

The Effect of Norm Dynamics on the Relationship between Foreign Direct Investment and Environmental Regulation

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The relationship between foreign direct investment (FDI) and environmental regulation in a host country has been controversial. The Pollution Haven Hypothesis assumes that countries are more likely to keep lax environmental standards to attract FDI. In contrast, the Pollution Halo Hypothesis states that more stringent environmental regulations are more attractive to multinational corporations (MNCs) that applies global environmental standards. This study attempts to provide a bridge to fill the gap between them by focusing on how the normative contexts of a home country interact with multinational corporations' behaviors. We argue that stringent environment regulations of home countries motivate MNCs to act as norm entrepreneurs in host countries while they also seek for the cost-efficient ways of transborder production. Therefore, the stringency level of environmental standards in home countries moderates the effect of FDI on the environmental regulations of host countries. The findings of the analysis suggest that FDI from the country with higher environmental standards makes a contribution that more stringent environmental regulations could be adopted in the host country.

| **Keywords** foreign direct investment, pollution haven, environmental regulations, multinational corporations, normative contexts

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I . Introduction

How does foreign direct investment (FDI) affect the environmental regulation of a host country? Most of the research on the effect of FDI on environmental regulation assumes that all firms are functionally the same and have a fixed set of homogeneous preferences. As a result, they model how the profit-driven transnational capital flows affect the environmental standards of host countries. By assuming that multinational corporations (MNCs) pursue the lowest production cost, the extant literature explains the relationship between FDI and environmental regulation based on the payoffs related to the firms' FDI decisions.

Some argue the Pollution Haven Hypothesis, which insists that corporations move their production to countries with lax environmental standards to avoid the compliant cost imposed by the environmental regulation of their home country.¹⁾ To attract more FDI, therefore, developing countries have an incentive to keep the lower environmental standards. Moreover, some pollution-intensive corporations can put political pressures on host countries to mitigate their environmental regulations. Since a sudden financial shift in the domestic market due to the withdrawal of the foreign business could cause serious economic imbalance, the host country tends to cooperate with its request.

1 Richard L. Revesz. "Rehabilitating Interstate Competition: Rethinking the Race-to-the-Bottom Rationale for Federal Environmental Regulation." *New York University Law Review* Vol.67 (1992). pp.1210-1254; Adam B Jaffe, Steven R. Peterson, Paul R. Portney, and Robert N. Stavins. "Environmental Regulation and the Competitiveness of US Manufacturing: What Does the Evidence Tell Us?" *Journal of Economic Literature* Vol.33 No.1 (1995). pp.132-163; Muthukumara Mani and David Wheeler. "In Search of Pollution Havens? Dirty Industry in the World Economy, 1960 to 1995." *Journal of Environment & Development* Vol.7 No.3 (1998). pp.215-247; Yuqing Xing and Charles D. Kolsta. "Do Lax Environmental Regulations Attract Foreign Investment?" *Environmental and Resource Economics* Vol.21 No.1 (2002). pp.1-22; Jie He. "Pollution Haven Hypothesis and Environmental Impacts of Foreign Direct Investment: The Case of Industrial Emission of Sulfur Dioxide(SO₂) in Chinese Provinces." *Ecological Economics* Vol.60 No.1 (2006). pp.228-245.

Others claim that there is no systematic evidence that FDI does necessarily seek for pollution havens. Instead, they argue the Pollution Halo Hypothesis²⁾. It assumes that more stringent environmental regulations are preferred by foreign investors applying global environmental standards and multinational corporations can also transfer advanced pro-environmental technologies (PETs) to host countries. Multinational corporations from more advanced countries are more likely to have pro-environmental technologies than local firms in host countries. They develop these technologies not only to reduce the compliance cost in host countries, but also to improve their market competitiveness. Accordingly, higher environmental standards in host countries raise more production cost of local corporations but not that of multinational corporations, which allows more benefits to foreign investors. On the other hand, this technological innovation can be transferred to host countries. Through the technology transfer, local firms can be equipped with pro-environmental technologies, which provides a material foundation for the institutionalization of higher environmental standards in host countries.

