

# ECON 256: Poverty, Growth & Inequality

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# Searching For Causality in Development

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What things have a causal impact on economic growth and development?

Often Suggested Factors:

- Geography and Climate
- Culture
- Institutions

# Geography and Development

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Countries may be rich/poor due to where they are located (geography)

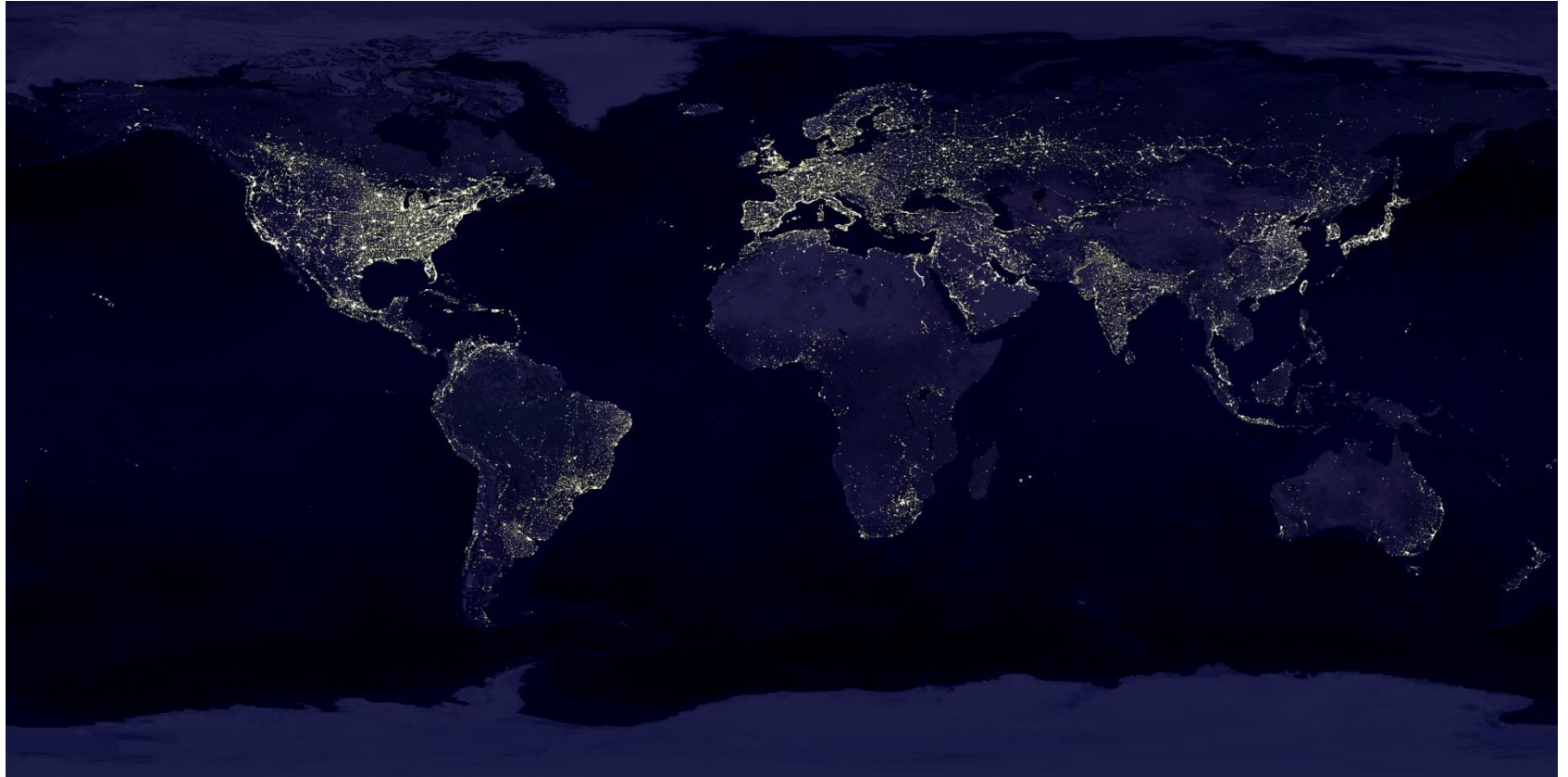
- [Guns, Germs, and Steel](#) by Historian Jared Diamond is a recent example of this hypothesis

