

Disease Environments, the Mortality of Europeans,

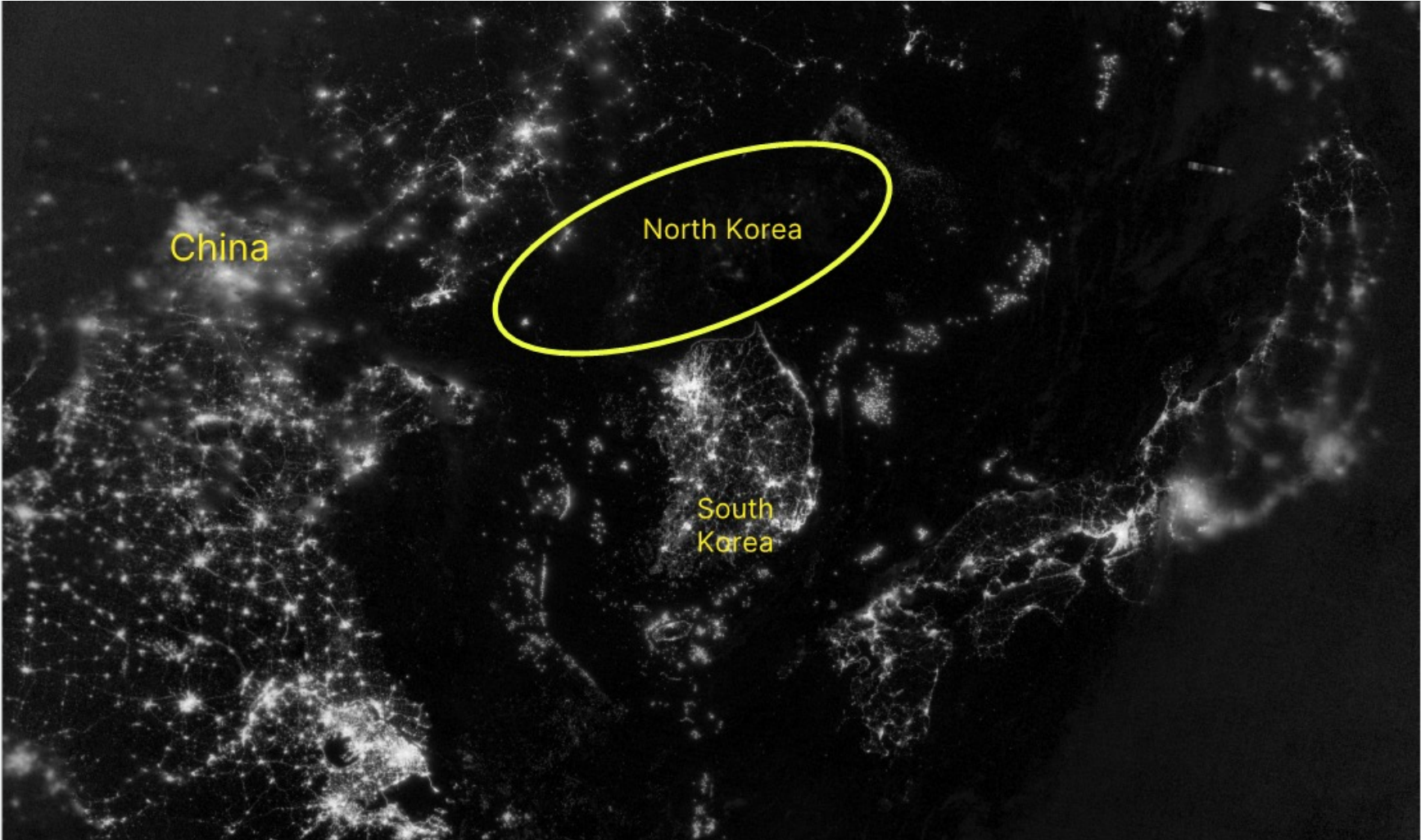
— AND THE —

Creation of Institutions in the Colonial Era

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

Nobel Lecture, Stockholm • 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

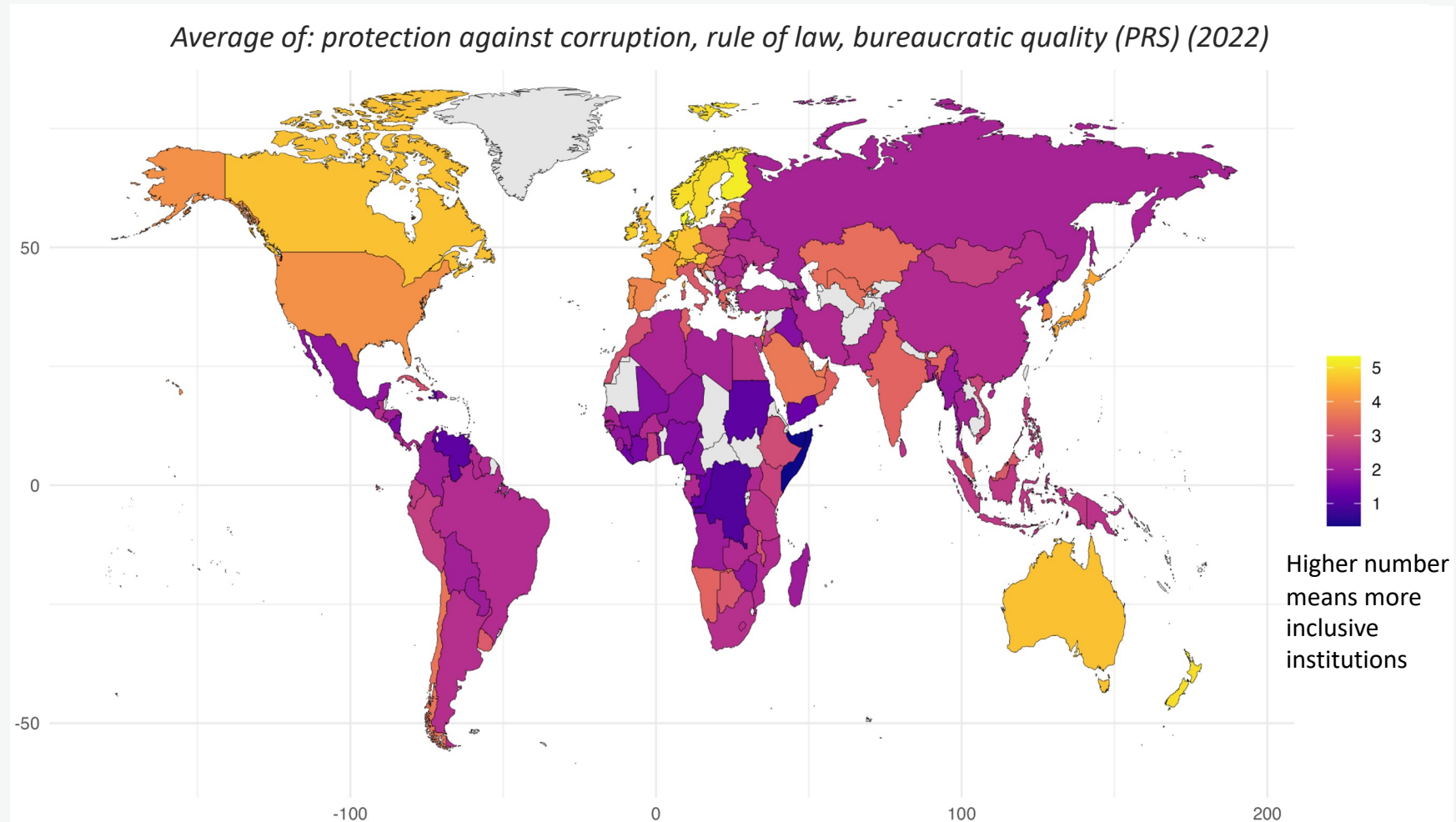
Institutions vary greatly across countries: from more extractive to more inclusive

Inclusive institutions

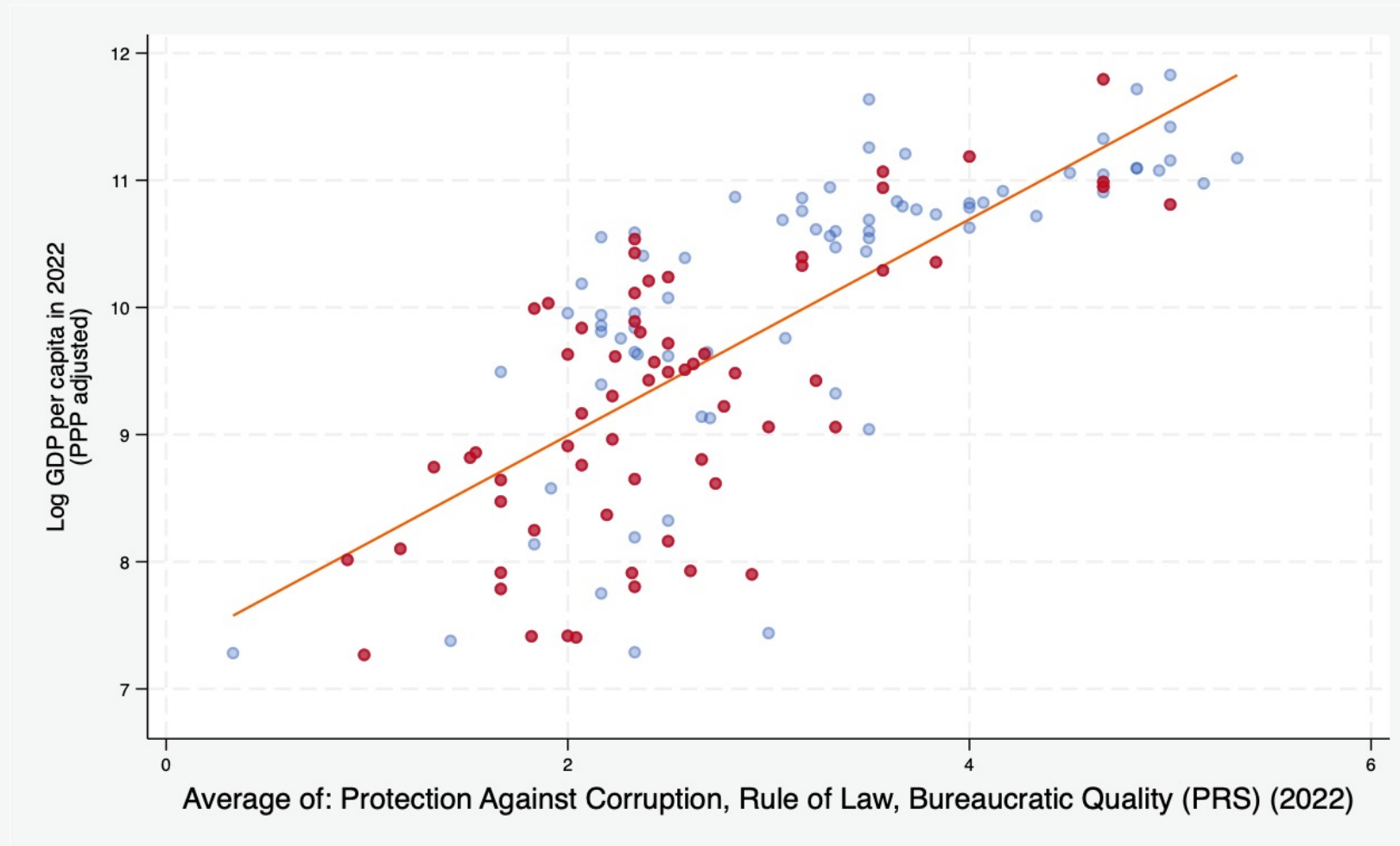
- Economic and political rights for broad cross-section of society

