

# Disease Environments, the Mortality of Europeans,

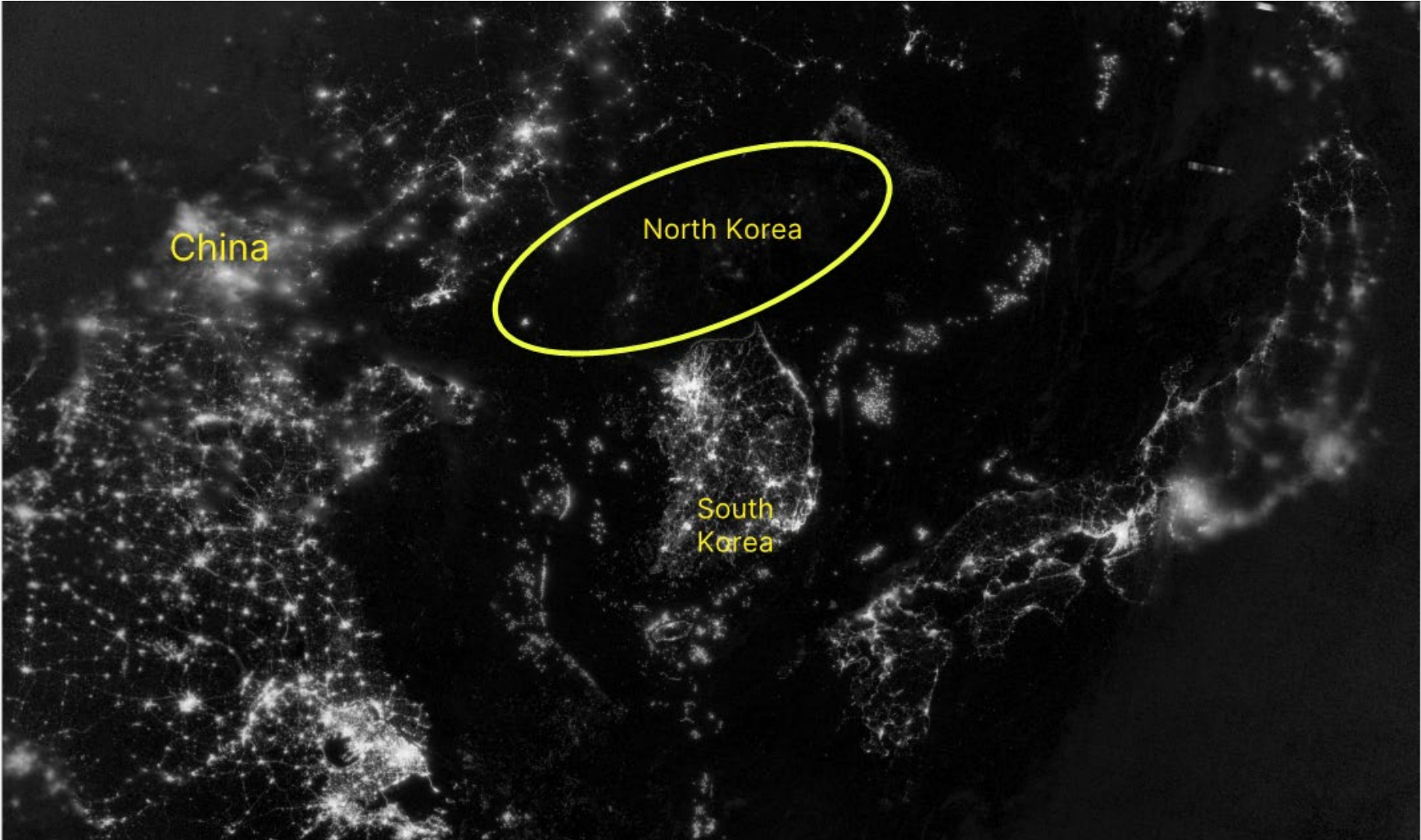
— AND THE —

# Creation of Institutions in the Colonial Era

SIMON JOHNSON • MIT SLOAN • MIT SHAPING THE FUTURE OF WORK INITIATIVE

Revised version of Simon Johnson's Nobel Lecture, Stockholm • Originally delivered December 8, 2024

# North Korea: A totalitarian regime with low per capita income (and not much light at night)



*The Korean Peninsula at night, 2010s*

# South Korea's opposition protesting at the National Assembly in Seoul on December 4, 2024



December 4, 2024

# Institutions vary greatly across countries: from more extractive to more inclusive

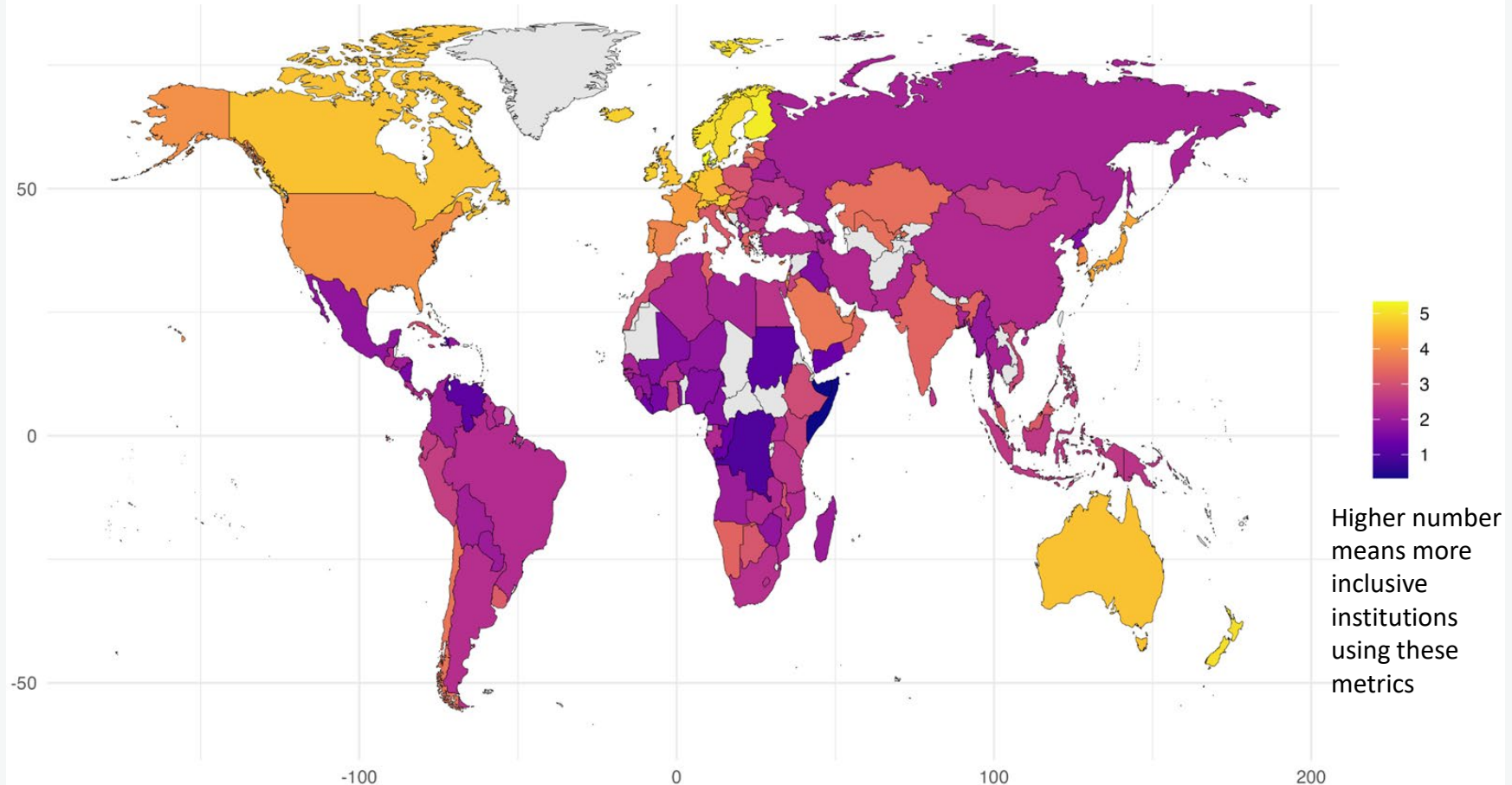
## Ideal of Inclusive institutions

- Strong economic and political rights for everyone

## Reality of Extractive institutions

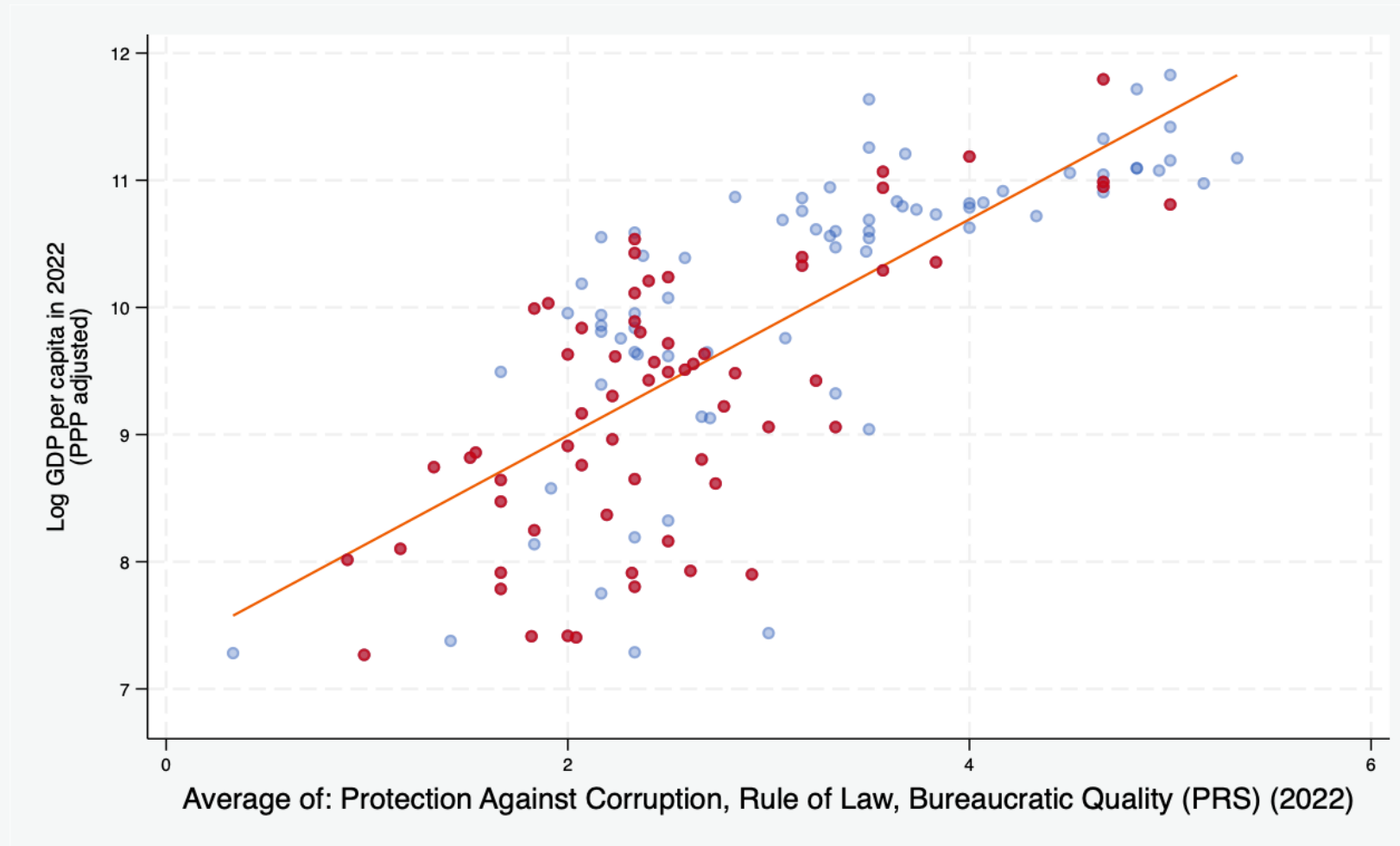
- Main purpose is to transfer resources to the elite
- Only a very few become wealthy
- Rights for most people are suppressed

