# Economics 270c
## Graduate Development Economics

Professor Ted Miguel
Department of Economics
University of California, Berkeley

# **Economics 270c**
# Graduate Development Economics

Lecture 3 – February 3, 2009

# Lecture 3: Economics 270c

- Lecturer: Prof. Ted Miguel
  Email: emiguel@econ.berkeley.edu
  Office hours: Mondays 9-11am, Evans 647

- Course assistant: Jonas Hjort (hjort@econ.berkeley.edu)
  Extra sections: Friday 3:30-5pm, Evans 639?
  Extra office hours: To be arranged with Jonas

Macroeconomic growth empirics
Lecture 1: Global patterns of economic growth and development (1/20)
Lecture 2: Inequality and growth (1/27)
The political economy of development
Lecture 3: History and institutions (2/3)
Lecture 4: Corruption (2/10)
Lecture 5: Patronage politics (2/17)
Lecture 6: Democracy and development (2/24)
Lecture 7: Economic Theories of Conflict (3/3) – Guest lecture by Gerard Padro
Lecture 8: War and Economic Development (3/10)
Human resources
Lecture 9: Human capital and income growth (3/17)
Lecture 10: Increasing human capital (3/31)
Lecture 11: Labor markets and migration (4/7)
Lecture 12: Health and nutrition (4/14)
Lecture 13: The demand for health (4/21)
Other topics
Lecture 14: Environment and development (4/28)
Lecture 15: Resource allocation and firm productivity (5/5)
Additional topics for the development economics field exam
-- Ethnic and social divisions
-- The Economics of HIV/AIDS

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- Prerequisites: Graduate microeconomics, econometrics

- Grading:
  Four referee reports – 40%
  → First referee report due in class today, Feb. 3, 2009
  → Second referee report due in two weeks, Feb. 17, 2009

  Two problem sets – 20%
  Research proposal – 30%
  Class participation – 10%
  No final exam

- All readings are available online (see syllabus)

- Additional references on syllabus

# Lecture 3 outline

(1) Historical explanations for economic development

(2) Bockstette et al (2003)

(3) Acemoglu, Johnson, and Robinson (2001)

(4) Albouy (2008)

# (1) History and economic growth

- Cross-country empirical growth research is plagued by problems of endogeneity, omitted variables

# (1) History and economic growth

- Cross-country empirical growth research is plagued by problems of endogeneity, omitted variables

- Historical data is attractive because it is at least not subject to reverse causality

- However, the results are often subject to multiple plausible interpretations since it is hard to pin down exact channels

  -- Historical data often suffers from small samples

# (2) Bockstette et al (2003, *JEG)*

- "When it comes to explaining differences in both recent economic growth rates and attained levels of economic development, it is clear that history does matter" (p. 365)

- Greater "state antiquity" is associated with faster economic growth, higher income in the 20$^{th}$ century

  E.g., China (or Italy) vs. Zambia (or Papua New Guinea)

Imagine a series of political maps of the world, in which the areas occupied by kingdoms, empires, or states are shaded, the rest unshaded. By 10,000 BCE, there is human habitation in all of the continents except Antarctica, but the map of the world remains entirely unshaded, since people live in small bands or clan groups and there are no signs of political structures uniting even a few thousand individuals. By 1500 BCE, the map would be shaded in portions of Mesopotamia and of the Nile, Indus, and Yellow River valleys and would remain unshaded almost everywhere else. On the eve of Columbus's 1492 voyage, the map would be more widely shaded, but would remain unshaded for large parts of the Americas and Africa, all of Australia, and smaller portions of Europe and Asia. By 2000 CE, the inhabited world would be fully shaded and comprised of nation states. A review of the earlier maps would make it clear that some of today's nations (for example, China) have histories stretching back thousands of years, while others (for example, New Guinea) have much shorter state histories.

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- Greater "state antiquity" is associated with faster economic growth, higher income in the 20th century

  E.g., China (or Italy) vs. Zambia (or Papua New Guinea)

- Why?

  (1) Experienced administrators

  (2) Popular attitudes supporting the state (legitimacy)

  (3) Common language, identity (e.g., China, England)

# (2) Bockstette et al (2003, *JEG)*

- The index of state antiquity is compiled from historical sources, along several dimensions:

  (i) Was the government at the tribal level ($q_1$=0) or above the tribal level ($q_1$=1) during the period?

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  (iii) Did the authority control at least 50% of the current national territory ($q_3$=1), 25-50% of territory ($q_3$=0.75), 10-25% of territory ($q_3$=0.5), or less than 10% ($q_3$=0.3)?

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- The measure of state strength over each 50 year period *t* since 1 A.D. for country *i* is $q_{1,it} * q_{2,it} * q_{3,it}$

# (2) Bockstette et al (2003, *JEG)*

- The overall national index of state antiquity is then:

$$statehist_i = \frac{\sum_{t=0}^{39} \frac{(q_{1,it} * q_{2,it} * q_{3,it})}{(1+\delta)^t}}{\sum_{t=0}^{39} \frac{1}{(1+\delta)^t}} \in [0,1]$$

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- $Statehist_{CHINA} = 1$
- $Statehist_{ZAMBIA} = 0.066$

- What about different national regions with different histories? What about settler colonies? How complete is the historical record? Etc.

*Table 1.* Regional averages of *statehist5* (weighted by 1960 population).

| | *Statehist5* |
|---|---|
| Europe | 0.79 |
| Asia | 0.79 |
| Middle East & North Africa | 0.64 |
| Sub-Saharan Africa | 0.32 |
| Latin America/Caribbean | 0.30 |
| North America | 0.20 |
| Oceania | 0.16 |
| Total | 0.41 |

Antiquity of state (*statehist*) scores by country and region. Continued.

| | *Statehist0* | *Statehist01* | *Statehist1* | *Statehist5* | *Statehist10* | *Statehist50* |
|---|---|---|---|---|---|---|
| *North America* | | | | | | |
| Canada | 0.12 | 0.12 | 0.14 | **0.23** | 0.35 | 0.76 |
| United States | 0.10 | 0.10 | 0.12 | **0.20** | 0.31 | 0.74 |
| *Region average* | 0.10 | 0.10 | 0.12 | **0.20** | 0.31 | 0.74 |
| *Sub-Saharan Africa* | | | | | | |
| Angola | 0.10 | 0.10 | 0.12 | **0.19** | 0.28 | 0.60 |
| Benin | 0.13 | 0.14 | 0.16 | **0.24** | 0.34 | 0.53 |
| Botswana | 0.18 | 0.18 | 0.20 | **0.30** | 0.40 | 0.56 |
| Burundi | 0.06 | 0.06 | 0.07 | **0.11** | 0.17 | 0.44 |
| Cameroon | 0.29 | 0.30 | 0.32 | **0.39** | 0.44 | 0.48 |
| Cape Verde | 0.10 | 0.10 | 0.12 | **0.19** | 0.27 | 0.48 |
| Central Africa | 0.10 | 0.10 | 0.11 | **0.18** | 0.26 | 0.47 |
| Chad | 0.10 | 0.10 | 0.11 | **0.18** | 0.25 | 0.45 |
| Congo | 0.28 | 0.28 | 0.30 | **0.38** | 0.44 | 0.45 |
| Ethiopia | 0.64 | 0.64 | 0.65 | **0.67** | 0.70 | 0.83 |
| Gabon | 0.27 | 0.27 | 0.29 | **0.37** | 0.42 | 0.43 |
| Gambia | 0.11 | 0.11 | 0.13 | **0.20** | 0.29 | 0.54 |
| Ghana | 0.14 | 0.15 | 0.16 | **0.24** | 0.32 | 0.48 |
| Guinea | 0.16 | 0.16 | 0.18 | **0.26** | 0.34 | 0.49 |
| Ivory Coast | 0.20 | 0.20 | 0.22 | **0.29** | 0.35 | 0.44 |
| Kenya | 0.04 | 0.04 | 0.04 | **0.07** | 0.12 | 0.31 |
| Lesotho | 0.04 | 0.05 | 0.05 | **0.09** | 0.15 | 0.39 |