Several empirical studies showed that the relationship between FDI and environmental regulation in a host country has remained inconclusive³⁾. Thus more recent studies have taken

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- 2 Raman Letchumanan and Fumio Kodama. "Reconciling the Conflict between the 'Pollution-Haven' Hypothesis and an Emerging Trajectory of International Technology Transfer." *Research Policy* Vol.29 No.1 (2000). pp.59-79; Gunnar S. Eskeland and Ann E. Harrison. "Moving to Greener Pastures? Multinationals and the Pollution Haven Hypothesis." *Journal of Development Economics* Vol.70 No.1 (2003). pp.1-23; Lammertjan Dam and Bert Scholtens. "Environmental Regulation and MNEs Location: Does CSR Matter?" *Ecological Economics* Vol.67 No.1 (2008). pp.55-65; Peter M. Madsen. "Does Corporate Investment Drive a 'Race to the Bottom' in Environmental Protection? A Reexamination of the Effect of Environmental Regulation on Investment." *Academy of Management Journal* Vol.52 No.6 (2009). pp.1297-1318; Bouwe R. Dijkstra, Anuj Joshua Mathew, and Arijit Mukherjee. "Environmental Regulation: An Incentive for Foreign Direct Investment." *Review of International Economics* Vol.19 No.3 (2011). pp.568-578; Francesca Sanna-Randaccio and Roberta Sestini. "The Impact of Unilateral Climate Policy with Endogenous Plant Location and Market Size Asymmetry." *Review of International Economics* Vol.20 No.3 (2012). pp.580-599; Robert J. Elliott and Ying Zhou. "Environmental Regulation Induced Foreign Direct Investment." *Environmental and Resource Economics* Vol.55 No.1 (2013). pp.141-158.
 - 3 Arik Levinson and Scott M. Taylor. "Unmasking the Pollution Haven Effect." *International Economic Review* Vol.49 No.1 (2008). pp.223-254; Judith M. Dean, Mary E. Lovely, and Hua Wang. "Are Foreign Investors Attracted to Weak Environmental Regulations? Evaluating the Evidence from China." *Journal*

into account other intervening variables that might affect the relationship between FDI and environmental standards in host countries such as industrial types,⁴⁾ regional epistemic community challenging incentives for pollution haven,⁵⁾ and the level of corporate social responsibility (CSR).⁶⁾ However, they still fail to theorize the firm level heterogeneity within a industry, the varying effect of regional epistemic community across the countries in a region, and the motivation of corporate social responsibility beyond the strategic perspective. In addition, the extant literature still suffers from the quality of the environmental regulation data.⁷⁾

Given these aspects, this study examines the roles of environmental standards in home countries, especially how the normative contexts of home countries could affect multinational corporations' behaviors in host countries. We argue that the nationality of a multinational corporation matters because its perceptions about appropriate behaviors and environmental capabilities⁸⁾ are shaped by the environmental norms of its home country. Using the panel data for 1765 FDI dyads among 186 countries from 2005 to 2012, this study examines how the environmental regulations of home countries affect those of host countries and evaluates the conditional impact of FDI on the variation in the environmental regulations of host countries.

of Development Economics Vol.90 No.1 (2009). pp.1-13; Lammertjan Dam and Bert Scholtens. "The Curse of the Haven: The Impact of Multinational Enterprise on Environmental Regulation." *Ecological Economics* Vol.78 (2012). pp.148-156.

- 4 Xing and Kolstad (2002); Eskeland and Harrison (2003); Levinson and Taylor (2008); Sylwia Bialek and Alfons Weichenrieder. "Do Stringent Environmental Policies Deter FDI? M&A versus Greeneld." CESifo Working Paper No.5262 (2015).
- 5 Matthew A. Shapiro. "Regionalism's Challenge to the Pollution Haven Hypothesis: a Study of Northeast Asia and China." *Pacific Review* Vol.27 No.1 (2014). pp.27-47.
- 6 Dam and Scholtens (2008).
- 7 Smita B. Brunnermeier and Arik Levinson. "Examining the Evidence on Environmental Regulations and Industry Location." *Journal of Environment & Development* Vol.13 No.1 (2004). pp.6-41; Baomin Dong, Jiong Gong, and Xin Zhao. "FDI and Environmental Regulation: Pollution Haven or a Race to the Top?" *Journal of Regulatory Economics* Vol.41 No.2 (2012). pp.216-237.
- 8 Hart (1995) defines the concept of environmental capabilities as a firm's ability to mitigate the negative effect of manufacturing on the natural environment. Stuart L. Hart. "A Natural-Resource-Based View of the Firm." *Academy of Management Review* Vol.20 No.4 (1995). pp.986-1014.

II. Norm Dynamics, FDI, and Environmental Regulation

Corporations involving in FDI want to maximize profits by building their production lines overseas. While foreign investors consider various sources of costs and benefits in FDI, the compliance cost related to environmental regulations in home and host countries could affect their decisions on FDI. When the compliance cost of environmental regulation increases, a firm has three options to respond to the change.