Extractive institutions

- Main purpose is to transfer resources to the elite



Institutions are more inclusive where GDP per capita is higher



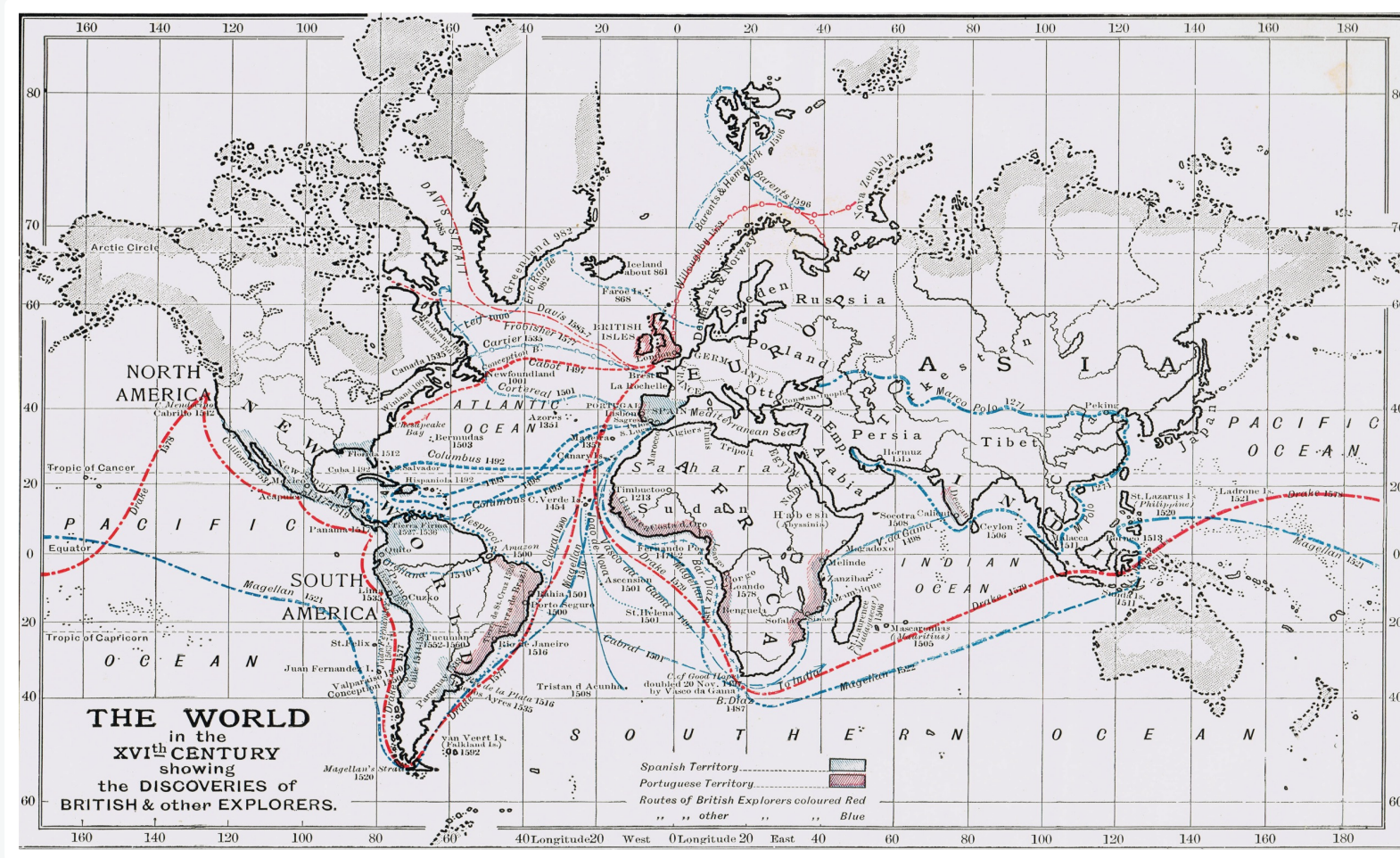
● Former European colonies (AJR 2001 sample) ● All other countries

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 their life expectancy

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

28 ABSTRACT No. V. OF APPENDIX.

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	Total by each Disease.	Total Class of Disease.
Fever.	Specific Diseases.	Died.							65	68
		2551	2952	3511	4794	3316	3462	2921		
Eruptive Fevers.	Foliar Cont. Com.	Died.							5	5
		5	13	11	17	3	6	13		
Diseases of the Lungs.	Specific Diseases.	Died.							196	226
		23	22	24	35	27	40	25		
		1	1	4	4	2	2	9		
		1	1	1	1	1	1	6		
		1	1	1	1	1	1	6		
Diseases of the Liver.	Specific Diseases.	Died.							2	2
		1	1	1	1	1	1	6		
Diseases of the Stomach and Bowels.	Specific Diseases.	Died.							9	9
		1	1	1	1	1	1	6		
		1	1	1	1	1	1	6		
		1	1	1	1	1	1	6		
Epidemic Cholera.	Specific Diseases.	Died.							27	27
		14	9	4	1	1	1	27		
Diseases of the Brain.	Specific Diseases.	Died.							14	14
		2	1	1	1	1	1	7		
		1	1	1	1	1	1	6		
		1	1	1	1	1	1	6		
Dropsies.	Specific Diseases.	Died.							9	9
		1	1	1	1	1	1	6		
All other Diseases.	Specific Diseases.	Died.							32	32
		1	1	1	1	1	1	6		
		1	1	1	1	1	1	6		
		1	1	1	1	1	1	6		
		1	1	1	1	1	1	6		
		1	1	1	1	1	1	6		
		1	1	1	1	1	1	6		
		1	1	1	1	1	1	6		
		1	1	1	1	1	1	6		
		1	1	1	1	1	1	6		
		1	1	1	1	1	1	6		
		1	1	1	1	1	1	6		
Suicide, Accidents, &c.	Specific Diseases.	Died.							21	21
		2	3	1	1	3	1	10		
		1	1	2	2	1	3	9		
Total		35	47	73	98	50	70	63	436	436

* This includes a period of 15 months.

ABSTRACT No. VI. OF APPENDIX.

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 of 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. † The numbers here stated are only those reported unfit by the surgeon; exclusive of these, many have voluntarily retired on account of bad health.
1831	3384	26	86		
1832	3392	35	85		
1833	3369	40	89		
1834	3400	35	92		
1835	3402	27	90		
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 in the data: Extreme, High, and Low

Extreme (7+ times Europe):

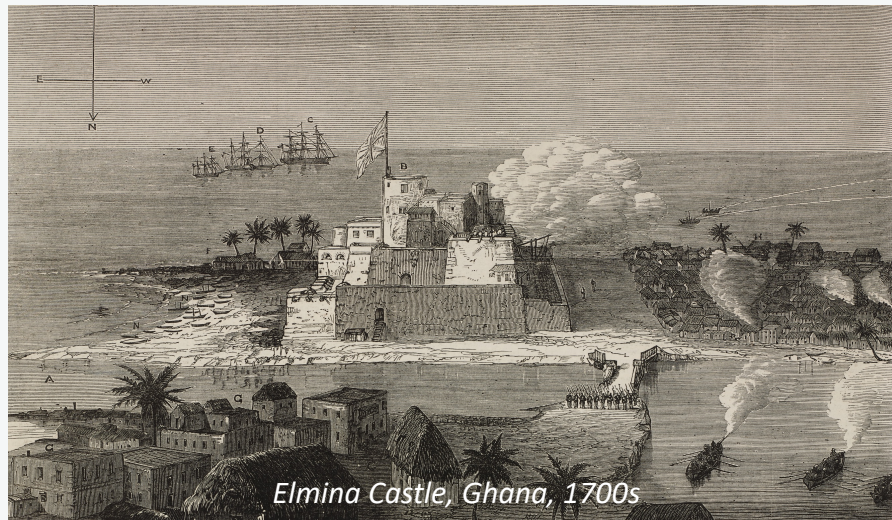
In West Africa, Europeans generated huge profits with the slave trade and tried to minimize time on land

High (2-4 times Europe):

In India and the West Indies, Europeans tried to make as much money as possible before soon returning to England

