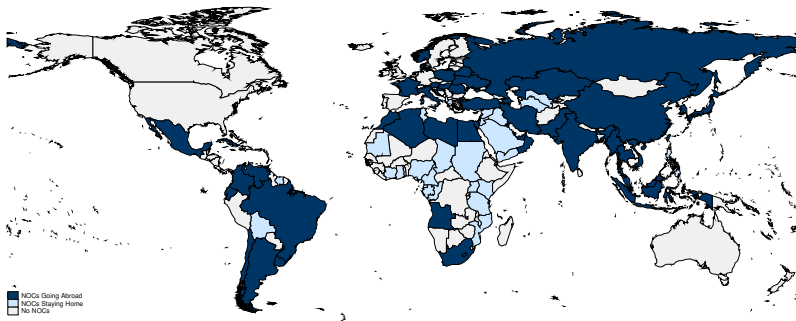


The Organizational Roots of the Global Expansion of National Oil Companies

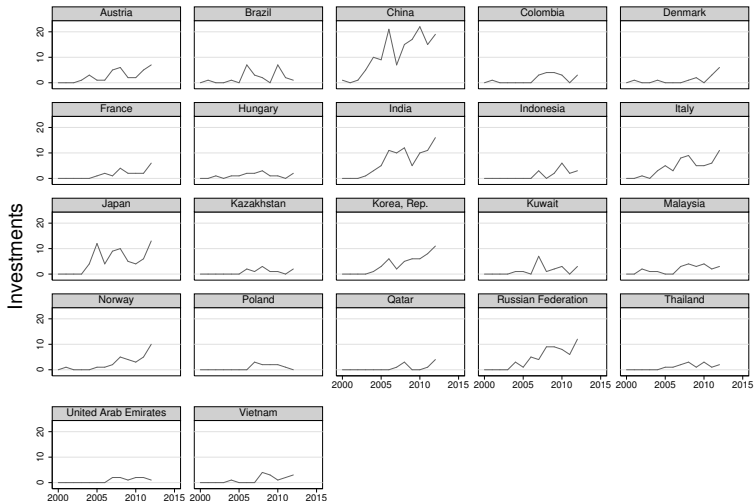
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November 11, 2015

Internationalization of NOCs



Oil/Gas Assets Purchases and JVs Abroad by NOCs (E&P)



Statement of Research Question

- National oil companies are generally inefficient entities.
- Why do some governments (more than others) allow their NOCs to make expensive and often risky investments abroad?
- The **answer** lies in institutional organization. Countries with fragmented national institutions and centralized energy sectors least likely to invest.

National Oil Companies

Definition: State controlled commercial entities with significant oil and gas upstream operations

- Dominant ownership of the world's oil reserves
- Generally less efficient than private oil companies both at home and abroad (Knutsen, Rygh, and Hveem 2011)
- Capable of pursuing their own commercial interests (Hartley and Medlock III, 2008)

Core Intuition of Competing Principals Model

Institutional fragmentation...

- Makes policy changes more difficult to achieve for special interests (Tsebelis 2002).
- Also opens up multiple avenues for lobbying by special interests (Ehrlich 2008).
- Indeed a virtue when applied at the national level, can also be a critical weakness when applied at the sectoral level.

National Institutions

- Institutions whose agreement is necessary to change national policies from the status quo (Tsebelis, 2002).
- Having more of them means more potential for opposition against NOC investments.
- ex. Norway steps resource management decisions in institutional frameworks (Moses, 2010: 127).

Sectoral Institutions

- Institutions overseeing policy implementation in oil and gas
- Intermediaries between national institutions and NOCs
- ex. Energy ministries and regulatory agencies

Sectoral Institutions

Centralized

- One institution for NOC to lobby
- No competition to exploit
- Vietnam (Ministry of Industry)

Fragmented

- Multiple institutions for NOC to lobby
- Can exploit competition by offering parochial benefits
- China (State Council, State Development Planning Commission, and State Economic and Trade Commission...)

Hypothesis

Hypothesis 1: Investment in oil and gas abroad is least likely among countries with fragmented national institutions and a centralized energy sector.

Original Data

- 78 NOC countries
- Upstream
- GlobalData
- Annual count, 2000-2012
- Completed, Announced, Planned, Rumored
- 551 Asset Transactions, 241 Joint Ventures

Model Specification at a Glance

- Count data with evidence of overdispersion
- Random effects negative binomial model
- GDP pc and population
- Oil price and time trend
- Regional dummies

