

Do Democracies Attract More Foreign Direct Investment? A Meta Regression Analysis

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2. Research Question and Motivation

Question: Do more democratic countries attract more FDI?

“The stronger you make your democracy, the more FDI you will attract.”

John Bruton, former Prime Minister of Ireland, March 12, 2014

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- ▶ Competing arguments and mixed evidence
- ▶ Differences in measure, sample, model specification, data source and method

3. Overview and Main Findings

Meta regression of 276 model estimates from 41 studies

- ▶ Quantitative summary of literature
- ▶ Meta analysis of observational data requires meta regression
- ▶ Impact of study design on outcomes

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Findings

- ▶ No compelling evidence that more democratic countries attract more FDI
- ▶ FDI share and FDI have different data generation processes
- ▶ Study design features often drive findings in empirical work

4. State of Theory: Competing Mechanisms via Mediating Variables

Table 1: Causal Mechanisms and Possible Mediating Variables

Mechanism	Effect	Possible Mediating Variables
1 Enhancing property rights protection	+	Property rights
2 Enhancing policy stability via veto players	+	Political constraints
3 Providing better growth prospects	+	Growth
4 Providing more media openness	+	Press freedom*
5 Reducing political and economic uncertainty	+	Domestic political risk Regime duration Exchange rate volatility
6 Labor-oriented democratic politics	+	Labor rights Labor strength*
1 More stringent anti-trust regulation	-	Anti-trust regulation*
2 More protection to host domestic firms	-	Industrial policies*
3 Less generous tax incentives to foreign investors	-	Tax policy*
4 Autocracies shield MNEs from domestic popular pressures	-	Labor cost Labor rights Labor strength
5 Resource-rich autocracies favor MNEs more than resource-rich democracies	-	Interaction of resource and regime type*
6 Developing country democracies offering less economic freedom	-	Trade openness Capital control liberalization

* Mediating variable is not controlled for in empirical models of democracy and FDI in our sample.

5. State of Theory: How to Evaluate Mechanisms?

$$FDI = \beta_0 + \beta_1 Democracy + \beta_2 Property\ rights + \beta_k X_k + e \quad (1)$$

$$FDI = \beta_0^* + \beta_1^* Democracy + \beta_2^* \times 0 + \beta_k^* X_k + e^* \quad (2)$$

$$\beta_1 \neq \beta_1^*$$

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$$FDI = \beta_0^* + \beta_1^* Democracy + \beta_2^* \times 0 + \beta_k^* X_k + e^* \quad (2)$$

$$\beta_1 \neq \beta_1^*$$

- ▶ If property rights mechanism works, then

$$\beta_1 < \beta_1^*$$

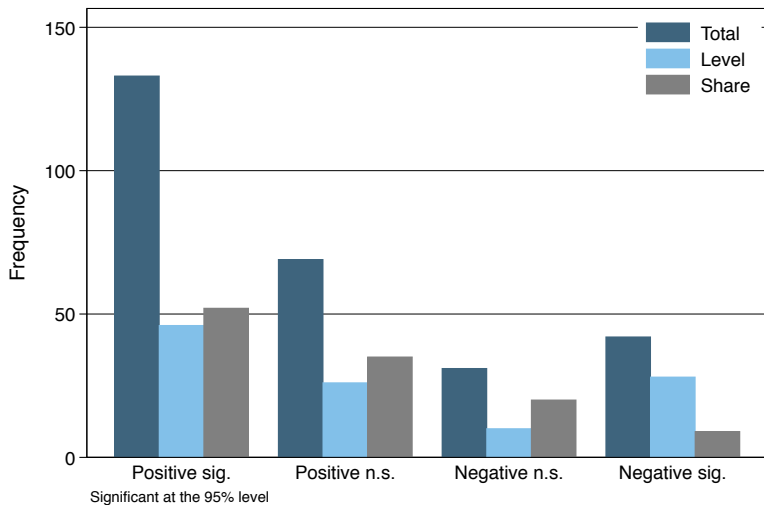
6. State of Empirical Knowledge: Diverse FDI Measures

