCR from new entry	JCR from existing	JDR from existing (−)	JDR from exit (−)	Total
Non-subsidiary company	0.000	0.092	−0.147	−0.017	−0.071
Expanding MNE	0.024	0.150	−0.085	−0.047	0.043
Non-expanding MNE	0.015	0.087	−0.182	−0.066	−0.147
Expanding domestic company		0.097	−0.194		−0.100
Non-expanding domestic company		0.095	−0.169	−0.001	−0.075
Abbreviations: JCR = job creation rate; JDR = job destruction rate; MNE = multinational enterprises					

In the transportation equipment industry, the job creation/destruction rates of expanding domestic companies are higher than those of expanding MNEs (see Tables 10 and 11). In contrast to the machinery industry, domestic companies in the transportation equipment

industry have greater flexibility in adjusting to the changing market conditions than the MNEs.

Table 10. Job creation/destruction rates by subsidiary category (transportation equipment industry)

Category	JCR	JDR (−)	JRR	NRR	Sample size
Non-subsidiary company	0.103	−0.177	0.280	−0.074	29,605
Expanding MNE	0.141	−0.113	0.255	0.028	1,261
Non-expanding MNE	0.128	−0.213	0.341	−0.085	1,016
Expanding domestic company	0.168	−0.156	0.324	0.012	473
Non-expanding domestic company	0.167	−0.094	0.261	0.072	818
Abbreviations: JCR = job creation rate; JDR = job destruction rate; JRR = job reallocation rate;					
NRR = net employment growth; MNE = multinational enterprises					

Table 11. Job creation rate from new entry and job destruction rate from exiting by subsidiary category (transportation equipment industry)

Category	JCR from new entry	JCR from existing	JDR from existing (−)	JDR from exit (−)	Total
Non-subsidiary company	0.000	0.103	−0.159	−0.018	−0.074
Expanding MNE	0.019	0.123	−0.092	−0.022	0.028
Non-expanding MNE	0.006	0.123	−0.166	−0.047	−0.085
Expanding domestic company		0.168	−0.156		0.012
Non-expanding domestic company		0.167	−0.094	0.000	0.072
Abbreviations: JCR = job creation rate; JDR = job destruction rate; MNE = multinational enterprises					

4.2 Impact of globalization on the employment growth and job creation/destruction rates by firm size

Firm size is established by aggregating the employment across all establishments belonging to the firm. This study uses the average number of employees in a firm in year *t−1* and *t*. Small-sized firms are defined as firms with up to 50 employees, medium-sized firms as having 51–300 employees, and large-sized firms as having more than 300 employees.

Table 12 shows that, in each of the five subsidiary categories, the net employment

growth rates are negative and the job creation and the net employment growth rates of establishments belonging to small-sized firms are lower than those in large-sized firms, while, the job destruction rate is higher. In small-sized firms, the job creation rate of establishments belonging to expanding MNEs and expanding domestic companies are high (0.132 and 0.139, respectively). In addition, the job destruction rate of small expanding MNEs and expanding domestic companies are higher. The net employment growth rate of non-expanding domestic companies and non-subsidiary companies are higher in small-sized firms compared to those in other categories (−0.045 and −0.067, respectively). In large-sized firms, the net employment growth of expanding domestic companies and expanding MNEs are high (0.046 and 0.037, respectively). Notable results are that the net employment growth and the job creation rates in expanding domestic companies are higher than those in expanding MNEs for both small- and large-sized firms.