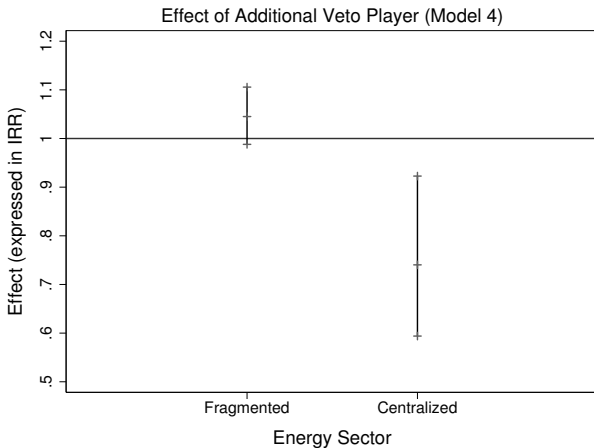
Model Specification

$$E[y_i | \mathbf{x}_i, \epsilon_i] = \exp \left\{ \alpha + \mathbf{x}_i \beta (\text{Controls}) + \epsilon_i \right. \\ \left. + \left\{ \mathbf{x}_i \beta (\text{Checks}) + \mathbf{x}_i \beta (\text{Centralization}) + \mathbf{x}_i \beta (\text{Interaction}) \right\} \right. \\ \left. + \left\{ \mathbf{x}_i \beta (\text{Oil imports}) + \mathbf{x}_i \beta (\text{Oil reserves}) + \mathbf{x}_i \beta (\text{Risk}) + \mathbf{x}_i \beta (\text{Polity}) \right\} \right. \\ \left. \right\} \begin{matrix} \text{Competing Principals} \\ \text{Literature} \end{matrix}$$

Results (Incidence Rate Ratios)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Checks	1.038 (0.027)	1.065*** (0.024)	1.053* (0.030)	1.045 (0.030)		1.052* (0.032)		1.056* (0.033)
Centralization	6.155*** (2.807)	2.291** (0.964)	2.706** (1.363)	3.158** (1.614)		2.741* (1.437)		2.745** (1.400)
Interaction	0.607*** (0.054)	0.814** (0.073)	0.749*** (0.084)	0.708*** (0.081)		0.730*** (0.087)		0.733*** (0.086)
Oil imports			0.829 (0.100)	0.830 (0.101)	0.818* (0.100)	0.815 (0.102)	0.817* (0.099)	0.808* (0.101)
Oil reserves			0.996 (0.005)	0.996 (0.005)	0.994 (0.005)	0.995 (0.005)	0.994 (0.005)	0.994 (0.005)
External risk (t-2)				1.115 (0.090)	1.115 (0.090)	1.117 (0.091)	1.118 (0.090)	1.122 (0.092)
Polity score					0.957 (0.028)	0.973 (0.031)		
Polity competition							0.904* (0.055)	0.922 (0.059)
Oil price		1.009** (0.004)	1.014*** (0.003)	1.014*** (0.003)	1.013*** (0.004)	1.014*** (0.004)	1.013*** (0.004)	1.014*** (0.004)
GDP pc (log)	4.806*** (0.866)	2.992*** (0.383)	3.381*** (0.736)	3.200*** (0.715)	2.937*** (0.620)	3.213*** (0.706)	2.892*** (0.598)	3.204*** (0.688)
Population (log)	3.550*** (0.578)	2.395*** (0.254)	2.853*** (0.449)	2.873*** (0.474)	2.689*** (0.437)	2.875*** (0.485)	2.652*** (0.419)	2.880*** (0.475)
Trend		1.124*** (0.034)	1.136*** (0.034)	1.138*** (0.036)	1.157*** (0.038)	1.143*** (0.037)	1.158*** (0.038)	1.146*** (0.037)
Regional Dummies	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	940	940	809	743	747	725	738	716

Substantive Effect, 26% Decrease



Robustness Tests

- 1 year lags on all R.H.S. variables
- Zero-inflated negative binomial
- Stairway interactions
- Polity * Centralization
- Regional exclusions
- Regulatory agency
- Mercantilist control
- Transparency control
- Political risk
- UAE recoded as centralized

Scholarly Implications

- Institutional **organization**, particularly at the sectoral level, deserves more attention.
- Demonstrates that **NOCs** have indeed become relevant actors in world politics.
- Developed a **sectoral** measure that could explain domestic policy, such as NOC privatization.

Policy Implications

- NOC lobbying a **sectoral problem**, prosecuting former NOC executives on corruption charges limited impact.
- Support for NOC investments abroad has organizational roots, phenomenon, however inefficient, **likely to persist**.
- Identify government **interests** that benefit from fragmented energy sectors before seeking to improve NOC governance.

Thank you

Thank you for your time and attention.