Table 2: Distribution of Measures of FDI

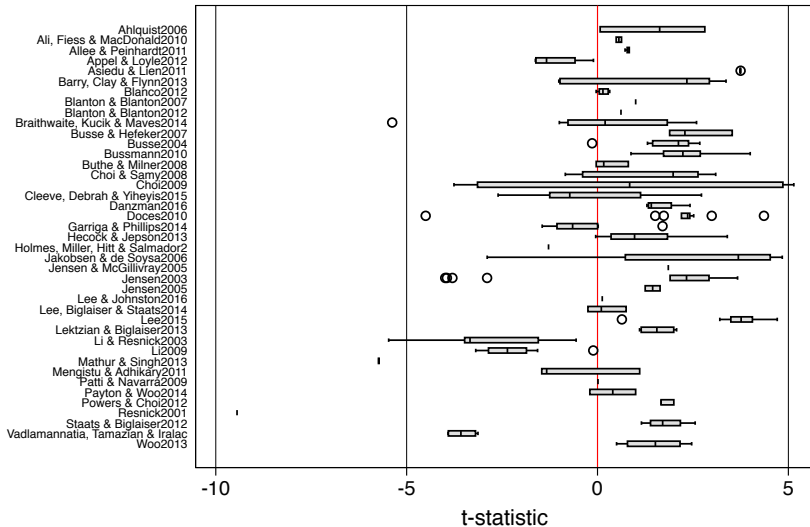
	<u>Row Total</u>
Net inflows	110
Net inflows per capita	15
Net inflows/GDP	116
Net inflows/World inflows	2
Stock	10
Stock/GDP	23
<u>Column Total</u>	<u>276</u>
# of observations	

7. State of Empirical Knowledge: Diverse Findings I

Figure 1: Distribution of results by direction and significance



8. State of Empirical Knowledge: Diverse Findings II

Figure 2: Box Plot of t Statistics by Study

9. Components of Meta Regression

$$\beta_{1ij} \rightarrow r_{ij} = \frac{t_{ij}}{\sqrt{t_{ij}^2 + df_{ij}}}$$

- 1 Publication bias
- 2 Test mediating variables
- 3 Test impact of study attributes
- 4 Estimate net effect of democracy under different conditions

10. Meta Regression Specification

Publication bias:

$$r_{ij} = \alpha_0 + \alpha_1 SEr_{ij} + u_{ij} \quad (3)$$

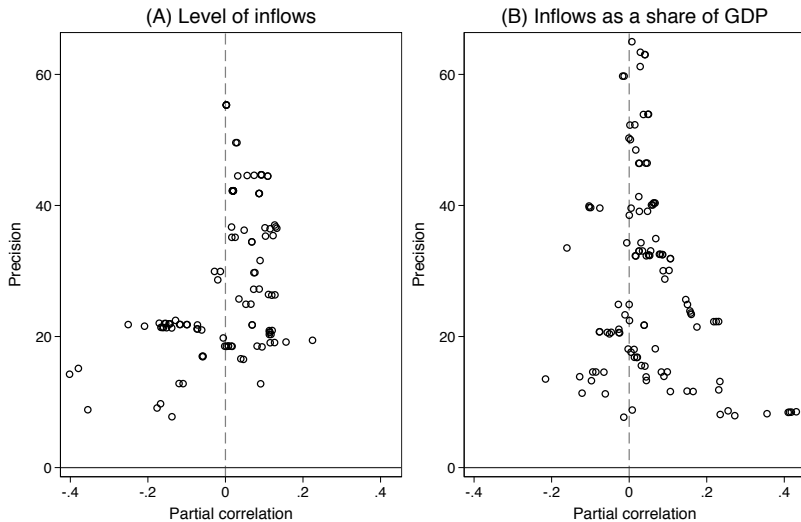
Expanded meta regression:

$$r_{ij} = \alpha_0 + \alpha_{se} SEr_{ij} + \alpha_k M_{ij} + \alpha_q Z_{ij} + u_{ij} \quad (4)$$

