Effects of Inward and Outward Greenfield FDI on the Employment of Domestic Firms: the Korean Experience

Hyun-Hoon Lee[+]

Kangwon National University

Danbee Park[++]

Kangwon National University

Keywords: Foreign direct investment, spillover effects, employment, Korea

JEL Classification: F20, J20

Abstract

By building new facilities, greenfield FDI is certain to hire new workers in the host country. Greenfield FDI can also have substantial spillover effects on the employment of local firms. To the best of our knowledge, however, the spillover effects of FDI on the employment of domestic firms have not been fully investigated. This paper empirically investigates the spillover effects of inward greenfield FDI (as compared to outward greenfield FDI) on the employment of domestic firms in Korea. For this purpose, we construct a panel of 1,328 Korean firms in 20 industries for the period 2004-2015, and link it to greenfield FDI data, acquired from fDi Markets (Financial Times Ltd.). We find that inward greenfield FDI incurs the domestic firms to increase their employment. This positive effect is much more pronounced within goods industries (i.e. primary and manufacturing) than services industries. This positive effect is also found to be stronger when source countries of greenfield FDI are developed countries. We find no significant effect of outward FDI on domestic firms' employment.

[+] Professor, Department of International Trade and Business, Kangwon National University, Chuncheon, 24341, Republic of Korea, hhlee@kangwon.ac.kr

[++] Corresponding Author: Assistant Professor, Department of International Trade and Business, Kangwon National University, Chuncheon, 24341, Republic of Korea; E-mail: park530@kangwon.ac.kr; Phone: +82-33-250-6185

1. Introduction

There is a great consensus in the literature that inward foreign direct investment (FDI) is beneficial for host countries as it brings in capital and technology and hence spurs economic growth. Among the two entry modes of FDI, greenfield FDI, as compared to cross-border M&A, is regarded to have a greater beneficial effect on economic growth of host countries. For example, Wang and Wong (2009), using a sample of 84 countries for the period 1987-2001, find that greenfield FDI promotes economic growth of the host country, while cross-border M&As can be beneficial only when the host country has an adequate level of human capital. For about 80 countries during 1987-2005, Harms and Méon (2011) also find that while greenfield investment substantially enhances growth, M&As have no effect, at best.

Inward greenfield FDI is also expected to be more beneficial for local employment because it hire new workers by building new facilities, while M&A, by acquiring existing local firms, may or may not do so, depending upon its purpose.

Even if inward greenfield FDI creates new employment directly by foreign firms, its spillover effects on the employment of domestic firms are uncertain. They may be negative as foreign firms act to crowd out the competing domestic firms in the same industry. In contrast, they may be positive as technology spillovers from foreign firms to domestic firms may increase their productivities and hence more workers. In particular, foreign firms may bring new business opportunities for both upstream and downstream domestic firms in the same industry. However, the spillover (indirect) effects of FDI on the employment of domestic firms have not been fully investigated, as discussed in Hale and Xu (2017).[1]

To the best of our knowledge, Jenkins (2006) is the only study that investigates the effects of inward FDI on domestic employment. He shows that the spillover employment effects of FDI in Viet Nam were minimal because of the limited linkages which foreign investors create. He

[1] In contrast, the literature provides quite a bit of consensus on technology spillovers of inward FDI to domestic firms. See, for example, Javorcik (2004), Cheung and Lin (2004), and Haskel et al. (2007).

also shows that the spillover employment effects were possibly negative because of crowding out of domestic investment.

In contrast to inward FDI, policymakers are often fear of negative employment effects of outward FDI. Outward FDI (both greenfield and M&A) may have negative effects on labor market of the source countries as both types of FDI may be a result of the firms' efforts to move their plants or (entire entities) to foreign countries so as to avoid high labor costs in their home countries. For example, OECD (2007) finds that international outsourcing has a negative impact on domestic employment in both the manufacturing and service sectors), using 12 OECD countries' industry data for the period 1995-2000. Using Korea's firm-level data for the period 1980-1996, Debaere, et al. (2010) also find that transferring production to less-advanced countries with low labor cost can cause reduction in domestic jobs.

However, as discussed by Kang and Whang (2018), outward FDI has two opposite effects on domestic employment. One is substitution effect which is associated with a decrease in domestic employment as some domestic workers employed by the MNE's parent firms are replaced by foreign workers. Another is scale effect which is associated with an increase in domestic employment as a result of improving market access and efficient resource allocation. Using Korean industry-level data for the period 2007-2014, Kang and Whang (2018) find little evidence of the impact of outward FDI on the overall employment of permanent workers in Korea.[2] Using Korean multinational firms' data, Chun et al. (2018) investigates the effect of outward FDI on plant turnover and job allocation. Their results support that outward FDI reallocates jobs across the domestic production plants. However, outward FDI does not lead to decline in domestic employment. Ito and Tanaka (2014) also do not find any negative effects of Japanese manufacturing firms' overseas expansion on domestic suppliers' employment. Using industry-level data for 17 high income OECD countries, Hijzen and Swaim (2007) also find that offshoring has no effect or a slight-positive effect on sectoral employment. Brainard and Riker (2001) also find that U. S. multinationals do not export U.S. jobs.

[2] Kang and Whang (2018) further find that outward FDI leads to an increase in the number of jobs created for medium skilled workers, whereas it is negatively associated with the temporary employment of low-skilled workers.

There also exist studies that show positive effects of outward FDI on the employment of source countries. For example, Masso, et al. (2008) finds that outward FDI from Estonia, as low-cost transition economy, positively affected home-country employment growth during 1995-2002. Federico and Minerva (2008) also find that outward FDI is associated with faster local employment growth in Italy, relatively to the national industry average. Thus, previous studies on the effects of outward FDI on the employment source countries have produced mixed results.

Against this background, this paper empirically investigates the effects of inward and outward FDI in the form of greenfield project on the employment of domestic firms in Korea. The main contribution of this paper is that it compares the effects of inward and outward FDI on the employment of a Korea, in which both inward FDI and outward FDI are relatively large and equally important.[3] We also contribute to the literature by distinguish not only the direction of greenfield FDI (inward vs. outward) but also sectors (goods vs. services) and the partner country group (developed vs. developing countries).

For this purpose, we construct a panel dataset of employment for 1459 Korean firms in 20 industries for the period 2004-2015, and link it to greenfield FDI data, acquired from fDi Markets (Financial Times Ltd.). We find that inward greenfield FDI incurs the domestic firms to increase their employment. This positive effect is much more pronounced within goods industries (i.e. primary and manufacturing) than services industries. This positive effect is also found to be stronger when source countries of greenfield FDI are developed countries. We found no significant results for the Korean multinational firms' outward greenfield FDI on domestic employment.

The remainder of this paper is organized as follows. Section 2 describes the data on Korea's employment as well as inward and outward FDI. Section 3 explains the empirical framework and Section 4 reports and discusses the main results. Section 5 offers a summary and conclusion.

[3] In this regard, this paper complements to Debaere, et al. (2010) and Kang and Whang (2018) which investigate the effects of outward FDI on Korea's employment.