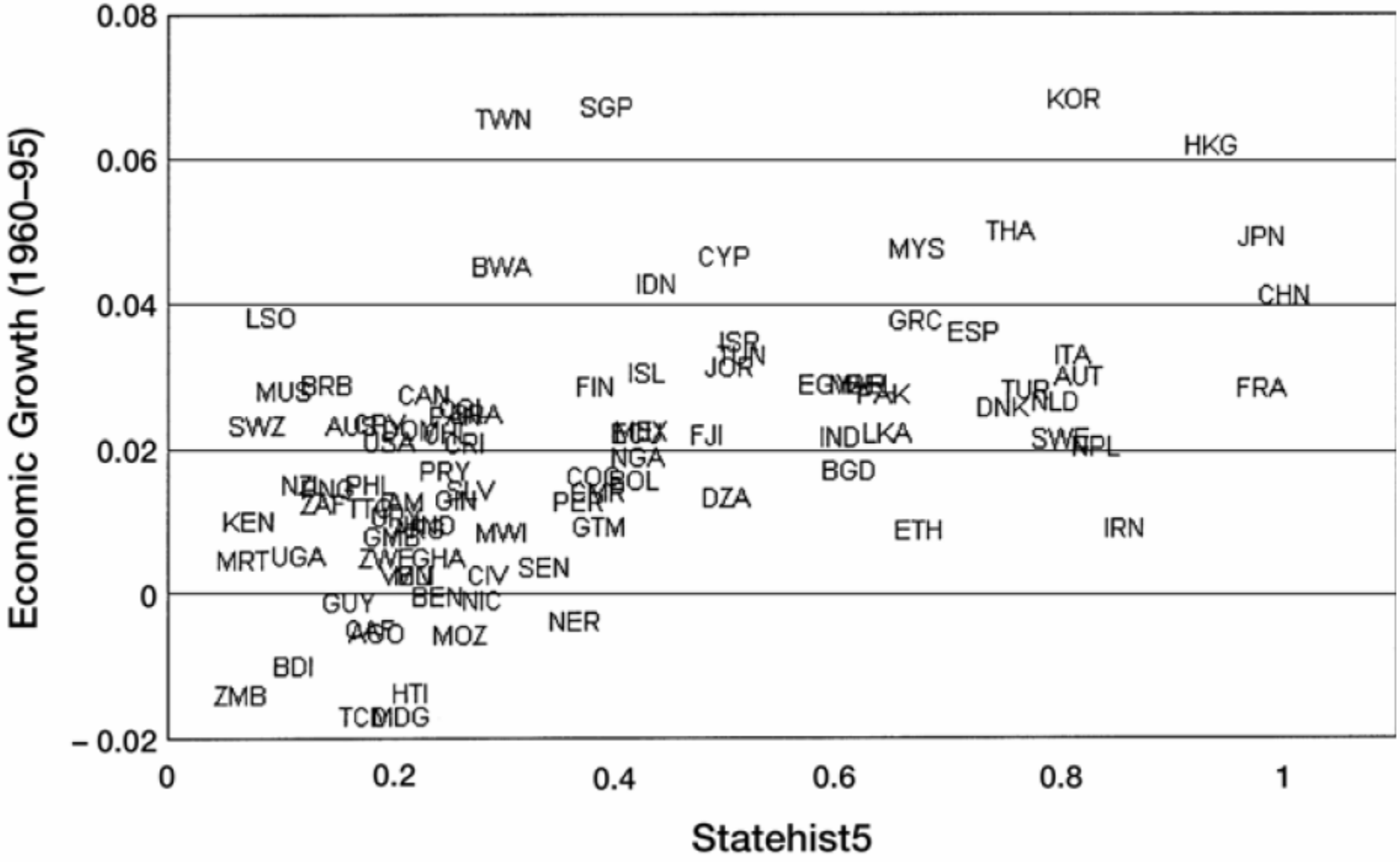


*Figure 1*. State history and economic growth.

*Table 2.* Correlations with *statehist5*.

| Political and Institutional Quality Indicators | Assassinations | Riots | Government Crises |
|---|---|---|---|
| Correlation | −0.1733‡ | 0.1869‡ | 0.2627* |
| Sample size | 96 | 92 | 99 |
| | Political stability | Lack of corruption | Lack of Government repudiation of contracts |
| Correlation | 0.2437‡ | 0.3800* | 0.5005* |
| Sample size | 62 | 90 | 90 |
| | Lack of expropriative risk | Rule of law | Bureaucratic quality |
| Correlation | 0.4559* | 0.3995* | 0.3911* |
| Sample size | 90 | 90 | 90 |
| Social and Demographic Indicators | Ethno-linguistic fragmentation | Social development§ | Population density 1960 |
| Correlation | −0.2985* | 0.4468* | 0.1974* |
| Sample size | 98 | 39 | 103 |
| | Trust | Civic norms | |
| Correlation | 0.1227 | 0.3077* | |
| Sample size | 29 | 29 | |
| GDP and Growth Indicators | GDP pc 1960 | GDP pc 1970 | GDP pc 1980 |
| Correlation | 0.2463† | 0.3380* | 0.3746* |
| Sample size | 101 | 101 | 101 |
| | GDP pc 1990 | GDP pc 1995 | GDP growth 1960–1995 |
| Correlation | 0.4589* | 0.4747* | 0.5317* |
| Sample size | 101 | 101 | 94 |

Notes: *Statistically significant at the 0.01 level; †Statistically significant at the 0.05 level; ‡Statistically significant at the 0.10 level; §Excludes Latin America/Caribbean.

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*Table 3*. Regressions with *statehist5* using growth (1960–1995) as the dependent variable.

| | 1 | 2 | 3† | 4† | 5† | 6† | 7† |
|---|---|---|---|---|---|---|---|
| Constant | 0.049 | 0.029 | 0.036 | 0.021 | 0.029 | 0.035 | 0.029 |
| | (2.692)* | (1.424) | (1.848)*** | (1.06) | (1.51) | (1.6) | (1.04) |
| Log of GDP pc (1960) | −0.011 | −0.009 | −0.009 | −0.009 | −0.008 | −0.009 | −0.009 |
| | (−4.237)* | (−3.119)* | (−3.515)* | (−3.01)* | (−3.21)* | (−3.21)* | (−2.62)** |
| Schooling | 0.033 | 0.032 | 0.034 | 0.026 | 0.029 | 0.032 | 0.004 |
| | (2.559)** | (2.654)* | (2.879)* | (2.33)** | (2.62)* | (2.71)* | (0.36) |
| Log of population growth (1960–1995) | −0.001 | 0.002 | 0.001 | 0.007 | 0.002 | 0.002 | 0.002 |
| | (0.477) | (0.797) | (0.602) | (2.47)** | (0.86) | (0.85) | (0.72) |
| Log of investment rate (1960–1995) | 0.017 | 0.014 | 0.014 | 0.012 | 0.013 | 0.014 | 0.009 |
| | (5.854)* | (5.468)* | (5.396)* | (5.04)* | (5.51)* | (5.16)* | (2.64)* |
| *Statehist5* | | 0.025 | 0.021 | 0.029 | 0.021 | 0.025 | 0.028 |
| | | (3.586)* | (3.372)* | (4.45)* | (3.49)* | (3.63)* | (3.41)* |
| ICRG (Institutional Quality) | | | | 0.002 | | | 0.001 |
| | | | | (2.29)** | | | (1.39) |
| Population density (1960) | | | | | 0.001 | | 0.001 |
| | | | | | (5.5)* | | (6.01)* |
| ETHNIC | | | | | | −0.004 | −0.002 |
| | | | | | | (−0.84) | (−0.50) |
| East-Asia Pacific | | | | | | | 0.014 |
| | | | | | | | (2.82)* |
| Latin America | | | | | | | 0.006 |
| | | | | | | | (1.50) |
| Middle East and North Africa | | | | | | | 0.01 |
| | | | | | | | (2.72)* |
| North America | | | | | | | 0.018 |
| | | | | | | | (2.63)** |
| South Asia | | | | | | | 0.0008 |
| | | | | | | | (0.16) |
| Sub Saharan Africa | | | | | | | −0.0002 |
| | | | | | | | (−0.03) |
| Western Europe | | | | | | | 0.006 |
| | | | | | | | (1.01) |
| Observations | 88 | 88 | 87 | 77 | 86 | 82 | 73 |
| *R*-square | 0.47 | 0.58 | 0.58 | 0.65 | 0.65 | 0.6 | 0.77 |

# (2) More general lessons

- Some general points can be made about studies that use historical patterns as explanatory variables:

  1. Constructing historical measures is time-consuming and difficult, and has many potential pitfalls

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  2. Even if a historical variable is exogenous, it may still not be “random”, so correlation need not imply causation

  3. Interpretation of reduced form historical relationships is often difficult, with multiple competing theories (Institutions versus “culture”? Bureaucracies or common language/identity?)

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  3. Interpretation of reduced form historical relationships is often difficult, with multiple competing theories (Institutions versus “culture”? Bureaucracies or common language/identity?)

