

Econ 210a: Comparative Development and Underdevelopment (February 19, 2020a)

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Spring 2019

Evans 648

W 1:10-3:00 pm

<<https://bcourses.berkeley.edu/courses/1487686/>>

<<https://github.com/braddelong/public-files/blob/master/econ-210a-lecture-5a.pptx>>

Comparative Development and Underdevelopment: Readings for February 12...

Karl Marx (1853): The Future Results of British Rule in India
<<http://tinyurl.com/dl20090112>>

W. Arthur Lewis (1978): Evolution of the International Economic Order <<https://delong.typepad.com/files/lewis-evolution-a.pdf>>
<<https://delong.typepad.com/files/lewis-evolution-b.pdf>>

Daron Acemoglu, Simon Johnson, and James A. Robinson
(2001): The Colonial Origins of Comparative Development: An Empirical Investigation <<https://economics.mit.edu/files/4123>>

Memo 3: Comparative Development and Underdevelopment

The economies settled from northwestern Europe—the United States, Canada, Australia, New Zealand—were all very resource rich. So why did they industrialize early? Why didn't they simply become gigantic Denmarks, shipping agricultural and other resource-based products to the European industrial powers in return for manufactures?

Global and “Western” Numbers

Longest-Run Global Economic Growth (2019)

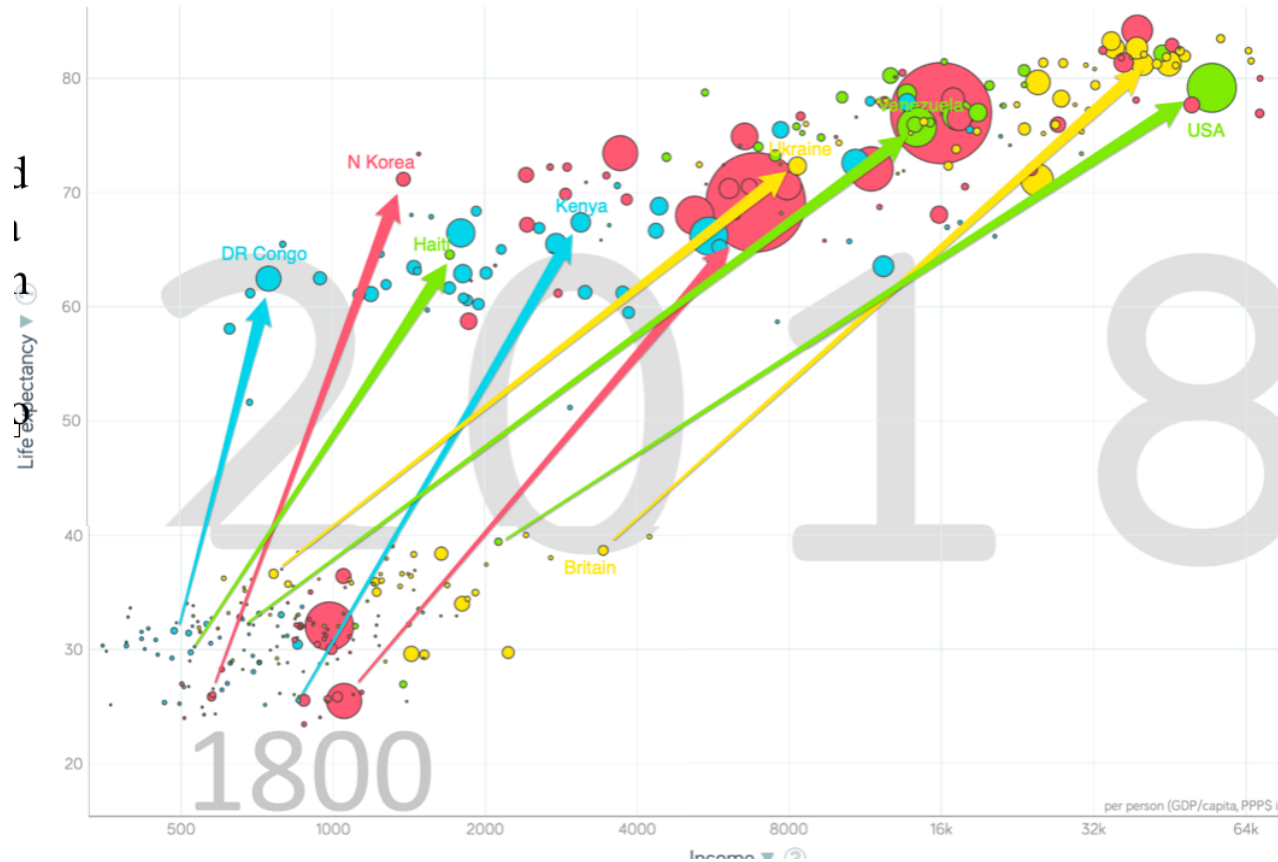
Date	ideas Level H	Total Real World Income Y (billions)	Average Real Income per Capita y (per year)	Total Human Population L (millions)	Rate of Population and Labor Force Growth n	Rate of Efficiency-of-Labor Growth g	Rate of Ideas-Stock Growth h
-68000	1.0	\$0	\$1,200	0.1			
-8000	5.0	\$3	\$1,200	2.5	0.005%	0.000%	0.003%
-6000	6.3	\$6	\$900	7	0.051%	-0.014%	0.011%
-3000	9.2	\$14	\$900	15	0.025%	0.000%	0.013%
-1000	16.8	\$45	\$900	50	0.060%	0.000%	0.030%
0	30.9	\$153	\$900	170	0.122%	0.000%	0.061%
800	41.1	\$270	\$900	300	0.071%	0.000%	0.035%
1500	53.0	\$450	\$900	500	0.073%	0.000%	0.036%
1770	79.4	\$825	\$1,100	750	0.150%	0.074%	0.149%
1870	123.5	\$1,690	\$1,300	1300	0.550%	0.167%	0.442%
2020	2720.5	\$90,000	\$11,842	7600	1.177%	1.473%	2.061%
2100	13474.9	\$485,096	\$53,900	9000 ?	0.211%	1.894%	2.000%
2200	99566.8	\$3,584,405	\$398,267	9000 ?	0.000%	2.000%	2.000%
2500	40168118.9	\$1,446,052,279	\$160,672,475	9000 ?	0.000%	2.000%	2.000%

