

규제연구 제20권 제2호 2011년 12월

환경규제가 우리나라 해외직접투자에 미치는 영향

이지연* · 한현옥**

. 2000 2007 8

(OECD)

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: 10/12, : 11/25

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I. 서론

18

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20
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, ,

(environmentally sound and sustainable
development)

, ,

(pollution heaven country)

(pollution heaven hypothesis)

(industrial flight hypothesis)

2) , GDP
(energy intensity) .
McCallum(1995)
 ,
 . Blonigen(2005)
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II. 선행연구

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2)
 .
$$\ln x_{ij} = a_1 \ln y_i + a_2 \ln y_j + a_3 \ln Distance_{ij} + \sum_{m=1}^M \beta_m \ln(z_{ij}^m) + \epsilon_{ij},$$

 x_{ij} j i , y_i y_j i j GDP, $Distance_{ij}$
 , z_{ij}^m (m = 1, ..., M) .

Keller and Levinson(2002)

OECD(1997)

()

. Xing and

Kolstad(2002) , 1

Bartik(1985) 1972 1978 500

. McConnell and Schwab(1990) 1973 1982

, (State)

. Wheeler and Mody(1992) 1980

Fabry and Zenghi(2000), Wheeler(2002), Eskeland and Harrison(2003)

.3)

(2002)

3) Neumayer(2001), Eskeland et al.(2003), Bruunermeier et al.(2004), Ederington et al.(2004), Levinson et al.(2007)

(2002)

· ,

· (2002)

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· (2010)

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III. 모형과 데이터

1. 모형

(gravity model) ,

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,

.⁴⁾ Blonigen(2005)

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4) Bergstrand(1985), Lipsey(1999), Eaton & Tamura(1994), Sazanami & Wong(1997), Swedenborg(2001)

(GDP) ,

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1 (1) 2 (2) 5)

1 GDP , 2 GDP 1 GDP

. GDP 1 GDP 1 2

. 1 GDP ,

. 2

GDP 1 GDP , 6)

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,

(robustness)

$$\ln(FDI_{ijt}) = \beta_0 + \beta_1 \ln(D_{ij}) + \beta_2 \ln(GDP_{jt}) + \beta_3 \ln(ER_{jt}) \quad (1)$$

$$+ \beta_4 \ln(Openness_{jt}) + \epsilon_{ijt}$$

$$\ln(FDI_{ijt}) = \beta_0 + \beta_1 \ln(D_{ij}) + \beta_2 \ln(POP_{jt}) + \beta_3 \ln(PCGDP_{jt}) \quad (2)$$

$$+ \beta_4 \ln(ER_{jt}) + \beta_5 \ln(Openness_{jt}) + \epsilon_{ijt}$$

$$FDI_{ijt} \quad t \quad i \quad (\quad) \quad j \quad (\quad)$$

5) (1) 1, (2) 2 .

6) 1 GDP .

, .

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SITC(Standard International Trade Classification)

Low and Yeats(1992) 13)

. ,

.14)

1

SITC		SITC	
251	,	634	()
322	, ,	635	
334		641	
515		642	
516		661	
523		67	
524		68	
562		69	
598			

: Low and Yeats(1992), pp.98-99.

.

2000 2007

.

, GDP, , 1 GDP, ,

WDI(World Development Indicators)

13) Low and Yeats(1992)

14) 1% (2009), (2005) .

‘Great Circle Distance’
‘Great Circle Distance’
CEPII(Centred’Etudes prospectives
et d’Informations internationales)

2

FDI			
GDP		GDP(US)	WDI
PCGDP	1	GDP(US)	WDI
POP			WDI
Distance		()	CEPII
Openness		GDP , (%)	WDI
ER	El _j	($\frac{CO_{2j}}{GDP}$)	WDI
	$\frac{EI_j}{EI_i}$	($\frac{CO_2/GDP_{\text{상대국}(j)}}{CO_2/GDP_{\text{한국}(i)}}$)	WDI

IV. 분석 결과

(1) (2) 8 (2000~2007)
pooled-OLS
(elasticity)

54 , OECD OECD

1. 전체 국가를 대상으로 한 추정 결과

($\alpha_3 > 0$), 1 GDP
 , 2 GDP (POP) 1 GDP(PCGDP)
 1 2
 (GDP)
 GDP 1% 1% 2.3%
 (POP) 1% (Distance) (-)
 1 GDP (-)
 (Openness) (-) 2
 (+)
 ,
 (EL_j) 1 2
 (+) (-)
 ,
 ($\frac{EL_j}{EL_i}$) , 1 2 (+) (-)
 , 1

< 3>

		ER= EL_j		ER= EL_j / EL_i	
		1	2	1	2
ln(Distance)	-	-3.72 (0.67)***	-2.22 (0.70)***	-3.39 (0.67)***	-2.17 (0.71)***
ln(GDP)	+	0.96 (0.25)***		1.07 (0.25)***	
ln(PCGDP)	+		-0.03 (0.29)		0.10 (0.29)
ln(POP)	+		2.32 (0.34)***		2.34 (0.35)***
ln(TRADE)	+	-0.01 (0.73)	2.71 (0.86)***	0.11 (0.72)	2.74 (0.87)***
ln(ER)	+	0.54 (0.51)	-0.74 (0.51)	1.19 (0.51)**	-0.32 (0.55)
		16.95 (13.94)	-14.42 (14.22)	14.06 (11.77)	-21.24 (13.36)
# OBS		432	432	432	432
R^2		0.12	0.18	0.14	0.18

: 1) ()

2) *, **, *** 99%, 95%, 90%

2. OECD 국가와 비OECD 국가를 대상으로 한 추정 결과

OECD OECD ,

(1) OECD

OECD

< 4> .