## Reasons for Thinking Geography may be Important for Wealth of Nations

- Wealth and Poverty are geographically concentrated
- Historically, geography has been an important factor behind the formation of cities (Rivers, Natural Resources, Agricultural Land Quality, Ease of Defense)
- Historical examples of civilizations that have collapsed due to resource exhaustion and environmental degradation

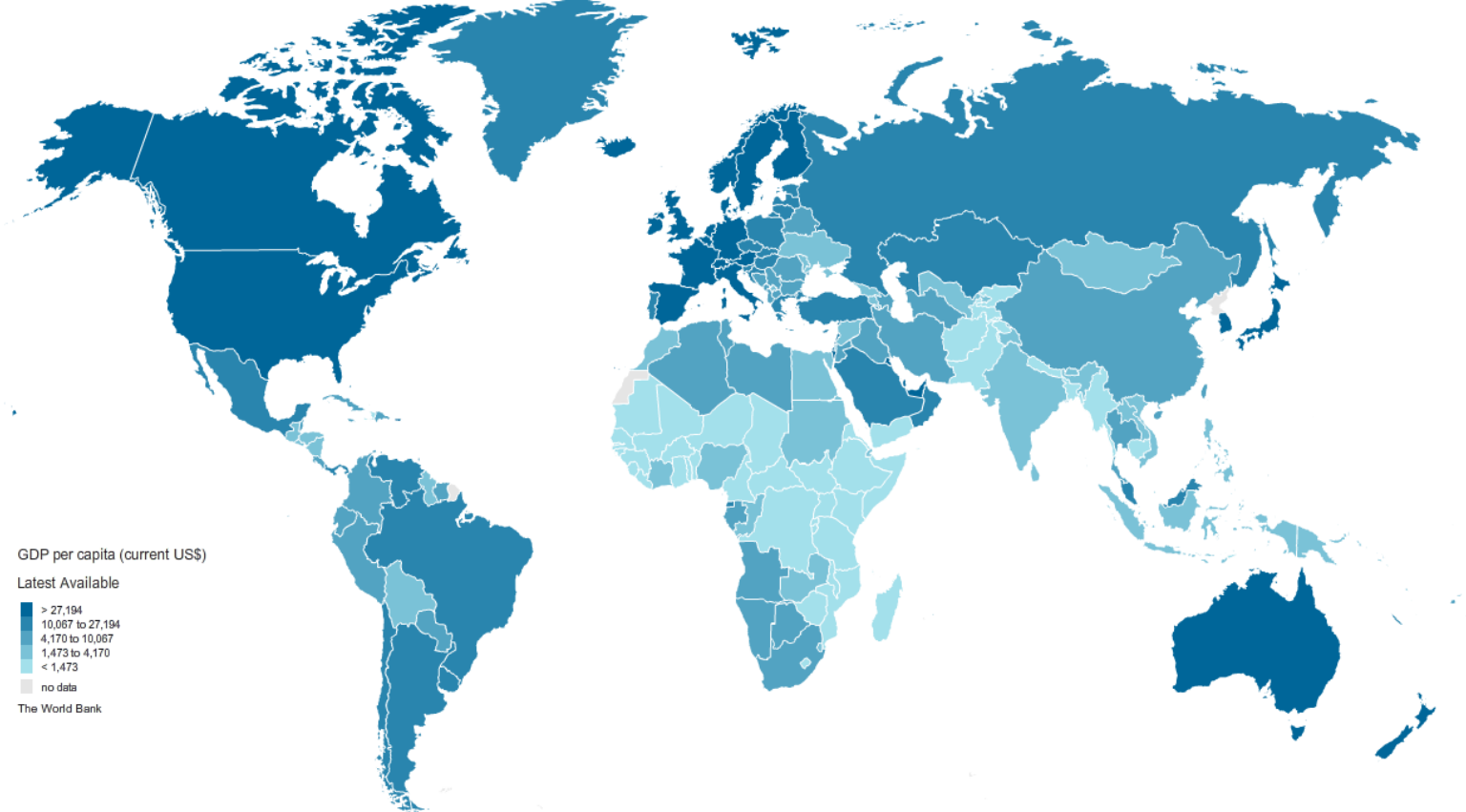
# Visible Light Map

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# GDP per Capita in USD

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GDP per capita (current US\$)