Summary Statistics

	mean	sd	min	max
Investments	0.77	2.23	0.00	22.00
Checks	2.84	1.86	1.00	17.00
Centralization	0.72	0.45	0.00	1.00
Interaction	1.93	1.69	0.00	7.00
Oil imports	0.44	0.93	0.00	5.73
Oil reserves	13.74	39.57	0.00	266.81
External risk (t-2)	10.09	1.25	4.17	12.00
Polity score	2.31	7.03	-10.00	10.00
Polity competition	6.36	3.28	1.00	10.00
Oil price	62.28	24.93	32.68	117.09
GDP pc (log)	8.31	1.40	5.46	11.12
Population (log)	16.84	1.60	13.05	21.01
Trend	5.09	3.23	0.00	11.00
Africa	0.25	0.43	0.00	1.00
Americas	0.17	0.38	0.00	1.00
Asia	0.35	0.48	0.00	1.00

Correlation Matrix

	Invest	Checks	Cent	Interact	Oil imp	Oil res	Ext risk (t-2)	Polity	Pol comp	Oil pri	GDP pc (l)	Pop (l)	Trend	Africa	Americas	Asia
Investments	1.00															
Checks	0.20	1.00														
Centralization	-0.14	-0.13	1.00													
Interaction	-0.05	0.35	0.72	1.00												
Oil imports	0.59	0.22	-0.17	-0.05	1.00											
Oil reserves	0.01	-0.19	-0.22	-0.19	-0.09	1.00										
External risk (t-2)	-0.00	0.14	0.01	0.11	-0.01	-0.12	1.00									
Polity score	0.07	0.64	-0.05	0.41	0.22	-0.36	0.26	1.00								
Polity competition	0.04	0.57	-0.00	0.37	0.19	-0.36	0.31	0.93	1.00							
Oil price	0.28	0.03	-0.02	0.00	0.05	0.00	-0.01	0.05	0.06	1.00						
GDP pc (log)	0.13	0.05	0.00	0.11	0.22	0.20	0.19	0.18	0.18	0.10	1.00					
Population (log)	0.36	0.29	-0.18	0.01	0.49	-0.00	-0.17	0.20	0.12	0.03	-0.41	1.00				
Trend	0.27	0.01	-0.01	-0.00	0.05	0.00	-0.04	0.05	0.06	0.87	0.09	0.03	1.00			
Africa	-0.17	-0.19	0.20	0.00	-0.22	-0.12	0.01	-0.23	-0.17	-0.00	-0.45	-0.00	0.00	1.00		
Americas	-0.09	0.11	0.02	0.22	-0.13	-0.08	0.08	0.28	0.21	-0.03	0.03	-0.13	-0.03	-0.26	1.00	
Asia	0.15	-0.21	-0.11	-0.31	0.25	0.28	-0.23	-0.40	-0.40	-0.02	-0.02	0.17	-0.02	-0.42	-0.34	1.00

1 Year Lags on All R.H.S. Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Checks (t-1)	0.054** (0.025)	0.064*** (0.025)	0.046 (0.028)	0.038 (0.028)		0.057* (0.031)		0.058* (0.031)
Centralization (t-1)	1.349*** (0.418)	0.749* (0.417)	0.718 (0.471)	0.432 (0.472)		0.493 (0.478)		0.550 (0.467)
Interaction	-0.360*** (0.083)	-0.165* (0.088)	-0.184* (0.106)	-0.130 (0.107)		-0.132 (0.111)		-0.141 (0.109)
Oil imports (t-1)			-0.220* (0.116)	-0.303*** (0.117)	-0.242** (0.112)	-0.259** (0.117)	-0.239** (0.112)	-0.257** (0.117)
Oil reserves (t-1)			-0.004 (0.004)	-0.006 (0.004)	-0.006 (0.005)	-0.007 (0.005)	-0.006 (0.005)	-0.006 (0.005)
External risk (t-3)				0.040 (0.072)				
Polity score (t-1)					-0.043 (0.027)	-0.044 (0.029)		
Polity competition (t-1)							-0.089 (0.055)	-0.093 (0.058)
Oil price (t-1)		0.004 (0.004)	0.004 (0.004)	0.005 (0.003)	0.005 (0.004)	0.004 (0.004)	0.005 (0.004)	0.004 (0.004)
GDP pc (log) (t-1)	1.289*** (0.136)	0.997*** (0.129)	1.119*** (0.194)	1.126*** (0.191)	1.121*** (0.192)	1.165*** (0.192)	1.103*** (0.188)	1.155*** (0.190)
Population (log) (t-1)	1.043*** (0.116)	0.787*** (0.104)	0.999*** (0.143)	1.009*** (0.145)	1.006*** (0.149)	1.037*** (0.149)	0.986*** (0.144)	1.026*** (0.147)
Trend		0.084*** (0.030)	0.115*** (0.030)	0.148*** (0.029)	0.118*** (0.030)	0.119*** (0.030)	0.118*** (0.030)	0.118*** (0.030)
Regional Dummies	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	940	940	809	743	805	780	796	771