2. Data and Descriptive Statistics

In order to investigate the effects of inward and outward greenfield FDI on the employment of domestic firms in Korea, we combine a Korean firm-level dataset with industry-level greenfield FDI data for the period 2004-2015. The Korean data is obtained from KISVALUE, Korea Listed Companies Association (KLCA)'s online database.[4] KISVALUE compiles various firm-specific data for all KOSPI-listed and KOSDAQ-listed firms.[5] Our greenfield FDI data is acquired from fDi Markets (Financial Times Ltd.).[6]

Table 1 shows how we match the two datasets: firm-level Korean data and industry-level greenfield FDI data.[7] We first divide the FDI data into goods sector (comprising of primary and manufacturing) and services sector. There are some industries that include characteristics of both goods and services sectors. For example, "Food, Tobacco and Beverage" includes both products (goods) and stores (services). We classify these industries as "unclassified" sector, as reported in Panel C of Table 1. Of 39 industries in the fDi Markets data, we were able to match 20 industries with Korean data: 7 in goods sector, 7 in services sector, and 6 in unclassified sector. Out of all KOSPI and KOSDAQ-listed firms, 1459 firms were matched: 684 firms in goods sector, 281 firms in services sector, and 494 firms in unclassified sector.

[Table 1]

Industry Classification and Number of Firms

2.1.Korea's Employment

[4] https://www.kisvalue.com/web/index.jsp

[5] The KOrea composite Stock Price Index (KOSPI) is the index of all common stocks traded on Korea Stock Exchange. It is the representative stock market index of Korea. KOSDAQ is an acronym of Korean Securities Dealers Automated Quotations, which represents an electronic stock market, just like NASDAQ in the U.S.

[6] https://www.fdimarkets.com/

[7] See also Appendix Table 1 for details.

In our empirical analysis, the dependent variable is the number of employees for individual firms, as will be discussed in the next section. Yearly patterns of average number of employees for an individual firm by different sectors are reported in Figure 1. Dotted line, double solid line, and long dashed line display the average value of corporate employment for goods (primary and manufacturing) sector, services sector, and unclassified sector, respectively. Goods sector does not show the distinct pattern during the sample period, while the services sector shows the increasing pattern particularly after the 2008 global financial crisis period. Services sector appears to have experienced a quick recovery from the financial crisis compared to goods sector.

[Figure 1]

Trend of Firms' Average Employment by Sector (2003-2015)

Table 2 shows the average number of employees for individual firms by industry. Firms in "Communications" industry turns out to hire the largest number (2,498) of workers on average. It is followed by "Transportation" and "Automotive & Non-automotive Transport" industries. If we consider the number of firms in each industry, "Electronic Components & Semiconductors industry" turns out to hire largest number of workers, followed by "Automotive & Non-automotive Transport" and "Financial Services" industries.

[Table 2]

Pattern of Average Number of Employees for Individual Firms by Industry

2.1 Greenfield FDI

The primary explanatory variables are inward and outward greenfield FDI. Figure 2 shows the trend of greenfield FDI inflows to Korea (blue real line). The figure also illustrates the trend of greenfield FDI outflows from Korea (red dotted line). Panel A in Figure 2 include the total countries as sources and destinations of FDI. Throughout the entire period, outward FDI remained greater than inward FDI. During global financial crisis, greenfield FDI inflows declined drastically from US$ 11.2 billion in 2008 to $ 4.4 billion in 2009. It is interesting to

note, however, that Korea's outward greenfield FDI did not show a sign of contraction during the period.

Figure 2B displays the trends of the FDI inflows and outflows including developed countries as the sources and destinations of greenfield FDI.[8] We can confirm the declining trend of the inward greenfield FDI after the global financial crisis, more precisely. Korea' outward FDI from Korea to developed countries show the increasing trend during the period from 2009 to 2012.

Figure 2C shows the trends of inward and outward greenfield FDI, using developing countries as the sources and destinations of FDI. By comparing the figure 2B and 2C, outward greenfield FDI to developing countries is greater than the outward FDI to developed countries. The value of inward FDI from developing countries remained minimal throughout the sample period.

[Figure 2]

Trend of Korea's Inward and Outward Greenfield FDI Flows (Billion KRW, 2004-2015)

Table 3 lists all 47 source countries (left panel) for Korea's inward greenfield FDI during 2004-2015. During the period, 47 countries conducted a total of US$ 94.6 billion amount of greenfield FDI projects in Korea. With US$ 31.7 billion, the U.S. was the number one greenfield investor in Korea, followed by Japan, Germany, Saudi Arabia, and France. The U.S. alone accounted for about one third of the total greenfield FDI in Korea.

During 2004-2015, Korean firms made a total of US$ 301.1 billion amount of outward greenfield FDI to 119 countries, over three times as large as inward greenfield FDI. Table 2 also reports major 47 host countries (right panel) of Korea's outward greenfield FDI during 2004-2015. These 47 host countries accounted for over 97 percent of the total value of Korea's outward greenfield FDI during the period. China, Vietnam, the U.S., India, and Indonesia were the top five hosts of Korea's greenfield investments during the period.

[8] Developed and developing countries classification is reported in Appendix Table 2 and 3.

[Table 3]

Source and Host Countries of Korea's Greenfield FDI (total, 2004-2015)

Table 4 summarizes the total amount of inward and outward greenfield FDI for the matched industries during the period 2004-2015. "Electronic Components & Semiconductors" was the industry with the largest amount of greenfield FDI both in inward and outward FDI. "Real Estate", "Chemicals", and "Automotive & Non-automotive Transport" also received large amounts of inward greenfield FDI during this period. In the case of the outward FDI, "Automotive & Non-automotive Transport", "Metals", and "Coals, Oil & Natural Gas" were the large industries.

[Table 4]

Korea's Inward and Outward Greenfield FDI Stock by Industry (2004-2015)

3. Empirical specification

In order to assess the effects of inward and outward greenfield FDI on the employment of domestic firms, we employ a panel regression with firm-specific fixed effects as well as year dummies, as follows:

$$\ln E_{ijt} = \alpha_0 + \alpha_1 \ln (FDI\ in)_{jt-1} + \alpha_1 \ln (FDI\ out)_{jt-1} + \alpha_2 HHI_{jt-1} + \alpha_3 \ln Asset\_a_{jt-1}$$
$$+ \alpha_3 \ln Asset_{ijt-1} + \alpha_4 ln\left(\frac{K}{L}\right)_{ijt-1} + \alpha_5 \ln(Productivity)_{ijt-1}$$
$$+ a_6 \ln (FDI\ \ in)_{jt-1} \times \ln Asset_{ijt-1} + \ \varepsilon_i \ + \varepsilon_t \ + \varepsilon_{it}$$

$\ln E_{ijt}$ is the dependent variable measured by the natural logarithm of employment of firm i of industry j at year t. The dependent variable is a stock variable. Therefore, our primary explanatory variable, $\ln (FDI\ in)_{jt-1}$ and $\ln (FDI\ out)_{jt-1}$, are also defined as the log

value of the cumulative greenfield FDI in industry j at time t-1. Specifically, because fDi Markets' data on greenfield FDI flows is available only from 2003, we take the greenfield FDI inflows of 2003 as the previous year's greenfield FDI stock for year 2004. Then, we obtain each year's greenfield FDI "stock" by adding the corresponding year's annual greenfield FDI inflows to the previous year's FDI stock. We formulate greenfield FDI outward stock variables, similarly.[9]

We include a number of control variables, which are either industry-specific or firm-specific. There are two industry-specific control variables. HHI_{jt-1} is Herfindahl-Hirschman index for industry j at year t-1. HHI is calculated by sum of the squares of market share of the individual firms within the industry. Market share represents individual firms' sales divided by total industry sales. This variable is expected to control the level of industry concentration. Industry concentration variable can be positively correlated with employment because the firms in the competitive industry can be reluctant to increase employment under the harsh economic environment. To control the size of the industry, we also include log value of total industry asset ($\ln Asset\_a_{jt-1}$).