First, it can pay for the compliance cost without considering FDI if the cost is bearable. Only a firm that is productive enough to endure the enormous cost for transferring local production lines overseas can make FDI.⁹⁾ It means that FDI is not always an easy option to choose. Accordingly, complying with the increased regulation by adjusting its mode of production and management can be preferable if the cost is bearable.

Second, a firm can develop pro-environmental technologies to exceed the compliance cost. Higher compliance cost provides more incentives for the technological innovation.¹⁰⁾ By improving its environmental capabilities, the corporation can also acquire a competitive advantage in the market competition through more efficient production. The cost does not only mean the environmental taxes but also includes societal demands for corporate social responsibility. Pro-environmental technologies also allow the firm to meet the demand by marketing its technological quality and environment-friendly reputation.¹¹⁾

9 Elhanan Helpman, Marc J. Melitz, and Stephen R. Yeaple. "Export versus FDI with Heterogeneous Firms." *American Economic Review* Vol.94 No.1 (2004). pp.300-316.

10 Michael E. Porter and Claas Van der Linde. "Toward a New Conception of the Environment-competitiveness Relationship." *Journal of Economic Perspectives* Vol.9 No.4 (1995). pp.97-118; Anastasios Xepapadeas and Aart de Zeeuw. "Environmental Policy and Competitiveness: The Porter Hypothesis and the Composition of Capital." *Journal of Environmental Economics and Management* Vol.37 No.2 (1999). pp.165-182.

11 Recent studies on the motivation of CSR address that CSR activities are driven by strategic calculation such as profitability, competitive advantage in the market competition. Ans Kolk and Jonathan Pinkse. "A Perspective on Multinational Enterprises and Climate Change: Learning from "an Inconvenient Truth" Quest." *Journal of International Business Studies* Vol.39 No.8 (2008). pp.1359-1378; Michael

The last option for the firm is to take FDI. If the cost of developing pro-environmental technologies is greater than the compliance cost in the home country, the firm would look for a pollution haven that has lax environmental standards or pressure a host government to lower the standards.

The normative contexts of a society consist of various institutions and norms that define appropriate behaviors of its actors in specific situations.¹²⁾ They constrain the behaviors of its actors by creating normative commitments to socially appropriate behaviors and delegitimizing other alternatives. Thus, actors behave following their expected roles for the situations. They are also applied to the calculations of expected utility. Some agents can value an option than others due to their normative beliefs. On the other hand, the normative contexts of a society have been constructed by social interactions among actors and institutions in the society. For instance, a US corporation's rationality is bounded by the normative contexts of the US society such as rigorous rule of law and individualism. In contrast, a Chinese firm values more on flexible standards and personal networks in the business relationship.

Some norms are institutionalized, which are sufficiently legitimate in a society, but also need to be regulated by the formal enforcement mechanism.¹³⁾ Thus, the increase in the level of environmental regulation indicates that there are public demands on the environmental protection and delegitimizing its violation. In this regard, the environmental regulation of a country not only is a social mechanism to impose the compliance cost to corporations, but also affects the interests and the range of appropriate behaviors of firms.

E. Porter and Mark R. Kramer. "The Link between Competitive Advantage and Corporate Social Responsibility." *Harvard Business Review* Vol.84 No.12 (2006). pp.78-92; Marento A. Harjoto and Hoje Jo. "Corporate Governance and CSR Nexus." *Journal of Business Ethics* Vol.100 No.1 (2011). pp.45-67; Ans Kolk and Rob Van Tulder. "International Business, Corporate Social Responsibility and Sustainable Development." *International Business Review* Vol.19 No.2 (2010). pp.119-125.

12 Martha Finnemore and Kathryn Sikkink. "International Norm Dynamics and Political Change." *International Organization* Vol.52 No.4 (1998). pp.887-917; Johan P. Olsen and James G. March. "The Logic of Appropriateness." ARENA Working Papers No.4 (2004). pp.1-28.

13 Andrew P. Cortell and James W. Davis Jr. "Understanding the Domestic Impact of International Norms: A Research Agenda." *International Studies Review* Vol.2 No.1 (2000). pp.65-87.

A corporation's expected behaviors are shaped by its business routines under the normative contexts of the environmental regulation of its home country. Therefore, a firm from a country with high environmental standards is more likely to have more pro-environmental logic of appropriate behaviors. Given the regulative norms, the firm would adjust itself until the compliance cost exceeds the cost of developing pro-environmental technologies. By developing its environmental capabilities, it can acquire a competitive advantage as well as internalize the norms in its production lines.¹⁴⁾ FDI is optional for firms that succeed developing sufficient pro-environmental technologies but they would expand their production lines overseas as they become more competitive because they can exceed the sunken cost that FDI decisions entail. Due to their internalized norms and technological advantages, they do not necessarily prefer a pollution haven. Instead, they would prefer more stringent environmental regulations because they can enjoy competitive advantages to local firms in host countries and they do not want to change their routines that can cause additional costs to them.