Zero-inflated Negative Binomial

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Checks	0.057** (0.028)	0.053** (0.025)	0.019 (0.025)	0.022 (0.026)		0.084*** (0.030)		0.088*** (0.031)
Centralization	0.741*** (0.263)	0.847*** (0.261)	0.759** (0.329)	0.947*** (0.334)		0.874*** (0.322)		1.027*** (0.324)
Interaction	-0.199*** (0.071)	-0.203*** (0.068)	-0.110 (0.090)	-0.156* (0.094)		-0.112 (0.092)		-0.144 (0.091)
Oil imports			0.101 (0.124)	0.055 (0.124)	0.028 (0.124)	0.009 (0.119)	0.036 (0.125)	0.005 (0.120)
Oil reserves			-0.002 (0.002)	-0.001 (0.003)	-0.006** (0.003)	-0.006** (0.003)	-0.005** (0.003)	-0.005** (0.002)
External risk (t-2)				0.170** (0.073)	0.117 (0.073)	0.131* (0.072)	0.119 (0.074)	0.141** (0.072)
Polity score					-0.044*** (0.016)	-0.069*** (0.019)		
Polity competition							-0.082** (0.032)	-0.145*** (0.037)
Oil price		0.012** (0.005)	0.017*** (0.005)	0.018*** (0.005)	0.018*** (0.005)	0.016*** (0.005)	0.018*** (0.005)	0.016*** (0.005)
GDP pc (log)	0.797*** (0.154)	0.574*** (0.093)	0.182 (0.186)	0.245 (0.187)	0.365** (0.180)	0.442** (0.181)	0.352* (0.183)	0.463** (0.185)
Population (log)	0.754*** (0.098)	0.681*** (0.066)	0.462*** (0.154)	0.562*** (0.156)	0.584*** (0.152)	0.653*** (0.149)	0.571*** (0.154)	0.670*** (0.153)
Trend		0.134*** (0.046)	0.144*** (0.047)	0.155*** (0.048)	0.154*** (0.049)	0.166*** (0.045)	0.154*** (0.050)	0.166*** (0.046)
Regional Dummies	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	940	940	809	743	747	725	738	716
Vuong test	5.810	3.723	3.047	2.622	2.878	2.628	2.729	2.386

Stairway Interactions

	(1) Checks	(2) Oil imp	(3) Oil res	(4) Ext Risk	(5) Oil pri	(6) GDP pc	(7) Pop	(8) Trend
Centralization	1.150** (0.511)	0.408 (0.400)	-0.401 (0.388)	2.230 (1.677)	0.273 (0.524)	-1.127 (2.163)	4.911 (3.837)	0.473 (0.498)
Checks	0.044 (0.029)	0.027 (0.029)	0.028 (0.028)	0.023 (0.028)	0.027 (0.029)	0.025 (0.029)	0.024 (0.028)	0.028 (0.029)
Interaction	-0.345*** (0.114)							
Oil imports	-0.187 (0.121)	-0.188 (0.127)	-0.176 (0.127)	-0.142 (0.121)	-0.185 (0.137)	-0.147 (0.124)	-0.232* (0.138)	-0.271* (0.158)
Interaction		-0.650*** (0.202)						
Oil reserves	-0.004 (0.005)	-0.006 (0.005)	-0.011** (0.005)	-0.002 (0.005)	-0.003 (0.005)	-0.003 (0.005)	-0.002 (0.005)	-0.004 (0.005)
Interaction			0.024*** (0.009)					
External risk (t-2)	0.109 (0.081)	0.074 (0.085)	0.071 (0.079)	0.197 (0.123)	0.071 (0.082)	0.083 (0.082)	0.098 (0.083)	0.058 (0.084)
Interaction				-0.208 (0.159)				
Oil price	0.014*** (0.003)	0.013*** (0.004)	0.013*** (0.004)	0.014*** (0.003)	0.015*** (0.004)	0.013*** (0.003)	0.013*** (0.004)	0.013*** (0.004)
Interaction					-0.003 (0.005)			
GDP pc (log)	1.163*** (0.223)	1.258*** (0.226)	0.965*** (0.192)	1.045*** (0.219)	1.031*** (0.215)	0.926*** (0.281)	1.004*** (0.199)	1.058*** (0.213)
Interaction						0.140 (0.246)		
Population (log)	1.055*** (0.165)	1.072*** (0.167)	0.889*** (0.142)	0.941*** (0.159)	0.920*** (0.156)	0.900*** (0.157)	1.082*** (0.206)	0.958*** (0.159)
Interaction							-0.283 (0.223)	
Trend	0.129*** (0.031)	0.141*** (0.034)	0.146*** (0.032)	0.132*** (0.032)	0.142*** (0.033)	0.140*** (0.032)	0.150*** (0.034)	0.183*** (0.048)
Interaction								-0.063 (0.049)
Regional Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	743	743	743	743	743	743	743	743