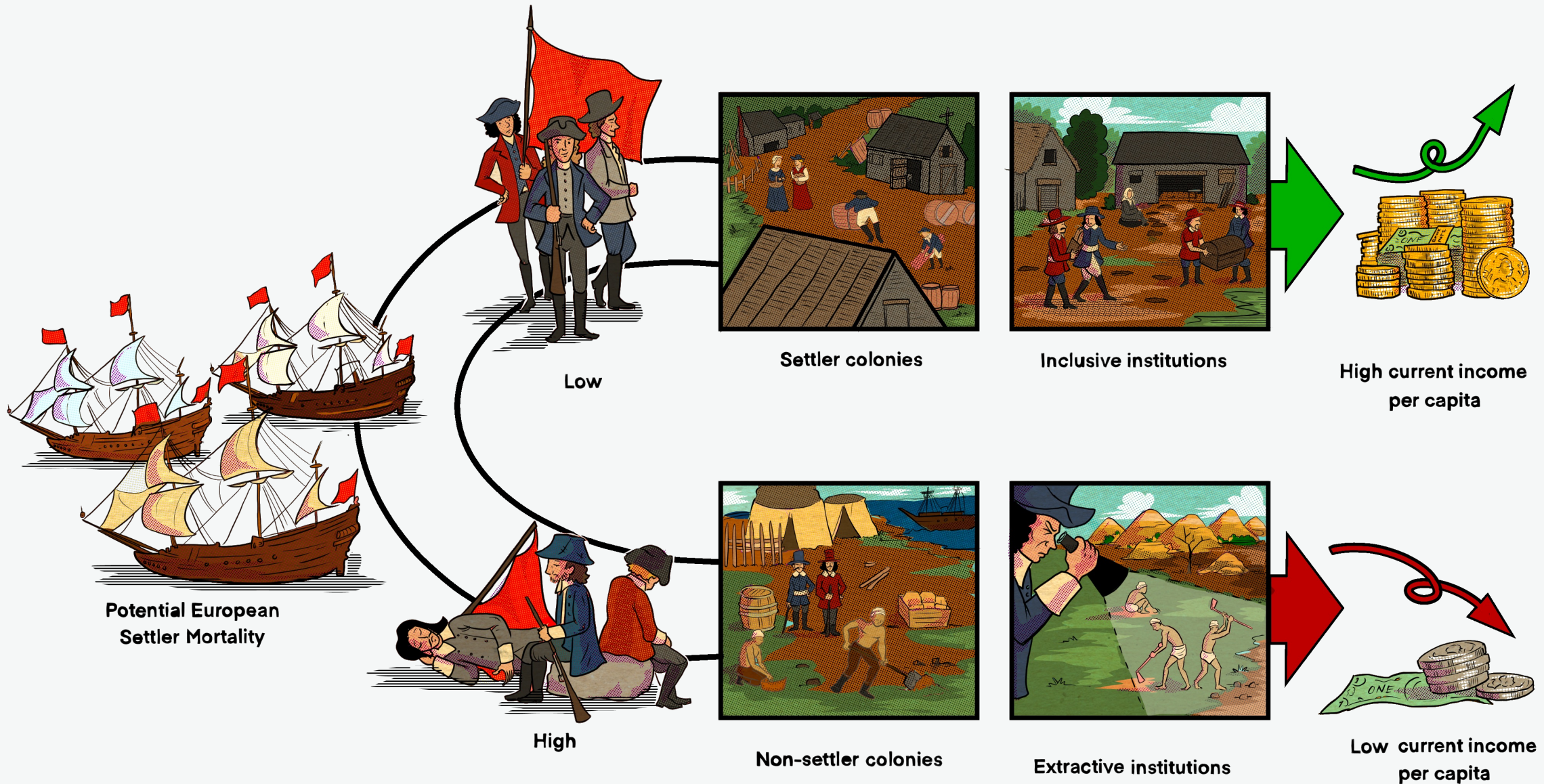
Low (similar to Europe):

In the U.S., Canada, Australia, and new Zealand, Europeans settled permanently

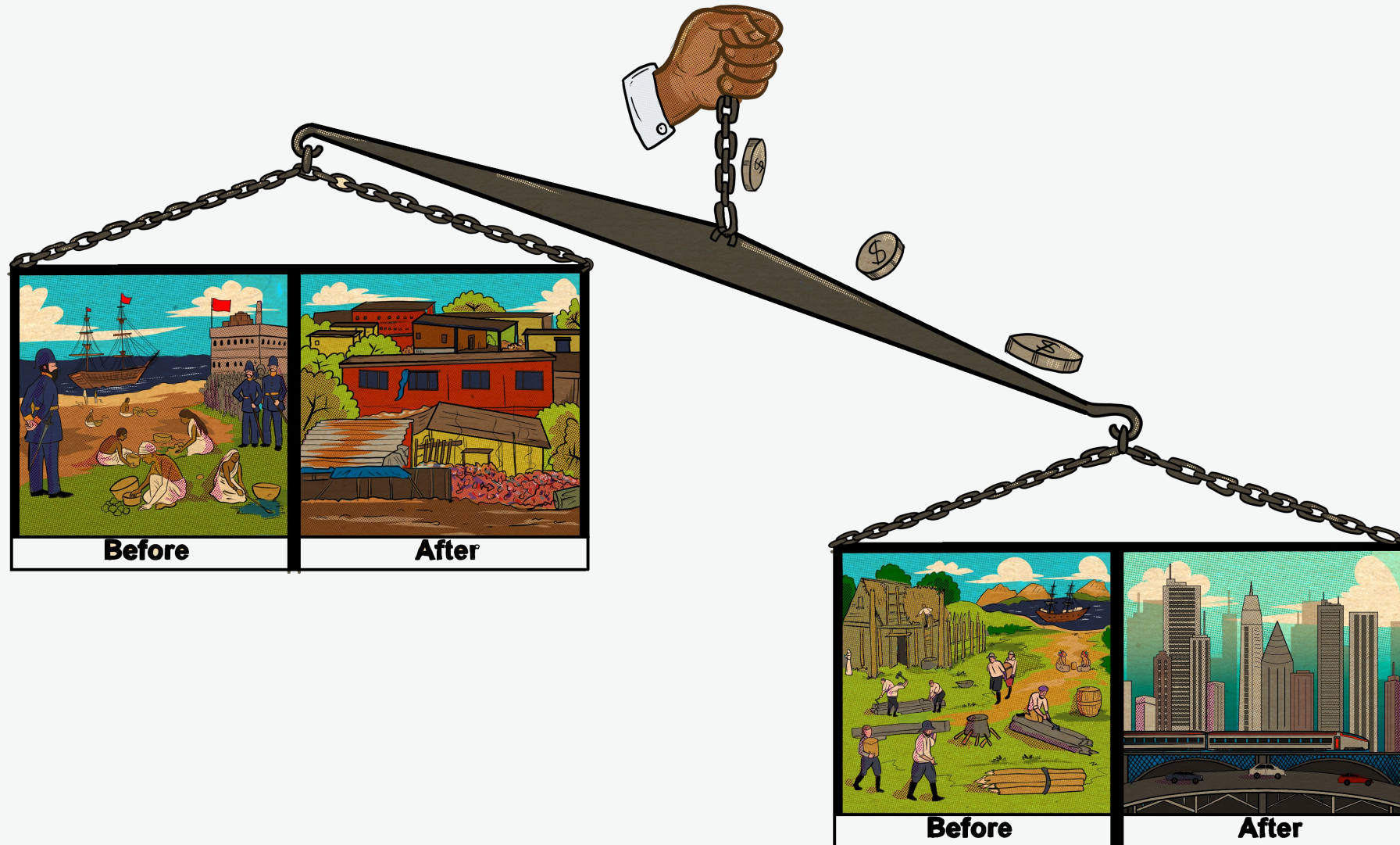


Colonial strategies resulted in two paths for institutions

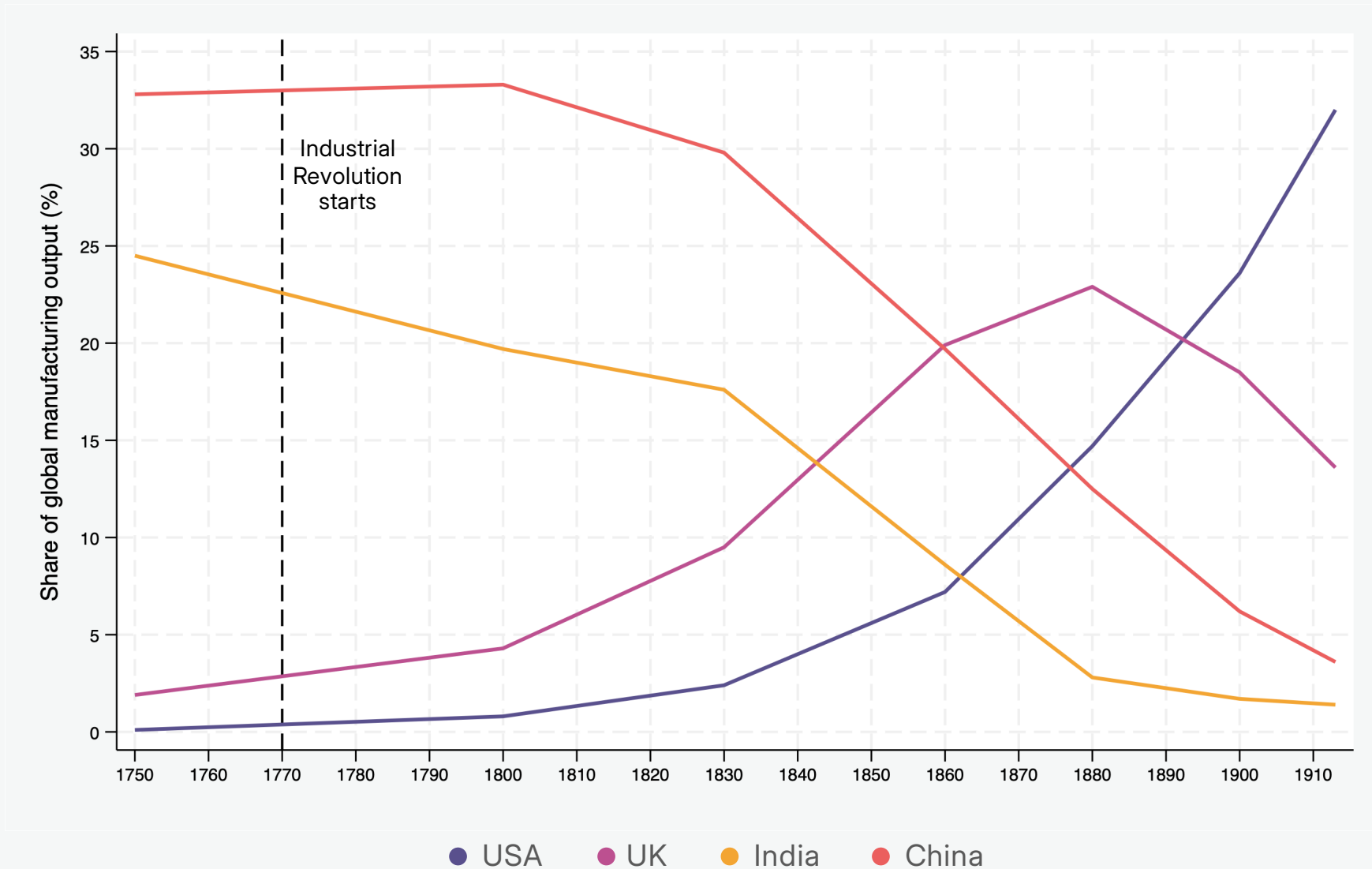
Across all European colonies, the Indigenous experience was brutal



