



Labor Market Flexibility and FDI : Evidence from OECD Countries

CHOI Hyelin



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EXECUTIVE SUMMARY

This paper examines the impact of labor market regulations on FDI and employment and production of the foreign firms using an index on employment protection along with a number of employees and establishments, and production of foreign affiliates provided by the OECD. The empirical results show that strict employment protection discourages initial entry of foreign firms as well as the employment and production of foreign firms. The result is robust to various specifications in which the strictness of the labor market is measured by the unionization rate and severance pay for redundancy dismissal. Therefore, the attention of policymakers should not be limited to tax incentives, cash grants, and relaxation of market regulations but extend also to labor market deregulation and non-wage cost, to attract more foreign firms into their countries.

Keywords: Foreign Direct Investment, Employment Protection, Labor Market Flexibility

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1. Introduction

Most countries compete to attract Foreign Direct Investment(FDI) based on the belief that multinational companies(MNEs) foster economic growth, create jobs, and bring advanced technology to the host countries. FDI is also considered to be one of the most stable forms of foreign capital inflow, unlike capital flows in stock and bond markets. A large number of extant works involved research on the factors affecting multinationals' decisionmaking on the location of their foreign affiliates. Among them, unit labor cost, geographical distance, availability of human capital, the rule of law, and seriousness of corruption were deemed to be important. In addition to these, various incentives such as tax exemption and cash grants, along with product and labor market regulations, are also identified as important determinants of FDI. Since while the former is a long-term activity, the latter can be manipulated in a short period of time, policy makers are more likely to pay attention to the latter to design policies for FDI.

Since regulations can increase entry, operation, and exit costs of MNE's activities, they play important roles in investment decisions of foreign firms. In

particular, comparatively lax employment protection or higher flexibility of labor market is closely associated with the exit cost of foreign investment, and thus it is particularly important when MNEs expect high uncertainty about the future. Even though the government provides generous investment incentives to lower entry cost, if the host country experiences very high exit costs including rigid labor market regulations, multinational firms are less likely to invest in the country. In addition, considering that multinational firms tend to be footloose, they are more likely to be sensitive to the future costs which incur when they close the plant and leave the host country. For example, as a factor price of a destination country of MNEs increases, as demand of a host country changes, or as domestic market competition becomes more intense, MNEs may have incentives to shut down the foreign plant and relocate it to another country to exploit better opportunities.

Anecdotal case also seems to support an important role of labor market flexibility on FDI. Hoover, an American multinational firm, relocated its plant from Dijon, France to Cambuslang, Scotland in 1993, and the executive said that one of the reasons for relocating its foreign affiliate is higher non-wage labor costs in France relative to Scotland.¹

This paper is developed based on the theoretical model of Haaland and Wooton (2007). The model concludes that high severance pay negatively influences on the employment and production of foreign firms, and laxer employment protection brings about more benefits to both MNEs and the host country. The relationship between labor market standards and foreign firm's decision on entry, employment, and production are empirically examined with the OECD data on activities of multinational firms. The OECD data provides detailed data on the number of employees and establishment, and production of foreign firms, in addition to an index of strictness of employment protection for OECD countries. It allows us to examine the impact of labor market condi-

¹ Olney (2013), "A race to the bottom? Employment protection and foreign direct investment".

tions on foreign investment as well as job creation and product production by MNEs. While tax exemption and cash grants increase the likelihood of FDI, favorable labor market may influence entry decision as well as employment and production after they enter the host country. They are estimated by controlling for time and country fixed effects and a variety of host country characteristics that affect foreign firm's activities. In addition to the baseline estimation, unionization rate and a severance pay for redundancy dismissal are applied to test the same estimation equations, replacing the index of employment protection, to check the robustness of the results.

The results are robust across all specifications. The results say that strict labor market rules deter initial investment of foreign firms and also discourage their employment and production after they enter the market.

This is in line with the previous papers which investigate determinant factors for FDI and emphasize labor market conditions in the location decisions of multinational firms. First, Hines (1996), Grubert and Mutti (2000), and Devreux and Griffith (1998) examine the impact of tax rate on the location decision of multinational firms. Head *et al.* (1999) and Hubert and Pain (2002) study whether financial incentives affect the location of the multinational firms. They find that lower tax rate and favorable financial incentives attract more FDI to the host country. However, foreign firms may care about exit cost as much as the entry cost. In this regard, Gorg (2005), Javorcik and Spatareanu (2005), and Benassy-Quere *et al.* (2007) study the impact of labor market regulations on FDI and find that foreign firms are more likely to invest in countries with higher labor market flexibility. However, these papers measure the strictness of labor market with subjective measure of hiring and firing costs provided by the Global Competitiveness Report. However, since the index of hiring and firing practices is collected by requesting the opinion of managers on labor market flexibility, it encounters criticism for its subjective nature. On the other hand, Nicoletti *et al.* (2003) and Dewit *et al.* (2003) deal with the question using an objective index of employment protection provided by OECD and find that

strict employment protection deters inward FDI. However, none of the papers examines the impact of labor market rules on employment and production decisions of foreign firms. Contrary to the previous literature, this paper investigates the impact of labor market flexibility on the employment and production of foreign firms, and finds that strict labor market rules have negative impacts on the employment and production of the foreign firms as well as initial entry decision of foreign firms. In addition, to the best of my knowledge, the data on the employment and production of the foreign affiliates obtained from a series of 'Measuring Globalisation' published by OECD have never been used in the previous papers and this paper is the first to use the detailed data on the activities of multinational firms across countries.