Among the firm-specific variables, $\log Asset_{ijt-1}$ is the logarithm of total assets for firm i at year t-1. $\ln\left(\frac{K}{L}\right)_{ijt-1}$ represents the capital-labor ratio of firm i in industry j at year t-1. Capital-labor ratio is the log value of total asset divided by total number of workers. $\ln(Productivity)_{ijt-1}$ is calculated as natural logarithm of total sales divided by the number of workers. ε_i is a firm specific fixed effect, ε_t is a year specific effect, and ε_{it} is an idiosyncratic error term.

Note that we include 1-year lagged variable for all explanatory variables in order to attenuate the possible endogeneity problem.[10] The employment effects of inward and outward FDI can be different depending on the FDI partner countries. In a separate specification, therefore, we

[9] Note that with inclusion of firm-specific dummies, our fixed effects specification estimate within-firm and within-industry variations and hence will capture the relation between changes in employment and annual flows of greenfield FDI.

[10] As robustness cheeks, we will check for any endogeneity bias in a number of ways, as will be discussed in the following section.

will divide inward and outward FDI stocks into two groups, depending upon whether the source and destinations of FDI belongs to a group of developed or developing countries.[11] The purpose of outward FDI to developing countries is mostly to take an advantage of low labor cost. We can expect that outward FDI can have negative effect on home countries' employment as the destination of FDI is developing countries.

As noted early, we also divide our sample into goods (primary and manufacturing) sector, services sector, and unclassified sector to investigate how the association between greenfield FDI and domestic employment differs between goods and services sectors, "Unclassified" group includes the industries with characteristics of both goods and service sectors.

Summary statistics of the dependent and independent variables across the different subgroups are reported in Table 5.

[Table 5]
Summary Statistics

4. Results

4.1. Benchmark results

Table 6 reports our benchmark results for the effects of inward and outward greenfield FDI on domestic employment in the same industry. Inward FDI and outward FDI are entered alternatively in Column (1) and (2), while they are entered simultaneously in Column (3). Examining on Column (1) and (3), we find that inward greenfield FDI has a significant positive spillover effect on the employment of domestic firms. Specifically, a 100 percent increase in greenfield FDI in an industry increases the employment of local firms in the same industry by 2.3%. In Columns (2) and (3), we find no significant impact of outward FDI, implying that outward greenfield FDI of Korean firms is neither detrimental to or beneficial for Korea's local employment in aggregate. This finding further suggests that neither the substitution effect nor

[11] See Appendix Table 2 and 3 for the country classification

scale effect dominates in aggregate. This finding is consistent with the results of Chun et al.(2018), Kang and Whang (2018) and Dabaere, et al. (2010).

FDI from developed countries are different from that from developing countries, in terms of motives, strategies, technology levels, and its consequences on the host country. Moreover, motives of outward FDI can be different, depending on whether the destination country is a developed or developing country. That is, outward FDI to a developing country has a motive to utilize the low-cost labor of the country and use it as an export platform (vertical FDI). In contrast, outward FDI to a developed country is likely to produce and sell in the local market (horizontal FDI). Efficiency seeking vertical FDI to developing countries is expected to have a greater substitution effect in that some domestic workers of the MNE's home country are replaced by foreign workers. In contrast, market-seeking FDI in developed countries is expected to have a greater scale effect and result in an increase in domestic employment of the home country.

Columns (4) reports the regression results when we divide the source and destination countries into two groups of developed and developing countries, respectively. Developed country group includes the OECD countries, Hong Kong, and Singapore. We find that inward greenfield FDI from developed countries exerts a highly significant positive spillover effect on the employment of local firms. This finding may suggest that when source countries are developed countries, inward FDI's job creation effect in upstream and downstream local firms in the same industries is greater than its crowding-out effect of competing local firms in the same industries. In contrast, we do not find such a positive spillover effect in the case of the inward greenfield FDI from developing countries.

We also find that the coefficient of outward greenfield FDI to developing countries shows a negative sign at the 10% significance level, while we do not find such a statistically significant negative result for outward FDI to developed countries. Thus, efficiency seeking vertical FDI to developing countries has a greater substitution effect in that some domestic workers of the MNE's home country are replaced by foreign workers. This finding is consistent with Dabaere, et al. (2010) who find that while transferring production to more-advanced countries does not

affect employment growth in Korea, moving to less-advanced countries can cause reduction in domestic jobs.

Our empirical results have revealed that inward greenfield FDI incurs the domestic firms to increase their employment in the same industry. This positive effect is much more pronounced in goods (i.e. primary and manufacturing) industries than services industries. This finding suggests that greenfield FDI inflows to Korea's goods sector brings new business opportunities for both upstream and downstream domestic firms in the same industry, rather than crowding out domestic firms in the same industry. This positive effect is also stronger when source countries of greenfield FDI are developed countries.

Among the firm specific control variables, *Asset*, K/L ratio, and productivity show statistically significant effects on employment. An increase in a firm's asset and productivity increase the firm's employment, while an increase in a firm's K/L ratio decreases the firm's employment. Specifically, 10 percent increase in a firm's asset increases its employment by 7.1 percent. Note that an increase in a firm's asset is roughly equivalent to the firm's annual investment.

[Table 6]

Effects of Inward and Outward Greenfield FDI on Employment – Benchmark Result

Table 7 reports the estimated results for the impact of inward and outward FDI on employment across the different sectors. Reported in Columns (2), (3), and (4) are the results for goods (primary & manufacturing), services, and unclassified sector, respectively.

The positive spillover effect of inward FDI on employment of local firms is particularly strong in the goods sector (Column 2), while there is no such a positive effect in the services sector (Column 3). Inward FDI in unclassified sector (Column 4) also carries a statistically significant positive coefficient but its size is smaller than that in the goods sector. This is due to the fact that the unclassified sector is comprised of industries that include characteristics of both goods and services sectors. In contrast, outward FDI does not show the significant effect across the

different sectors. Displayed in in Table 5 as the summary statistics, we can find the higher capital-labor ratio in service sector than goods and unclassified sector. As the service sectors such as "Communications," transportations, and software & IT services may utilize more capital intensive procedure, the positive spillover effect on employment can be limited.

[Table 7]

Effects of Inward and Outward Greenfield FDI on Employment – by sector

Overall, we find that greenfield FDI inflows to Korea's goods sector, particularly from developed countries, create new employment not only directly by the foreign investing firms, but also by its spillover effects on local firms in the same industry. The finding may suggest that rather than crowding out competing firms in the same industries, foreign firms bring new business opportunities for both upstream and downstream domestic firms in the same industry.[12]

4.2 Size of local firms and spillover effects of inward FDI on local employment

One may worry that foreign firms are more likely to crowd out less competitive small and medium-sized local firms. On the other hand, one may expect that spillover effects are larger for small and medium-sized local firms who are operating in both upstream and downstream supply chains.

In order to assess whether the firm size matters, Table 8 reports the regression results when the inward FDI variable is interacted with individual firms' asset. As the outward FDI does not show a significant effect on employment, we only include an interaction variable for inward FDI. We continue to find positive and significant effects for inward FDI in all industries and in unclassified sector (Column 1 and 4) and no significant effects for outward effects.

[12] It should also be noted that in addition to the spillover effects on employment in the same industry, foreign investment may also create more jobs in other industries that supply goods and services to foreign firms. This possibility is not assessed in the present analysis.

The estimated coefficient of the interaction variable carries a negative sign implying that FDI spillover effect on employment is greater in smaller-sized local firms in terms of assets.