*Measuring average of protection against corruption, rule of law, & bureaucratic quality (PRS) (2022)*



# Institutions are more inclusive where GDP per capita is higher

## But is there a causal relationship?



● Former European colonies (AJR 2001 sample)

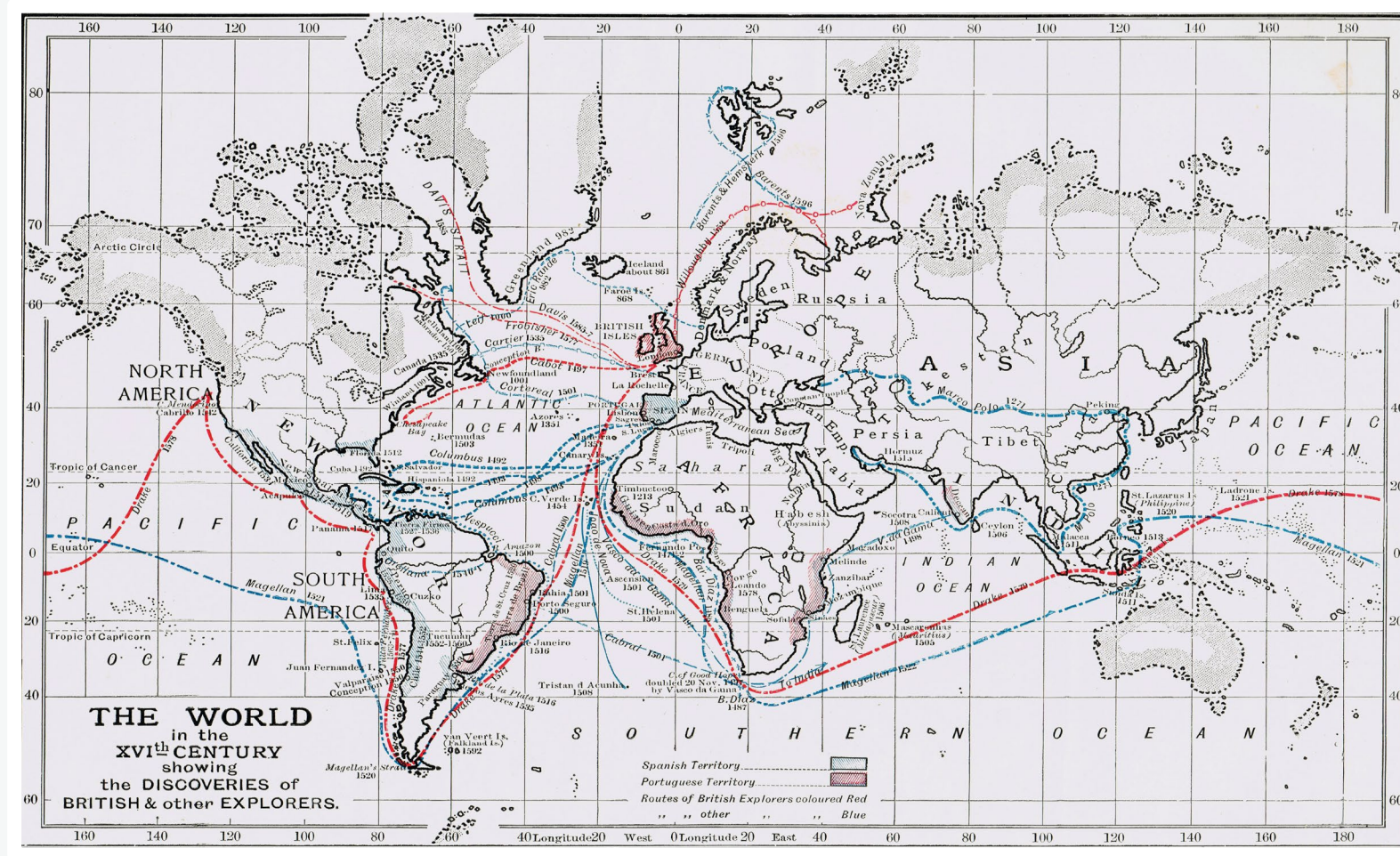
● All other countries

# Origin story for inclusive vs. extractive institutions: European empires had very different outcomes for institutions in different places



Map of the British Empire, circa 1860

For five hundred years, Europeans tried to establish colonies everywhere,  
but with varying results...



Map of 16th Century European Exploration

# Infectious disease wiped out some attempted European settlements

*“Hither Thy Shall Come, and No Further...”*



*Death waiting in Panama, 1904*



*French Panama Canal Laborer Cemetery*



# Over 400 years, Europeans grasped that disease environments affected life expectancy of potential colonists

If 1,000 young adult male Europeans migrated in early 1800s, there were three zones of death for them...

- Extremely high
  - West Africa: ~**500** would die in the first year
- High
  - West Indies: **85-130** per annum would die
  - India: **40-70** per annum would die
- Low
  - Northern US/Canada: **15** per annum would die

In Britain/France: 15-20 would die

Showing the Deaths and Fatal Diseases among the Depôts of Corps serving in the WEST INDIES, in each Year from 1st January 1830 to 31st March 1837.

Classes of Diseases.	Years	Strength							Total for whole Period.	
		1830	1831	1832	1833*	1834	1835	1836	23,537	Total by each Disease.
Fever.	Febrio Cont. Com.	5	13	11	17	3	6	13	68	
	Typhus									
Eruptive Fevers.	Variola			2	1	1		1	5	5
	Pneumonia		1	1	5	2	1	2	12	
Diseases of the Lungs.	Hemoptysis		1	1	3	1	1	1	8	
	Phthisis Pulmonalis	23	22	24	35	27	40	25	196	226
	Catarrhus Chronicus		1	4			2	2	9	
	Asthma		1						1	
Hepatitis		1					1	2		
Diseases of the Stomach and Bowels.	Gastritis					1		3	1	9
	Gonorrhoea							3	3	
	Hæmatemesis					1			1	
	Dysenteria							1	1	
Epidemic Cholera.	Cholera Epidemica			14	9	4			27	27
	Cholera Infantum									
Diseases of the Brain.	Phrenitis		2		1		1	1	4	14
	Apoplexia			2			1	2	6	
	Paralysis			1			1		2	
	Delirium Tremens					1			1	
Dropsies.	Anasarca		1		1		1		2	9
	Hydrothorax						1	1	4	
	Ascites		1	1	1				3	
All other Diseases.	Rheumatismus				1	1		1	3	32
	Phlegmon et Abscessus							1	1	
	Apostoma Lumbare		1						1	
	Fistula				1	1	1		3	
	Syphilis				2	1		1	4	
	Cachexia Syph.		1						1	
	Fractura				2				2	
	Vulnus Scapularium					1			1	
	Cynanche Tonsillarum				2				2	
	Otitis				1				1	
	Morbus Cordis				1				1	
	Aneurisma Aortæ								1	
Hæmorrhagia							1	1		
Purpura Hemorrhagica					1			1		
Scrophula					1			2		
Erysipelas		1	1	1		1		4		
Debilitas								1		
Suicide, Accidents, &c.	Drowned	2	3		1		3	1	10	21
	Struck			1			1		2	
	Suicide		1		2	2	1	3	9	
Cause unknown		1		2	8	5	2	5	23	23
Total		35	47	73	98	50	70	63	436	436

\* This includes a period of 15 months.

Showing the Strength of the METROPOLITAN POLICE, the Number of Deaths, and the Average Daily Number of Men Sick, in the undermentioned Years.

YEARS	Mean Strength	Number of Deaths.	Average Sick Daily.	Removed on Account of Ill Health.	REMARKS.
1830	3307*	19	77	Not stated.	* The Police were not completely established until the latter end of May, 1830.
1831	3284	26	86		
1832	3392	35	85		
1833	3369	40	89		
1834	3400	45	92		
1835	3402	27	90	31	† The numbers here stated are only those reported until by the surgeon; exclusive of these, many have voluntarily retired on account of bad health.
1836	3414	29	91	26	
Total	23998	211	610		

Ratio per thousand of mean strength died . . . . . 9  
Ratio per thousand constantly sick . . . . . 26

British troop sickness and mortality statistical report by A.M. Tulloch, H. Marshall, and T.G. Balfour of the Army Medical Department and War Office Returns, 1839

# Disease environments influenced European colonial strategies

## Three settler mortality groups of countries in the data: Extreme, High, and Low

### Extreme (7+ times Europe):

In West Africa, Europeans generated huge profits with the slave trade, tried to minimize time on land, and ruled from afar

### High (2-4 times Europe):

In India and the West Indies, European officials/planters tried to make as much money as possible before soon returning to England

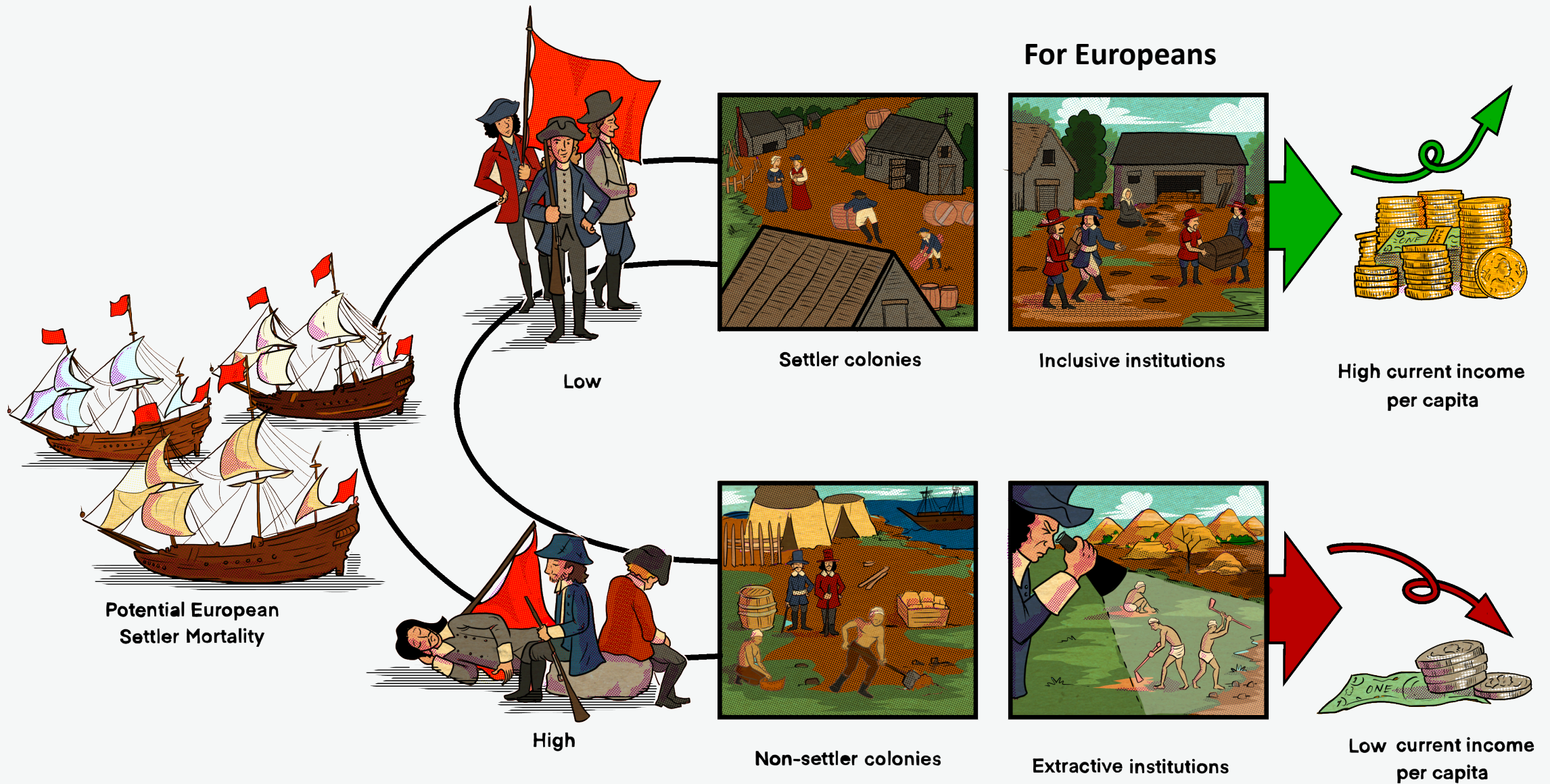
### Low (similar to Europe):

