Why are Rich Countries Rich and Poor Countries Poor?

- The Facts: Patterns of Development
- The Mechanics of Growth
- Proximate Causes of Economic Development
- Root Causes of Economic Development

Why are Rich Countries Rich and Poor Countries Poor?

- The Facts: Patterns of Development
  - Since World War II
  - Since 1870
  - Before?

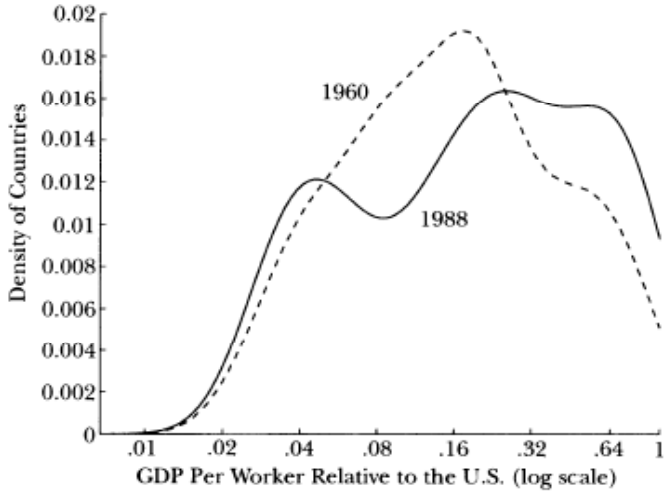
Worldwide Growth since WWII

	Average Growth Rate (per-capita, PPP)		
	1950-1980	1980s	1990s
Regions			
Asia	3.4%	3.5%	3.1%
Latin America	2.3%	0.2%	1.7%
Sub-Saharan Africa	1.5%	-0.2%	-0.3%
Western Europe	3.4%	2.2%	2.0%
USA	2.3%	2.0%	2.2%

Growth Miracles and Disasters: Average annual per-capita growth rates (PPP) from 1960-2007

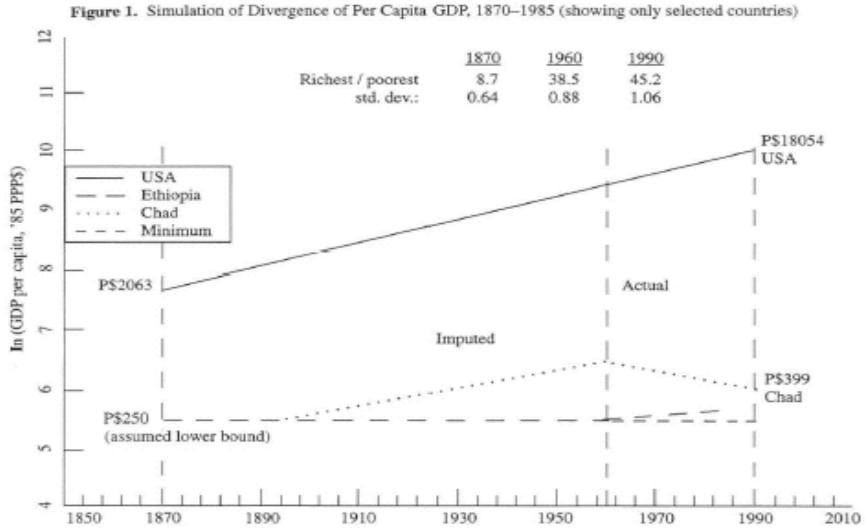
Miracles	*Growth Rate*	*Disasters*	*Growth Rate*
Equatorial Guinea	6.3%	Liberia (since 1970)	-4.3%
Taiwan	5.8%	Congo, Kinshasa	-2.0%
Botswana	5.2%	Central African Republic	-1.0%
Hong Kong	5.1%	Niger	-0.9%
Singapore	5.1%	Senegal	-0.5%
South Korea	5.0%	Haiti	-0.4%
China	4.8%	Madagascar	-0.3%
Japan	4.2%	Rwanda	-0.2%
Malaysia	4.2%	The Gambia	0.0%
Cyprus	4.0%	Zambia	0.0%