- ▶ M_{ij} : Dummy variables for mediating variables
- ▶ Z_{ij} : Study attribute variables
- ▶ General to specific specification.
- ▶ Estimators: (1) WLS, robust SEs, (2) robust regression, (3) WLS, clustered SEs

11. Findings: Visualizing Publication Bias

Figure 3: Funnel Plots Based on Two FDI Measures



12. Findings: Test Publication Bias (Eqn. 3)

Table 3: Publication Bias and the Naive Average Effect of Democracy on FDI

	Level			Share
	1	2	3	4
Constant	0.031*** (0.007)	0.106*** (0.019)	0.029*** (0.005)	-0.0002 (0.010)
Std. error of r_{ij}		-2.453*** (0.589)		1.056*** (0.352)
Observations	110	110	116	116
Adjusted R^2	NA	0.14	NA	0.05

Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

13. Findings: Impact of Study Attributes in FDI Level Studies (Eqn. 4)

Table 4: Summary of impact of study attributes

Study attribute	# of models	Sign	Sig.
UNCTAD data	43		
DV logged	65	+	Yes
Only developing	92	+	Yes
Country fixed effects	35		
Lagged dependent variable	37		
Non-polity democracy	9		
Median year in sample		-	Yes
Publication year			

14. Findings: Theoretical Mechanisms in FDI Level Studies (Eqn. 4)

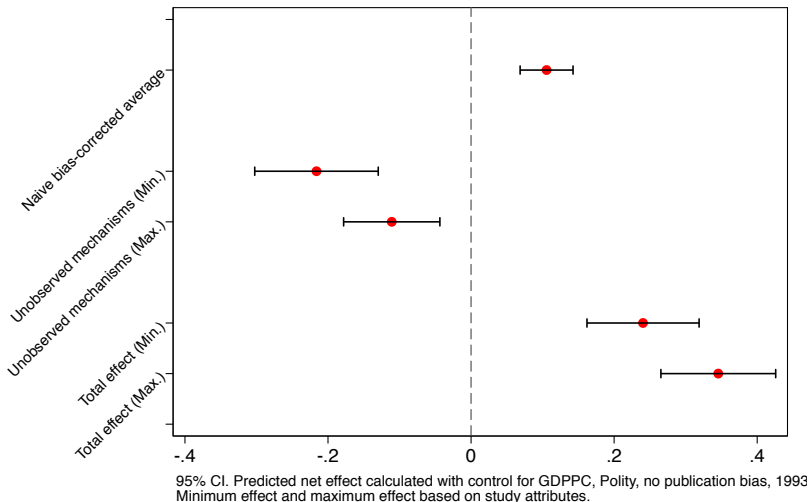
Table 5: Summary of impact of mediating variables

Mediating variable	# of models	Sign	Sig.	Expect.
Property rights	60	-	Yes	✓
Political constraints	7	-	Yes	✓
Growth	92	-	Yes	✓
Domestic political risk	77	+	Yes	
Regime duration	65	+	Yes	
Exchange rate volatility	68	-	Yes	✓
Labor rights	1			
Labor costs	28	-	Yes	
Trade openness	49	-	Yes	
Capital controls/openness	60	-	Yes	

Results based on pared down meta regression model.

15. Findings: Computed Net Effects in FDI Level Studies

Figure 4: Estimated net effect of democracy on FDI inflows



16. Findings: Impact of Study Attributes in FDI Share Studies

Table 6: Summary of impact of study attributes

Study attribute	# of models	Sign	Sig.
UNCTAD data	23	-	Yes
DV logged	5		
Only developing	71		
Country fixed effects	59	-	Yes
Lagged dependent variable	69		
Non-polity democracy	32	-	Yes
Median year in sample			
Publication year			