Table 12. Job creation/destruction rates by firm size and subsidiary category

Size	Category	JCR	JDR (−)	JRR	NRR	Sample size
Small *	Non-subsidiary company	0.113	−0.180	0.294	−0.067	644,546
	Expanding MNE	0.132	−0.207	0.340	−0.075	909
	Non-expanding MNE	0.087	−0.169	0.256	−0.082	1,332
	Expanding domestic company	0.139	−0.194	0.332	−0.055	9,479
	Non-expanding domestic company	0.126	−0.170	0.296	−0.045	10,571
Medium *	Non-subsidiary company	0.150	−0.158	0.308	−0.008	189,400
	Expanding MNE	0.129	−0.171	0.300	−0.042	4,708
	Non-expanding MNE	0.101	−0.158	0.259	−0.056	7,841
	Expanding domestic company	0.162	−0.173	0.335	−0.011	19,824
	Non-expanding domestic company	0.131	−0.150	0.282	−0.019	30,586
Large *	Non-subsidiary company	0.183	−0.147	0.329	0.036	98,340
	Expanding MNE	0.166	−0.128	0.294	0.037	45,278
	Non-expanding MNE	0.153	−0.183	0.336	−0.030	38,859
	Expanding domestic company	0.193	−0.147	0.341	0.046	49,838
	Non-expanding domestic company	0.162	−0.136	0.298	0.026	56,946
Abbreviations: JCR = job creation rate; JDR = job destruction rate; MNE = multinational enterprises						

Table 13 shows that the job creation rate from existing establishments of expanding MNEs and non-expanding MNEs in large-sized firms are 0.165 and 0.151, respectively, while

those of expanding domestic companies, non-expanding domestic companies, and non-subsidiary companies are 0.193, 0.162, and 0.182, respectively. In small-sized companies, the job creation rates from existing establishments of expanding MNEs, and non-expanding MNEs are 0.132 and 0.087, respectively, while those of expanding domestic companies, non-expanding domestic companies and non-subsidiary companies are 0.139, 0.125, and 0.113, respectively. Moreover, the job creation rate of MNEs from existing firms is not necessarily high regardless of the firm size.

The total job destruction rate of expanding MNEs in large-sized firms is 0.128, of which 0.008 is explained by the job destruction rate from exits, and 0.121 from existing establishments. The majority of job destruction arises from existing establishments. In small-sized firms, the larger job destruction rate of expanding MNEs can be explained by the job destruction from exits. The total job destruction rate of small expanding MNEs is 0.207, of which 0.049 is attributed to job destruction from exits and 0.158 is from existing establishments. The job destruction rate of MNEs from existing establishments of small- and medium-sized firms is lower than that in domestic companies. Although the business of small-sized firms that remain in the domestic market is shrinking, MNEs might achieve an efficient allocation of resources through the scrap-and-build of establishments.

Table 13. Job creation rate from new entries and job destruction rate from exiting by firm size and subsidiary category

Size	Category	JCR from new entry	JCR from existing	JDR from existing (−)	JDR from exit (−)	Total
Small *	Non-subsidiary company	0.000	0.113	−0.153	−0.028	−0.067
	Expanding MNE		0.132	−0.158	−0.049	−0.075
	Non-expanding MNE		0.087	−0.146	−0.024	−0.082
	Expanding domestic company	0.000	0.139	−0.190	−0.003	−0.055
	Non-expanding domestic company	0.001	0.125	−0.167	−0.004	−0.045
Medium *	Non-subsidiary company	0.000	0.150	−0.155	−0.003	−0.008
	Expanding MNE	0.001	0.128	−0.138	−0.033	−0.042
	Non-expanding MNE	0.000	0.101	−0.140	−0.017	−0.056
	Expanding domestic company	0.000	0.162	−0.168	−0.005	−0.011
	Non-expanding domestic company	0.001	0.131	−0.148	−0.002	−0.019
Large *	Non-subsidiary company	0.000	0.182	−0.142	−0.005	0.036
	Expanding MNE	0.000	0.165	−0.121	−0.008	0.037
	Non-expanding MNE	0.001	0.151	−0.167	−0.016	−0.030
	Expanding domestic company	0.000	0.193	−0.143	−0.004	0.046
	Non-expanding domestic company	0.000	0.162	−0.134	−0.002	0.026
Abbreviations: JCR = job creation rate; JDR = job destruction rate; MNE = multinational enterprises						

Again, the sample is restricted to establishments that belong to single-establishment firms. As shown in Tables14 and 15, the net employment growth of expanding MNEs is the highest among the small-sized single-establishment firms, while it is relatively low across all samples. In large-sized companies, the job creation and net employment growth rates of expanding MNEs are the highest. The net employment growth rate of non-expanding MNEs is the lowest among both small- and large-sized companies. Between 2006 and 2009, small non-subsidiary firms and non-expanding MNEs faced difficult times, especially single-establishment firms. While overseas operations seem to complement domestic operations in the expanding MNEs, overseas operations do not always accelerate domestic operations in the non-expanding MNEs.

