



# Fundamental causes of economic growth: Institutions, geography, culture.

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Autumn 2025

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King's College London

Advanced Macroeconomics

Instructor: Daniele Girardi

# Growth theory and the facts of growth

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Neoclassical endogenous & exogenous growth theories are conceptually unsatisfactory (at best, incomplete) as explanations of the *deep causes* of growth.

“The factors we have listed (innovation, economies of scale, education, capital accumulation, etc.) are not causes of growth: they *are* growth”

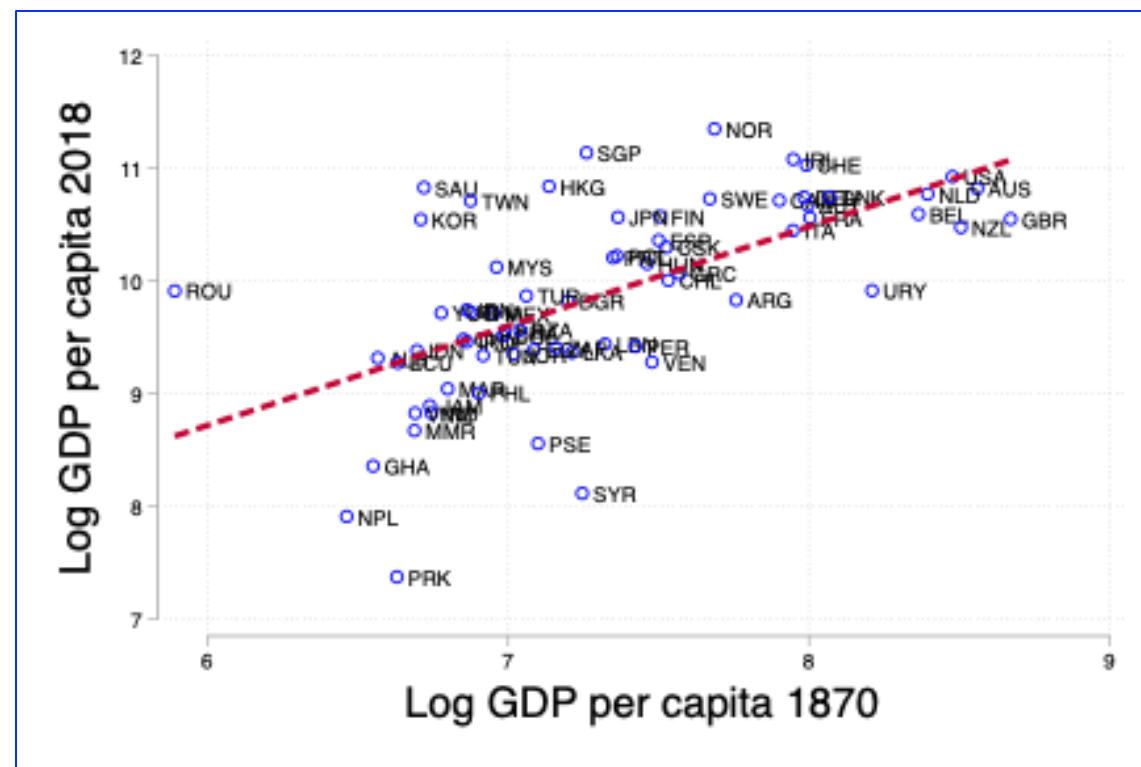
(North and Thomas, 1973, p.2)



# Growth theory and the facts of growth

Empirically, neoclassical exogenous growth theory (Solow model) predicts too much convergence

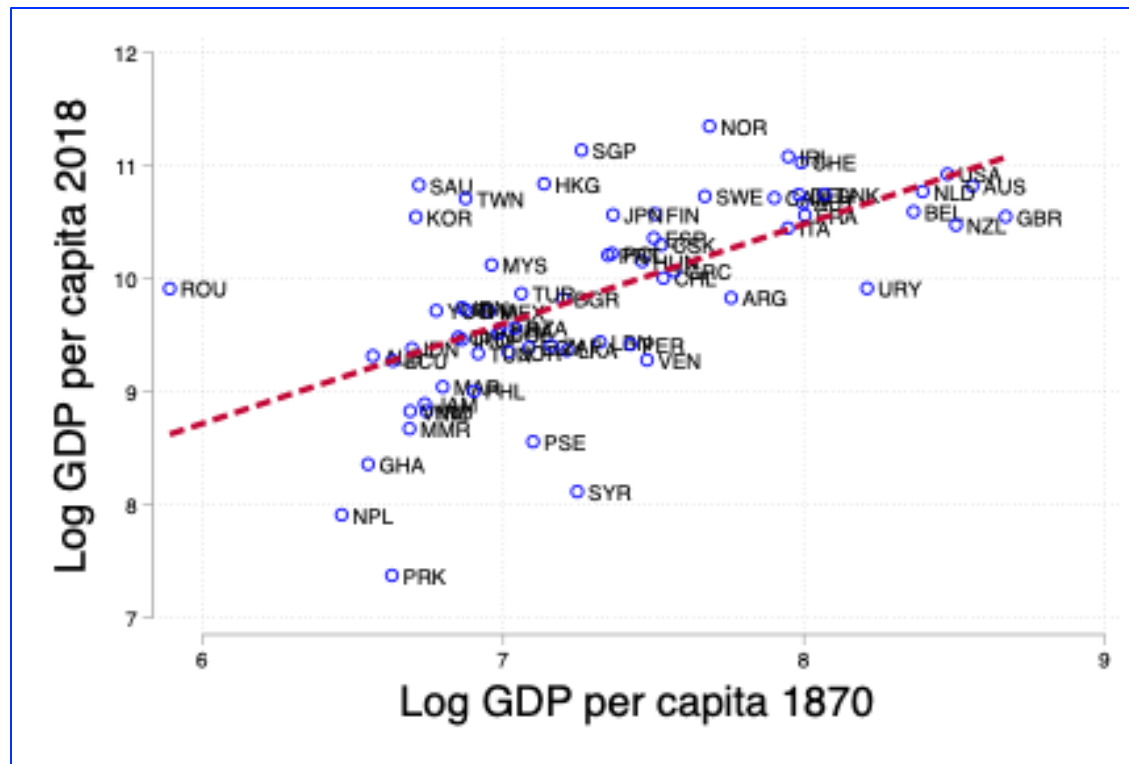
New (endogenous) growth theory predicts too much divergence.



→ Neither can explain the remarkable *persistence* of cross-country income differences in the last 2½ centuries.

# Growth theory and the facts of growth

Are there deeper fundamental forces that exhibit persistence and explain both past and current productivity?



# Fundamental causes: the main candidates

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*Should be very persistent, vary substantially across countries, and plausibly affect productivity.*

- Historical events at critical junctures (path dependence).
- Geography.
- Culture.
- Institutions.

Probably not just one of these things, but their historical interactions.

# Fundamental causes: the main candidates

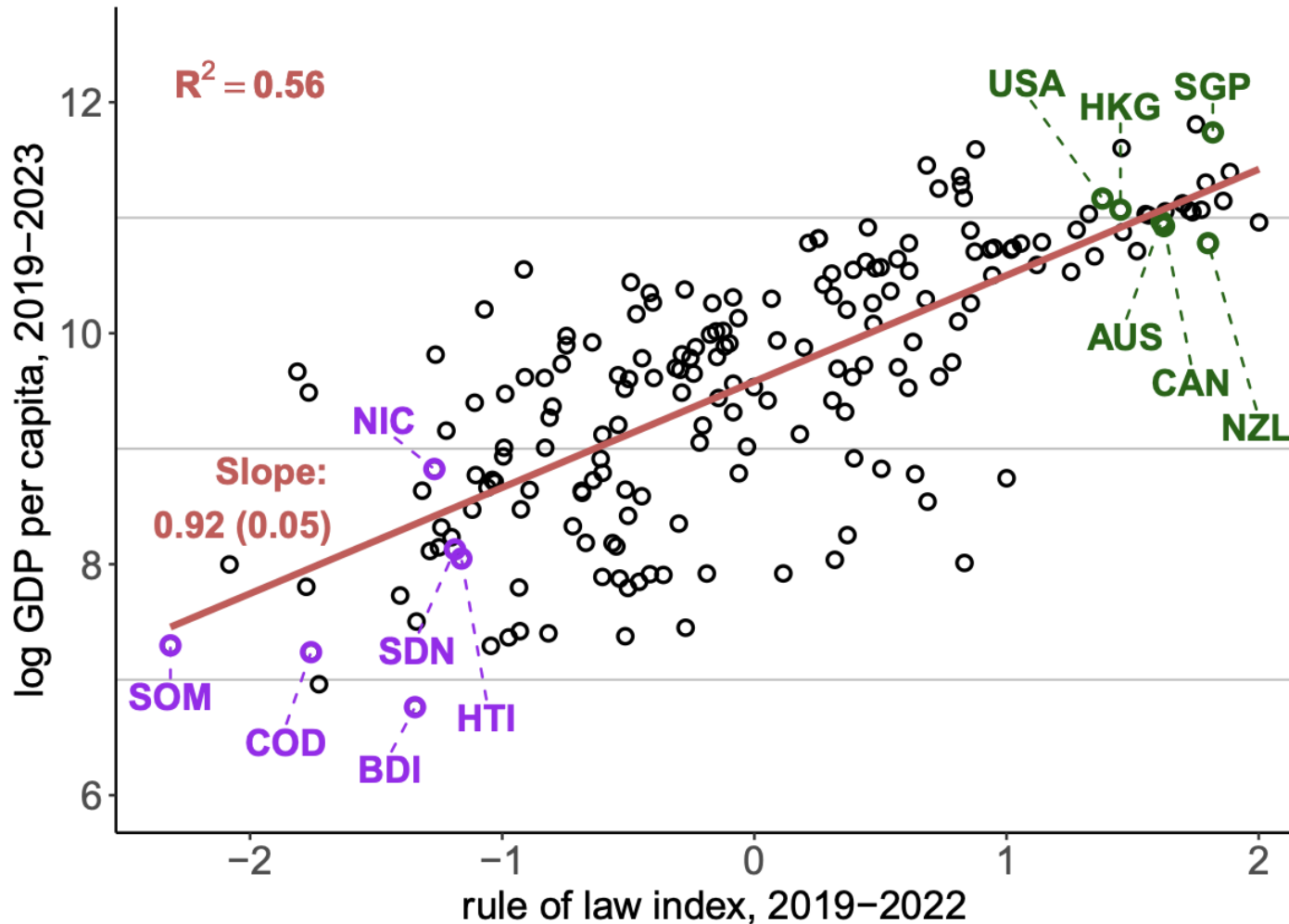
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A first preliminary test: does GDP per capita across countries *correlate* with these possible fundamental causes?