The remainder of the paper is constructed as follows. Chapter 2 discusses theoretical backgrounds to explain how labor market standards affect MNE's decision making on the location of foreign affiliates through exit costs. In chapter 3, data, estimation strategy and primary descriptive statistics are discussed. The main results are presented in chapter 4, and chapter 5 concludes.

2. Theoretical Backgrounds

Several papers provide a theoretical framework on how labor market conditions of the host country affect multinational firms' decisions on locations. They observe that labor market conditions are closely associated with the potential exit cost which multinational firms have to pay when they leave the host country.

Gorg (2005) develops a theoretical framework based on Dixit (1989)'s work on investment under uncertainty. It takes account of greenfield investment and acquisitions as well as expansion and reduction of investment by MNEs already operating in the host country. In these terms, it assumes that foreign affiliates adjust the level of manufacturing employment and production. Gorg (2005) is consistent with the purpose of this paper which tests the impact of labor mar-

ket flexibility on both of the likelihood of FDI and the employment and production of the existent firms.

Dixit (1989)'s model assumes that the firm has options to: invest in the host country, exit the host country, or maintain the status quo and wait for the next period. If the firm enters the host country, it faces variable cost(c) for operation, and price uncertainty(p) which follows a certain stochastic process. If the firm decides to exit the host country, it has to pay exit cost(k) such as severance payment. Therefore, the firm comprehends that under a higher exit cost or stricter labor market, it is not easy to disinvest even in an unfavorable market situation, rather staying in the host country and paying variable costs. Therefore, it lowers the expected value of investment and makes the firm reluctant to invest in the host country with expensive exit costs.

Haaland and Wooton (2007) also theoretically shows that investment incentives and exit costs of severance pay are important for FDI by setting up a partial equilibrium model. The multinational firm decides its location based on the net present value of operation which involves operating profits, government subsidies, and severance payment. This section briefly summarizes their model and discusses some interpretations and hypotheses to be tested in the next section.

First, the model assumes an uncertainty in the future in that firms may shut down their plants and put workers out of their jobs as rivals emerge or demands of the consumers change. The uncertainty is specified as a probability (ρ) of being hit by negative shock and shutting down the company, and it is given exogenously. When the shock is realized, the firm closes down the plant and dismisses workers. In addition, the domestic uncertainty is distinguished from the risk faced by MNEs because multinational firms are known to be more footloose than domestic firms, with higher exit rates(Gorg and Strobl, 2002). It can be summarized as $\rho_D < \rho_M$, where ρ_D and ρ_M indicate the probabilities of failures of domestic firms and foreign firms, respectively.

In order to guarantee stable employment for workers, government establish-

es a number of countermeasures for dismissal such as minimum levels of redundancy compensation or minimum periods for layoff notice. While these measures increase employment stability, they subject the firm to costs to adjust the level of production or shut down the plant in an uncertain economy. The model assumes that the employment protection is captured by severance pay, described by a ratio (σ) of the wage. Then, the exit cost for the clearing firm for each worker is σw , and the total amount of exit cost charged on the closing firm is σwN , where w indicates the level of wage in each period and N represents the number of workers hired by the firm. The ratio of severance payment stands for the level of the country's employment protection in the model. The higher the ratio of severance payment, the less flexible the country's labor market is.

The total cost of employing one worker includes both current wage and present value of expected severance payment and it is written as follows:

$$\omega = (1 + \delta\rho\sigma)w \quad (1)$$

where ω is total cost of employment of one worker, and δ is a discount factor, which is less than 1.

Under the assumption that the wage is determined by a labor union at national level to maximize its total earnings of workers subject to the aggregate labor demand, the maximization problem and an optimal level of the total cost of employment and wage are given as the following:

$$U(\omega, N) = (\omega - v)N \quad (2)$$

$$s \cdot t \quad N = \frac{a - \omega}{d}$$

$$\omega = \frac{a + v}{2} \quad (3)$$

$$w = \frac{a + v}{2(1 + \delta\rho\sigma)} \quad (4)$$

where v is an opportunity cost of employment of a worker and a and d are constants. The union considers value $(\omega - v)$ of employment which depends on the domestic labor market condition such as factor endowments, unemployment rate, and skills of the domestic workers, specifically described as a value of the next-best alternative job v .

From equation (4), we can infer that the wage level is negatively affected by the domestic probability of failure and the severance payment. That is, as the economic condition of the country is unstable, or as the labor market rule is stricter, wages that employees receive decrease. With respect to MNEs, since they have higher probability of closing down plants as previously assumed, they would pay lower wages than domestic firms do.