Table 14. Job creation/destruction rates by firm size and subsidiary category (single-establishment firms)

Size	Category	JCR	JDR (−)	JRR	NRR	Sample size
Small *	Non-subsidiary company	0.093	−0.182	0.275	−0.089	449,625
	Expanding MNE	0.127	−0.158	0.285	−0.032	334
	Non-expanding MNE	0.068	−0.133	0.201	−0.065	492
	Expanding domestic company	0.119	−0.201	0.320	−0.082	2,269
	Non-expanding domestic company	0.099	−0.156	0.255	−0.058	2,089
Medium *	Non-subsidiary company	0.122	−0.144	0.266	−0.022	16,247
	Expanding MNE	0.132	−0.116	0.248	0.016	263
	Non-expanding MNE	0.064	−0.119	0.183	−0.055	524
	Expanding domestic company	0.156	−0.166	0.323	−0.010	817
	Non-expanding domestic company	0.110	−0.125	0.235	−0.015	1,491
Large *	Non-subsidiary company	0.140	−0.131	0.271	0.008	2,493
	Expanding MNE	0.305	−0.188	0.493	0.117	133
	Non-expanding MNE	0.053	−0.081	0.134	−0.028	1,318
	Expanding domestic company	0.219	−0.172	0.391	0.046	187
	Non-expanding domestic company	0.087	−0.076	0.164	0.011	1,313
Abbreviations: JCR = job creation rate; JDR = job destruction rate; MNE = multinational enterprises						

Table 15. Job creation rate from new entries and job destruction rate from exiting, by firm size and subsidiary category (single-establishment firms)

Size	Category	JCR from new entry	JCR from existing	JDR from existing (−)	JDR from exit (−)	Total
Small *	Non-subsidiary company	0.000	0.093	−0.143	−0.039	−0.089
	Expanding MNE		0.127	−0.157	−0.001	−0.032
	Non-expanding MNE		0.068	−0.132	−0.001	−0.065
	Expanding domestic company		0.119	−0.200	−0.001	−0.082
	Non-expanding domestic company		0.099	−0.156	0.000	−0.058
Medium *	Non-subsidiary company	0.000	0.122	−0.143	−0.001	−0.022
	Expanding MNE		0.132	−0.116		0.016
	Non-expanding MNE		0.064	−0.119		−0.055
	Expanding domestic company		0.156	−0.163	−0.003	−0.010
	Non-expanding domestic company		0.110	−0.125		−0.015
Large *	Non-subsidiary company	0.000	0.140	−0.131	0.000	0.008
	Expanding MNE		0.305	−0.188		0.117
	Non-expanding MNE		0.053	−0.081		−0.028
	Expanding domestic company		0.219	−0.172		0.046
	Non-expanding domestic company		0.087	−0.076		0.011
Abbreviations: JCR = job creation rate; JDR = job destruction rate; MNE = multinational enterprises						

4.3 Impact of globalization on the job creation/destruction of urban establishments compared to those of rural establishments

Table 16 presents the job creation/destruction rates by location and subsidiary category. In each

of the five subsidiary categories the urban job creation rates are higher than the rural rates. The job creation rate of the urban establishments belonging to expanding MNEs is 0.221 and 0.166 for rural areas. The job creation rate of expanding domestic companies in urban areas and rural areas are 0.202 and 0.166, respectively. In each subsidiary category, the net employment growth and the job destruction rates are higher in urban than in rural areas. The net employment growth and job destruction rates of the urban establishments in expanding MNE are 0.032 and 0.190, respectively, while they are 0.005 and 0.161, respectively, in rural areas. The net employment growth and job destruction rates of the urban establishments in expanding domestic companies are 0.040 and 0.162, respectively, while they are 0.020 and 0.146, respectively, in rural areas.

