"Institutions as a Fundamental Cause of Long-run Growth" link

A few key readings:

Sokoloff, K. and S. Engerman, 2000, Institutions, Factor Endowments, and Paths of Development in the New World. *Journal of Economic Perspectives* 14.(link)

Acemoglu, D., S. Johnson and J. Robinson, 2001, The Colonial Origins of Comparative Development: An Empirical Investigation. *The American Economic Review* 91, 1369-1401. (link)

Banerjee, Abhijit, and Lakshmi Iyer. 2005. History, Institutions, and Economic Performance: The Legacy of Colonial Land Tenure Systems in India. *American Economic Review* 95, no. 4: 1190. (link)

* Dell, Melissa. 2010. "The Persistent Effects of Peru's Mining 'Mita.' " *Econometrica* 78 (6): 1863–1903.

North, Douglass . 1990. *Institutions, Institutional Change, and Economic Performance*. Cambridge ; New York: Cambridge University Press.

Next class:

Microfoundations of a theory of institutions:
Credit market imperfections

** Eswaran, M. and A. Kotwal, 1986, Access to Capital and Agrarian Production Organization. *Economic Journal* 96, 482-498. (Link)

Long run growth trends

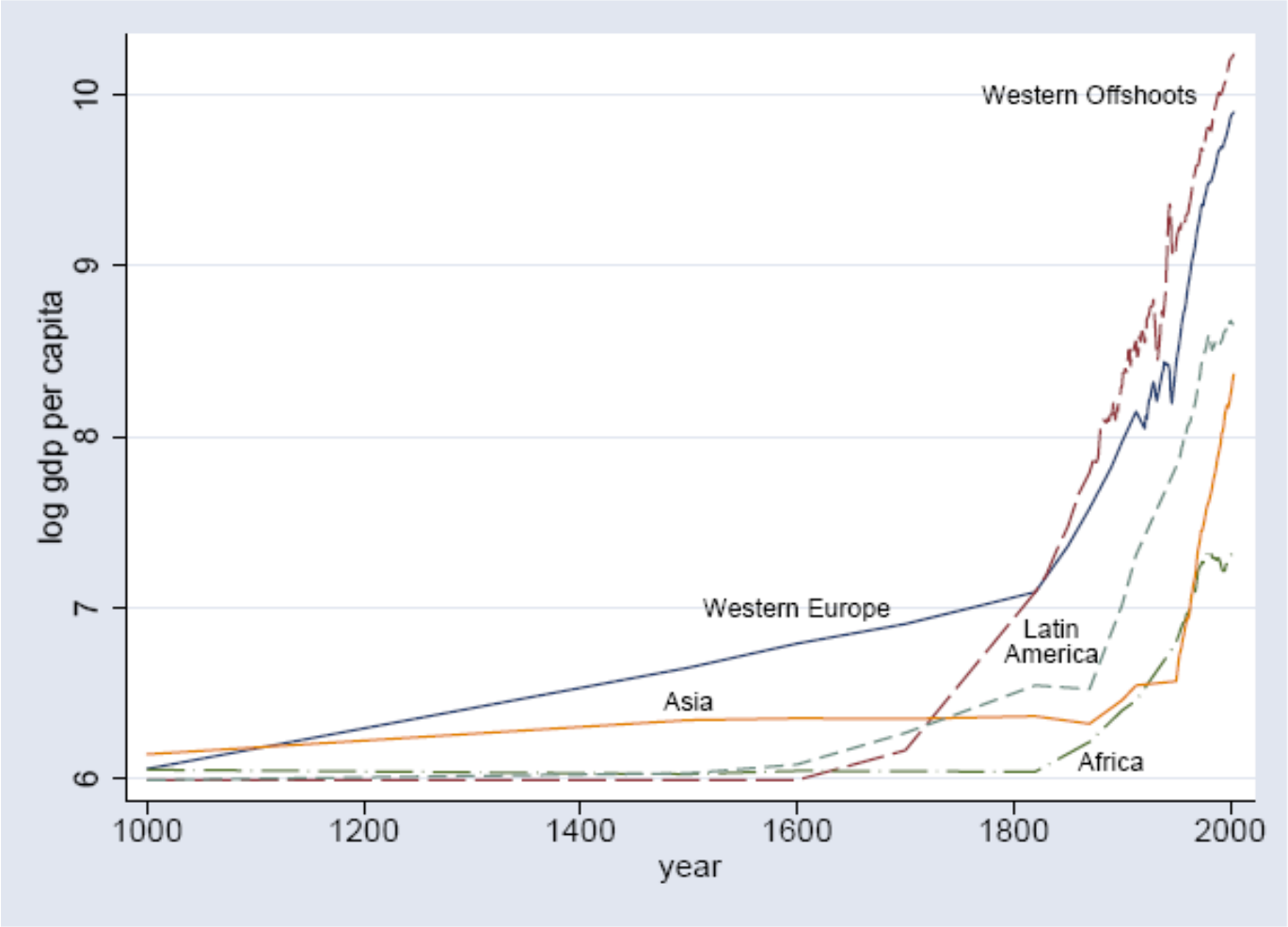


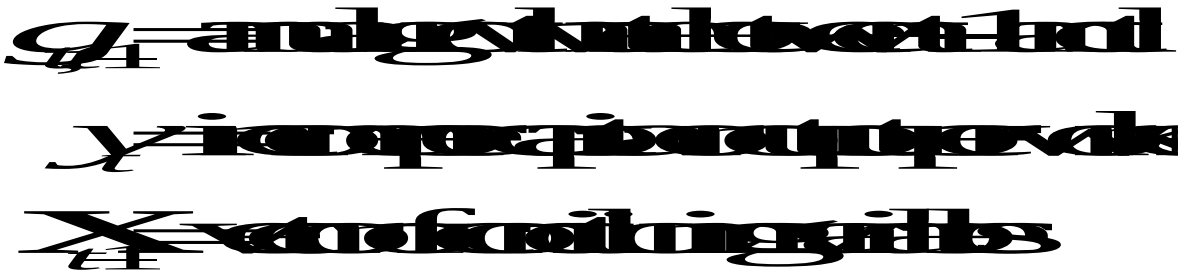
FIGURE 1.11. The evolution of average GDP per capita in Western Offshoots, Western Europe, Latin America, Asia and Africa, 1000-2000.

This and following graphs from: Acemoglu (2007 draft) Introduction to Modern Economic Growth

Testing for Convergence

- Barro style regression:

$$g_{t,t-1} = \beta \ln y_{t-1} + X'_{t-1}\alpha + \varepsilon_t$$



Convergence evidence in OECD

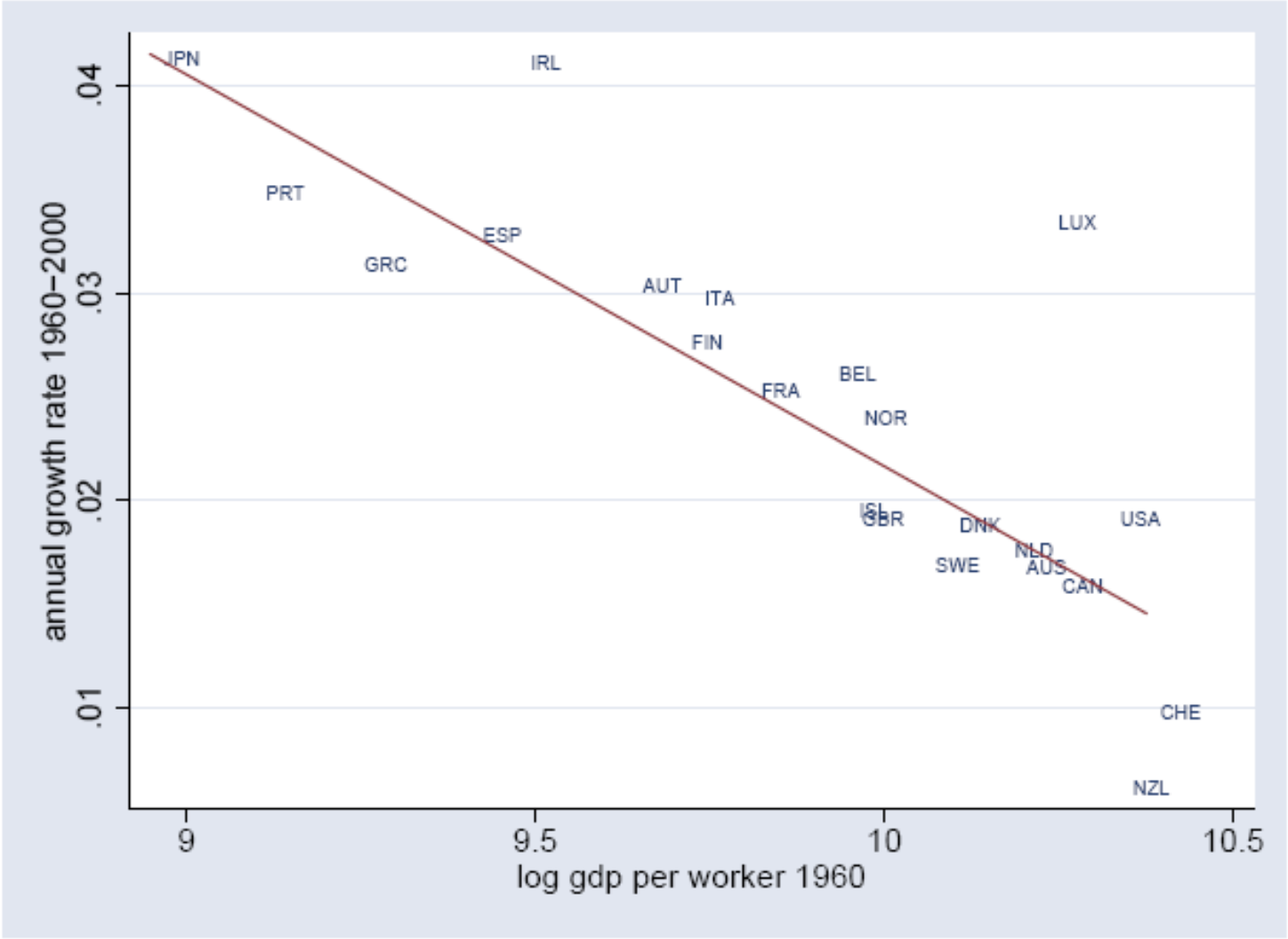


FIGURE 1.14. Annual growth rate of GDP per worker between 1960 and 2000 versus log GDP per worker in 1960 for core OECD countries.

The entire world

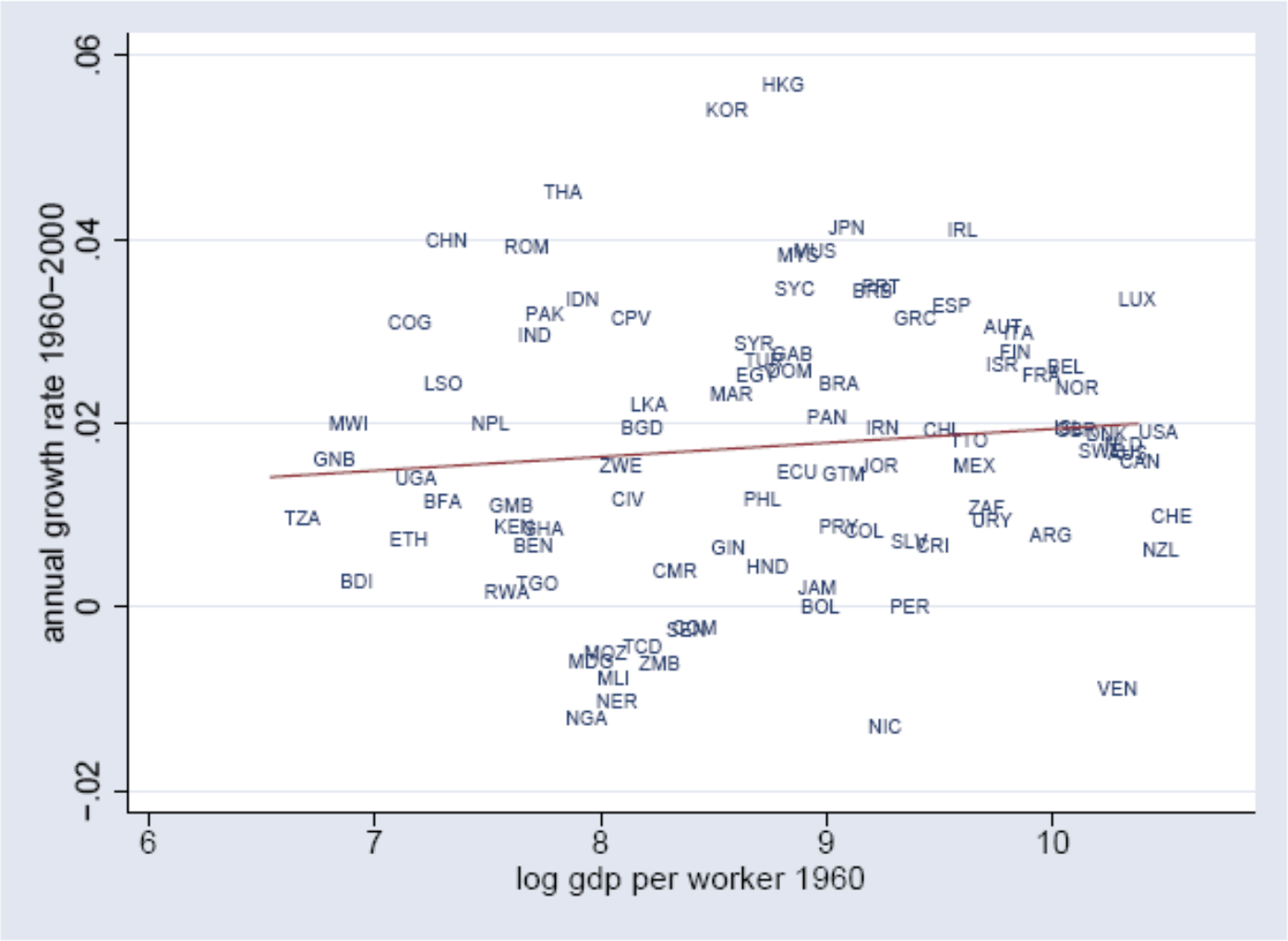


FIGURE 1.13. Annual growth rate of GDP per worker between 1960 and 2000 versus log GDP per worker in 1960 for the entire world.

