Theories of a Revolution

- Exogenous Growth Theories: there was a shock to a feature outside of the economy (legal institutions, shock in supply of an input, etc.) that induced investment and innovation leading to growth

- Multiple Equilibrium Theories: a shock to the economy (disease, war, discovering new land, etc.) moved the economy from a bad equilibrium to a good equilibrium

- Endogenous Growth Theories: something internal to the economy evolved over time to create the conditions for growth (suggests that the Industrial Revolution was bound to happen eventually)
Examples of each type of theory:

- **Exogenous Growth Theory**: legal structures changed as a result of the Glorious Revolution, this created the incentives to innovate.

- **Multiple Equilibrium Theory**: a shock switched families from a high fertility, low investment per child regime to a low fertility, high investment per child regime.

- **Endogenous Growth Theory**: children of wealthy families gradually spread throughout income distribution bringing their high productivity traits with them.
What specific theories are we going to consider?

- Institutions made the difference (North and Thomas, Acemoglu, Johnson and Robinson)
- Resources and access to the New World made the difference (Pomeranz)
- Geography made the difference (Diamond, AJR again)
- Fertility and the diffusion of good traits made the difference (Clark)
Institutional Change and the Industrial Revolution

- What are institutions? Why are they relevant to economic performance?
- Who creates institutions and who can change them?
- What changed institutions before the Industrial Revolution?
- How might institutional change explain the Industrial Revolution?
- Are there flaws in the institutional change story?
What are institutions?

North and Thomas’s definition: 'An institution is “an arrangement between economic units that defines and specifies the ways by which these units can co-operate or compete.”

A simpler definition: Institutions are the basic rules of the economy.
What are institutions?
What are institutions?
What are institutions?
A Few Institutions Around Today

- Democracy
- Property rights
- Usury laws
- English language
- Patent system
- Systems of weights and measurement
- Table manners
- Tipping
- Walking on the right in the Morton stairwell
Formal/governmental institutions vs voluntary institutions

- We often think of the rules and structure of society as coming from the government. After all, the government has the authority to enforce the rules.
- However, many institutions are created not by the government but either through evolving social norms, religion, voluntary agreements between groups of people, organizations or firms, etc.
- The government is in a unique position of coercive power, but there are plenty of ways to punish people that break the rules even without the government’s help.
Example of an institution created and protected by the government: property rights

THE UNITED STATES OF AMERICA

Pre-emption
Certificate
No. 102

To all to whom these Presents shall come, Greeting:

WHEREAS Charles St. Antone, of Dakota County, Minnesota Territory,

has deposited in the GENERAL LAND OFFICE of the United States, a Certificate of the REGISTER OF THE LAND OFFICE, at Minneapolis, whereby it appears that full payment has been made by the said

Charles St. Antone,

according to the provisions of the Act of Congress of the 24th of April, 1830, entitled "An act making further provision for the sale of the Public Lands," for the East half of the South West quarter of Section thirty-five, in Township twenty-eight, of Range twenty-three, in the district of lands subject to sale at Minneapolis, Minnesota.
A non-governmental approach to property rights
The Maghribi Traders’ Coalition (Greif, 1993)

- The traders had a problem: how do you sell your goods in far away markets?
- Initial solution: hire an agent, but agents were likely to cheat the merchant
- Formal legal institutions didn’t help
- Solution: form a coalition of merchants and punish agents that cheat by not employing them in the future
How do institutions change?

- Institutions can quietly evolve over time (think of social norms)
- The government can change certain institutions through legislation
- Firms and other individuals can change voluntary institutions through renegotiating contracts and arrangements
- Institutional change can also occur through less civil means (think revolution)
- No matter how it occurs, institutional change involves some cost. For it to happen, the potential benefits have to outweigh the costs for someone with enough power to initiate change
Basic Outline of North and Thomas Argument

1. Malthusian population pressure led to changes in relative product and factor prices.
2. These changes relative prices induced fundamental institutional change.
3. The new institutions channeled incentives toward productivity raising types of economic activity.
4. The result was that productivity advance became an internalized feature of the economy.
5. By creating incentives for innovation, these new institutions created the condition for sustained productivity allowing us to escape the Malthusian trap.
North and Thomas’s Characterization of the Medieval World

- There was an abundance of land available for colonization and settlement that was of equal quality to the land already being settled.
- Labor, not land, was the scarce factor of production.
- There was little long-distance trade; most trade was confined to the local exchange of goods and services.
- The rate of innovative activity was fairly low.
Population growth changed the value of feudalism as an institution.