Table 16. Job creation/destruction rates by location and subsidiary category

Location	Category	JCR	JDR (−)	JRR	NRR	Sample size
Rural *	Non-subsidiary company	0.136	−0.153	0.289	−0.017	465,169
	Expanding MNE	0.166	−0.161	0.327	0.005	30,725
	Non-expanding MNE	0.144	−0.245	0.389	−0.101	30,000
	Expanding domestic company	0.166	−0.146	0.312	0.020	42,416
	Non-expanding domestic company	0.127	−0.132	0.259	−0.005	49,745
Urban *	Non-subsidiary company	0.158	−0.171	0.330	−0.013	469,064
	Expanding MNE	0.221	−0.190	0.411	0.032	36,104
	Non-expanding MNE	0.203	−0.238	0.442	−0.035	32,203
	Expanding domestic company	0.202	−0.162	0.364	0.040	36,725
	Non-expanding domestic company	0.174	−0.148	0.321	0.026	48,365
Abbreviations: JCR = job creation rate; JDR = job destruction rate; JRR = job reallocation rate;						
NRR = net employment growth; MNE = multinational enterprises						

A simple regression-based approach is employed to test whether the differences of the subsidiary categories and the location of establishments actually affect the job growth, creation, and destruction rates. In order to estimate the impact of the difference of the subsidiary categories and the location of establishments on the net employment growth in Equation (1) of Section 3, the following model is estimated and appropriately weighted by the *Weight* given in Equation (2). Ordinary least squares (OLS) models are employed to show the impact of the

reallocation of employees within the same company.

$$Growth_{it} = \sum_{q=2}^{10} \beta_q S_{qit} + \gamma X_{it} + \varepsilon_{it} \qquad (7)$$

where S_{qit} are the dummy variables of interaction terms for subsidiary categories and location. Subsidiary categories are the establishment *i* affiliated with: (1) non-subsidiary companies; (2) expanding MNEs; (3) non-expanding MNEs; (4) expanding domestic companies; and (5) non-expanding domestic companies. In addition, location categories are (1) rural and (2) urban.[17] The variable X_{it} indicates the establishment characteristics, such as the establishment size and the industry, and ε_{it} represents the error term. The establishments within the same company invariably have the same subsidiary categories. However, the location categories are not necessarily the same.

To estimate the impact of the subsidiary categories on job creation/destruction, the following estimations are made, based on the analysis of Hijzen, Upward, and Wright (2010).

$$Growth^{+}_{it} = \sum_{q=2}^{m} \beta_q S_{qit} + \gamma X_{it} + \varepsilon_{it} \qquad (8)$$

$$Growth^{-}_{it} = \sum_{q=2}^{m} \beta_q S_{qit} + \gamma X_{it} + \varepsilon_{it} \qquad (9)$$

where $Growth^{+}_{it}$ is equal to *Growth* for those establishments with $Growth_{it}>0$ and zero for all

17 This study defines Tokyo, Chiba, Kanagawa, Saitama, Aichi, Mie, Gifu, Osaka, Kyoto, Hyogo, and Nara as urban, and other areas as rural following the classification of the Japanese Ministry of Land, Infrastructure, Transport and Tourism.

other firms, and $Growth_{it}^{-}$ is defined as equal to *Growth* for those establishments with $Growth_{it}<0$ and zero otherwise. Importantly, these results are only suggestive and descriptive models of how subsidiary categories can affect job growth.

Table 17 shows the results of net employment growth rate in urban establishments compared to rural establishments. In all five categories except for non-subsidiary company, the net employment growth rates in urban are higher than those in rural.