On the contrary, a firm from a country with lax environmental regulations is less likely to have environment-friendly business routines, norms, and technologies. In its home country, it has not been asked to have such things. Thus, more stringent environmental regulations of a host country would impose more cost to it for technological innovation and adjusting business customs. As a result, the firm would prefer a host country with lower environmental standards and sometimes could lobby to deter the increase in the level of the environmental regulation in the host country. Then what would happen if a host country increases its environmental regulations? The firm would leave the country and look for another pollution haven if the compliance cost in the host country is unbearable. Meanwhile, a more pro-environment corporation would knock the door of a host country with stringent environmental regulations, so that the host country can catch the two birds (environmental protection and FDI) with a stone.

14 Dijkstra, Mathew, and Mukherjee (2011).

The case of Walmart, an American multinational retail corporation, provides a clear example of this mechanism. In 2005, Wal-Mart CEO H. Lee Scott Jr. announced “business sustainability strategy” that aims to reduce its impact on the environment by using renewable energy and contracting only with suppliers who are committed to global environmental requirements. Since Walmart quit contracts with suppliers around the world who failed to meet such requirements, the environment performance of many developing countries such as China and Latin American countries also got improved, which in turn improved environment standards in those countries.¹⁵⁾

In contrast, many Chinese FDI to Africa have been criticized as a source of pollution.¹⁶⁾ Chinese firms tend to locate their FDI to a country that lacks of stringent environmental regulations, and keep using old methods in their operation that often cause extensive damages to local ecosystems. One example is Chiman Manufacturing, a Chinese mining company, which was finally shut down by Zambian government in 2009 because it had emitted huge amounts of toxic lead dust and sulfur dioxide fumes and severely damaged health of people in the town of Kabwe.¹⁷⁾

Based on the theoretical arguments about the relationship between FDI and environmental regulation, the following hypothesis is offered:

A firm is more likely to make foreign direct investment to a host country with stringent environmental regulations if its home country has higher environmental standards.

15 See <https://corporate.walmart.com/2017grr/sustainability/reducing-environmental-impacts/> (accessed on June 25, 2019).

16 Munson, Patrick, and Zheng Ronghui. “Feeding the Dragon: Managing Chinese Resource Acquisition in Africa.” *Seattle Journal of Environmental Law* Vol.2 No.1 (2012). Article 9.

17 See <https://www.voanews.com/archive/zambia-penalizes-chinese-investors-pollution/> (accessed on June 27, 2019).

III. Research Design

To examine how the normative contexts of home countries are associated with the environmental regulations of host countries, this study employs the panel data for 1765 FDI dyads among 186 countries from 2005 to 2012.¹⁸⁾ The data are made available by the OECD Foreign Direct Investment Statistics.¹⁹⁾

The dependent variable is the stringency level of the environmental regulation in a host country. We use the direct measure of environmental regulation from Policy and Institutions for Environmental Sustainability Rating (PIES) in Country Policy and Institutional Assessment (CPIA) database collected by the International Development Association (IDA), World Bank.²⁰⁾ It measures the extent that a country's domestic environmental policies and institutions encourage the environmental protection and sustainability. The scale of the rating ranges from 1 to 100.

The three main independent variables are dyadic FDI inflow, environmental tax in a home country, and research and development (R&D) expenditure of a home country. The dyadic FDI inflow is measured by the amount of FDI (billions of US dollars). It is expected that FDI flows would affect lowering the environmental regulation of the host country if the stringency level of environmental standards in the home country is low. In contrast, if the home country has higher environmental standards, FDI flows would be positively associated with the host country's stringent environmental regulations.

For a home country's environmental tax, we measure the amount of environment tax revenue in a home country. Considering that the economic size of a home country could affect the amount of environment tax revenue, we use the ratio of annual environment tax revenue to

18 186 host countries include the 34 OECD membership countries from 2005 to 2012.

19 Available at <http://www.oecd.org/corporate/mne/statistics.htm>. (accessed on May 5, 2019).

20 Available at <http://www.worldbank.org/ida>. (accessed on May 10, 2019).

GDP, based on World Development Indicators (WDI) made available by World Bank.²¹⁾

The technology level of a home country is measured by the amount of its research and development expenditure, that is a widely used indicator of technology level of a country. Taking into account that the economic size of a country could affect the amount of its research and development expenditure, this study measures it by the ratio of the annual research and development expenditure to GDP. We expect that a host country can have more stringent environmental regulations when the home country has more advanced technology.