With regard to the MNE's decision on employment and production, we assume that firms produce a variety of differentiated goods, one unit of labor is needed to produce one unit of good, and the production of the product accompanies a fixed cost F and a variable cost w . Then, the MNE's problems for maximizing the expected present value of net operating profits and an optimal level of production and employment can be summarized:

$$\begin{aligned} \sum_{t=1}^{\infty} \delta^{t-1} (1 - \rho)^t (px - wx - F) - \sum_{t=1}^{\infty} \delta^{t-1} (1 - \rho)^{t-1} \rho \sigma wx \\ \text{s.t.} \\ C = F + wx \\ p = a - bx \end{aligned} \quad (5)$$

$$x = L = \frac{a - (1 + \delta\rho\sigma)w}{2b} \quad (6)$$

where p and x indicate the price and output of the product, respectively, and

a and b are constants. Since we assume the normalization of the unit labor requirement to unity, the level of employment is the same as the level of production, $L=x$.

The equation (6) presents that the level of employment and production decrease with the severance cost. Additionally, since the probability of failure is greater for MNEs than domestic firms ($\rho_M > \rho_D$) and the primary differential value of employment with respect to the severance cost is $(-)\frac{\delta\rho w}{2b}$, one unit increase in severance payment has a larger negative impact on employment for MNEs than domestic firms. In fact, it may be that since foreign firms have several options to invest, they are more sensitive to the exit cost of the host country and can easily move to the country which ensure the largest benefit.

To summarize, domestic labor market conditions affect multinational firms' decision on the employment and production in the host country. The model says that strict employment protection discourages foreign firms to hire domestic workers and expand their operations in an uncertain economy. In the next section, whether there is empirical support for the hypothesis that the employment and production by MNEs are negatively affected by the strict labor market legislations would be tested with the data on the OECD countries.

3. Empirical Strategy and Data

Before examining the impact of labor market standards on the employment and production of MNEs, the effect of labor market conditions on FDI or entry decision of the foreign firms would be investigated in a cross-country regression framework, as done in most previous papers. To test it, the following equation is estimated:

$$FDI_{c,t} = \alpha_1 + \alpha_2 LM_{c,t-1} + \alpha_3 X_{c,t-1} + \mu_c + \nu_t + \epsilon_{i,t} \quad (7)$$

where $FDI_{c,t}$ is log of inward foreign direct investment stock in country c

in year t , $LM_{c,t-1}$ is log of index of strictness of employment protection (SEP) in country c in the previous year, and $X_{c,t-1}$ is a vector of host country control variables which includes log of GDP, log of population, log of unit labor cost, log of corporate income tax rate, log of cost of starting a business, and log of an index of intellectual property rights at year $t-1$. The control variables alleviate concerns that change in labor market flexibility could be inadvertently capturing other types of institutional or economic changes which are correlated with FDI. Specifically, GDP controls for market size or potential domestic demand for goods and services produced by the multinational firms, and population accounts for average purchasing power of the host country. Besides, the unit labor cost, corporate income tax rate, and cost of start business are controlled to better isolate the causal effect of the labor market rules on FDI because they affect decisions on the production location of foreign firms. The index of intellectual property rights is included to capture the risk of expropriation of assets and insecurity of property rights and contracts. In terms of an index of labor market flexibility, a lagged variable is used to alleviate endogeneity problem because foreign firms may put pressure on the labor market to relax the host country's labor regulations. Finally, country and time fixed effects are considered to control for unobserved country-specific and macro factors which affect FDI. The last term is a mean-zero error term.

In addition, the labor market standards may influence the activities of multinational firms, as expected in the model above. In order to test the hypotheses, this paper adopts the number of employees working at multinational firms; and production and average size of the foreign firms; as dependent variables, replacing for the volume of investment by foreign firms. The equations are the same with the previous one except for dependent variables, as follows:

$$EM_{c,t}, PD_{c,t}, Size_{c,t} = \alpha_1 + \alpha_2 LM_{c,t-1} + \alpha_3 X_{c,t-1} + \mu_c + \nu_t + \epsilon_{i,t} \quad (8)$$

where the dependent variables, $EM_{c,t}$, is the number of employees at MNEs

in country c at year t , $PD_{c,t}$ is production value of foreign firms in country c at year t , and $Size_{c,t}$ is the average size of the foreign firms in country c at year t which is defined as a ratio of production value to the number of foreign establishments. The case of the number of employees would show the impact of labor market standards on the foreign firms' job creation, and the case of the production and average production size of foreign firms would capture the growth of the foreign firms.

Based on the baseline equations above, some extended versions of the equations are additionally estimated. Since measuring the tightness of labor market regulations in one index is very difficult and subjective, this work chooses other measures in order to minimize measurement error. First, unionization density is adopted to measure strictness of the labor market instead of SEP. Furthermore, the severance pay substitutes the SEP. Although they cover narrower areas than our interest in the labor market, they capture strictness of labor market regulations and they may be highly correlated with the exit costs of the labor market.

The data on FDI, the number of employees, production value,² and the number of foreign establishments come from the OECD for a period from 1990 through 2012. The data on FDI comes from OECD statistics and the latter three variables come from the 'Measuring Globalisation' series published by OECD.³ It covers 34 countries and the list of countries is given in Figure 1. Despite the shortcoming of covering only OECD countries, since OECD countries account for about 80 percent of the world FDI, it is sufficiently representative of foreign investment. Also, the appealing aspect of OECD data is that they provide a comprehensive information on the activities of multination-

² The production value expressed in various units is converted to US dollars, referring to nominal effective foreign exchange rates data from Board of Governors of the Federal Reserve System and European Central Bank.