Table 17. Net employment growth rate in urban establishments compared to rural

	(1)	(2)	(3)	(4)	(5)
	b/t	b/t	b/t	b/t	b/t
Non-subsidiary company	−0.003***				
	[−2.760]				
Expanding MNE		0.017***			
		[3.187]			
Non-expanding MNE			0.037***		
			[6.003]		
Expanding domestic company				0.010**	
				[2.496]	
Non-expanding domestic company					0.016***
					[4.674]
Number of employees in an establishment	0.000***	0.000***	0.000***	0.000***	0.000***
	[20.673]	[22.408]	[16.106]	[15.896]	[12.430]
Number of observations	934233	66829	62203	79141	98110
R-squared	0.011	0.027	0.036	0.028	0.017
adj R-squared	0.011	0.025	0.034	0.026	0.016
Notes: All models are controlled for industry of establishments. OLS shows the result					
for the standard least square.					
Regressions are weighted with Weight in Equasion (2). The value of t-statistics in prentheses.					
MNE = multinational enterprises					

The coefficients of establishments in urban compared to in rural areas, after controlling for establishment size and industry, are represented in Table 18. For this estimation, the sample is segmented into discrete subgroups by subsidiary category. The results show that the subsidiary category with the largest urban/rural gap in the job creation rate is expanding MNEs

(Column 2 in Table 18).

Table 18. Job creation rate in urban and in rural establishments

	(1)	(2)	(3)	(4)	(5)
	b/t	b/t	b/t	b/t	b/t
Non-subsidiary company	0.017***				
	[25.006]				
Expanding MNE		0.042***			
		[12.261]			
Non-Expanding MNE			0.031***		
			[9.025]		
Expanding domestic company				0.017***	
				[6.182]	
Non-expanding domestic company					0.034***
					[15.317]
Number of employees in an establishment	0.000	0.000***	0.000***	0.000***	0.000***
	[−1.490]	[3.056]	[25.603]	[35.449]	[5.465]
Number of observations	934233	66829	62203	79141	98110
R-squared	0.025	0.036	0.063	0.069	0.045
adj R-squared	0.024	0.035	0.062	0.068	0.045
Notes: All models are controlled for industry of establishments. OLS shows the result					
for the standard least square.					
Regressions are weighted with Weight in Equasion (2). The value of t-statistics in prentheses.					
MNE = multinational enterprises					

Table 19 shows the job destruction rate results. Column 2 in Table 19 shows that the absolute value of the job destruction rate in urban establishments is 2.4 percent higher than that in rural establishments. The coefficient of expanding MNEs is the highest among all subsidiary categories.

Altogether, both Tables 18 and 19 shows that the job creation/destruction rates of urban expanding MNEs, compared with rural expanding MNEs, are higher than those of domestic companies. In urban areas, resource allocation is more active than in rural areas, particularly in expanding MNEs.

Table 19. Job destruction rate in urban establishments compared with rural establishments

	(1)	(2)	(3)	(4)	(5)
	b/t	b/t	b/t	b/t	b/t
Non-subsidiary company	−0.020***				
	[−25.925]				
Expanding MNE		−0.025***			
		[−6.862]			
Non-Expanding MNE			0.006		
			[1.429]		
Expanding domestic company				−0.007***	
				[−2.678]	
Non-expanding domestic company					−0.018***
					[−8.325]
Number of employees in an establishmer	0.000***	0.000***	0.000***	−0.000***	0.000***
	[31.610]	[31.391]	[2.774]	[−12.740]	[13.999]
Number of observations	934233	66829	62203	79141	98110
R-squared	0.015	0.050	0.044	0.029	0.021
adj R-squared	0.014	0.049	0.043	0.027	0.020
Notes: All models are controlled for industry of establishments. OLS shows the result					
for the standard least square.					
Regressions are weighted with Weight in Equasion (2). The value of t-statistics in prentheses.					
MNE = multinational enterprises					

5. Conclusion

Previous studies have shown a positive correlation between FDI or offshoring and domestic employment. However, we observed the fact that manufacturing MNEs have expanded their overseas operations and that domestic employment in the manufacturing industry has been on a downward trend for the past 20 years in Japan. This study fills the gap between the fact and the literature.

In 2006–2009, most of the decrease in net employment is caused by non-subsidiary

companies and non-expanding MNEs.[18] In single-establishment firms particularly, almost all of the decrease is induced by non-subsidiary companies. While overseas operations seem to complement domestic operations in the expanding MNEs, overseas operations do not always accelerate domestic operations in the non-expanding MNEs.