Labor became more abundant and land became more scarce.

Agricultural prices rose relative to non-agricultural prices leading to increased land value and decreased wages.

It became more profitable to control land than to control people.

Developed new notions of private property (for example, the enclosure movement)
Differences in population pressure throughout Europe led to differences in relative factor endowments of different regions and increased potential gains to trade.

However, trade was obstructed by high transaction costs (lack of information about potential markets, pirates, etc.)

Merchant trading groups develop, people place agents in different cities, deposit banking and insurance institutions are created.
Other Effects of Trade Expansion on Institutions

- Formal contracts replace informal agreements and trading relationships become more impersonal.
- Fostering the concept of contractual obligation helps create a foundation for stronger property rights.
- Creates new firm structures like the joint-stock company.
- As trade covered larger distances, larger political units were created to handle the needs of traders.
- International financial markets develop.
How did these institutional changes lead to steady innovation?

- The expansion of markets led to greater potential profits from innovation.
- Institutional changes were made to direct the returns from innovation to the innovator.
- Development of patents protected innovator’s profits.
- Improvements to land became profitable with the development of property rights.
- Investment in human capital became profitable when labor became free.
- Investment in innovation became profitable with the development of property rights (as well as other bounties and subsidies).
Institutions are a crucial part of how well economies will function.

Institutions like property rights, patent systems, rule of law, international financial institutions, etc. can all help provide incentives for individuals to innovate and invest.

As population pressures grew, changes in relative prices between land and labor and between countries led to changes in the value of property relative to people and the potential gains from international trade.

New institutions arose to protect private property, to facilitate impersonal contracts and international trade, and to protect innovations.

The potential profits from innovation were large due to expanding markets and secured by new institutions. This internalized innovation in the economic system.
A Modern Example (with far less importance)

2007-2008 Writers Guild of America Strike
A Modern Example (with far less importance)

2007-2008 Writers Guild of America Strike
A Modern Example (with far less importance)

(Rentrak/DEG) U.S. Consumer Home Entertainment Rental & Sell-Through Spending ($ Billions)

2007-2008 Writers Guild of America Strike
It is a compelling story, but how do we test something like the importance of institutions?
Let’s start with a very basic approach
Is there direct evidence that better institutions are correlated with better economic performance?
If so, then we can move on to asking whether there is evidence that better institutions cause better economic performance
How costly are bad institutions?

Figure 2.3  Indirect Costs, All Formal Firms—International Comparison

Source: ICA Survey.
How costly are bad institutions?

The two panels plot measures of the control of corruption and the rule of law in 2000–01 (horizontal axes) against real per capita GDP in 1995 (vertical axis). The horizontal bars for selected countries indicate the statistically likely range of values for each index for those countries. The governance ratings are based on subjective assessments from a variety of sources, are subject to substantial margins of error and in no way reflect the official view of the World Bank, its executive directors or the countries they represent.
How costly are bad institutions?

The two panels plot measures of the control of corruption and the rule of law in 2000–01 (horizontal axes) against real per capita GDP in 1995 (vertical axis). The horizontal bars for selected countries indicate the statistically likely range of values for each index for those countries. The governance ratings are based on subjective assessments from a variety of sources, are subject to substantial margins of error and in no way reflect the official view of the World Bank, its executive directors or the countries they represent.
How costly are bad institutions?

Foreign direct investment in Zimbabwe, 1970-2009

Data source: World Bank, World Development Indicators - Last updated Apr 26, 2011
Another way to address the possibility that pre-existing factors influence the adoption of patent laws is to construct a synthetic country without patent laws from data for countries with patent laws that match the characteristics of patentless countries as closely as possible. Following Alberto Abadie and Javier Gardeazabal (2003), I use a Mahalanobis matching estimator to construct this synthetic country. Abadie and Gardeazabal create a synthetic Basque region (without terrorism) from the characteristics of other Spanish regions to evaluate the effects of terrorism on GDP growth over time; I create a synthetic “Switzerland” with patent laws from the characteristics of other European countries as an additional check for the effects of patent laws on the distribution of innovations across industries.