Polity * Centralization

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Polity score	0.006 (0.031)	0.041 (0.030)	-0.004 (0.039)	-0.014 (0.039)				
Centralization	0.480 (0.361)	0.368 (0.356)	0.195 (0.414)	0.174 (0.401)	1.618** (0.665)	1.154* (0.656)	0.806 (0.732)	0.827 (0.720)
Interaction	-0.100** (0.041)	-0.065 (0.041)	-0.053 (0.046)	-0.054 (0.045)				
Polity competition					0.012 (0.062)	0.088 (0.061)	-0.014 (0.079)	-0.035 (0.078)
Interaction					-0.218*** (0.085)	-0.152* (0.085)	-0.116 (0.096)	-0.121 (0.094)
Oil imports			-0.196 (0.126)	-0.207 (0.127)			-0.195 (0.126)	-0.205 (0.126)
Oil reserves			-0.005 (0.005)	-0.005 (0.005)			-0.005 (0.005)	-0.005 (0.005)
External risk (t-2)				0.104 (0.080)				0.106 (0.081)
Oil price		0.008** (0.004)	0.013*** (0.004)	0.013*** (0.004)		0.008** (0.004)	0.013*** (0.004)	0.013*** (0.004)
GDP pc (log)	1.459*** (0.177)	1.099*** (0.136)	1.214*** (0.222)	1.140*** (0.218)	1.455*** (0.173)	1.106*** (0.136)	1.201*** (0.216)	1.127*** (0.213)
Population (log)	1.176*** (0.151)	0.862*** (0.112)	1.050*** (0.170)	1.045*** (0.170)	1.164*** (0.145)	0.871*** (0.111)	1.044*** (0.166)	1.037*** (0.166)
Trend		0.120*** (0.031)	0.134*** (0.031)	0.142*** (0.033)		0.119*** (0.031)	0.135*** (0.031)	0.143*** (0.033)
Regional Dummies	No	No	Yes	Yes	No	No	Yes	Yes
Observations	937	937	805	747	928	928	796	738

Regional Exclusions

	(1) Africas	(2) Americas	(3) Asia	(4) Europe
Checks	0.044 (0.029)	0.046 (0.029)	-0.119 (0.319)	0.044 (0.030)
Centralization	0.915* (0.552)	1.355** (0.554)	0.292 (1.235)	0.664 (0.621)
Interaction	-0.293** (0.119)	-0.390*** (0.118)	-0.116 (0.326)	-0.468*** (0.170)
Oil imports	-0.182 (0.124)	-0.201* (0.114)	-0.639 (0.535)	-0.233 (0.149)
Oil reserves	-0.003 (0.005)	-0.003 (0.005)	0.002 (0.013)	-0.005 (0.005)
External risk (t-2)	0.113 (0.084)	0.120 (0.083)	-0.116 (0.119)	0.198* (0.103)
Oil price	0.014*** (0.004)	0.014*** (0.003)	0.015*** (0.005)	0.012*** (0.005)
GDP pc (log)	1.086*** (0.214)	1.412*** (0.215)	1.550*** (0.267)	1.122*** (0.228)
Population (log)	1.013*** (0.175)	1.238*** (0.197)	1.047*** (0.268)	1.038*** (0.168)
Trend	0.136*** (0.033)	0.117*** (0.032)	0.097** (0.047)	0.153*** (0.044)
Regional Dummies	No	No	No	No
Observations	558	618	472	581

Regulatory Agency

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Checks	-0.869*** (0.176)	-0.351** (0.159)	-0.439** (0.191)	-0.463** (0.189)		-0.394** (0.194)		-0.385** (0.194)
Regulatory agency (t-2)	-2.044*** (0.403)	-0.954** (0.390)	-1.141** (0.522)	-1.179** (0.529)		-0.772 (0.617)		-0.837 (0.580)
Interaction	0.901*** (0.178)	0.411** (0.160)	0.486** (0.192)	0.501*** (0.190)		0.439** (0.193)		0.430** (0.193)
Oil imports			-0.160 (0.121)	-0.159 (0.123)	-0.201* (0.122)	-0.190 (0.126)	-0.202* (0.122)	-0.188 (0.125)
Oil reserves			-0.004 (0.006)	-0.004 (0.006)	-0.006 (0.005)	-0.004 (0.005)	-0.006 (0.005)	-0.004 (0.005)
External risk (t-2)				0.095 (0.081)	0.109 (0.080)	0.095 (0.082)	0.112 (0.081)	0.096 (0.083)
Polity score					-0.044 (0.029)	-0.038 (0.035)		
Polity competition							-0.101* (0.061)	-0.079 (0.068)
Oil price		0.009*** (0.004)	0.015*** (0.004)	0.015*** (0.004)	0.013*** (0.004)	0.014*** (0.004)	0.013*** (0.004)	0.014*** (0.004)
GDP pc (log)	1.354*** (0.152)	1.044*** (0.121)	1.094*** (0.212)	1.030*** (0.214)	1.077*** (0.211)	1.051*** (0.206)	1.062*** (0.207)	1.044*** (0.204)
Population (log)	1.177*** (0.130)	0.858*** (0.100)	0.995*** (0.155)	0.993*** (0.161)	0.989*** (0.163)	1.005*** (0.164)	0.975*** (0.158)	0.997*** (0.162)
Trend		0.109*** (0.030)	0.119*** (0.031)	0.123*** (0.032)	0.146*** (0.033)	0.132*** (0.034)	0.147*** (0.033)	0.132*** (0.033)
Regional Dummies	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	940	940	809	743	747	725	738	716