Questions

- Why have some countries invested more in physical and human capital accumulation?
- Why have some countries been faster to adopt new technologies and organize production more efficiently?
- Do government policies matter? Why do some countries adopt good policies? Why don't the poorer countries imitate the 'good institutions?'

- Hypothesized determinants of long run growth?
    - Geography
    - Culture
    - Institutions (colonial history)

Cross-country regressions and determinants of growth

- Solow growth accounting:

  - Need an explanation of what drives A_t
  - *A, k* and *h* endogenous
- More generally:

Growth regressions and Identification

- Variables in $\mathbf{X}$ have included: schooling, human capital, geography, institutions, culture, etc, etc.
    - **Endogeneity problem:** some **X** variables may be determined by other variables in the system. Then **X** moves endogenously with **y** but not because **X** causes **y** but because other exogenous factors move them both.
    - Unobservables correlated with both income and ***X*** variables

      →  biased OLS coefficient estimates

Reverse causality and omitted variables are special cases**.**
Need truly exogenous variables (not related to observed or unobserved variables in the system)

Identification: Search for Instruments and/or natural experiments

Searching for exogenous determinants: Geography

- Montesquieu (1748): climate affects behavior directly. 'people…more vigorous in cold climates' and more likely to be ruled by despots.
- Jared Diamond (*Guns, Germs and Steel: The Fates of Human Societies, 1997*):
  - Eurasia and Mesopotamia had natural advantages for rise of agriculture and large animal domestication.
  - Agriculture → population density and specialization
    - →military
    - →innovations and trade
    - →exposure to disease
  - Military technology + disease immunity facilitated conquest (up to 95% of native population of Americas dies of new diseases)

Geography (contd.)

- Jeff Sachs: Geographical advantages (e.g. coastline and sea), reduced crop productivity in tropics, burden of infectious diseases in tropics on human productivity.