³ In the case that there are two different values for the number of employees from two reports of 'Measuring Globalisation', I choose the number which is closer to that in the next period or the one from a recent report.

al firms from a wide variety of respects⁴ such as the number of establishments, the number of employees, production value and so on, whereas other data sources provide only total amount of investment or at most, sales of foreign firms.

The measurement of the labor market flexibility is based on the index of the strictness of employment protection from OECD. It is a composite index of rules on firing workers and hiring temporary workers, ranging from 0 to 6 with higher scores for stricter regulations⁵. The firing rules involve notification process, timing of dismissals, the severance payment and so on, and the hiring restrictions include the number and duration of fixed term contracts and dualism of regular and temporary workers and so on, a total of seventeen measures. Since it is based on effective legislative and policy changes, it is an objective index. Although there are some concerns whether the index reflects restrictiveness of the labor market well, as long as the index is positively associated with the flexibility of the labor market, it would be the right index for estimating the impact of labor market standards on a foreign firm's decision making in entry, employment, and production.

The data on the unionization rate is obtained from OECD and it is calculated as the share of the total wage and salary earners that are union members. In addition, the data on the 'Severance pay for redundancy dismissal after 10 or 20 years of continuous employment' is obtained from World Bank Doing Business⁶. However, it is publicly provided from 2006 and beyond, covering a much shorter sample period and thus resulting in the reduction of the number of observations.

The data on GDP, population, unit labor cost, and corporate income tax

⁴ 'Measuring Globalization' provides data on the number of enterprises, number of employees, turnover, value added, compensation of employees, R&D expenditure, number of researchers, gross fixed capital formation, total trade, and intra-firm trade.

⁵ <http://www.oecd-ilibrary.org/employment/> (Online: 2016.3.30.)

⁶ <http://www.doingbusiness.org/>.

rate is obtained from OECD, the cost of starting business⁷ comes from the World Bank, and the index of the intellectual property rights comes from the Global Competitiveness Report⁸. Unfortunately, corporate income tax rate is recorded from 2000 and cost of starting business is only available from 2003 and beyond. However, stated in the Azemar and Desbores (2010), since regulations have been relatively stable and corporate tax rate have not changed much in the last two decades, it is assumed that the corporate tax rate for the period of 1990 through 1999 are the same as it was in 2000 and cost of starting business did not change from 1990 to 2003. On the other hand, although the index of intellectual property rights are available only from 2006, since this changes from year to year unlike the above variables, it is only included in examining the robustness using a severance pay for the period of 2006 through 2012.

These measures form an unbalanced panel data set. The summary statistics on the variables is given in table 1. Although the sample covers only OECD countries, it shows substantial variations in all of the variables used in the estimation. Figure 1 arranges countries in order of average SEP of the sample period. It shows that the US has the most flexible labor market regime, which is followed by Canada and the UK. On the contrary, some European countries such as the Czech Republic and Netherlands are characterized by strict labor market regulations. Figure 2 plots the country average of FDI against the country average of SEP⁹. Also, trend line is added to present sketchy relationship between employment protection and FDI. It shows that countries with strict employment protection rules are roughly congruent with less FDI.

The figure 3 shows trends of the SEP and FDI over time. In the last 20

⁷ The cost of starting business includes all official fees and fees for legal or professional services which are required by law or commonly used in practice. Also, fees for purchasing and legalizing company books are included if these are required by law.

⁸ The index of intellectual property rights is collected by asking managers to rate on the scale 1 to 7 with higher scores on well-protected property rights.

⁹ Since U.S. has very large figures in terms of FDI, it is excluded from the figure and in fact it is located at the top left corner.

years, OECD countries have relaxed employment protection and FDI has increased continuously. Although the figures have limits of not controlling for other factors which may affect both employment protection and FDI and thus not implying the causal relationship between the two variables, the raw data shows a clear negative correlation between SEP and FDI.

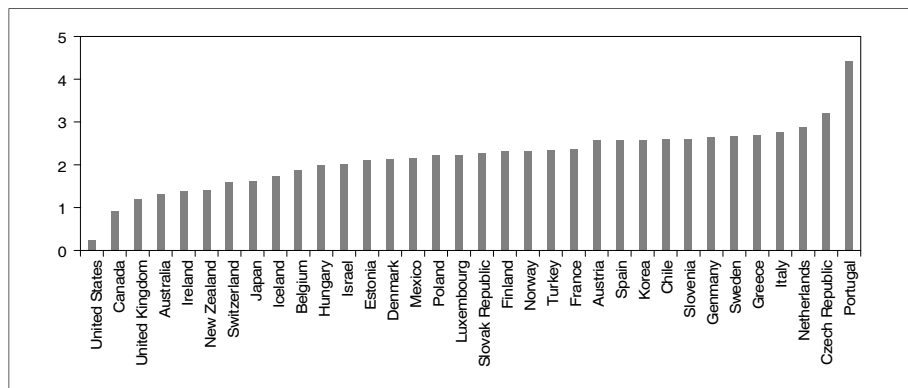
Table 1. Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	Observations
FDI	221,227	378,876	109	3,178,693	829
Strictness of employment protection	2.13	0.75	0.26	4.58	697
GDP per capita	25,708	13,299	2,665	95,587	833
GDP	1,140,644	2,327,393	5,557	16,700,000	828
Unit labor cost	0.58	0.14	0.1	0.8	652
Corp[orate income tax	27.97	7.18	8.5	42.2	783
Cost of start business	9.68	10.37	0	41.2	841
Number of employees	869,296	5,893,670	13,294	92,300,000	249
Average of production	2,374,858	12,500,000	4	74,900,000	198
Production	368.39	1993.14	0.0037	12738.87	206

Note: FDI, GDP, and production are in millions of US\$.