Yes:

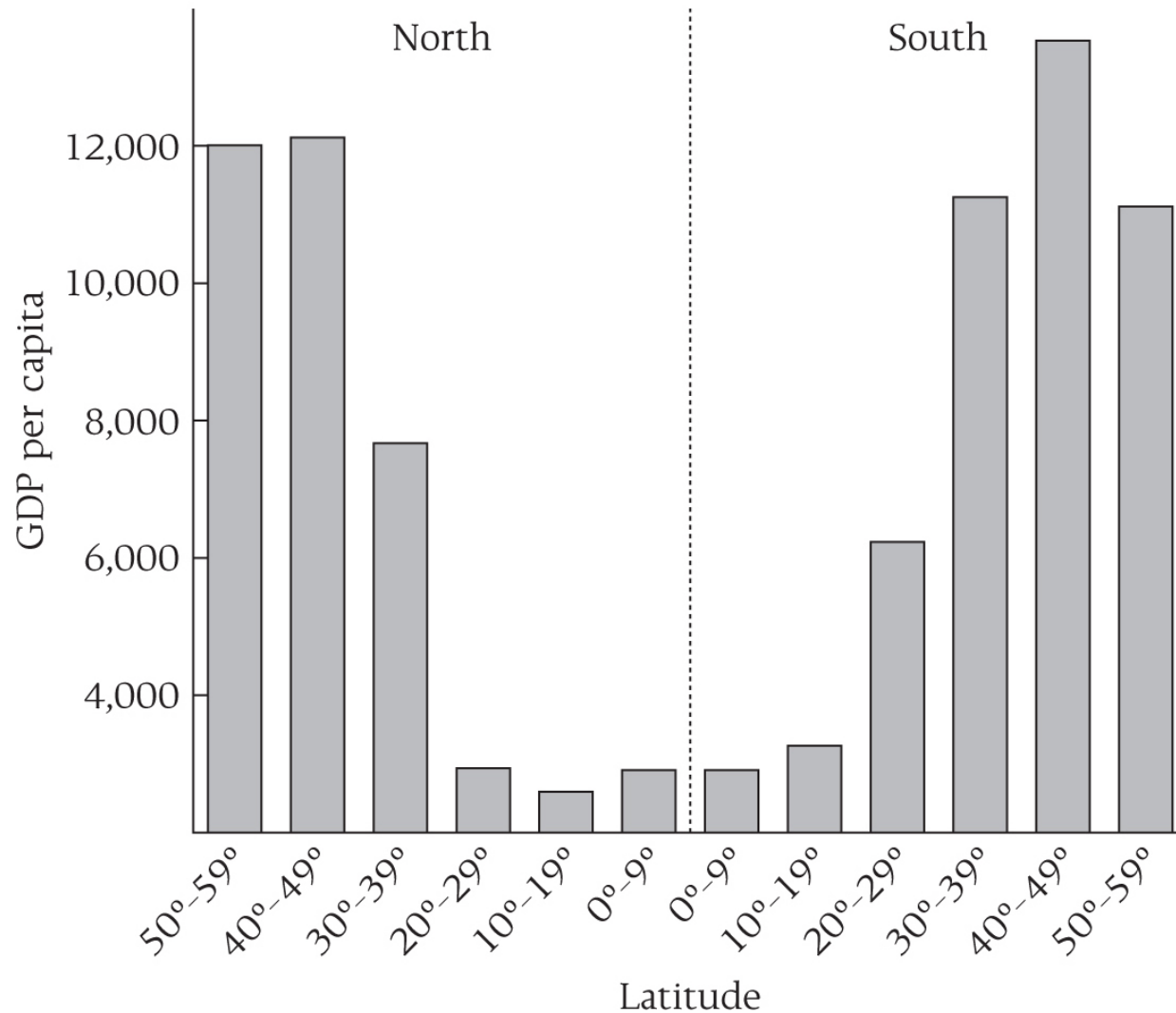
- Richer countries tend have stronger rule of law (institutions)
- Richer countries tend to be located at temperate latitudes (geography)
- People in richer countries do exhibit a distinctive sets of cultural traits (culture)

# Correlation between institutions & GDP per capita



- World Bank “rule of law” index.
- How well countries adhere to the principles of the rule of law
- Based on data on corruption, government accountability, respect for individual rights, effectiveness of justice systems....
- An impersonal legal system that protects individual rights (including property rights) and constrains government power is seen as a fundamental institutions for investment and innovation.

# Correlation between geography & GDP per capita

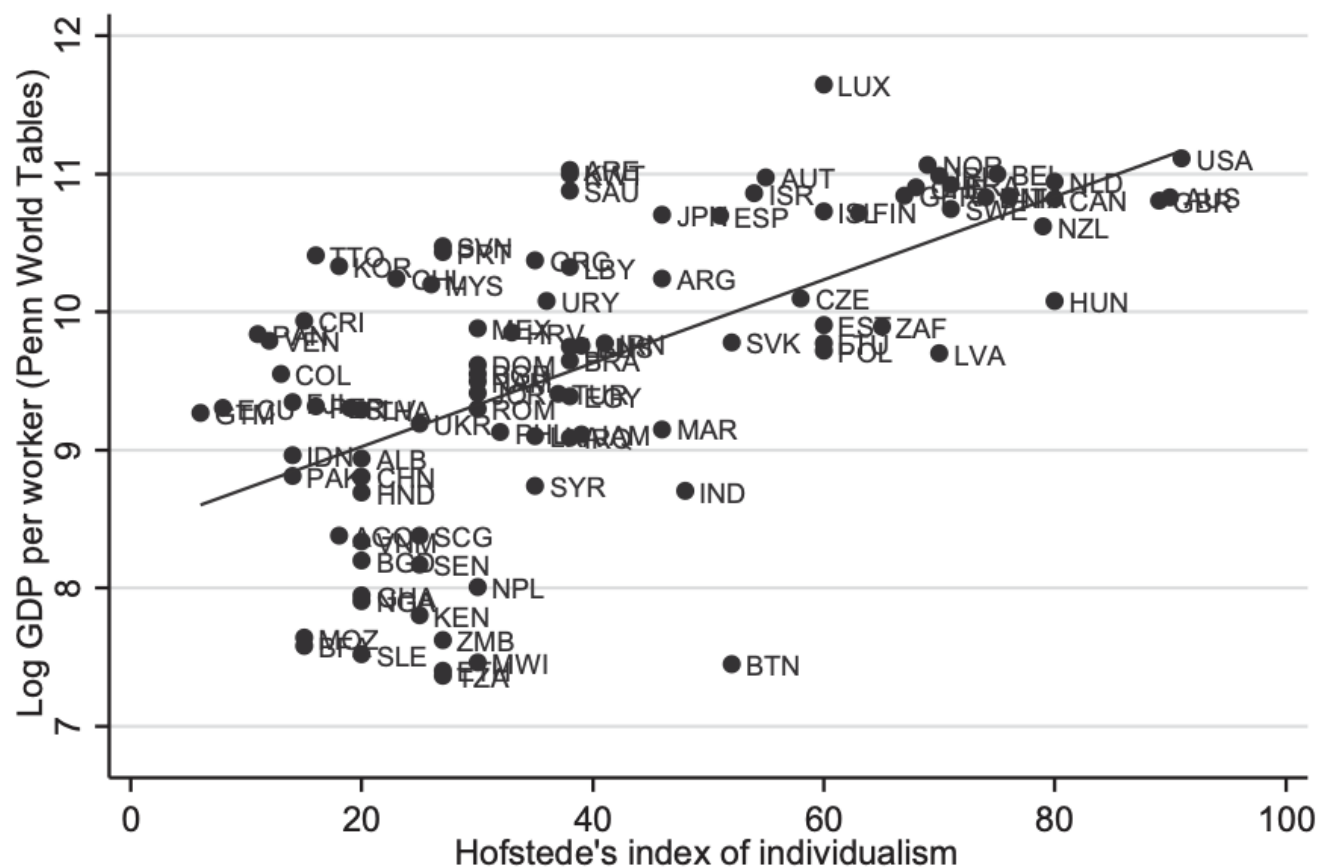


- The closer to the equator, the lower GDP per capita (on average).
- Suggests that geography must somehow be part of the story.
- *Directly*: land, labor, productivity, natural resources...[Bloom & Sachs, 1998]
- *Indirectly*: influence on the historical evolution of institutions [J. Diamond, 1997]



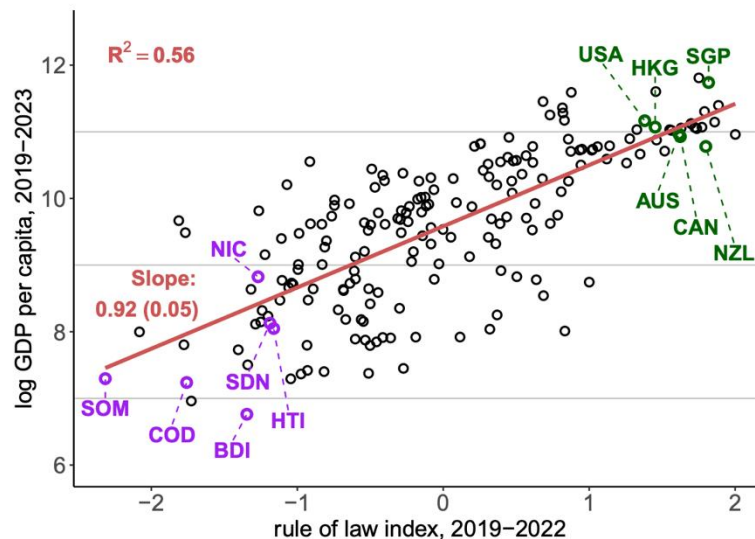
# Correlation between culture & GDP per capita

Measures of individualism are also correlated with GDP per capita and innovation.