Latitude and GDP

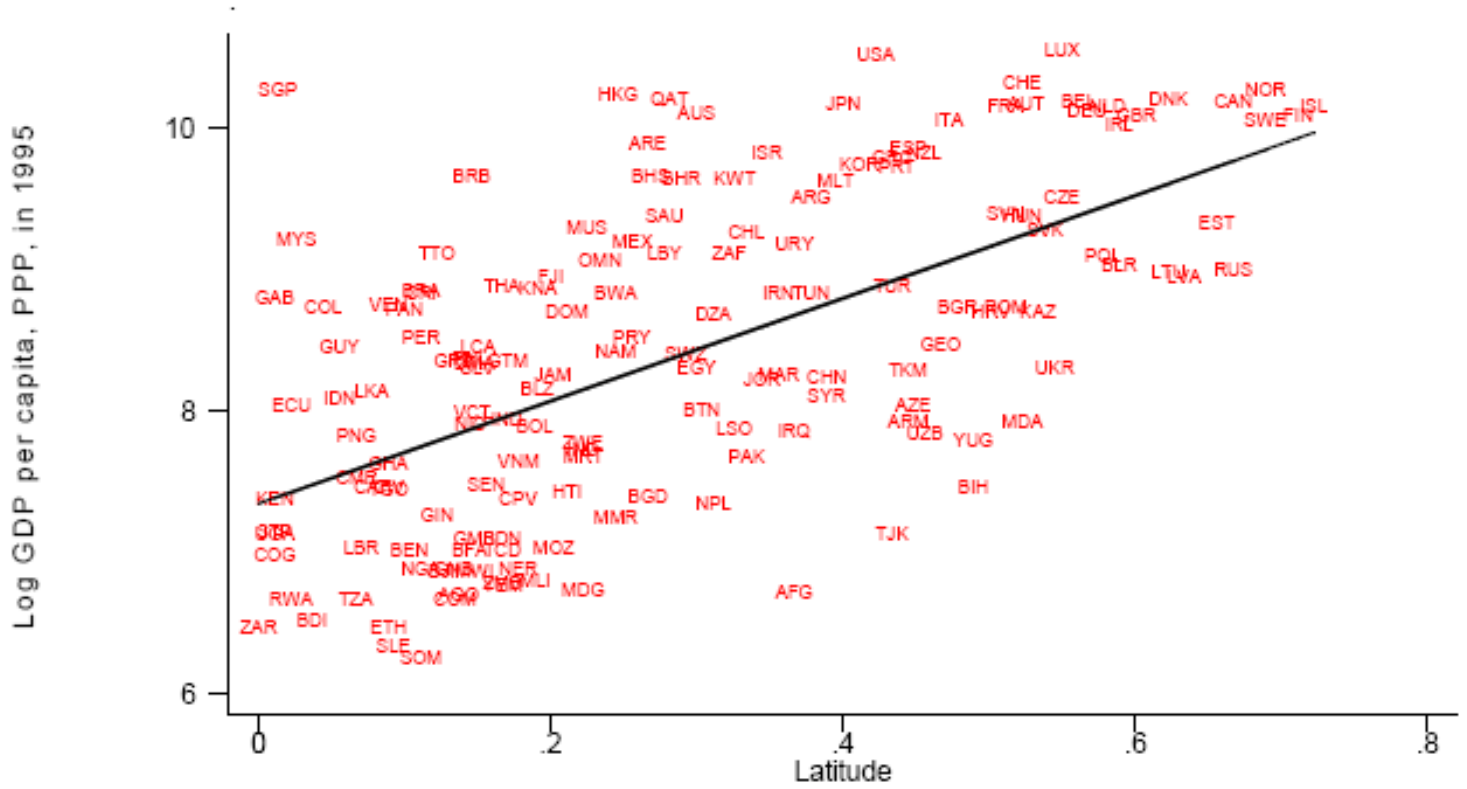


FIGURE 4.2. Relationship between latitude (distance of capital from the equator) and income per capita in 1995.