[Table 8]

Effects of Inward and Outward Greenfield FDI on Employment with Interaction Variables

4.3 Lag, Contemporary, and Lead Effects

The indirect effects of inward and outward FDI on the employment of local firms may take a longer time than just one year. On the other hand, foreign MNEs may increase their investment in Korea's industries which are growing fast or have high growth potential. Likewise, Korea's MNEs may increase or decrease their overseas investment when domestic market condition is not good or does not have strong growth potential.

To investigate these possibilities, Table 9 reports the results when we replace the one-year lags of inward and outward FDI with their two-year lags (Column 1), contemporary variables (Column 3), or one-year leads (Column 4). All other explanatory variables are remained as one-year lags. For the sake of comparison, the result with one-year lags of inward and outward FDI, which was reported in Column (1) of Table 6, is also shown in Column (2). As seen in the table, inward greenfield FDI exerts a significantly positive effect on employment, not only with a one-year lag, but also with a two-year lag and contemporaneously. However, one-year lead variable of inward greenfield FDI does not enter with a statistically significant coefficient. Thus, the falsification exercise including lead variables provides evidence that our benchmark results are not due to the reverse causality bias.

On the other hand, the outward greenfield FDI does not show any statistically significant coefficient in all specifications with different lags and leads.

[Table 9]

Lag, Contemporary, and Lead Effects of Inward and Outward Greenfield FDI on Employment

5. Summary and discussions

Many studies have found that inward foreign direct investment (FDI) can play a positive role in spurring economic growth and job creation of host countries. In particular, greenfield FDI (i.e. establishment of new firms rather than mergers and acquisitions (M&A) of existing firms) is seen as a job creator in the host countries. On the other hand, outward FDI is often seen as a job substitution of home-country workers with host-country workers.

This paper has investigated its effect of inward and outward greenfield FDI on the employment of Korean domestic firms. Our empirical results have revealed that inward greenfield FDI incurs the domestic firms to increase their employment in the same industry. This positive effect is much more pronounced in goods (i.e. primary and manufacturing) industries than services industries. This finding suggests that greenfield FDI inflows to Korea's goods sector brings new business opportunities for both upstream and downstream domestic firms in the same industry, rather than crowding out domestic firms in the same industry. This positive effect is also stronger when source countries of greenfield FDI are developed countries. We have also found that the positive effect of inward greenfield FDI on local employment is more important in small-sized firms.

Consistent with Dabaere et al. (2010), Chun et al.(2018), and Kang and Whang (2018), we have found that the overall effect of outward greenfield FDI on domestic employment does not show significant results. But, we have found a weakly negative effect of outward FDI on employment in the sample with developing countries as destination countries. This finding is consistent with Dabaere et al. (2010) that hollowing out effect in domestic job is more significant as the outward FDI is targeting developing countries with low labor cost.

This study has contributed the literature by distinguishing FDI by direction, industry sector, and partner country in investigating effect of FDI on corporate employment in the same industry. In this study, we consider the employment effect in the same industry that receives

and make inward and outward FDI. As the inward and outward FDI can have forward and backward linkage effect even in the different industries, it would be important to distinguish these linkage effects for the future research. In addition, we consider the greenfield FDI as the entry mode of FDI. However, M&A type of inward FDI can have different effect compared to the greenfield FDI. It would be worthwhile to compare the effect of inward FDI depending on the entry mode of FDI.

References:

Bajo-Rubio, O. and C. Diaz-Mora (2015), “On the employment effects of outward FDI: the case of Spain, 1995-2011”, *Applied Economics*, 47(21), 2127-2141.

Brainard, L., and D. Riker (2011), ‘‘Are US Multinationals Exporting US Jobs?’’ (pp. 410–426), in D. Greenaway and D. R. Nelson (Eds.), *Globalization and Labour Markets* (Northampton, MA: Edward Elgar Publishing).

Cheung, K. and P. Lin (2004), “Spillover 3ffects of FDI on innovation in China: evidence from the provincial data”, *China Economic Review*, 15(1), 25-44.

Chun, H., J. Hur, and N. Son, (2018), "Hollowing Out or Filling In? Impacts of Multinational Enterprises on Domestic Plant Turnover and Job Growth in Factory Asia," Discussion paper series HIAS-E-71, Hitotsubashi Institute for Advanced Study, Hitotsubashi University.

Danakol, S. H, S. Estrin, P. Reynolds, and U. Weitzel (2017), “Foreign direct investment via M&A and domestic entrepreneurship: blessing or curse?”, *Small Business Economics*, 48, 599-612.

Debaere, P., H. Lee, and J. Lee (2010), "It matters where you go: Outward foreign direct investment and multinational employment growth at home." *Journal of Development Economics* , 91(2), 301-309.

Hale, G. and M. Xu (2016), “FDI effects on the labor market of host countries”, Federal Reserve Bank of San Francisco Working Paper Series 2016-25.

Harms P., and P.-G. Méon, (2011), “An FDI is an FDI is an FDI? The growth effects of Greenfield investment and mergers and acquisitions in developing countries”, Proceedings of the German Development Economics Conference, Berlin 2011 38, Verein für Socialpolitik, Research Committee Development Economics.

Haskel, J., S. Pereira, and M. Slaughter (2007), “Does inward foreign direct investment boost the productivity of domestic firms?”, *Review of Economics and Statistics*, 89(3), 482-496.

Hijzen, A., and P. Swaim (2007), “Does offshoring reduce industry employment?*” National Institute Economic Review*, 201(1), 86-96.

Federico, S., and G. A. Minerva. 2008. “Outward FDI and local employment growth in Italy.” *Review of World Economics*, 144(2), 295-324.

Ito, K. and A. Tanaka (2014), “The impact of multinationals’ overseas expansion on employment at suppliers at home: new evidence from firm-level transaction relationship data for Japan”, RIETI Discussion Paper Series 14-E-011, Research Institute of Economy, Trade and Industry.

Javorcik , B. S. (2004), “Does foreign direct investment increase the productivity of domestic firms? In search of spillovers through backward linkages”, *American Economic Review*, 94(3), 605-627.

Jenkins (2006), Transnational Corporations, 15(1), UNCTAD, New York and Geneva.

Kang, Y. and U. Whang (2018), “To whom does outward FDI give jobs”, Open Economies Review, *Open Economies Review*, 29(3), 613-639.