- Individualism might lead to more innovation because it awards social status to personal accomplishments like discovery and invention.
- Individualism is part of a **cultural package** that includes *analytic orientation, moral universalism & impersonal pro-sociality*.
- For idiosyncratic historical reasons, these cultural traits became prevalent in Western countries over the course of the last 800 years.

# Institutions, geography, culture & GDP per capita



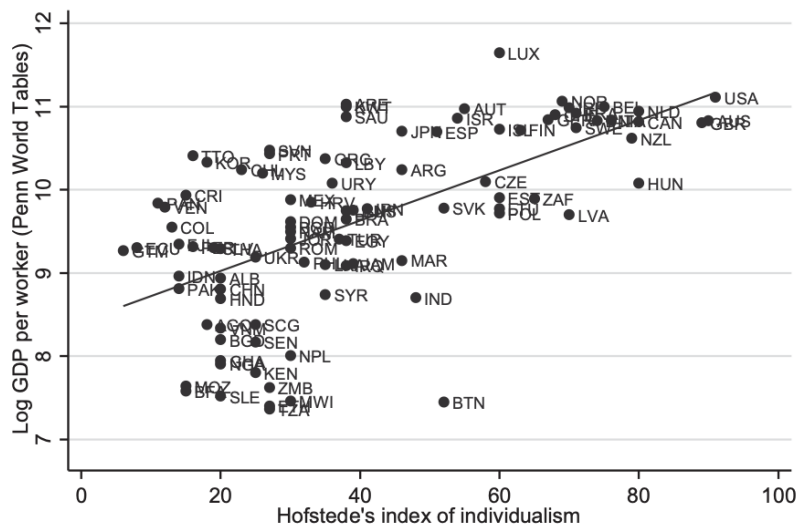
But correlation is not (necessarily) causation!

Maybe richer countries are better able to establish an effective legal system.

Maybe economic prosperity shapes culture towards individualism and universalism (or maybe they are just typical of the West but did not cause it to become rich).

Maybe other factors affect at the same time institutions, culture and GDP per capita.

Geography an exception in this respect: Distance from the equator is exogenous! Suggests that geography must somehow enter the *causal* chain, directly or indirectly.



# 3. Institutions





# Institutions

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*Laws, organizations, social norms, conventions that regulate social interactions among people.*

North (1990): *“Institutions are the rules of the game in a society or, more formally, the humanly devised constraints that shape human interaction.”*



# Institutions

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## Game-theoretical definition:

Institutions determine the payoff-matrix & strategy set in a game.

But at the same time are equilibrium outcomes of a prior game.

# Institutions

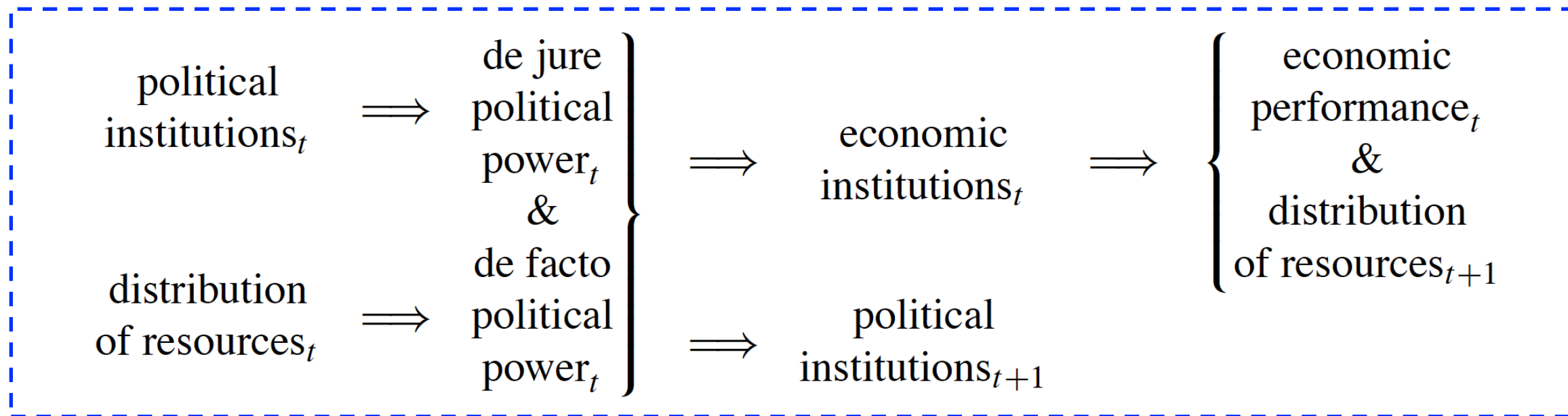
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## Why institutions matter?

- Determine the organization of production, the distribution of wealth & power, and the structure of incentives for investment
- ‘Old-school’ Marxian view: relations of production → institutions & culture
- New Institutional Economics standard view: property rights and contracting institutions
- Both important, but both too narrow!

# The AJR theoretical framework

*Acemoglu, Johnson & Robinson (2024 Economic Nobel Prize)*



# The AJR theoretical framework

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- Growth-enhancing economic institutions = *inclusive* institutions.
- *Inclusive institutions* provide security of property rights and relatively equal access to economic resources to a broad cross-section of society.
- Modern economic growth requires a substantial share of the population to be engaged in investment and innovation, so that valuable investment opportunities are not left unexploited.
- Conversely, societies where only a very small fraction of the population have well-enforced property rights do not have good economic institutions.
- “A broad cross-section of society” does not mean everyone, or even a majority: historically, “inclusive” economic institutions have coexisted with slavery, apartheid, racial discrimination, and extreme poverty.



# The AJR theoretical framework

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Inclusive institutions → Economic growth

*“There must be enforcement of property rights for a broad cross-section of society so that all individuals have an incentive to invest, innovate and take part in economic activity.*

*There must also be some degree of equality of opportunity in society, including such things as equality before the law, so that those with good investment opportunities can take advantage of them.”*

(Acemoglu, Johnson and Robinson, 2005)

# How do we know if institutions matter?

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- *Institutions are endogenous and evolve slowly*
- *Randomized experiments are impossible*
- Evidence from *natural experiments*
  - Accidents of history or random policy differences that create arbitrary differences in institutions.
  - A few examples...

# The Korean war as a natural experiment

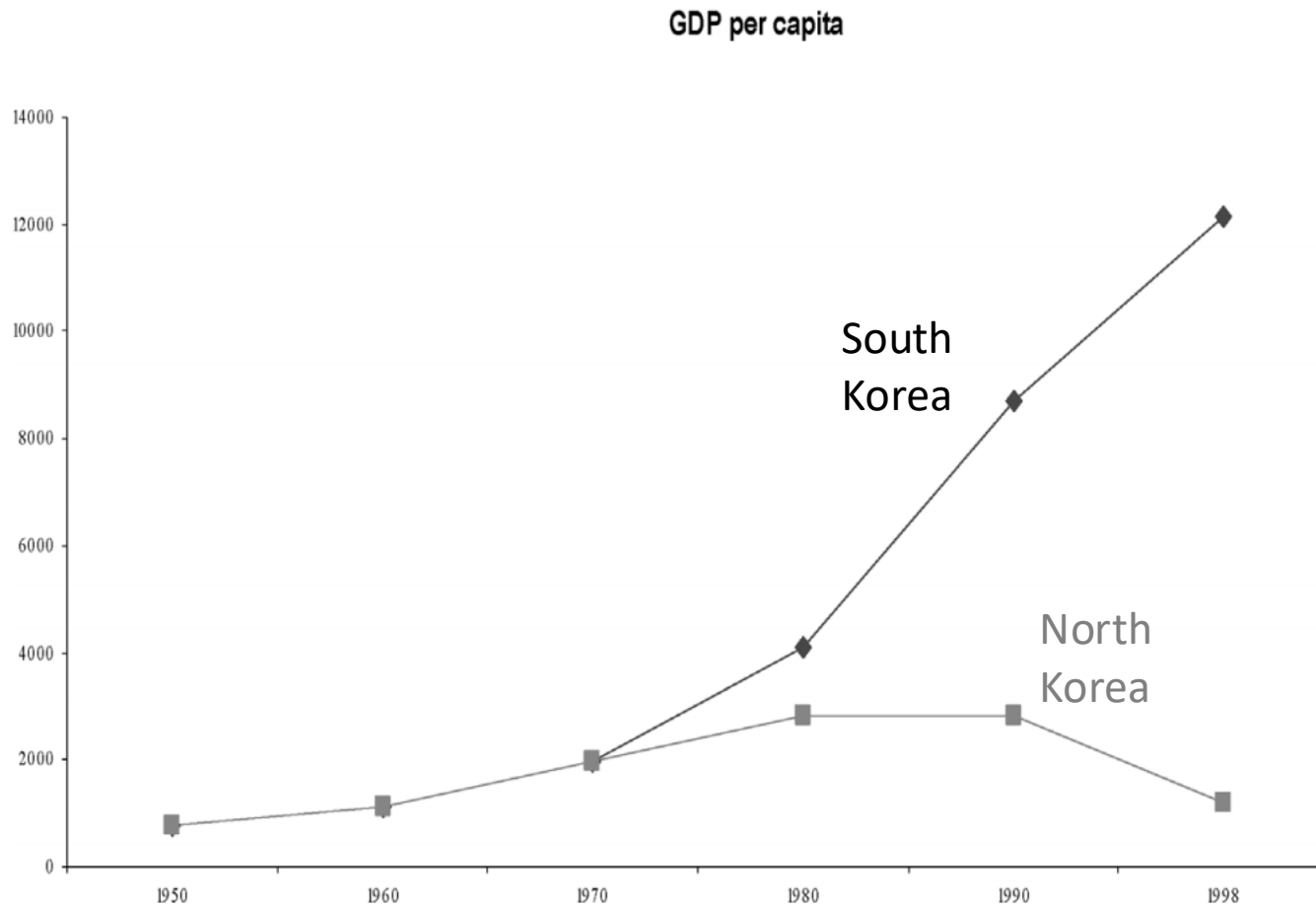
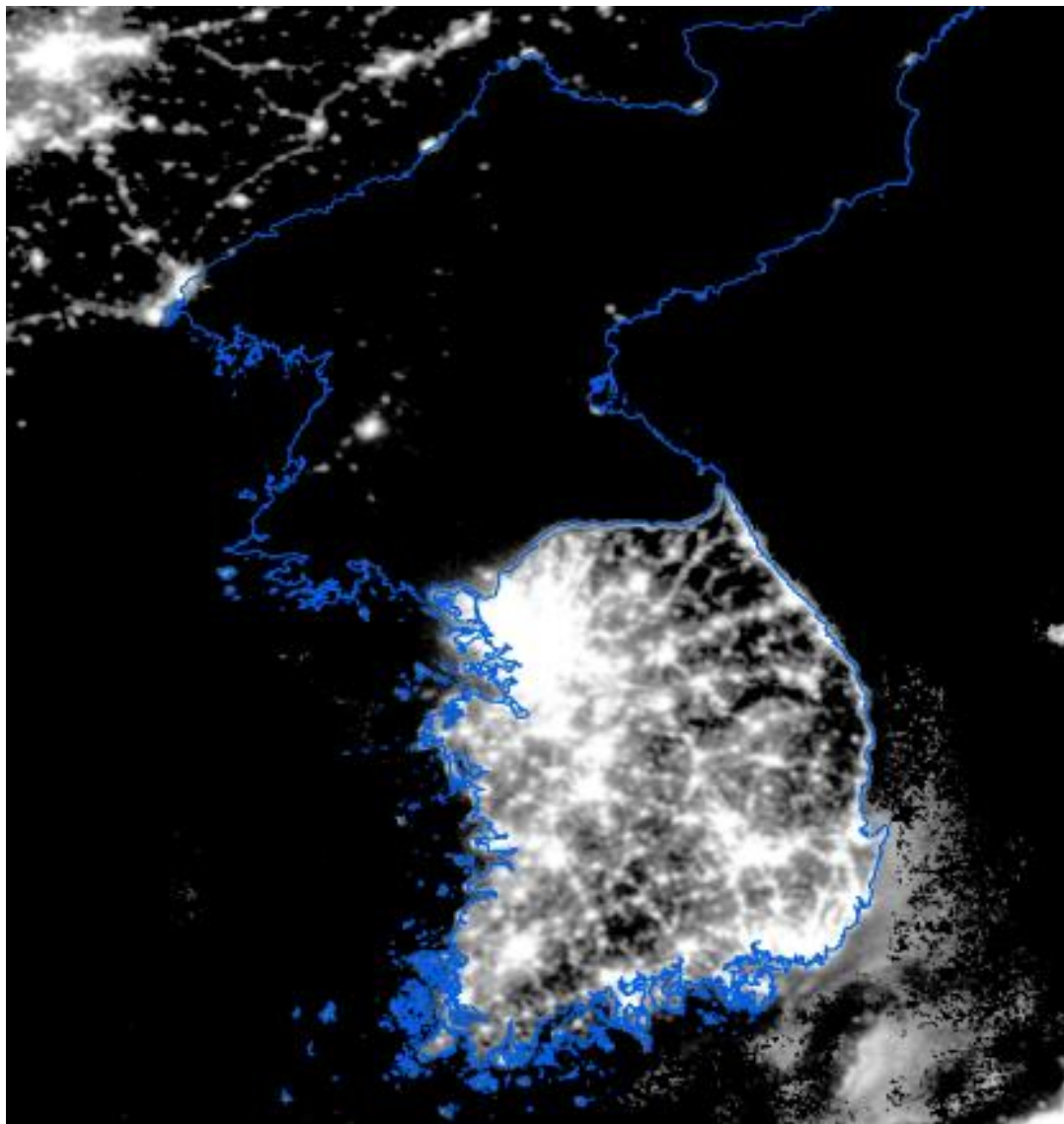