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

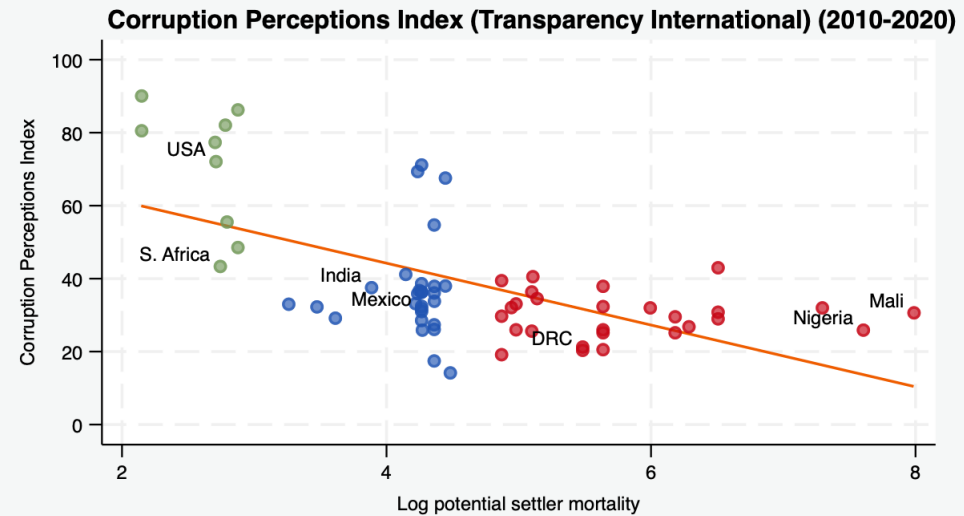
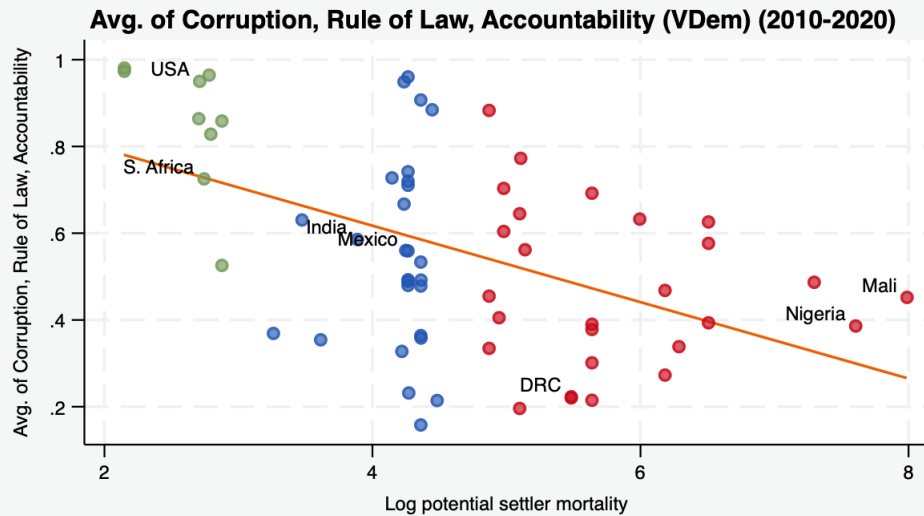
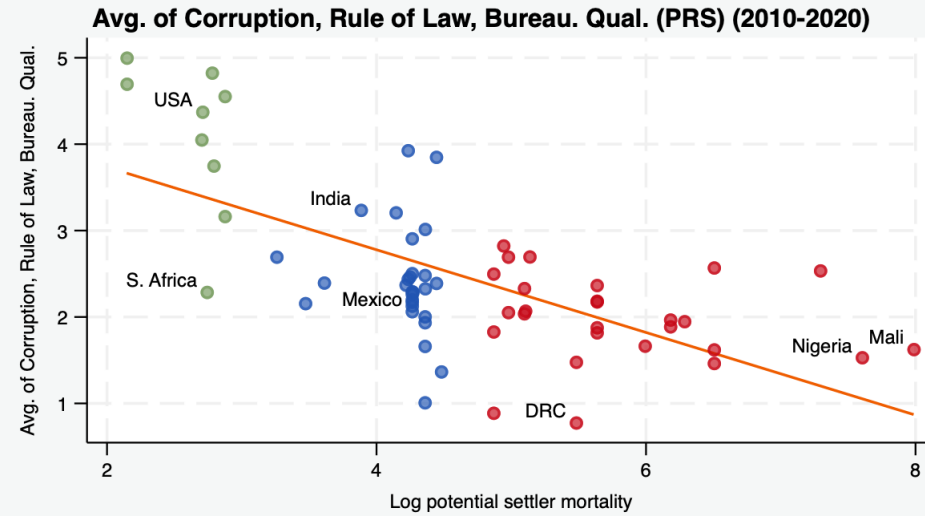
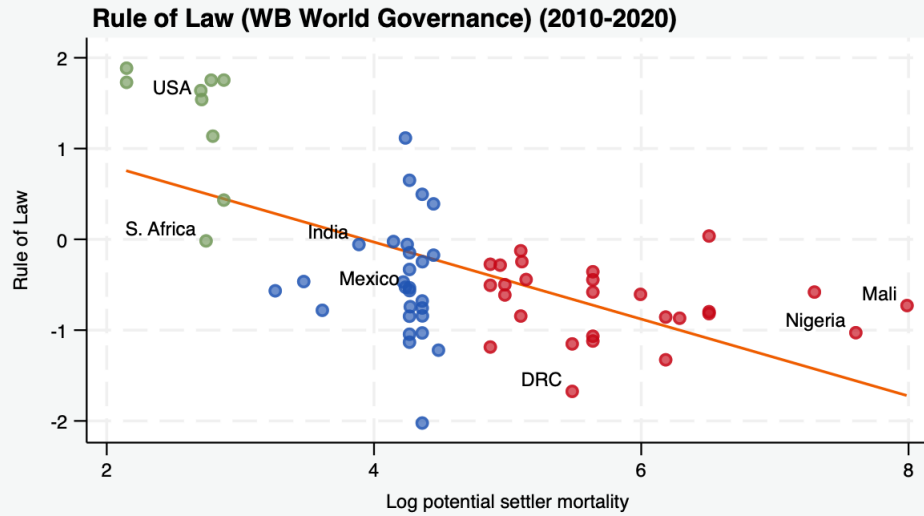