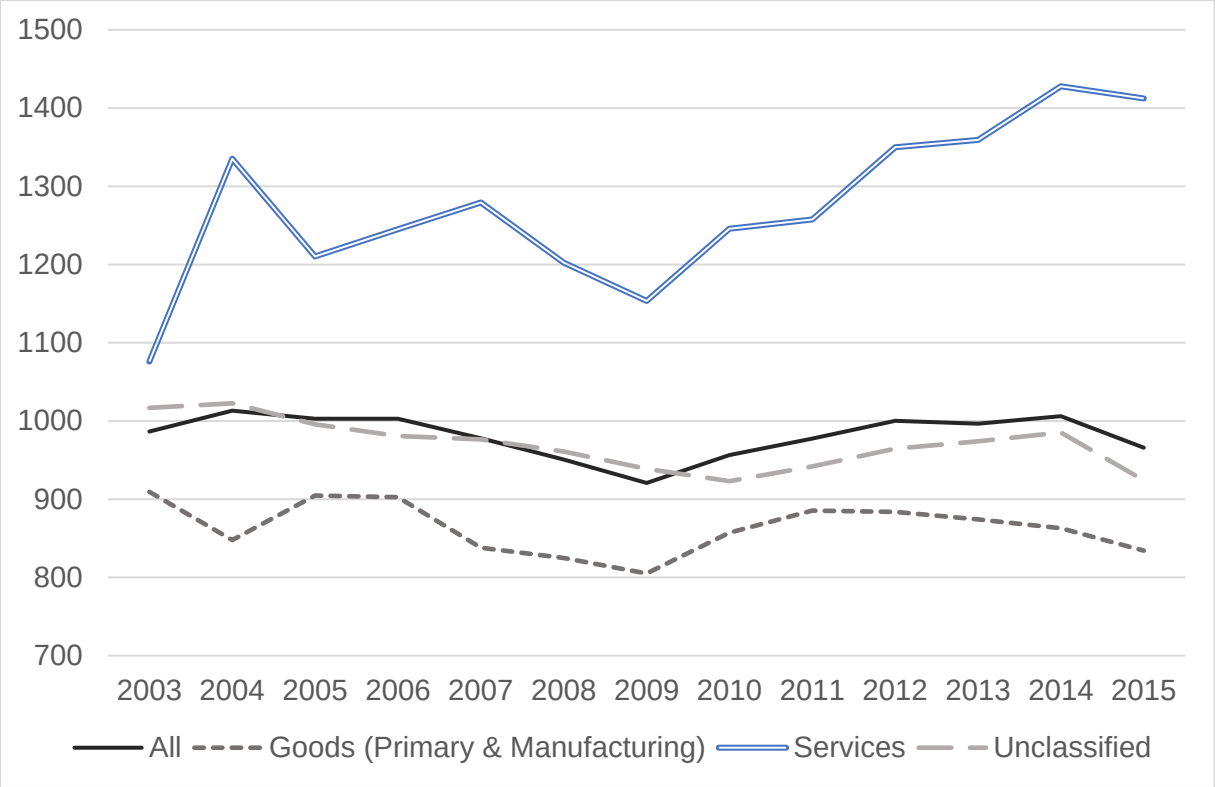
Masso, J. U. Varblane, and P Vahter (2008), “The effects of outward foreign direct investment on home-country transition economy”, *Eastern European Economics*, 46(6), 25-59.

OECD (2007), *Offshoring and Employment: Trends and Impacts*, Paris: Organisation for Economic Co-operation and Development.

Wang, M., and M.C.S. Wong (2009), “What drives economic growth? The case of cross-border M&A and greenfield FDI activities”, *Kyklos*, 62(2): 316-330.

[Figure 1]

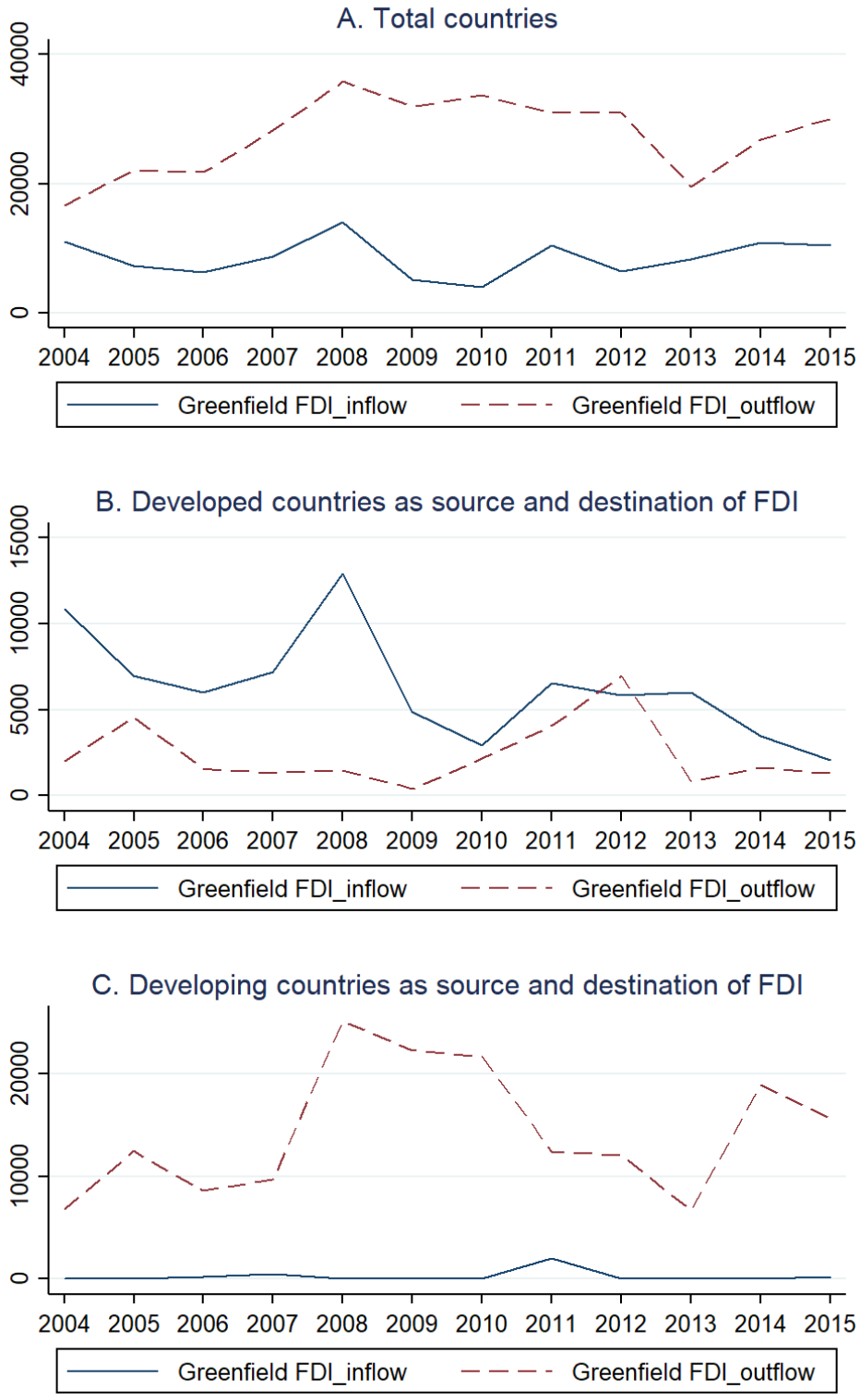
Trend of Firms' Average Employment by Sector (2003-2015)



Source : KISVALUE

[Figure 2]

Trend of Korea's Inward and Outward Greenfield FDI Flows (Billion KRW, 2004-2015)



Source: fDi Markets

[Table 1]

Industry Classification and Number of Firms

Sector	Industry	Number of firms
A. Goods (Primary and manufacturing)	Chemicals	119
	Electronic components & semiconductors	308
	Medical Devices	42
	Metals	121
	Minerals	39
	Rubber & plastics	43
	Wood Products	12
	Goods Total	684
B. Services	Communications	24
	Financial Services	94
	Leisure & Entertainment	8
	Real Estate	71
	Software & IT services	58
	Transportation	21
	Warehousing & Storage	5
	Services Total	281
C. Unclassified (mixture of goods and services)	Automotive & non-automotive transport	115
	Coal, Oil and Natural Gas	18
	Food, Tobacco & Beverages	69
	Paper, Printing & Packaging	128
	Pharmaceuticals	113
	Textiles	51
	Unclassified Total	494
Total		1459

Source: KISVALUE

[Table 2]