Twin Peaks: The Change in the World Income Distribution after World War II



Source: Charles Jones, *Journal of Economic Perspectives*, 1997

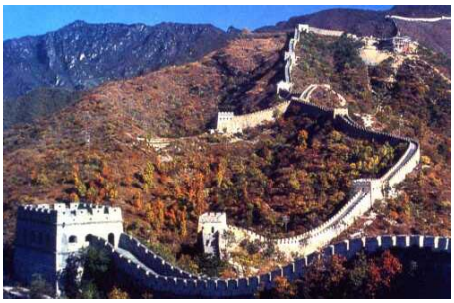
Divergence, Big Time
Growth since 1870



Source: Lant Pritchett, *Journal of Economic Perspectives*, 1997

The Facts: A Summary

- Since World War II
  - *Some* countries have caught up to wealthiest countries
  - *Many* countries have stagnated or fallen further behind
  - On the whole, a "*twin peaks*" phenomenon
- Since 1870
  - Overall, *massive divergence*
  - Wealthiest countries have grown at unprecedented rates since Industrial Revolution
  - Many countries have not
- Before?



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Why are Rich Countries Rich and Poor Countries Poor?

- The Mechanics of Growth
  - Capital
  - Convergence
  - Technology

The Basic Production Function

- Theory:
  - Individuals are more productive when they have more capital to work with
    - Physical capital: tools, machines, roads
    - Human capital: education, health
  - There are diminishing returns to capital

- More formally: A national "production function"

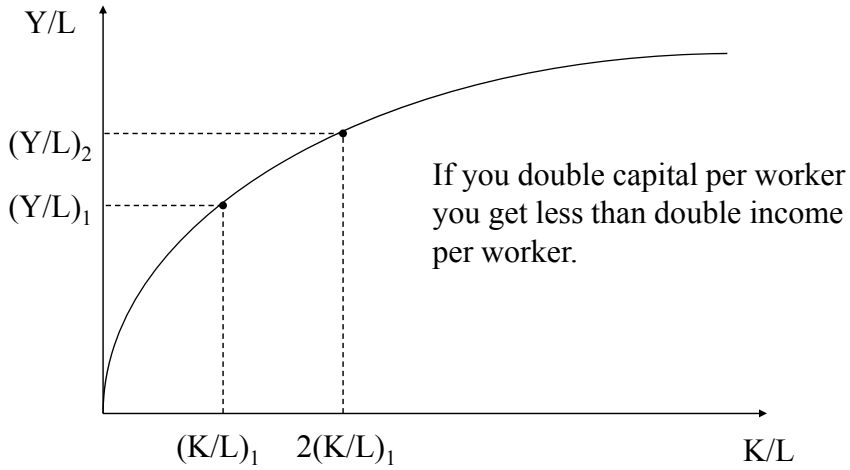
$$Y/L = F(K/L)$$

Y: National Output
L: National Population
Y/L: Output per person

K: Total National Capital
L: National Population
K/L: Capital per person

Investment & Convergence

- Diminishing Returns to capital



Basic implications

1. The level of income

   Rich countries are rich because they have lots of capital per worker

2. The growth of income

   The less capital per person a country has, the faster it should grow

3. Corollary: The theory of **Absolute Convergence**

   Income levels across countries should naturally converge over time

Evidence: Rich countries have lots of capital per worker

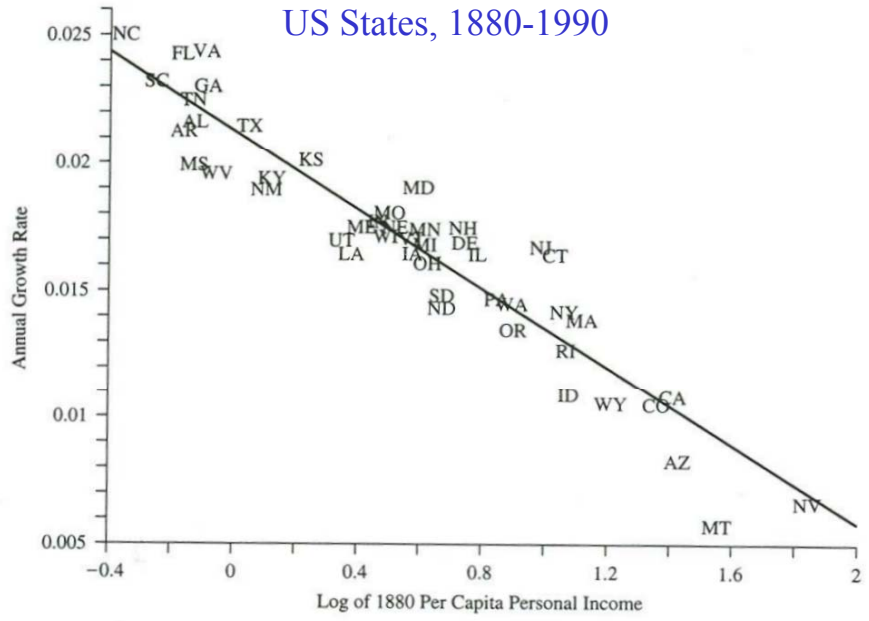
- Mankiw, Romer, and Weil (1992)