In the U.S., Canada, Australia, New Zealand, and a few other places, Europeans aimed to settle permanently

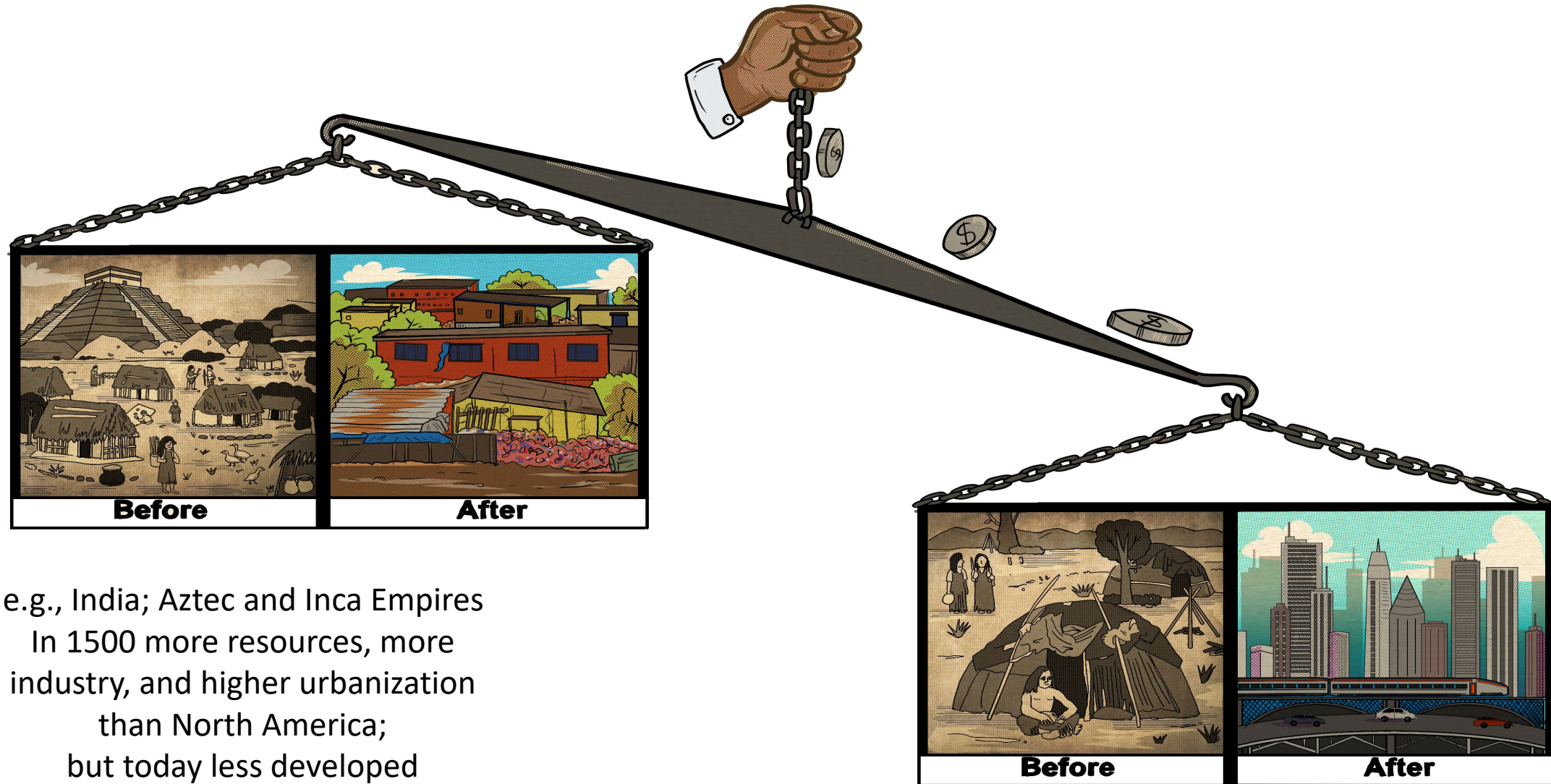


# Colonial strategies resulted in two paths for institutions

Across all European colonies, Indigenous populations were treated with brutality

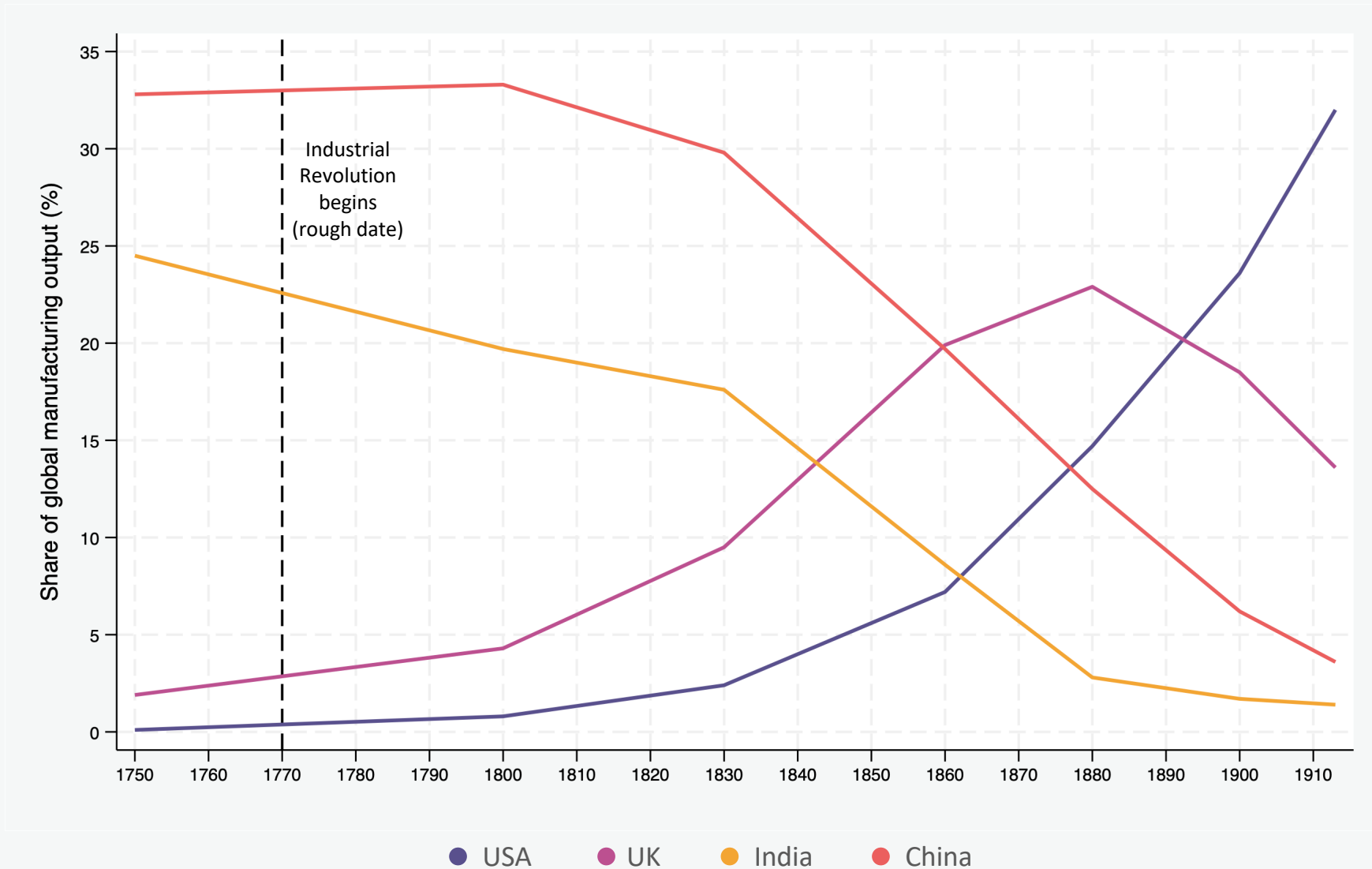


# The effect of institutions was so dramatic that initially rich places became poor... and low-income places became rich



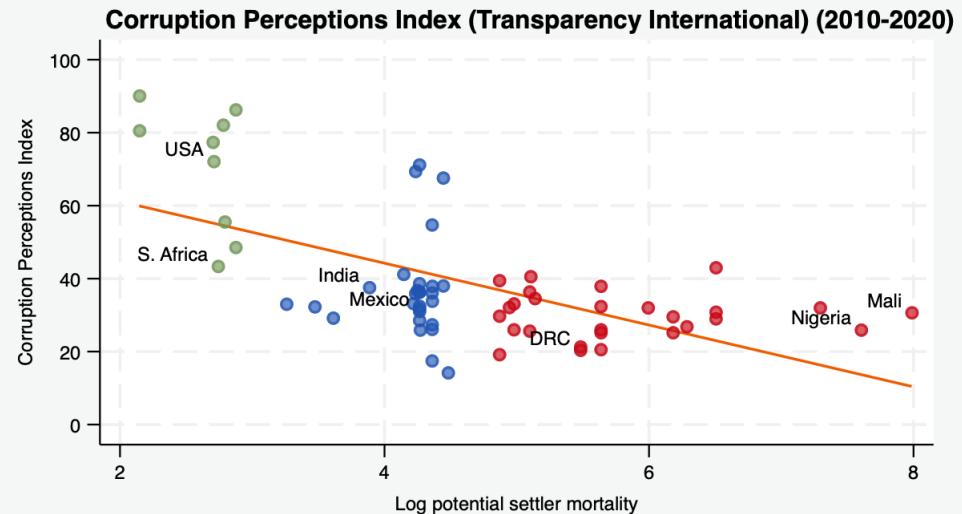
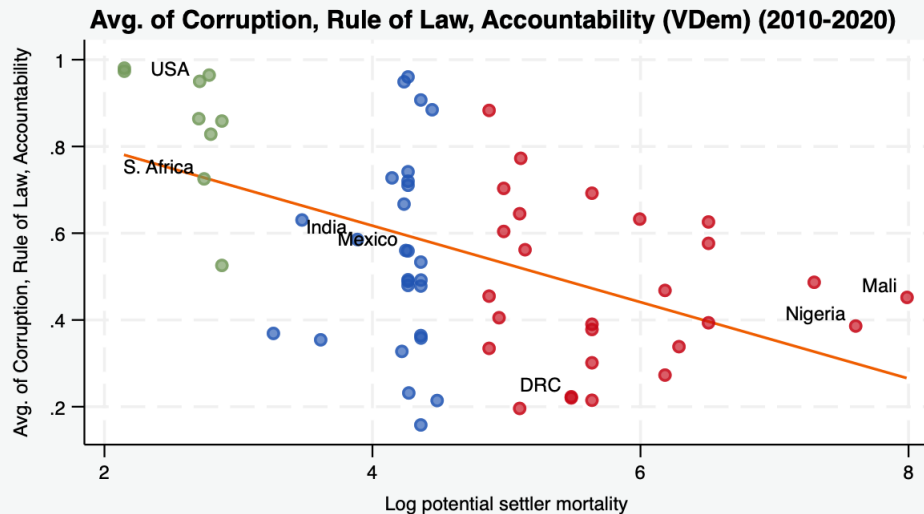
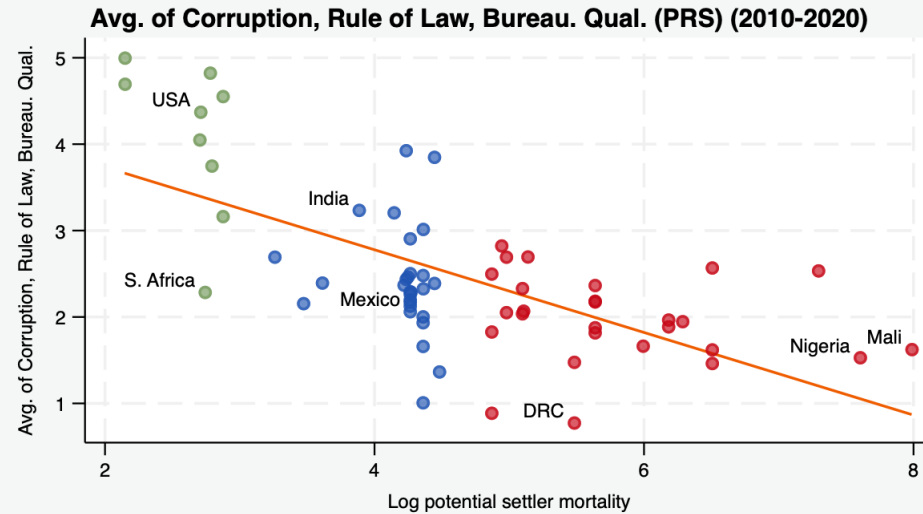
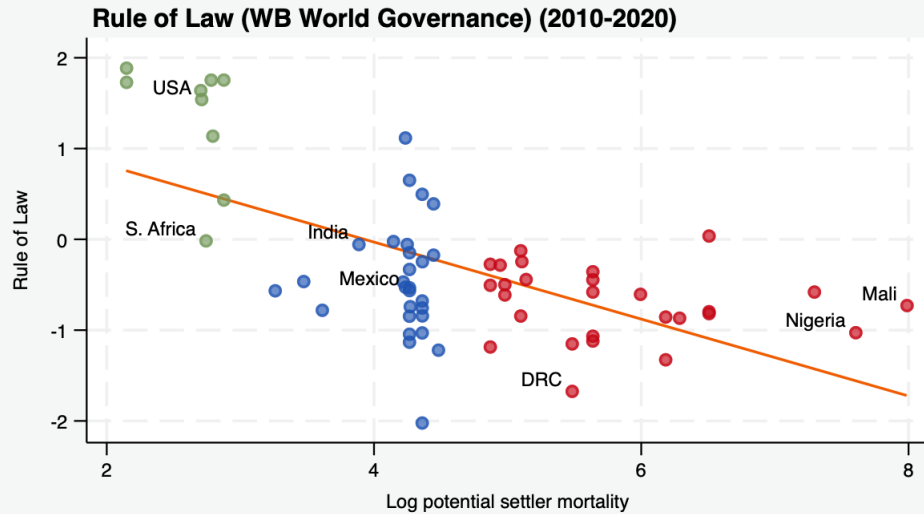
e.g., India; Aztec and Inca Empires  
In 1500 more resources, more  
industry, and higher urbanization  
than North America;  
but today less developed