Latest Available

- > 27,194
- 10,067 to 27,194
- 4,170 to 10,067
- 1,473 to 4,170
- < 1,473
- no data

The World Bank

# Thinking about Causality: Geography and Development

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## Geography and Development are strongly correlated

- Intuitively, makes sense. Geography could encourage or limit growth
- Diamond argues (roughly): Geography of Europe led to dense settlements which encouraged innovation and created resistance to germs. Also, easier to settle due to plants and animals.
- Western countries dominated World because they were set up for success geographically

# Culture and Development

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## Countries may also be rich/poor due to Culture

- Lots of stereotypes related to Culture and its role on development growth. Strong correlations also exist between various cultural attributes and wealth (e.g. religiousness).
- Western countries were Christian. Webers “Protestant Work Ethic” theory.
- Strong parallels with popular discussion on poverty among groups within U.S.

## Complication for Culture: Culture is fluid.

- Does wealth change geography? Generally not.
- Does wealth change culture? Absolutely.

# Thinking about Causality: Geography/Culture and Development

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**Not Feasible:** Controlled Lab Experiments. Randomized Assignment.

- For most part, can't "assign" treatment of geography/culture to a country.

**Potentially Feasible:** Instrumental Variables, Natural Experiments, Theory-based Methods

- Theory: If Geography/Culture determine wealth  $\Rightarrow$  Fixing should keep wealth fixed
- Instrumental Variables: What things determine geography/culture, but not (directly) growth?
- Natural Experiments: Examples where geography/culture changed? Can we examine growth?



# Geographic/Cultural Determinism: Testing Theory

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## Are Countries Rich because of Geography/Culture?

- If so, then countries with same geography/culture should have similar wealth
- This tends to be true. Countries with similar geography/culture have similar wealth.

## Problems with the Geographic Determinism Theory

- Lots of counter-examples: Countries with similar geography/culture, very different wealth.
- Difficulty explaining rapid rise and fall of various countries in last century.
- Better at explaining which countries were rich/poor pre-industrial revolution?

# Counter-Example: Haiti versus Dominican Republic



**GDP per Capita, PPP: Puerto Rico (\$35k), Jamaica (\$25k), Cuba (\$20k), Dominican Republic (\$15k), Haiti (\$2k)**

Source: Google Maps and WDI Online

## Haiti (left) versus Dominican Republic (right)

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# Why is Haiti so Poor?