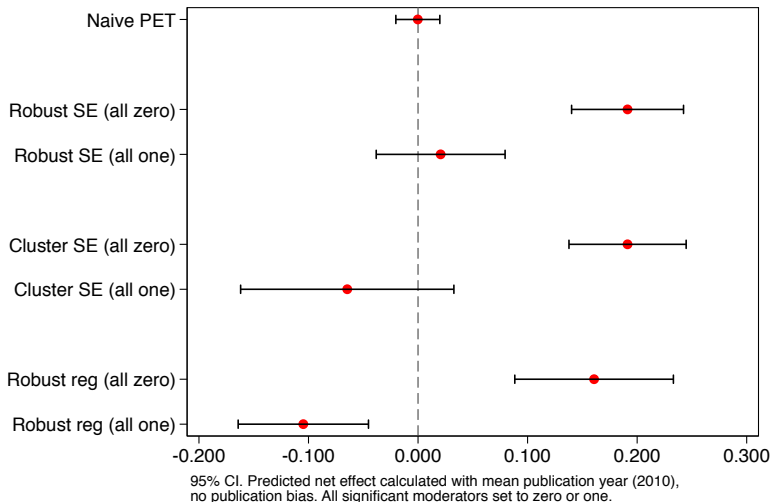
17. Findings: Covariates in FDI Share Studies

Table 7: Summary of impact of covariates

Mediating variable	# of models	Sign	Sig.
Property rights	25		
Political constraints	1		
Growth	110	-	Yes
Domestic political risk	42	+	Yes
Regime duration	16	+	Yes
Exchange rate volatility	15		
Labor rights	2		
Labor costs	6		
Trade openness	79		
Capital controls/openness	37		
GDP per capita	114		
GDP	78		

18. Findings: Computed Net Effects in FDI Share Studies

Figure 5: Estimated net effect of democracy on FDI share



19. Conclusions

- ▶ No compelling evidence that more democratic countries attract more FDI
- ▶ FDI share and FDI have different data generation processes
- ▶ Evidence for some causal arguments and not others
- ▶ Study design features often drive statistical findings
- ▶ Cumulative progress in theoretical and empirical literature is weak
 - ▶ Need coherent unifying theoretical argument and more commensurable empirical designs

Summary Statistics by Study

	# Models	Mean t	Min. t	Max t	Start	End
Ahlquist 2006	3	1.504	0.070	2.812	1985	2002
Ali, Fiess & MacDonald 2010	2	0.560	0.490	0.630	1981	2005
Allee & Peinhardt 2011	9	0.800	0.722	0.833	1984	2007
Appel & Loyle 2012	4	-1.101	-1.627	-0.106	1970	2001
Asiedu & Lien 2011	6	3.744	3.741	3.750	1982	2007
Barry, Clay & Flynn 2013	11	1.674	-1.013	3.367	1994	2004
Blanco 2012	6	0.149	-0.035	0.320	1986	2006
Blanton & Blanton 2007	2	1.000	1.000	1.000	1980	2003
Blanton & Blanton 2012	1	0.615	0.615	0.615	1985	2002
Braithwaite, Kucik & Maves 2014	9	0.062	-5.378	2.594	1975	2010
Busse & Hefeker 2007	3	2.570	1.890	3.530	1984	2003
Busse 2004	8	1.805	-0.140	2.680	1972	2001
Bussmann 2010	6	2.296	0.878	4.000	1980	2000
Buthe & Milner 2008	3	0.313	-0.033	0.808	1970	2000
Choi & Samy 2008	11	1.462	-0.843	3.097	1985	2002
Choi 2009	11	0.569	-3.760	5.143	1982	1995
Cleeve, Debrah & Yiheyis 2015	14	-0.208	-2.604	2.723	1980	2012
Danzman 2016	4	1.634	1.295	2.424	1985	2011
Doces 2010	13	1.924	-4.500	4.361	1982	1999
Garriga & Phillips 2014	11	-0.512	-1.449	1.705	1973	2008
Hecock & Jepson 2013	18	1.274	-0.047	3.400	1972	2008
Holmes, Miller, Hitt & Salmador 2013	1	-1.283	-1.283	-1.283	1995	2003
Jakobsen & de Soysa 2006	12	2.594	-2.890	4.840	1984	2001
Jensen & McGillivray 2005	1	1.855	1.855	1.855	1975	1995
Jensen 2003	18	1.286	-3.988	3.669	1990	1997
Jensen 2005	2	1.445	1.250	1.640	1975	1995
Lee & Johnston 2016	4	0.125	0.125	0.125	1971	2006
Lee, Biglaiser & Staats 2014	3	0.200	-0.250	0.750	1970	2007
Lee 2015	10	3.585	0.640	4.708	1987	2006
Lektzian & Biglaiser 2013	4	1.571	1.102	2.072	1969	2000
Li & Resnick 2003	11	-2.996	-5.470	-0.560	1982	1995
Li 2009	8	-2.181	-3.190	-0.110	1982	1995
Mathur & Singh 2013	2	-5.730	-5.737	-5.723	1980	2000
Mengistu & Adhikary 2011	3	-0.562	-1.460	1.106	1996	2007
Patti & Navarra 2009	1	0.013	0.013	0.013	1980	2003
Payton & Woo 2014	2	0.400	-0.200	1.000	1986	2002
Powers & Choi 2012	10	1.767	1.667	2.000	1980	2008
Resnick 2001	1	-9.443	-9.443	-9.443	1971	1993
Staats & Biglaiser 2012	4	1.781	1.151	2.558	1996	2007
Vadlamannatia, Tamazian & Iralac 2009	4	-3.551	-3.917	-3.131	1996	2005
Woo 2013	20	1.485	0.500	2.467	1994	2006
Total	10.601	0.825	-1.339	2.421	1982.46	2003.42
Observations	276					