# ... because relatively inclusive institutions made it easier to industrialize early



Data from Paul Bairoch, "International Industrialization Levels from 1750 to 1980." (1982)

# Lower settler mortality is robustly correlated with more inclusive present-day institutions



- Low mortality
- High mortality
- Extreme mortality

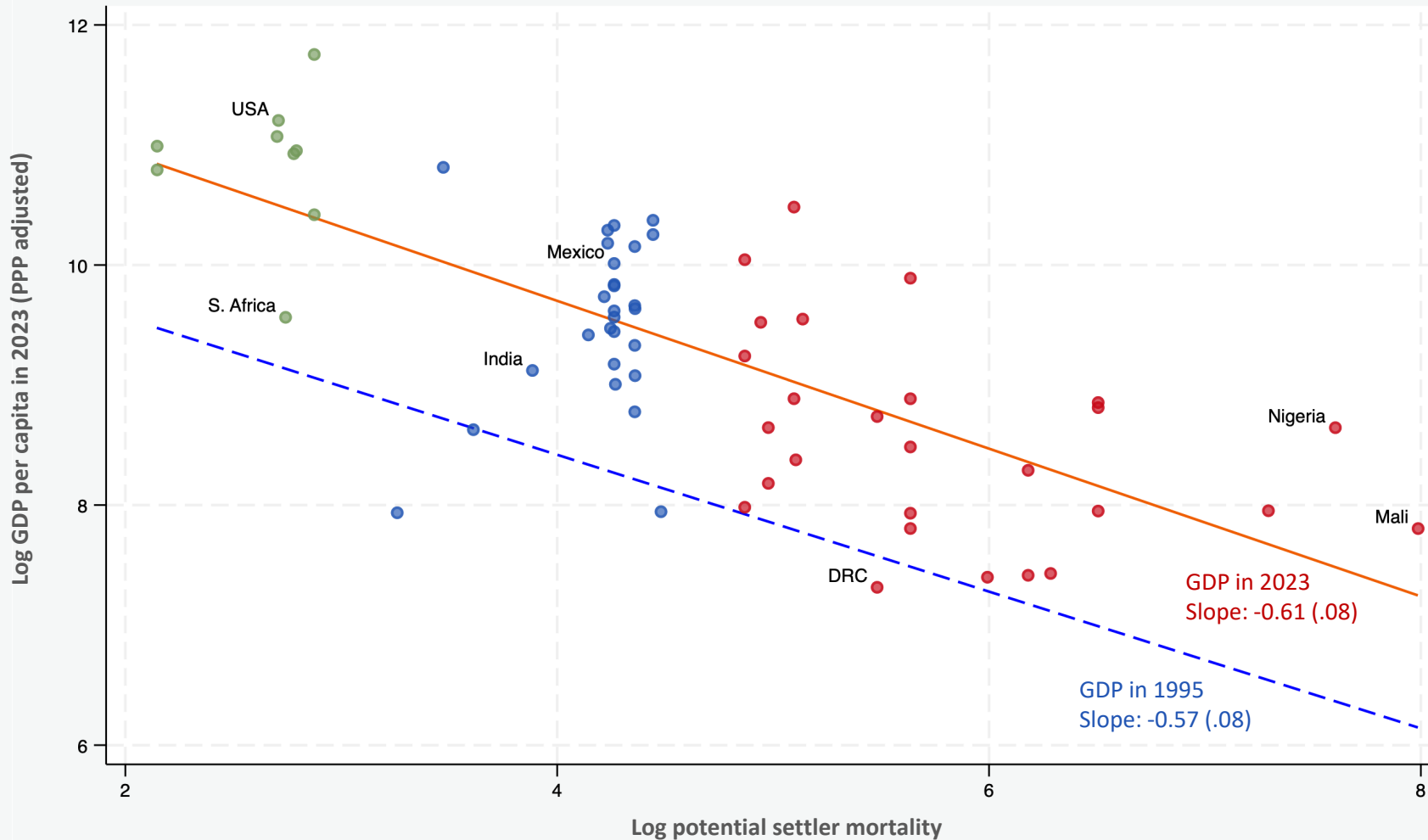
# In the mid-1990s and in the early 2020s: where European settler mortality was lower, higher GDP per capita

## Three Disease Environments:

**Low:** Comparable to Europe

**High:** 2 to 4 times higher than Europe

**Extreme:** 7+ times higher than Europe



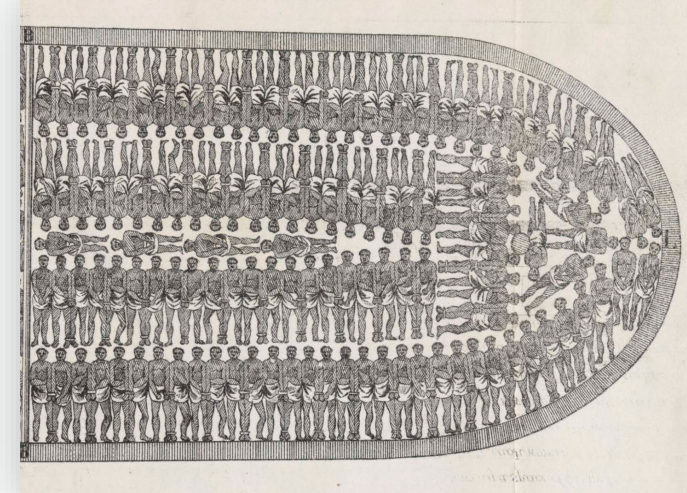
# In-depth studies subsequently established the ways in which extractive institutions have persisted



*Colonial India*



*Silver Mines of Peru*



*Slave Ship*

## Colonial India

- History, Institutions, and Economic Performance: The Legacy of Colonial Land Tenure Systems in India (*Banerjee and Iyer 2005*)
- The Colonial Legacy in India: How Persistent are the Effects of Historical Institutions? (*Iyer and Weir 2024*)

## Peru and Java

- The Persistent Effects of Peru's Mining Mita (*Dell 2010*)
- The Development Effects of the Extractive Colonial Economy: The Dutch Cultivation System in Java (*Dell 2020*)

## African Slave Trade

- The Long-Term Effects of Africa's Slave Trades (*Nunn 2008*)
- The Slave Trade and Origins of Mistrust in Africa (*Nunn and Wantcheckon 2011*)



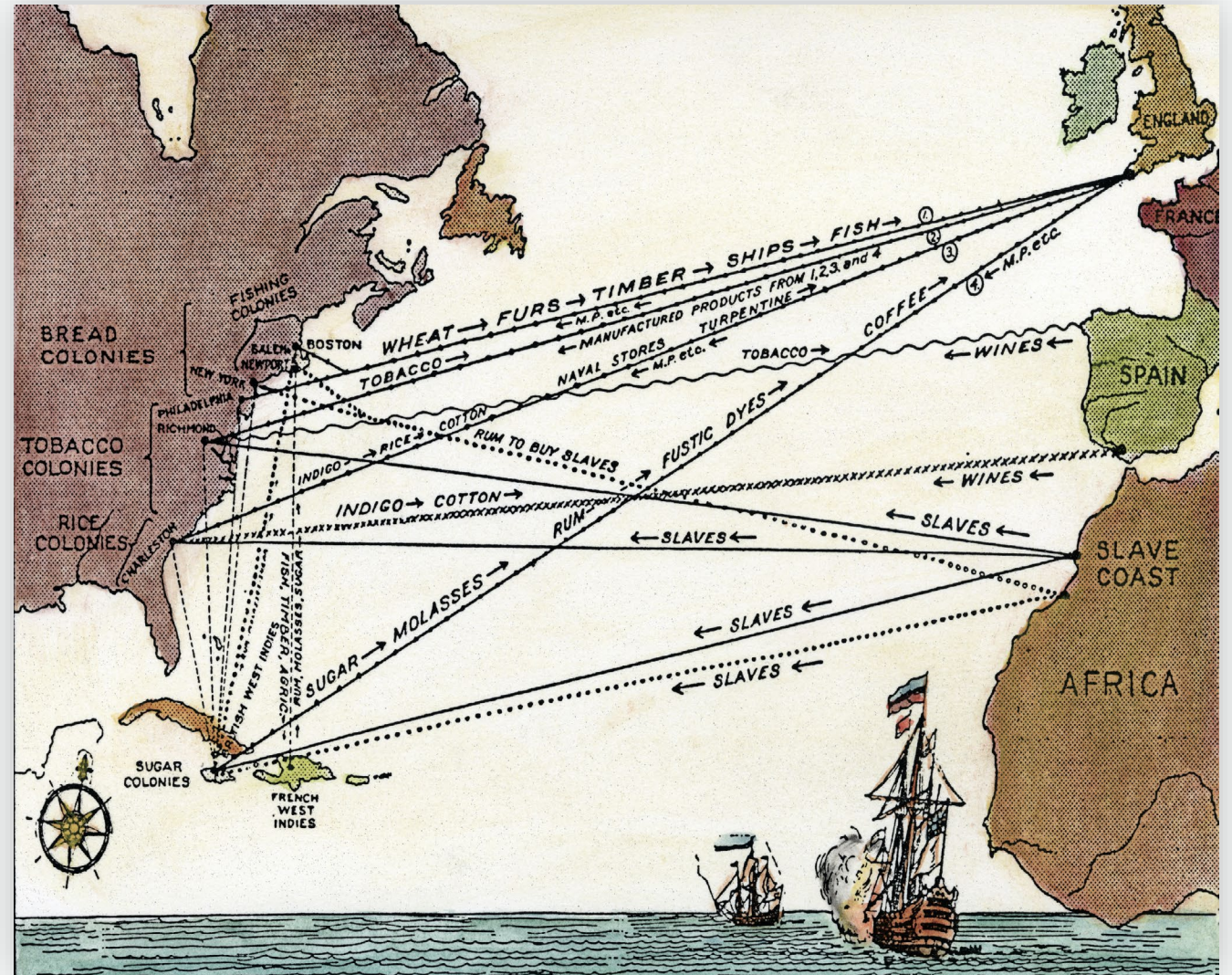
# But also the dark side of how “inclusive” institutions really emerged