Pattern of Average Number of Employees for Individual Firms by Industry

Sector	Industry	Average employment	Number of firms	Total employment
A. Goods (Primary and manufacturing)	Chemicals	770.10	119	91,642
	Electronic components & semiconductors	1,124.21	308	346,258
	Medical Devices	202.22	42	8,493
	Metals	570.72	121	69,057
	Minerals	404.72	39	15,784
	Rubber & plastics	585.81	43	25,190
	Wood Products	327.46	12	3,930
B. Services	Communications	2,570.40	24	61,690
	Financial Services	1,729.91	94	162,611
	Leisure & Entertainment	826.86	8	6,615
	Real Estate	837.98	71	59,497
	Software & IT services	499.63	58	28,978
	Transportation	2,297.50	21	48,247
	Warehousing & Storage	883.00	5	4,415
C. Unclassified (mixture of primary, manufacturing, and services)	Automotive & non-automotive transport	2,270.81	115	261,143
	Coal, Oil and Natural Gas	1,798.13	18	32,366
	Food, Tobacco & Beverages	1,024.08	69	70,662
	Paper, Printing & Packaging	240.85	128	30,829
	Pharmaceuticals	385.15	113	43,522
	Textiles	409.36	51	20,877
	All industries		1,459	1,391,807

Source: KISVALUE

[Table 3]

Source and Host Countries of Korea's Greenfield FDI (total, 2004-2015)

	Inflows to Korea			Outflows from Korea	
Ranking	Source country	Value (US$ Mill)		Source country	Value (US$ Mill)
1	USA	31,702		CHN	68,313
2	JPN	16,517		VNM	35,237
3	DEU	6,626		USA	34,655
4	SAU	6,301		IND	27,365
5	FRA	5,849		IDN	12,682
6	CHN	5,206		HKG	12,224
7	NLD	4,138		MEX	9,713
8	GBR	3,580		BRA	9,402
9	MYS	2,359		RUS	7,050
10	SGP	1,934		SVK	5,429
11	RUS	1,931		UZB	5,227
12	BEL	1,043		PHL	4,524
13	CAN	903		SGP	4,178
14	PHL	821		CZE	4,045
15	IND	767		MYS	3,461
16	CHE	511		GBR	3,356
17	ESP	431		POL	3,287
18	SWE	423		TUR	3,252
19	FIN	387		NGA	2,988
20	NOR	356		MMR	2,715
21	ARE	343		SAU	2,580
22	AUS	286		JPN	2,542
23	OMN	273		ARE	2,435
24	MEX	256		HUN	2,301
25	ITA	170		OMN	1,742
26	KWT	169		KHM	1,676
27	AUT	154		AUS	1,305
28	HKG	119		THA	1,263
29	ISR	117		SEN	1,231
30	BRA	112		CAN	1,171
31	QAT	107		KAZ	1,169
32	LUX	103		PNG	1,084
33	IRL	83		ESP	1,067
34	DNK	77		JOR	1,025
35	TWN	77		TKM	1,000
36	ISL	76		NLD	967
37	VNM	76		CMR	951
38	CYP	70		AZE	917
39	NCL	35		EGY	892
40	MLT	35		PAK	857
41	NPL	35		TWN	846
42	CHL	14		UKR	830
43	GRC	10		IRQ	784
44	HUN	9		DEU	705
45	NZL	8		ROU	660
46	CZE	6		BHR	641
47	UKR	6		DOM	570
	47 countries total	94,608		47 countries total	292,314
				119 countries total	301,075

Source: fDi Markets

[Table 4]

Korea's Inward and Outward Greenfield FDI Stock by Industry (2004-2015)

Sector	Industry		Inward FDI	Outward FDI
			Value (KRW billion)	Value (KRW billion)
A. Goods (Primary and manufacturing)	Chemicals		16,119	28,391
	Electronic components & semiconductors		34,167	63,674
	Medical Devices		339	720
	Metals		1,701	41,214
	Minerals		0	61
	Rubber & plastics		3,191	13,684
	Wood Products		0	1,149
	Goods Total		55,517	148,893
B. Services	Communications		2,700	10,226
	Financial Services		3,382	16,104
	Leisure & Entertainment		5,064	637
	Real Estate		17,399	15,280
	Software & IT services		2,056	854
	Transportation		3,263	5,129
	Warehousing & Storage		812	3,645
	Services Total		34,675	51,876
C. Unclassified (mixture of goods and services)	Automotive & non-automotive transport		10,193	58,409
	Coal, Oil & Natural Gas		9,821	36,532
	Food, Tobacco & Beverages		1,439	3,349
	Paper, Printing & Packaging		190	484
	Pharmaceuticals		853	1,783
	Textiles		374	3,815
	Unclassified Total		22,871	104,372
Total			113,063	305,141

Source: fDi Markets

[Table 5]

Summary Statistics

A. All firms

Variable	Obs	Mean	Std. Dev.	Min	Max
Log_Employment	12,621	5.66	1.26	0.69	11.53
Log_FDI (in)	12,621	14.69	1.89	10.49	17.35
Log_FDI (in, developed)	12,621	14.56	1.91	10.49	17.32
Log_FDI (in, developing)	3,013	11.51	1.68	8.78	14.02
Log_FDI (out)	12,621	15.54	1.85	10.21	17.97
Log_FDI (out, developed)	11,534	12.62	2.60	4.74	15.43
Log_FDI (out, developing)	12,392	14.83	1.91	7.44	17.37
HHI	12,621	0.14	0.10	0.03	0.87
Log_Asset (industry)	12,621	31.75	1.43	27.83	34.92
Log_Asset	12,621	25.92	1.63	21.43	33.25
Log(K/L)	12,621	20.26	0.96	16.69	26.39
Log_Productivity	12,621	26.90	0.88	21.94	31.07

B. Firms in goods sector

Variable	Obs	Mean	Std. Dev.	Min	Max
Log_Employment	5,747	5.48	1.15	1.39	11.53
Log_FDI (in)	5,747	15.77	1.71	11.02	17.35
Log_FDI (in, developed)	5,747	15.68	1.80	10.51	17.32
Log_FDI (in, developing)	562	13.13	0.00	13.13	13.13
Log_FDI (out)	5,747	16.65	1.22	10.41	17.97
Log_FDI (out, developed)	5,516	13.83	1.77	10.41	15.43
Log_FDI (out, developing)	5,652	15.67	1.64	7.44	17.09
HHI	5,747	0.19	0.09	0.04	0.32
Log_Asset (industry)	5,747	32.20	1.18	27.83	33.38
Log_Asset	5,747	25.63	1.34	22.29	32.76
Log(K/L)	5,747	20.15	0.70	17.73	23.58
Log_Productivity	5,747	26.92	0.80	21.94	29.52

C. Firms in services sector

Variable	Obs	Mean	Std. Dev.	Min	Max
Log_Employment	2,470	6.00	1.47	2.30	10.54
Log_FDI (in)	2,470	14.60	0.94	11.96	16.67
Log_FDI (in, developed)	2,470	14.25	1.03	11.36	15.93
Log_FDI (in, developing)	1,757	11.59	1.24	9.39	13.06
Log_FDI (out)	2,470	14.84	1.52	10.21	16.59
Log_FDI (out, developed)	2,185	12.65	0.93	10.75	14.04
Log_FDI (out, developing)	2,470	14.18	1.74	9.28	16.10
HHI	2,470	0.14	0.11	0.06	0.87
Log_Asset (industry)	2,470	31.97	1.83	28.29	34.92
Log_Asset	2,470	26.94	2.11	22.56	33.25
Log(K/L)	2,470	20.94	1.41	16.69	26.39
Log_Productivity	2,470	27.25	0.96	24.32	31.07