21. Distribution of Studies by Measures of Democracy

Table 8: Distribution of measures of democracy

	FDI Level	FDI Share	Total
Polity	101	84	185
Freedom House	4	14	18
Other	5	18	23
Total	110	116	226

of observations

22. Research Design: Variable List in Equation 2

Table 9: Meta regression data Characteristics

Variable	Variable Description
<i>Mechanisms</i>	
Property Rights	=1 if model controls for property rights
Political constraints	= 1 if model controls for political constraints (POLCON)
Growth	=1 if the model controls for economic growth
Domestic political risk	=1 if model controls for domestic political risk
Regime duration	=1 if model controls for regime duration
Exchange rate volatility	=1 if model controls for exchange rate volatility
Labor rights	= 1 if model controls for labor rights
Labor costs	= 1 if model includes labor compensation/costs
Trade openness	=1 if model controls for trade openness
Capital account liberalization	=1 if model controls for capital account liberalization
<i>FDI Variables</i>	
UNCTAD	=1 if dependent variable source is UNCTAD =0 if dependent variable source is World Bank
DV Logged	=1 if FDI variable is logged

23. Research Design: Variable List in Equation 2

Table 10: Meta regression data Characteristics continued

Variable	Variable Description
<i>Democracy Variables</i>	
Non-polity democracy measure	=0 if data source is Polity =1 if data source is Freedom House or other
<i>Methodology and data</i>	
Std. error of partial correlation Cross-Section	Measure of publication bias =1 if model uses cross-sectional data
Developing country only	=0 if both developed and developing =1 if only developing
Lagged Dependent Variable	=1 if model includes a lagged dependent variable
Country fixed effects	=1 if model uses country FE
Median year of sample period	Median year in data set
Publication year	Year published
<i>Additional controls</i>	
GDP per capita	=1 if model controls for GDP per capita
GDP	=1 if model controls for GDP

24. Research Design: Computing Net Effects of Democracy

$$r_{ij} = \alpha_0 + \alpha_1 SE_{ij} + u_{ij} \quad (1)$$

$$r_{ij} = \alpha_0 + \alpha_{se} SE_{ij} + \alpha_k M_{ij} + \alpha_q Z_{ij} + u_{ij} \quad (2)$$

► Computing Net Effects of Democracy for Level:

- 1 Naive publication-bias corrected average effect of democracy (β_0 in Equation 1)
- 2 Predicted net effect of democracy through unobserved mediators (\hat{r}_{ij} with $M_{ij} = 1$ in Equation 2)
- 3 Total net effect of democracy (\hat{r}_{ij} with $M_{ij} = 0$ in Equation 2)

