Statistical Modeling and Causal Inference with R

Week 5: Instrumental variable estimation

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Lecture Q&A

- ✓ Open Q&A
- ✓ Acemoglu, Johnson, and Robinson (2001)

Acemoglu, Johnson, and Robinson (2001): Impact

The colonial origins of comparative development: An empirical investigation

D **Acemoglu**, S **Johnson**, JA **Robinson** - American economic review, **2001** - aeaweb.org

We exploit differences in European mortality rates to estimate the effect of institutions on economic performance. Europeans adopted very different colonization policies in different colonies, with different associated institutions. In places where Europeans faced high …

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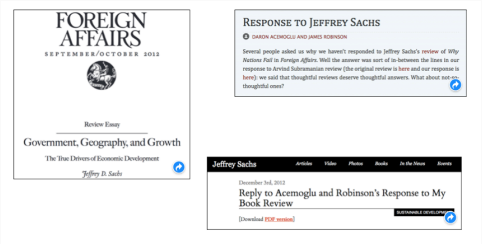
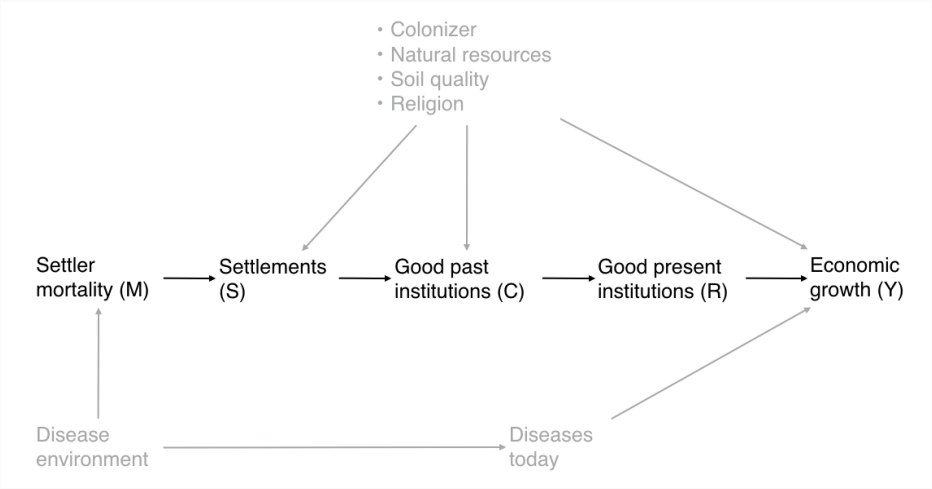


Acemoglu, Johnson, and Robinson (2001): Discussion topics

- ✓ Hypothesis?
- ✓ DAG?
- ✓ Exclusion restriction?
- ✓ Confounders vs. violations of exclusion restriction?
- ✓ Who are the compliers?
- ✓ Possible falsification tests?

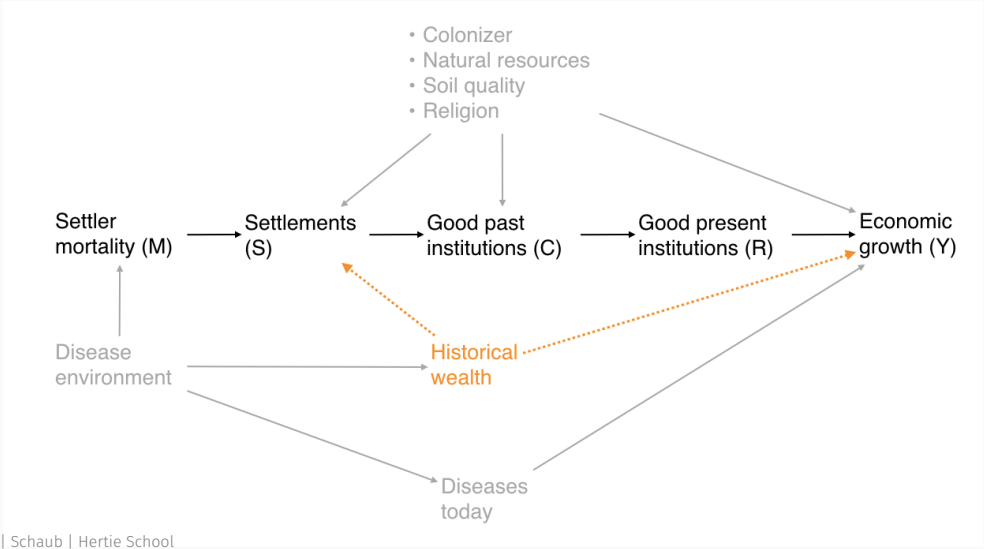
Acemoglu, Johnson, and Robinson (2001): DAG