AJR: Reversal of Fortune

Reversal, controlling for current population composition

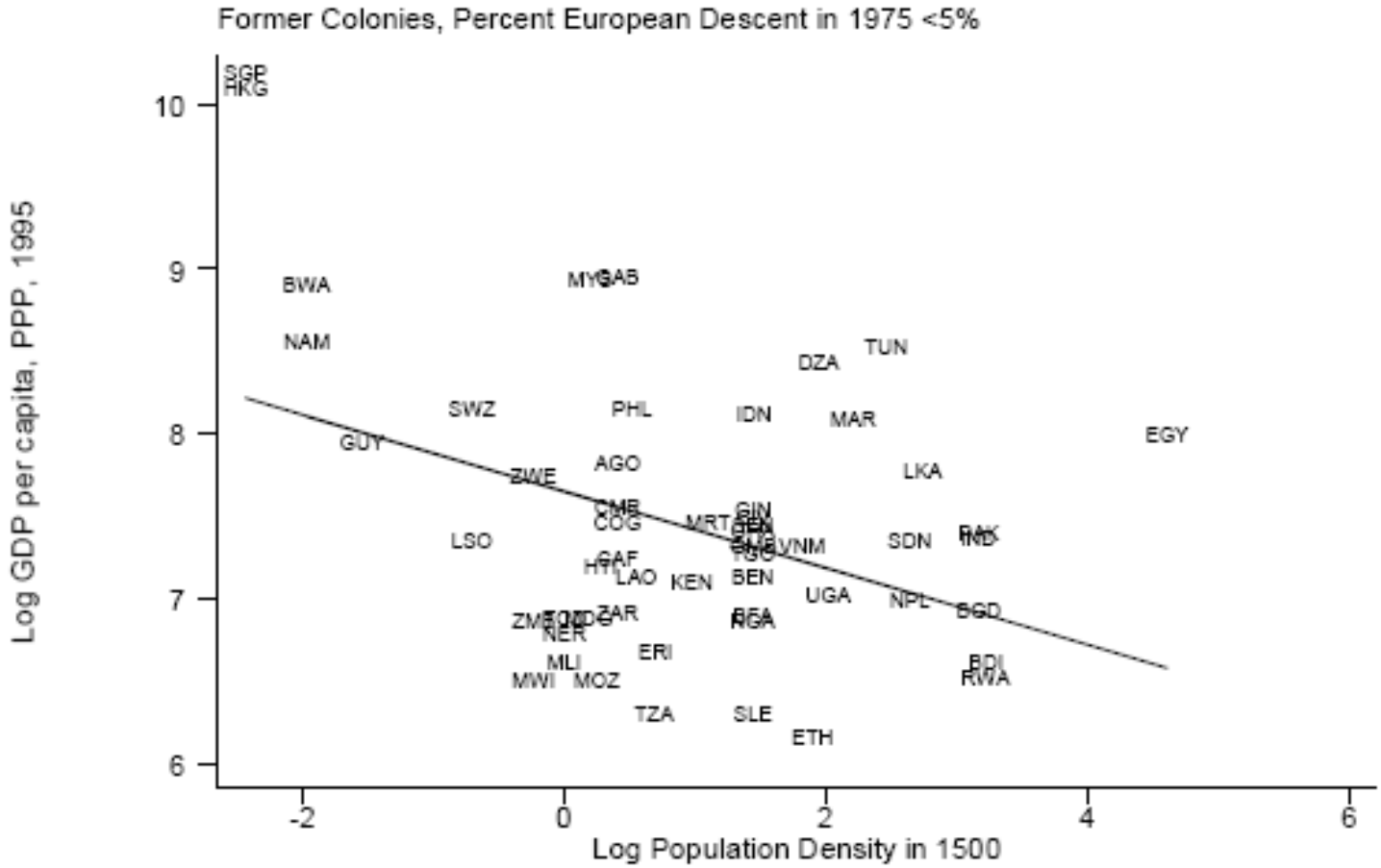


FIGURE 4.13. The Reversal of Fortune among former European colonies with two current European inhabitants.

Institutions

- North: "Institutions are the rules of the game in a society, or more formally, are the humanly devised constraints that shape human interaction."

  Institutions shape incentives to invest, take risks, and enter into trading relationships.

- Economic institutions: Property rights, contract enforcement
- Political institutions: Constraints on politicians and elites, separation of powers, etc.
- Formal versus informal
  - Formal: codified rules
  - Informal: social norms and rules of thumb; how formal rules are implemented in practice.

Acemoglu-Johnson-Robinson
Colonial Origins of Comparative Development

- Types of settlements: 'extractive' vs. 'neo-Europes' produce different types of institutions

Expropriation Risk and GDP (OLS)