- Compare data across countries
  - Per-capita income
  - Per-capita physical capital
  - Education levels

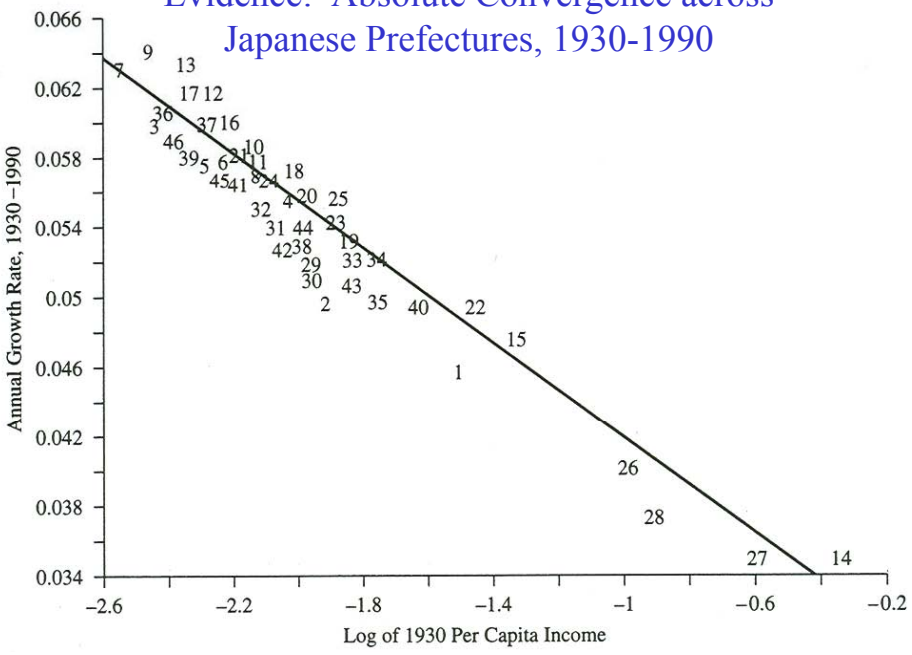
- Result:

You can explain 80% of the variation in income across countries by variation in physical capital and average education per worker

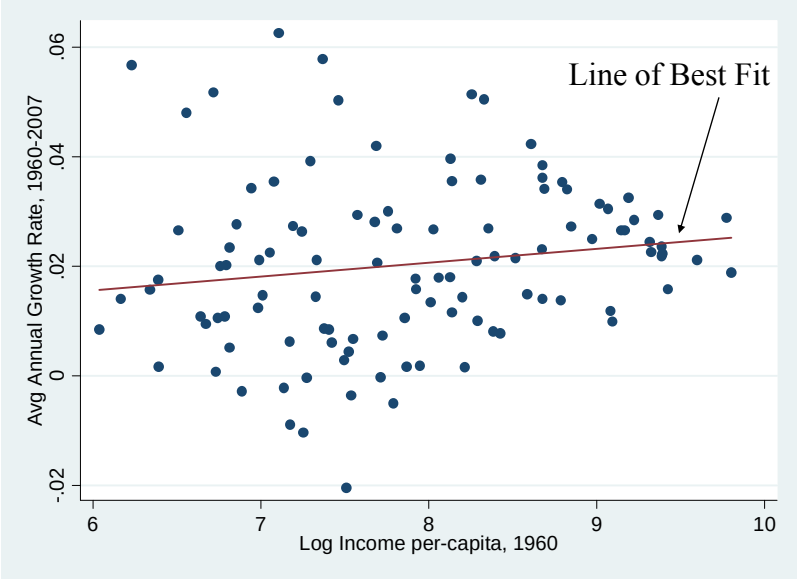
Evidence: Absolute Convergence across US States, 1880-1990