Global Growth: The Industrializing West (2019)

Date	ideas Level H	Total Real Income Y (billions)	Average Real Income per Capita y (per year)	Total “West” Population L (millions)	Rate of Population and Labor Force Growth n	Rate of Efficiency-of-Labor Growth g	Increasing Resources p	Rate of Ideas-Stock Growth h
-68000	1.0	\$0.01	\$1,200	0.005				
-8000	4.5	\$0.12	\$1,200	0.1	0.005%	0.000%	0.000%	0.002%
-6000	4.7	\$0.18	\$900	0.2	0.035%	-0.014%	0.000%	0.003%
-3000	7.5	\$0.45	\$900	0.5	0.031%	0.000%	0.000%	0.015%
-1000	15.0	\$1.80	\$900	2	0.069%	0.000%	0.000%	0.035%
0	23.7	\$4.50	\$900	5	0.092%	0.000%	0.000%	0.046%
800	30.0	\$7.20	\$900	8	0.059%	0.000%	0.000%	0.029%
1500	58.9	\$25.00	\$1,000	25	0.163%	0.015%	0.000%	0.096%
1770	101.0	\$105.00	\$1,400	75	0.407%	0.125%	0.257%	0.200%
1870	252.0	\$490.00	\$2,800	175	0.847%	0.693%	0.405%	0.914%
2020	8439.5	\$40,000.00	\$50,000	800	1.013%	1.922%	0.175%	2.341%