(EI_j) ,

1 GDP (+)

.

GDP

.

2 (POP)

(+) , .

OECD (POP)

.

(DIST) 1 2

(-) , .

OECD

.

2 1 GDP (+)

OECD ,

1 (+)

(Openness)

2 (+) .

OECD (+)

.

$\left(\frac{EI_j}{EI_i} \right)$,

GDP, , , , 1 GDP

.

(-)

(-)

(-)

< 4> OECD

	ER= EI_j		ER= EI_j/EI_i		ER= EI_j		ER= EI_j/EI_i	
	1	2	1	2	1	2	1	2
ln(Dist)	-4.84 (0.87)***	-2.88 (1.17)**	-4.71 (0.87)***	-2.61 (1.19)**	-4.94 (1.01)***	-4.24 (1.17)***	-4.61 (1.01)***	-4.18 (1.21)***
ln(GDP)	0.49 (0.33)		0.61 (0.34)*		1.55 (0.37)***		1.69 (0.36)***	
ln(PCGDP)		-0.41 (0.46)		-0.36 (0.47)		1.15 (0.49)**		1.47 (0.53)***
ln(POP)		1.60 (0.55)***		1.80 (0.57)***		1.97 (0.53)***		2.07 (0.53)***
ln(Openness)	-0.34 (0.93)	2.77 (1.55)*	-0.76 (0.88)	3.35 (1.57)**	-0.13 (1.00)	1.19 (1.53)	0.38 (0.99)	1.36 (1.55)
ln(ER)	-1.23 (0.59)**	-1.27 (0.58)**	-0.81 (0.63)	-0.96 (0.62)	-1.06 (0.65)	-1.03 (0.65)	-0.36 (0.72)	-0.35 (0.72)
	51.94 (18.0)***	8.97 (24.63)	38.45 (15.58)**	-8.33 (23.65)	23.16 (20.28)	5.95 (25.07)	6.54 (17.62)	-6.65 (22.90)
# OBS	176	176	176	176	176	176	176	176
R^2	0.18	0.20	0.17	0.19	0.28	0.29	0.28	0.29

: 1) ()

2) *, **, *** 99%, 95%, 90%

OECD

OECD

(2) OECD

OECD ,

< 5>

GDP OECD

(+)

GDP 1% 2.7~4.7%

(POP) (+) 1%

(POP) 1%

2.18~3.91%

(DIST) (-)

OECD

1 GDP (+)

OECD

(-)

OECD , 1 GDP , OECD

(+) . 1 GDP

OECD

(Openness)

(+) 1

$$(EI_j)$$

(+)

1

2

$$\left(\frac{EI_j}{EI_i} \right)$$

(+)

OECD

< 5> OECD

	ER=EI _j		ER=EI _j /EI _i		ER=EI _j		ER=EI _j /EI _i	
	1	2	1	2	1	2	1	2
ln(Dist)	-2.05 (1.51)	-1.82 (1.54)	-2.30 (1.46)	-1.88 (1.51)	-0.94 (1.64)	-0.97 (1.68)	-1.12 (1.61)	-0.89 (1.66)
ln(GDP)	4.65 (0.70)***		4.70 (0.65)***		2.70 (0.82)***		2.76 (0.76)***	
ln(PCGDP)		3.98 (1.52)***		5.06 (1.31)***		1.48 (1.51)		2.47 (1.34)*
ln(POP)		3.91 (0.69)***		3.54 (0.68)***		2.46 (0.76)***		2.18 (0.77)***
ln(Openness)	4.01 (1.97)*	3.08 (1.95)	3.79 (1.85)**	2.28 (1.93)	-0.46 (2.03)	-0.63 (2.06)	-0.57 (1.93)	-1.53 (2.09)
ln(ER)	5.09 (1.42)***	3.00 (1.98)	7.17 (1.43)***	6.05 (1.91)***	3.51 (1.43)**	1.53 (1.96)	4.97 (1.46)***	3.98 (1.95)**
	-145.90 (31.57)	-111.92 (32.8)***	-110.13 (25.6)***	-91.41 (24.8)***	-75.24 (35.70)**	-45.90 (34.87)	-51.26 (29.64)*	-36.69 (27.81)
# OBS	232	232	232	232	232	232	232	232
R ²	0.25	0.25	0.30	0.28	0.15	0.15	0.18	0.17

: 1) ()

2) *, **, *** 99%, 95%, 90%

OECD ,
(+) OECD
(+) 1
OECD

V. 결 론

1992
(+)

OECD

(-)

OECD

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OECD

OECD

OECD

1

Xing and Kolstad

(2002)

(OECD)

GDP

GDP

GDP

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A Study on the Effect of Environmental Regulation on Direct Investment of Korea

Lee, Ji-yeon and Han, Hyun-Ok

According to the pollution heaven hypothesis, strict environmental regulation weakens the competitiveness of firms in the country, forcing the firms to move to other countries with loose environmental regulation. This study explores how environmental regulation in foreign countries affects direct investment of Korea to those countries empirically.

When all the countries are included in the analysis, we do not find strong evidence for supporting the pollution heaven hypothesis. However, only the non-OECD countries are considered, we find the pollution heaven hypothesis might hold in Korea.

Key words: Environmental Regulation, Pollution Heaven Hypothesis, Foreign Direct Investment