We include the number of cumulative preferential trade agreements (PTAs), veto points, International Bank for Reconstruction and Development (IBRD) loans, GDP per capita, and the total inward FDI flows of a host country as control variables. Preferential trade agreements indicate the extent that a country is not only involved in the global markets but also exposed to the international norms. If the neo-liberal market dynamics of preferential trade agreements more strongly affect the host country than their normative aspect do, environmental regulations could be negatively associated with the number of preferential trade agreements. We construct the cumulative preferential trade agreements data based on the data set of Jo and Namgung²²⁾ and World Bank Agreements Library.

To measure veto points, this study uses the Political Constraint Dataset (POLCON), which was collected by Henisz.²³⁾ It measures the number of independent veto points and the distance of preferences among the executive body, members of the lower legislature, members of the upper legislature, sub-federal governments, and the judiciary. It is expected that a host country with greater veto points is harder to increase the level of stringency in regulations.

21 Available at <http://data.worldbank.org/data-catalog/world-development-indicators>. (accessed on May 7, 2019).

22 Hyeran Jo and Hyun Namgung. "Dispute Settlement Mechanisms in Preferential Trade Agreements: Democracy, Boilerplates, and the Multilateral Trade Regime." *Journal of Conflict Resolution* Vol.56 No.6 (2012). pp.1041-1068.

23 Withold J. Henisz. "The Institutional Environment for Economic Growth." *Economics & Politics* Vol.12 No.1 (2000a). pp.1-31; Withold J. Henisz. "The Institutional Environment for Multinational Investment." *Journal of Law, Economics, and Organization* Vol.16 No.2 (2000b). pp.334-364.

International Bank for Reconstruction and Development (IBRD) loans are measured by the amount of loans a host country receives from International Bank for Reconstruction and Development. The International Bank for Reconstruction and Development loan program allows a country to have a chance to be exposed to global norms as well as capitalist market principles. Like the expected effect of preferential trade agreements, if the neo-liberal dynamics makes a stronger impact on the International Bank for Reconstruction and Development loan program than the normative aspect of the program, environmental regulations could be negatively associated with the amount of International Bank for Reconstruction and Development loans.

GDP per capita indicates the wealth of citizens in a host country, which is commonly suggested as a determinant of institutional development. We expect that a host country with greater GDP per capita could have higher standards than others.

Last but not least, we include the total inward FDI flows of a host country in the model. As this study attempts to evaluate the effect of FDI from a home country with specific normative contexts on the environmental regulation of the host country, it is necessary to control the effect of FDIs from other countries.

IV. Results

Table 1 presents the results of the analysis from the OLS (Ordinary Least Squares) regression with fixed effects model. The finding on dyadic FDI inflow shows that FDI flows are negatively associated with the host country's stringent environmental regulations. It suggests that FDI flows influence lowering the stringency level of the environmental regulation in the host country. Meanwhile, the interaction term between dyadic FID flows and environmental tax revenues of a home country is statistically significant although the coefficient of environmental tax in a home country is not statistically significant. The finding on the interaction term suggests

that the effect of dyadic FDI on the environmental regulation of the host country is conditional on the stringency level of the environmental regulation in the home country. The coefficient for the interaction term is positive while the both coefficients of dyadic FDI flows and environmental tax are negative. This suggests that the increase in the stringency level of the environmental regulation of the home country reduces the negative effect of dyadic FDI on the environmental regulation of the host country. In other words, if a home country has no environmental tax revenue, the effect of dyadic FDI inflow on the environmental regulation of the host country is negative (-0.835). However, the marginal effect of FDI is $0.575 \times \text{Environmental Tax} - 0.835$, which implies that if the ratio of environmental tax revenues per GDP is greater than 1.452%, dyadic FDI inflow makes a positive impact on the dependent variable.²⁴⁾

〈Table 1〉 Effects of Dyadic FDI Inflows on Environmental Regulations

	Coefficient	Std. Error
FDI _{Dyad}	-.835**	.405
Env. Tax _{Home}	-0.492	.362
FDI x Env. Tax _{Home}	.575***	.222
R&D	1.594***	.454
PTAs	-2.257***	.391
Veto Points	-0.832	.208
IBRD Loans	-0.052	.608
GDPPC	.120***	.012
FDI _{World}	.127***	.012
Constant	49,085***	1,350
N	9581	
Dyads	1765	
Adjusted R ²	.812	

Source: By authors.