Figure 3. GDP per capita in North and South Korea, 1950–98.

- Similar economy, same culture and common government until 1948/50.
- Then North ‘treated’ with authoritarian communist central planning and South with export-oriented capitalism.
- Striking example of growth divergence, very likely due to *institutional* divergence.

# The Korean war as a natural experiment

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# Colonialism and economic development

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- Between 1500 and 1900, European colonialism imposed different sets of institutions in different colonies.
- Two influential studies by AJR use European colonialism as a ‘natural experiment’ to demonstrate the importance of institutions.

## REVERSAL OF FORTUNE: GEOGRAPHY AND INSTITUTIONS IN THE MAKING OF THE MODERN WORLD INCOME DISTRIBUTION\*

DARON ACEMOGLU  
SIMON JOHNSON  
JAMES A. ROBINSON

Among countries colonized by European powers during the past 500 years, those that were relatively rich in 1500 are now relatively poor. We document this reversal using data on urbanization patterns and population density, which, we argue, proxy for economic prosperity. This reversal weighs against a view that links economic development to geographic factors. Instead, we argue that the reversal reflects changes in the institutions resulting from European colonialism. The European intervention appears to have created an “institutional reversal” among these societies, meaning that Europeans were more likely to introduce institutions encouraging investment in regions that were previously poor. This institutional reversal accounts for the reversal in relative incomes. We provide further support for this view by documenting that the reversal in relative incomes took place during the late eighteenth and early nineteenth centuries, and resulted from societies with good institutions taking advantage of the opportunity to industrialize.

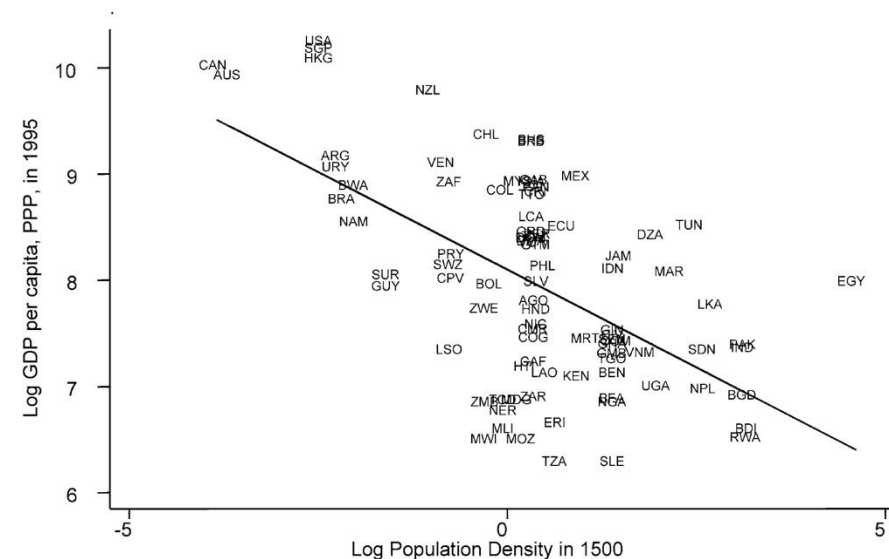
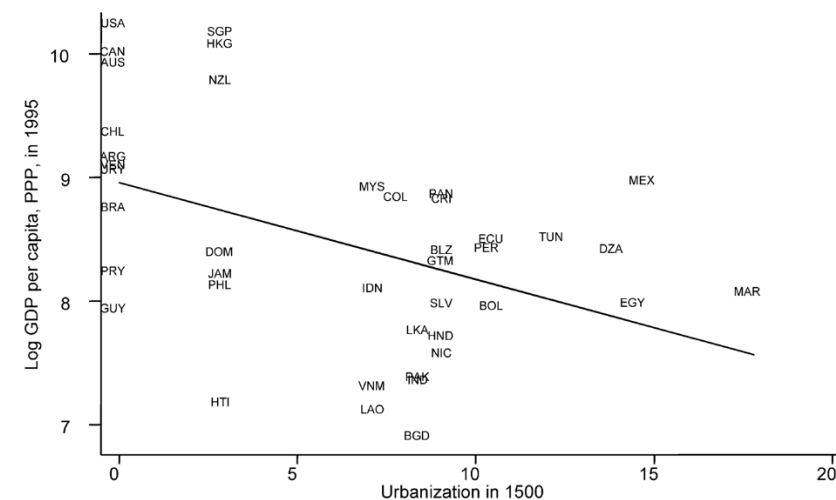
## The Colonial Origins of Comparative Development: An Empirical Investigation

By DARON ACEMOGLU, SIMON JOHNSON, AND JAMES A. ROBINSON\*

*We exploit differences in European mortality rates to estimate the effect of institutions on economic performance. Europeans adopted very different colonization policies in different colonies, with different associated institutions. In places where Europeans faced high mortality rates, they could not settle and were more likely to set up extractive institutions. These institutions persisted to the present. Exploiting differences in European mortality rates as an instrument for current institutions, we estimate large effects of institutions on income per capita. Once the effect of institutions is controlled for, countries in Africa or those closer to the equator do not have lower incomes. (JEL O11, P16, P51)*

# Colonialism and economic development

- AJR observe a “reversal of fortunes” among former European colonies.
- Regions that were richer, urbanized and densely populated around 1500 (when Europeans arrived) are now poorer.
- Regions that were less developed around 1500, are now richer.
- Uncommon in history: we usually observe persistence in income & urbanization.