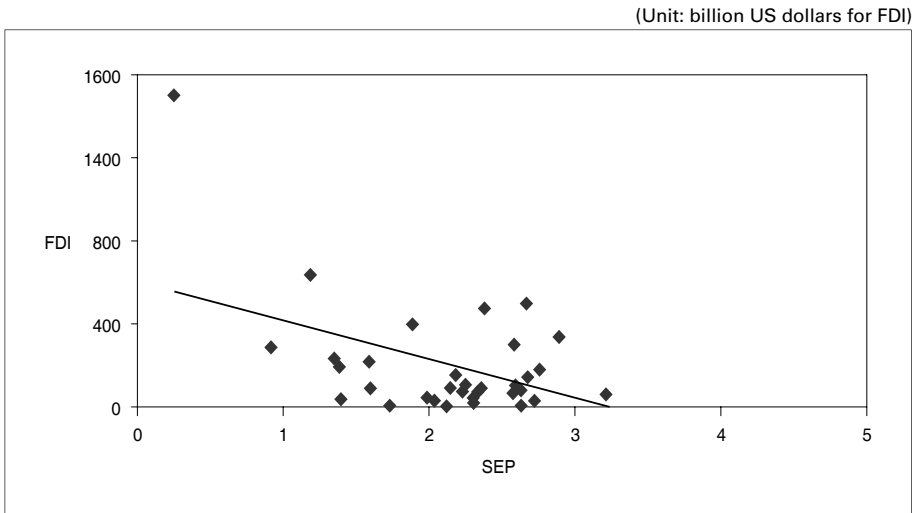
Source: Calculation by author (Online: 2016. 5. 10.)

Figure 1. Stricness of Employment Protection



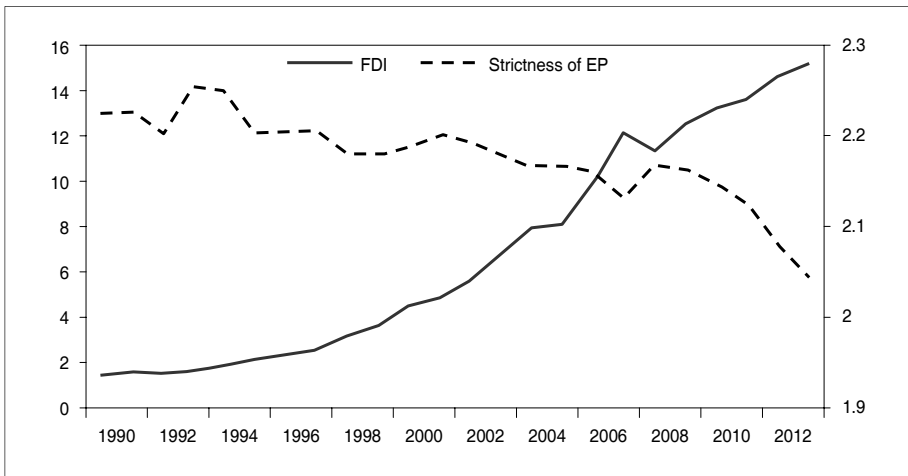
Source: OECD Stat database(Online: 2016. 3. 30.)

Figure 2. SEP and FDI (country average)



Source: Calculation by author (Online: 2016.3.30)

Figure 3. SEP and FDI over time

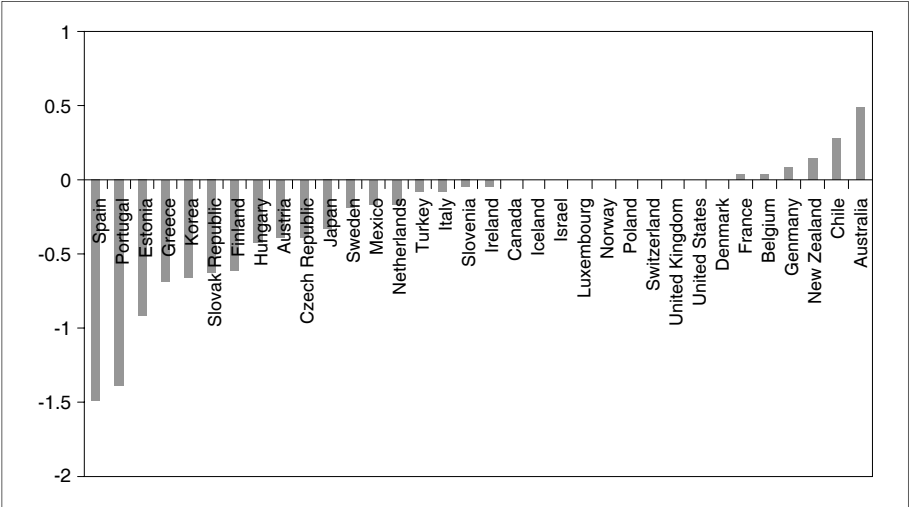


Source: OECD Stat database (Online: 2016. 3. 30.)

