Institutions and the Resource Curse Within the United States

Presented by Ashwin Rode
University of California, Santa Barbara

Camp Resources
Wrightsville Beach, NC
August 6, 2012

Agenda

- Extend cross-country work on the resource curse hypothesis to the context of US states

- A panel data exploration of how resource wealth may affect institutional quality in the context of US states

Within US Motivation (Grooms 2012)

Table 3: Average corruption (per 100,000 pop), 1976-2008

Lowest 10 states		Highest 10 states	
Oregon	0.084	Oklahoma	0.420
Washington	0.104	Montana	0.425
Minnesota	0.122	Alabama	0.446
New Hampshire	0.123	Illinois	0.452
Utah	0.134	Tennessee	0.472
Vermont	0.139	North Dakota	0.514
Iowa	0.141	South Dakota	0.539
Nebraska	0.142	Louisiana	0.587
Colorado	0.147	Mississippi	0.591
Wisconsin	0.165	Alaska	0.616

Note: This table presents corruption convictions per capita averaged over 1976 to 2008. This data is from the Report to Congress on the Activities and Operations of the Public Integrity Section"

The Resource Curse

- Resource-rich areas tend to be poor and politically oppressed
- Examples: Nigeria, Congo, Venezuela, the Middle East
- Counter-examples: Norway, Botswana, Australia, Canada

A Theory of Institutions and the Resource Curse (Mehlum et al., 2006)

- Resource wealth diverts entrepreneurs away from productive activity towards rent-seeking...
- ...unless institutional barriers make rent-seeking unprofitable.
- A sufficiently large resource rent can actually erode institutional quality.

Empirical Implication of Mehlum et al. (2006)

Empirical specifications should include an **interaction term** between the measures of resource wealth and institutional quality.

$$interaction\ term = resource\ wealth \times institutional\ quality$$

Cross-country growth regression in Mehlum et al. (2006) shows that the resource curse can be eliminated by good institutions.

Mehlum et al. (2006) Cross-Country Results

Dependent variable: GDP growth.

Initial income level	−1.28*	−1.26*
	(−6.65)	(−6.70)
Openness	1.45*	1.66*
	(3.36)	(3.87)
Resource abundance	−6.69*	−14.34*
	(−5.43)	(−4.21)
Institutional quality	0.6	−1.3
	(0.64)	(−1.13)
Investments	0.15*	0.16*
	(6.73)	(7.15)
Interaction term		15.4*
		(2.40)
Observations	87	87
Adjusted R^2	0.69	0.71

Note: The numbers in brackets are t-values. A star (*) indicates that the estimate is significant at the 5-% level.

Papyrakis and Gerlagh (2007)

Dependent variable: $G_{1986-2000}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Constant	21.50	20.44	19.34	20.54	27.43	26.97	27.97
Ln Y_{86}	–1.90**	–1.77***	–1.69***	–1.83***	–2.57***	–2.53***	–2.59***
(0.19)	(0.93)	(0.64)	(0.61)	(0.62)	(0.73)	(0.69)	(0.66)
Natural Resources		–4.72**	–3.43	–2.66	–0.70	–0.34	–0.14
(0.06)		(2.38)	(2.44)	(2.46)	(2.36)	(2.31)	(2.16)
Investment			0.29***	0.26***	0.34***	0.31***	0.21**
(0.78)			(0.09)	(0.09)	(0.09)	(0.08)	(0.11)
Schooling				0.27**	0.35***	0.29*	0.34**
(0.44)				(0.13)	(0.13)	(0.16)	(0.16)
Openness					1.43**	1.17*	1.28**
(0.17)					(0.64)	(0.65)	(0.62))
R&D						0.15	0.10
(0.97)						(0.10)	(0.10)
Corruption							–0.11**
(1.65)							(0.05)
R^2 adjusted	0.22	0.33	0.40	0.41	0.46	0.48	0.52
N	49	49	49	49	49	49	49

Note: Standard deviations for independent variables in parentheses, based on the sample $N = 49$ of regression (7); robust standard errors for coefficients in parentheses. Superscripts *, **, *** corresponds to a 10%, 5% and 1% level of significance.

Results (with interaction term)

Dependent Variable: $G_{1987-2000}$	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Constant	31.70 (3.33)	25.48 (4.69)	24.53 (4.75)	24.83 (4.71)	31.14 (4.23)	31.18 (4.32)
Ln Y_{87}	-2.92 (3.08)	-2.27 (-4.24)	-2.22 (-4.39)	-2.25 (-4.35)	-2.90 (-3.94)	-2.92 (-4.05)
Natural Resources		**4.89** **(1.03)**	**7.38** **(1.48)**	**7.48** **(1.49)**	**6.04** **(1.12)**	**5.72** **(1.01)**
Interaction		**-1.78** **(-1.61)**	**-2.18** **(-1.87)**	**-2.18** **(-1.87)**	**-1.55** **(-1.23)**	**-1.45** **(-1.11)**
Investment			13.61 (2.59)	13.27 (2.48)	16.40 (3.07)	15.83 (3.23)
Schooling				6.38 (0.38)	12.80 (0.79)	8.00 (0.47)
Openness					10.76 (1.71)	9.28 (1.42)
R&D						7.88 (1.01)
Corruption		-0.09 (-1.50)	-0.04 (-0.63)	-0.04 (-0.63)	-0.07 (-1.01)	-0.06 (-0.77)

For all regressions, $N = 49$. *Robust t-statistics in parentheses.*

Summary of Results

- Resources on their own do not appear to be a curse when considering states within the US.
- If anything they are a blessing.
- Bad institutional quality can wipe out the positive effects of resources.