25. Findings: Computed Net Effects in FDI Level Studies

Table 11: Estimated net effect of democracy in level studies

Scenario	Predicted	95% Interval	
	Effect	Lower	Upper
<i>Unobserved mechanisms: All mediators equal to one</i>			
Develop, no log	-0.183	-0.260	-0.107
Develop, log	-0.111	-0.178	-0.044
All, no log	-0.216	-0.302	-0.130
All, log	-0.144	-0.225	-0.063
<i>Total net effect: All mediators equal to zero</i>			
Develop, no log	0.273	0.200	0.347
Develop, log	0.346	0.265	0.426
All, no log	0.240	0.162	0.319
All, log	0.313	0.226	0.400

Meta Regression Analysis Table for FDI Level

	# models	Weighted Least Squares					Robust	
		1	2	3	4	5	Cluster Reg. 6 7	
Constant		0.031*** (0.007)	0.106*** (0.019)	0.205*** (0.038)	0.145** (0.057)	0.148*** (0.048)	0.177*** (0.020)	0.148*** (0.048)
<i>Publication Bias:</i>								
Std. error of r_{ij}			-2.453*** (0.589)	-3.081*** (0.568)	-2.079** (0.850)	-2.163*** (0.611)	-2.636*** (0.198)	-2.163*** (0.652)
<i>Mediating Variables:</i>								
Property rights	60			-0.053 (0.036)	-0.057 (0.037)	-0.065** (0.027)	-0.061*** (0.011)	-0.065*** (0.014)
Political constraints	7			-0.023 (0.025)	-0.035 (0.028)	-0.036** (0.016)	-0.024* (0.015)	-0.036** (0.016)
Growth	92			-0.073* (0.038)	-0.084** (0.042)	-0.076** (0.035)	-0.083*** (0.014)	-0.076* (0.040)
Domestic political risk	77			0.123*** (0.021)	0.105*** (0.025)	0.104*** (0.020)	0.097*** (0.010)	0.104*** (0.012)
Regime duration	65			0.063** (0.025)	0.054* (0.029)	0.041** (0.018)	0.058*** (0.010)	0.041** (0.017)
Exchange rate volatility	68			-0.204*** (0.024)	-0.178*** (0.034)	-0.177*** (0.027)	-0.174*** (0.012)	-0.177*** (0.030)
Labor rights	1			0.276*** (0.050)				
Labor costs	28			-0.188*** (0.060)	-0.132* (0.070)	-0.122*** (0.038)	-0.171*** (0.017)	-0.122*** (0.038)
Trade openness	49			-0.094*** (0.024)	-0.077*** (0.028)	-0.078*** (0.019)	-0.070*** (0.010)	-0.078*** (0.016)
Capital controls/openness	60			-0.009 (0.036)	-0.042 (0.042)	-0.048* (0.026)	-0.030** (0.012)	-0.048** (0.021)
<i>Additional Controls:</i>								
GDP per capita	95			0.071** (0.028)	0.091*** (0.033)	0.092*** (0.032)	0.053*** (0.015)	0.092* (0.046)
GDP	82			-0.004 (0.025)	-0.009 (0.027)			
<i>Study Attributes:</i>								
UNCTAD data	43			-0.053* (0.028)	-0.010 (0.039)			
DV logged	65			0.074*** (0.013)	0.073*** (0.013)	0.072*** (0.012)	0.068*** (0.009)	0.072*** (0.021)
Only developing	92			0.033** (0.015)	0.031** (0.015)	0.033** (0.013)	0.051*** (0.012)	0.033* (0.017)
Country fixed effects	35			-0.004 (0.013)	0.010 (0.019)			
Lagged dependent variable	37			0.013 (0.015)	0.009 (0.015)			
Non-polity democracy	9			-0.010 (0.014)	-0.017 (0.016)	-0.019 (0.016)	-0.005 (0.015)	-0.019 (0.014)
Median year in sample				-0.008** (0.003)	-0.006* (0.003)	-0.006** (0.003)	-0.009*** (0.001)	-0.006** (0.002)
Publication year				0.000 (0.003)	0.000 (0.003)			
Observations		110	110	110	110	110	110	110
Adjusted R^2		0.00	0.14	0.81	0.79	0.80	0.94	0.80