# AJR institutionalist explanation for the “reversal of fortunes”

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## **Areas that in 1500 were poorer and sparsely populated:**

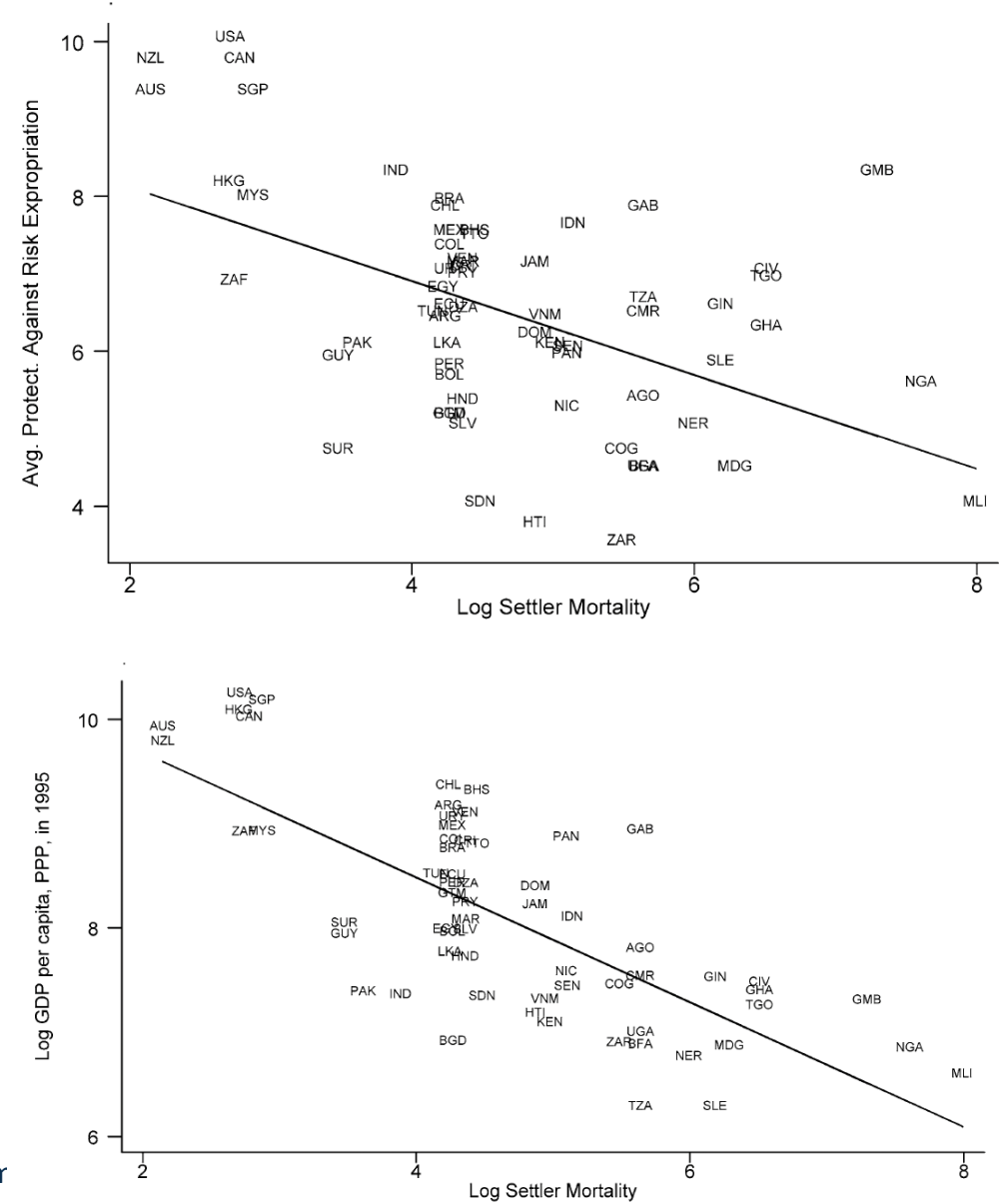
- European settlers became a majority of the population
- Inclusive institutions that protected property rights and created economic opportunities for a broad section of the population (ie, the European settlers).
- North America, Australia, New Zealand, Canada.

## **Areas that in 1500 were densely populated and/or rich in natural resources**

- European settlers remained a small fraction of the population
- Extractive institutions to exploit the (native) majority of the population and the natural resources (slave-based societies, forced labor, slave exports, etc.).
- South America, Caribbean, India, North Africa, South-East Asia.

# The colonial origins of comparative development

- AJR argue the **disease environment** was the other crucial determinant of the institutions that European colonialism built.
- Temperate latitudes: a more familiar disease environment, so Europeans could settle.
- Tropical regions: a new disease environment they weren't immune to, so Europeans could not settle in large numbers.
- Key result: Colonial-era settler mortality rates positively correlated with quality of institutions and GDP per capita today.
- This might provide an explanation for the correlation between latitude and GDP per capita.





# Democracy and economic growth

- AJR institutionalist framework predicts that democracy should have a positive effects on growth.
- This has been tested by looking at how GDP evolved after democratizations in a large set of countries, against a comparison group made of all continuing non-democracies.
- Using this statistical method, recent studies find a large positive effect.

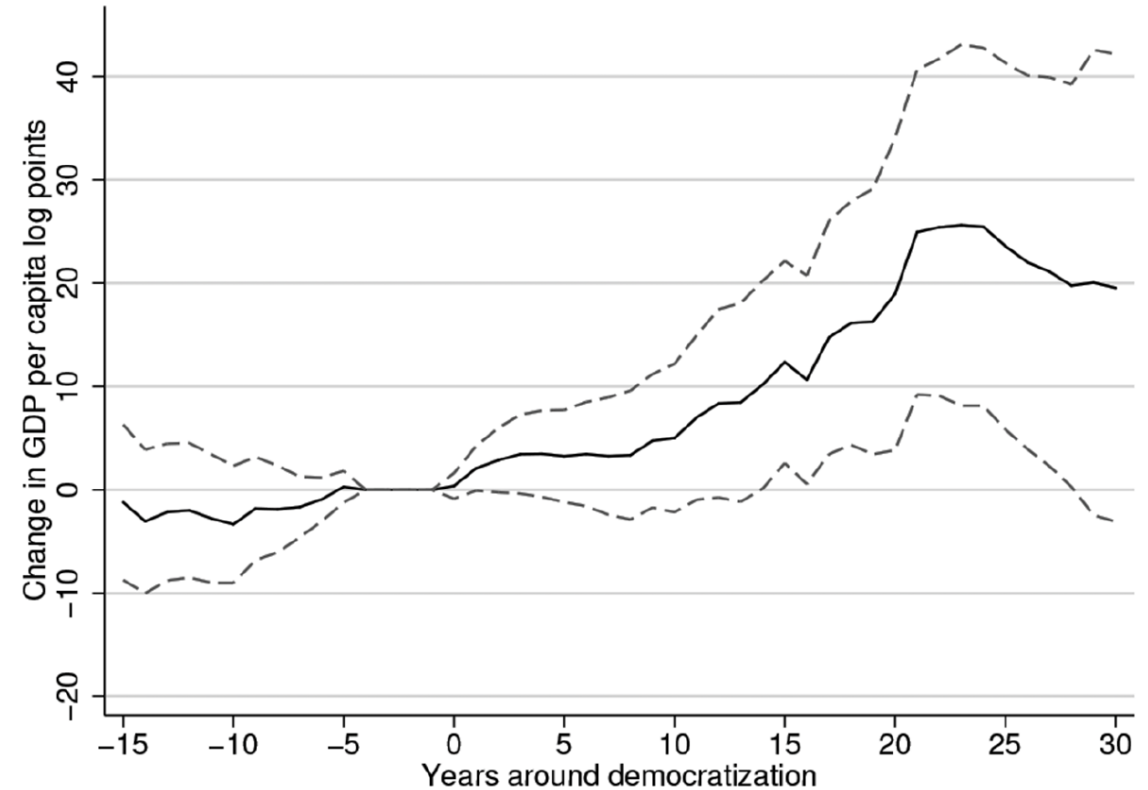


FIG. 3.—Semiparametric estimates of the over-time effects of democracy on the log of GDP, obtained with a regression model to estimate counterfactuals. This figure plots semiparametric estimates of the effect of democratization on GDP per capita in log points. The solid line plots the estimated average effect on GDP per capita on countries that democratized (in log points), with a 95 percent confidence interval in dashed lines. Time (in years) relative to the year of democratization runs on the horizontal axis. The estimates are obtained by assuming and estimating a linear model for counterfactual outcomes, which we use to control for the influence of GDP dynamics. Section IV explains our approach in full detail.

# Institutions, geography and culture

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- So, institutions matter.
- That doesn't mean they are *the only thing* that matter.
- Geography and culture might also matter, in two ways:
  - Directly
  - Through their effect on institutions (which are endogenous).

# Institutions, geography and culture

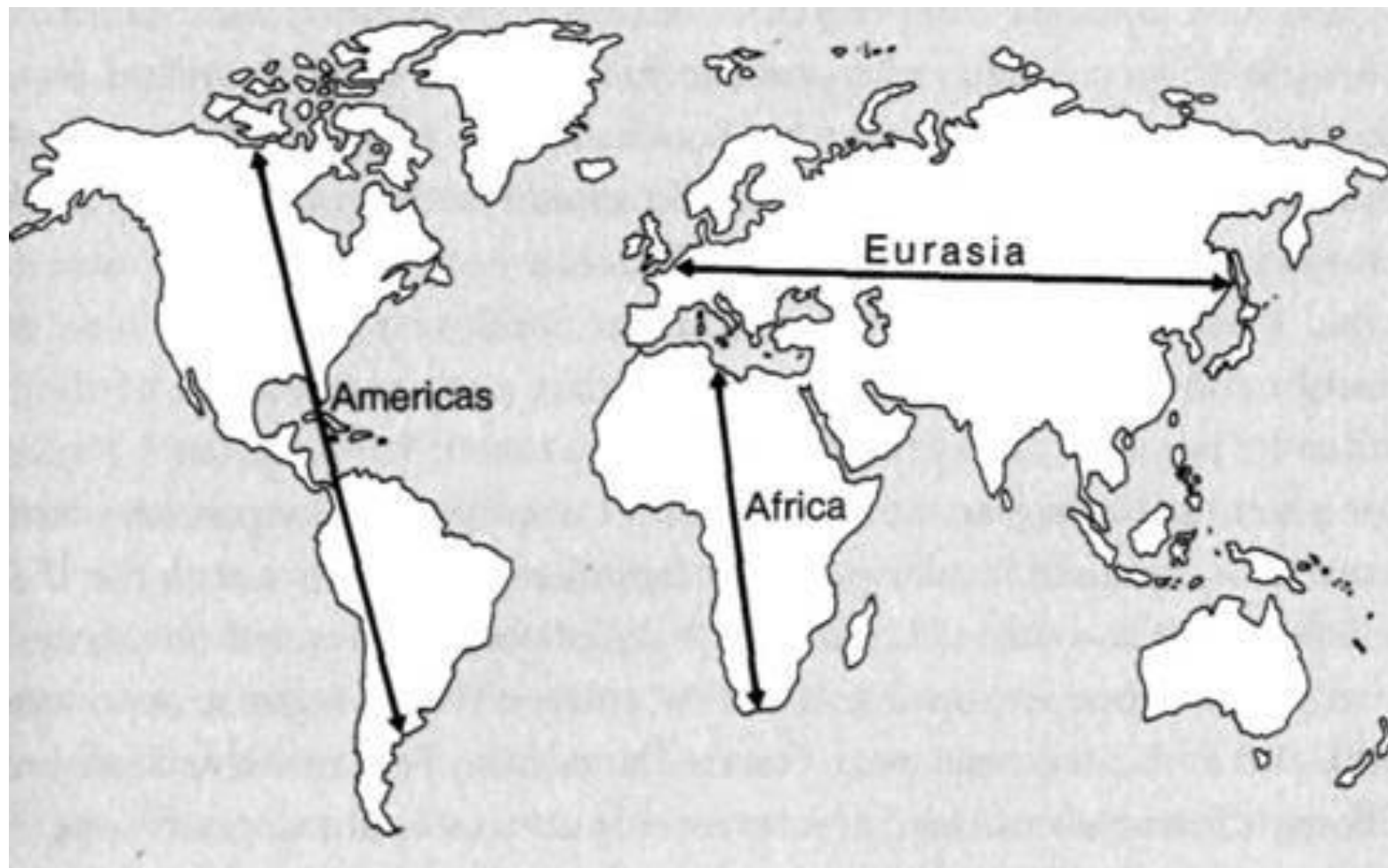
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*“While we have good reason to believe that economic institutions matter for economic growth, we lack the crucial comparative static results which will allow us to explain why equilibrium economic institutions differ.”*

*(Acemoglu, 2005, p.389)*

- Why Europe (and not Asia, Africa or America) first developed the capitalist institutions that led to the industrial revolution?
- Can geography and culture help answer these questions?