Does resource wealth erode institutions?

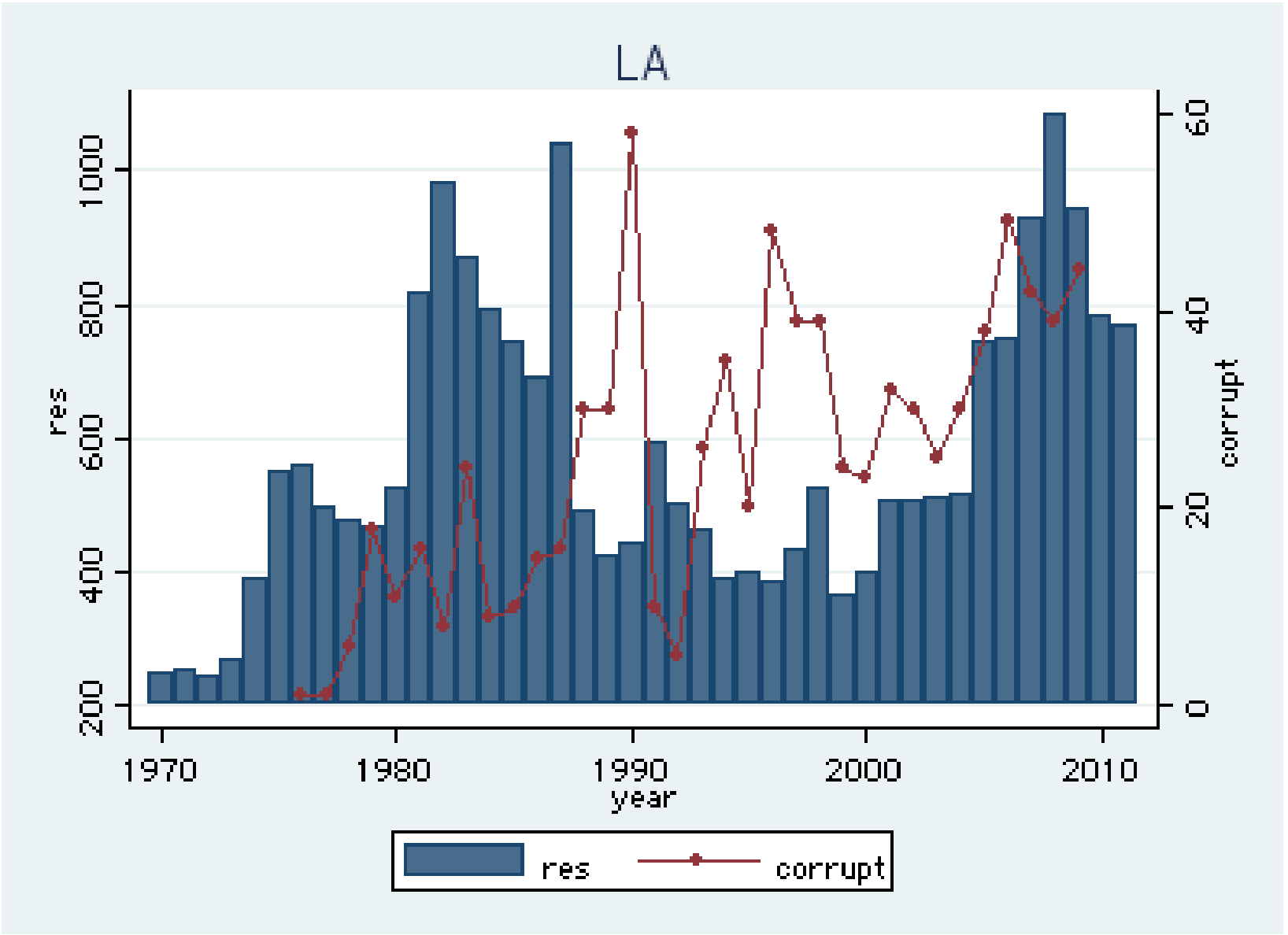
- Panel Data Approach
  - Outcome: corruption convictions in state *i*, year *t* (Leeson and Sobel, 2008)
  - Explanatory variable of interest: Natural resource revenue per capita in state *i*, year *t* and lags

Natural Resources and State Government Revenues

- Sources of natural resource revenue
  - **Severance taxes**
  - **Royalties (incl offshore from 1986)**
  - Corporate Income Tax
  - Property Tax

- States vary in their reliance on natural resource revenue
- Also variation over time within states

Resource Revenue (millions $) and Corruption



Dep. Var. $Corruption_t$	All states	excl. AK
$Severance\,Tax_{t-1}$	-0.002 (-0.60)	0.023 (0.45)
$Severance\,Tax_{t-2}$	0.003 (0.46)	-0.015 (-0.24)
$Severance\,Tax_{t-3}$	**0.029** **(4.03)**	-0.032 (-0.67)
$Onshore\,Royalties_{t-1}$	-0.012 (-1.43)	-0.039 (-0.82)
$Onshore\,Royalties_{t-2}$	0.014 (1.02)	0.012 (0.22)
$Onshore\,Royalties_{t-3}$	-0.026 (-1.19)	0.058 (1.00)
$Offshore\,Royalties_{t-1}$	-0.988 (-1.14)	**1.603** **(4.53)**
$Offshore\,Royalties_{t-2}$	**1.627** **(3.79)**	**2.135** **(3.49)**
$Offshore\,Royalties_{t-3}$	**0.743** **(2.61)**	**1.689** **(3.91)**
N	1500	1470

All regressions include state and year fixed effects. Cluster robust t-stats in parentheses (clustered by state). **Bold** indicates significance at 5% level.