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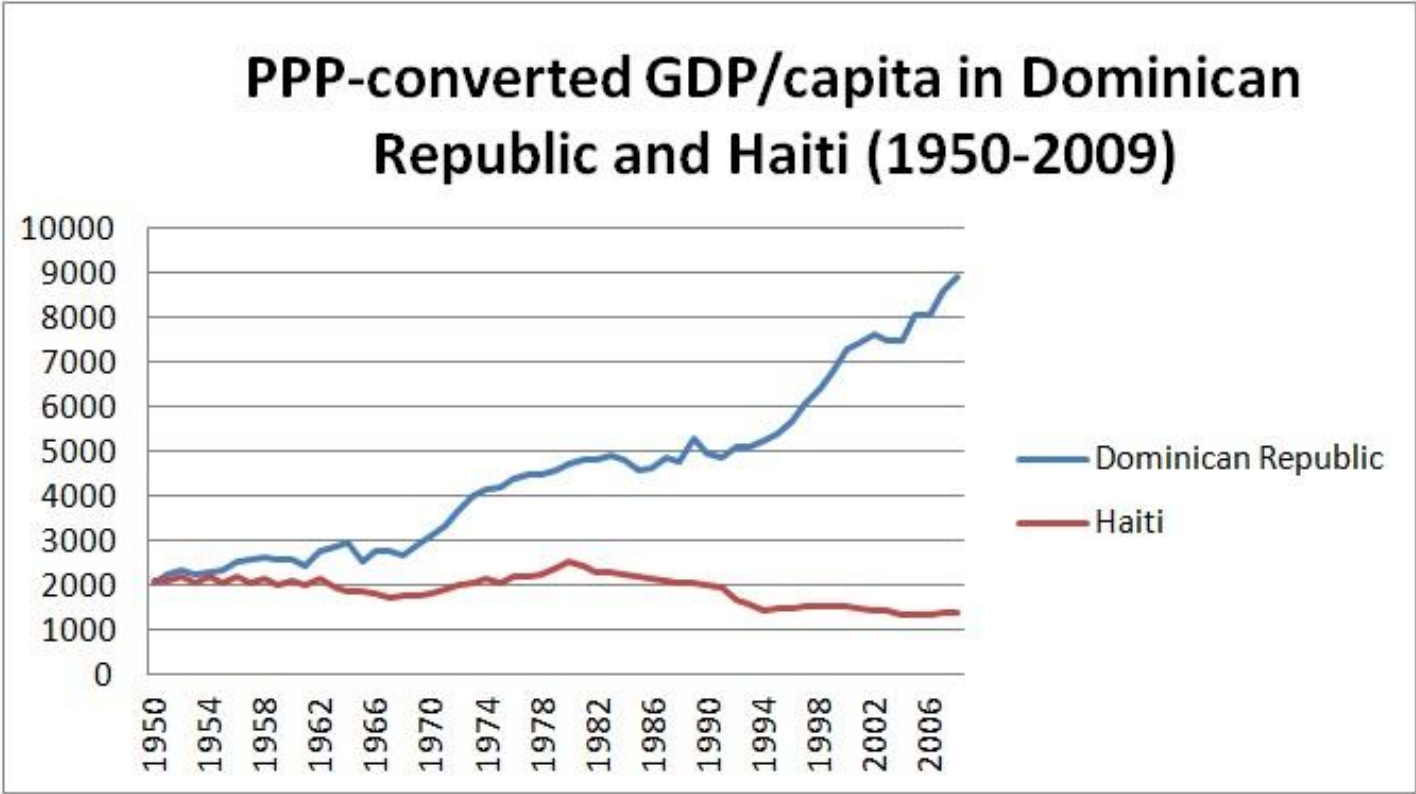
## Massive Differences between Haiti and Dominican Republic

- GDP per Capita (PPP): \$2,000 vs \$15,000. Life expectancy: 61 years vs 74 years.

## Some people still say Geography

- Mountains tilt rain towards Dominican Republic, which has better farms, less deforestation, more tourism.
- **Differences in Culture?** Haiti speaks French. Dominican Republic speaks Spanish.
- Problem with Geography/Culture: Wasn't always this way. How to explain divergence?

# Haiti versus Dominican Republic: GDP per Capita (PPP)



# Counter-Examples to Geography/Culture

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Lots of examples of countries that diverged despite similar culture/geography

**North Korea vs South Korea:** Split in 1945 following WWII. Split was determined by agreement between USSR and United States. Korean War, 1950 - 1953, left countries separated.

**East vs West Berlin:** Split in 1945 following WWII. Split was determined by agreement between USSR and United States. Countries reunified in 1990.

**Splits were not caused by culture or geography** (except being physically closer to USSR).

- Countries quickly diverged in terms of wealth. What could have caused it?
- Not Geography, no changes. Culture did change, but culture was similar at point of split.

# Further Discussion of Geography

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Counter examples certainly show geography/initial culture not only thing that affects wealth

- However, may still have some importance

## Natural Experiment: Importance of Geography

- Cities tend to locate in best areas for growth/development (farmland, resources, transportation)
- Also have **Path Dependence** in where cities are located
- Maybe cities aren't located in optimal areas, and this plays role in why countries richer/poorer

# Historical Setting and Natural Experiment

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Roman Empire ruled present day Britain and France

- When Rome collapsed, most Roman towns in Britain and France fell
- Difference: towns in Britain destroyed completely, not the case in France
- Did later towns locate in same place as Roman ones? No for Britain. Yes for France.

**What are the effects of Geographic Path Dependence?**

- Preliminary, but some evidence that towns in France were “locked” into bad locations
- Could part of reason for growth of U.S. be that it was settled relatively recently?
- Related Question: Is Culture Path Dependent?