# 3. Geography



# Diamond (1997): Guns, Germs and Steel

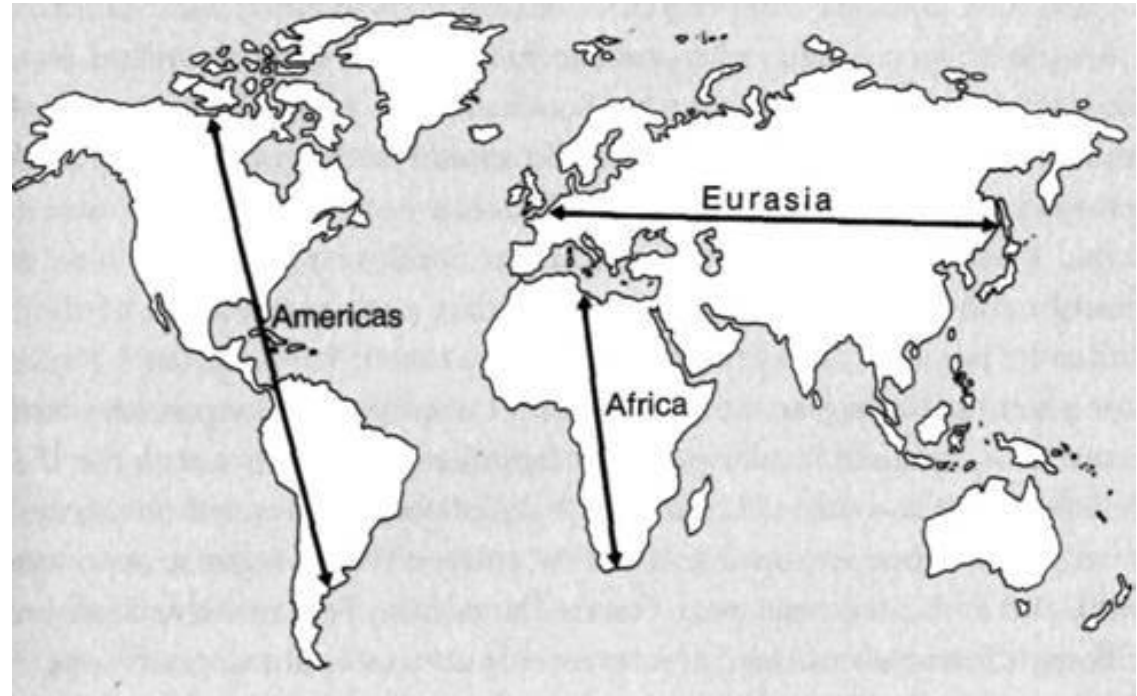
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- Diamond (1997) proposed a geography-based hypothesis.
- Why was it Europeans that colonised the rest of the world and first experienced economic growth?
- Eurasia had a head start (1000s of years) in agriculture
  - Agriculture arose independently only in 9 small regions around the world.
  - Fertile Crescent by far the earliest (> 10,000 years ago)
  - Outside Eurasia food production arose only thousands of years later (2,500 BC in today's eastern USA)
- Agriculture → Sedentary societies with storable food surpluses → complex States & markets → technology and military power

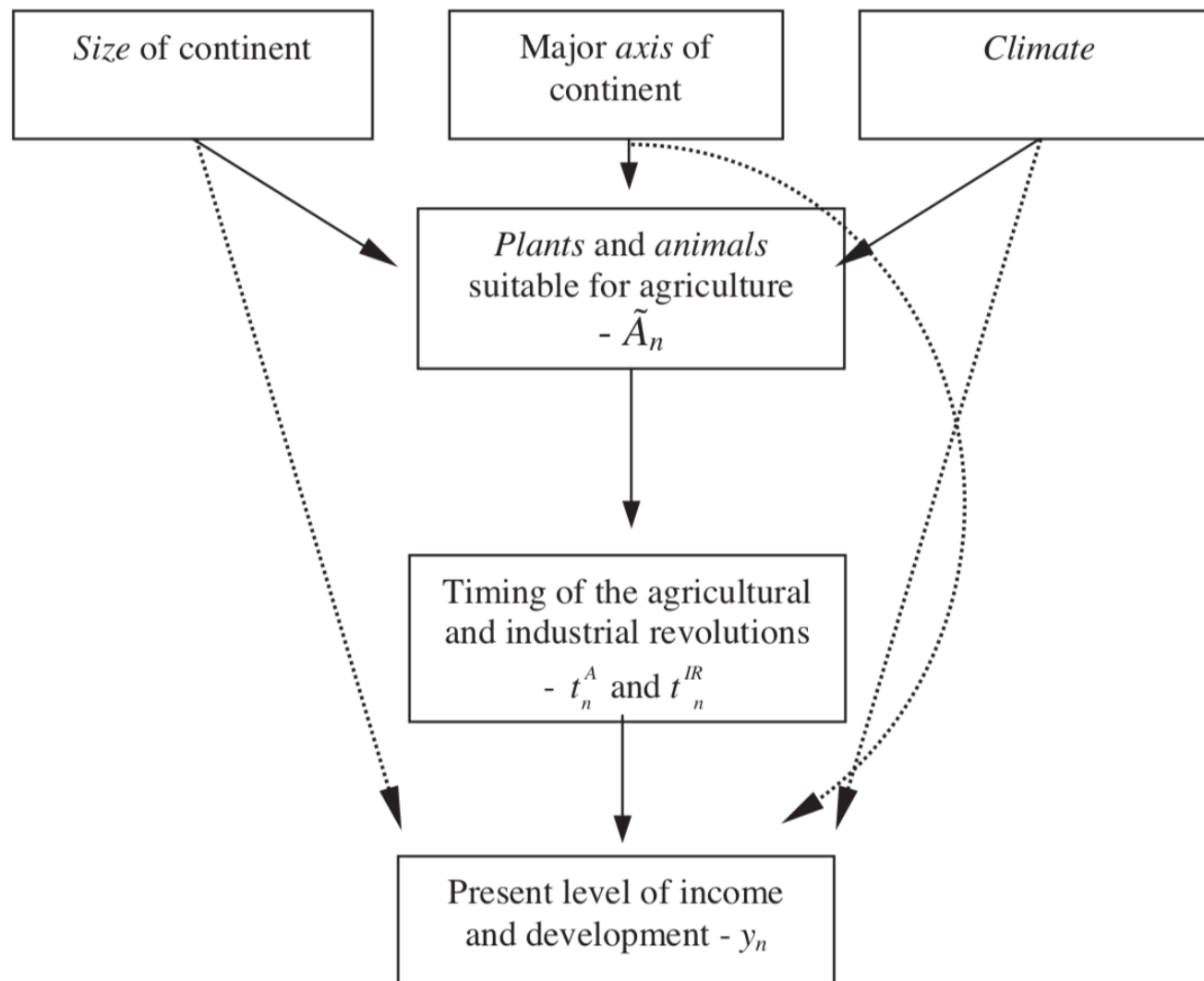
# Diamond (1997): Guns, Germs and Steel

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- Why Eurasia?
- Eurasia was better endowed with wild plants and animals suitable for domestication...
- ..and its east/west axis facilitated the spread of these domesticates throughout the continent.



# Guns, Germs and Steel: a formalization (*Olsson & Hibbes, 2005*)



# Why Europe?

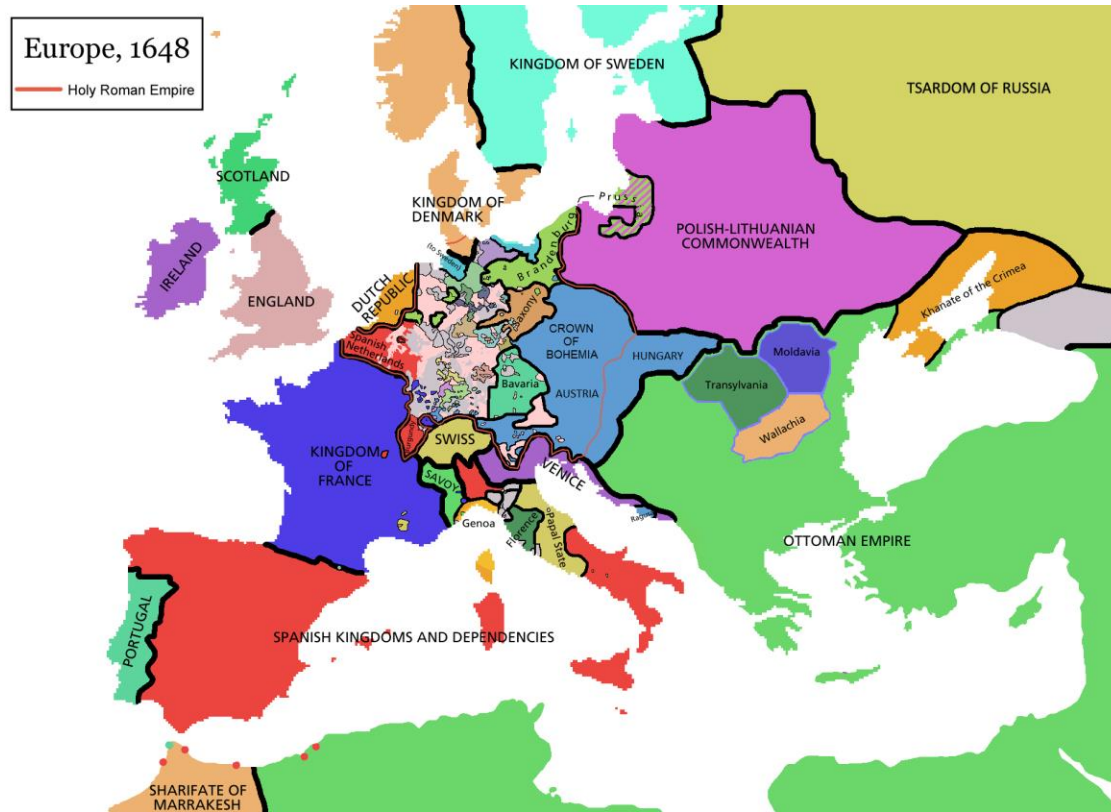
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- ‘Length of exposure to sedentary agriculture’ might be a crucial determinant of institutions.
- Historical exposure to agriculture → historical evolution of institutions and technology → institutions and development today
- OK, but why Western Europe?
  - Headstart in agriculture can explain why Eurasia first developed complex civilizations, and why it was people from Eurasia that colonized the rest.
  - But why Western Europe, as opposed to China or the Middle East?
  - China was *richer* than Europe in 1,000 BCE!