$$\ln y_i = \mu + \alpha R_i + \mathbf{X}_i'\gamma + \varepsilon_i$$

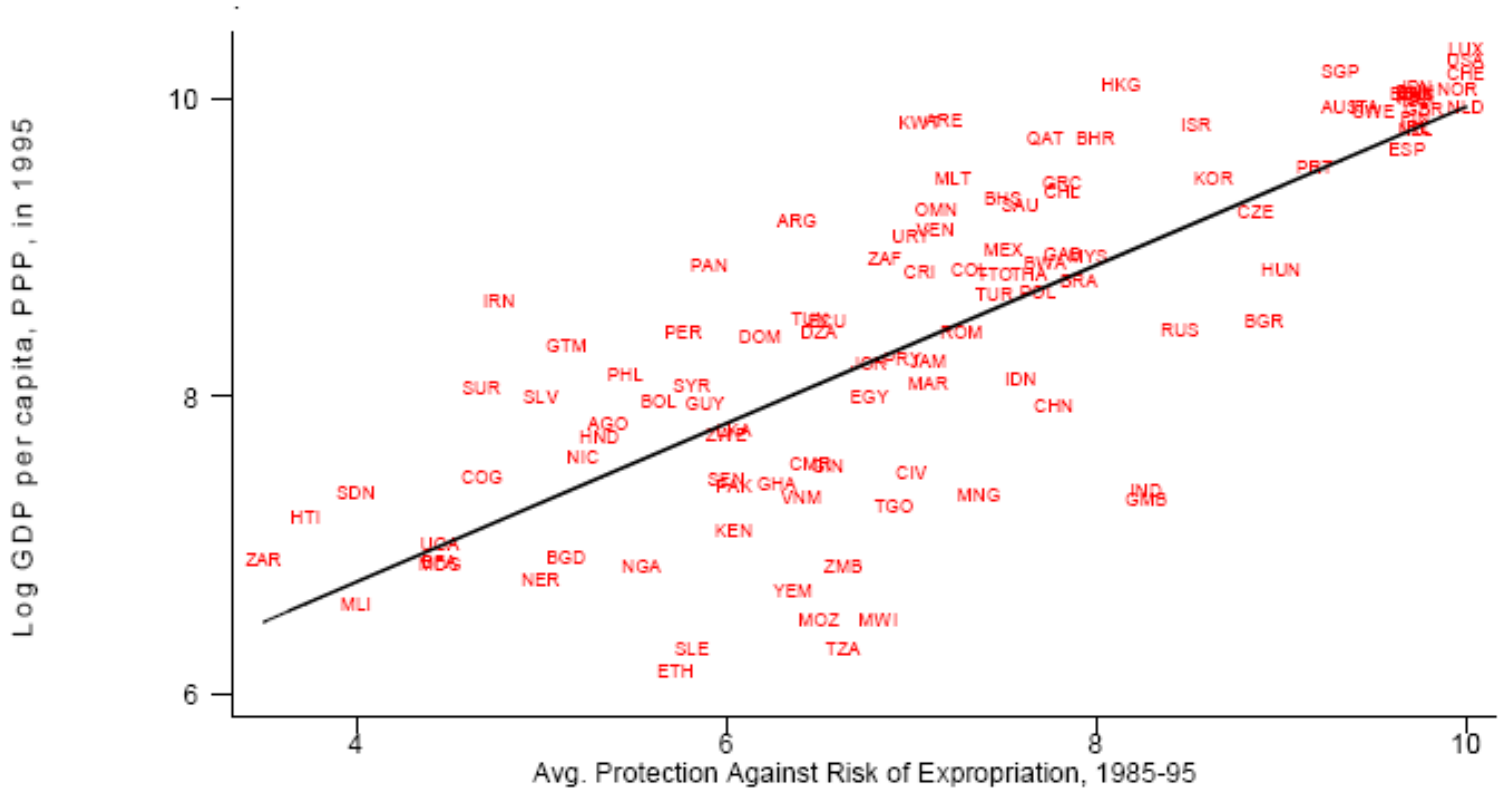


FIGURE 4.1. Relationship between economic institutions, as measured by average expropriation risk 1985-1995, and GDP per capita.

Identification

- Problem: Pattern of settlement and institutions is endogenous. Coefficients will be biased.
- Need to find source of exogenous variation: (something that shapes institutions but only affects today's income via those institutions)
    - disease environment proxied by potential 'white settler mortality.'