  4. The policy implications of these studies are unclear

# (3) Acemoglu et al (2001, *AER*)

- The most cited recent development economics article: 2508 citations on *Google Scholar* already

  -- In contrast David Card's famous 1999 *Handbook of Labor Economics* chapter on the returns to schooling has been cited "only" 1288 times

- AJR is held up as strong evidence that "institutions matter" for long-run economic development performance

# (3) Acemoglu et al (2001, *AER*)

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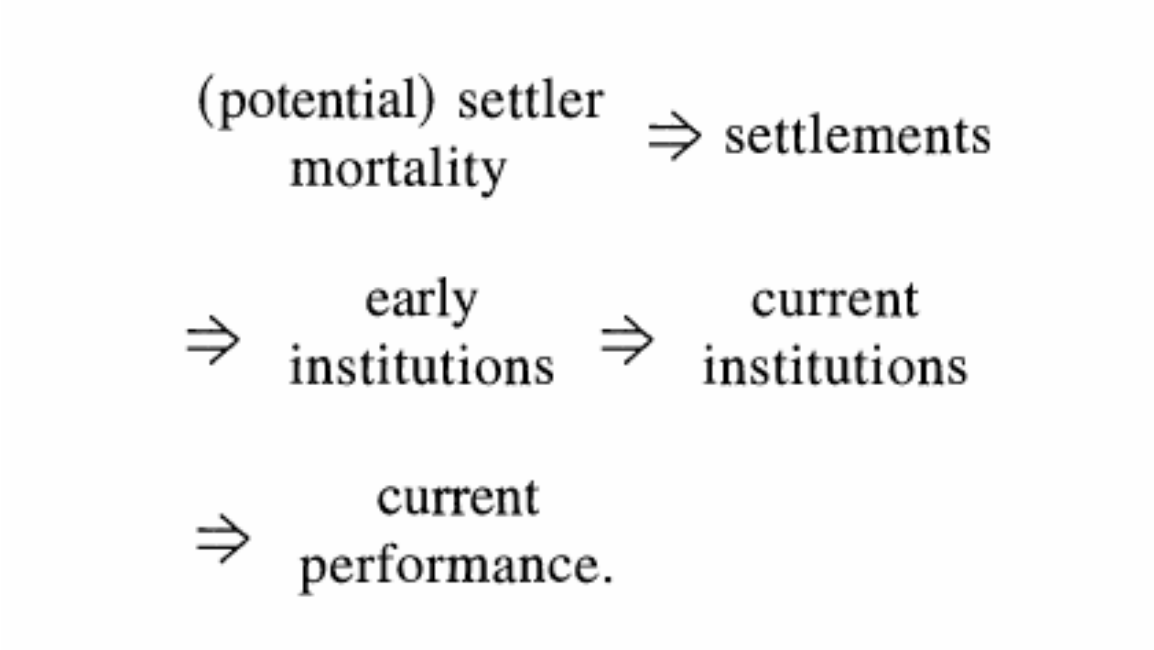
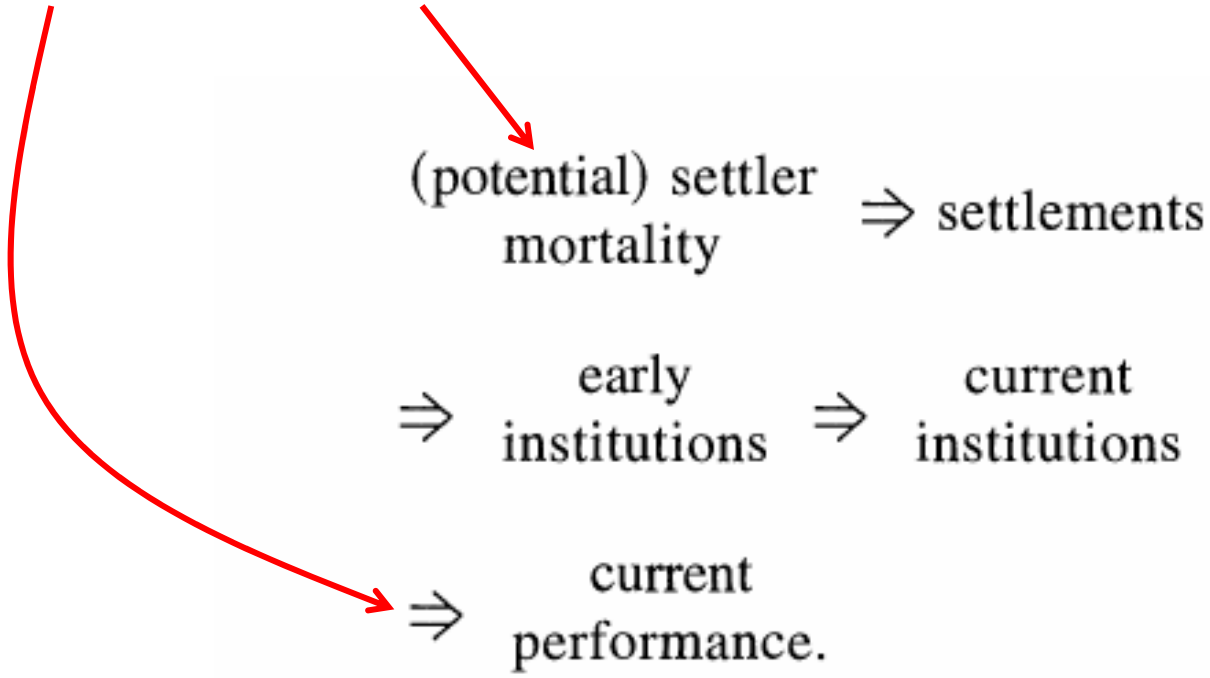
- The authors construct a novel historical data series on "settler mortality" during the colonial period (based largely on the historical research of Philip D. Curtin and Hector Gutierrez)

- Where European settlement was possible, imperial powers set up "better" institutions ("Neo-Europes", e.g., the U.S.) than in places where settlement was impossible for health reasons. In those areas "extractive institutions" were established (e.g., the Belgian Congo)

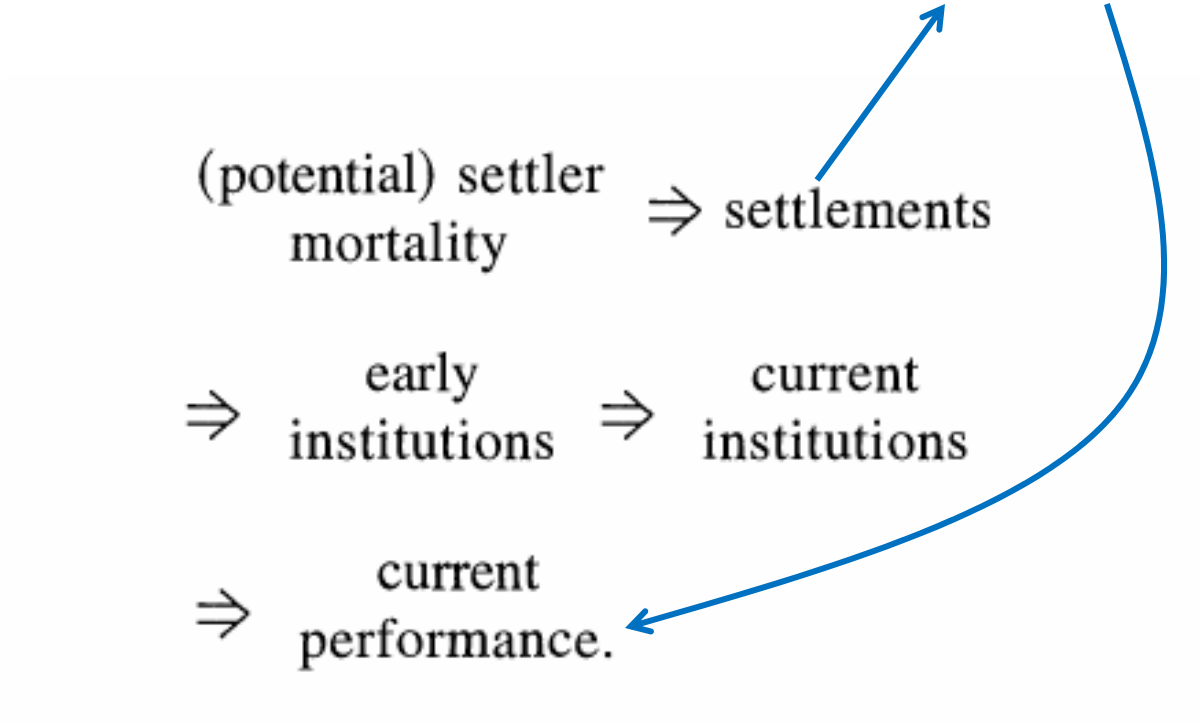
- If historical institutions are persistent (a la Bockstette et al 2003), then this could have long-run consequences


(potential) settler mortality
⇒ settlements
⇒ early institutions
⇒ current institutions
⇒ current performance.