Mercantilist Control

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Checks	0.073** (0.036)	0.079** (0.032)	0.057* (0.030)	0.049 (0.030)		0.056* (0.032)		0.059* (0.033)
Centralization	1.753*** (0.454)	0.857* (0.443)	1.008** (0.505)	1.163** (0.512)		1.018* (0.525)		1.021** (0.510)
Interaction	-0.523*** (0.100)	-0.232** (0.098)	-0.292*** (0.113)	-0.349*** (0.115)		-0.317*** (0.120)		-0.314*** (0.117)
Mercantilism	-0.038* (0.020)	-0.004 (0.020)	-0.003 (0.018)	-0.002 (0.017)	-0.005 (0.014)	-0.003 (0.018)	-0.005 (0.015)	-0.004 (0.018)
Oil imports			-0.187 (0.125)	-0.191 (0.124)	-0.208* (0.126)	-0.211 (0.129)	-0.209* (0.125)	-0.220* (0.129)
Oil reserves			-0.004 (0.005)	-0.004 (0.005)	-0.006 (0.005)	-0.005 (0.005)	-0.006 (0.005)	-0.006 (0.005)
External risk (t-2)				0.101 (0.083)	0.103 (0.082)	0.102 (0.084)	0.106 (0.083)	0.107 (0.085)
Polity score					-0.045 (0.029)	-0.028 (0.032)		
Polity competition							-0.102* (0.061)	-0.084 (0.065)
Oil price		0.010*** (0.004)	0.014*** (0.003)	0.014*** (0.003)	0.013*** (0.004)	0.014*** (0.003)	0.013*** (0.003)	0.013*** (0.003)
GDP pc (log)	1.299*** (0.169)	1.101*** (0.139)	1.192*** (0.221)	1.167*** (0.225)	1.074*** (0.211)	1.170*** (0.220)	1.059*** (0.207)	1.167*** (0.215)
Population (log)	1.081*** (0.136)	0.836*** (0.108)	1.027*** (0.160)	1.056*** (0.165)	0.992*** (0.163)	1.058*** (0.169)	0.978*** (0.158)	1.060*** (0.165)
Trend		0.121*** (0.031)	0.126*** (0.030)	0.128*** (0.032)	0.144*** (0.033)	0.132*** (0.033)	0.145*** (0.033)	0.134*** (0.033)
Regional Dummies	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	831	831	772	743	743	725	734	716

Multiple Imputation of weighted mean applied tariff based on Linear Regression.

Transparency Control

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Checks	0.048* (0.029)	0.061*** (0.023)	0.069** (0.034)	0.059* (0.033)		0.059* (0.034)		0.062* (0.034)
Centralization	1.587*** (0.467)	0.852** (0.427)	0.867* (0.511)	1.021** (0.517)		1.018* (0.528)		0.979* (0.517)
Interaction	-0.455*** (0.089)	-0.211** (0.091)	-0.297*** (0.111)	-0.355*** (0.114)		-0.361*** (0.121)		-0.343*** (0.118)
Transparency	-0.938** (0.376)	0.105 (0.327)	-0.828* (0.453)	-0.852* (0.451)	-0.423 (0.491)	-0.888* (0.529)	-0.377 (0.490)	-0.755 (0.525)
Oil imports			-0.232* (0.126)	-0.225* (0.124)	-0.199 (0.122)	-0.213* (0.127)	-0.200* (0.122)	-0.221* (0.126)
Oil reserves			-0.008 (0.005)	-0.007 (0.005)	-0.007 (0.005)	-0.007 (0.005)	-0.007 (0.005)	-0.007 (0.005)
External risk (t-2)				0.126 (0.083)	0.111 (0.081)	0.122 (0.083)	0.113 (0.081)	0.122 (0.084)
Polity score					-0.028 (0.034)	0.006 (0.038)		
Polity competition							-0.071 (0.072)	-0.023 (0.075)
Oil price		0.009** (0.004)	0.013*** (0.003)	0.014*** (0.003)	0.013*** (0.004)	0.014*** (0.003)	0.013*** (0.004)	0.013*** (0.003)
GDP pc (log)	1.731*** (0.199)	1.080*** (0.137)	1.354*** (0.227)	1.309*** (0.234)	1.130*** (0.222)	1.291*** (0.234)	1.112*** (0.220)	1.278*** (0.232)
Population (log)	1.355*** (0.183)	0.868*** (0.107)	1.120*** (0.162)	1.137*** (0.170)	1.009*** (0.167)	1.097*** (0.173)	0.998*** (0.163)	1.101*** (0.171)
Trend		0.117*** (0.030)	0.129*** (0.030)	0.132*** (0.032)	0.145*** (0.032)	0.131*** (0.032)	0.146*** (0.033)	0.134*** (0.032)
Regional Dummies	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	940	940	809	743	747	725	738	716