The synthetic country is created by matching the characteristics of the real Switzerland and Denmark as closely as possible through a weighted average of the characteristics of other European countries with similar characteristics, but with patent laws. Let $J$ be the number of available control countries with patent laws and let $W$ be a vector of nonnegative weights ($w_1, w_2, ..., w_J$) that sum to one. The scalar $w_j$ represents the weight that country $j$ is given in constructing the synthetic Switzerland. Let $X_1$ be a vector of population, GDP per person, and education in Switzerland and Denmark as reported in Table 3, and let $X_0$ be a matrix of the values for these same variables in the set of possible control countries. Let the $(K/J)$ matrix $V$ be the inverse sample variance covariance matrix of the matching variables. This is the weighing matrix of the Mahalanobis matching estimator (Rubin, 1977; Rosenbaum and Rubin, 1983). The vector of weights $W^*$ is chosen to minimize $(X_1^T WX_0)^{-1/2} V (X_1^T WX_0)$.

16 Abadie and Gardeazabal (2003) construct a weighing matrix to mimic the growth path of GDP in the Basque country. Similarly, Yi Qian (2004) uses the Mahalanobis estimator to examine the effects of a country’s pharmaceutical patent policy on R&D expenditure in pharmaceuticals and on U.S. patents granted to residents of that country. See Abadie and Guido Imbens (2002) for a comprehensive discussion of the Mahalanobis estimator.

**FIGURE 3. DUTCH INNOVATIONS ACROSS INDUSTRIES BEFORE AND AFTER THE ABOLITION OF PATENT LAWS IN 1869**

Note: Calculated from entries in Official Catalogue (1851) and United States Centennial Commission (1876).
Criticisms of the Institutional Explanation

- If institutional change is driven by people wanting to improve economic efficiency, institutions themselves aren’t that interesting. People will change them when they need changing.

- People find ways around institutions: consider bans on interest rates (or on scalping).

- North and Thomas story may help explain ‘why Europe’ but not necessarily ‘why not China, Japan, India, etc.’ (more on this later)

- It’s not as clearcut as one might think that the innovations of the Industrial Revolution happened because institutions directed a large part of the returns to the individual.
## Gains from Innovation During the Industrial Revolution

<table>
<thead>
<tr>
<th>Inventor</th>
<th>Invention</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Kay</td>
<td>flying shuttle</td>
<td>Impoverished by litigation to enforce patent, house attacked by machine breakers, fled to France and died in poverty</td>
</tr>
<tr>
<td>James Hargreaves</td>
<td>spinning jenny</td>
<td>Difficulty enforcing patent, forced to flee by machine breakers</td>
</tr>
<tr>
<td>Richard Arkwright</td>
<td>water frame</td>
<td>Died wealthy but had trouble enforcing (and keeping) patents</td>
</tr>
<tr>
<td>Samuel Crompton</td>
<td>mule</td>
<td>Did not patent invention, did receive an award from parliament but never saw big success</td>
</tr>
<tr>
<td>Edmund Cartwright</td>
<td>power loom</td>
<td>Mill repossessed by creditors, factory burned by machine breakers</td>
</tr>
<tr>
<td>Eli Whitney</td>
<td>cotton gin</td>
<td>Costly litigation to enforce patent, near bankruptcy</td>
</tr>
<tr>
<td>Richard Roberts</td>
<td>self-acting mule</td>
<td>In financial trouble by end of career</td>
</tr>
</tbody>
</table>
Experimental Evidence

- There are some big questions about institutions as an explanation.
- It could be that societies that develop good institutions develop them because of other traits.
- These other traits may be the truly important causes of economic growth.
- In other words, if institutions are endogenous, they aren’t a complete story.
- If we were in the hard sciences, we would set up an experiment: take two Petri dishes with cloned economies in them and put a few drops of good institutions in one and bad institutions in the other.
We don’t have the luxury of Petri dishes
What we can try to use is a natural experiment
From the New Palgrave Dictionary of Economics:

Natural experiments or quasi-natural experiments in economics are serendipitous situations in which persons are assigned randomly to a treatment (or multiple treatments) and a control group, and outcomes are analysed for the purposes of putting a hypothesis to a severe test; they are also serendipitous situations where assignment to treatment approximates randomized design or a well-controlled experiment.
We don’t have the luxury of Petri dishes
What we can try to use is a natural experiment
A slightly different definition:

Natural experiments are cases where there is variation in the explanatory variable of interest driven by some random process unrelated to either the dependent variable or important unobserved variables, effectively giving us the equivalent of a randomized trial.
For example, suppose we want to know how military service affects income later in life.