Tropical disease environment (Gallup and Sachs 2001)



Human capital (Glaeser et al 2004)



# (3) Acemoglu et al (2001, *AER*)

- The key endogenous variable is “current institutions”. On p. 1370: “Since our focus is on property rights and checks against government power, we use the protection against risk of expropriation index from Political Risk Services as a proxy for institutions.”

- An IV approach is necessary: protection of property rights could be driven by current income (rather than vice versa), or some other factor could drive both income and property rights protection

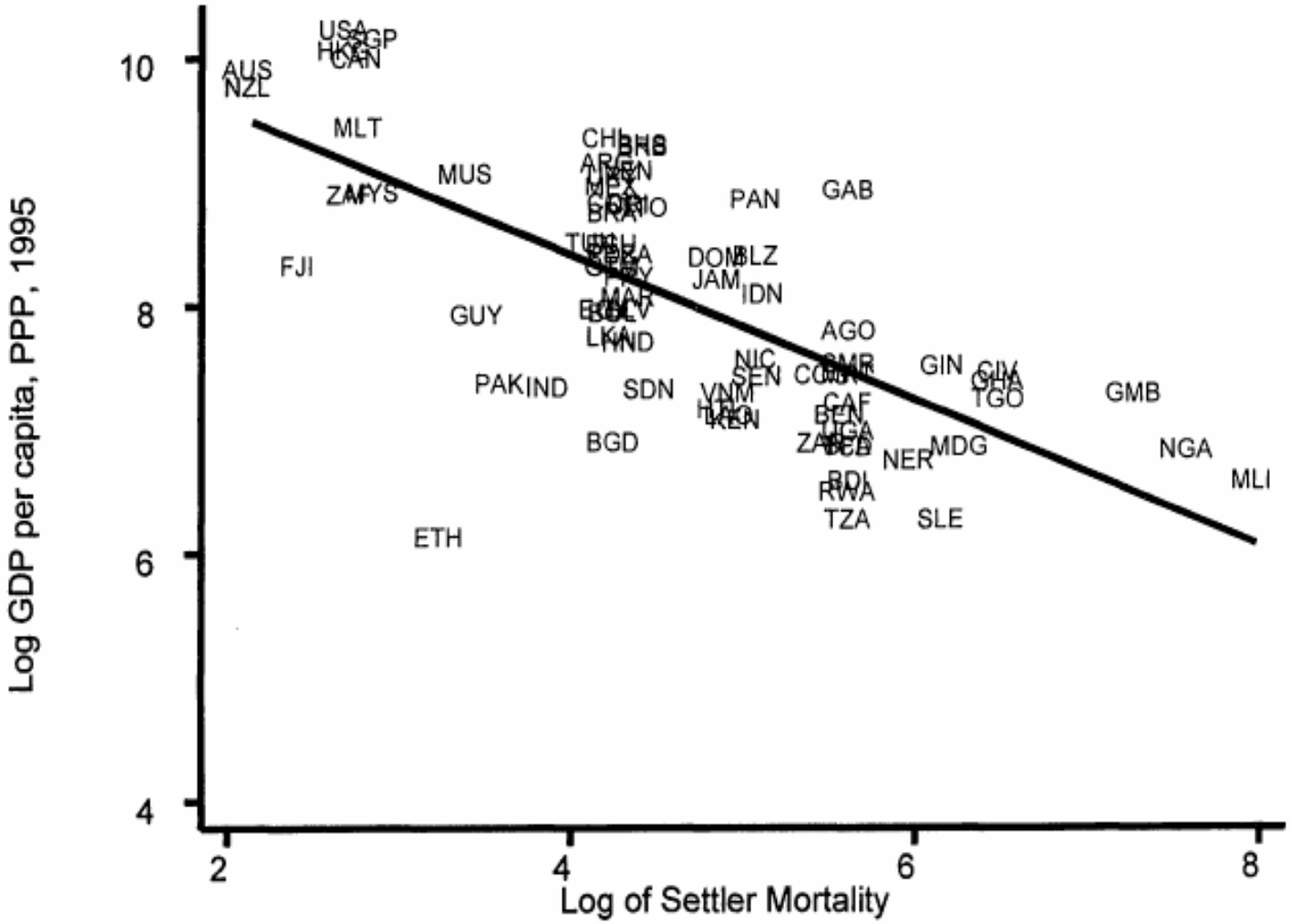



FIGURE 1. REDUCED-FORM RELATIONSHIP BETWEEN INCOME AND SETTLER MORTALITY

## B. *Ordinary Least-Squares Regressions*

Table 2 reports ordinary least-squares (OLS) regressions of log per capita income on the protection against expropriation variable in a variety of samples. The linear regressions are for the equation

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

where $y_i$ is income per capita in country $i$, $R_i$ is the protection against expropriation measure, $\mathbf{X}_i$ is a vector of other covariates, and $\varepsilon_i$ is a random error term. The coefficient of interest throughout the paper is $\alpha$, the effect of institutions on income per capita.

## B. *Institutions and Economic Performance*

Two-stage least-squares estimates of equation (1) are presented in Table 4. Protection against expropriation variable, $R_i$, is treated as endogenous, and modeled as

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

where $M_i$ is the settler mortality rate in 1,000 mean strength. The exclusion restriction is that this variable does not appear in (1).

## IV. Institutions and Performance: IV Results

### A. *Determinants of Current Institutions*

Equation (1) describes the relationship between current institutions and log GDP. In addition we have

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

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

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

Note: this is how AJR conceptualize the relationships theoretically but they do not actually estimate these equations

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 |

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 |

TABLE 7—GEOGRAPHY AND HEALTH VARIABLES

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | 0.72 | 0.63 | 0.68 | 0.55 | 0.56 | 0.69 | 0.74 | 0.68 | 0.91 | 0.90 |
| | (0.25) | (0.30) | (0.28) | (0.34) | (0.24) | (0.31) | (0.26) | (0.24) | (0.23) | (0.24) | (0.32) |
| Latitude | | −0.57 | | −0.53 | | −0.1 | | | | | |
| | | (1.04) | | (0.97) | | (0.95) | | | | | |
| Malaria in 1994 | −0.57 | −0.60 | | | | | −0.62 | | | | |
| | (0.47) | (0.47) | | | | | (0.68) | | | | |
| Life expectancy | | | 0.03 | 0.03 | | | | 0.02 | | | |
| | | | (0.02) | (0.02) | | | | (0.02) | | | |
| Infant mortality | | | | | −0.01 | −0.01 | | | −0.01 | | |
| | | | | | (0.005) | (0.006) | | | (0.01) | | |
| | Panel B: First Stage for Average Protection Against Expropriation Risk in 1985–1995 | | | | | | | | | | |
| Log European settler mortality | −0.42 | −0.38 | −0.34 | −0.30 | −0.36 | −0.29 | −0.41 | −0.40 | −0.40 | | |
| | (0.19) | (0.19) | (0.17) | (0.18) | (0.18) | (0.19) | (0.17) | (0.17) | (0.17) | | |
| Latitude | | 1.70 | | 1.10 | | 1.60 | −0.81 | −0.84 | −0.84 | | |
| | | (1.40) | | (1.40) | | (1.40) | (1.80) | (1.80) | (1.80) | | |
| Malaria in 1994 | −0.79 | −0.65 | | | | | | | | | |
| | (0.54) | (0.55) | | | | | | | | | |
| Life expectancy | | | 0.05 | 0.04 | | | | | | | |
| | | | (0.02) | (0.02) | | | | | | | |
| Infant mortality | | | | | −0.01 | −0.01 | | | | | |
| | | | | | (0.01) | (0.01) | | | | | |
| Mean temperature | | | | | | | −0.12 | −0.12 | −0.12 | | |
| | | | | | | | (0.05) | (0.05) | (0.05) | | |
| Distance from coast | | | | | | | 0.57 | 0.55 | 0.55 | | |
| | | | | | | | (0.51) | (0.52) | (0.52) | | |
| Yellow fever dummy | | | | | | | | | | −1.10 | −0.81 |
| | | | | | | | | | | (0.41) | (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 |