# Further Discussion of Geography: City Expansion

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## Path Dependence and City Expansion

- World population has increased tremendously in last 200 years.
- There is a lot of path dependence for where people live (tend to live near where they were born)
- Cities weren't settled with this population growth in mind

## Instrumental Variable Approach

- City Shape is determined by Geography. Theory says "optimal" city shape is circular.
- Approach: Use geographic restrictions to circular expansion to understand city outcomes

# Instrumental Approach

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## Why Use an Instrument

- Geography (Mountains, Water) affects City Shape
- City Shape may affect city outcomes (wages, rent, poverty, etc).
- However, City Shape is potentially influenced by those outcomes or confounding factors (example: regulations might affect both wages and city shape)

## Instrumental Variable

- Predict where people should live (optimal city shape), and use as instrument for Geography
- Instrument only affected by Geography. Outcomes/Confounding factors don't affect instrument
- Look at relationship between instrument and outcomes to see impact of Geography on outcomes

# Geography of Mumbai

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# Geography of Mumbai: Prediction of Where People Should Live

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# Geography of Mumbai: Prediction of Where People Should Live

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# Instrumental Variable Approach Results

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## Harari (2015): Implications of Instrumental Variable Approach

- Geography of city plays role in population (+), real wages (-), and real rents (+)
- Evidence that people prefer to live in “compact” cities (ones that are allowed to develop as circle)

Large predicted welfare costs of deteriorating shape as cities grow (Urban Sprawl)

- Exacerbated by building height restrictions
- Mitigated by better road infrastructure

# Thinking about Causality: **Institutions** and Development

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Geography and **Institutions** are also strongly correlated

- Countries with “good” institutions have experienced more Growth
- Countries with “bad” institutions have experienced slow or negative Growth
- Can potentially explain the counter examples we discussed earlier (Haiti has bad institutions, Dominican Republic has good institutions)

Questions that will remain open

- How are institutions formed?
- How do we transition from bad institutions to good institutions?

# Thinking about Causality: Institutions and Development

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**Partially Feasible:** Controlled Lab Experiments. Randomized Assignment.

- Can't assign institutions to a country, but can assign institutions to a set of people.
- See how people react to different institutions. Try to use to think about development.

**Feasible:** Instrumental Variables, Natural Experiments, Theory-based Methods

- Theory: If Institutions determine wealth  $\Rightarrow$  Changing should change wealth
- Instrumental Variables: What things determine institutions, but not (directly) growth?
- Natural Experiments: Examples where institutions changed? Can we examine growth?



# Natural Experiment: Institutions and Development

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Counter-examples we mentioned earlier are perfect examples of natural experiments.

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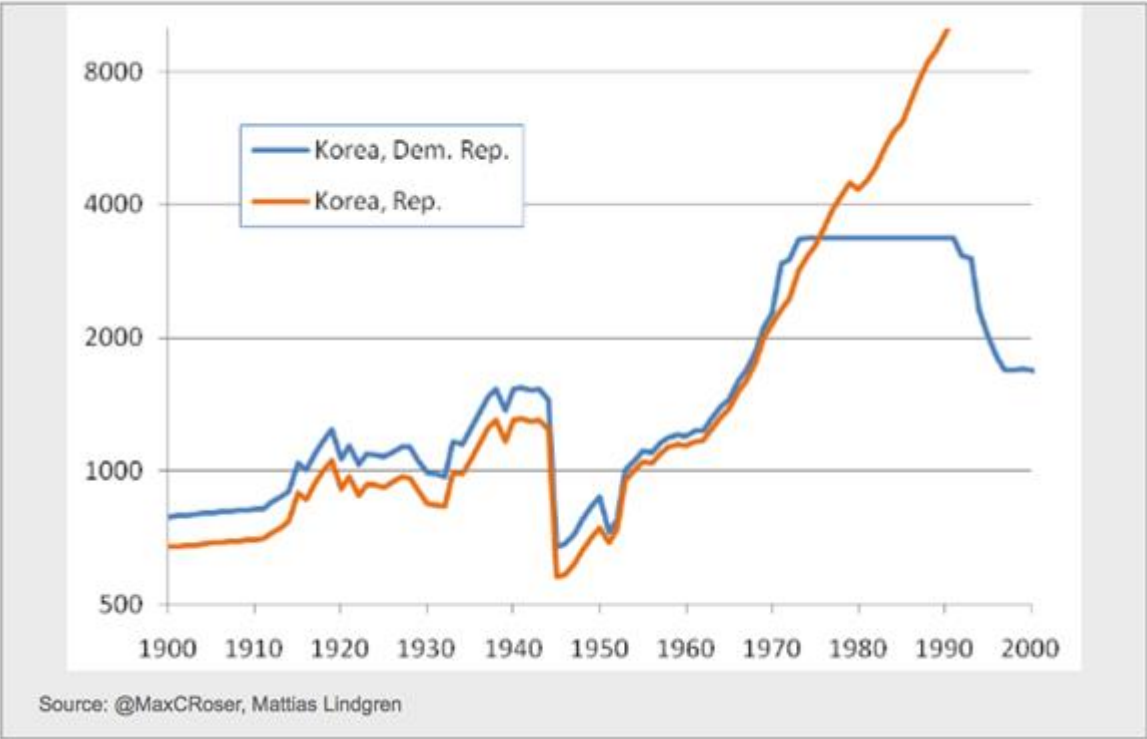
**East vs West Berlin:** Split in 1945 following WWII. Split was determined by agreement between USSR and United States. Countries reunified in 1990.

