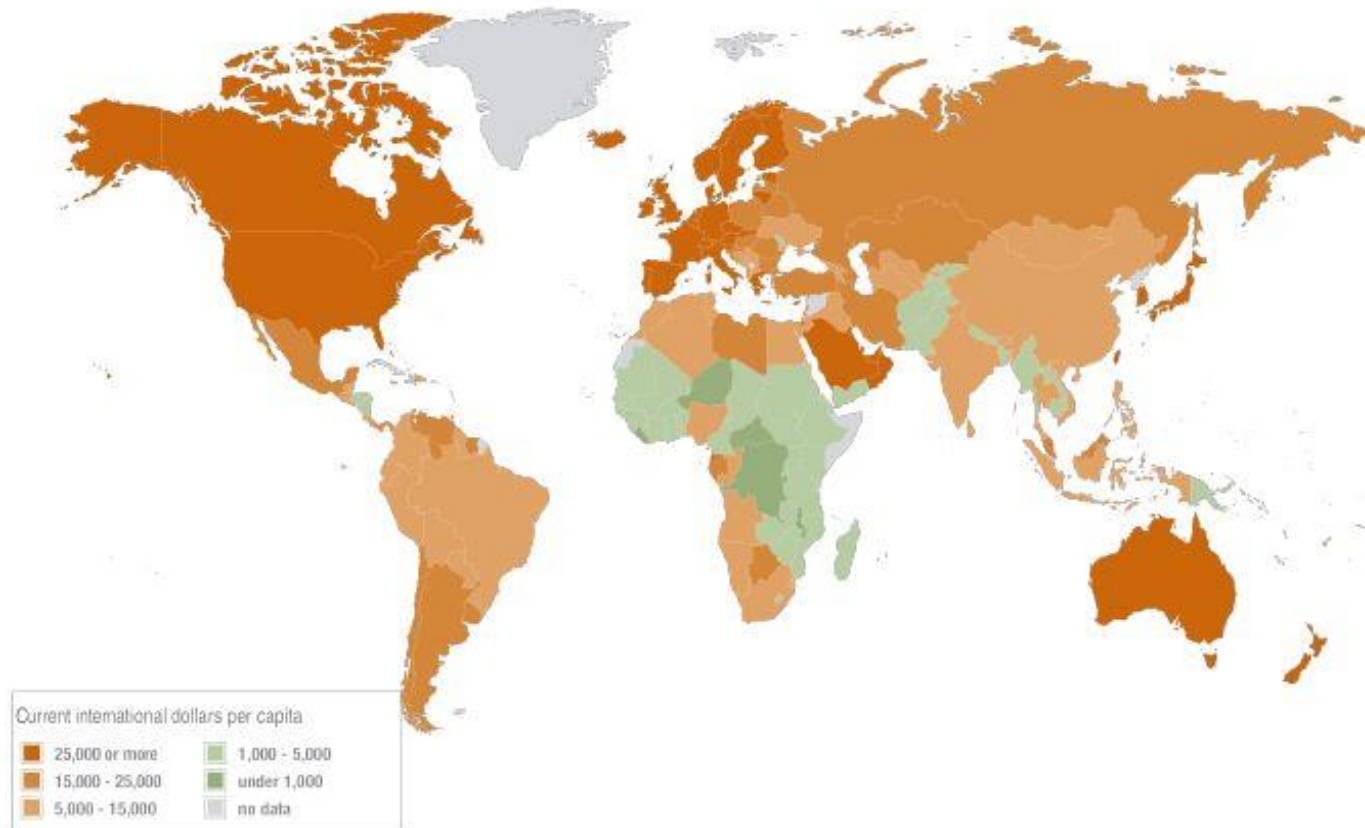


The Colonial Origins of Comparative Development: An Empirical Investigation

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Presented by: Hoseinpoor, Karimi, Mahdipour

Main Question

- What are the fundamental causes of the large differences in income per capita across countries?