## Appendix Table A2—Data on Mortality

| Former colonies | Abbreviated name used in graphs | Log GDP per capita (PPP) in 1995 | Average protection against expropriation risk 1985–1995 | Main mortality estimate | Former colonies | Abbreviated name used in graphs | Log GDP per capita (PPP) in 1995 | Average protection against expropriation risk 1985–1995 | Main mortality estimate |
|---|---|---|---|---|---|---|---|---|---|
| Algeria | DZA | 8.39 | 6.50 | 78.2 | Jamaica | JAM | 8.19 | 7.09 | 130 |
| Angola | AGO | 7.77 | 5.36 | 280 | Kenya | KEN | 7.06 | 6.05 | 145 |
| Argentina | ARG | 9.13 | 6.39 | 68.9 | Madagascar | MDG | 6.84 | 4.45 | 536.04 |
| Australia | AUS | 9.90 | 9.32 | 8.55 | Malaysia | MYS | 8.89 | 7.95 | 17.7 |
| Bahamas | BHS | 9.29 | 7.50 | 85 | Mali | MLI | 6.57 | 4.00 | 2940 |
| Bangladesh | BGD | 6.88 | 5.14 | 71.41 | Malta | MLT | 9.43 | 7.23 | 16.3 |
| Bolivia | BOL | 7.93 | 5.64 | 71 | Mexico | MEX | 8.94 | 7.50 | 71 |
| Brazil | BRA | 8.73 | 7.91 | 71 | Morocco | MAR | 8.04 | 7.09 | 78.2 |
| Burkina Faso | BFA | 6.85 | 4.45 | 280 | New Zealand | NZL | 9.76 | 9.73 | 8.55 |
| Cameroon | CMR | 7.50 | 6.45 | 280 | Nicaragua | NIC | 7.54 | 5.23 | 163.3 |
| Canada | CAN | 9.99 | 9.73 | 16.1 | Niger | NER | 6.73 | 5.00 | 400 |
| Chile | CHL | 9.34 | 7.82 | 68.9 | Nigeria | NGA | 6.81 | 5.55 | 2004 |
| Colombia | COL | 8.81 | 7.32 | 71 | Pakistan | PAK | 7.35 | 6.05 | 36.99 |
| Congo (Brazzaville) | COG | 7.42 | 4.68 | 240 | Panama | PAN | 8.84 | 5.91 | 163.3 |
| Costa Rica | CRI | 8.79 | 7.05 | 78.1 | Paraguay | PRY | 8.21 | 6.95 | 78.1 |
| Côte d'Ivoire | CIV | 7.44 | 7.00 | 668 | Peru | PER | 8.40 | 5.77 | 71 |
| Dominican Republic | DOM | 8.36 | 6.18 | 130 | Senegal | SEN | 7.40 | 6.00 | 164.66 |
| Ecuador | ECU | 8.47 | 6.55 | 71 | Sierra Leone | SLE | 6.25 | 5.82 | 483 |
| Egypt | EGY | 7.95 | 6.77 | 67.8 | Singapore | SGP | 10.15 | 9.32 | 17.7 |
| El Salvador | SLV | 7.95 | 5.00 | 78.1 | South Africa | ZAF | 8.89 | 6.86 | 15.5 |
| Ethiopia | ETH | 6.11 | 5.73 | 26 | Sri Lanka | LKA | 7.73 | 6.05 | 69.8 |
| Gabon | GAB | 8.90 | 7.82 | 280 | Sudan | SDN | 7.31 | 4.00 | 88.2 |
| Gambia | GMB | 7.27 | 8.27 | 1470 | Tanzania | TZA | 6.25 | 6.64 | 145 |
| Ghana | GHA | 7.37 | 6.27 | 668 | Togo | TGO | 7.22 | 6.91 | 668 |
| Guatemala | GTM | 8.29 | 5.14 | 71 | Trinidad and Tobago | TTO | 8.77 | 7.45 | 85 |
| Guinea | GIN | 7.49 | 6.55 | 483 | Tunisia | TUN | 8.48 | 6.45 | 63 |
| Guyana | GUY | 7.90 | 5.89 | 32.18 | Uganda | UGA | 6.97 | 4.45 | 280 |
| Haiti | HTI | 7.15 | 3.73 | 130 | Uruguay | URY | 9.03 | 7.00 | 71 |
| Honduras | HND | 7.69 | 5.32 | 78.1 | USA | USA | 10.22 | 10.00 | 15 |
| Hong Kong | HKG | 10.05 | 8.14 | 14.9 | Venezuela | VEN | 9.07 | 7.14 | 78.1 |
| India | IND | 7.33 | 8.27 | 48.63 | Vietnam | VNM | 7.28 | 6.41 | 140 |
| Indonesia | IDN | 8.07 | 7.59 | 170 | Zaire | ZAR | 6.87 | 3.50 | 240 |

## Appendix Table A2—Data on Mortality

| Former colonies | Abbreviated name used in graphs | Log GDP per capita (PPP) in 1995 | Average protection against expropriation risk 1985–1995 | Main mortality estimate | Former colonies | Abbreviated name used in graphs | Log GDP per capita (PPP) in 1995 | Average protection against expropriation risk 1985–1995 | Main mortality estimate |
|---|---|---|---|---|---|---|---|---|---|
| Algeria | DZA | 8.39 | 6.50 | 78.2 | Jamaica | JAM | 8.19 | 7.09 | 130 |
| Angola | AGO | 7.77 | 5.36 | 280 | Kenya | KEN | 7.06 | 6.05 | 145 |
| Argentina | ARG | 9.13 | 6.39 | 68.9 | Madagascar | MDG | 6.84 | 4.45 | 536.04 |
| Australia | AUS | 9.90 | 9.32 | 8.55 | Malaysia | MYS | 8.89 | 7.95 | 17.7 |
| Bahamas | BHS | 9.29 | 7.50 | 85 | Mali | MLI | 6.57 | 4.00 | 2940 |
| Bangladesh | BGD | 6.88 | 5.14 | 71.41 | Malta | MLT | 9.43 | 7.23 | 16.3 |
| Bolivia | BOL | 7.93 | 5.64 | 71 | Mexico | MEX | 8.94 | 7.50 | 71 |
| Brazil | BRA | 8.73 | 7.91 | 71 | Morocco | MAR | 8.04 | 7.09 | 78.2 |
| Burkina Faso | BFA | 6.85 | 4.45 | 280 | New Zealand | NZL | 9.76 | 9.73 | 8.55 |
| Cameroon | CMR | 7.50 | 6.45 | 280 | Nicaragua | NIC | 7.54 | 5.23 | 163.3 |
| Canada | CAN | 9.99 | 9.73 | 16.1 | Niger | NER | 6.73 | 5.00 | 400 |
| Chile | CHL | 9.34 | 7.82 | 68.9 | Nigeria | NGA | 6.81 | 5.55 | 2004 |
| Colombia | COL | 8.81 | 7.32 | 71 | Pakistan | PAK | 7.35 | 6.05 | 36.99 |
| Congo (Brazzaville) | COG | 7.42 | 4.68 | 240 | Panama | PAN | 8.84 | 5.91 | 163.3 |
| Costa Rica | CRI | 8.79 | 7.05 | 78.1 | Paraguay | PRY | 8.21 | 6.95 | 78.1 |
| Côte d'Ivoire | CIV | 7.44 | 7.00 | 668 | Peru | PER | 8.40 | 5.77 | 71 |
| Dominican Republic | DOM | 8.36 | 6.18 | 130 | Senegal | SEN | 7.40 | 6.00 | 164.66 |
| Ecuador | ECU | 8.47 | 6.55 | 71 | Sierra Leone | SLE | 6.25 | 5.82 | 483 |
| Egypt | EGY | 7.95 | 6.77 | 67.8 | Singapore | SGP | 10.15 | 9.32 | 17.7 |
| El Salvador | SLV | 7.95 | 5.00 | 78.1 | South Africa | ZAF | 8.89 | 6.86 | 15.5 |
| Ethiopia | ETH | 6.11 | 5.73 | 26 | Sri Lanka | LKA | 7.73 | 6.05 | 69.8 |
| Gabon | GAB | 8.90 | 7.82 | 280 | Sudan | SDN | 7.31 | 4.00 | 88.2 |
| Gambia | GMB | 7.27 | 8.27 | 1470 | Tanzania | TZA | 6.25 | 6.64 | 145 |
| Ghana | GHA | 7.37 | 6.27 | 668 | Togo | TGO | 7.22 | 6.91 | 668 |
| Guatemala | GTM | 8.29 | 5.14 | 71 | Trinidad and Tobago | TTO | 8.77 | 7.45 | 85 |
| Guinea | GIN | 7.49 | 6.55 | 483 | Tunisia | TUN | 8.48 | 6.45 | 63 |
| Guyana | GUY | 7.90 | 5.89 | 32.18 | Uganda | UGA | 6.97 | 4.45 | 280 |
| Haiti | HTI | 7.15 | 3.73 | 130 | Uruguay | URY | 9.03 | 7.00 | 71 |
| Honduras | HND | 7.69 | 5.32 | 78.1 | USA | USA | 10.22 | 10.00 | 15 |
| Hong Kong | HKG | 10.05 | 8.14 | 14.9 | Venezuela | VEN | 9.07 | 7.14 | 78.1 |
| India | IND | 7.33 | 8.27 | 48.63 | Vietnam | VNM | 7.28 | 6.41 | 140 |
| Indonesia | IDN | 8.07 | 7.59 | 170 | Zaire | ZAR | 6.87 | 3.50 | 240 |