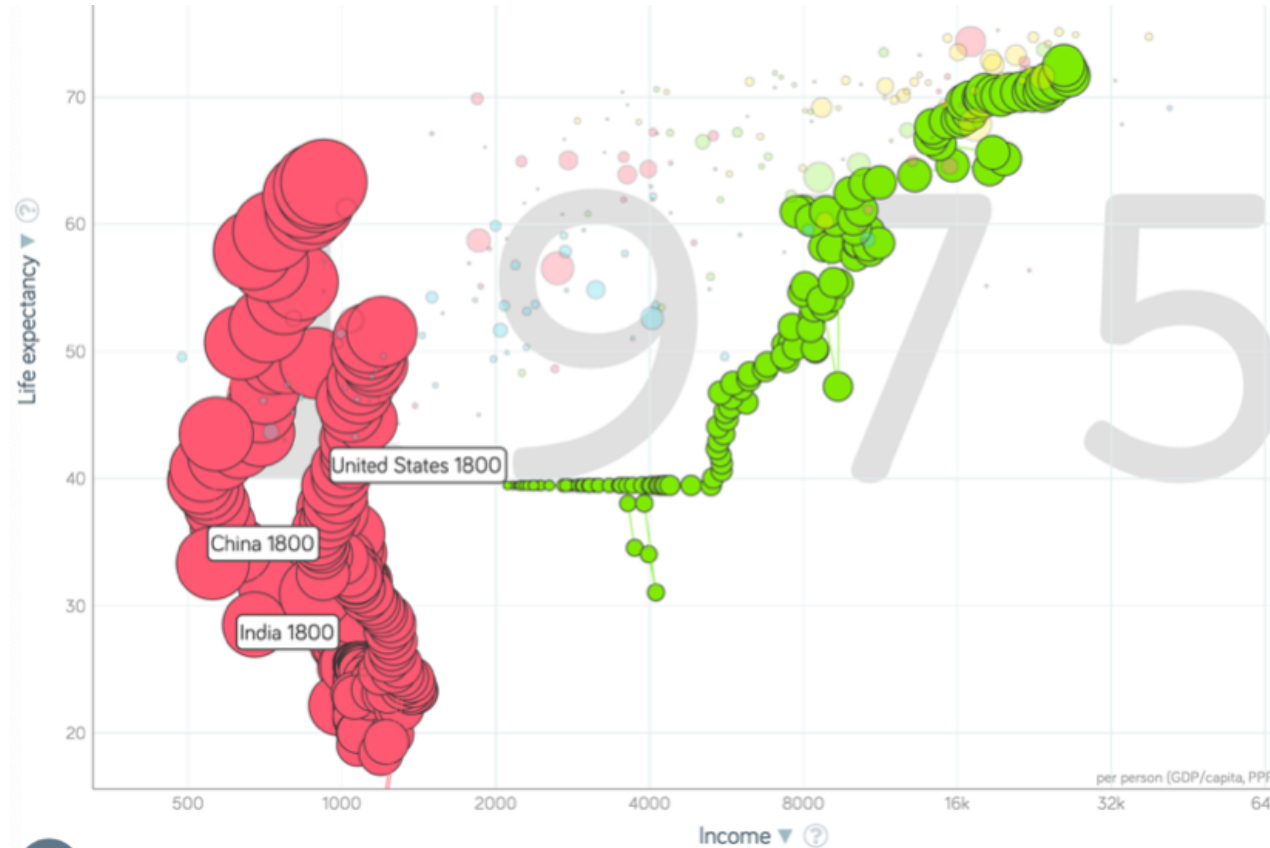
- Is ‘the west’ special between 800 and 1500?
 - Or is it just recovery from a Dark Age depression?
- The Commercial Revolution acceleration appears *everywhere*
 - Due to globalization
 - And especially to the “Columbian Exchange”

Freaky Patterns Over the Past Two Centuries



- The enormous spreading-out
- In spite of the world getting “smaller” on every dimension

Has This Reversed since 1975?



- Since 1975, convergence in *people*...
- Since 1975, no convergence in *nation states*...
 - But not much divergence since 1975 in nation states either...