... because inclusive institutions made it easier to industrialize early



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

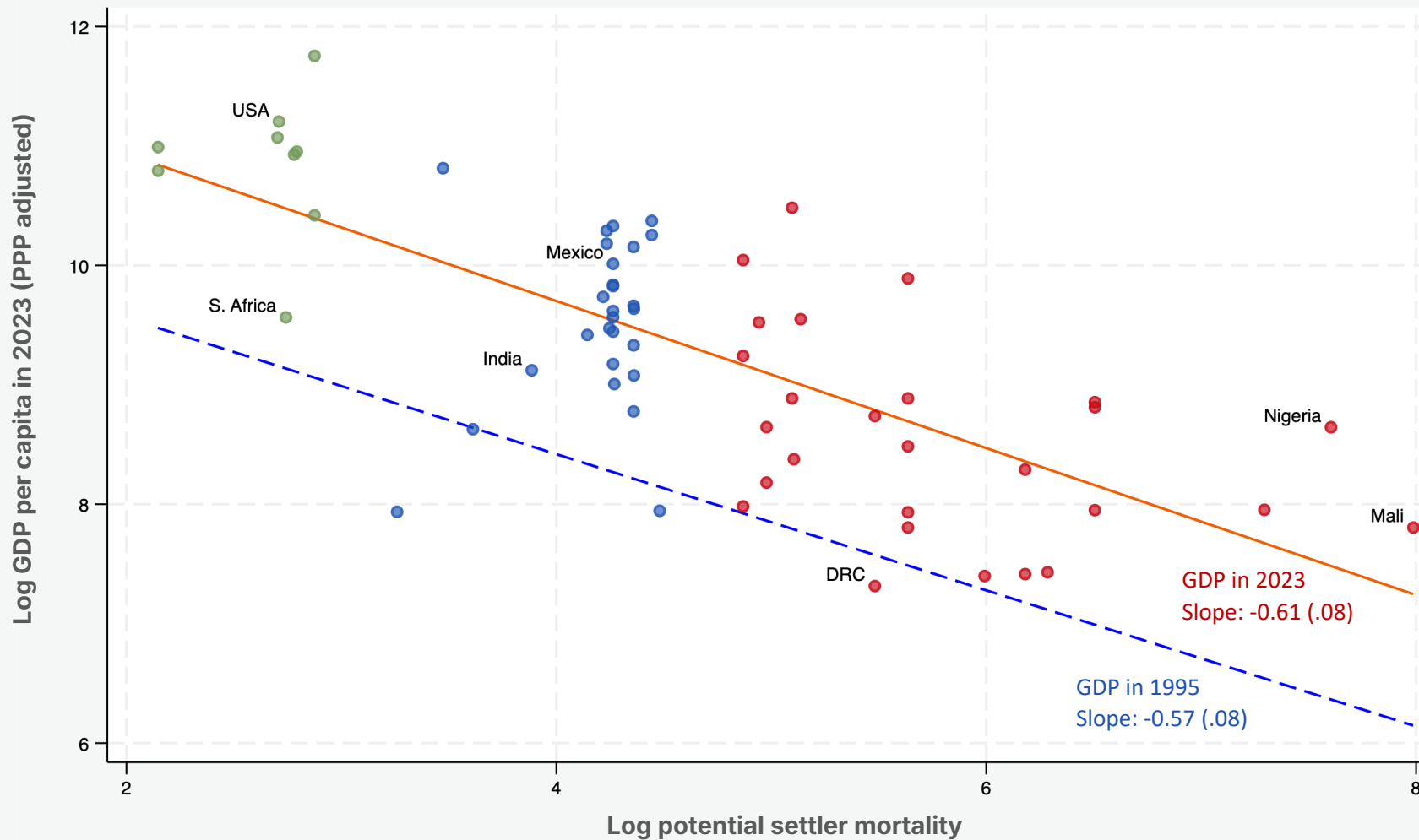
In the 1990s AND today: where European settler mortality was lower, GDP per capita is higher

Three Disease Environments:

Low: Comparable to Europe

High: 2 to 4 times higher than Europe

Extreme: 7+ times higher than Europe



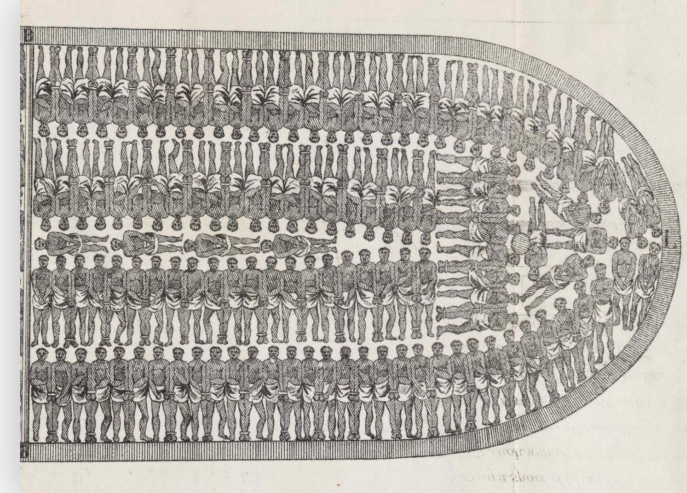
In-depth studies subsequently established the ways in which extractive institutions have persisted



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)

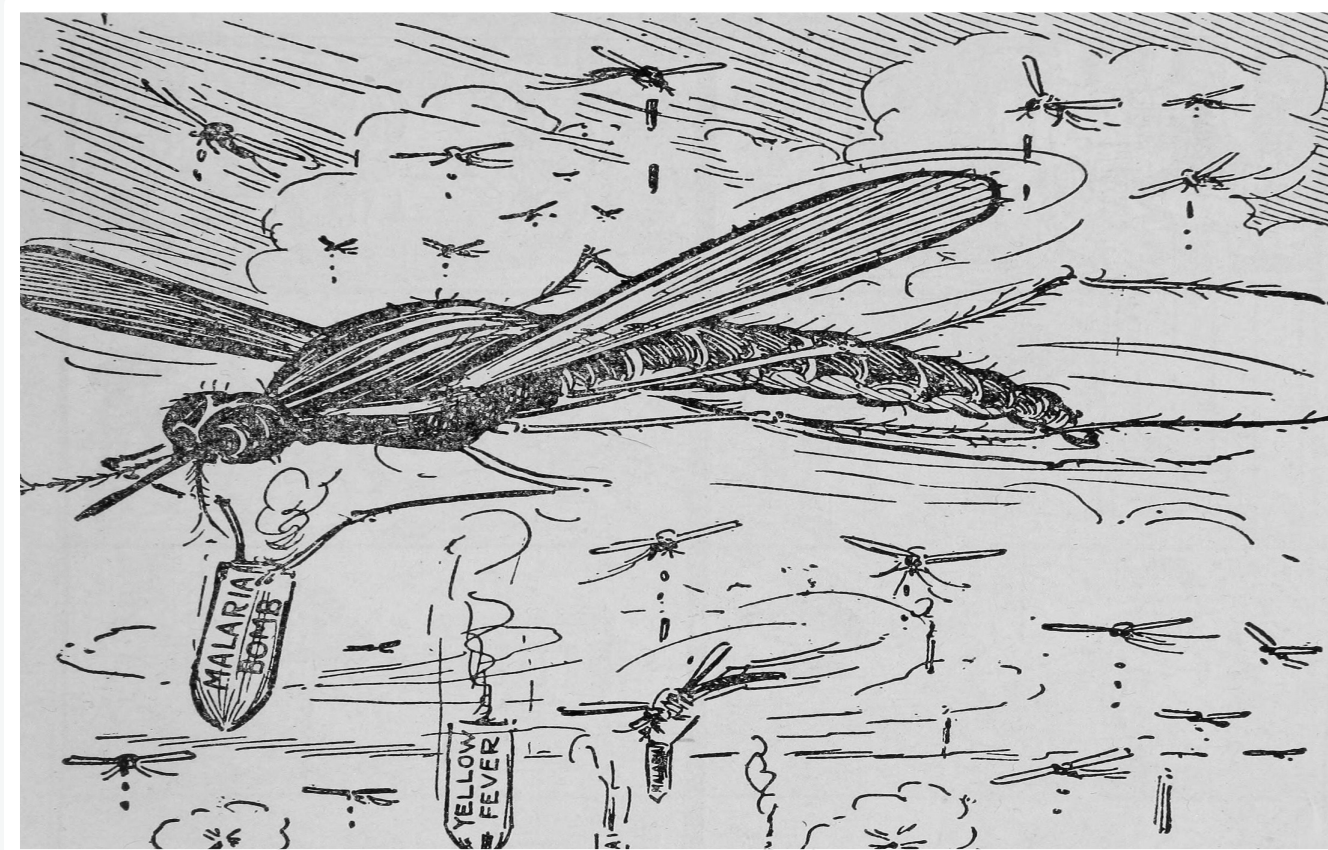
Peru and Java

- 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)