The problem is that military service is correlated with lots of other things affecting income.

It could be that people go into the military because they can’t get into college.

It could be that people go into the military because they want to go to college on the GI Bill.

Differences in earnings for vets and non-vets may be about these underlying differences in enlistees and non-enlistees, not about the effects of military service.
Natural Experiments
Another example, how does having an additional child affect labor force participation?

The group of women choosing small families may have different preferences and unobserved characteristics than women choosing large families.

The difference in labor force participation between these groups may be about preferences for work, family, etc. and not the actual effect of additional children.

So how do we get random variation in family size?

Is there a draft where if your number is called, you have to have a new kid?
Natural Experiments

Iwatake family, Hawaii, 1930s
### Child gender and family size (Angrist and Evans, 1998)

<table>
<thead>
<tr>
<th>Sex of first two children</th>
<th>Fraction of sample</th>
<th>Fraction who had another child</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boy, girl</td>
<td>0.497</td>
<td>0.331</td>
</tr>
<tr>
<td>Two girls</td>
<td>0.239</td>
<td>0.408</td>
</tr>
<tr>
<td>Two boys</td>
<td>0.264</td>
<td>0.396</td>
</tr>
<tr>
<td>Boy, girl</td>
<td>0.497</td>
<td>0.331</td>
</tr>
<tr>
<td>Both same sex</td>
<td>0.503</td>
<td>0.401</td>
</tr>
<tr>
<td>Difference</td>
<td>0.503</td>
<td>0.07</td>
</tr>
</tbody>
</table>
### Table 7—OLS and 2SLS Estimates of Labor-Supply Models Using 1980 Census Data

<table>
<thead>
<tr>
<th>Estimation method</th>
<th>All women</th>
<th>Married women</th>
<th>Husbands of married women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Estimation method</td>
<td>OLS</td>
<td>2SLS</td>
<td>2SLS</td>
</tr>
<tr>
<td>Instrument for More than 2 children</td>
<td>Same sex</td>
<td>Two boys, Two girls</td>
<td>Same sex</td>
</tr>
<tr>
<td>Dependent variable:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worked for pay</td>
<td>-0.176</td>
<td>-0.120</td>
<td>-0.113</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.025)</td>
<td>(0.025)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weeks worked</td>
<td>-8.97</td>
<td>-5.66</td>
<td>-5.37</td>
</tr>
<tr>
<td></td>
<td>(0.07)</td>
<td>(1.11)</td>
<td>(1.10)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hours/week</td>
<td>-6.66</td>
<td>-4.59</td>
<td>-4.37</td>
</tr>
<tr>
<td></td>
<td>(0.06)</td>
<td>(0.95)</td>
<td>(0.94)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor income</td>
<td>-3768.2</td>
<td>-1960.5</td>
<td>-1870.4</td>
</tr>
<tr>
<td></td>
<td>(35.4)</td>
<td>(541.5)</td>
<td>(538.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln(Family income)</td>
<td>-0.126</td>
<td>-0.038</td>
<td>-0.045</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.064)</td>
<td>(0.064)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln(Non-wife income)</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: The table reports estimates of the coefficient on the More than 2 children variable in equations (4) and (6) in the text. Other covariates in the models are Age, Age at first birth, plus indicators for Boy Ist, Boy Znd, Black, Hispanic, and Other race. The variable Boy 2nd is excluded from equation (6). The p-value for the test of overidentifying restrictions associated with equation (6) is shown in brackets. Standard errors are reported in parentheses.