***: Statistically significant at .01 level.

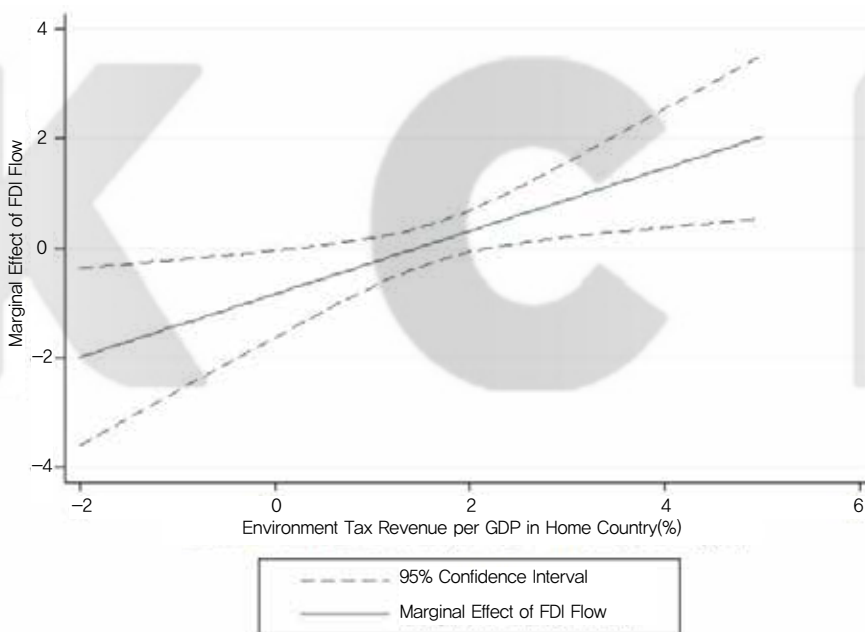
**: Statistically significant at .05 level.

*: Statistically significant at .1 level.

24 $0.575 \times 1.452 = 0.8349$. Therefore, The multiplication of 0.575 and any values greater than 1.452 is greater than 0.835 which makes the marginal effect of FDI ($0.575 \times \text{Environmental Tax} - 0.835$) positive. One caveat of this result is that this net effect is significant when the environment tax revenue per GDP is greater than 2.1 and smaller than 0.2.

Figure 1 presents how the marginal effect of dyadic FDI flows changes as the stringency level of the environmental regulation in the home country varies. The marginal effect of dyadic FDI flow is positive when a home country of FDI has greater environment tax revenue (>1.452). In contrast, FDI flows from countries with lower environmental tax (<1.452) has negative effect on the environmental regulation of host countries. This suggests that a host country can escape from the status of pollution haven by contracting with firms from a country with higher environmental standards.

〈Figure 1〉 Marginal Effect of Dyadic FDI Flow



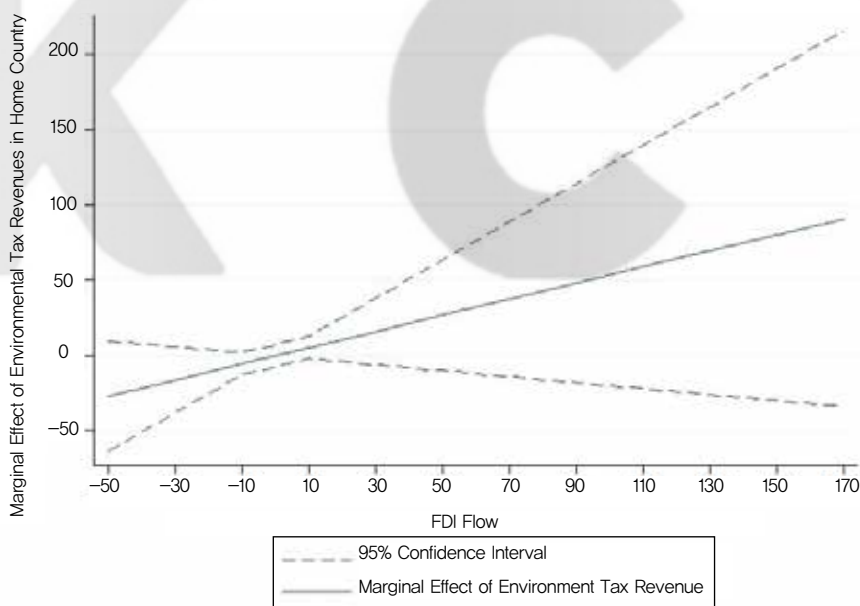
Source: By authors.

