

# Resource Course Slides

## Econ 570

Barry W. Ickes

The Pennsylvania State University

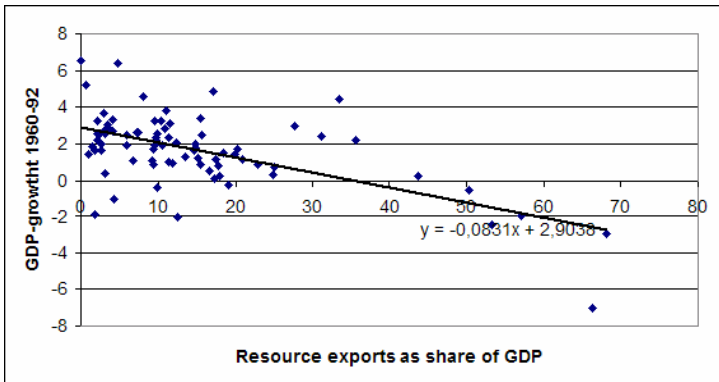
Fall 2008

# Big Picture

Lecture Note

Resource  
Curse

Resource  
Curse Slides



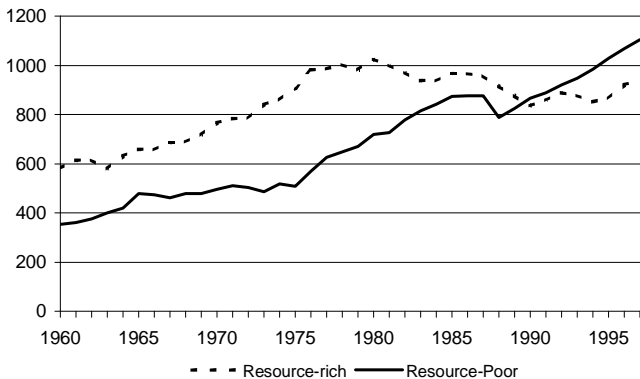
# Income and Resource Wealth

Lecture Note

Resource  
Curse

Resource  
Curse Slides

**Figure 1.1 Median GDP per capita (constant 1995 US\$)  
resource-rich and resource-poor developing countries**



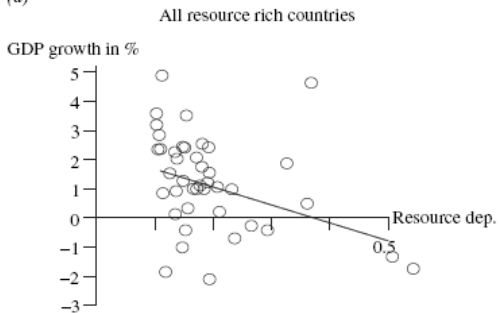
# Growth and Resources

Lecture Note

Resource  
Curse

Resource  
Curse Slides

(a)

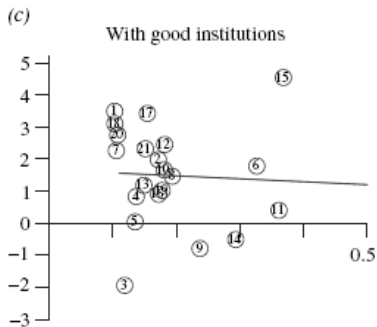
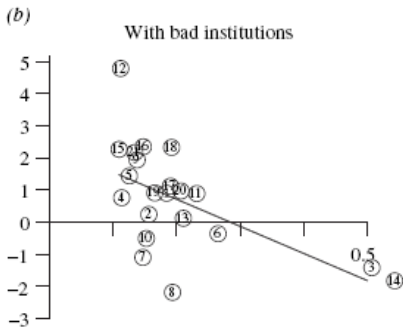


# Growth and Institutions

Lecture Note

Resource  
Curse

Resource  
Curse Slides



# Initial Oil Production and Income

Lecture Note

Resource  
Curse

Resource  
Curse Slides

Country	Year of first commercial extraction	Per capita PPP GDP in 1960 (1990 International Geary-Khamis dollars)
OPEC		
Algeria	1965	2,088
Indonesia	1883	1,019
Iran	1920	2,154
Iraq	1923	2,735
Kuwait	1938	28,813
Libya	1957	1,830
Nigeria	1960	854
Qatar	1939	33,104
Saudi Arabia	1944	3,719
United Arab Emirates	1965	22,433
Venezuela	1917	9,646
NON-OPEC		
Canada	1920	8,753
Mexico	1901	3,155
Norway	1969	7,204
UK	1918	8,645
US	1859	11,328

Figure:

# Growth, Institutions, and Natural Resources

Lecture Note

Resource  
Curse

Resource  
Curse Slides

Table 2. Growth, Institutions, and Natural Resources in Aggregate

	Panel A. Second stage: dependent variable is real per capita GDP growth, 1970-98					Panel B. First stage: Dependent variable is rule of law				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Rule of Law	1.483	1.228	1.156	1.43	1.157					
	[0.666]	[0.785]	[0.514]	[0.789]	[0.550]					
lnRGDP70	-1.918	-1.678	-1.609	-1.738	-1.626	0.69	0.698	0.646	0.582	0.619
	[0.659]	[0.627]	[0.537]	[0.664]	[0.556]	[0.141]	[0.162]	[0.131]	[0.152]	[0.148]
PO0	2.737	2.635	2.545	2.806	2.576	0.254	0.303	0.41	0.037	0.568
	[0.873]	[0.832]	[0.808]	[0.925]	[0.828]	[0.428]	[0.414]	[0.406]	[0.415]	[0.446]
IPRICE1	-0.059	-0.01	-0.059	-0.009	-0.009	-0.002	-0.002	-0.005	-0.002	-0.003
	[0.062]	[0.050]	[0.009]	[0.002]	[0.005]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
MALFAL66	-1.048	-1.003	-1.079	-1.059	-1.141	-0.111	-0.108	-0.077	-0.062	-0.071
	[0.380]	[0.545]	[0.495]	[0.530]	[0.523]	[0.291]	[0.287]	[0.240]	[0.281]	[0.256]
DENSE65C	0.001	0.001	0.001	0.001	0.001	0	0	0	0	0
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
TOVvolatility7098	-0.014	-0.049	-0.073	-0.054	-0.065	-0.018	-0.038	0.003	-0.01	-0.006
	[0.033]	[0.029]	[0.020]	[0.027]	[0.025]	[0.021]	[0.013]	[0.008]	[0.011]	[0.011]
Overvaluation7098					-0.002					0.004
					[0.005]					[0.003]
EURFRAC						-0.569	-0.394	-0.661	-0.415	-0.622
						[0.241]	[0.220]	[0.232]	[0.217]	[0.222]
ENRFRAC						0.476	0.557	0.663	0.496	0.647
						[0.340]	[0.351]	[0.318]	[0.342]	[0.321]
naturalresourceshregdp70	-2.427					-0.151				
	[3.025]					[0.975]				
naturalresourceshacexp70		0.001					-0.009			
		[0.010]					[0.004]			
naturalresourceshacexp80			2.238		2.418			-2.29		-2.415
			[1.546]		[1.681]			[0.526]		[0.595]
naturalresourceshacexp80				0.009					-0.009	
				[0.010]					[0.004]	
Observations	71	71	71	71	69	71	71	71	71	69
Adjusted R-squared	0.57	0.6	0.63	0.59	0.62	0.64	0.68	0.69	0.68	0.69

Robust standard errors in brackets

Figure:

# Oil Wealth and GDP Levels

Lecture Note

Resource Curse

Resource Curse Slides

(Dependent variable: Logarithm of per capita PPP GDP in 2000)

Variable	Large sample					Acemoglu et al. sample			
	1	2	3	4	5	6	7	8	9
Hydrocarbon deposits, per capita	.059*** (.016)			.051*** (.010)			.064*** (.013)		
Value of oil output, per capita		.096*** (.023)			.086*** (.015)			.131*** (.018)	
Oil/GDP ratio			1.51** (.693)			1.26*** (.313)			2.57*** (.712)
Absolute latitude	.037*** (.005)	.038*** (.005)	.038*** (.005)						
Ethnolinguistic fractionalization				-.170 (.232)	-.455* (.250)	-.436* (.262)	.107 (.237)	.227 (.224)	.204 (.217)
European population	1.34*** (.202)	1.30*** (.202)	1.43*** (.208)	-.054 (.308)	.097 (.286)	.066 (.322)			
Latin America	1.02*** (.155)	9.26*** (.154)	1.06*** (.171)	.814*** (.134)	.662*** (.135)	.774*** (.151)	1.02*** (.126)	1.02*** (.119)	1.15*** (.128)
East Asia	1.70*** (.334)	1.67*** (.290)	1.77*** (.269)	.572*** (.195)	.594*** (.172)	.618*** (.213)	.707*** (.226)	.557** (.244)	.569 (.387)
Rule of law (Instrumented)				1.14*** (.150)	1.02*** (.150)	1.09*** (.165)	1.09*** (.102)	1.14*** (.101)	1.31*** (.095)
No. obs.	111	118	118	111	117	117	68	69	69
P-value for instrument overidentif. test (Hansen J statistic)				.122	.114	.811	.978	.988	.907
Adjusted R-squared	.739	.725	.708	.862	.869	.844	.865	.890	.831

Notes: robust standard errors are in parentheses; constant is not shown.