Lastly, figure 4 enumerates countries in order of the changes in the level of labor market regulations between 1990 and 2013 from the country which have

experienced the highest increase in flexibility of the labor market to the country which rather have actually raised the restrictiveness of the labor market. As seen in the figure, most of countries have relaxed or maintained their restrictiveness of labor market. In particular, Spain reduced their employment protection by 1.5 points, or 42 percent, while some countries such as Australia and Chile reinforced employment protection. In the case of Spain, it has relaxed labor market rules by reducing requirements for dismissals, opening temporary work agencies and reducing compensation for unfair dismissal (Olney 2013).

Figure 4. Changes in SEP between 1990 and 2013 by Country



Source: Calculation by author based on OECD Stat database(Online: 2016. 3. 30.)

4. Results

The estimation result on the impact of employment protection on FDI is presented in Table 2. The results show that flexible labor market attracts more FDI, more precisely, one percent decrease in the strictness of employment protection raises FDI by 0.8 percent. This is consistent with the previous studies in

that more flexible labor market leads to decreases in the exit cost and thus attracts more FDI to the host country. Also, the estimates on the GDP and population are positive and negative, respectively, and both of them are statistically significant, implying that FDI is attracted to the larger and richer countries. The unit labor cost has a positive and significant coefficient. It may be that higher unit labor cost is closely associated with higher human capital or that the variations in the unit labor cost are not large enough among OECD countries. The higher corporate income tax has negative impacts on FDI, as expected. The positive and significant impact of the cost of starting business on FDI seems to be contradictory, but it is not inconsistent with the previous papers. Some papers (Azemar and Desbordes (2010), Driffield (2001)) argue that high market entry cost decreases domestic competitions and hence incumbent firms can enjoy high mark-ups. Since multinational firms are usually larger and more productive than domestic firms, they can overcome the entry barriers relatively easily and attain high mark-ups. Therefore, they are more likely to be attributed to the host country with higher entry barriers or more expensive cost of starting business. Also, since a significant share of FDI of OECD countries are horizontal FDI to exploit local markets, the large economic rents may be an appealing factor for FDI. Furthermore, comparing the absolute magnitudes of the coefficients of the strictness of employment protection and corporate income tax, 0.80 and 0.26, suggests that labor market condition makes a greater contribution in terms of attracting FDI to the country than tax incentives given to the foreign firms.

Table 3 presents the impact of the strictness of employment protection on the multinational firms' activities, such as employment, production and average size. Specifically, FDI shows foreign firm's decision whether they enter the host country or not, while employment and production variables reflect foreign firm's decision on how many workers they hire, how much they produce, and whether they will expand their operations or not after they enter the host country.

Table 2. Strictness of Employment Protection and FDI

	FDI
Employment protection(t-1)	-0.796 *** (0.193)
GDP(t-1)	2.906 *** (0.086)
Population(t-1)	-3.832 *** (0.436)
Unit labor cost(t-1)	0.301 *** (0.080)
Corporate income tax(t-1)	-0.262 ** (0.111)
Cost of start business(t-1)	0.187 *** (0.036)
Constant	-13.69 *** (1.310)
Observations	537
Adjusted R-squared	0.893

Note: 1) standard errors are in parentheses

2) * significant at 10%, ** significant at 5%, *** significant at 1%

3) All variables but unit labor cost are in logarithms.

Source: Calculation by author (Online: 2016. 5. 10.)

Table 3. Strictness of Employment Protection and Employment and Production

	Number of employment	Production	Avg. production
Employment protection(t-1)	-0.801 (0.996)	-2.156 *** (0.370)	-1.889 *** (0.509)
GDP(t-1)	1.668 *** (0.352)	1.902 *** (0.153)	0.840 *** (0.212)
Population(t-1)	-8.532 *** (2.122)	-5.845 *** (1.066)	1.967 *** (1.443)
Unit labor cost(t-1)	-0.409 (0.300)	0.523 ** (0.219)	-0.474 (0.287)
Corporate income tax(t-1)	0.006 (0.385)	-0.471 ** (0.185)	-0.686 *** (0.238)
Cost of start business(t-1)	-0.039 (0.165)	0.141 ** (0.054)	0.072 (0.072)
Constant	17.32 *** (4.763)	5.355 ** (2.383)	-8.808 *** (3.216)
Observations	222	183	175
Adjusted R-squared	0.140	0.823	0.567

Note: 1) standard errors are in parentheses

2) * significant at 10%, ** significant at 5%, *** significant at 1%

3) All variables but unit labor cost are in logarithms.

Source: Calculation by author (Online: 2016. 5. 10.)

The coefficient on the SEP in the case of the number of employment is negative but insignificant, while those in the case of the production and average production are negative and statistically significant at one percent level. The results demonstrate that strict employment protection deters employment and production as well as the entry of foreign firms. This is consistent with the hypothesis of the model. Furthermore, the absolute magnitudes of the main coefficients in the case of the production and average production, 2.16 and 1.89, are larger than that of FDI, implying that the strict employment protection rules bring more negative impact on the multinational firm's employment and production decision than on the initial investment decision.