Inversely, the influence of environmental tax revenues on the environmental regulation of the host country is also conditional upon the effect of FDI flows. Dyadic FDI flows could function as a moderator of the norm diffusion, as the greater amount of FDI flows could affect making more contacts between two different normative structures of both countries. Figure 2 shows that the marginal effect of environmental tax revenues of the home country varies by the

amount of dyadic FDI flows. According to the estimated statistics, in Table 1, the marginal effect of the environment regulation in the home country on that in the host country is $0.575 \times \text{FDI} - 0.492$. Therefore, this net effect becomes positive when the amount of dyadic FDI flows is greater than 856 million US dollars.²⁵⁾

This suggests that there is a tipping point that FDI can function as a norm entrepreneur in a host country. By exceeding the tipping point, multinational corporations can effectively affect the norm diffusion and generate the positive political pressure on making legislations on more stringent environmental regulations.

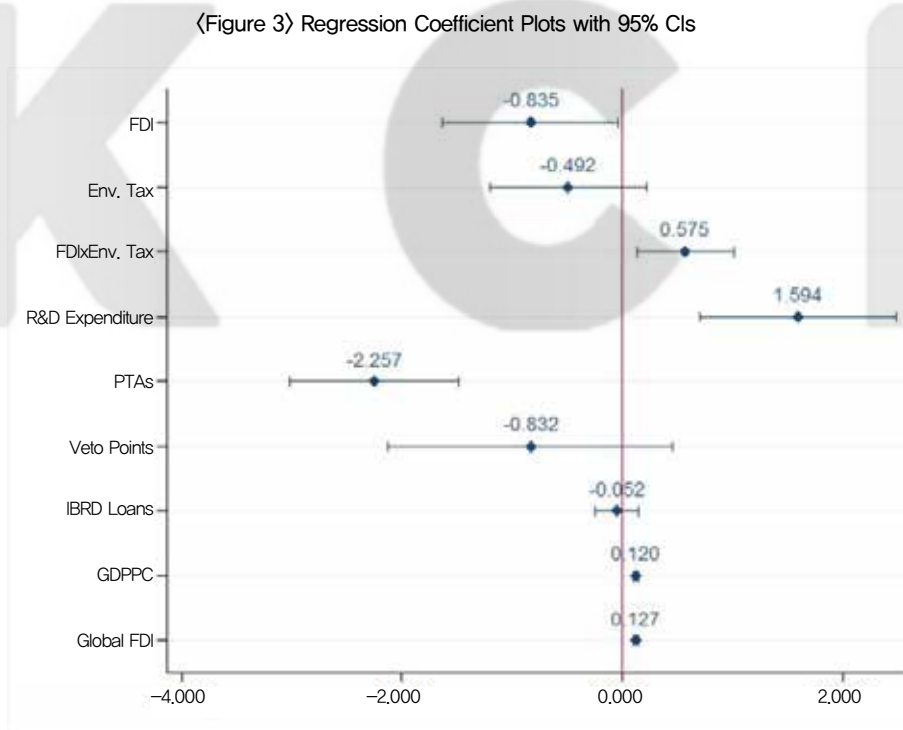
〈Figure 2〉 Marginal Effect of Environmental Tax Revenues in Home Country



Source: By authors.

25 $0.575 \times 0.856 = 0.4922$. Therefore, The multiplication of 0.575 and any values greater than 0.856 is greater than 0.492 which makes the marginal effect of Environmental Tax ($0.575 \times \text{FDI} - 0.492$) positive. Because the unit of dyadic FDI amount is a billion of US dollars, 0.856 indicates 856 million US dollars. However, the caveat is that the result is not significant at 95% confidence level.

Figure 3 visualizes the sizes of influence of each variable on the environmental regulation of the host country. It suggests that the negative effect of FDI by a firm from a country with lax environmental regulations could be offset by the technological level of the home country. The estimated statistics shows that if a home country increases its R&D expenditure per GDP(%) by 0.5, the negative effect of a billion dollar worth of FDI could be offset.²⁶⁾ These results suggest that a host country, which want to escape from the status of a pollution haven, could adopt higher environmental regulations as well as promote economic growth by attracting foreign direct investment from a technologically advanced and environment-friendly country.



Source: By authors.

²⁶ The coefficient for R&D expenditure per GDP(%) is 1.594 and that of FDI is -0.835. Since 1.594×0.524 is slightly greater than 0.835, we interpret that 0.5 increase in R&D expenditure per GDP (%) exceeds the negative effect of every one billion-dollar FDI flows (0.835).

Among the control variables, the number of cumulative preferential trade agreements, GDP per capita, and the total inward FDI flows of a host country, are statistically significant. The finding on the number of cumulative preferential trade agreements shows that it is negatively associated with the dependent variable. The positive coefficient of GDP per capita follows what the extant literature expected and the total inward FDI flows of a host country has a positive impact on the stringency level of its environmental regulations.