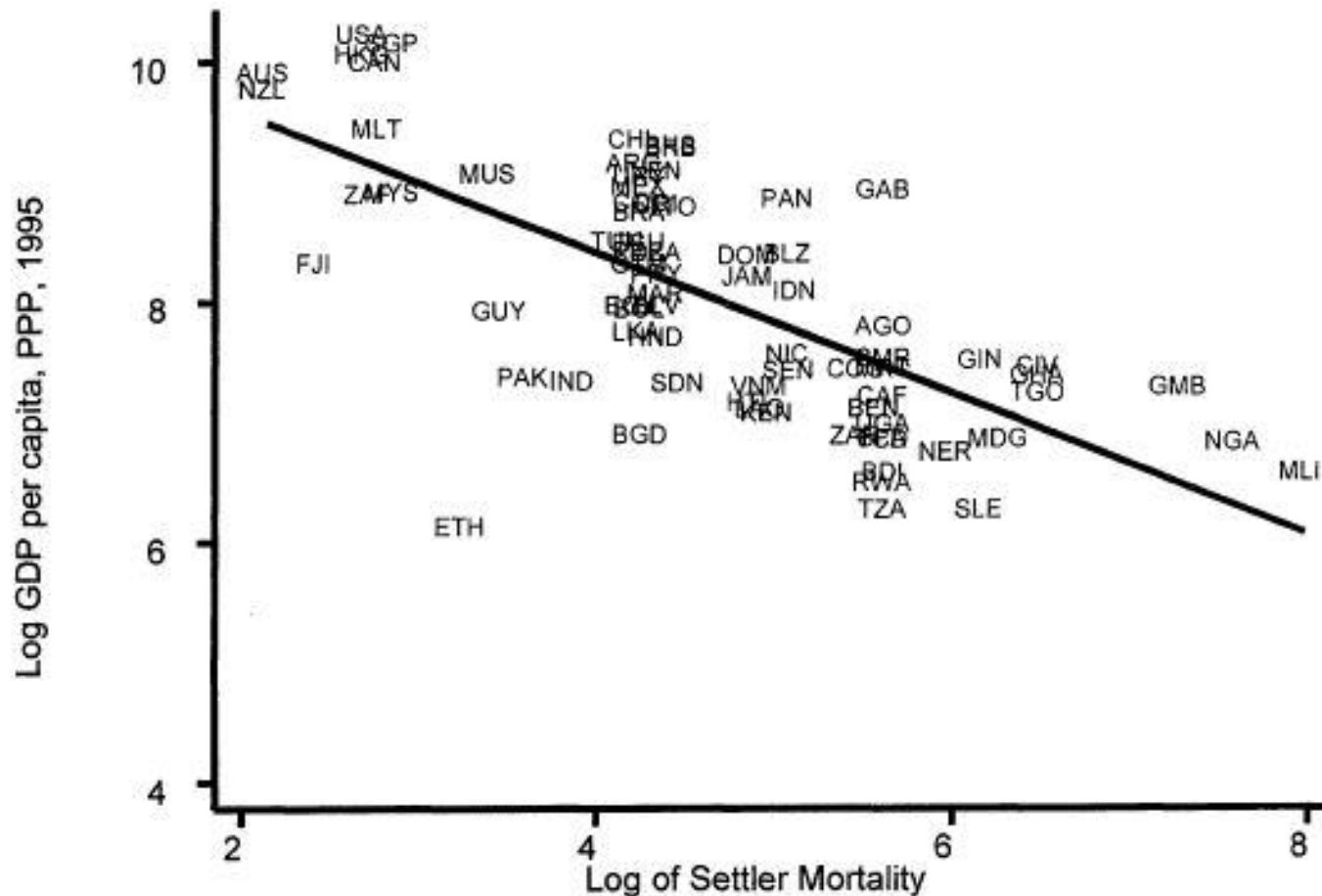
Theory

(potential) settler
mortality \Rightarrow settlements

\Rightarrow early
institutions \Rightarrow current
institutions

\Rightarrow current
performance.

Relationship between Income and settler mortality



Mortality and Settlement

- Pilgrim fathers decided to migrate to the US rather than Guyana because of the high mortality rate in Guyana.
- Beauchamp Committee in 1795 decided to send British convicts to Australia rather than the island of Lemane and Southwest Africa.
- In places where the early settlers faced high mortality rates, there would be less incentive for new settlers to come.

Types of Colonization and Settlement

- Settler Colonies
- Australia
- Congo

"the colonies should be exploited, not by the operation of a market economy, but by state intervention and compulsory cultivation of cash crops to be sold to and distributed by the state at controlled prices."

Institutional Persistence

- Setting up institutions that place restrictions on government power and enforce property rights is costly
- The gains to an extractive strategy may depend on the size of the ruling elite.
- If agents make irreversible investments that are complementary to a particular set of institutions, they will be more willing to support them, making these institutions persist.