In European countries with more inclusive initial institutions, profits from the Atlantic trade (slaves-sugar-rum etc.) shifted power from aristocracy to merchants

Those merchants favored reforms that slowly broadened inclusion (e.g., 1832 Reform Act in Britain), contributing to sustained strong growth in parts of Western Europe

More secure property rights backed by stronger political representation encouraged economic innovations to emerge from the “middling class”

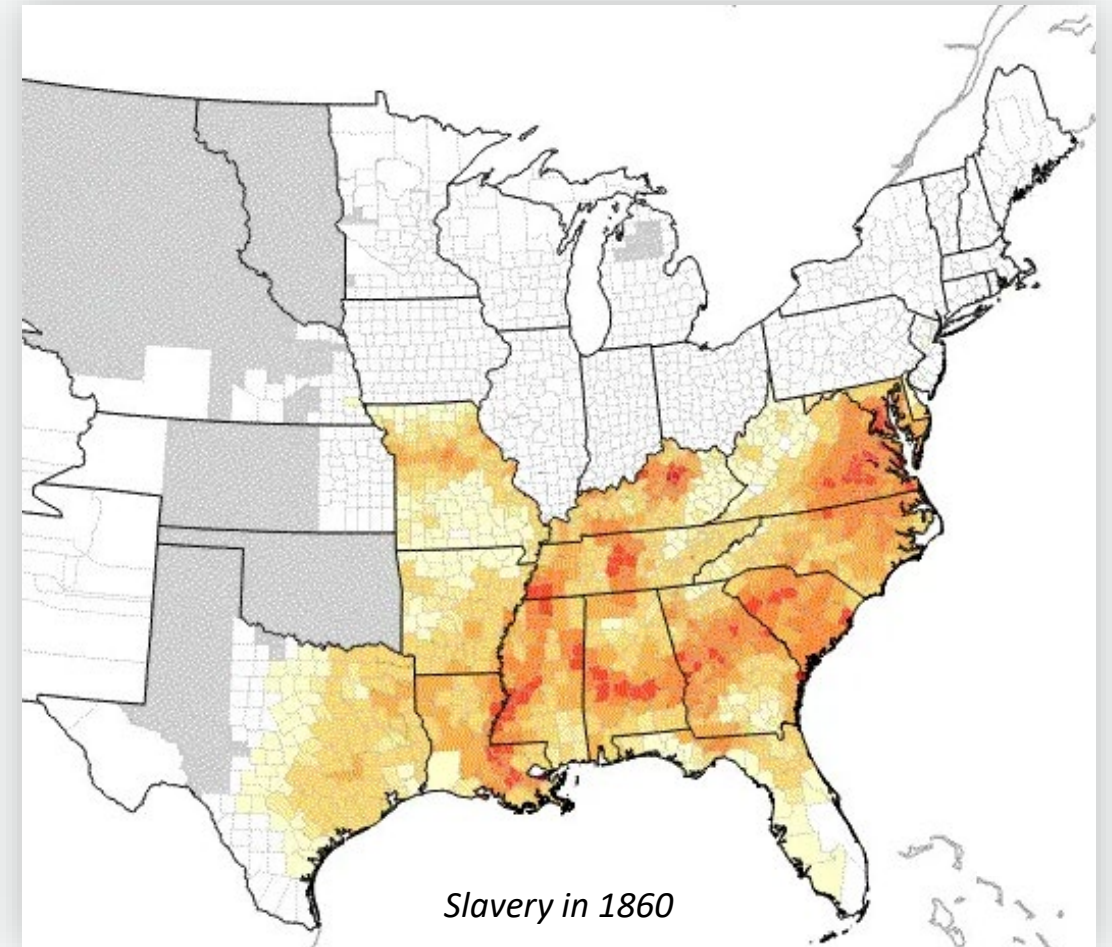
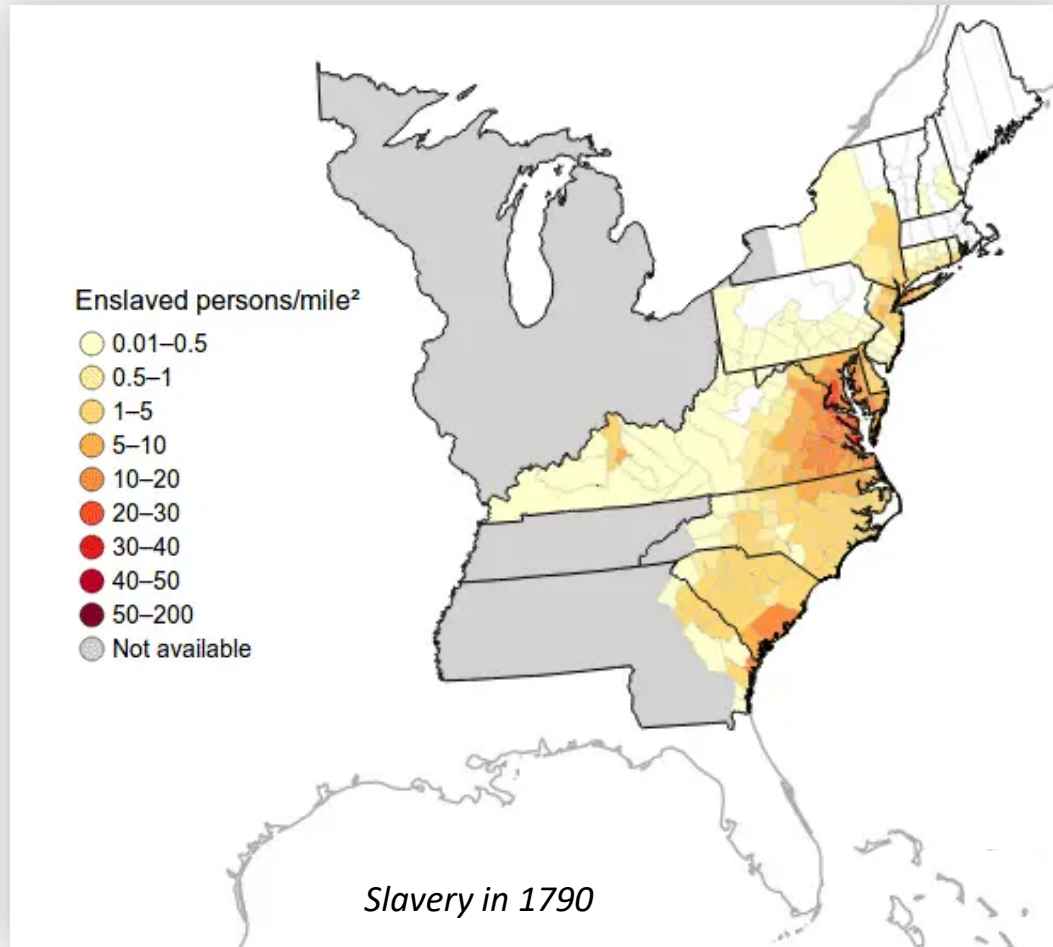
“The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth” (Acemoglu, Johnson, and Robinson, 2005)



17th Century Triangle Trade Route Map, 19th Century Engraving

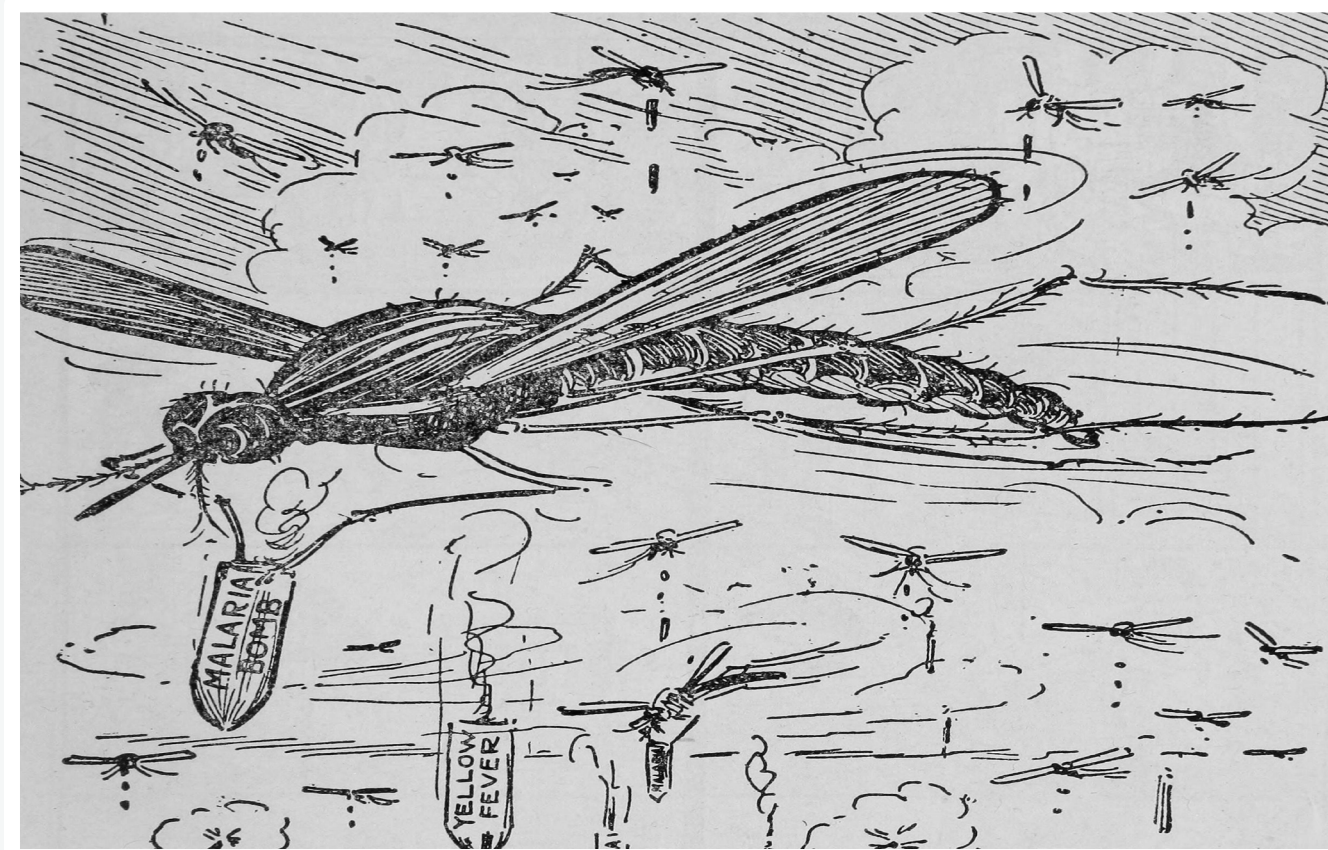
# And the very dark side of “inclusive institutions” in the US South: From ~697,000 enslaved in 1790 to more than 3.95 million in 1860

(total population of the US was about 31 million: percent enslaved 57% SC; 55% MS; 47% LA; 45% AL; 44% GA; 44% FL)



Emancipation was followed by denial of civil rights, voter suppression, segregation, lynchings, penal labor systems, and state-condoned violence against African-Americans – some of the most extractive institutions ever