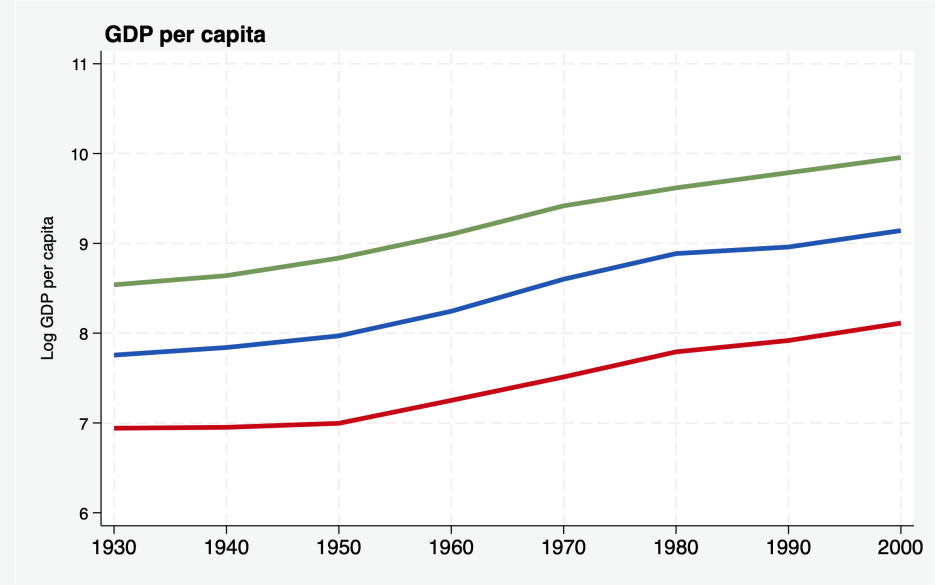
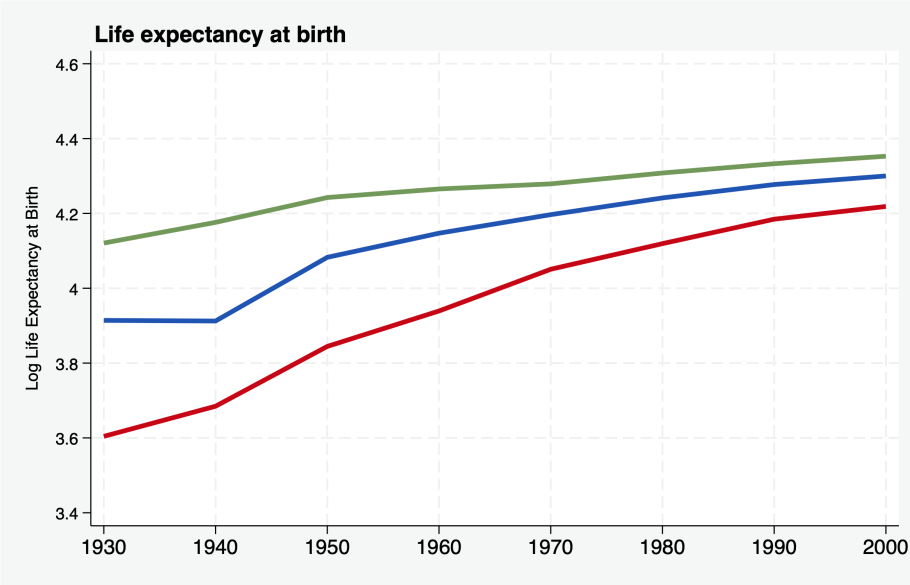
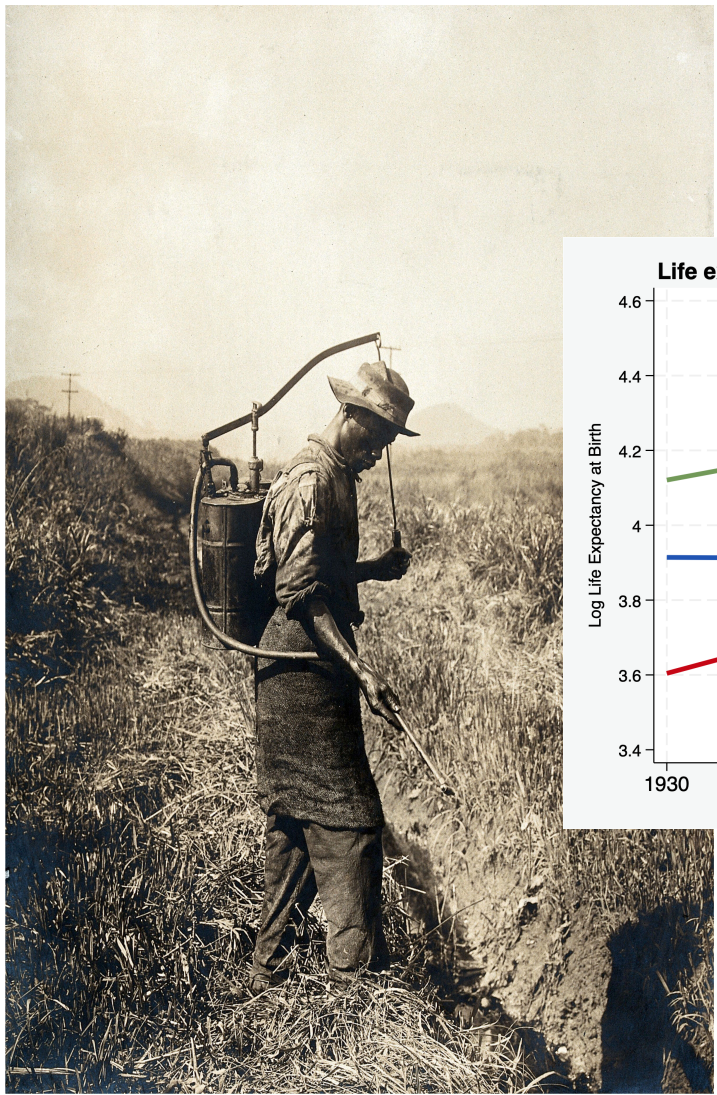
And then a medical breakthrough occurred:
global public health, from 1940s, saving millions of lives



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?

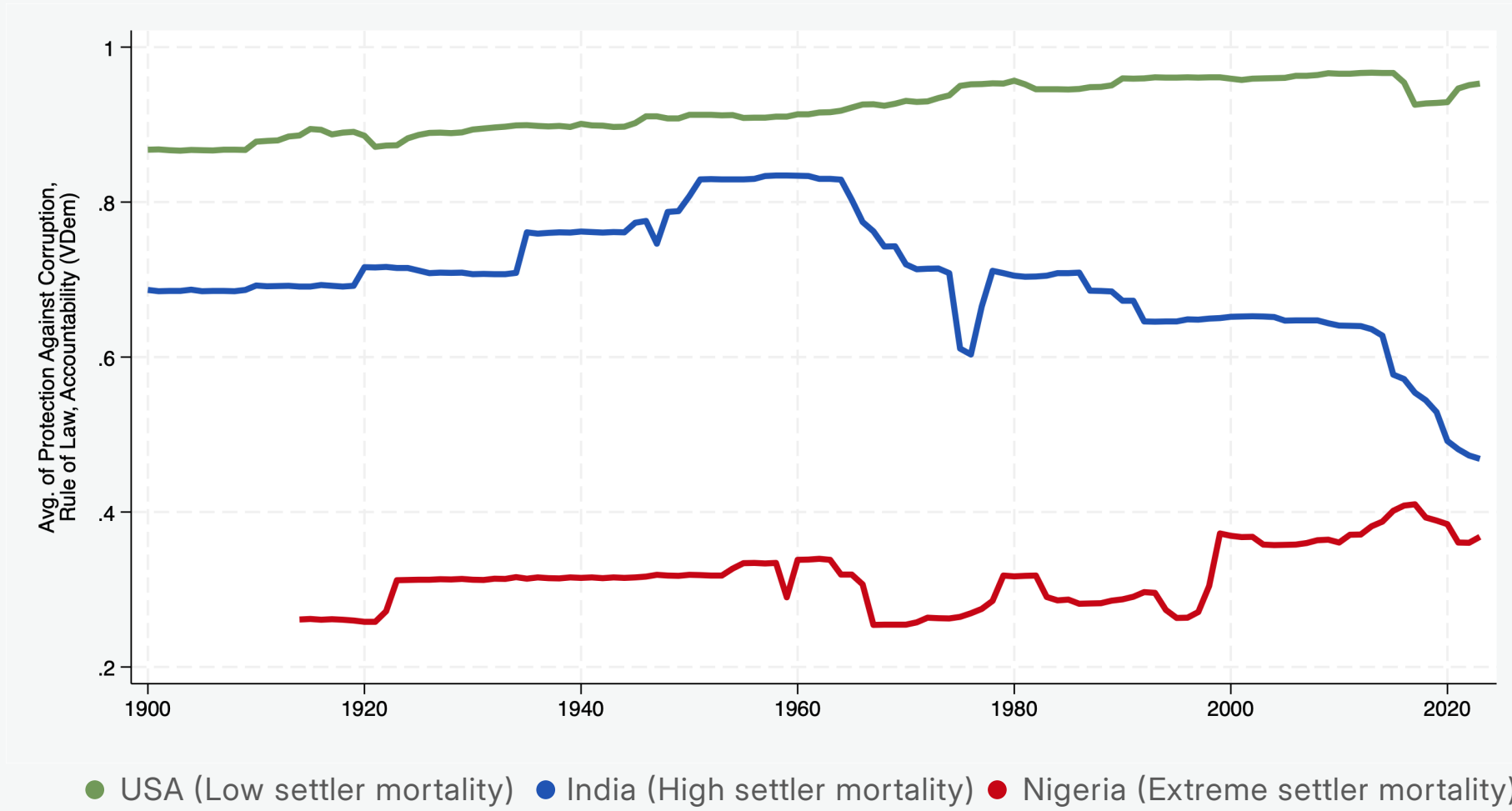


Graphs from Acemoglu and Johnson, "Disease and Development", 2007

Mosquito control program pesticide application, Panama, (1910)