Reading Lewis

W. Arthur Lewis (1978): Evolution of the International Economic Order

<<https://delong.typepad.com/files/lewis-evolution-a.pdf>> <<https://delong.typepad.com/files/lewis-evolution-b.pdf>>:

- 100 million people change continents between 1870 and 1914
- Essentially all non-perishable non-fragile goods become internationally transportable for pennies
- What were the implications of this?
- How is it related to the great divergence that has occurred since 1800?
- What is Lewis's bottom line?
- Is he right?

The International Economic Order

- I will discuss certain aspects of the relationship between the developing and the developed countries that the first find particularly irksome:
 1. The division of the world into exporters of primary products and exporters of manufactured goods
 2. The adverse factoral terms of trade for the products of the developing countries
 3. The dependence of the developing countries on the developed for finance
 4. The dependence of the developing countries on the developed for their engine of growth...
- Even as late as 1883... total imports into the United States and Western Europe from Asia, Africa, and tropical Latin America came only to about a dollar per head of the population of the exporting countries.... Leading industrial countries... were... nearly self-sufficient [in] the raw materials of the Industrial Revolution... coal, iron ore, cotton, and wool... except for wool...
- “Not until... the end of the nineteenth century... did a big demand for rubber, copper, oil, bauxite, and such materials occur...

Why Slow Adoption of Industrial Technologies in Emerging Markets?

- “The smallness of the market was one constraint on industrialization...”
- “The absence of an investment climate was another...”
- “And so the world divided: countries that industrialized and exported manufactures, and countries that exported agricultural products. The speed of this adjustment... created an illusion... an article of faith in Western Europe that the tropical countries had a comparative advantage in agriculture...”
- “In fact, as Indian textile production soon began to show, between the tropical and temperate countries, the differences in food production per head were much greater than the differences in industrial production per head...”

The Factoral Terms of Trade

- “In the second half of the nineteenth century... fifty million people left Europe temperate settlements... and about the same number left India and China to work mainly as laborers in the tropics on plantations, in mines, or in construction projects...”
- “The availability of these two streams set the terms of trade for tropical and temperate agricultural commodities...”
- “For temperate commodities, the market forces set prices that could attract European immigrants...”
- “For tropical commodities they set prices that would sustain indentured Indians...”
- “In Britain, which was the largest single source of European migration, the yield of wheat by 1900 was 1,600 lbs. per acre, compared to the tropical yield of 700 lbs. of grain per acre.... The yield per man must have been six or seven times larger...”
- “New temperate settlements could attract European immigrants... only by offering income levels higher than prevailed in Northwest Europe...”
- “In the tropical situation... any prices for tea or rubber or peanuts that would offer a standard of living in excess of the 700 lbs. of grain per acre level were an improvement.... There was an unlimited supply of Indians and Chinese willing to travel anywhere to work on plantations for a shilling a day. This stream of migrants... set the tropical prices...”

The Productivity Trap

- “Tropical countries cannot escape from these unfavorable terms of trade by increasing productivity in the commodities they export, since this will reduce the prices of such commodities. We have seen this quite clearly in the two commodities in which productivity has risen most, sugar and rubber...”
- “A farmer in Nigeria might tend his peanuts with as much diligence and skill as a farmer in Australia tended his sheep, but the return would be very different.... The market price gave the Nigerian for his peanuts a 700-lbs.-of-grain-per-acre level of living, and the Australian for his wool a 1600-lbs.-per-acre level of living...”