OLS Results

TABLE 2—OLS REGRESSIONS

	Whole world (1)	Base sample (2)	Whole world (3)	Whole world (4)	Base sample (5)	Base sample (6)	Whole world (7)	Base sample (8)
	Dependent variable is log GDP per capita in 1995						Dependent variable is log output per worker in 1988	
Average protection against expropriation risk, 1985–1995	0.54 (0.04)	0.52 (0.06)	0.47 (0.06)	0.43 (0.05)	0.47 (0.06)	0.41 (0.06)	0.45 (0.04)	0.46 (0.06)
Latitude			0.89 (0.49)	0.37 (0.51)	1.60 (0.70)	0.92 (0.63)		
Asia dummy				-0.62 (0.19)		-0.60 (0.23)		
Africa dummy				-1.00 (0.15)		-0.90 (0.17)		
“Other” continent dummy				-0.25 (0.20)		-0.04 (0.32)		
R^2	0.62	0.54	0.63	0.73	0.56	0.69	0.55	0.49
Number of observations	110	64	110	110	64	64	108	61

IV: Mortality of Early Settlers

★ Relevance Condition:

- **Is this related to protection of property rights?**

★ Exclusion Restriction:

- **Is this excluded from the main regression?**

Regressions

$$(1) \quad \log y_i = \mu + \alpha R_i + \mathbf{X}'_i \gamma + \varepsilon_i,$$

$$(2) \quad R_i = \lambda_R + \beta_R C_i + \mathbf{X}'_i \gamma_R + \nu_{Ri},$$

$$(3) \quad C_i = \lambda_C + \beta_C S_i + \mathbf{X}'_i \gamma_C + \nu_{Ci},$$

$$(4) \quad S_i = \lambda_S + \beta_S \log M_i + \mathbf{X}'_i \gamma_S + \nu_{Si},$$