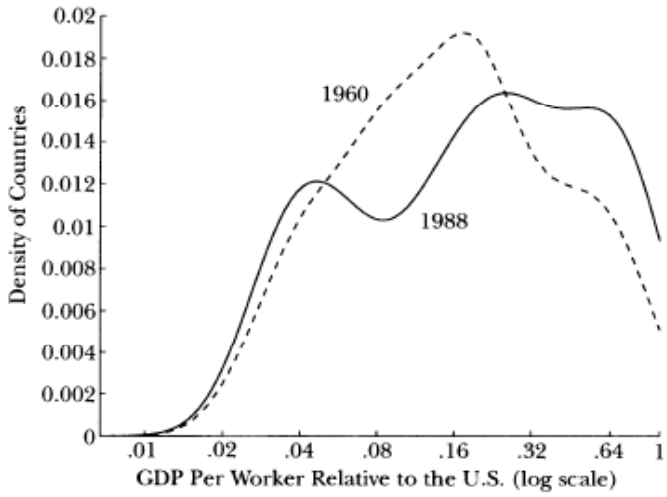
Evidence: Absolute Convergence across Japanese Prefectures, 1930-1990



Evidence: Is there Absolute Convergence across Countries?



But recall "Twin Peaks": Looking at the average is misleading



Source: Charles Jones, *Journal of Economic Perspectives*, 1997

Investment Rates & Convergence

	Average Investment Rate (% of GDP)		
	1950-1980	1980s	1990s
Regions			
Asia	16%	20%	20%
Latin America	15%	12%	14%
Sub-Saharan Africa	11%	10%	10%
Western Europe	24%	23%	23%
USA	16%	20%	21%

Conclusions: Production and the Mechanics of Growth

- Yes, rich countries have lots of capital per worker
- No, poorer countries do not grow faster on average
  - But some countries do converge quickly – the ones with higher investment rates
  - Absolute convergence does seem to operate in some settings (within the United States, Japan, Europe)
- **Bottom line**: Investment is important, and capital per worker explains a lot in a mechanical sense. But why do some countries accumulate capital per worker why others do not? We need a richer theory.

Coda: Technology

- Why do the most advanced economies grow?

$$Y/L = F(K/L, T)$$

T: Technology

- *Advanced* economies grow by improving technology
  - Need to overcome diminishing returns to capital
  - Technology improvements prevent growth slowdown
- *Emerging* economies grow by
  - accumulating capital
  - adopting existing advanced technology

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Why are Rich Countries Rich and Poor Countries Poor?

- Proximate Causes of Economic Development
  - How can we evaluate theories?
  - What is correlated with high growth rates?
  - Convergence revisited

Using data to evaluate theories about growth

- Collect data about lots of countries
- Run a regression to determine what is correlated with higher growth rates

$$Growth_{ct} = a + b_1*corruption_{ct} + b_2*trade\ policy_{ct} + b_3*democracy_{ct} + lots\ of\ other\ variables\ldots$$

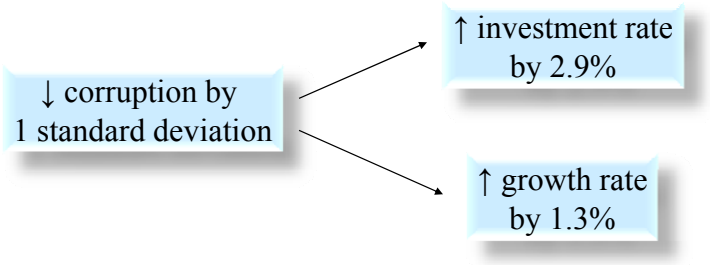
Growth rate in country c at time t

Democracy level of country c at time t

- A "regression" estimates the coefficients for you (a, b_1, b_2, etc)

Example: Corruption

• Mauro (1995)



• Mauro includes controls for initial income level and education level in each country

What is correlated with high growth rates?

Correlated

- Better rule of law
- Low corruption
- Openness to trade
- Financial development
- Etc.