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

27. Findings: Computed Net Effects in FDI Share Studies

Table 12: Estimated net effect of democracy in share studies

Scenario	Predicted Effect	95% Interval	
		Lower	Upper
<i>Naive effect</i>	-0.000	-0.020	0.020
<i>Robust SEs</i>			
All moderators equal zero	0.191	0.140	0.242
All moderators equal one	0.021	-0.038	0.079
<i>Cluster robust SEs</i>			
All moderators equal zero	0.191	0.138	0.245
All moderators equal one	-0.065	-0.162	0.033
<i>Robust regression</i>			
All moderators equal zero	0.161	0.088	0.233
All moderators equal one	-0.105	-0.164	-0.045

Meta Regression Analysis Table for FDI Share

	#	Weighted Least Squares					Cluster SEs	Robust Reg. 7
		1	2	Robust SEs 3	4	5		
Constant		0.029*** (0.005)	-0.0002 (0.010)	0.211*** (0.055)	0.183*** (0.054)	0.191*** (0.026)	0.191*** (0.026)	0.161*** (0.037)
<i>Publication Bias:</i> Std. error of r_i			1.056*** (0.352)	0.894 (0.601)	0.474 (0.516)	0.319 (0.439)	0.319 (0.917)	1.372*** (0.318)
<i>Covariates:</i>								
Property rights	25			0.012 (0.041)	0.031 (0.040)	0.021 (0.020)	0.021 (0.026)	0.022 (0.021)
Political constraints	1			-0.072 (0.094)				
Growth	110			-0.132*** (0.028)	-0.133*** (0.029)	-0.138*** (0.020)	-0.138*** (0.008)	-0.142*** (0.035)
Domestic political risk	42			0.058** (0.023)	0.040* (0.023)	0.043** (0.018)	0.043 (0.027)	0.047* (0.026)
Regime duration	16			0.144* (0.073)	0.088* (0.049)	0.036* (0.018)	0.036** (0.015)	0.130*** (0.042)
Exchange rate volatility	15			-0.144* (0.084)	-0.073 (0.052)	-0.029 (0.025)	-0.029 (0.042)	-0.160*** (0.042)
Labor rights	2			0.095 (0.058)				
Labor costs	6			-0.028 (0.067)	-0.019 (0.068)			
Trade openness	79			-0.030 (0.035)	-0.002 (0.026)			
Capital controls/openness	37			-0.020 (0.025)	-0.019 (0.024)	-0.018 (0.016)	-0.018** (0.007)	0.018 (0.022)
GDP per capita	114			-0.010 (0.027)	0.002 (0.032)			
GDP	78			-0.020 (0.026)	-0.007 (0.023)			
<i>Study Attributes:</i>								
UNCTAD data	23			-0.060** (0.029)	-0.025 (0.018)	-0.023 (0.017)	-0.023** (0.010)	-0.050** (0.023)
DV logged	5			-0.045 (0.043)	-0.046 (0.042)			
Only developing	71			-0.003 (0.024)	-0.001 (0.023)			
Country fixed effects	59			-0.039*** (0.012)	-0.041*** (0.012)	-0.042*** (0.012)	-0.042** (0.018)	-0.056*** (0.018)
Lagged dependent variable	69			-0.007 (0.018)	0.000 (0.017)			
Non-polity democracy	32			-0.062*** (0.020)	-0.064*** (0.020)	-0.071*** (0.014)	-0.071** (0.028)	-0.085*** (0.022)
Median year in sample				-0.001 (0.002)	-0.001 (0.002)			
Publication year				-0.005 (0.003)	-0.003 (0.003)	-0.003 (0.002)	-0.003 (0.002)	-0.009*** (0.002)
Observations		116	116	116	116	116	116	116
Adjusted R^2		0.00	0.05	0.37	0.36	0.41	0.41	0.59

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$