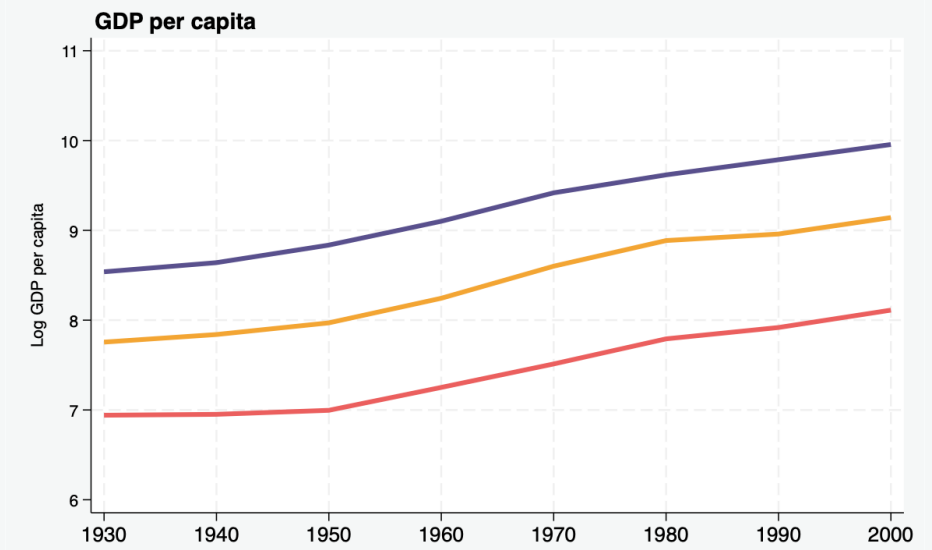
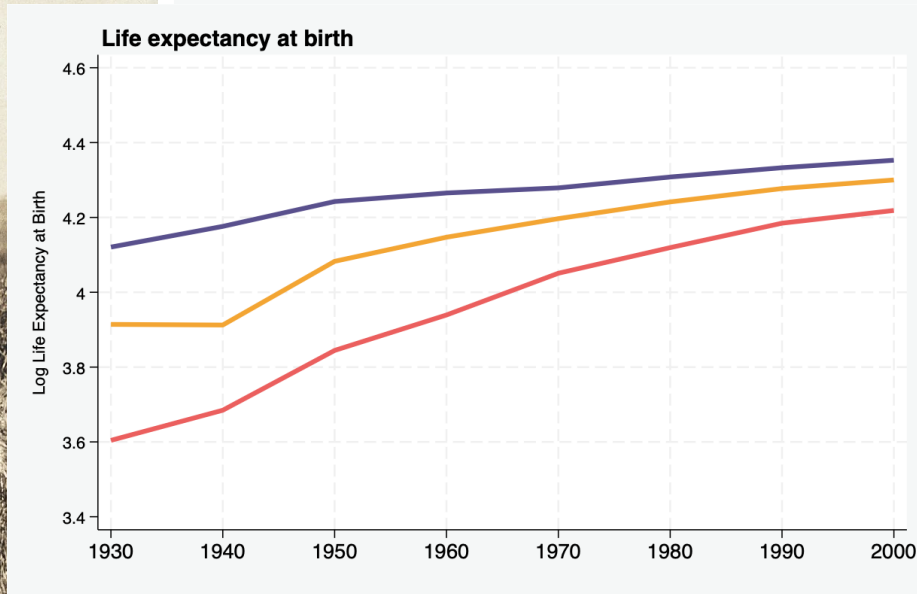
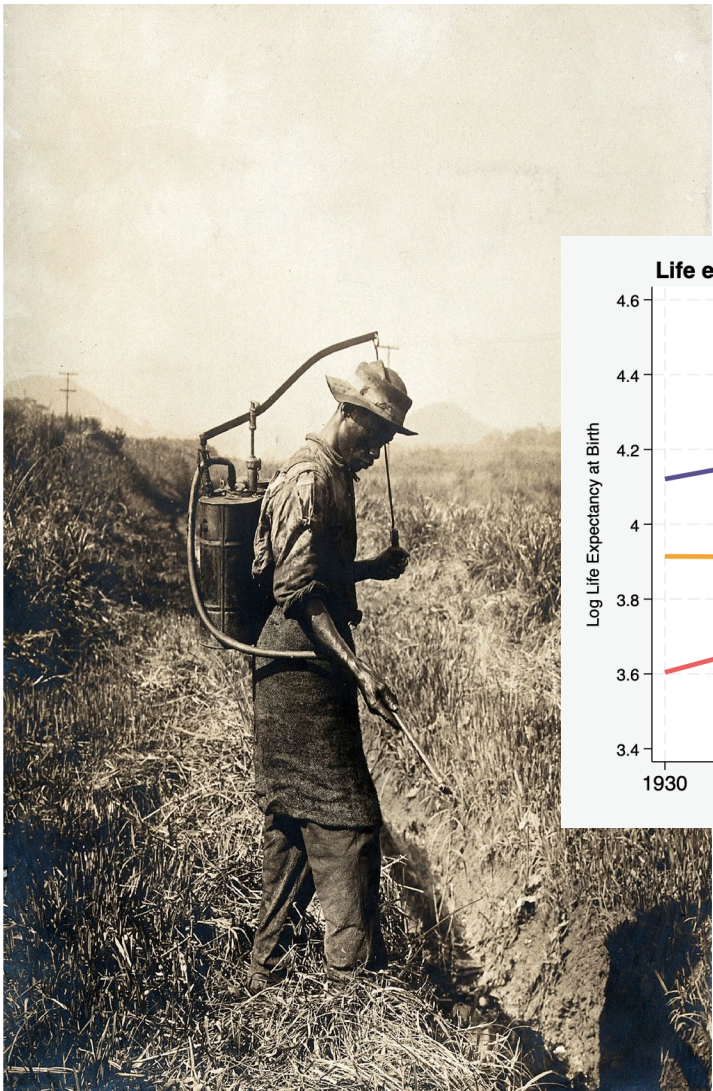
# The variation in institutions across countries helps us understand what happened when improvements in global public health, from the 1940s, saved millions of lives



In 1902, Ronald Ross wins the Nobel Prize for his 1897 breakthrough work on malaria

Illustration from the book *"Epidemics, How to Meet Them,"* (1919)

# Life expectancy converged, but GDP per capita did not. Why?



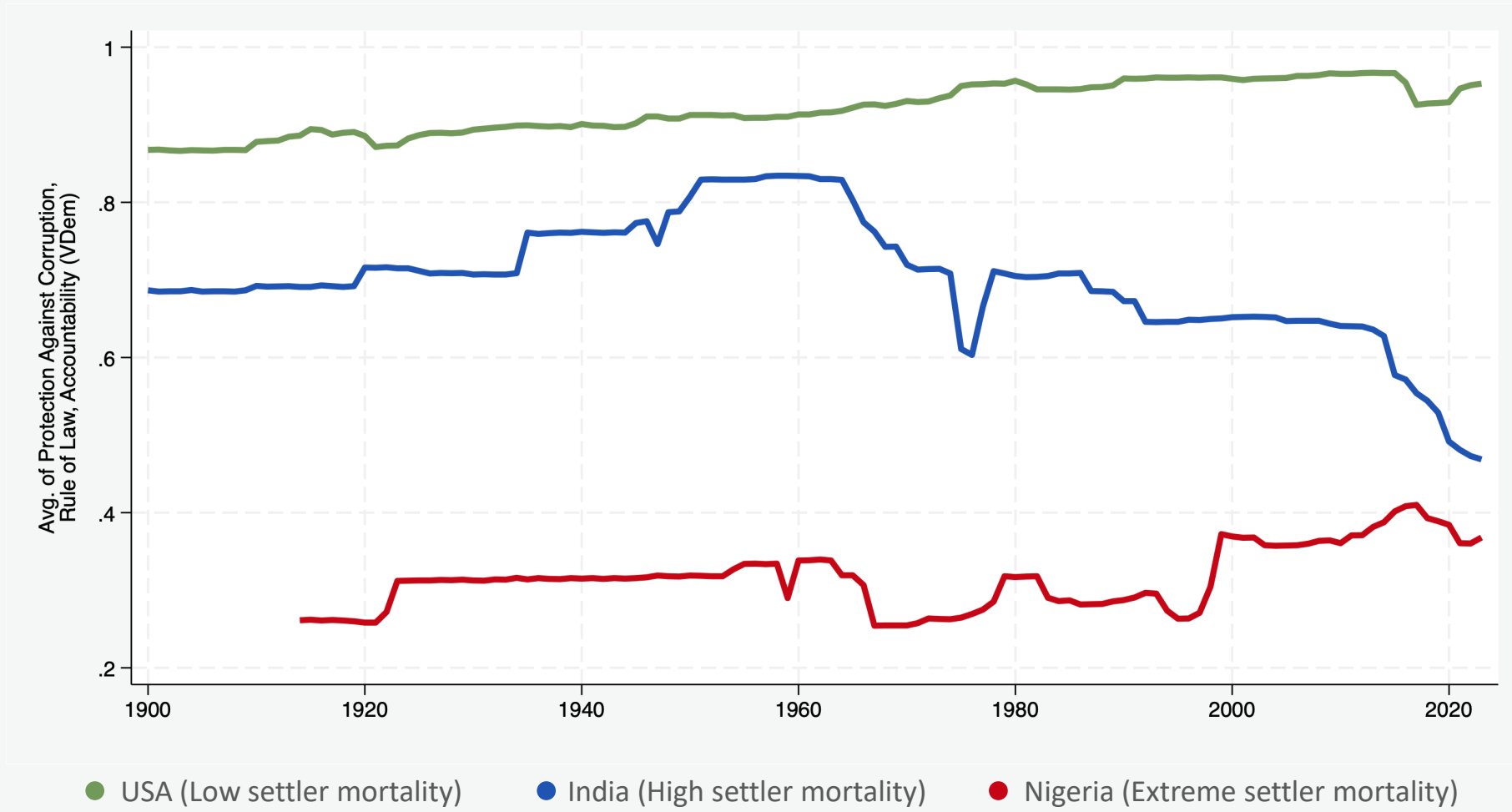
● Initially Rich    ● Initially Middle-Income    ● Initially Low-income

*Graphs from Acemoglu and Johnson, "Disease and Development", 2007*

*Mosquito control program: pesticide application, Panama, (1910)*

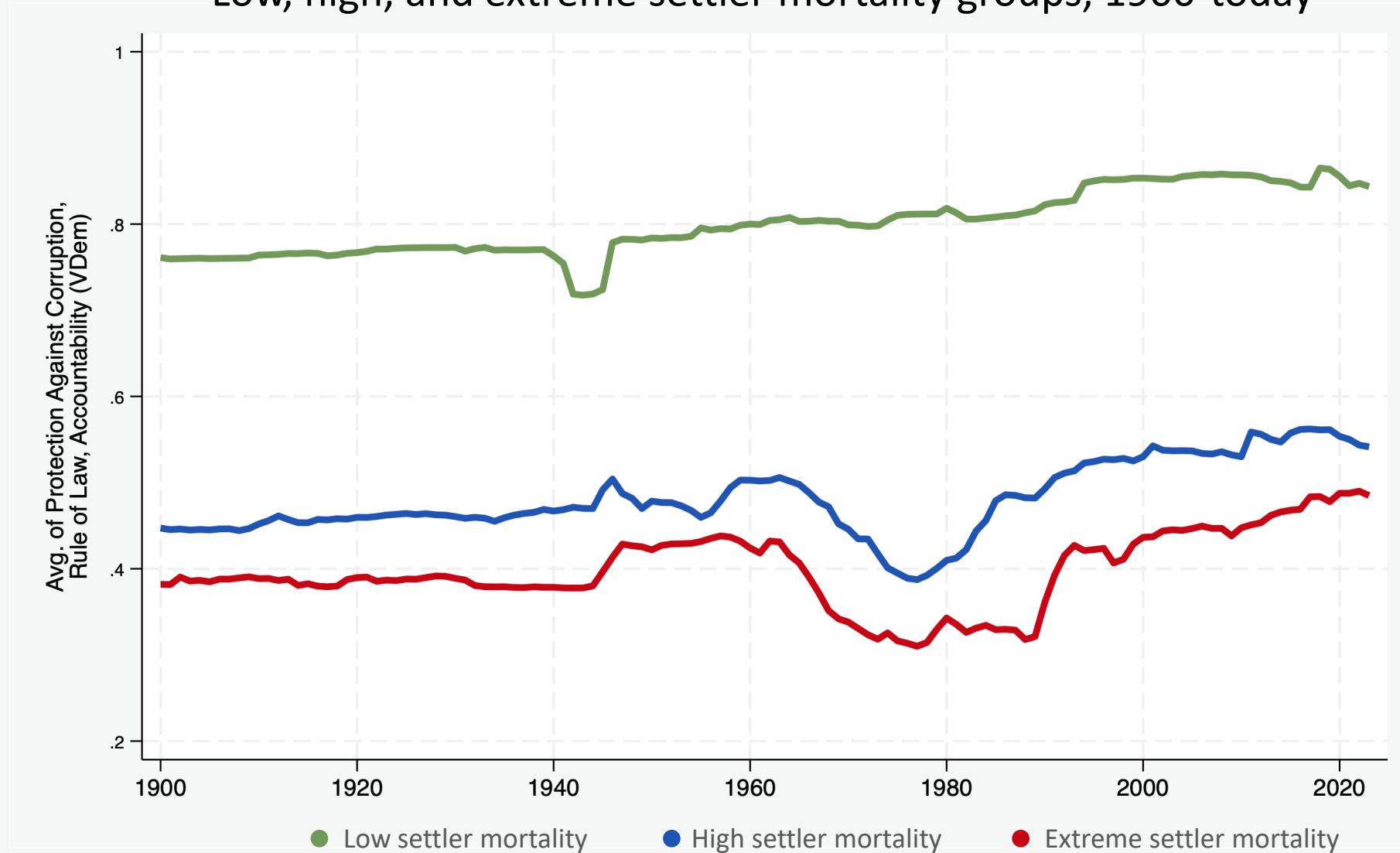
# Because institutions are path dependent