$$(5) \quad R_i = \zeta + \beta \log M_i + \mathbf{X}'_i \delta + v_i,$$

Protection and Settler mortality are correlated

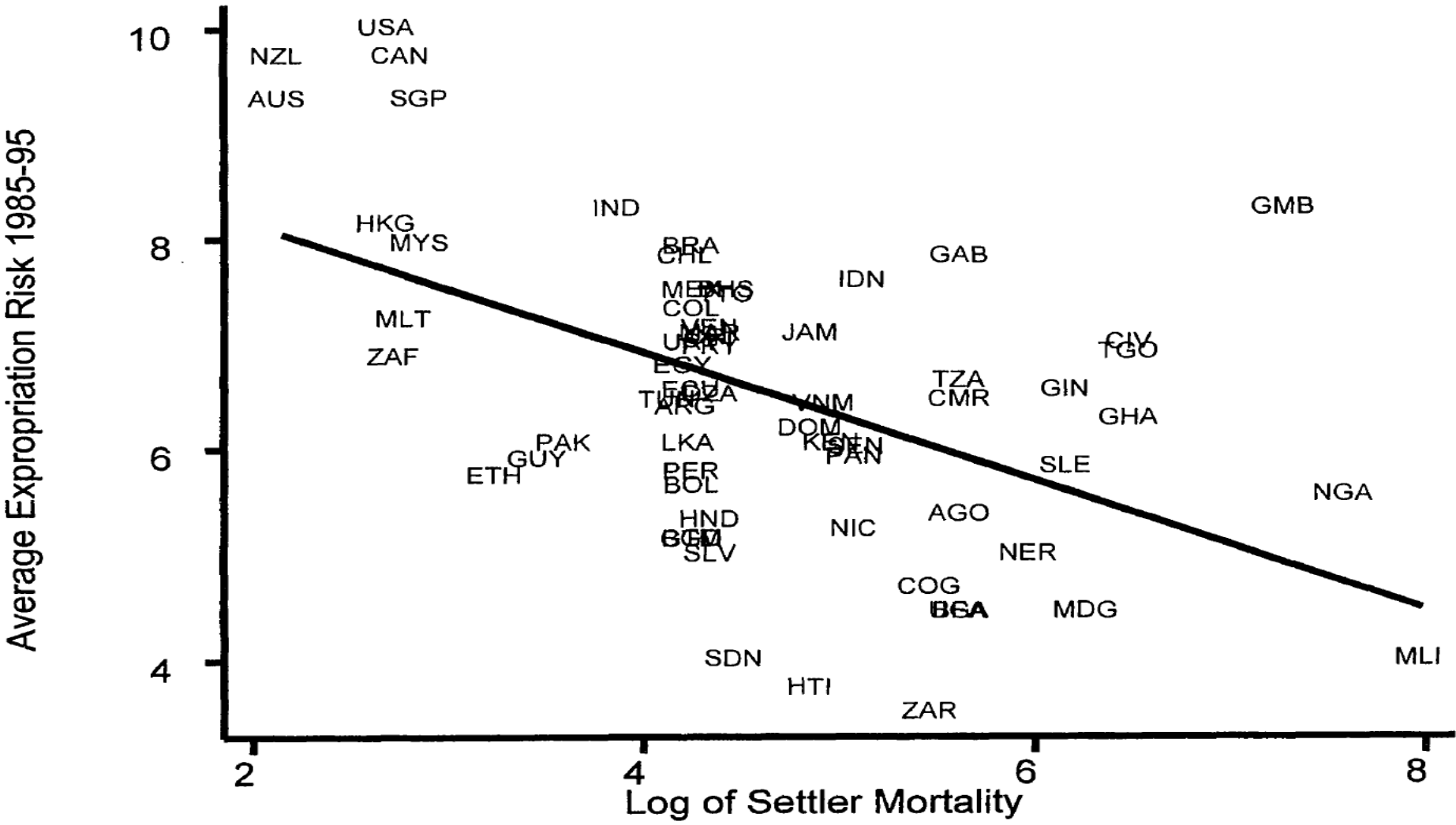


FIGURE 3. FIRST-STAGE RELATIONSHIP BETWEEN SETTLER MORTALITY AND EXPROPRIATION RISK

TABLE 3—DETERMINANTS OF INSTITUTIONS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A	Dependent Variable Is Average Protection Against Expropriation Risk in 1985–1995									
Constraint on executive in 1900	0.32 (0.08)	0.26 (0.09)								
Democracy in 1900			0.24 (0.06)	0.21 (0.07)						
Constraint on executive in first year of independence					0.25 (0.08)	0.22 (0.08)				
European settlements in 1900							3.20 (0.61)	3.00 (0.78)		
Log European settler mortality									-0.61 (0.13)	-0.51 (0.14)
Latitude		2.20 (1.40)		1.60 (1.50)		2.70 (1.40)		0.58 (1.51)		2.00 (1.34)
R^2	0.2	0.23	0.24	0.25	0.19	0.24	0.3	0.3	0.27	0.3
Number of observations	63	63	62	62	63	63	66	66	64	64

Panel B	Dependent Variable Is Constraint on Executive in 1900		Dependent Variable Is Democracy in 1900				Dependent Variable Is European Settlements in 1900			
European settlements in 1900	5.50 (0.73)	5.40 (0.93)			8.60 (0.90)	8.10 (1.20)				
Log European settler mortality			-0.82 (0.17)	-0.65 (0.18)			-1.22 (0.24)	-0.88 (0.25)	-0.11 (0.02)	-0.07 (0.02)
Latitude		0.33 (1.80)		3.60 (1.70)		1.60 (2.30)		7.60 (2.40)		0.87 (0.19)
R^2	0.46	0.46	0.25	0.29	0.57	0.57	0.28	0.37	0.31	0.47
Number of observations	70	70	75	75	67	67	68	68	73	73

OLS vs. IV Results

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 (0.16)	1.00 (0.22)	1.28 (0.36)	1.21 (0.35)	0.58 (0.10)	0.58 (0.12)	0.98 (0.30)	1.10 (0.46)	0.98 (0.17)
Latitude		-0.65 (1.34)		0.94 (1.46)		0.04 (0.84)		-1.20 (1.8)	
Asia dummy							-0.92 (0.40)	-1.10 (0.52)	
Africa dummy							-0.46 (0.36)	-0.44 (0.42)	
“Other” continent dummy							-0.94 (0.85)	-0.99 (1.0)	
Panel B: First Stage for Average Protection Against Expropriation Risk in 1985–1995									
Log European settler mortality	-0.61 (0.13)	-0.51 (0.14)	-0.39 (0.13)	-0.39 (0.14)	-1.20 (0.22)	-1.10 (0.24)	-0.43 (0.17)	-0.34 (0.18)	-0.63 (0.13)
Latitude		2.00 (1.34)		-0.11 (1.50)		0.99 (1.43)		2.00 (1.40)	
Asia dummy							0.33 (0.49)	0.47 (0.50)	
Africa dummy							-0.27 (0.41)	-0.26 (0.41)	
“Other” continent dummy							1.24 (0.84)	1.1 (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 (0.06)	0.47 (0.06)	0.49 (0.08)	0.47 (0.07)	0.48 (0.07)	0.47 (0.07)	0.42 (0.06)	0.40 (0.06)	0.46 (0.06)
Number of observations	64	64	60	60	37	37	64	64	61