D. Firms in unclassified sector

Variable	Obs	Mean	Std. Dev.	Min	Max
Log_Employment	4,404	5.70	1.21	0.69	11.10
Log_FDI (in)	4,404	13.33	1.59	10.49	16.14
Log_FDI (in, developed)	4,404	13.27	1.50	10.49	15.84
Log_FDI (in, developing)	694	9.99	1.98	8.78	14.02
Log_FDI (out)	4,404	14.49	1.89	11.63	17.88
Log_FDI (out, developed)	3,833	10.85	3.19	4.74	15.26
Log_FDI (out, developing)	4,270	14.09	1.87	9.38	17.37
HHI	4,404	0.07	0.06	0.03	0.33
Log_Asset (industry)	4,404	31.03	1.16	29.47	33.11
Log_Asset	4,404	25.73	1.41	21.43	32.30
Log(K/L)	4,404	20.03	0.75	17.68	25.01
Log_Productivity	4,404	26.67	0.85	23.19	30.20

[Table 6]

Effects of Inward and Outward Greenfield FDI on Employment - Benchmark Result

	(1)	(2)	(3)	(4)
ln FDI_{jt-1} (In)	0.023***		0.023***	
	(0.007)		(0.007)	
ln FDI_{jt-1} (Out)		0.001	-0.001	
		(0.007)	(0.007)	
ln FDI_{jt-1} (In, developed)				0.266**
				(0.131)
ln FDI_{jt-1} (In, developing)				-0.010
				(0.008)
ln FDI_{jt-1} (out, developed)				0.013
				(0.008)
ln FDI_{jt-1} (out, developing)				-0.055*
				(0.032)
HHI_{jt-1}	-0.113	-0.200*	-0.111	0.448
	(0.131)	(0.114)	(0.131)	(0.345)
ln $Asset_{jt-1}$ (Ind)	-0.004	-0.01	-0.004	0.062
	(0.023)	(0.023)	(0.023)	(0.070)
ln $Asset_{ijt-1}$	0.706***	0.704***	0.706***	0.679***
	(0.021)	(0.021)	(0.021)	(0.048)
ln $(K/L)_{ijt-1}$	-0.625***	-0.614***	-0.625***	-0.564***
	(0.039)	(0.038)	(0.039)	(0.066)
ln $(Productivity)_{ijt-1}$	0.077***	0.066**	0.077***	0.026
	(0.026)	(0.027)	(0.026)	(0.030)
Constant	-2.145**	-1.507*	-2.155**	-5.682**
	(0.875)	(0.880)	(0.882)	(2.524)
N	12170	12517	12170	2550
R-sq	0.465	0.460	0.465	0.444
F	118.370	122.915	112.493	32.231

Notes: 1. Estimates are obtained with Ordinary Least Squares (OLS) estimator. 2. Firm fixed effects and year fixed effects are included but not shown for brevity. 3. Robust standard errors are in parenthesis. 4. ***, **, and * indicate the significance levels of 1, 5, and 10 percent, respectively.

[Table 7]

Effects of Inward and Outward FDI on Employment – by sector

	All industries	Goods	Services	Unclassified
	(1)	(2)	(3)	(4)
ln FDI_{jt-1} (In)	0.023***	0.031***	-0.013	0.023**
	(0.007)	(0.009)	(0.025)	(0.011)
ln FDI_{jt-1} (Out)	-0.001	-0.001	0.029	-0.009
	(0.007)	(0.011)	(0.019)	(0.014)
HHI_{jt-1}	-0.111	-0.081	0.411	1.203*
	(0.131)	(0.130)	(0.338)	(0.697)
ln $Asset_{jt-1}$ (Ind)	-0.004	-0.061*	-0.057	0.139**
	(0.023)	(0.037)	(0.048)	(0.060)
ln $Asset_{ijt-1}$	0.706***	0.741***	0.650***	0.702***
	(0.021)	(0.019)	(0.063)	(0.034)
ln $(K/L)_{ijt-1}$	-0.625***	-0.687***	-0.486***	-0.660***
	(0.039)	(0.030)	(0.108)	(0.058)
ln $(Productivity)_{ijt-1}$	0.077***	0.073***	-0.010	0.168**
	(0.026)	(0.021)	(0.042)	(0.066)
Constant	-2.155**	-0.042	0.535	-8.000***
	(0.882)	(1.279)	(1.970)	(2.361)
N	12170	5506	2423	4241
R-sq	0.465	0.531	0.446	0.429
F	112.493	129.637	20.996	68.000

Notes: 1. Estimates are obtained with Ordinary Least Squares (OLS) estimator. 2. Firm fixed effects and year fixed effects are included but not shown for brevity. 3. Robust standard errors are in parenthesis. 4. ***, **, and * indicate the significance levels of 1, 5, and 10 percent, respectively. 5. 'Unclassified" group includes the industries with characteristics of both goods and service sector.

[Table 8]

Effects of Inward and Outward Greenfield FDI on Employment with Interaction Variables

	All industries	Goods	Services	Unclassified
	(1)	(2)	(3)	(4)
ln FDI_{jt-1} (In)	0.125**	0.008	-0.012	0.350***
	(0.055)	(0.074)	(0.144)	(0.123)
ln FDI_{jt-1} (Out)	0.003	-0.001	0.029	0
	(0.007)	(0.011)	(0.019)	(0.013)
HHI_{jt-1}	-0.092	-0.086	0.41	0.232
	(0.133)	(0.131)	(0.335)	(0.773)
ln $Asset_{jt-1}$ (Ind)	-0.019	-0.059	-0.057	0.084
	(0.024)	(0.038)	(0.050)	(0.057)
ln $Asset_{ijt-1}$	0.764***	0.726***	0.651***	0.863***
	(0.038)	(0.049)	(0.104)	(0.060)
ln $(K/L)_{ijt-1}$	-0.625***	-0.686***	-0.486***	-0.662***
	(0.039)	(0.030)	(0.108)	(0.058)
ln $(Productivity)_{ijt-1}$	0.079***	0.072***	-0.01	0.172***
	(0.026)	(0.021)	(0.042)	(0.066)
ln Asset X ln FDI (In)	-0.004*	0.001	0	-0.013***
	(0.002)	(0.003)	(0.006)	(0.005)
Constant	-3.249***	0.279	0.522	-10.649***
	(1.142)	(1.549)	(2.721)	(2.891)
N	12170	5506	2423	4241
R-sq	0.466	0.531	0.446	0.431
F	108.636	123.035	20.977	65.837

Notes: 1. Estimates are obtained with Ordinary Least Squares (OLS) estimator. 2. Firm fixed effects and year fixed effects are included but not shown for brevity. 3. Robust standard errors are in parenthesis. 4. ***, **, and * indicate the significance levels of 1, 5, and 10 percent, respectively. 5 “Unclassified” group includes the industries with characteristics of both goods and service sector.

[Table 9]

Lag, Contemporary, and Lead Effects of Inward and Outward Greenfield FDI on Employment

	(1)	(2)	(3)	(4)
ln FDI_{jt-2} (In)	0.025***			
	(0.007)			
ln FDI_{jt-1} (In)		0.023***		
		(0.007)		
ln FDI_{jt} (In)			0.026***	
			(0.008)	
ln FDI_{jt+1} (In)				0.004
				(0.010)
ln FDI_{jt-2} (out)	-0.009			
	(0.008)			
ln FDI_{jt-1} (out)		-0.001		
		(0.007)		
ln FDI_{jt} (out)			0.004	
			(0.008)	
ln FDI_{jt+1} (out)				0.011
				(0.008)
HHI_{jt-1}	0.066	-0.111	-0.092	-0.142
	(0.114)	(0.131)	(0.120)	(0.113)
ln $Asset_{jt-1}$ (Ind)	-0.006	-0.004	-0.002	0.001
	(0.026)	(0.023)	(0.023)	(0.024)
ln $Asset_{ijt-1}$	0.698***	0.706***	0.708***	0.686***
	(0.019)	(0.021)	(0.021)	(0.022)
ln $(K/L)_{ijt-1}$	-0.636***	-0.625***	-0.627***	-0.585***
	(0.028)	(0.039)	(0.039)	(0.037)
ln $(Productivity)_{ijt-1}$	0.094***	0.077***	0.077***	0.046**
	(0.027)	(0.026)	(0.026)	(0.019)
Constant	-2.155**	-0.042	0.535	-8.000***
	(0.882)	(1.279)	(1.970)	(2.361)
N	12170	5506	2423	4241
R-sq	0.465	0.531	0.446	0.429
F	112.493	129.637	20.996	68.000

Notes: 1. Estimates are obtained with Ordinary Least Squares (OLS) estimator. 2. Firm fixed effects and year fixed effects are included but not shown for brevity. 3. Robust standard errors are in parenthesis. 4. ***, **, and * indicate the significance levels of 1, 5, and 10 percent, respectively.