Quadratic terms in the wife's education, 5 percent of the corresponding estimates quadratic terms in wife's age, age at first birth, linear and quadratic terms in husband's age, husband's age at first birth and education, linear and quadratic terms in husband's labor income, and a full set of state dummy variables. In these models, the 2SLS estimates (standard errors) of the More than 2 children coefficient have the following values:

- Worked for pay: -0.122 (0.027)
- Weeks worked: -5.45 (1.18)
- Hours/week: -5.04 (0.99)
- Labor income: -1,390 (555)

All of these values are within a significant fraction of the change in fertility between 1970 and 1990 was due to reductions in the number of women having more than two children. As noted in Section I, this fact is apparent in Census data on completed family size. Two of these covariates, years of education and husband's earnings, are potentially endogenous because they may be partly determined by fertility. For this reason, they were excluded from the main set of estimates.
With this notion of natural experiments, let’s rethink the possibility of our Petri dishes and dropper full of institutions.

Perhaps there is a source of exogenous variation in institutions, some variation that is completely independent of the relevant characteristics of the society in question.

The two Acemoglu, Johnson and Robinson papers on the reading list explore this possibility.

African countries will be our Petri dishes.

Colonial powers will be dropping in the institutions.
Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution

- Written by Acemoglu, Johnson and Robinson in the Quarterly Journal of Economics (2002)
- Argues that countries colonized by Europeans that were rich are now poor
- The basic argument is the following:
  - Europeans were more likely to introduce institutions protecting private property in regions that were poor
  - Europeans were more likely to introduce institutions of extraction in regions that were rich
  - These institutions led to different development paths and the “reversal of fortune”
If an area was underdeveloped, Europeans had the incentives to encourage development in order to make the colony valuable to the Europeans.

In these cases, Europeans were likely to introduce *institutions of private property*.

In AJR’s words:

*...a cluster of institutions ensuring secure property rights for a broad cross section of society...essential for investment incentives*
If an area was already well developed, Europeans were more likely to focus on the short term benefits of extracting as much of the wealth and resources as possible.

In these cases, Europeans were likely to introduce extractive institutions.

In AJR’s words:

...[institutions] which concentrate power in the hands of a small elite and create a high risk of expropriation for the majority...[and] discourage investment and economic development...
Economic Development and Urbanization in 1500

The graph illustrates the relationship between Log GDP per capita (PPP, 1995) and Urbanization in 1500 for various countries. The data points are plotted on a scatter plot, with countries represented by their initials. The trend line shows a negative correlation, indicating that countries with higher urbanization in 1500 had lower GDP per capita in 1995.
Economic Development and Population Density in 1500
MINERAL EXPORTS AND GROWTH, 1970-2008

SOURCE: World Development Indicators, World Bank
The Colonial Origins of Comparative Development

- Written by Acemoglu, Johnson and Robinson in the American Economic Review (2001)
- Similar to other argument, development depends on the types of institutions Europeans set up
- Type of institutions is determined by whether Europeans could settle the area
- Areas with high mortality rates for Europeans were more likely to get extractive institutions
- Areas with low mortality rates were better for settling long term and if you want to be there for a while, you want good institutions
Economic Development and Colonial Mortality

Distribution of Malaria

[Map showing the distribution of malaria across the world, with regions in blue indicating affected areas.]

CDC
<table>
<thead>
<tr>
<th></th>
<th>Quartiles of settler mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bottom</td>
</tr>
<tr>
<td>Log GDP per capita in 1995</td>
<td>8.9</td>
</tr>
<tr>
<td>Average protection against expropriation risk, 1985-1995</td>
<td>7.9</td>
</tr>
<tr>
<td>Constraint on executive in 1990</td>
<td>5.3</td>
</tr>
<tr>
<td>Constraint on executive in 1900</td>
<td>3.7</td>
</tr>
<tr>
<td>Democracy in 1900</td>
<td>3.9</td>
</tr>
<tr>
<td>European settler mortality rate</td>
<td>20</td>
</tr>
</tbody>
</table>
Horizontal axis measures protection against expropriation risk, so a higher number means less expropriation risk.
Acemoglu, Johnson and Robinson offer empirical evidence for institutions and economic growth in colonies, but what about institutions in Europe?

Is there an exogenous source of institutional change within European countries?