## Appendix Table A2—Data on Mortality

| Former colonies | Abbreviated name used in graphs | Log GDP per capita (PPP) in 1995 | Average protection against expropriation risk 1985–1995 | Main mortality estimate | Former colonies | Abbreviated name used in graphs | Log GDP per capita (PPP) in 1995 | Average protection against expropriation risk 1985–1995 | Main mortality estimate |
|---|---|---|---|---|---|---|---|---|---|
| Algeria | DZA | 8.39 | 6.50 | 78.2 | Jamaica | JAM | 8.19 | 7.09 | 130 |
| Angola | AGO | 7.77 | 5.36 | 280 | Kenya | KEN | 7.06 | 6.05 | 145 |
| Argentina | ARG | 9.13 | 6.39 | 68.9 | Madagascar | MDG | 6.84 | 4.45 | 536.04 |
| Australia | AUS | 9.90 | 9.32 | 8.55 | Malaysia | MYS | 8.89 | 7.95 | 17.7 |
| Bahamas | BHS | 9.29 | 7.50 | 85 | Mali | MLI | 6.57 | 4.00 | 2940 |
| Bangladesh | BGD | 6.88 | 5.14 | 71.41 | Malta | MLT | 9.43 | 7.23 | 16.3 |
| Bolivia | BOL | 7.93 | 5.64 | 71 | Mexico | MEX | 8.94 | 7.50 | 71 |
| Brazil | BRA | 8.73 | 7.91 | 71 | Morocco | MAR | 8.04 | 7.09 | 78.2 |
| Burkina Faso | BFA | 6.85 | 4.45 | 280 | New Zealand | NZL | 9.76 | 9.73 | 8.55 |
| Cameroon | CMR | 7.50 | 6.45 | 280 | Nicaragua | NIC | 7.54 | 5.23 | 163.3 |
| Canada | CAN | 9.99 | 9.73 | 16.1 | Niger | NER | 6.73 | 5.00 | 400 |
| Chile | CHL | 9.34 | 7.82 | 68.9 | Nigeria | NGA | 6.81 | 5.55 | 2004 |
| Colombia | COL | 8.81 | 7.32 | 71 | Pakistan | PAK | 7.35 | 6.05 | 36.99 |
| Congo (Brazzaville) | COG | 7.42 | 4.68 | 240 | Panama | PAN | 8.84 | 5.91 | 163.3 |
| Costa Rica | CRI | 8.79 | 7.05 | 78.1 | Paraguay | PRY | 8.21 | 6.95 | 78.1 |
| Côte d'Ivoire | CIV | 7.44 | 7.00 | 668 | Peru | PER | 8.40 | 5.77 | 71 |
| Dominican Republic | DOM | 8.36 | 6.18 | 130 | Senegal | SEN | 7.40 | 6.00 | 164.66 |
| Ecuador | ECU | 8.47 | 6.55 | 71 | Sierra Leone | SLE | 6.25 | 5.82 | 483 |
| Egypt | EGY | 7.95 | 6.77 | 67.8 | Singapore | SGP | 10.15 | 9.32 | 17.7 |
| El Salvador | SLV | 7.95 | 5.00 | 78.1 | South Africa | ZAF | 8.89 | 6.86 | 15.5 |
| Ethiopia | ETH | 6.11 | 5.73 | 26 | Sri Lanka | LKA | 7.73 | 6.05 | 69.8 |
| Gabon | GAB | 8.90 | 7.82 | 280 | Sudan | SDN | 7.31 | 4.00 | 88.2 |
| Gambia | GMB | 7.27 | 8.27 | 1470 | Tanzania | TZA | 6.25 | 6.64 | 145 |
| Ghana | GHA | 7.37 | 6.27 | 668 | Togo | TGO | 7.22 | 6.91 | 668 |
| Guatemala | GTM | 8.29 | 5.14 | 71 | Trinidad and Tobago | TTO | 8.77 | 7.45 | 85 |
| Guinea | GIN | 7.49 | 6.55 | 483 | Tunisia | TUN | 8.48 | 6.45 | 63 |
| Guyana | GUY | 7.90 | 5.89 | 32.18 | Uganda | UGA | 6.97 | 4.45 | 280 |
| Haiti | HTI | 7.15 | 3.73 | 130 | Uruguay | URY | 9.03 | 7.00 | 71 |
| Honduras | HND | 7.69 | 5.32 | 78.1 | USA | USA | 10.22 | 10.00 | 15 |
| Hong Kong | HKG | 10.05 | 8.14 | 14.9 | Venezuela | VEN | 9.07 | 7.14 | 78.1 |
| India | IND | 7.33 | 8.27 | 48.63 | Vietnam | VNM | 7.28 | 6.41 | 140 |
| Indonesia | IDN | 8.07 | 7.59 | 170 | Zaire | ZAR | 6.87 | 3.50 | 240 |

# (4) Albouy (2008)

- Raises concerns about the construction of the settler mortality series
- This weakens the first stage considerably, casting doubt on the entire empirical IV strategy. Confidence intervals increase dramatically

# (4) Albouy (2008)

- Raises concerns about the construction of the settler mortality series
- This weakens the first stage considerably, casting doubt on the entire empirical IV strategy. Confidence intervals increase dramatically
- There are several potential problems in the AJR series, including simple inconsistencies (in using their own sources using their own algorithm), selective use of barracks vs. campaign mortality, questionable attribution of mortality rates to other regional countries
- They also do not cluster disturbance terms correctly when the same mortality figure is used for multiple countries (total number of mortality figures=28 countries)

TABLE 1: SETTLER MORTALITY RATE REVISIONS TO ELIMINATE INCONSISTENCIES

| Country | Old Rate | New Rate | Reason |
|---|---|---|---|
| Sudan | 88.2 | 10.9 | Earliest (non-zero) available rate. |
| Egypt | 67.8 | 24.7 | Earliest available rate. |
| Madagascar | 536.04 | 75 | Earliest available rate. |
| Mali | 2940 | 400 | All countries had rates based on campaigns in Mali. Rate of 2940 not a true annual rate. 400 earliest available annual rate for Mali. |
| Niger | 400 | 400 | |
| Angola, Burkina Faso, Cameroon, Gabon, & Uganda | 280 | 400 | |
| Congo & Zaire | 240 | 100 | Maximum not average previously used. |
| Kenya & Tanzania | 145 | dropped | Average rate not available. |

Additional information on these revisions found in the main text and the Appendix. All data sources are used in Acemoglu et al. (2001).

The mortality rate of 14.9 AJR use for Hong Kong belongs to the British China Field Force who fought in 1860 during Arrow's War. As the rate was not annualized, and since most of the campaign was fought in Beijing where mortality was much lower than in Hong Kong, this rate cannot be considered a campaign rate for Hong Kong.

The rate of 17.7 used by AJR for Malaysia and Singapore is from a small sample in Penang, Malaysia. This mortality rate is repeated in Statistical Society of London (1841), which also gives a combined mortality rate of 20.0 for a much larger group of soldiers encompassing Penang, Malacca, and Singapore (p. 146). However, it should be kept in mind that the Portuguese and Dutch had been in this area for over 300 years.

For the United States, AJR use a barracks rate of 15 corresponding to northern American soldiers from 1829 to 1838, over two hundred years after the first permanent British colony, Jamestown, was established. The mortality rate of the Jamestown settlers was much higher than AJR's rate suggests: in the first year of settlement, 1607, Earle (1979) estimates that between 27 and 45 percent of colonists died from dysentery and typhoid.[13] Primarily because of a bad water

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[11] "The very high mortality rate for the Dutch East Indies (Indonesia) was unrepresentative for the same reason the Algerian figure was. These years included those of the Java War, with tough campaigns, high casualties from combat and high disease rates" (Curtin, 1989, p.18).

[12] Furthermore, the assumption in AJR's over-identification test that European settlement is exogenous is hard to maintain as colonists were attracted to places where economic prospects were favorable.

[13] Curtin (1998, p. 116) refers to this source, although he cites a higher mortality number, stating "In 1607 to 1624… settlers in Jamestown in Virginia died at an annual rate of about 500 per thousand, and the principal killer may have been typhoid."