Robustness

- A. Additional Controls
- B. Overidentification Tests

A. Additional Controls

TABLE 5—IV REGRESSIONS OF LOG GDP PER CAPITA WITH ADDITIONAL CONTROLS

	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 (0.22)	1.16 (0.34)	1.07 (0.24)	1.00 (0.22)	1.10 (0.19)	1.20 (0.29)	0.92 (0.15)	1.00 (0.25)	1.10 (0.29)
Latitude		-0.75 (1.70)				-1.10 (1.56)		-0.94 (1.50)	-1.70 (1.6)
British colonial dummy	-0.78 (0.35)	-0.80 (0.39)							
French colonial dummy	-0.12 (0.35)	-0.06 (0.42)							0.02 (0.69)
French legal origin dummy					0.89 (0.32)	0.96 (0.39)			0.51 (0.69)
<i>p</i> -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 (0.14)	-0.43 (0.16)	-0.59 (0.19)	-0.51 (0.14)	-0.54 (0.13)	-0.44 (0.14)	-0.58 (0.13)	-0.44 (0.15)	-0.48 (0.18)
Latitude		1.97 (1.40)				2.10 (1.30)		2.50 (1.50)	2.30 (1.60)
British colonial dummy	0.63 (0.37)	0.55 (0.37)							
French colonial dummy	0.05 (0.43)	-0.12 (0.44)							-0.25 (0.89)
French legal origin					-0.67 (0.33)	-0.7 (0.32)			-0.05 (0.91)
R^2	0.31	0.33	0.30	0.30	0.32	0.35	0.32	0.35	0.45

A. Additional Controls

TABLE 6—ROBUSTNESS CHECKS FOR IV REGRESSIONS OF LOG GDP PER CAPITA

	Base sample (1)	Base sample (2)	Base sample (3)	Base sample (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	0.84 (0.19)	0.83 (0.21)	0.96 (0.28)	0.99 (0.30)	1.10 (0.33)	1.30 (0.51)	0.74 (0.13)	0.79 (0.17)	0.71 (0.20)
Latitude		0.07 (1.60)		-0.67 (1.30)		-1.30 (2.30)		-0.89 (1.00)	-2.5 (1.60)
<i>p</i> -value for temperature variables	[0.96]	[0.97]							[0.77]
<i>p</i> -value for humidity variables	[0.54]	[0.54]							[0.62]
Percent of European descent in 1975			-0.08 (0.82)	0.03 (0.84)					0.3 (0.7)
<i>p</i> -value for soil quality					[0.79]	[0.85]			[0.46]
<i>p</i> -value for natural resources					[0.82]	[0.87]			[0.82]
Dummy for being landlocked					0.64 (0.63)	0.79 (0.83)			0.75 (0.47)
Ethnolinguistic fragmentation							-1.00 (0.32)	-1.10 (0.34)	-1.60 (0.47)
Panel B: First Stage for Average Protection Against Expropriation Risk in 1985–1995									
Log European settler mortality	-0.64 (0.17)	-0.59 (0.17)	-0.41 (0.14)	-0.4 (0.15)	-0.44 (0.16)	-0.34 (0.17)	-0.64 (0.15)	-0.56 (0.15)	-0.59 (0.21)
Latitude		2.70 (2.00)		0.48 (1.50)		2.20 (1.50)		2.30 (1.40)	4.20 (2.60)
R^2	0.39	0.41	0.34	0.34	0.41	0.43	0.27	0.30	0.59