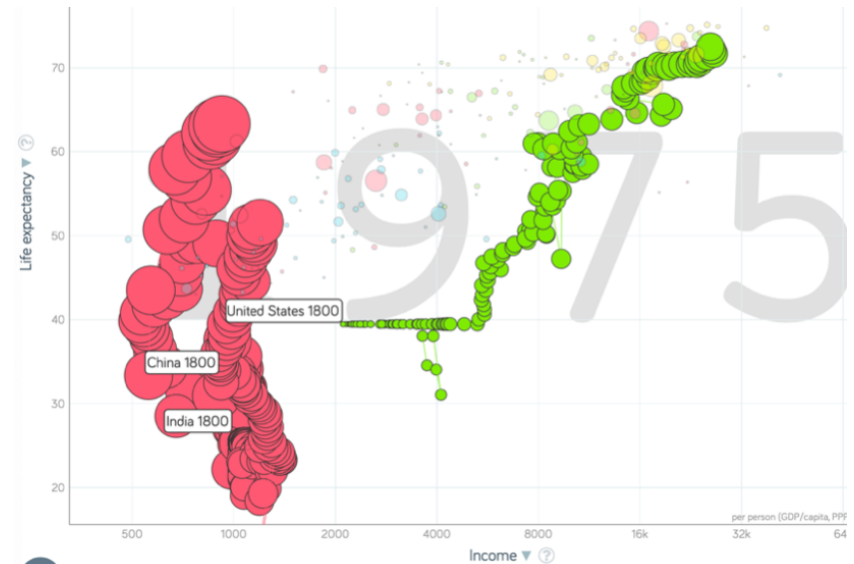
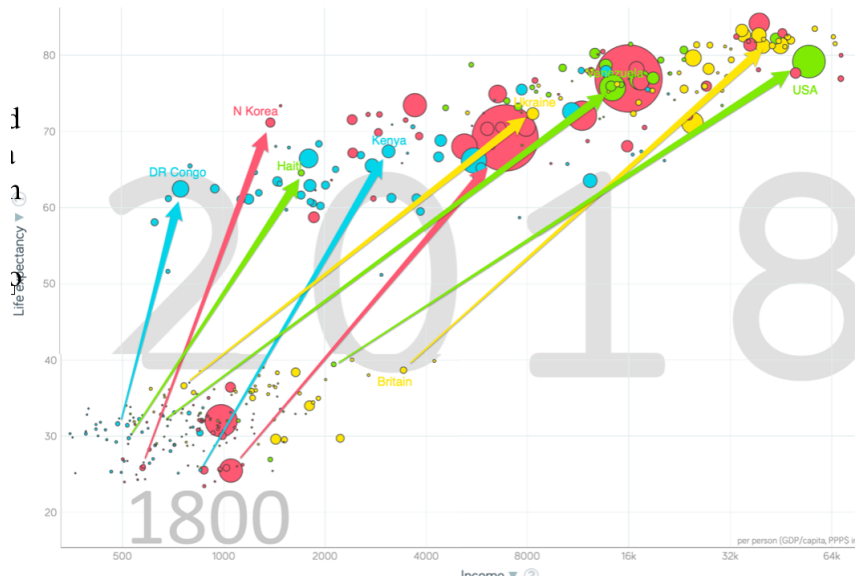
But No Industrialization

- “To a large extent the import and export trades of these countries were controlled by foreign hands.... Had trading profits accumulated in domestic hands, there would have been more domestic reinvestment, and almost certainly more interest in domestic manufacturing. Foreigners participated heavily in the trade of these countries for a variety of economic, cultural, and political reasons...”
- “Participation in trade itself whets the appetite for foreign goods.... The consumer learns to prefer wheat to yams and cement to local building materials...”
- “The industrial forces... [had not] conquered the government.... The fact is that the very success of the country in exporting created a vested interest of those who lived by primary production—small farmers no less than big capitalists—and who opposed measures for industrialization, whether because they might deflect resources from agriculture and raise factor prices, or because they might result in raising the prices of manufactured goods...”

Australia vs. Argentina

- “The contrast between Argentina and Australia is particularly instructive. These two began to grow rapidly at the same time... sold the same commodities.... In 1913 their incomes per head were both in the world's top ten. But Australia industrialized rapidly, and Argentina did not.... Argentinian politics was dominated by an old, landed aristocracy. Australia had no landed aristocracy. Its politics was dominated by its urban communities, who used their power to protect industrial profits and wages.... Internal social and political structure... [rather than] the impact of external forces...”

More Questions About Lewis



Reading AJR

Daron Acemoglu, Simon Johnson, and James A. Robinson (2001): The Colonial Origins of Comparative Development: An Empirical Investigation <<https://economics.mit.edu/files/4123>>:

- Settler mortality affected colonialization strategy, which affected institutions.
- These institutional differences have persisted.
- Engerman and Sokoloff advance similar ideas; but they focus on conduciveness to slave agriculture rather than the disease environment.