The first Canadian colonists also died at high rates when first settling. During the first winter spent by the French, from 1535 to 1536 in what is now Quebec City, 25 out of 110 men died, producing the rate of 227, although the number would have likely been higher had they not discovered how to cure scurvy from the Indians (Trudel, 1973, p. 27). The next winter that mortality was recorded, from 1542 to 1543, 50 out of 200 died from scurvy (p. 47), leading the French to abandon their colony. The French returned in 1604 to Sainte Croix Island where 36 out of 79 died (p. 151) the first winter. The next winter spent at Quebec from 1609 to 1610 saw 13 die of scurvy and 7 die of dysentery out of 28 inhabitants. However within a few more years, the settlers learned how to overcome scurvy and build shelter adapted for the harsh winters and saw their mortality rates decline.

typically increases by more than 100 percent, from gastrointestinal infections by more than 200 percent, and from typhoid by more than 600 percent, resulting in mortality rates 66 to 2000 percent higher than barracks rates.[10] Even in Europe, where barracks rates are usually below 25 (Curtin, 1989, p. 5), campaign rates rose as high as 332, seen by the British in the Netherlands in 1809 (Balfour, 1845, p. 198).[11]

The distinction between barracks and campaign rates affects the analysis as AJR use campaign rates more often in countries with high risk of capital expropriation and low GDP per capita.[12] Thus, measured mortality rates are endogenous: places with lower future security of property rights and lower output per capita essentially suffer from positive measurement error in their mortality rates. This creates artificial support for AJR's hypothesis that mortality is negatively correlated with expropriation risk and GDP per capita.[13]

TABLE 1: FIRST STAGE ESTIMATES

(Dependent Variable: Expropriation Risk)

| Control Variables | No Controls (1) | Latitude Control (2) | Without Neo-Europes (3) | Continent Dummies (4) | Continent Dummies & Latitude (5) | Mean Temp and Min Rain (6) | Percent European, 1975 (7) | Malaria in 1994 (8) |
|---|---|---|---|---|---|---|---|---|
| *Panel A: Original Data (64 countries, 36 mortality rates)* | | | | | | | | |
| Log mortality ($\beta$) | -0.61 | -0.52 | -0.40 | -0.44 | -0.35 | -0.29 | -0.42 | -0.44 |
| {homoscedastic s.e.} | {0.13} | {0.14} | {0.13} | {0.17} | {0.18} | {0.15} | {0.14} | {0.19} |
| ☆ (heteroscedastic-clustered s.e.) | (0.17) | (0.19) | (0.17) | (0.20) | (0.21) | (0.19) | (0.19) | (0.25) |
| $p$-value of log mortality | 0.001 | 0.01 | 0.03 | 0.04 | 0.11 | 0.13 | 0.03 | 0.08 |
| $p$-value of controls | - | 0.17 | - | 0.40 | 0.34 | 0.001 | 0.02 | 0.20 |
| *Panel B: Removing conjectured mortality rates and correcting Mali (28 countries and mortality rates)* | | | | | | | | |
| Log mortality ($\beta$) | -0.59 | -0.37 | -0.26 | -0.25 | -0.12 | -0.15 | -0.21 | -0.17 |
| (heteroscedastic s.e.) | (0.24) | (0.26) | (0.21) | (0.23) | (0.27) | (0.26) | (0.24) | (0.32) |
| $p$-value of log mortality | 0.02 | 0.18 | 0.22 | 0.28 | 0.65 | 0.57 | 0.39 | 0.59 |
| $p$-value of controls | - | 0.05 | - | 0.01 | 0.001 | 0.002 | 0.010 | 0.02 |
| ☆ *Panel C: Original data, adding campaign and laborer dummies (64 countries, 36 mortality rates)* | | | | | | | | |
| Log mortality ($\beta$) | -0.45 | -0.39 | -0.31 | -0.37 | -0.30 | -0.12 | -0.27 | -0.26 |
| (heteroscedastic-clustered s.e.) | (0.18) | (0.20) | (0.17) | (0.22) | (0.23) | (0.21) | (0.19) | (0.24) |
| $p$-value of log mortality | 0.02 | 0.06 | 0.09 | 0.09 | 0.20 | 0.58 | 0.17 | 0.29 |
| $p$-value of dummies | 0.16 | 0.22 | 0.31 | 0.26 | 0.35 | 0.12 | 0.19 | 0.24 |
| $p$-value of controls | - | 0.27 | - | 0.75 | 0.66 | 0.001 | 0.02 | 0.11 |
| ☆ *Panel D: Removing conjectured mortality, correcting Mali, adding campaign and laborer dummies (28 countries and mortality rates)* | | | | | | | | |
| Log mortality ($\beta$) | -0.29 | -0.08 | -0.06 | -0.16 | 0.01 | 0.07 | -0.08 | 0.04 |
| (heteroscedastic s.e.) | (0.25) | (0.27) | (0.22) | (0.26) | (0.29) | (0.29) | (0.23) | (0.32) |
| $p$-value of log mortality | 0.03 | 0.03 | 0.05 | 0.30 | 0.29 | 0.01 | 0.11 | 0.06 |
| $p$-value of dummies | 0.03 | 0.04 | 0.05 | 0.32 | 0.31 | 0.01 | 0.11 | 0.06 |
| $p$-value of controls | - | 0.05 | - | 0.03 | 0.01 | 0.004 | 0.04 | 0.04 |

TABLE 1: FIRST STAGE ESTIMATES

(Dependent Variable: Expropriation Risk)

| Control Variables | No Controls (1) | Latitude Control (2) | Without Neo-Europes (3) | Continent Dummies (4) | Continent Dummies & Latitude (5) | Mean Temp and Min Rain (6) | Percent European, 1975 (7) | Malaria in 1994 (8) |
|---|---|---|---|---|---|---|---|---|
| *Panel A: Original Data (64 countries, 36 mortality rates)* | | | | | | | | |
| Log mortality ($\beta$) | -0.61 | -0.52 | -0.40 | -0.44 | -0.35 | -0.29 | -0.42 | -0.44 |
| {homoscedastic s.e.} | {0.13} | {0.14} | {0.13} | {0.17} | {0.18} | {0.15} | {0.14} | {0.19} |
| (heteroscedastic-clustered s.e.) | (0.17) | (0.19) | (0.17) | (0.20) | (0.21) | (0.19) | (0.19) | (0.25) |
| $p$-value of log mortality | 0.001 | 0.01 | 0.03 | 0.04 | 0.11 | 0.13 | 0.03 | 0.08 |
| $p$-value of controls | - | 0.17 | - | 0.40 | 0.34 | 0.001 | 0.02 | 0.20 |
| *Panel B: Removing conjectured mortality rates and correcting Mali (28 countries and mortality rates)* | | | | | | | | |
| Log mortality ($\beta$) | -0.59 | -0.37 | -0.26 | -0.25 | -0.12 | -0.15 | -0.21 | -0.17 |
| (heteroscedastic s.e.) | (0.24) | (0.26) | (0.21) | (0.23) | (0.27) | (0.26) | (0.24) | (0.32) |
| $p$-value of log mortality | 0.02 | 0.18 | 0.22 | 0.28 | 0.65 | 0.57 | 0.39 | 0.59 |
| $p$-value of controls | - | 0.05 | - | 0.01 | 0.001 | 0.002 | 0.010 | 0.02 |
| *Panel C: Original data, adding campaign and laborer dummies (64 countries, 36 mortality rates)* | | | | | | | | |
| Log mortality ($\beta$) | -0.45 | -0.39 | -0.31 | -0.37 | -0.30 | -0.12 | -0.27 | -0.26 |
| (heteroscedastic-clustered s.e.) | (0.18) | (0.20) | (0.17) | (0.22) | (0.23) | (0.21) | (0.19) | (0.24) |
| $p$-value of log mortality | 0.02 | 0.06 | 0.09 | 0.09 | 0.20 | 0.58 | 0.17 | 0.29 |
| $p$-value of dummies | 0.16 | 0.22 | 0.31 | 0.26 | 0.35 | 0.12 | 0.19 | 0.24 |
| $p$-value of controls | - | 0.27 | - | 0.75 | 0.66 | 0.001 | 0.02 | 0.11 |
| *Panel D: Removing conjectured mortality, correcting Mali, adding campaign and laborer dummies (28 countries and mortality rates)* | | | | | | | | |
| Log mortality ($\beta$) | -0.29 | -0.08 | -0.06 | -0.16 | 0.01 | 0.07 | -0.08 | 0.04 |
| (heteroscedastic s.e.) | (0.25) | (0.27) | (0.22) | (0.26) | (0.29) | (0.29) | (0.23) | (0.32) |
| $p$-value of log mortality | 0.03 | 0.03 | 0.05 | 0.30 | 0.29 | 0.01 | 0.11 | 0.06 |
| $p$-value of dummies | 0.03 | 0.04 | 0.05 | 0.32 | 0.31 | 0.01 | 0.11 | 0.06 |
| $p$-value of controls | - | 0.05 | - | 0.03 | 0.01 | 0.004 | 0.04 | 0.04 |