Let’s look at some very recent work by Dittmar and Meisenzahl on Germany in the 1500s
Evidence from Europe
This graph shows the share of cities with a Reformation Law. Vertical lines mark the mass circulation of Luther’s ideas in 1518, the Schmalkaldic War of 1546, and the Peace of Augsburg in 1555.
Evidence from Europe

Figure 1: Cities With and Without Reformation Laws

This map shows cities with Reformation Laws (black circles) and without these laws (white squares).
### Evidence from Europe

#### Table 1: Summary Statistics on Upper Tail Human Capital

<table>
<thead>
<tr>
<th>Cities with Law</th>
<th>Cities without Law</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upper Tail Human Capital</strong></td>
<td><strong>N</strong></td>
<td><strong>Mean</strong></td>
</tr>
<tr>
<td>Locally Born Pre-1520</td>
<td>103</td>
<td>1.26</td>
</tr>
<tr>
<td>Locally Born Post-1520</td>
<td>103</td>
<td>36.95</td>
</tr>
<tr>
<td>Migrants Pre-1520</td>
<td>103</td>
<td>0.63</td>
</tr>
<tr>
<td>Migrants Post-1520</td>
<td>103</td>
<td>17.54</td>
</tr>
<tr>
<td>Total Pre-1520</td>
<td>103</td>
<td>1.89</td>
</tr>
<tr>
<td>Total Post-1520</td>
<td>103</td>
<td>54.50</td>
</tr>
</tbody>
</table>

Upper tail human capital is measured by the number of people observed in the *Deutsche Biographie*. Locally born are people born in a given city $i$. Migrants to any given city $i$ are individuals born in some other location $j$ who died in city $i$. The last column presents the Hodges-Lehman non-parametric statistic for the difference (median shift) between cities with laws and cities without laws. We use the Hodges-Lehman statistic because we are examining non-negative distributions for which the standard deviation is larger than the mean and as a test statistic that is robust to outliers. Statistical significance at the 99%, 95%, and 90% levels denoted ***, **, and **, respectively.

#### Figure 3: The Migration of Upper Tail Human Capital

This graph plots the number of migrants observed in the *Deutsche Biographie* at the decade level in cities with and without laws. Migrants are identified as people living and dying in town $i$ but born in some other location $j$. The vertical line is at 1518, the year Luther’s theses began circulating.
This graph shows the timing of major plague outbreaks in selected cities between 1400 and 1550. Source: Biraben (1975). The vertical lines at 1500 and 1522 delimit the period used in our baseline instrumental variable analysis to construct the early 1500s plague exposure instrument.
So we have some quasi-experimental evidence that institutions matter.

This would then back up the North and Thomas story about the role of institutions in industrialization.

But there is a problem, North and Thomas emphasized people altering institutions when it made economic sense to do so.

If bad institutions led to bad economic outcomes in Africa, why not change them?

Another issue with this experiment in institutions, why was Europe able to colonize Africa in the first place?
So new questions emerge from our attempts to answer our big question

Why are some bad institutions persistent even when there are big economic incentives to change them?

Where did this big differences emerge that led to Europe being in a position to alter African institutions?

Is there some bigger picture long run process that the institutional story is just one piece of?

To look at these questions, we’ll consider work on comparative development by Nathan Nunn and Jared Diamond

First, the question of persistent bad institutions
Persistent Bad Institutions

Mobutu Sese Seko, in power 1965 to 1997
### Most corrupt leaders, Global Corruption Report 2004 (Transparency International)

<table>
<thead>
<tr>
<th>Head of State</th>
<th>Country</th>
<th>Time Period</th>
<th>Funds Embezzled</th>
<th>GDP per capita (2001)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mohamed Suharto</td>
<td>Indonesia</td>
<td>1967-1998</td>
<td>$15 to 35 billion</td>
<td>$695</td>
</tr>
<tr>
<td>Ferdinand Marcos</td>
<td>Philippines</td>
<td>1972-1986</td>
<td>$5 to 10 billion</td>
<td>$912</td>
</tr>
<tr>
<td>Mobutu Sese Seko</td>
<td>Zaire</td>
<td>1965-1997</td>
<td>$5 billion</td>
<td>$99</td>
</tr>
<tr>
<td>Sani Abacha</td>
<td>Nigeria</td>
<td>1993-1998</td>
<td>$2 to 5 billion</td>
<td>$319</td>
</tr>
<tr>
<td>Slobodan Milosevic</td>
<td>Serbia/Yugoslavia</td>
<td>1989-2000</td>
<td>$1 billion</td>
<td>n/a</td>
</tr>
<tr>
<td>Jean-Claude Duvalier</td>
<td>Haiti</td>
<td>1971-1986</td>
<td>$300 to 800 million</td>
<td>$460</td>
</tr>
<tr>
<td>Alberto Fujimori</td>
<td>Peru</td>
<td>1990-2000</td>
<td>$600 million</td>
<td>$2051</td>
</tr>
<tr>
<td>Pavlo Lazarenko</td>
<td>Ukraine</td>
<td>1996-1997</td>
<td>$114 to 200 million</td>
<td>$766</td>
</tr>
<tr>
<td>Arnoldo Aleman</td>
<td>Nicaragua</td>
<td>1997-2002</td>
<td>$100 million</td>
<td>$490</td>
</tr>
<tr>
<td>Joseph Estrada</td>
<td>Philippines</td>
<td>1998-2001</td>
<td>$78 to 80 million</td>
<td>$912</td>
</tr>
</tbody>
</table>
Persistent Bad Institutions