- In a sample of former colonies, regress income per capital today on institutions today, instrumenting with settler mortality.
- “This identification strategy will be valid as long as ... mortality rates of settlers between the seventeenth and nineteenth centuries have no effect on income today other than through their influence on institutional development” (AJR, p. 1383).
- No!! The key issue is whether settler mortality is correlated with determinants of income today other than institutions.

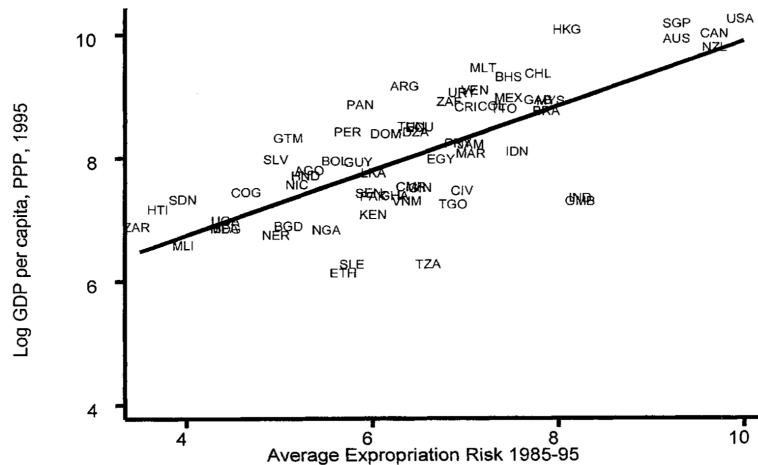


FIGURE 2. OLS RELATIONSHIP BETWEEN EXPROPRIATION RISK AND INCOME

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

Notes: Dependent variable: columns (1)–(6), log GDP per capita (PPP basis) in 1995, current prices (from the World Bank's World Development Indicators 1999); columns (7)–(8), log output per worker in 1988 from Hall and Jones (1999). Average protection against expropriation risk is measured on a scale from 0 to 10, where a higher score means more protection against expropriation, averaged over 1985 to 1995, from Political Risk Services. Standard errors are in parentheses. In regressions with continent dummies, the dummy for America is omitted. See Appendix Table A1 for more detailed variable definitions and sources. Of the countries in our base sample, Hall and Jones do not report output per worker in the Bahamas, Ethiopia, and Vietnam.

Instrumental Variables

IV – First Stage

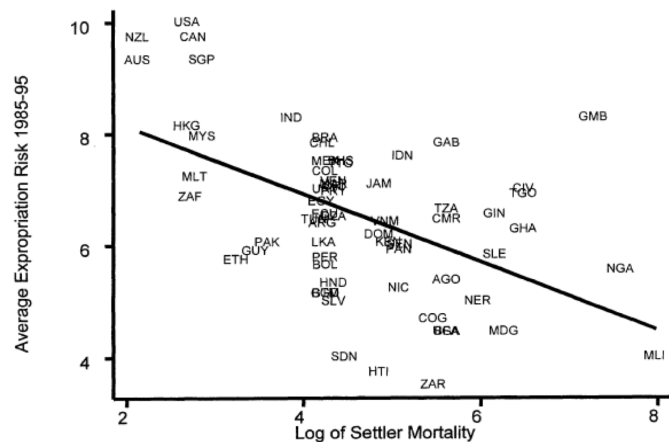


FIGURE 3. FIRST-STAGE RELATIONSHIP BETWEEN SETTLER MORTALITY AND EXPROPRIATION RISK

Discussion

- Latitude and Africa dummy (vs. Americas) are insignificant (!).
- OLS vs. IV: Can measurement error – broadly defined – plausibly explain why the IV estimates are so much larger?
- If the measurement error is classical, $\hat{b}_{OLS} = \frac{V_X}{V_X + V_u} b_{TRUE}$, where V_X and V_u are the variances of the “true” X and of the measurement error.
- Implied economic importance from the IV estimate?