All of the control variables appear to have the same signs with the previous case. In particular, the corporate income tax has a larger negative impact on production than that in the previous case, implying that higher tax rate discourages both foreign firm entry and production/expansion of their operations, and it has larger impact on production than the entry decision. To summarize, the strict labor market conditions negatively influence employment and production by MNEs, and the size of the impact on production and average size are larger than that for the initial entry to the host country. Considering that the main purpose of the government attracting more multinational firms to their country are to create more jobs and boost economic growth, domestic labor market conditions should be considered important in setting up foreign investment promotion strategies.

In addition to the baseline results, table 4 shows the results when using unionization rate as a measure of labor market flexibility instead of SEP. As previously mentioned, it is measured as the share of total wage and salary earners that are union members. The result is similar with the previous one. The coefficients on the unionization rate in the case of FDI and production are negative and significant at the one percent level; and is also negative and significant at the five percent level in the case of the number of employment. The result confirms that strict labor market discourages foreign firms' initial entry to the

domestic market and their employment and production in the host country. Comparing the coefficients with those in the baseline estimation, the unionization rate has a weaker impact on the entry of foreign firms and production while it has significant impact on the employment of multinational firms. The rest of the estimates on additional control variables are consistent with the previous ones, excepting for the unit labor cost.

Table 4. Unionization density and FDI, Employment, and Production

	FDI	Number of employment	Production	Avg. pro- duction
Unionization Density(t-1)	-0.429 *** (0.099)	-0.914 ** (0.414)	-1.124 *** (0.220)	0.423 (0.302)
GDP(t-1)	2.672 *** (0.098)	1.382 *** (0.483)	1.528 *** (0.183)	1.040 *** (0.272)
Population(t-1)	-1.252 *** (0.460)	-7.589 * (4.308)	-2.631 ** (1.325)	-0.010 (1.949)
Unit labor cost(t-1)	0.028 (0.114)	-1.106 *** (0.386)	-0.032 (0.228)	-0.422 (0.307)
Corporate income tax(t-1)	-0.255 ** (0.115)	-0.082 (0.428)	-0.177 (0.208)	-1.031 *** (0.272)
Cost of start business(t-1)	0.234 *** (0.036)	-0.030 (0.171)	0.123 ** (0.055)	-0.017 (0.076)
Constant	-17.50 *** (1.420)	18.34 ** (7.748)	2.489 (2.414)	-7.643 ** (3.367)
Observations	512	203	181	173
Adjusted R-squared	0.886	0.170	0.817	0.534

Note: 1) standard errors are in parentheses

2) * significant at 10%, ** significant at 5%, *** significant at 1%

3) All variables but unit labor cost are in logarithms.

Source: Calculation by author (Online: 2016. 5. 10.)

For additional robustness check, this work also adopts data on the severance payment for redundancy dismissal after 10 or 20 years of continuous employment, as a measure of strictness of employment protection. As previously stated, the data is only available for the period from 2006 through 2012, resulting in a significant reduction in the number of observations and leaving less than 100 observations. Therefore, fixed effect estimation method is no longer proper to

test the question, and OLS is used with the time dummies.¹⁰ The results are summarized in Table 5. While FDI and the number of employment are no longer significant, the negative sign remains. The production and average production remain negatively associated with the difficulty of firing workers and are statistically significant. Again, as domestic labor market is stricter, foreign firms hesitate to increase production by hiring new workers and supplementing capital because firms are always concerned about the possibility of failure and closing of the plants. The signs on the GDP and population are consistent with the previous ones. The signs of unit labor cost, corporate income tax, and cost of starting business come in as expected, but the unit labor cost is no longer significant. Lastly, the intellectual property rights appear to be insignificant.

Table 5. Severance Payment and FDI, Employment, and Production

	FDI	Number of employment	Production	Avg. pro- duction
Severance Pay(t-1)	-0.039 (0.034)	-0.008 (0.154)	-0.099 ** (0.039)	0.097 ** (0.040)
GDP(t-1)	1.791 *** (0.194)	0.814 (1.757)	0.701 *** (0.233)	0.772 *** (0.234)
Population(t-1)	-1.043 *** (0.191)	0.449 (1.986)	0.318 (0.235)	-0.373 (0.236)
Unit labor cost(t-1)	-0.568 (0.534)	0.544 (2.143)	-1.005 (0.701)	0.160 (0.705)
Corporate income tax(t-1)	-0.038 (0.216)	-6.979 *** (1.905)	-1.044 *** (0.249)	-0.914 *** (0.251)
Cost of start business(t-1)	-0.095 ** (0.045)	-0.209 (0.170)	-0.131 ** (0.055)	-0.107 * (0.055)
Intellectual Property Rights(t-1)	0.455 (0.614)	-0.406 (2.636)	-0.033 (0.671)	0.291 (0.675)
Constant	-9.030 *** (1.773)	24.14 * (13.39)	4.595 ** (2.010)	-2.320 (2.021)
Observations	166	52	93	93
Adjusted R-squared	0.763	0.460	0.857	0.541

Note: 1) standard errors are in parentheses

2) * significant at 10%, ** significant at 5%, *** significant at 1%

3) All variables but unit labor cost are in logarithms.