- Plausible instrument?
    - Mortality rates as far back as 1500
    - Yellow fever and other diseases affected Europeans, locals had more immunity.
    - Yellow fever is mostly eradicated so less likely to have direct effect. Control for other potential direct effect sources (e.g. latitude, malaria and life expectancy today, etc)

Potential Settler Mortality and GDP

$$\ln y_i = \mu + \alpha R_i + \mathbf{X}_i'\gamma + \varepsilon_i$$
$$R_i = \xi + \beta \log M_i + \mathbf{X}_i'\delta + \nu_i$$

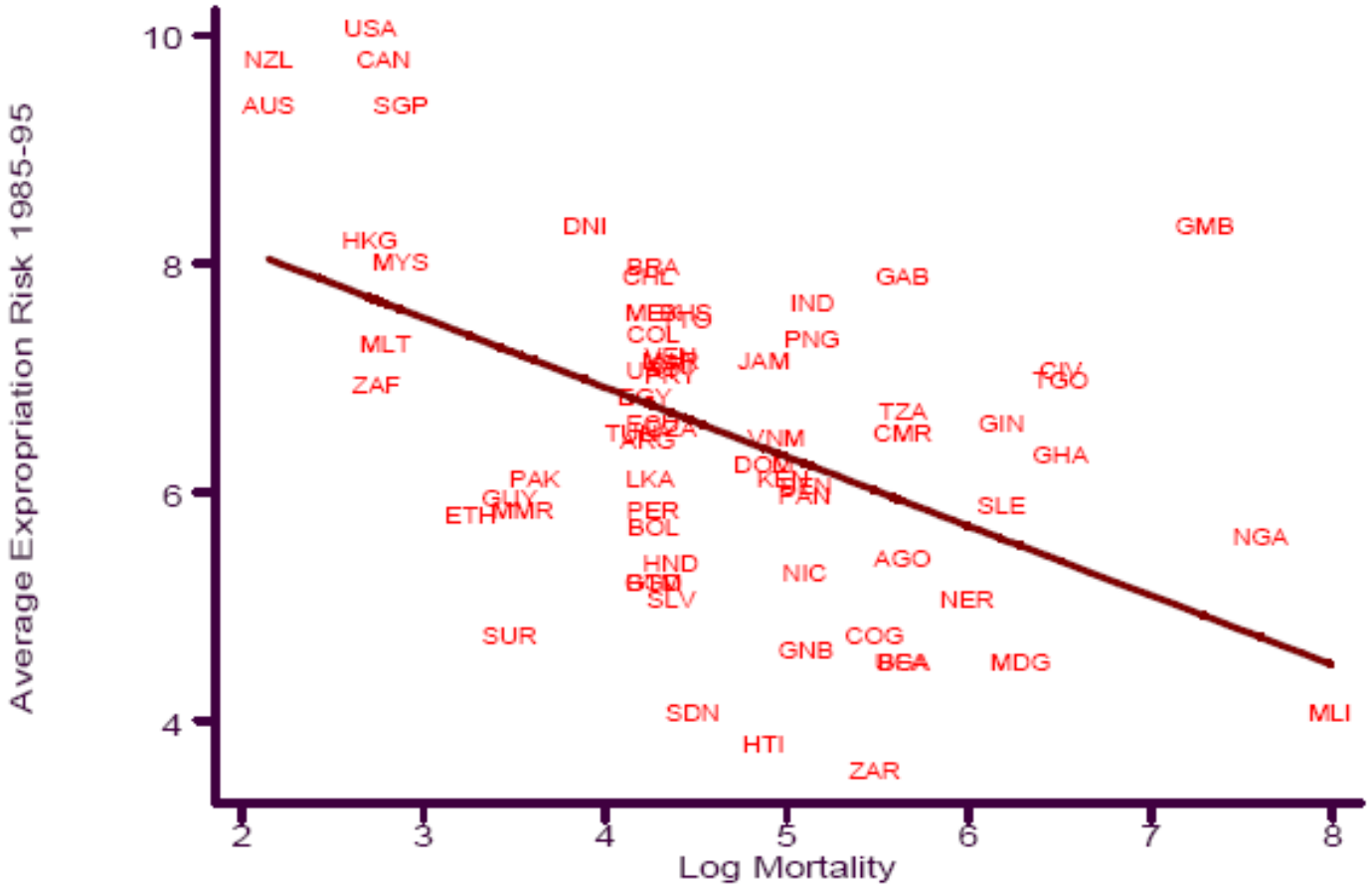
First Stage Regressions:

Dependent variable is protection against risk of expropriation

	All former colonies	All former colonies	All former colonies	Without neo-Europes
Settler Mortality	-0.61	-0.5	-0.43	-0.37
	(0.13)	(0.15)	(0.19)	(0.14)
Latitude		2.34		
		(1.37)		
Continent Dummies (p-value)			[0.25]	
R-Squared	0.26	0.29	0.31	0.11
Number of Observations	63	63	63	59

Standard errors in parentheses

Sample limited to countries for which have GDP per capita data


Average Expropriation Risk 1985-95
10
8
6
4
2
3
4
5
6
7
8
Log Mortality
USA
NZL
CAN
AUS
SGP
HKG
MYS
MLT
ZAF
DNI
GMB
GAB
IND
PNG
JAM
TGO
TZA
GIN
CMR
GHA
VNM
PAK
LKA
ETH
PER
BOL
SLE
NGA
AGO
NIC
HND
SLV
NER
SUR
COG
GNB
MDG
SDN
MLI
HTI
ZAR

Second Stage Regressions:

Dependent variable is log GDP per capita in 1995

	All former colonies	All former colonies	All former colonies	Without neo-Europes
Protection Against Risk of Expropriation, 1985-95	0.99	1.11	1.19	1.43
	(0.17)	(0.26)	(0.39)	(0.45)
Latitude		-1.61		
		(1.57)		
Continent Dummies (p-value)			[0.09]	
Number of Observations	63	63	63	59

Robustness

	Base sample (1)	Base sample (2)	British colonies only (3)	British colonies only (4)	Base sample (5)	Base sample (6)	Base sample (7)	Base sample (8)	Base sample (9)
Panel A: Two-Stage Least Squares									
Average protection against expropriation risk, 1985–1995	1.10	1.16	1.07	1.00	1.10	1.20	0.92	1.00	1.10
	(0.22)	(0.34)	(0.24)	(0.22)	(0.19)	(0.29)	(0.15)	(0.25)	(0.29)
Latitude		−0.75				−1.10		−0.94	−1.70
		(1.70)				(1.56)		(1.50)	(1.6)
British colonial dummy	−0.78	−0.80							
	(0.35)	(0.39)							
French colonial dummy	−0.12	−0.06							0.02
	(0.35)	(0.42)							(0.69)
French legal origin dummy					0.89	0.96			0.51
					(0.32)	(0.39)			(0.69)
p-value for religion variables							[0.001]	[0.004]	[0.42]
Panel B: First Stage for Average Protection Against Expropriation Risk in 1985–1995									
Log European settler mortality	−0.53	−0.43	−0.59	−0.51	−0.54	−0.44	−0.58	−0.44	−0.48
	(0.14)	(0.16)	(0.19)	(0.14)	(0.13)	(0.14)	(0.13)	(0.15)	(0.18)
Latitude		1.97				2.10		2.50	2.30
		(1.40)				(1.30)		(1.50)	(1.60)
British colonial dummy	0.63	0.55							
	(0.37)	(0.37)							
French colonial dummy	0.05	−0.12							−0.25
	(0.43)	(0.44)							(0.89)
French legal origin					−0.67	−0.7			−0.05
					(0.33)	(0.32)			(0.91)
R^2	0.31	0.33	0.30	0.30	0.32	0.35	0.32	0.35	0.45

Engerman and Sokoloff:

Institutions, Factor Endowments (Inequality), and Paths of Development

- Factor endowments (climate, soil, natural resources, availability of labor) shape type of institutions created by colonizers
- Persistence over time: narrow elite → concentrated political power →institutions to reinforce inequality
    - land policy
    - voting rights and participation
    - schooling investments