The net MNE employment growth is not necessarily high, but both the job creation/destruction rates of MNEs with multi establishments are high. This is attributed to the high job creation rate from new entrants and the high job destruction rate from exiting establishments. The job creation rate from the new entry and the job destruction rate from the exit of single-establishment firms are quite low even in MNEs, and the job destruction rate from existing establishments in MNEs is low. The high job reallocation rate includes both positive and negative aspects in the context of Japanese firms' globalization.[19] The positive aspect is that the higher the job reallocation rate, the greater flexibility in adjusting to changing market conditions, whereas the negative aspect is that the labor flexibility is so low in Japan that the high job reallocation rate arising from the high job destruction rate causes unemployment.[20]

The net employment growth rate in expanding domestic companies is higher than that

[18] We may need to re-consider the interpretation of the results since 2009 was an abnormal year after the 2008 financial crisis. Davis, Haltiwanger, and Schuh (1996) pointed out that the job destruction rate is affected more than the job creation rate by the business cycle in the U.S., but Genda (2004) found that, in contrast to the U.S., the job creation rate is affected more than the job destruction rate by the business cycle in Japan. In addition, to date, there are no stylized facts based on the relationship between job creation/destruction rates and business cycles.

[19] FDI can have positive effects on spillover productivity, but this analysis is solely conducted in terms of domestic employment due to data restrictions.

[20] The Japanese labor market includes some unique practices. For instance, there is a very low turnover rate of employees given the life-time employment "policy" employed by firms and the seniority-based pay system.

in expanding MNEs for any firm size. Although there is a tendency to focus on MNEs, there should be a further emphasis on expanding domestic companies in terms of employment growth. The job destruction rate of expanding MNEs from existing establishments is relatively low regardless of the firm size. The business activities of small firms that prevail in the domestic market are shrinking. Multi-establishment firms have a higher job creation rate as a result of entry and a higher job destruction rate as a result of exit. MNEs might achieve an efficient allocation of resources through the scrap-and-build of establishments. In addition, the job creation rates in urban areas are higher than those in rural areas in any subsidiary category, particularly for MNEs. This implies that MNEs are more likely to achieve an efficient resource allocation both in the overall economy and within the same company.

Finally, it has been shown that firms who do not have overseas subsidiaries have limited ability to reallocate their resources in response to the change in the international market. Firms that undertake risk in expanding the scope of their businesses abroad should be supported in financial terms or through the provision of information. Support policies are particularly essential for small- and medium-sized enterprises that will undertake risk in expanding their businesses abroad since such actions have a higher risk of exit. Additionally, there should be a safety net and retraining support for the possible increase in unemployment, particularly for employees in small- and medium-sized enterprises. Furthermore, productivity in the service sector needs to be improved and high-value added jobs should be created in the sector.

Appendix

Table A1. Job creation/destruction rates by subsidiary category (all industries)

Category	JCR	JDR (−)	JRR	NRR	Changes in number of employees	Sample size
Non-subsidiary company	0.130	−0.191	0.321	−0.061	−1,953,335	4,616,340
Expanding MNE	0.204	−0.180	0.383	0.024	75,845	67,955
Non-expanding MNE	0.182	−0.239	0.420	−0.057	−138,800	63,599
Expanding domestic company	0.182	−0.153	0.335	0.029	74,905	86,741
Non-expanding domestic company	0.150	−0.140	0.290	0.010	34,099	106,532
Total					−1,907,286	
Abbreviations: JCR = job creation rate; JDR = job destruction rate; JRR = job reallocation rate;						
NRR = net employment growth						

Table A2. Contribution of job creation from new entry and destruction from exiting by subsidiary patterns (all industries)

	JCR from new entry	JCR from existing	JDR from existing (−)	JDR from exit (−)	Total
Non-subsidiary company	0.000	0.130	−0.124	−0.067	−0.061
Expanding MNE	0.049	0.155	−0.115	−0.064	0.024
Non-expanding MNE	0.045	0.137	−0.153	−0.086	−0.057
Expanding domestic company	0.000	0.182	−0.149	−0.004	0.029
Non-expanding domestic company	0.000	0.150	−0.138	−0.002	0.010
Abbreviations: JCR = job creation rate; JDR = job destruction rate; MNE = multinational enterprises					