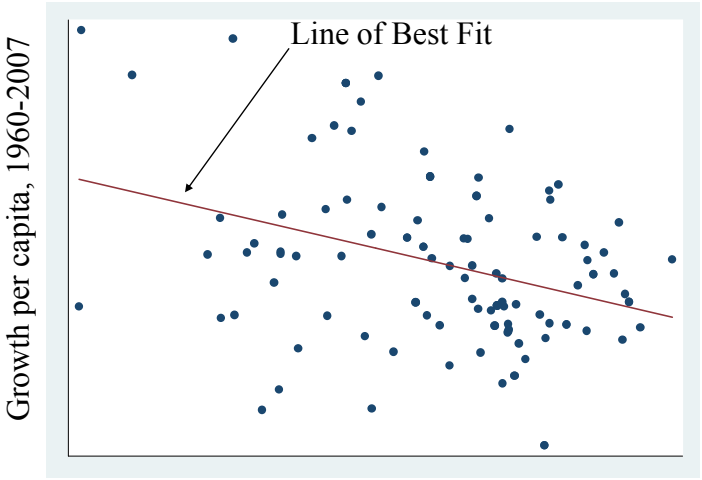
Uncorrelated

- Democracy
- Inequality
- Population size
- Access to ocean
- Etc.

• Do these kinds of variables help resurrect our simple model of investment? That is, do poorer countries that pay attention to these factors grow faster and converge?

Convergence Revisited: "Conditional Convergence"

• Low initial income does predict faster ensuing growth rate IF you first net out a non-market factor such as rule of law



Proximate Factors: Some Preliminary Conclusions

• Many "non-market" factors are statistically related to countries' grow rates

• Poor countries that score well on these non-market factors tend to grow quickly. These countries *are* converging ("conditional convergence")

• But there is still a much *deeper question*

Why do these helpful factors (the rule of law, low corruption, etc) prevail in some countries and not in others?

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Root Causes: A very hard question

- Recall regression approach

$$Growth_{ct} = a + b_1*corruption_{ct} + b_2*trade\ policy_{ct} + b_3*democracy_{ct} + lots\ of\ other\ variables\ldots$$

Let's say we estimate b_1 to be significantly less than 0, so more corruption is associated with worse growth. Does this mean more corruption *causes* worse growth?

- Two other interpretations:
  - Reverse causation: lower growth leads to more corruption
  - Omitted variable bias: some omitted variable ("culture"?) causes both high corruption and low growth.

- Regressions good at telling us about *correlation*, not *causation*!

Two Basic Theories of Development

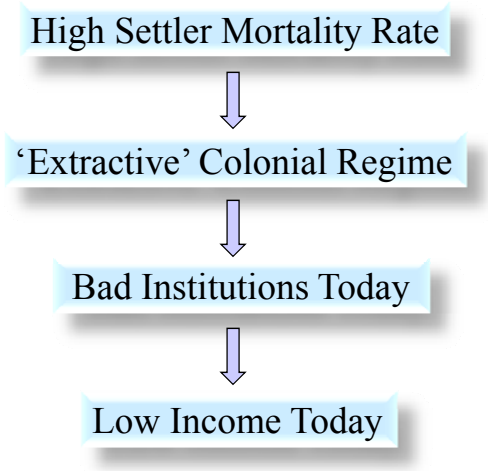
- Geography
- Institutions

Institutions #1: Borders & Ethnic Fragmentation

- Easterly & Levine (1997)
- Increased ethnic fragmentation of a society predicts
  - large black market premium
  - poor infrastructure
  - low education
  - poor financial development
- Ethnic fragmentation explains 30% of growth differences between Sub-Saharan Africa and Asia
- Ethnic fragmentation in Africa largely due to how colonists drew borders

Institutions #2: The Long Hand of Colonial History

• Acemoglu, Johnson, and Robinson (2001)



Institutional Stories

• In last 200 years, institutions may largely determine evolution of cross-country income patterns

• Stories usually combine two pieces
  • Specific historical influence
  • Institutional inertia

• Final Example: North (1990)
  • Spanish/ Portuguese monarchies colonize Latin America
  • Modern Latin America: concentration of power in hands of central government ("statism")

Going Deeper: Why were the Europeans the Colonists?