USA, India, Nigeria, 1900-today

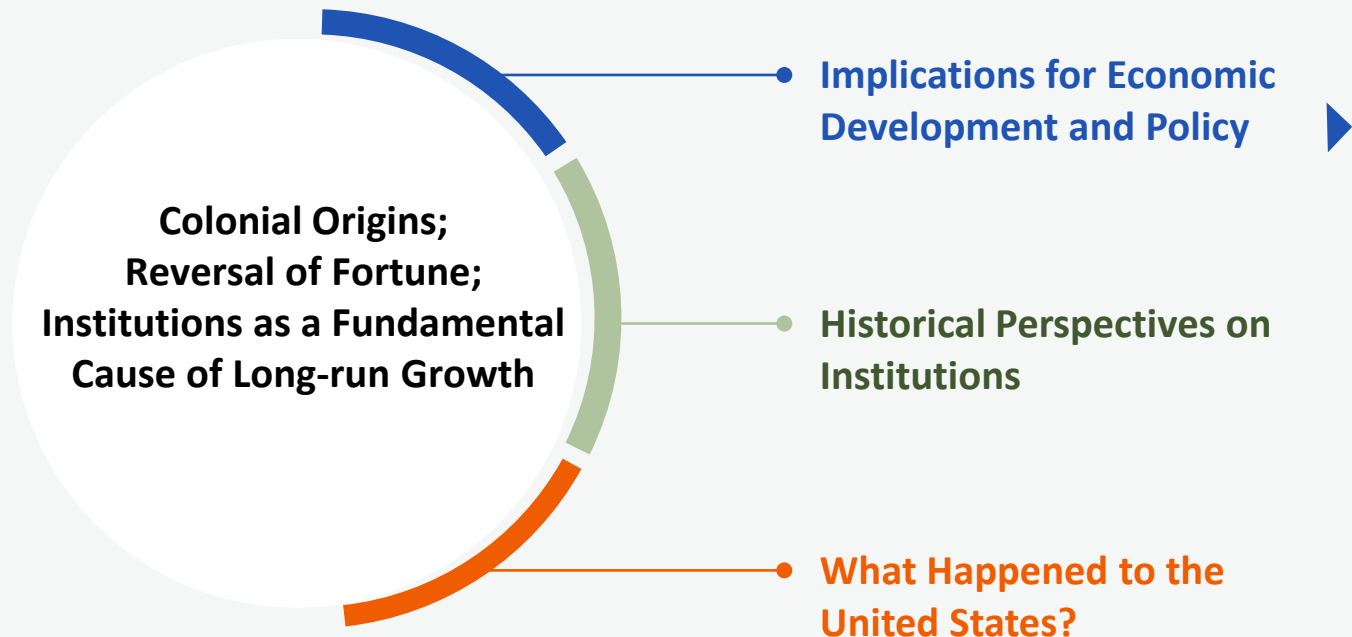


# The path dependence of institutions across settler mortality groups

Low, high, and extreme settler mortality groups, 1900-today



# Follow-up research and additional questions



## **Institutional Causes, Macroeconomic Symptoms: Volatility, Crises, and Growth**

*Acemoglu, Johnson, Robinson,  
and Thaicharoen (2003)*

## **Unbundling Institutions**

*Acemoglu and Johnson (2005)*

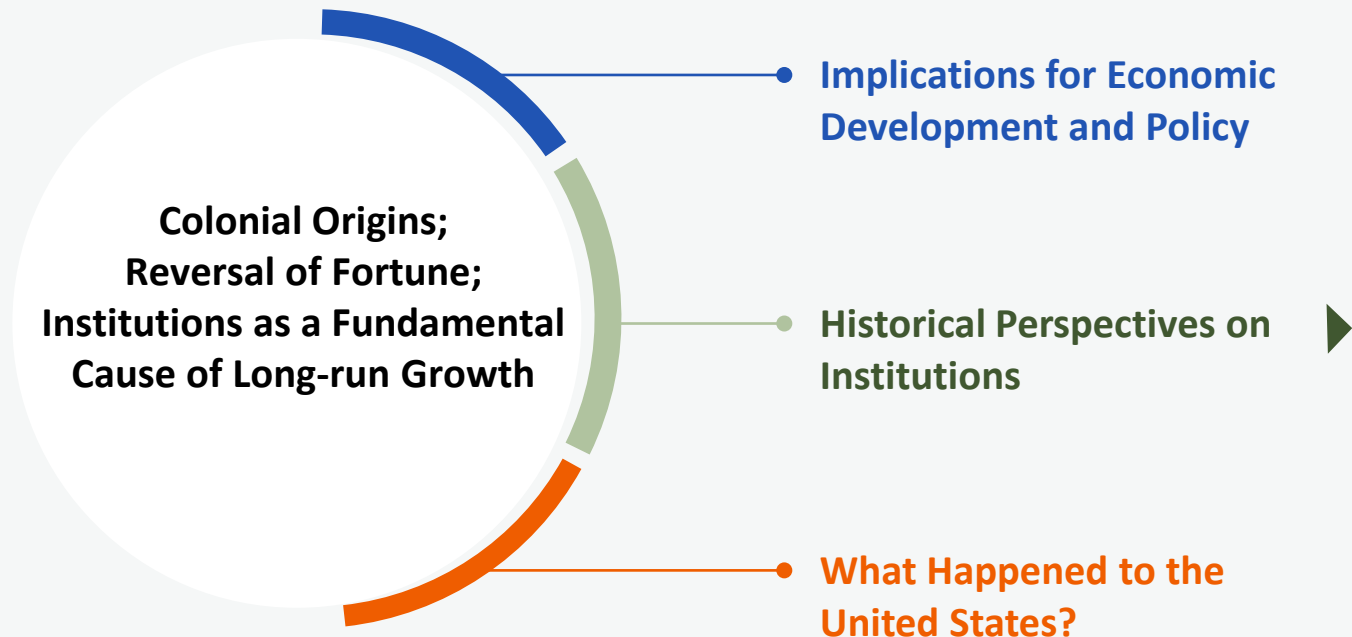
## **Disease and Development: The Effect of Life Expectancy on Economic Growth**

*Acemoglu and Johnson (2007)*

## **Population and Conflict**

*Acemoglu, Ferguson, and Johnson (2007)*

# Follow-up research and additional questions



## **The Rise of Europe: Atlantic Trade, Institutional Change, and Long Run Growth**

*Acemoglu, Johnson, and Robinson (2005)*

## **Income and Democracy**

*Acemoglu, Johnson, Robinson, and Yared (2008)*

## **The Consequences of Radical Reform: The French Revolution**

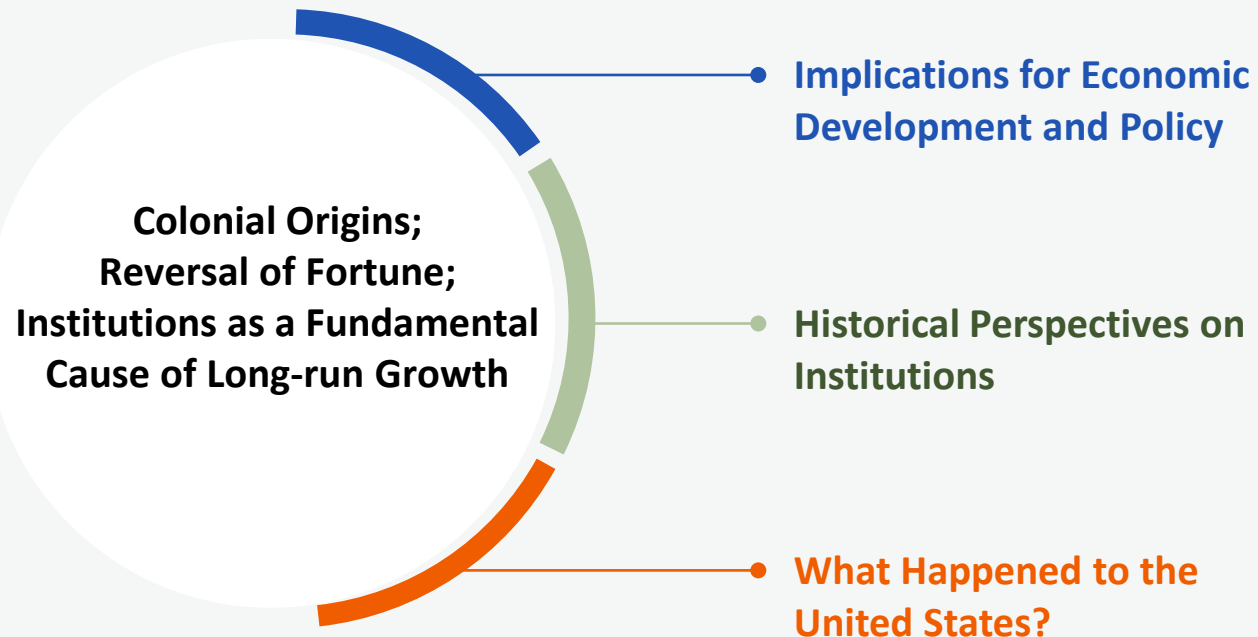
*Acemoglu, Cantoni, Johnson,  
and Robinson (2011)*

## **Learning from Ricardo: Machinery and Labor in the Early Industrial Revolution – and Today**

*Acemoglu and Johnson (2024)*



# Follow-up research and additional questions



**13 Bankers: The Wall Street Takeover and the Next Financial Meltdown** *Johnson and Kwak (2010)*

**The Value of Political Connections in Turbulent Times**

*Acemoglu, Johnson, Kermani, Kwak, and Mitton (2016)*

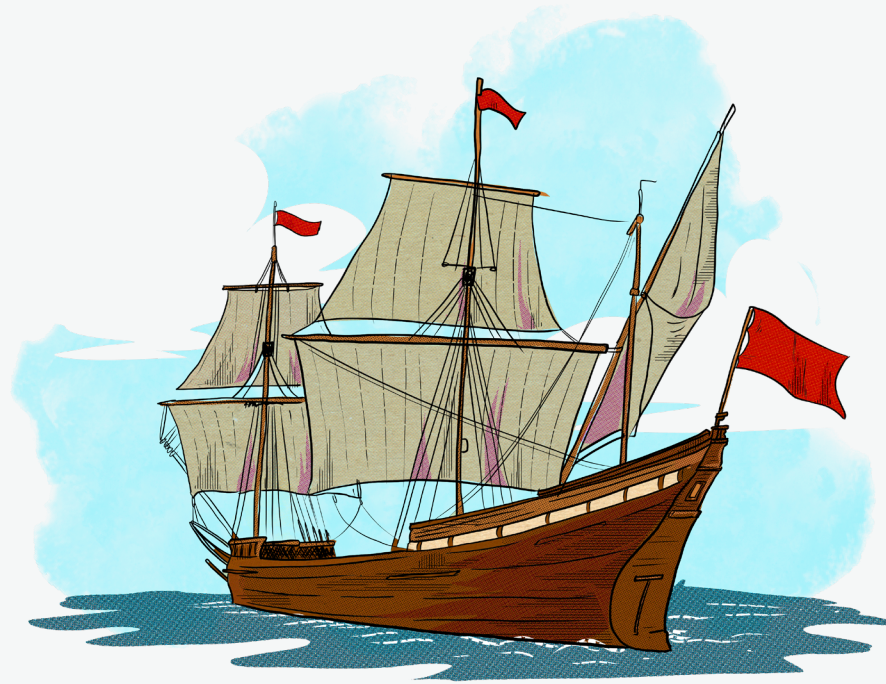
**Jump-Starting America: How Breakthrough Science Can Revive Economic Growth and the American Dream**