# The political fragmentation hypothesis

Political fragmentation might explain the eventual rise of Western Europe. (eg: Jones 2003; Mokyr 2016; Scheidel, 2019, ...).



# The political fragmentation hypothesis

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China was eventually held back by excessive centralization

- Huge, relatively isolated, relatively stable, authoritarian empire.
- Didn't allow institutional innovation, and eventually stifled technical innovation.

Western Europe: many large & small states in constant competition

- A variety of institutional forms, dynamically evolving under competitive pressure, including forms of democracy & representative institutions.
- Strong incentives for States to invest in military innovation & state capacity.
- Fostered intellectual pluralism & created a competitive market for ideas possible.
- Governments that suppressed economic and technological progress soon corrected their mistakes or were out-competed relatively quickly.
- Eg: Christopher Columbus's project was turned down by three other European states before obtaining sponsorship from Spain's Isabella I.

# The fractured land hypothesis

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But why political fragmentation in Western Europe vs centralization in China? Can geography provide an explanation?

Fractured land hypothesis:  
Natural barriers (mountain barriers, indented coastlines, rugged terrain) precluded the development of large empires in Europe.



# The fractured land hypothesis

Fernandez-Villaverde et al (2023) model & test the fractured land hypothesis, using a dynamic simulation model of state-building across world regions.

- Every micro-region in the world starts as an independent polity, each characterized by its (real-world) environmental features.
- Over time, polities fight and can expand or be conquered.
- Relative productivity + physical barriers determine the *probability* that a polity conquer another.
- In their simulations, China tends to become a consolidated empire, Europe to remain politically fragmented.
- Suggests that Europe's political fragmentation is not an accident of history, but due to its geography & climate.
- Non-technical summary [here](#).

## JOURNAL ARTICLE

### The Fractured-Land Hypothesis\*

Jesús Fernández-Villaverde, Mark Koyama, Youhong Lin, Tuan-Hwee Sng

The Quarterly Journal of Economics, Volume 138, Issue 2, May 2023, Pages 1173–1231,

<https://doi.org/10.1093/qje/qjad003>

Published: 09 January 2023    Article history ▼

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## Abstract

Patterns of state formation have crucial implications for comparative economic development. Diamond (1997) famously argued that “fractured land” was responsible for China’s tendency toward political unification and Europe’s protracted polycentrism. We build a dynamic model with granular geographical information in terms of topographical features and the location of productive agricultural land to quantitatively gauge the effects of fractured land on state formation in Eurasia. We find that topography alone is sufficient but not necessary to explain polycentrism in Europe and unification in China. Differences in land productivity, in particular the existence of a core region of high land productivity in northern China, deliver the same result. We discuss how our results map into observed historical outcomes, assess how robust our findings are, and analyze the differences between theory and data in Africa and the Americas.

**JEL:** H56 - National Security and War, N40 - General, International, or Comparative, P48 - Political Economy; Legal Institutions; Property Rights; Natural

# Geography as a fundamental cause of growth

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- Geographical factors (size & shape of continents and their climate) determined the timing of the agricultural revolution.
- A head-start in agriculture meant that Eurasia developed complex sedentary civilizations thousands of years earlier.
- Within Eurasia, geographical factors might also help explain why the industrial revolution happened in Western Europe (fractured land hypothesis).
- But this still leaves a lot unanswered, and room for other factors:
  - Within Eurasian complex & ancient states, why some institutional forms were more conducive to growth than others?
  - Why the Industrial Revolution happened in Britain (rather than Italy or Netherlands)?
  - What explains the timing of the 'hockey stick' pattern? Why a sudden start of growth?
  - Can't explain all recent patterns (convergence of Asian Tigers, the rise of China, ...)



# 4. Culture



# Culture as a fundamental cause of growth

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Can culture help explain historical development patterns and institutional evolution?

- *The set of values and beliefs people have about how the (natural and social) world works, and the norms of behavior derived from that set of values.*  
[Gorodnichenko & Roland, 2017]
- Shapes our ways of thinking, our goals in life, and our actions.
- Industrialized western societies exhibit very distinctive cultural traits
  - WEIRD (=Western, Educated, Industrialized, Rich Democratic) culture.
- Is the WEIRD cultural package just a *result* of economic development? Or can it have contributed to the Great Divergence?



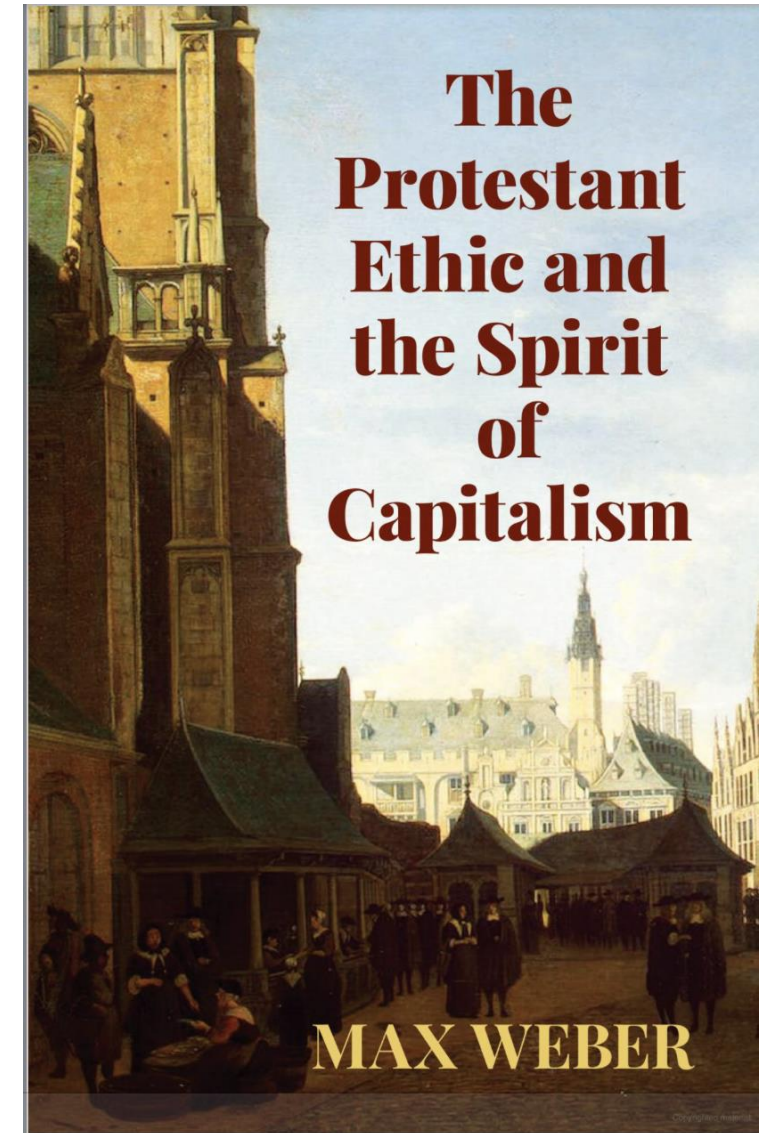
# Culture as a fundamental cause of growth

## Max Weber “The Protestant Ethic and the Spirit of Capitalism” (1930)

First influential exposition of the “culture hypothesis”.

The Protestant ethic of Calvinism propelled the development of capitalism.

Protestant ethic placed value on investment, trade, accumulation of wealth.





# The WEIRD cultural package

## Individualism

each person has individual needs, rights, and goals

## Moral universalism

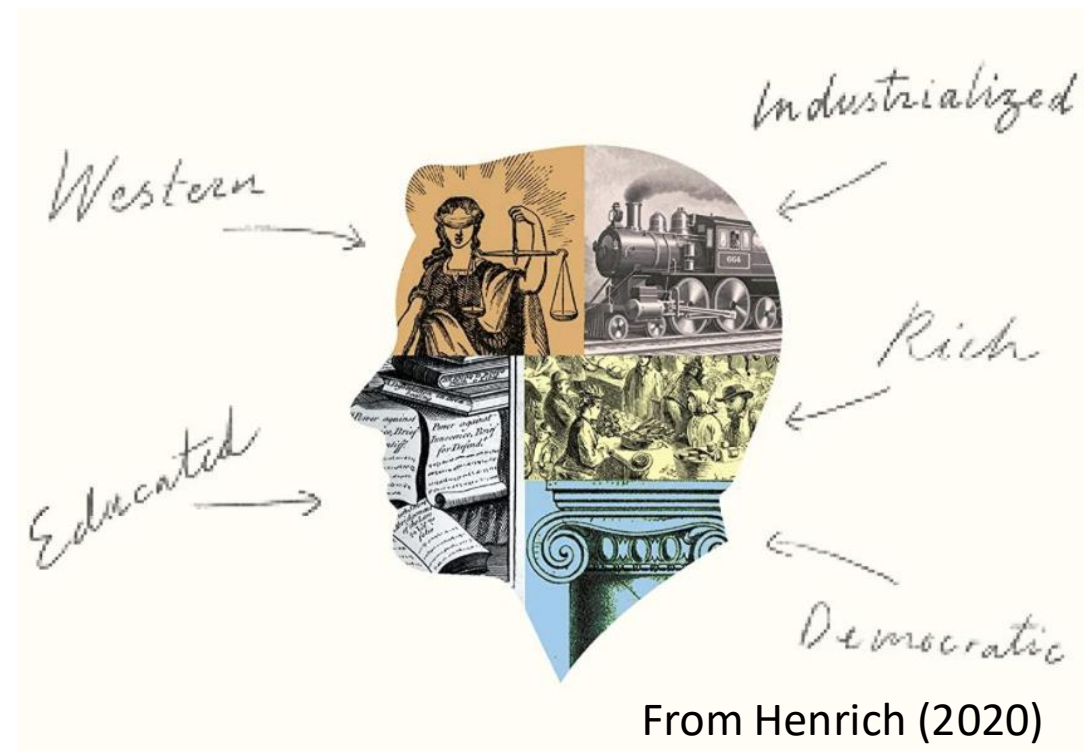
the same moral rules apply to all people, regardless of the group they belong to.