V. Conclusion

Using data on 1765 FDI dyads from 2005 to 2012, this study found that the normative contexts of a firm's home country affect the relationship between FDI and the environmental regulation of the host country. The findings of the analysis suggest that the effect of FDI on environmental standards in a host country is conditional on the environmental regulation of a home country. By examining the interaction effect of dyadic FDI flows and the environmental regulation of a home country on environmental standards in a host country, this study found that a firm from a country with high environmental standards is more likely to have more pro-environmental logic of appropriate behaviors and competitive advantages. Accordingly, FDI could positively affect that a host country could adopt higher environmental regulations when its home country has well-developed environmental regulations and pro-environmental technologies.

The findings have implications for several debates in international political economy and environmental justice literature. First of all, this research suggests a theoretical bridge to fill the gap between the pollution haven hypothesis and the pollution halo hypothesis by focusing on the interaction between FDI and the normative contexts of a home country. A fixed homogeneous assumption of firms' preferences is too simplistic to analyze the mixed rationality embedded in various multinational corporations. This study attempted to disentangle the mixed normative

backgrounds of foreign direct investment by including the interaction effect of the environmental regulation of the home country and FDI flows. By doing so, we found a meaningful implication for host countries. Traditional pollution hypotheses assume that developing countries are not free from the pollution haven hypothesis due to the dilemmatic situation that they need not only to promote economic growth by attracting FDI but also to protect their natural environments and resources. Instead, we suggest that host countries can achieve both goals by attracting FDI from technologically advanced countries with higher environmental standards.

This study also found that multinational corporations could play a role as a norm entrepreneur by internalizing the normative contexts of its domestic society. Regarding corporate social responsibility activities, most literature has focused on profit-driven strategic perspectives. Although firms need to pursue maximizing their profits, the findings of this study suggest that they could conceive a corporate social responsibility activity itself as a way of promoting their profits or internalize it as a routine at some point. In addition, when they are equipped with technological innovations, they can contribute to diffusing green technologies by exporting goods and expanding production lines overseas. Their pro-environment routines and technological strengths are not only useful for their business but also good for global environmental justice.

Domestic environmental regulations of a country create institutional constraints on actors' behaviors and function as a valuable impulse to multinational corporations. When a country gets higher environmental standards, multinational corporations in the country need to adjust themselves to survive under the institutional change. Accordingly, environmental regulations promote the innovation in pro-environmental technologies and multinational corporations could transfer such technological capabilities and environment-friendly management routines to developing countries. It is suggestive from the findings that the pollution haven mechanism is not always predominant in the relationship between foreign direct investment and the environmental regulation in a host country.

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해외 직접 투자의 규범적 효과: 투자 유치국 환경 규제에 미치는 영향을 중심으로

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본 연구는 해외 직접 투자와 투자 유치국의 환경 규범 간의 상호관계를 살펴보기 위해 기업 모국의 환경 규제 수준이 기업의 환경 규범 형성과 친환경 기술의 축적에 미치는 영향에 주목한다. 한 사회의 규범은 그 안에서 활동하는 행위자와 사회구조간의 무수한 상호작용 사이에서 마련된 것으로, 그 사회 내에서 통용되는 적절성의 논리를 형성한다. 따라서 오염 규제가 많이 마련되어 있는 국가 출신의 기업은 높은 수준의 친환경적인 규범을 보다 적절하다고 인식하며, 동시에 모국에서의 환경 규범에 적응하기 위하여 더 높은 수준의 친환경 생산 기술을 보유하게 된다. 이는 기업에게 환경 규제 수준이 높은 국가를 선호하게 되는 인식론적인 동기를 부여할 뿐 아니라, 투자 유치국이 환경 규제를 늘릴 때 국내기업에 대한 기술적인 우위에 따른 생산 비용절감과 시장 독점 가능성을 제공한다. 따라서 오염에 대한 규제가 많은 나라 출신 기업의 해외 투자가 유치국의 환경 규제 수준을 제고할 수 있으며, 반대로 환경 규제를 덜 하는 국가 출신의 기업은 유치국의 환경 규제 의지를 약화시킬 수 있다는 것이다. 본 연구의 분석 결과는 기업의 환경 규제에 대한 인식은 모국의 제도적 환경에 의해 크게 영향을 받고, 이들의 해외 직접 투자는 규범 주창자로 기능하여 모국의 규제수준과 유사한 제도적 장치가 유치국에 마련되는 데 기여한다는 것을 보여준다.

■ 주제어: 해외 직접 투자, 오염 회피, 환경 규제, 다국적 기업, 규범