TABLE 1: FIRST STAGE ESTIMATES

(Dependent Variable: Expropriation Risk)

| Control Variables | No Controls (1) | Latitude Control (2) | Without Neo-Europes (3) | Continent Dummies (4) | Continent Dummies & Latitude (5) | Mean Temp and Min Rain (6) | Percent European, 1975 (7) | Malaria in 1994 (8) |
|---|---|---|---|---|---|---|---|---|
| *Panel A: Original Data (64 countries, 36 mortality rates)* | | | | | | | | |
| Log mortality ($\beta$) | -0.61 | -0.52 | -0.40 | -0.44 | -0.35 | -0.29 | -0.42 | -0.44 |
| {homoscedastic s.e.} | {0.13} | {0.14} | {0.13} | {0.17} | {0.18} | {0.15} | {0.14} | {0.19} |
| (heteroscedastic-clustered s.e.) | (0.17) | (0.19) | (0.17) | (0.20) | (0.21) | (0.19) | (0.19) | (0.25) |
| $p$-value of log mortality | 0.001 | 0.01 | 0.03 | 0.04 | 0.11 | 0.13 | 0.03 | 0.08 |
| $p$-value of controls | - | 0.17 | - | 0.40 | 0.34 | 0.001 | 0.02 | 0.20 |
| *Panel B: Removing conjectured mortality rates and correcting Mali (28 countries and mortality rates)* | | | | | | | | |
| Log mortality ($\beta$) | -0.59 | -0.37 | -0.26 | -0.25 | -0.12 | -0.15 | -0.21 | -0.17 |
| (heteroscedastic s.e.) | (0.24) | (0.26) | (0.21) | (0.23) | (0.27) | (0.26) | (0.24) | (0.32) |
| $p$-value of log mortality | 0.02 | 0.18 | 0.22 | 0.28 | 0.65 | 0.57 | 0.39 | 0.59 |
| $p$-value of controls | - | 0.05 | - | 0.01 | 0.001 | 0.002 | 0.010 | 0.02 |
| *Panel C: Original data, adding campaign and laborer dummies (64 countries, 36 mortality rates)* | | | | | | | | |
| Log mortality ($\beta$) | -0.45 | -0.39 | -0.31 | -0.37 | -0.30 | -0.12 | -0.27 | -0.26 |
| (heteroscedastic-clustered s.e.) | (0.18) | (0.20) | (0.17) | (0.22) | (0.23) | (0.21) | (0.19) | (0.24) |
| $p$-value of log mortality | 0.02 | 0.06 | 0.09 | 0.09 | 0.20 | 0.58 | 0.17 | 0.29 |
| $p$-value of dummies | 0.16 | 0.22 | 0.31 | 0.26 | 0.35 | 0.12 | 0.19 | 0.24 |
| $p$-value of controls | - | 0.27 | - | 0.75 | 0.66 | 0.001 | 0.02 | 0.11 |
| *Panel D: Removing conjectured mortality, correcting Mali, adding campaign and laborer dummies (28 countries and mortality rates)* | | | | | | | | |
| Log mortality ($\beta$) | -0.29 | -0.08 | -0.06 | -0.16 | 0.01 | 0.07 | -0.08 | 0.04 |
| (heteroscedastic s.e.) | (0.25) | (0.27) | (0.22) | (0.26) | (0.29) | (0.29) | (0.23) | (0.32) |
| $p$-value of log mortality | 0.03 | 0.03 | 0.05 | 0.30 | 0.29 | 0.01 | 0.11 | 0.06 |
| $p$-value of dummies | 0.03 | 0.04 | 0.05 | 0.32 | 0.31 | 0.01 | 0.11 | 0.06 |
| $p$-value of controls | - | 0.05 | - | 0.03 | 0.01 | 0.004 | 0.04 | 0.04 |

TABLE 2: INSTRUMENTAL VARIABLE ESTIMATES AND CONFIDENCE REGIONS
(First Stage Dependent Variable: Expropriation Risk; Second Stage Dependent Variable, Log GDP per Captia, 1995, PPP basis)

| Control Variables | No Controls (1) | Latitude Control (2) | Without Neo-Europes (3) | Continent Dummies (4) | Continents & Latitude (5) | Mean Temp & Min Rain (6) | Percent European, 1975 (7) | Malaria in 1994 (8) |
|---|---|---|---|---|---|---|---|---|
| *Panel A: Original Mortality (64 countries, 36 mortality rates)* | | | | | | | | |
| Expropriation Risk ($\alpha$) | 0.93 | 0.96 | 1.24 | 0.97 | 1.07 | 1.34 | 0.92 | 0.59 |
| Wald 95% Conf. Region | [0.52, 1.34] | [0.42, 1.50] | [0.35, 2.14] | [0.25, 1.70] | [-0.01, 2.16] | [-0.18, 2.86] | [0.28, 1.56] | [0.07, 1.11] |
| AR "95%" Conf. Region | [0.66, 1.83] | [0.64, 2.39] | [0.73, 7.04] | [0.50, 9.02] | (-∞, -3.08] U [0.41, +∞) | (-∞, -4.34] U [0.65, +∞) | [0.51, 6.45] | (-∞, -1.62] U [0.05, +∞) |
| *Panel B: Removing conjectured mortality rates and correcting Mali (28 countries and mortality rates)* | | | | | | | | |
| Expropriation Risk ($\alpha$) | 0.95 | 0.98 | 1.51 | 1.46 | 2.26 | 2.36 | 1.33 | 1.21 |
| Wald 95% Conf. Region | [0.42, 1.48] | [-0.09, 2.04] | [-0.59, 3.61] | [-0.81, 3.74] | [-6.76, 11.28] | [-5.20, 9.92] | [-1.33, 3.98] | [-2.41, 4.83] |
| AR "95%" Conf. Region | [0.63, 3.36] | (-∞, -0.71] U [0.40, +∞) | (-∞, -1.42] U [0.60, +∞) | (-∞, -0.58] U [0.45, +∞) | (-∞, +∞) | (-∞, -0.36] U [0.59, +∞) | (-∞, -0.16] U [0.25, +∞) | (-∞, +∞) |
| *Panel C: Original data, adding campaign and laborer dummies (64 countries, 36 mortality rates)* | | | | | | | | |
| Expropriation Risk ($\alpha$) | 1.09 | 1.15 | 1.45 | 1.06 | 1.19 | 2.60 | 1.18 | 0.66 |
| Wald 95% Conf. Region | [0.32,1.87] | [0.12,2.18] | [-0.01,2.91] | [0.07,2.05] | [-0.30,2.67] | [-6.07,11.26] | [-0.29,2.66] | [-0.50,1.81] |
| AR "95%" Conf. Region | [0.62,5.07] | (-∞,-17.59] U [0.60,+∞) | (-∞,-8.05] U [0.69,+∞) | (-∞,-3.28] U [0.45,+∞) | (-∞,-0.67] U [0.29,+∞) | (-∞,-0.53] U [0.64,+∞) | (-∞,-1.67] U [0.44,+∞) | (-∞,+∞) |
| *Panel D: Removing conjectured mortality, correcting Mali, campaign and laborer dummies (28 countries and mortality rates)* | | | | | | | | |
| Expropriation Risk ($\alpha$) | 1.34 | 2.19 | 4.49 | 1.96 | -26.33 | -2.92 | 2.66 | -2.18 |
| Wald 95% Conf. Region | [-0.54, 3.22] | [-12.2, 16.6] | [-26.8, 35.7] | [-3.66, 7.59] | [-2234, 2181] | [-29.2, 23.3] | [-11.4, 16.7] | [-49.9, 45.5] |
| AR "95%" Conf. Region | (-∞, -0.44] U [0.46, +∞) | (-∞, +∞) | (-∞, +∞) | (-∞, +∞) | (-∞, +∞) | (-∞, +∞) | (-∞, +∞) | (-∞, +∞) |

# Whiteboard #1

# Whiteboard #2

# Whiteboard #3

# Whiteboard #4

# Whiteboard #5


ARCTIC OCEAN
GREENLAND
BEAUFORT SEA
BAFFIN SEA
GREENLAND SEA
NORWEGIAN SEA
BARENTS SEA
KARA SEA
EAST SIBERIAN SEA
RUSSIA
CANADA
UNITED STATES OF AMERICA
KAZAKHSTAN
MONGOLIA
CHINA
ATLANTIC OCEAN
PACIFIC OCEAN
BRAZIL
INDIAN OCEAN
AUSTRALIA
International Date Line
Midnight
The direction of the earth's rotation
West
East