A. Additional Controls

TABLE 7—GEOGRAPHY AND HEALTH VARIABLES

	Instrumenting only for average protection against expropriation risk					Instrumenting for all right-hand-side variables			Yellow fever instrument for average protection against expropriation risk		
Panel A: Two-Stage Least Squares											
Average protection against expropriation risk, 1985–1995	0.69 (0.25)	0.72 (0.30)	0.63 (0.28)	0.68 (0.34)	0.55 (0.24)	0.56 (0.31)	0.69 (0.26)	0.74 (0.24)	0.68 (0.23)	0.91 (0.24)	0.90 (0.32)
Latitude		-0.57 (1.04)		-0.53 (0.97)		-0.1 (0.95)					
Malaria in 1994	-0.57 (0.47)	-0.60 (0.47)					-0.62 (0.68)				
Life expectancy			0.03 (0.02)	0.03 (0.02)				0.02 (0.02)			
Infant mortality					-0.01 (0.005)	-0.01 (0.006)			-0.01 (0.01)		
Panel B: First Stage for Average Protection Against Expropriation Risk in 1985–1995											
Log European settler mortality	-0.42 (0.19)	-0.38 (0.19)	-0.34 (0.17)	-0.30 (0.18)	-0.36 (0.18)	-0.29 (0.19)	-0.41 (0.17)	-0.40 (0.17)	-0.40 (0.17)		
Latitude		1.70 (1.40)		1.10 (1.40)		1.60 (1.40)	-0.81 (1.80)	-0.84 (1.80)	-0.84 (1.80)		
Malaria in 1994	-0.79 (0.54)	-0.65 (0.55)									
Life expectancy			0.05 (0.02)	0.04 (0.02)							
Infant mortality					-0.01 (0.01)	-0.01 (0.01)					
Mean temperature							-0.12 (0.05)	-0.12 (0.05)	-0.12 (0.05)		
Distance from coast							0.57 (0.51)	0.55 (0.52)	0.55 (0.52)		
Yellow fever dummy										-1.10 (0.41)	-0.81 (0.38)
R ²	0.3	0.31	0.34	0.35	0.32	0.34	0.37	0.36	0.36	0.10	0.32

B. Overidentification Tests

TABLE 8—OVERIDENTIFICATION TESTS

	Base sample (1)	Base sample (2)	Base sample (3)	Base sample (4)	Base sample (5)	Base sample (6)	Base sample (7)	Base sample (8)	Base sample (9)	Base sample (10)
Panel A: Two-Stage Least Squares										
Average protection against expropriation risk, 1985–1995	0.87 (0.14)	0.92 (0.20)	0.71 (0.15)	0.68 (0.20)	0.72 (0.14)	0.69 (0.19)	0.60 (0.14)	0.61 (0.17)	0.55 (0.12)	0.56 (0.14)
Latitude		-0.47 (1.20)		-0.34 (1.10)		0.31 (1.05)		-0.41 (0.92)		-0.16 (0.81)
Panel B: First Stage for Average Protection Against Expropriation Risk										
European settlements in 1900	3.20 (0.62)	2.90 (0.83)								
Constraint on executive in 1900			0.32 (0.08)	0.26 (0.09)						
Democracy in 1900					0.24 (0.06)	0.20 (0.07)				
Constraint on executive in first year of independence							0.25 (0.08)	0.22 (0.08)		
Democracy in first year of independence									0.19 (0.05)	0.17 (0.05)
R^2	0.30	0.30	0.20	0.24	0.24	0.26	0.19	0.25	0.26	0.30
Panel C: Results from Overidentification Test										
p -value (from chi-squared test)	0.67	0.96	0.09	0.20	0.11	0.28	0.67	0.79	0.22	0.26
Panel D: Second Stage with Log Mortality as Exogenous Variable										
Average protection against expropriation risk, 1985–1995	0.81 (0.23)	0.88 (0.30)	0.45 (0.25)	0.42 (0.30)	0.52 (0.23)	0.48 (0.28)	0.49 (0.23)	0.49 (0.25)	0.4 (0.18)	0.41 (0.19)
Log European settler mortality	-0.07 (0.17)	-0.05 (0.18)	-0.25 (0.16)	-0.26 (0.17)	-0.21 (0.15)	-0.22 (0.16)	-0.14 (0.16)	-0.14 (0.15)	-0.19 (0.13)	-0.19 (0.12)
Latitude		-0.52 (1.15)		0.38 (0.89)		0.28 (0.86)		-0.38 (0.84)		-0.17 (0.73)

Result

- Many economists and social scientists believe that differences in institutions and state policies are at the root of large differences in income per capita across countries. There is little agreement, however, about what determines institutions and government attitudes towards economic progress, making it difficult to isolate exogenous sources of variation in institutions to estimate their effect on performance.
- In this paper they use settler mortality as a instrument and show there is positive relation between income per capita & institutions. In addition result is robust to controlling for latitude, climate, current disease environment, religion, natural resources, soil quality, ethnolinguistic fragmentation, and current racial composition.