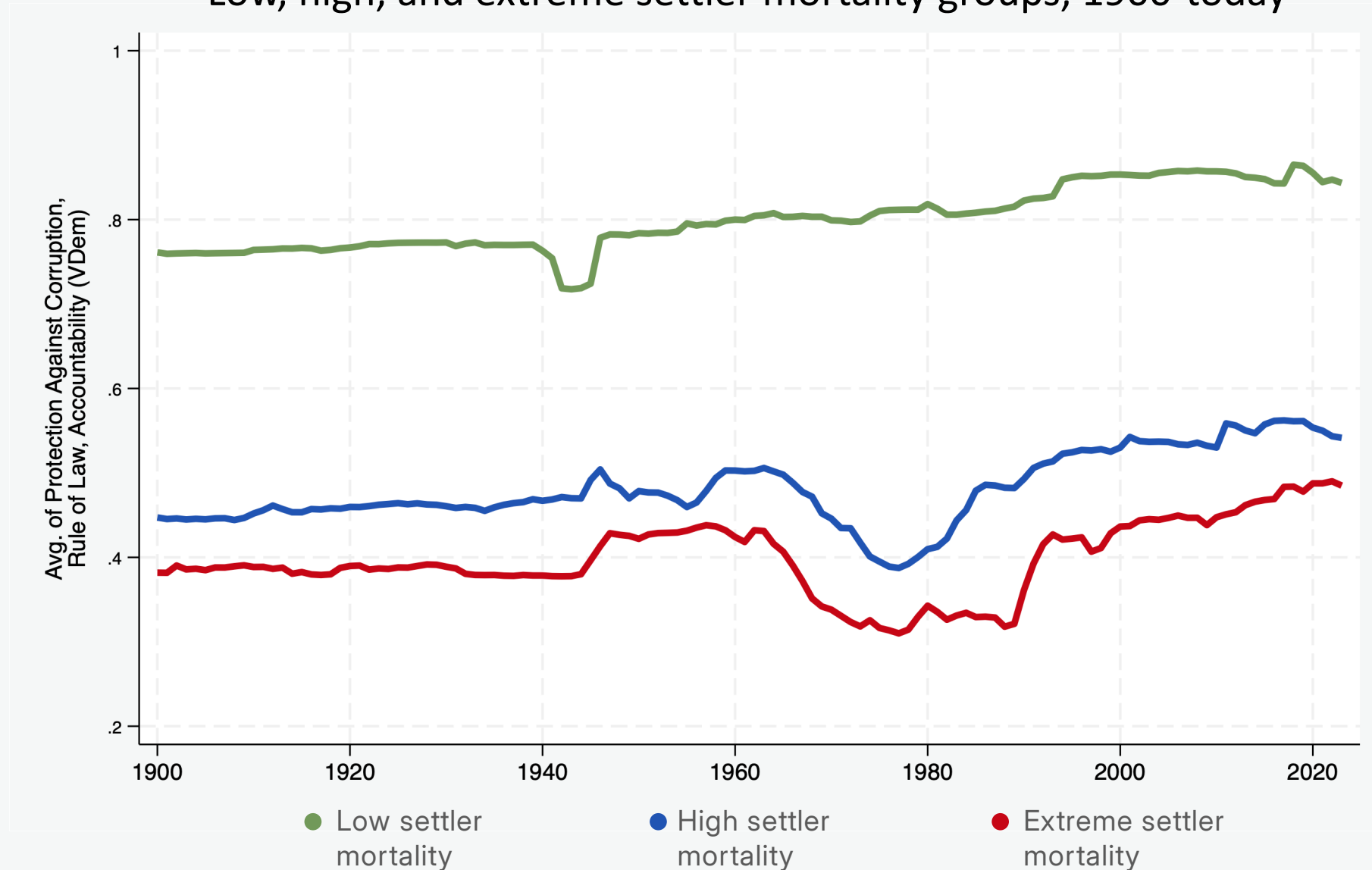
Because institutions are path dependent

USA, India, Nigeria, 1900-today

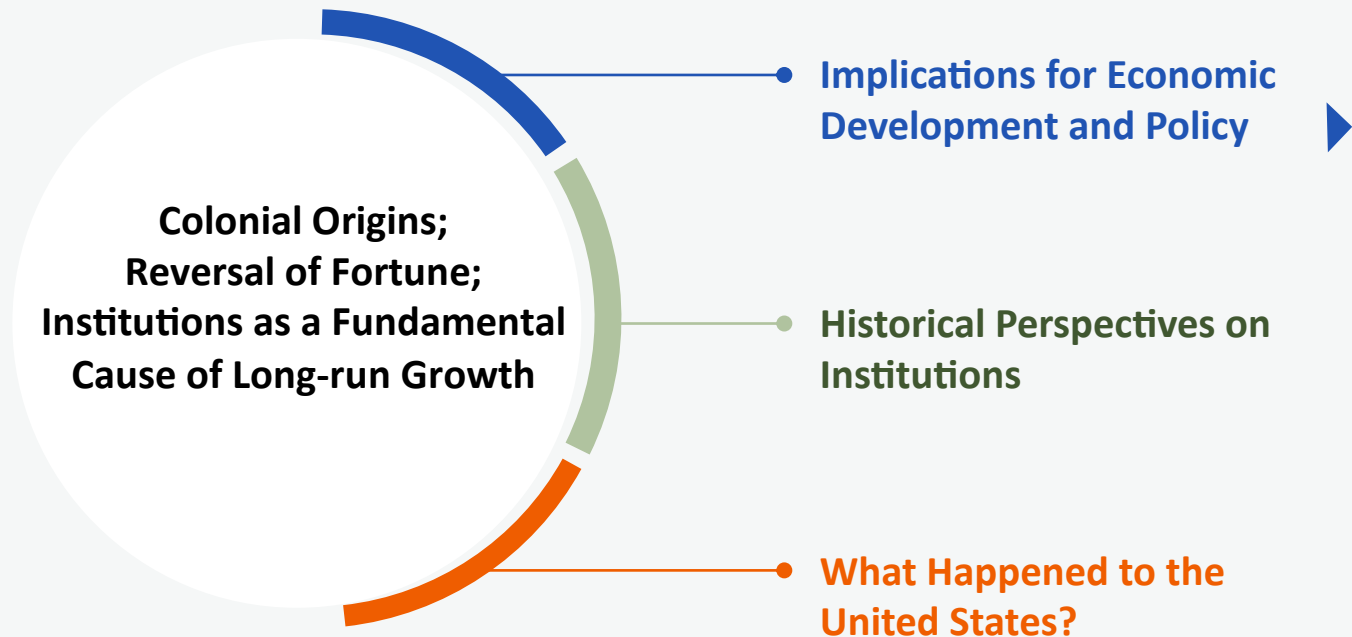


The path dependence of institutions across settler mortality groups

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)

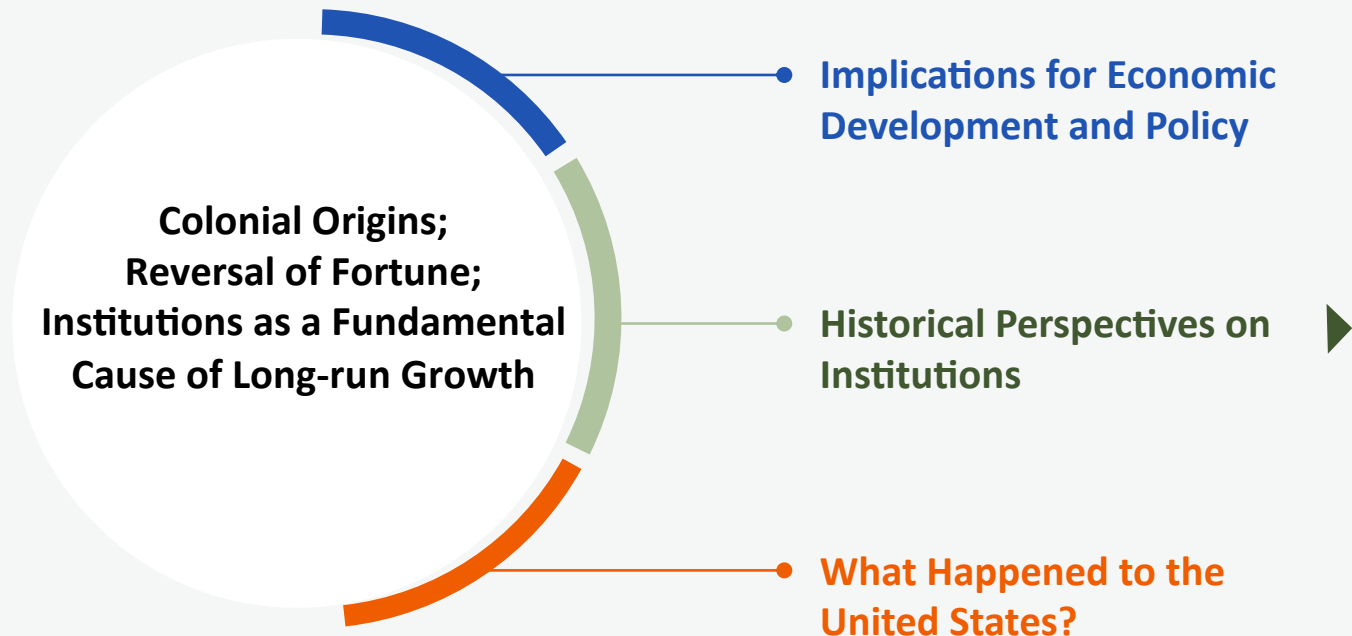
Disease and Development: The Effect of Life Expectancy on Economic Growth

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)

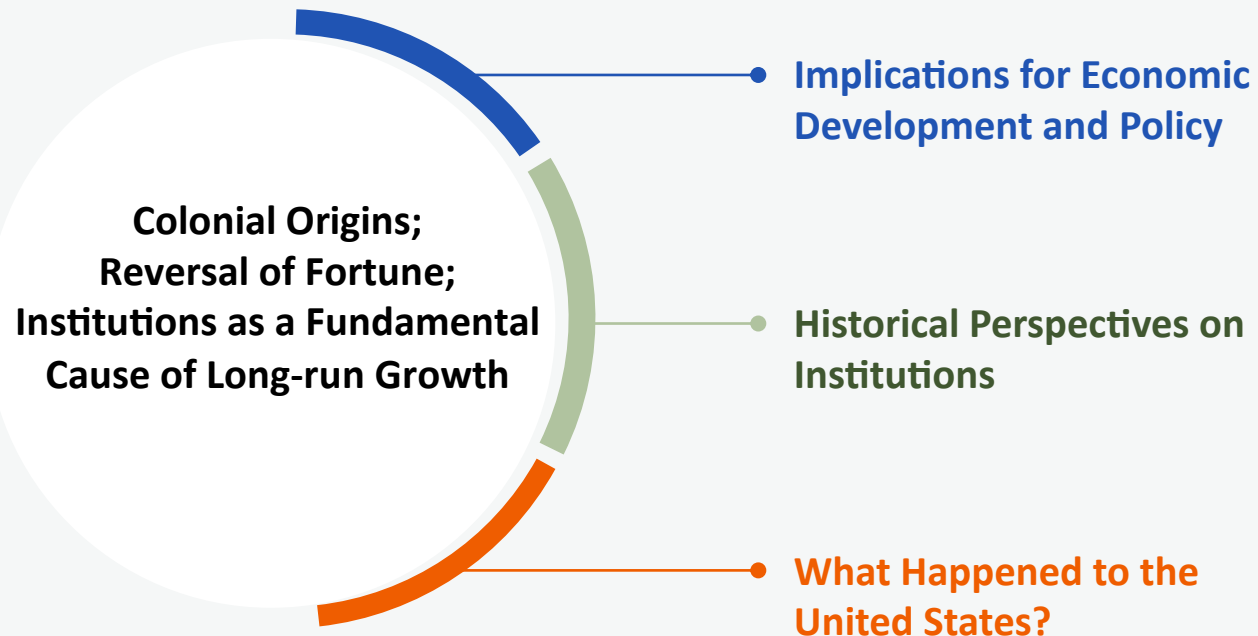
The Consequences of Radical Reform: The French Revolution

*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)