*Gruber and Johnson (2019)*

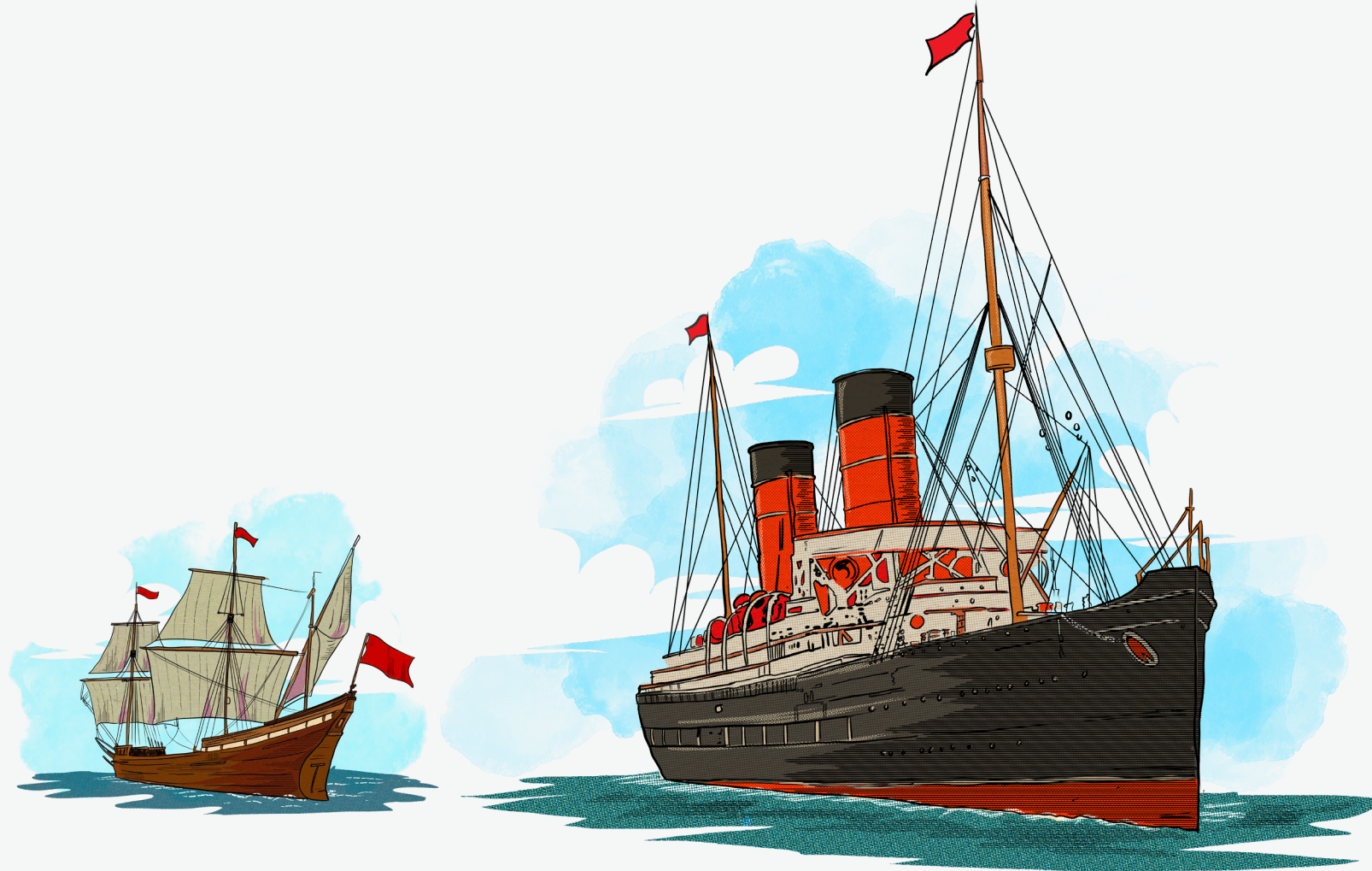
**Power and Progress: Our Thousand-Year Struggle Over Technology and Prosperity**

*Acemoglu and Johnson (2023)*

**In sum, with a few dozen small ships, Europeans grabbed territory around the world, imposed their will, and shaped modern institutions**



**As industry advanced in the 1800s (and ships became bigger),  
the structure of European empires determined today's global division of labor**



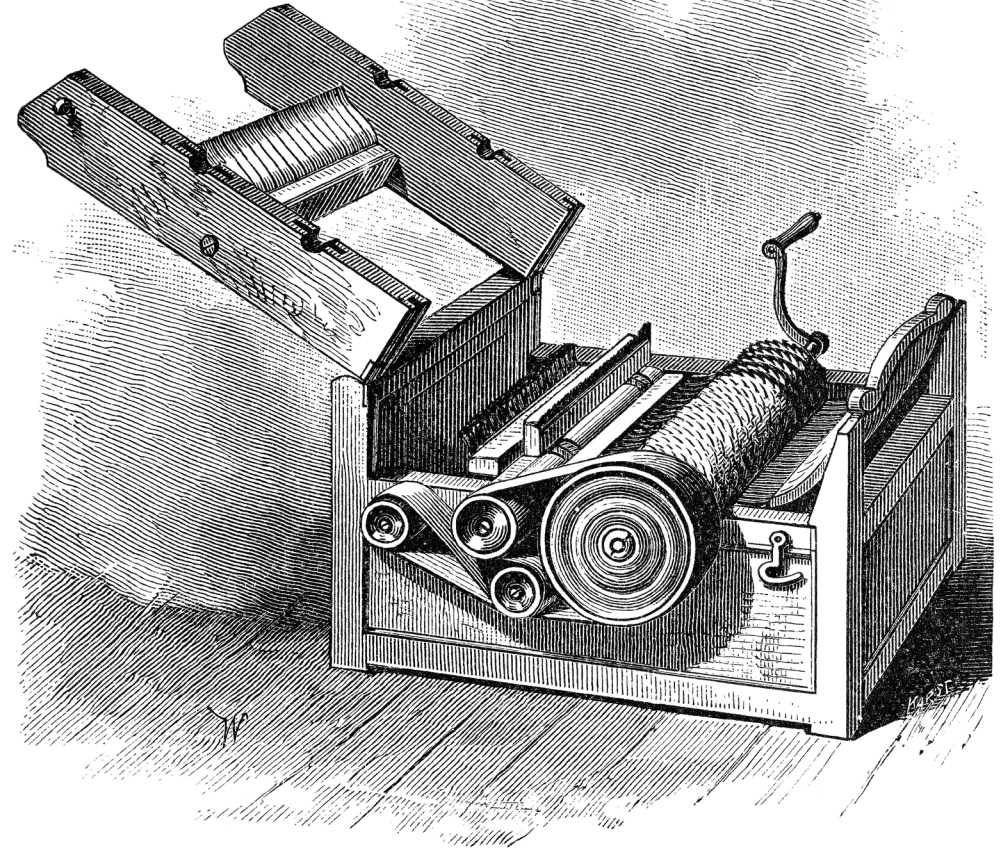
**Now countries with strong institutions are better positioned to invent new technology, create more good jobs, and set the global rules**



## But new technologies create winners and losers

*Power and Progress, Acemoglu and Johnson (2023)*

The cotton gin facilitated the spread of slave plantations across the Deep South...



*Eli Whitney's cotton gin, 19th Century*

**Henry Ford automated  
production and created many  
new tasks requiring expertise**



*Henry Ford's Rouge Plant, 1919*





**But “excessive automation”  
shrinks the middle class and  
undermines democracy**



*Combine, soon entirely run by AI*

# What should we do?

## Some projects at one engineering school (MIT)

	Shared Prosperity	<ul style="list-style-type: none"><li>• Redirect the development of technology (<b>David Autor and Daron Acemoglu</b>)</li><li>• Create <i>Pro-Worker AI</i>, for more good jobs, including for those who did not go to 4-year college</li><li>• Anticipate the rapid aging of global populations</li></ul>
	Global Public Health	<ul style="list-style-type: none"><li>• Reimagine <i>Global Public Health</i> as an entrepreneurship/engineering problem (<b>Michael Mina</b>)</li><li>• COVID was a disaster, but not because we lack scientific knowledge, technical talent, or strong specialists</li><li>• Chronic and infectious disease remains – and will always be – a problem shared across all humanity</li></ul>
	What is it you are trying to invent?	<ul style="list-style-type: none"><li>• AlphaFold: changes everything about invention for biology (<b>John Jumper</b>)</li><li>• Private capital and entrepreneurship focused on AI: unlimited in its impact in North &amp; South (<b>Luis Videgaray</b>)</li><li>• “All of University”: bring together engineers, scientists, social scientists, and humanities (<b>Liz Reynolds</b>)</li></ul>
	The Prize	<ul style="list-style-type: none"><li>• Rebuild trust in democratic institutions</li><li>• Bring people together in the face of climate change and its awful consequences</li><li>• Share the upside from Breakthrough Science (<b>Jonathan Gruber</b>): <i>(Alaska Permanent Fund, but for technology)</i></li></ul>

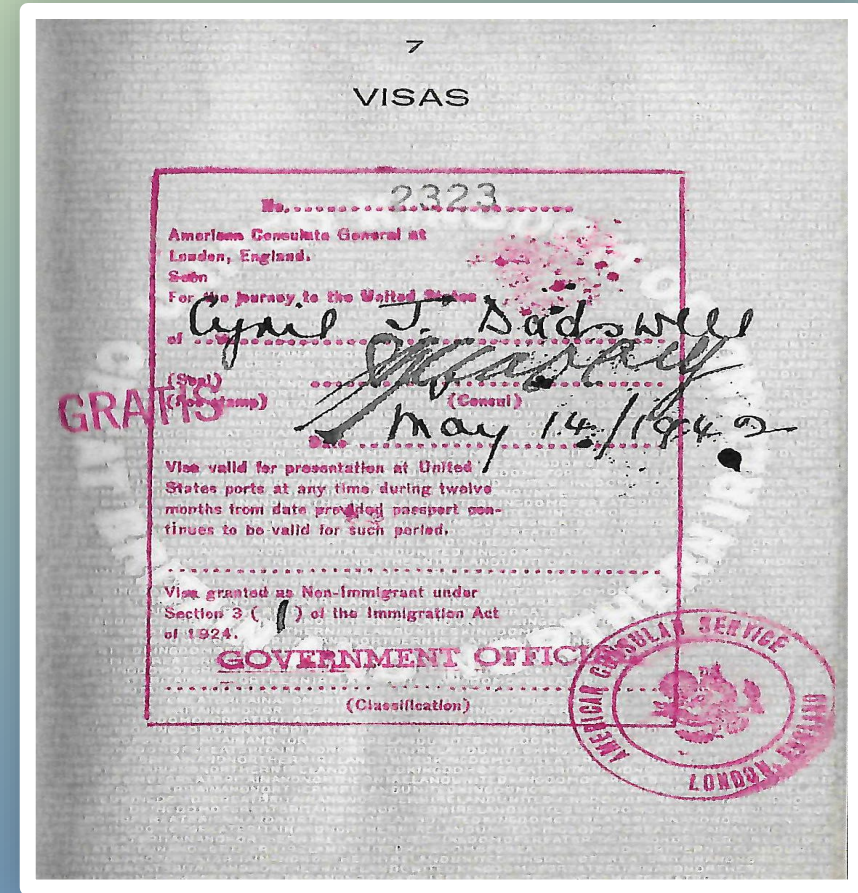


## Finally, on a personal note:

A page from Cyril Dadswell's passport,  
United States Visa, issued May 14, 1942

(now in the Nobel Prize Museum)

1940-45: Scientific and technological  
leadership passed from Europe to the  
United States, never (yet) to return  
-but the global challenge for this leadership  
remains intense



Cyril Dadswell's Passport, US Visa, May 14, 1942

**With great power over technology comes  
great responsibility...**

# Credits

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