Political Risk

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Checks	0.037 (0.026)	0.063*** (0.023)	0.052* (0.029)	0.046 (0.028)		0.053* (0.030)		0.056* (0.031)
Centralization	1.817*** (0.456)	0.829** (0.421)	0.995** (0.504)	0.973** (0.496)		0.824 (0.512)		0.828* (0.496)
Interaction	-0.500*** (0.088)	-0.206** (0.090)	-0.288*** (0.112)	-0.263** (0.112)		-0.231** (0.118)		-0.228** (0.115)
Oil imports			-0.188 (0.121)	-0.154 (0.122)	-0.170 (0.120)	-0.174 (0.125)	-0.171 (0.120)	-0.182 (0.125)
Oil reserves			-0.004 (0.005)	-0.001 (0.005)	-0.004 (0.005)	-0.003 (0.005)	-0.003 (0.005)	-0.003 (0.005)
Political Risk				0.044** (0.017)	0.048*** (0.017)	0.044** (0.017)	0.047*** (0.017)	0.044** (0.017)
Polity score					-0.042 (0.028)	-0.030 (0.031)		
Polity competition							-0.095 (0.059)	-0.084 (0.062)
Oil price		0.009** (0.003)	0.014*** (0.003)	0.014*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)
GDP pc (log)	1.570*** (0.180)	1.096*** (0.128)	1.218*** (0.218)	0.836*** (0.236)	0.781*** (0.225)	0.856*** (0.232)	0.772*** (0.221)	0.855*** (0.228)
Population (log)	1.267*** (0.163)	0.873*** (0.106)	1.048*** (0.157)	0.984*** (0.155)	0.951*** (0.157)	0.993*** (0.159)	0.939*** (0.152)	0.994*** (0.155)
Trend		0.117*** (0.030)	0.127*** (0.030)	0.142*** (0.030)	0.153*** (0.031)	0.145*** (0.031)	0.154*** (0.031)	0.147*** (0.031)
Regional Dummies	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	940	940	809	746	750	728	741	719

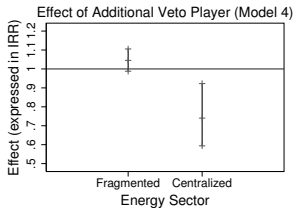
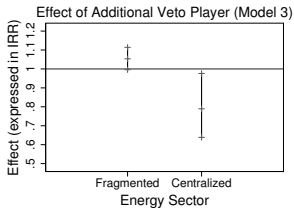
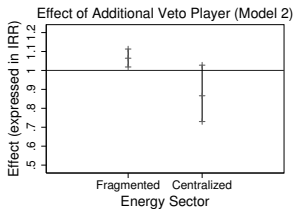
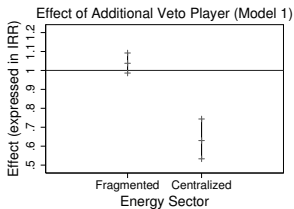
UAE Recoded as Centralized

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Checks	0.038 (0.026)	0.064*** (0.023)	0.053* (0.029)	0.045 (0.029)		0.051* (0.031)		0.054* (0.031)
Centralization	1.863*** (0.472)	0.911** (0.428)	1.090** (0.518)	1.229** (0.524)		1.064* (0.543)		1.049** (0.528)
Interaction	-0.492*** (0.087)	-0.208** (0.088)	-0.296*** (0.111)	-0.349*** (0.114)		-0.318*** (0.120)		-0.313*** (0.117)
Oil imports			-0.182 (0.121)	-0.181 (0.122)	-0.201* (0.122)	-0.199 (0.127)	-0.202* (0.122)	-0.208 (0.127)
Oil reserves			-0.005 (0.005)	-0.005 (0.005)	-0.006 (0.005)	-0.006 (0.005)	-0.006 (0.005)	-0.006 (0.005)
External risk (t-2)				0.104 (0.081)	0.109 (0.080)	0.106 (0.082)	0.112 (0.081)	0.110 (0.082)
Polity score					-0.044 (0.029)	-0.025 (0.032)		
Polity competition							-0.101* (0.061)	-0.076 (0.064)
Oil price		0.009** (0.003)	0.014*** (0.003)	0.014*** (0.003)	0.013*** (0.004)	0.014*** (0.003)	0.013*** (0.004)	0.014*** (0.003)
GDP pc (log)	1.545*** (0.181)	1.090*** (0.126)	1.194*** (0.215)	1.134*** (0.220)	1.077*** (0.211)	1.141*** (0.218)	1.062*** (0.207)	1.138*** (0.213)
Population (log)	1.274*** (0.167)	0.886*** (0.107)	1.054*** (0.157)	1.057*** (0.164)	0.989*** (0.163)	1.054*** (0.168)	0.975*** (0.158)	1.055*** (0.164)
Trend		0.117*** (0.030)	0.127*** (0.030)	0.129*** (0.031)	0.146*** (0.033)	0.134*** (0.032)	0.147*** (0.033)	0.136*** (0.032)
Regional Dummies	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	940	940	809	743	747	725	738	716