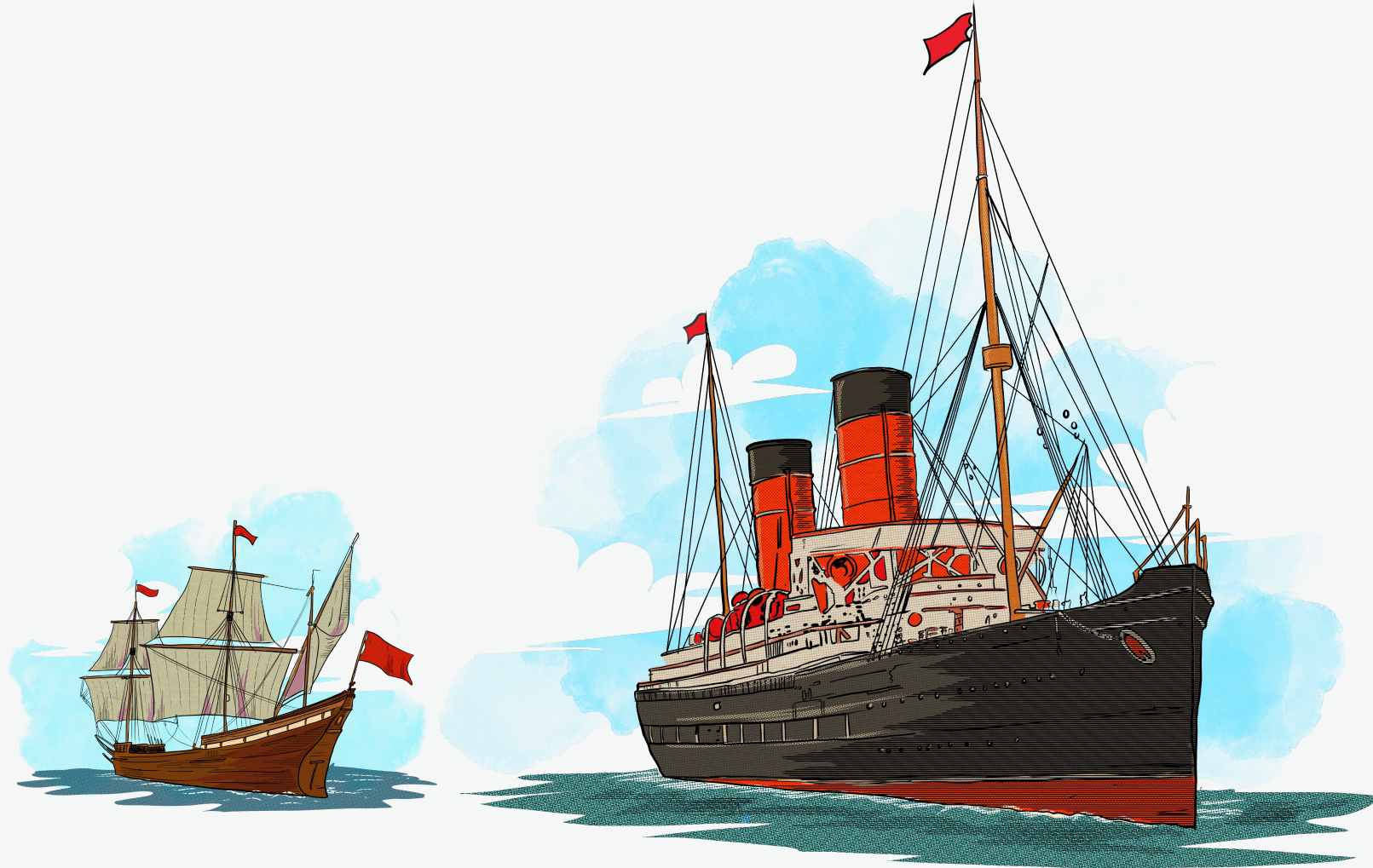
Power and Progress: Our Thousand-Year Struggle Over Technology and Prosperity

Acemoglu and Johnson (2023)

In sum, with a few dozen small ships, Europeans conquered the world 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



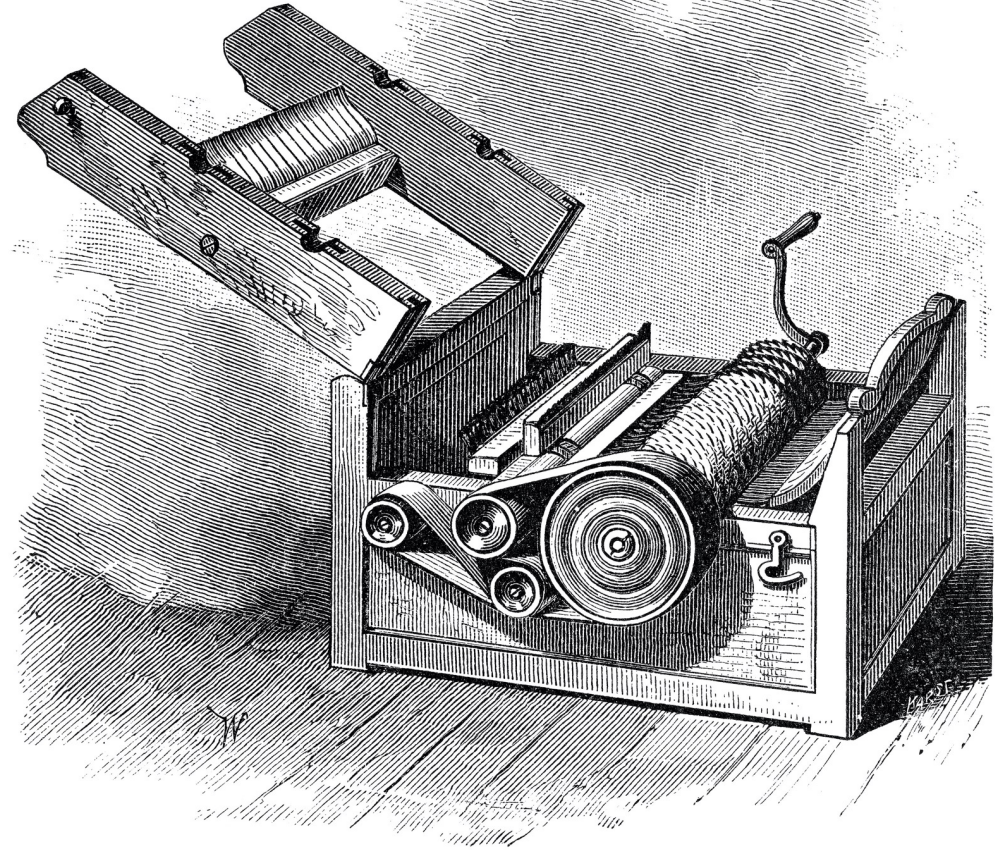
Now countries with strong institutions are better positioned to invent new technology, create more good jobs, and set the global rules



But new technologies create winners and losers

Power and Progress, Acemoglu and Johnson (2023)

The cotton gin facilitated the spread of slave plantations



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)

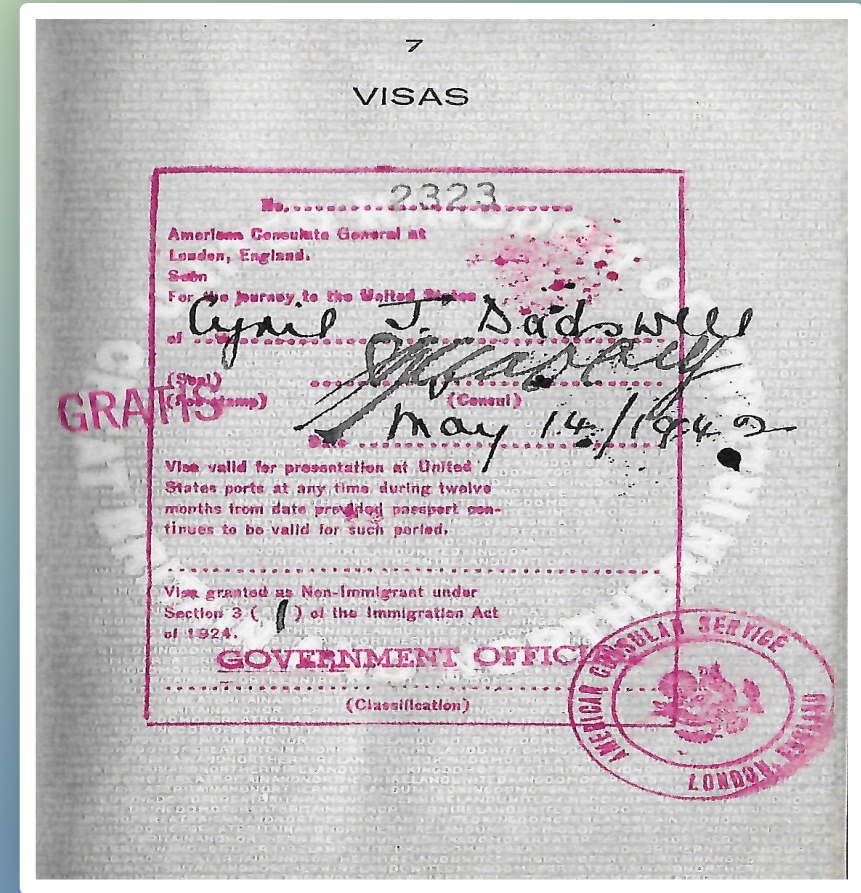
	Shared Prosperity	<ul style="list-style-type: none">• Redirect the development of technology (David Autor and Daron Acemoglu)• Create <i>Pro-Worker AI</i>, for more good jobs, including for those who did not go to 4-year college• Anticipate the rapid aging of global populations
	Global Public Health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

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



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

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

Credits

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- Triangle slave trade, Sarin Images / Granger
- Map of British Empire 1850s, Everett Collection / Bridgeman Images
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- Whitney cotton gin, Granger
- Ford motor assembly, image from the Collections of The Henry Ford
- Combine harvester, Westend61 GmbH / Alamy Stock Photo
- Malaria mosquito, Gado Images / Alamy Stock Photos
- Cyril Dadswell passport, Simon Johnson