\*\*\* - significant at 1% level, \*\* - significant at 2% level, \* - significant at 10% level.

Instruments for Rule of law: eq. (4)-(6): absolute latitude, English language speakers, European language speakers; eq. (7)-(9): absolute latitude, settler mortality

Figure: The Effect of Oil Wealth on Per Capita GDP



# Institutions, Oil and GDP

Lecture Note

Resource  
Curse

Resource  
Curse Slides

(Dependent variable: Rule of law index for year 2000)

Variable	1	2	3	4	5	6
Hydrocarbon deposits, per capita	-0.042** (.017)	-0.005 (.017)				
Value of oil output, per capita			-0.068** (.026)	-0.012 (.027)		
Oil/GDP ratio					-1.33** (.536)	.003 (.666)
GDP 1970, per capita	570*** (.090)		552*** (.091)		569*** (.103)	
GDP 1970, per capita, fitted		.508*** (.173)		.466*** (.169)		.473*** (.160)
Absolute latitude	0.027*** (.006)	0.029*** (.009)	0.026*** (.006)	0.029*** (.009)	0.026*** (.006)	0.029*** (.009)
English speakers	.607** (.244)	.951*** (.277)	.718*** (.248)	.928*** (.282)	-.476** (.212)	.934** (.257)
European language speakers	.087 (.155)	-.383* (.210)	.204 (.148)	.398** (.195)	.156 (.145)	-.371* (.191)
Ethnolinguistic fractionalization	.117 (.242)	.374 (.267)	.157 (.209)	.291 (.241)	.235 (.214)	.274 (.245)
No. obs.	112	112	118	118	118	118
Adj. R-squared	.717	.623	.710	.617	.712	.616

Notes: robust standard errors are in parentheses; constant term is not shown;

\*\*\* - significant at 1% level; \*\* - significant at 2% level; \* - significant at 10% level.

Figure: Effect of Oil Wealth on Rule of Law

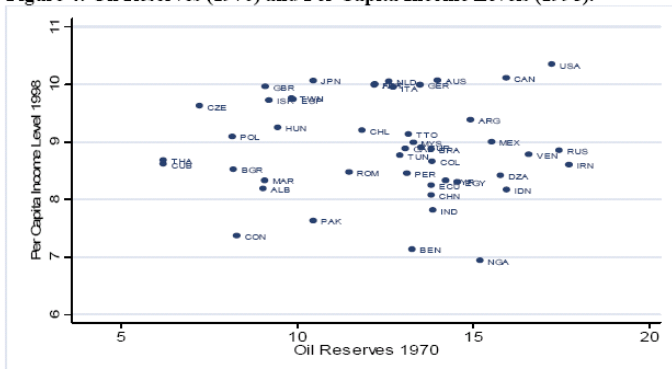
# Oil Reserves and Per-Capita Income

Lecture Note

Resource  
Curse

Resource  
Curse Slides

Figure 4: Oil Reserves (1970) and Per Capita Income Levels (1998).



Notes:—Oil reserve data is from *World Oil*. Per capita income data is from Penn World Tables, 6.1. All variables are in natural logs.

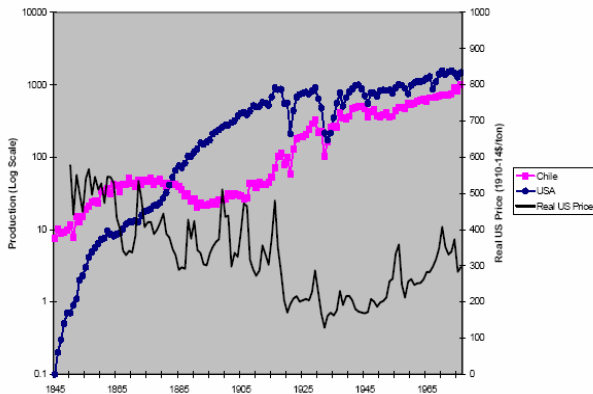
# Copper Production and Reserves

Lecture Note

Resource  
Curse

Resource  
Curse Slides

Figure 1: Copper mine production, United States and Chile, and real U.S. price of copper, 1845-1976



Source: C. J. Schmitz (1979), *World Non-Ferrous Metal Production and Prices, 1700-1976*, London: Frank Cass, pp. 63-78 and 270-72.