**Splits were not caused by culture or geography**

- **Institutions** changed dramatically after separation (Communism vs Capitalism)
- Countries quickly diverged in terms of wealth. Fits story of Institutions.

# North Korea vs South Korea

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# Institutions and Development

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## Reasons for Thinking **Institutions** may be Important for Wealth of Nations

- Strong correlation between various measures of institution quality and development
- Economic theory predicts institutions are important for development and growth (e.g. encouraging innovation)
- Natural Experiments: When North Korea/South Korea split and East Germany/West Germany split, they quickly diverged in terms of development as new institutions were introduced.

# How Do Institutions Form?

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Understanding how institutions form is important for determining causality. Don't fully know.

## Two Extremes for Institution Formation

- **Efficiency:** Society chooses institutions to maximize total economic/social surplus, “size of pie”. Winners and losers from institutions, but everybody’s welfare is taken into account. Leads to **inclusive institutions**.
- **Elites:** Elites chooses institutions to maximize their economic surplus. Partially by increasing the “size of pie”, partially by ensuring they get a bigger share than they otherwise would. Leads to **extractive institutions**.

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We will discuss [Acemoglu, Johnson, & Robinson \(2001\)](#), which provides evidence that colonialism influenced the development of institutions and studies the impact of institutions on development

# Inclusive Institutions

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**Inclusive Institutions** foster innovation and allow for social and economic mobility

- Innovation involves **creative destruction**, meaning there will be losers for innovation. For economic growth, it is important to allow this process to take place.
- The American Dream: If you're smart and work hard, can achieve success. Upward social mobility is possible.
- (Flip side) American Nightmare: People who are at the top should not be protected from downward social and economic mobility.

## What Inclusive Institutions Support

- Property rights and contract enforcement. Markets and Competition. Access to education (equality of opportunity). Political inclusiveness.

# Extractive Institutions

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**Extractive Institutions** are designed to keep the elites in power and benefit only the elites

- Historically, most societies ruled by extractive institutions.
- Growth is still possible under extractive institutions, but typically not due to creative destruction. Limits to growth if don't allow for creative destruction.

## Examples of Extractive Institutions

- Colonialism, Slavery, Corruption in Government, Regulation designed to serve as barriers to competition. Unequal access to opportunity and education, unequal justice, and unequal representation.

# Misallocation: One Pathway for How Institutions Matter

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We will evaluate how **misallocation** influences economics output in our next problem set

## Misallocation:

- Poor institutions might lead to non-optimal allocations of factor inputs across firms and sectors (e.g. if factors are allocated based on a political basis rather than economic basis)
- To evaluate the impact of misallocation, we'll need a theory of how far away current allocations are from optimal ones, and the effect this has on the economy
- We can do this, by assuming that the rates of return on factors should be equal across plants and sectors, and then we can use a model to predict what output would be in such a world