Imelda Marcos’ shoe collection, 1986
A corrupt leader might resist good institutions for personal gain

Counterargument: potential personal gain is bigger if GDP is bigger

Counter-counterargument: not if embezzled funds come out of aid (see our most recent Nobel laureate)

Another counterargument: this level of corruption creates strong incentives for revolt

This fits in with North and Thomas (and the writers’ strike)

Institutional change is costly but at some point benefits exceed the costs
Laurent-Desire Kabila and the Alliance of Democratic Forces for the Liberation of Congo
Fall of the Berlin Wall, 1989
Rwandan refugee camp in East Zaire
In the case of Mobutu, bad institutions seemed to persist for a couple of reasons:

- A big one was the backing of more powerful governments.
- A second was the nature of the sources of wealth.
- When conditions changed, revolt finally happened.
- However, this revolt didn’t automatically lead to good institutions and economic prosperity for all.
- The Democratic Republic of the Congo still had major issues stemming from ethnic fractionalization, highlighting the important role of social institutions.
This brings us to another economist’s approach to the issues of institutions and African development.

Nathan Nunn and “The Long Term Effects of Africa’s Slave Trade”

Nunn looks at the effects of slave trading in Africa on modern economic outcomes of African countries.

He explores the argument of whether slave trades and colonialism are an explanation of African underdevelopment.

This argument has elements of governmental institutions but also social institutions and helps explain the persistence of bad institutions.
Quick Overview of the Slave Trade

- Slave trade lasted from roughly 1400 to 1900
- Colonial rule in Africa lasted between 1885 to 1960
- Four different slave trades:
  - Trans-Atlantic: slaves taken from West Africa, West-Central Africa and Eastern Africa to European colonies in the New World
  - Trans-Saharan: slaves taken from south of the Saharan desert to Northern Africa
  - Red Sea: slaves taken from inland Africa and shipped to Middle East and India
  - Indian Ocean: slaves taken from Eastern Africa and shipped to Middle East, India and plantation islands in the Indian Ocean
Quick Overview of the Slave Trade

Map of the African Slave Trade, 1500–1870

Areas of National Domination:
- British
- Portuguese
- French
- Spanish
- Dutch

Slave trade routes and selected culture areas.

Origin of Africans in North America:
- Gold Coast 12%
- Sierra Leone 9%
- Angola 3.7%
- Bight of Biafra 15%
- Bight of Benin 2.5%

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Quick Overview of the Slave Trade

- Over 18 million slaves were exported (12 million were through trans-Atlantic trade)
- Estimated that by 1850, Africa’s population was half of what it would have been without the slave trade
- Slave trade led to social and ethnic fragmentation, political instability, weakening of states, corruption of judicial institutions
## Countries Exporting the Most Slaves, 1400-1900