Acemoglu, Johnson, and Robinson (2001): Exclusion restriction

The exclusion restriction implied by our instrumental variable regression is that, conditional on the controls included in the regression, the mortality rates of European settlers more than 100 years ago have no effect on GDP per capita today, other than their effect through institutional development. The major concern

Acemoglu, Johnson, and Robinson (2001): Exclusion restriction?



Acemoglu, Johnson, and Robinson (2001): IV estimates

TABLE 4—IV REGRESSIONS OF LOG GDP PER CAPITA

	Base sample (1)	Base sample (2)	Base sample without Neo-Europes (3)	Base sample without Neo-Europes (4)	Base sample without Africa (5)	Base sample without Africa (6)	Base sample with continent dummies (7)	Base sample with continent dummies (8)	Base sample, dependent variable is log output per worker (9)
Panel A: Two-Stage Least Squares									
Average protection against expropriation risk 1985–1995	0.94	1.00	1.28	1.21	0.58	0.58	0.98	1.10	0.98
	(0.16)	(0.22)	(0.36)	(0.35)	(0.10)	(0.12)	(0.30)	(0.46)	(0.17)
Latitude		−0.65		0.94		0.04		−1.20	
		(1.34)		(1.46)		(0.84)		(1.8)	
Asia dummy							−0.92	−1.10	
							(0.40)	(0.52)	
Africa dummy							−0.46	−0.44	
							(0.36)	(0.42)	
"Other" continent dummy							−0.94	−0.99	
							(0.85)	(1.0)	
Panel B: First Stage for Average Protection Against Expropriation Risk in 1985–1995									
Log European settler mortality	−0.61	−0.51	−0.39	−0.39	−1.20	−1.10	−0.43	−0.34	−0.63
	(0.13)	(0.14)	(0.13)	(0.14)	(0.22)	(0.24)	(0.17)	(0.18)	(0.13)
Latitude		2.00		−0.11		0.99		2.00	
		(1.34)		(1.50)		(1.43)		(1.40)	
Asia dummy							0.33	0.47	
							(0.49)	(0.50)	
Africa dummy							−0.27	−0.26	
							(0.41)	(0.41)	
"Other" continent dummy							1.24	1.1	
							(0.84)	(0.84)	
R^2	0.27	0.30	0.13	0.13	0.47	0.47	0.30	0.33	0.28
Panel C: Ordinary Least Squares									
Average protection against expropriation risk 1985–1995	0.52	0.47	0.49	0.47	0.48	0.47	0.42	0.40	0.46
	(0.06)	(0.06)	(0.08)	(0.07)	(0.07)	(0.07)	(0.06)	(0.06)	(0.06)
Number of observations	64	64	60	60	37	37	64	64	61

Acemoglu, Johnson, and Robinson (2001): Latitude comment

0.22.[20] Remarkably, the latitude variable now has the "wrong" sign and is insignificant. This result suggests that many previous studies may have found latitude to be a significant determinant of economic performance because it is correlated with institutions (or with the exogenous component of institutions caused by early colonial experience).

Thank you for watching, and see you next Monday!

References i

Acemoglu, D., Johnson, S., & Robinson, J. A. (2001, December). The Colonial Origins of Comparative Development: An Empirical Investigation. *American Economic Review*, *91*(5), 1369–1401.