• Institutional stories important candidates to explain variation over the "short term" (10-100s of years)

• Over long run, *geography* may be more important
  • Through most of history, geography limited the spread of technology

• Jared Diamond (1999), *Guns, Germs, and Steel*

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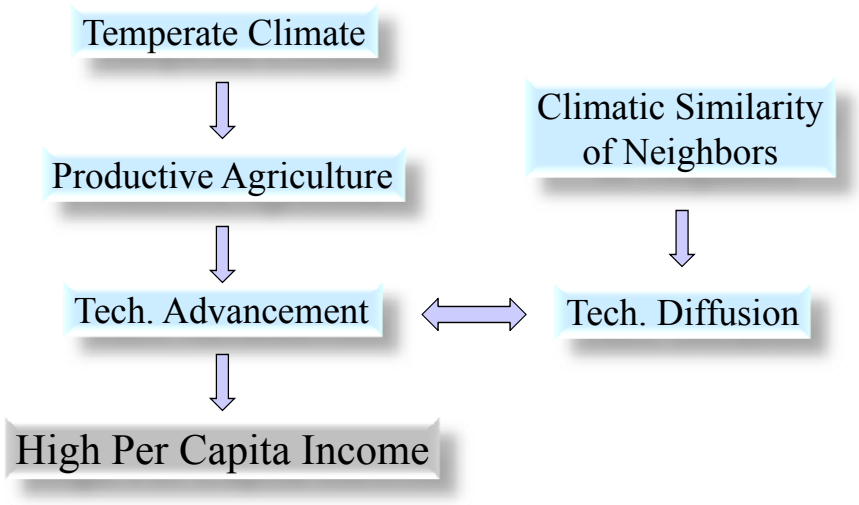
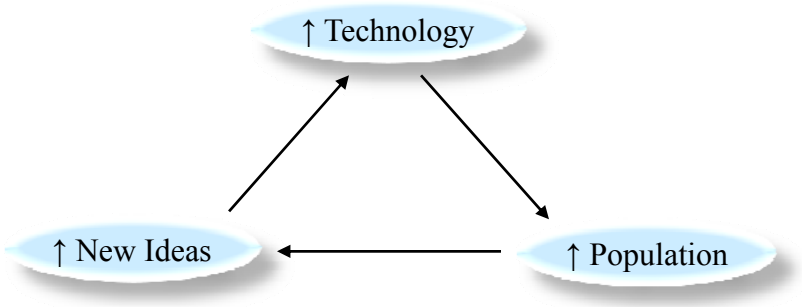


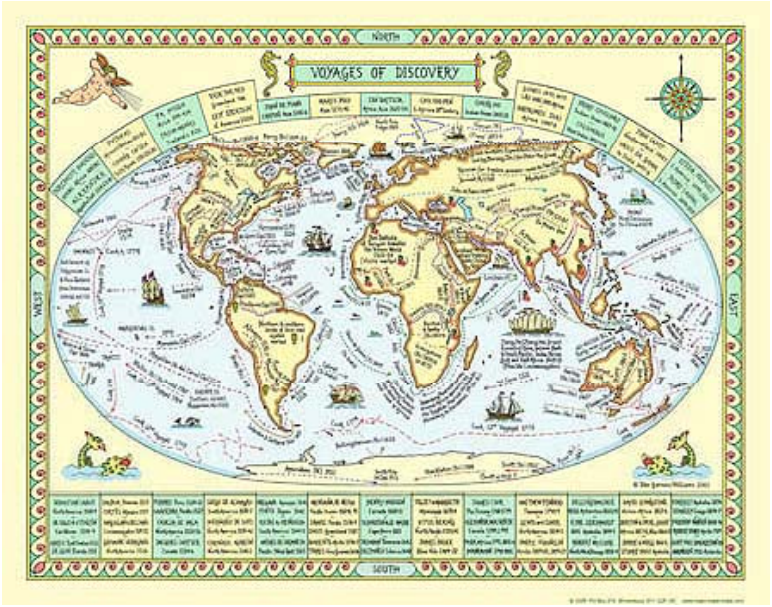
Deepest Theory, Deepest History



- More people => more innovative ideas
- More innovative ideas => better technology
- Better technology => more people survive

- Prediction #1: Population growth rate should increase over time
- Prediction #2: Isolated societies should be poor

Exploration and Colonization: The World Connects



Root Causes: Conclusions

- Technological progress is the central, long-run force in economic growth

- For most of human history, geography was critical
  - Geography limited the spread of technology

- Geography does not meaningfully limit the spread of technology today

- *Institutional differences* are credible explanations for continuing differences in income
  - Can explain failure to accumulate capital and adopt advanced technology in many countries

END