### Estimated Total Slave Exports between 1400 and 1900 by Country

<table>
<thead>
<tr>
<th>Isocode</th>
<th>Country name</th>
<th>Trans-Atlantic</th>
<th>Indian Ocean</th>
<th>Trans-Saharan</th>
<th>Red Sea</th>
<th>All slave trades</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGO</td>
<td>Angola</td>
<td>3,607,020</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3,607,020</td>
</tr>
<tr>
<td>NGA</td>
<td>Nigeria</td>
<td>1,406,728</td>
<td>0</td>
<td>555,796</td>
<td>59,337</td>
<td>2,021,859</td>
</tr>
<tr>
<td>GHA</td>
<td>Ghana</td>
<td>1,614,793</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1,614,793</td>
</tr>
<tr>
<td>ETH</td>
<td>Ethiopia</td>
<td>0</td>
<td>200</td>
<td>813,899</td>
<td>633,357</td>
<td>1,447,455</td>
</tr>
<tr>
<td>SDN</td>
<td>Sudan</td>
<td>615</td>
<td>174</td>
<td>408,261</td>
<td>454,913</td>
<td>863,962</td>
</tr>
<tr>
<td>MIL</td>
<td>Mali</td>
<td>331,748</td>
<td>0</td>
<td>509,950</td>
<td>0</td>
<td>841,697</td>
</tr>
<tr>
<td>ZAR</td>
<td>Democratic Republic of Congo</td>
<td>759,468</td>
<td>7,047</td>
<td>0</td>
<td>0</td>
<td>766,515</td>
</tr>
<tr>
<td>MOZ</td>
<td>Mozambique</td>
<td>382,378</td>
<td>243,484</td>
<td>0</td>
<td>0</td>
<td>625,862</td>
</tr>
<tr>
<td>TZA</td>
<td>Tanzania</td>
<td>10,834</td>
<td>523,992</td>
<td>0</td>
<td>0</td>
<td>534,826</td>
</tr>
<tr>
<td>TCD</td>
<td>Chad</td>
<td>823</td>
<td>0</td>
<td>409,368</td>
<td>118,673</td>
<td>528,862</td>
</tr>
</tbody>
</table>
Countries Exporting the Most Slaves, 1400-1900
Countries Exporting the Most Slaves, 1400-1900
Slaves Exports and Modern GDP per Capita

[Graph showing a scatter plot with country codes and labels, illustrating the relationship between log real per capita GDP in 2000 (In y) and In(exports/area).]
Economic Growth for Countries with the Lowest and Highest Slave Exports

![Graph showing comparison between average real per capita GDP of low slave export countries and high slave export countries from 1950 to 2000. The graph indicates a disparity in economic growth between the two groups, with high slave export countries experiencing a higher rate of growth.](image-url)
Clearly some areas of Africa were far more affected by slavery than others.

Today, those areas that exported the most slaves are less economically developed.

So why is this an institutions story?

Nunn’s answer is that the slave trade had profound impacts on several features of institutional development:

- Ethnic fractionalization
- State development
- Levels of distrust
Slaves Exports and 19th Century State Development

![Graph showing the correlation between 19th century state development and the natural logarithm of exports per area. The graph includes country codes such as EGY (Egypt), BDI (Burundi), DZA (Algeria), and others. The x-axis represents ln(exports/area), and the y-axis represents 19th century state development. The countries are plotted on the graph with different coordinates indicating their position based on these two metrics.]

J. Parman (College of William & Mary)  Global Economic History, Spring 2017  February 24, 2017  86 / 91
Slaves Exports and Modern Distrust

Regions hardest hit by the slave trade exhibit the least trust today

Level of trust
- lowest
- highest

Concentration of slave trade
- lowest
- highest
Returning to Europe

[Image: Plundering of the Inns of Frankfurt on Main on August 22, 1524. After Massening not long after the Mass of the Tower, refugees and the councillors of the city and others fled to the castle. It was then set on fire and burnt to the ground.]

Plunderung der Innenstuben zu Frankfurt am Main den 22. August 1524. Nach Mässingen nicht sehr von den Mauern der Stadt eingefangen, und die ganzen Nachte durch Constantin, der über die Stadt und 2 Juden gerüstlich fliehen und vor bedeutendster Bürgerschaft ergehen, füllt sie nach allem, was von den Bürgerschaften gesagt und gezeigt worden war...
Returning to Europe
Percentage of votes for the NSDAP in the German National Election of 1928 (Voigtlander and Voth, 2012)
Institutions as an Explanation

- So Nunn’s work gives us insight into why a bad shock to institutions may have persistence
- These social dimensions of the effects of slavery can make it difficult for good government institutions to take hold and be effective
- These issues were compounded by the political boundaries drawn by colonial powers
- One takeaway from Nunn: dropping in good institutions may not be sufficient
- One question remaining from Nunn and AJR: why were Europeans able to alter African institutions?
- Why wasn’t it Africa colonizing Europe?