Table A3. Job creation/destruction rates by subsidiary category

Category	JCR	JDR (−)	JRR	NRR
Expanding MNE from 0 to 1	0.226	0.209	0.435	0.017
Non-expanding MNE from 1 to 0	0.201	0.323	0.524	−0.122
Abbreviations: JCR = job creation rate; JDR = job destruction rate;				
JRR = job reallocation rate; NRR = net employment growth				

Table A4. Contribution of job creation from new entry and destruction from exiting by subsidiary patterns

	JCR from new entry	JCR from existing	JDR from existing (−)	JDR from exit (−)	Total
Expanding MNE from 0 to 1	0.064	0.162	−0.133	−0.076	0.017
Non-expanding MNE from 1 to 0	0.058	0.143	−0.202	−0.121	−0.122
Abbreviations: JCR = job creation rate; JDR = job destruction rate; MNE = multinational enterprises					

Table A5. Job creation/destruction rates by subsidiary category (manufacturing establishments)

Category	JCR	JDR (−)	JRR	NRR	Changes in number of employees	Sample size
Non-subsidiary company	0.098	−0.161	0.258	−0.063	−306,887	464,048
Expanding MNE	0.162	−0.125	0.288	0.037	57,235	7,383
Non-expanding MNE	0.119	−0.224	0.343	−0.105	−110,804	8,462
Expanding domestic company	0.130	−0.152	0.282	−0.022	−7,785	7,092
Non-expanding domestic company	0.113	−0.129	0.243	−0.016	−9,691	9,986
Total					−377,932	
Abbreviations: JCR = job creation rate; JDR = job destruction rate; JRR = job reallocation rate;						
NRR = net employment growth						

Table A6. Contribution of job creation from new entry and destruction from exiting by subsidiary patterns (manufacturing establishments)

	JCR from new entry	JCR from existing	JDR from existing (−)	JDR from exit (−)	Total
Non-subsidiary company	0.000	0.097	−0.136	−0.025	−0.063
Expanding MNE	0.016	0.146	−0.095	−0.030	0.037
Non-expanding MNE	0.014	0.105	−0.175	−0.049	−0.105
Expanding domestic company	0.000	0.130	−0.152	0.000	−0.022
Non-expanding domestic company	0.000	0.113	−0.129	−0.001	−0.016
Abbreviations: JCR = job creation rate; JDR = job destruction rate; MNE = multinational enterprises					

Table A7. Job creation/destruction rates by subsidiary category (non-manufacturing establishments)

Category	JCR	JDR (−)	JRR	NRR	Changes in number of employees	Sample size
Non-subsidiary company	0.176	−0.163	0.340	0.013	108,877	470,185
Expanding MNE	0.241	−0.232	0.473	0.008	13,225	59,089
Non-expanding MNE	0.229	−0.253	0.482	−0.024	−31,383	53,374
Expanding domestic company	0.194	−0.155	0.349	0.039	80,212	72,049
Non-expanding domestic company	0.163	−0.144	0.307	0.020	46,638	88,124
Total					217,569	
Abbreviations: JCR = job creation rate; JDR = job destruction rate; JRR = job reallocation rate;						
NRR = net employment growth						

Table A8. Contribution of job creation from new entry and destruction from exiting by subsidiary patterns (non-manufacturing establishments)

	JCR from new entry	JCR from existing	JDR from existing (−)	JDR from exit (−)	Total
Non-subsidiary company	0.000	0.176	−0.158	−0.005	0.013
Expanding MNE	0.078	0.162	−0.135	−0.098	0.008
Non-expanding MNE	0.068	0.161	−0.137	−0.115	−0.024
Expanding domestic company	0.000	0.194	−0.150	−0.005	0.039
Non-expanding domestic company	0.000	0.163	−0.142	−0.002	0.020
Abbreviations: JCR = job creation rate; JDR = job destruction rate; MNE = multinational enterprises					

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