[Appendix Table 1]

Industry classification and matching between Korean and fDi Markets dataset

A. Goods (Primary and manufacturing) sector			
fDi Code	fDi Industries	KCI Code	KCI Industries
24	Metals	20600	Metal mining
		32400	Metal product
		32500	Metal Processed Product
25	Minerals	20700	Minerals mining
		32300	Minerals Product
39	Wood Products	31600	Wood Product (excluding furniture)
		33200	Furnitures
11	Chemicals	32000	Chemicals
31	Rubber	32200	Rubber & Plastics
29	Plastics		
16	Electronic Components	32600	Electronic component, communications, souond, and motion picture device
		32800	Electical equipment
32	Semiconductors		
23	Medical Devices	32700	Medical, precision, and optical product
B. Services sector			
fDi Code	fDi Industries	KCI Code	KCI Industries
30	Real Estate	64100	Building Construction
		64200	Construction business
		126800	Real Estate Services
37	Transportation	84900	Ground & pipeline transportation
		85000	water transportation
		85100	air transportation
38	Warehousing & Storage	85200	Warehousing & shipping service
36	Hotels & Tourism	95500	Accomodations
13	Communications	106000	Broadcasting
		106100	Communications
33	Software & IT services	106200	Computer Programmingng & System Service
		106300	Information service
17	Financial Services	116500	Banking
		116600	Insurance
		116700	Investment Banking
		116900	Savings (Financial Services)
		117000	All Finance (Financial Services)
		117100	Credit Finance (Financial Services)
		117200	Other (Financial Services)
22	Leisure & Entertainment	189100	Sports & Entertainment

C. Unclassified (mixture of primary, manufacturing, and services)			
fDi Code	fDi Industries	KCI Code	KCI Industries
18	Food & Tobacco	10300	Fishing
		31000	Food product
		31200	Tobacco
		95600	Food & beverage stores
5	Beverages	31100	Beverages
35	Textiles	31300	Textiles
		31400	Clothing & clothing accessories product
		31500	Leather product
27	Paper, Printing & Packaging	31700	Pulp, paper, & paper product
		105800	Printing
12	Coal, Oil and Natural Gas	31900	Coal & oil refined product
		43500	gas and electric power
28	Pharmaceuticals	32100	Pharmaceuticals
3	Automotive Components	33000	Automotive and trailer
4	Automotive OEM	74500	Automotive & components sales
26	Non-Automotive Transport OEM	33100	All other transportation

[Appendix Table 2]

List of the FDI source countries included in sample

List of the developed countries		List of the developing countries	
Australia	AUS	Brazil	BRA
Austria	AUT	Chile	CHL
Belgium	BEL	Cyprus	CYP
Canada	CAN	Hungary	HUN
Czech Republic	CZE	Iceland	ISL
Denmark	DNK	India	IND
Finland	FIN	Israel	ISR
France	FRA	Kuwait	KWT
Germany	DEU	Malaysia	MYS
Greece	GRC	Malta	MLT
Hong Kong	HKG	Mexico	MEX
Ireland	IRL	Nepal	NPL
Italy	ITA	New Caledonia	NCL
Japan	JPN	Oman	OMN
Luxembourg	LUX	Philippines	PHL
Netherlands	NLD	PRC	CHN
New Zealand	NZL	Qatar	QAT
Norway	NOR	Russian Federation	RUS
Singapore	SGP	Saudi Arabia	SAU
Spain	ESP	Taipei,China	TWN
Sweden	SWE	UAE	ARE
Switzerland	CHE	Ukraine	UKR
UK	GBR	Viet Nam	VNM
United States	USA		

[Appendix Table 3]

List of the FDI target countries included in sample

List of the developed countries			List of the developing countries					
AUS	Australia		DZA	Algeria	ISR	Israel	ROU	Romania
AUT	Austria		ARG	Argentina	JOR	Jordan	RUS	Russian Federation
BEL	Belgium		ARM	Armenia	KAZ	Kazakhstan	RWA	Rwanda
CAN	Canada		AZE	Azerbaijan	KEN	Kenya	SAU	Saudi Arabia
CZE	Czech Republic		BHR	Bahrain	KWT	Kuwait	SEN	Senegal
DNK	Denmark		BGD	Bangladesh	KGZ	Kyrgyz Republic	SRB	Serbia
FIN	Finland		BLR	Belarus	LAO	Lao PDR	SVK	Slovak Republic
FRA	France		BOL	Bolivia	LVA	Latvia	SVN	Slovenia
DEU	Germany		BWA	Botswana	LBN	Lebanon	ZAF	South Africa
GRC	Greece		BRA	Brazil	LBY	Libya	LKA	Sri Lanka
HKG	Hong Kong		BGR	Bulgaria	LTU	Lithuania	SDN	Sudan
IRL	Ireland		KHM	Cambodia	MKD	Macedonia FYR	SYR	Syria
ITA	Italy		CMR	Cameroon	MYS	Malaysia	TWN	Taipei,China
JPN	Japan		CYM	Cayman Islands	MLI	Mali	TJK	Tajikistan
LUX	Luxembourg		CHL	Chile	MEX	Mexico	TZA	Tanzania
NLD	Netherlands		COL	Colombia	MDA	Moldova	THA	Thailand
NZL	New Zealand		COD	Congo (DRC)	MNG	Mongolia	TTO	Trinidad & Tobago
NOR	Norway		CRI	Costa Rica	MAR	Morocco	TUN	Tunisia
PRT	Portugal		CIV	Cote d'Ivoire (Ivory Coast)	MOZ	Mozambique	TUR	Turkey
SGP	Singapore		HRV	Croatia	MMR	Myanmar (Burma)	TKM	Turkmenistan
ESP	Spain		DOM	Dominican Republic	NPL	Nepal	ARE	UAE
SWE	Sweden		ECU	Ecuador	NIC	Nicaragua	UKR	Ukraine
CHE	Switzerland		EGY	Egypt	NGA	Nigeria	UZB	Uzbekistan
GBR	UK		ETH	Ethiopia	PRK	North Korea	VEN	Venezuela
USA	United States		FJI	Fiji	OMN	Oman	VNM	Viet Nam
			GEO	Georgia	PAK	Pakistan	ZWE	Zimbabwe
			GHA	Ghana	PAN	Panama		
			GTM	Guatemala	PNG	Papua New Guinea		
			HTI	Haiti	PRY	Paraguay		
			HUN	Hungary	PER	Peru		
			IND	India	PHL	Philippines		
			IDN	Indonesia	POL	Poland		
			IRN	Iran	CHN	PRC		
			IRQ	Iraq	QAT	Qatar		