Source: Calculation by author (Online: 2016. 5. 10.)

¹⁰ The severance payments have not changed much for the sample period, but most of countries lowered them right after the global financial crisis in 2010. In order to control the macro shock in a specific year, I included the time dummies.

Overall, under a variety of estimation and identification strategies, the results are similar in that strict labor market rules hinder initial entry of foreign firms and their operations in the domestic market. This is consistent with the previous literature which shows negative impact of employment protection legislation on the FDI. However, most of previous papers are limited to showing the relationship between the labor market standards and FDI. On the other hand, this paper shows that employment protection rules have a larger negative impact on the employment, production and average size of foreign firms, indicating that labor market condition affects initial decision on the entry to the host market as well as employment, production, and size decision after entering the market.

5. Conclusion

Among the factors which multinational firms take into account when deciding on the location of the foreign affiliates, labor market rule is one of the important factors. Specifically, it affects exit cost when the firm closes its plant or adjusts the level of production. Even though many papers examined the impact of strict employment protection on FDI, none of the papers investigates its impact on the foreign firm's decision on employment and production. This paper tests whether the labor market rules affect FDI as well as employment and production of foreign firms. Considering that many governments provide a variety of incentives to foreign firms hoping that they create jobs and boost economic growth, this certainly warrants attention.

The empirical result supports that strict employment protection discourages initial entry of foreign firms, which is consistent with the previous papers. In addition, it shows that restrictive labor market conditions deter production and additional expansion of foreign firms. Furthermore, the impacts are larger in terms of deciding production and average size of foreign firms than on initial investment decision. The result is also robust to various measures of the strictness of the labor market.

The results have important policy implications - that providing various incentives such as tax exemption and subsidies are not enough to attract more FDI and make foreign firms more likely to settle in the host country. The favorable labor market condition also should be considered in establishing FDI promotion strategies. However, current FDI promotion strategies are largely concentrated on the tax incentives, cash grants, and relaxation of market regulations. According to the interview with the chief executive officer of GM Korea, Sergio Rocha, Korea's labor costs¹¹ have surged and the unique rules in Korea force foreign firms to defer decisions on employment.

Therefore, first of all, reducing excessive restrictions in the labor market is needed to promote FDI and job creation by foreign firms. Considering that the principal role of the labor regulations is to supplement imperfect information, to balance bargaining power, and to enforce long-term commitments, the regulations which impose large cost on the firms or workers should be re-examined. Furthermore, in order to resolve difficulties which foreign firms encounter in the domestic labor market, the government should provide foreign firms with basic information on the labor market legislation and increase effectiveness of matching foreign firms and domestic workers. Specifically, the government can provide consulting on hiring and firing employees or union relations, and they can also provide manuals on labor legislation written in English. Also, creating a job information site or organizing job fairs which connects foreign firms and domestic workers would decrease entry cost of foreign firms when they open or expand plants. Of course, while tax benefits or cash grants have advantages of low cost and do not accompany social controversy; as labor market issues involve various interests of firms and employees and have a direct effect on the benefits of the firms and welfare of the workers; the labor policies should be established to maintain the balance between different interests.

¹¹ The labor cost includes both wage cost and non-wage cost such as obligation to transfer non-regular workers into regular workers, frequent labor negotiations, or specific wage structure etc.

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국문요약

본 보고서는 노동시장 유연성이 초기 외국인직접투자 의사결정과 외투기업의 고용 및 생산에 미치는 영향을 연구하였다. OECD에서 발표하는 고용보호지수와 “Measuring Globalization”에 보고된 외투기업의 고용, 사업체 수, 생산 데이터를 이용하여 나라별 패널 분석을 실시한 결과, 고용보호 정도가 높을수록 외국인직접투자와 외투기업의 고용과 생산 모두에 부정적인 영향을 미친다는 사실을 밝혔다. 또한 OECD의 고용보호지수 대신에 노동조합비율과 퇴직연금을 사용해 노동시장 경직성을 측정한 분석에서도 노동시장 경직성과 외투기업의 진입, 고용 및 생산의 관계는 여전히 음(-)의 관계를 보였다. 이전의 대부분의 연구가 노동시장 규제가 외국인직접투자에 미치는 영향에 국한된 데 반해, 본 연구는 노동시장 환경이 외투기업의 진입과 관련된 초기결정뿐만 아니라 진입 이후의 고용 및 생산에도 영향을 미친다는 것을 보였다는 점에서 기존연구와 차별된다. 따라서 외투기업을 유치하기 위해서는 기존의 세금혜택, 현금지원, 시장규제 완화뿐만 아니라 고용애로를 해소해 주는 정책대안이 요구된다.

핵심용어: 외국인 직접투자, 노동시장 유연성, 고용보호

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Labor Market Flexibility and FDI : Evidence from OECD Countries

CHOI Hyelin

This paper studies the impact of the labor market regulations on the FDI and employment and production of foreign firms for OECD countries. The empirical results reveal that strict labor market discourages initial entry of foreign firms as well as the employment and production of foreign firms. Therefore, policymakers should also be attuned to labor market deregulation and non-wage costs, in order to attract more foreign firms into their countries.