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

Candidates for Omitted Variables Correlated with the Instrument

- Identity of the colonizer.
- Legal origins.
- Religion.
- Weather.
- Suitability for agriculture.
- Modern disease environment.
- Effects of the slave trade operating through culture rather than institutions.
- Human capital accumulation.
- More?

Conclusions?

Reading Marx

Karl Marx (1853): The Future Results of British Rule in India <<http://tinyurl.com/dl20090112l>>:

- The English millocracy intend to endow India with railways with the exclusive view of extracting at diminished expenses the cotton and other raw materials for their manufactures.
- But when you have once introduced machinery into the locomotion of a country, which possesses iron and coals, you are unable to withhold it from its fabrication. You cannot maintain a net of railways over an immense country without introducing all those industrial processes necessary to meet the immediate and current wants of railway locomotion, and out of which there must grow the application of machinery to those branches of industry not immediately connected with railways.
- The railway-system will therefore become, in India, truly the forerunner of modern industry.
- This is the more certain as the Hindoos are allowed by British authorities themselves to possess particular aptitude. for accommodating themselves to entirely new labor, and acquiring the requisite knowledge of machinery....

Reading Marx II

- Modern industry, resulting from the railway system, will dissolve the hereditary divisions of labor, upon which rest the Indian castes, those decisive impediments to Indian progress and Indian power.
- All the English bourgeoisie may be forced to do will neither emancipate nor materially mend the social condition of the mass of the people, depending not only on the development of the productive powers, but on their appropriation by the people. But what they will not fail to do is to lay down the material premises for both. Has the bourgeoisie ever done more? Has it ever effected a progress without dragging individuals and people through blood and dirt, through misery and degradation?...
- The devastating effects of English industry, when contemplated with regard to India, a country as vast as Europe, and containing 150 millions of acres, are palpable and confounding.

Reading Marx III

- But we must not forget... bourgeois industry and commerce create these material conditions of a new world in the same way as geological revolutions have created the surface of the earth.
- When a great social revolution shall have mastered the results of the bourgeois epoch, the market of the world and the modern powers of production, and subjected them to the common control of the most advanced peoples, then only will human progress cease to resemble that hideous, pagan idol, who would not drink the nectar but from the skulls of the slain.

Lecture Next Time: Modern Economic Growth

The three key numbers in this course are: 0.15, 0.44, 2.06—the annual percentage growth rates h of the useful-ideas stock in the Commercial Revolution, Industrial Revolution, and Modern Economic Growth periods. (Or perhaps 0.2, 0.9, 2.3—the numbers for “the West”.) But is it really best thought of as 2.06 (or 2.3)? And why is it so much bigger than 0.44 (or 0.9)?:

Readings:

- William D. Nordhaus (1997): *Do Real-Output and Real-Wage Measures Capture Reality? The History of Lighting Suggests Not* <<http://www.nber.org/chapters/c6064>>
- Robert Gordon (2000): *Interpreting the “One Big Wave” in Long-Term Productivity Growth* <<https://www.nber.org/papers/w7752.pdf>>
- Peter Thompson (2001): *How Much Did the Liberty Shipbuilders Learn? New Evidence for an Old Case Study* <<http://www.jstor.org/stable/pdfplus/10.1086/318605.pdf>>

Assignment Next Time: Unfreedom

What relevance and use does a work like Karl Marx and Friedrich Engels (1848), "Manifesto of the Communist Party" have to twenty-first century economists today?

Readings:

- Karl Marx and Friedrich Engels (1848): *Manifesto of the Communist Party* <<http://www.marxists.org/archive/marx/works/1848/communist-manifesto/>>
- Stanley Engerman and Kenneth Sokoloff (1994): *Factor Endowments, Institutions and Differential Paths of Development among New World Economies* <<http://papers.nber.org/papers/h0066>>
- Nathan Nunn (2008): *The Long-Term Effects of Africa's Slave Trades* <<http://www.jstor.org/stable/pdfplus/25098896.pdf>>

Catch Our Breath...

- Ask a couple of questions?
- Make a couple of comments?
- Any more readings to recommend?



Notes...