Full Specification

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Checks	1.038 (0.027)	1.065*** (0.024)	1.053* (0.030)	1.045 (0.030)		1.052* (0.032)		1.056* (0.033)
Centralization	6.155*** (2.807)	2.291** (0.964)	2.706** (1.363)	3.158** (1.614)		2.741* (1.437)		2.745** (1.400)
Interaction	0.607*** (0.054)	0.814** (0.073)	0.749*** (0.084)	0.708*** (0.081)		0.730*** (0.087)		0.733*** (0.086)
Oil imports			0.829 (0.100)	0.830 (0.101)	0.818* (0.100)	0.815 (0.102)	0.817* (0.099)	0.808* (0.101)
Oil reserves			0.996 (0.005)	0.996 (0.005)	0.994 (0.005)	0.995 (0.005)	0.994 (0.005)	0.994 (0.005)
External risk (t-2)				1.115 (0.090)	1.115 (0.090)	1.117 (0.091)	1.118 (0.090)	1.122 (0.092)
Polity score					0.957 (0.028)	0.973 (0.031)		
Polity competition							0.904* (0.055)	0.922 (0.059)
Oil price		1.009** (0.004)	1.014*** (0.003)	1.014*** (0.003)	1.013*** (0.004)	1.014*** (0.004)	1.013*** (0.004)	1.014*** (0.004)
GDP pc (log)	4.806*** (0.866)	2.992*** (0.383)	3.381*** (0.736)	3.200*** (0.715)	2.937*** (0.620)	3.213*** (0.706)	2.892*** (0.598)	3.204*** (0.688)
Population (log)	3.550*** (0.578)	2.395*** (0.254)	2.853*** (0.449)	2.873*** (0.474)	2.689*** (0.437)	2.875*** (0.485)	2.652*** (0.419)	2.880*** (0.475)
Trend		1.124*** (0.034)	1.136*** (0.034)	1.138*** (0.036)	1.157*** (0.038)	1.143*** (0.037)	1.158*** (0.038)	1.146*** (0.037)
Africa			0.479 (0.293)	0.413 (0.254)	0.429 (0.252)	0.365* (0.222)	0.437 (0.255)	0.357* (0.214)
Americas			0.738 (0.418)	0.762 (0.433)	0.647 (0.346)	0.737 (0.406)	0.596 (0.315)	0.675 (0.367)
Asia			1.124 (0.546)	1.073 (0.512)	1.039 (0.518)	0.921 (0.471)	0.969 (0.485)	0.827 (0.419)
Observations	940	940	809	743	747	725	738	716

Substantive Effect, Four Models



Investments by NOC countries (millions of USD)

China	149453.2	Mexico	1584.37
Russia	77659.18	Kuwait	1455.5
India	40026.922	Poland	720
Italy	27751.971	France	579.54
Korea, Rep.	25003.42	Portugal	353.16
Malaysia	17996.891	Spain	316
Norway	14384.58	Venezuela	242.5
Japan	7511.71	Qatar	218.22
Kazakhstan	5059.5	Angola	200
Austria	4780.5601	Philippines	196.2
Indonesia	4762.4102	Ecuador	168
Thailand	4206.1299	Bolivia	112
Colombia	2542.45	Pakistan	78
Oman	2514.0901	Azerbaijan	74.13
Brazil	2258.8	Kenya	71.19
Hungary	1756.4	Ukraine	10.9
Abu Dhabi	1746.75	Serbia	1.5
Denmark	1665.11		

Competing Principals

National Institutions

		Centralized	Fragmented
<i>Sector</i>	Centralized	Govt lacks willingness (ex. Russia)	BINGO!! (ex. Norway, Brazil)
	Fragmented	Govt lacks capacity and willingness (ex. China)	Govt lacks capacity (ex. India)

China

Govt has **neither** capacity nor willingness to restrain NOC investments (Source: ICG 2008).

- State firms, such as CNPC, Sinopec, and CNOOC dominate the policy process.
- NOCs have been able to exploit institutional weaknesses, resulting in a fragmented energy policy driven by company objectives rather than a comprehensive national strategy.

India

Govt has **willingness**, but lacks capacity to restrain NOC investments (Source: Rai 2012).

- Being a public sector enterprise also means that members of the parliament can ask questions (to the petroleum minister) about ONGC's operations.
- The government has charged multiple government oversight agencies with auditing ONGC's accounts and verifying the transparency of business dealings of ONGC.
- ONGC has been selling OVL's overseas ventures to the govt under the agenda of energy security. But, at present, OVL's operations do not enhance India's energy security by much.