## Impersonal pro-sociality

cooperation with strangers or people you don't know personally, not just friends and family.

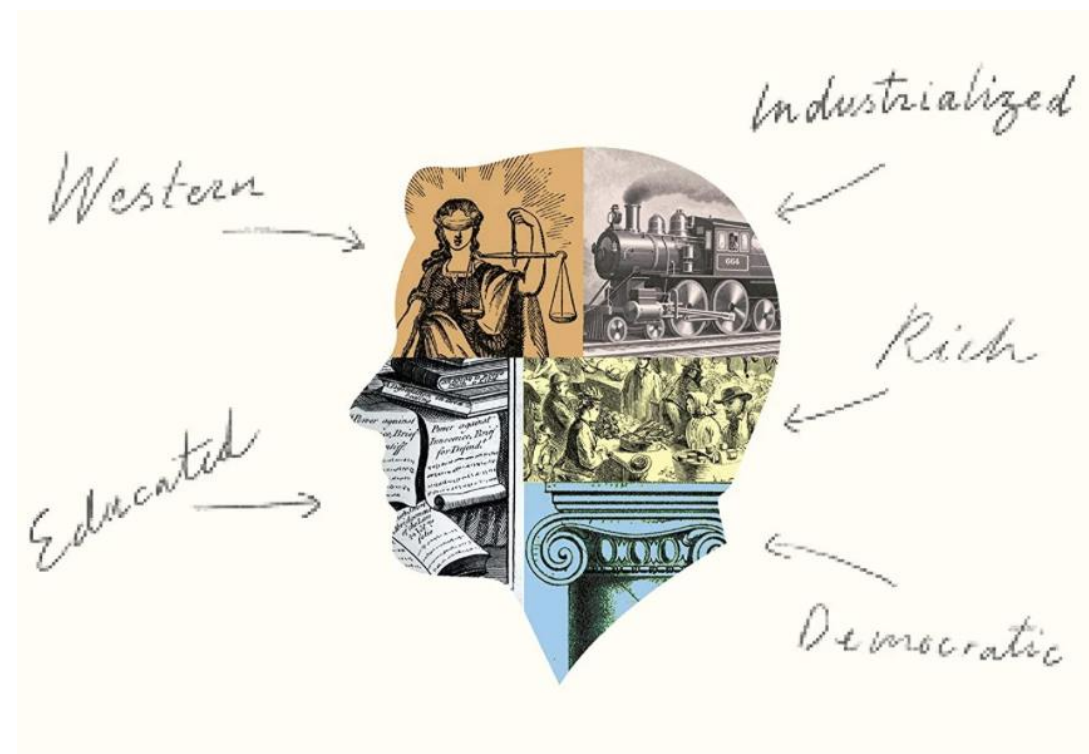
## Analytical thinking

breaking down complex problems into smaller parts to be solved using rules of logic and deduction.



# WEIRD culture and economic development

- WEIRD culture might help explain the spread of private property, markets, corporations, universities in Western Europe.
- WEIRD culture might also be essential for these institutions to work properly.
- Since Weber, a vast literature identified various channels through which WEIRD cultural traits might foster economic growth and support growth-friendly institutions.



From Henrich (2020)

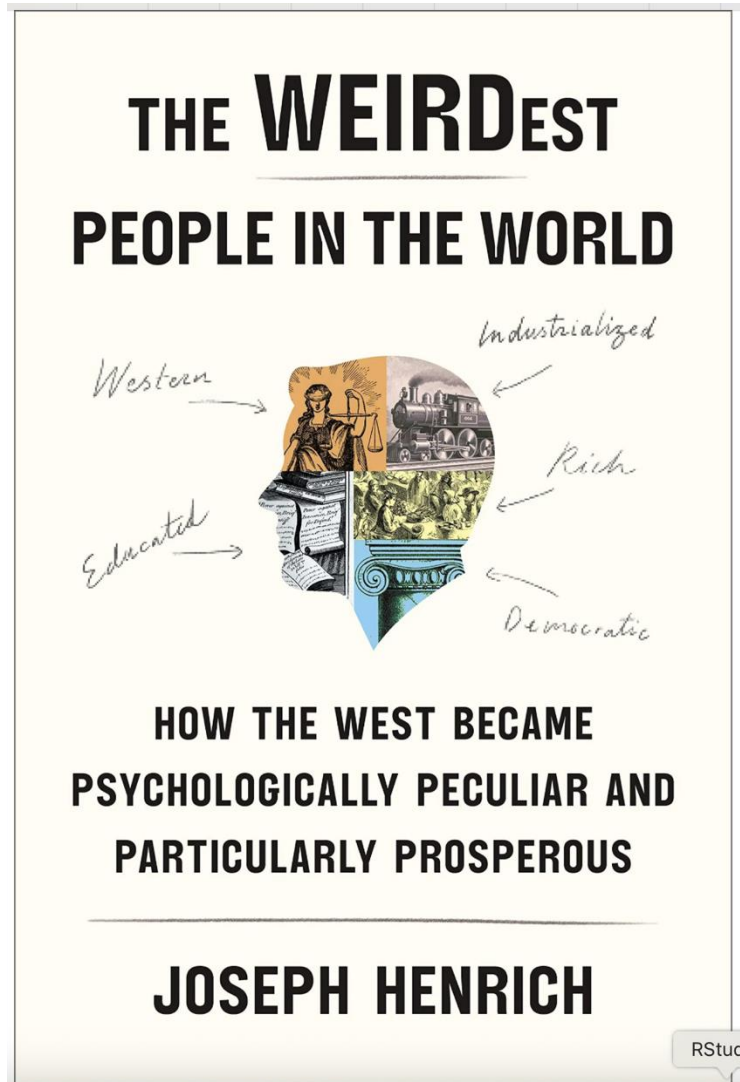
# WEIRD culture and economic development

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WEIRD individualistic societies might permit and encourage more investment and innovation than traditional societies

- Individual economic success or scientific discovery is awarded with social status.
- Non-conformity and deviation from tradition is not harshly punished as in traditional kinship-based societies.
- Free from clans/kinship groups, in late Medieval Europe people started creating voluntary associations: corporations, universities, trade associations, etc.

# WEIRD culture and economic development

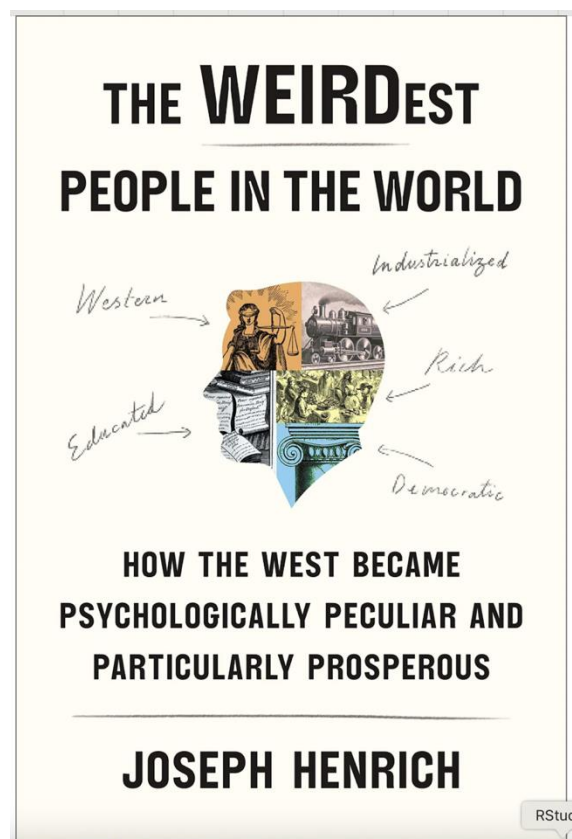


- Henrich (2020): powerful and influential argument for the origins of WEIRD culture and its impact on growth.
- Cultural evolution
  - Culture is constantly transmitted through generations and dynamically evolving.
  - Cultural traits that make societies successful (given environment and circumstances) tend to spread.
- Over millennia of human history, traits like religiosity, deference to elders, loyalty to one's clan/family, caring for children, have spread because they allow the communities that carry them to survive and expand.
- During the Middle Ages, Western Europe started developing a very distinctive ('WEIRD') set of cultural traits, which led to innovation and economic growth – **Why?**

# WEIRD culture and economic development

*Henrich (2020)  
hypothesis:*

- During the Middle Ages, the Catholic Church developed a new set of religious rules that banned cousin marriage, leading people to marry outside their extended family.
- Gradual dissolution Europe's clans, tribes & kinship networks.
- Weakening of kinship ties and emergence of nuclear families changed people's lives and their culture, creating a more individualistic mindset.
- This prepared the ground for Protestantism, which further shifted culture towards individualism and innovation.
- WEIRD psychology led to representative institutions, rule of law, capitalism, and eventually economic growth.





# Institutions, geography and culture

- We are still far from a conclusive & comprehensive understanding of exactly how institutions, geography and culture shaped the patterns on international economic development.
- But we probably have enough evidence to say that they have played a role.
- Focusing on their historical interactions probably more productive than comparing them in a “horse race” to find a single dominant explanation.
- And in any case, it is possible that what will determine growth in the future are not the same things that shaped it in the past.







**Thank you for your attention**