Ancient and Medieval Growth

Melissa Dell

September 2017
After the Neolithic Revolution

- In the last Lecture we examined two approaches to thinking about the Neolithic Revolution. The first (Diamond) based on the exogenous availability of plant and animal species. The other (Acemoglu-Robinson) based on institutional changes: the development of political centralization, sedentism, and hierarchy.

- As I discussed in Lecture 1, living standards were largely unchanged between the Neolithic Revolution and the Industrial Revolution.

- This fact masks a lot of interesting dynamics that we will examine now.
Outline

Theories About Pre-Modern Economic Growth
The Malthusian Model: Theory
The Malthusian Model: Evidence
An alternative framework: Acemoglu and Robinson

The Rise and Fall of Ancient Societies
The Rise and Fall of the Maya
The Rise and Fall of Rome

The Middle Ages
Collapse and Boom During the Middle Ages
The Emergence from the Middle Ages: Second Serfdom
The Emergence from the Middle Ages in Western Europe
Initial Construction of a Modern State in England
Elsewhere in the World
Outline

Theories About Pre-Modern Economic Growth
  The Malthusian Model: Theory
  The Malthusian Model: Evidence
  An alternative framework: Acemoglu and Robinson

The Rise and Fall of Ancient Societies
  The Rise and Fall of the Maya
  The Rise and Fall of Rome

The Middle Ages
  Collapse and Boom During the Middle Ages
  The Emergence from the Middle Ages: Second Serfdom
  The Emergence from the Middle Ages in Western Europe
  Initial Construction of a Modern State in England
  Elsewhere in the World
The Malthusian Model


In the simplest version of the model, deaths are a decreasing function of income, $D(y_t)$: $D' < 0$.

Births, $B$, are independent of income, and population dynamics are as follows

$$N_{t+1} = N_t + B - D(y_t)$$

Income per-capita is decreasing in $N$ (according to diminishing marginal product of labor) so there is a function $y_t = Af(N_t)$ with $f' < 0$. $A$ is productivity.

There is a unique attracting steady-state with $N_{t+1} = N_t$ where income per-capita $y^*$ is defined by $B = D(y^*)$ and steady-state population $N^* = f^{-1}(\frac{y^*}{A})$. 
The Malthusian Model

\[ y = A f(N) \]

- \[ D(y) \]
- \[ B(y) \]
- \[ N^* \]
- \[ y^* \]
Comparative Statics

- Income per-capita always returns to the point where the birth rate equals the death rate. This is the unique attracting steady-state of the model.
- What happens if TFP improves from $A$ to $A' > A$? This means more output for any level of population. The initial level of population $N^*$ now produces an income level $y' > y^*$. This leads to higher incomes and an excess of births over deaths since $B > D(y')$. In consequence the population expands from $N^*$ to $N'$ until income per-capita is driven back down to where it was before.
- The same is true for other changes which have similar implications for the relationship between population and income, for instance good government.
Comparative Statics - Technological Innovation

\[ y = Af(N) \]

Where \( A' > A \)

\[ y' \]

\[ N' \]

\[ N^* \]
Outline

Theories About Pre-Modern Economic Growth
- The Malthusian Model: Theory
- The Malthusian Model: Evidence
- An alternative framework: Acemoglu and Robinson

The Rise and Fall of Ancient Societies
- The Rise and Fall of the Maya
- The Rise and Fall of Rome

The Middle Ages
- Collapse and Boom During the Middle Ages
- The Emergence from the Middle Ages: Second Serfdom
- The Emergence from the Middle Ages in Western Europe
- Initial Construction of a Modern State in England
- Elsewhere in the World
The Malthusian Model: Evidence

- Malthusian model implies that even though the Spanish might have had better technology than the Inca, there income per-capita ought to have differed only according to their fertility and mortality schedules.

- But there are some problems with this view. Population density in the pre-modern era is positively correlated with proxies for per-capita income, such as urbanization or Maddison’s income estimates.

- In addition, measures of good government, such as proxies for constraints on the executive, are correlated with urbanization in this period.

- For example, DeLong and Shleifer (1993) showed there was a strong correlation between form of government and urbanization in the pre-modern world.
Evidence about the Malthusian Model: The Black Death

- A basic premise of the Malthusian model is that when population falls, incomes should rise. Is that true?

- One important event used to support the Malthusian model is the Black Death.

- As the data for Western Europe shows, after the population collapse, real wages eventually increased. However, the reality is more complex than is conveyed by the Malthusian model.

- After the Black Death, the government of Edward III tried to stop wages from rising by passing the Statute of Labourers.

- They were only partially able to enforce this, however, and after the Peasants Revolt of 1381, they mostly gave up.
Real Wages and the Black Death

The Statue of Labourers 1351 - wages

“Because a great part of the people and especially of the, workmen and servants has now died in that pestilence, some, seeing the straights of the masters and the scarcity of servants, are not willing to serve unless they receive excessive wages ... We, considering the grave inconveniences which might come from the lack especially of ploughmen and such labourers, have ... seen fit to ordain: that every man and woman of our kingdom of England ... shall be bound to serve him who has seen fit so to seek after him; and he shall take only the wages liveries, meed or salary which, in the places where he sought to serve, were accustomed to be paid in the twentieth year of our reign of England, or the five or six common years next preceding [1347].”

“And if a reaper or mower, or other workman or servant, of whatever standing or condition he be, who is retained in the service of any one, do depart from the said service before the end of the term agreed, without permission or reasonable cause, he shall undergo the penalty of imprisonment, and let no one … moreover, pay or permit to be paid to any one more wages, livery, meed or salary than was customary as has been said.”
Factor Supplies and Wages in Mexico

- Do real wages always increase after negative population shocks? Some other instances support this view. For example, after the Great Potato Famine in Ireland between 1846 and 1849, when probably 20% of the population died or left, real wages increased substantially afterwards.

- However, the evidence is less clear elsewhere. For instance, after the conquest of Mexico the indigenous population fell by around 90%.

- This ought to have led to a huge increase in real wages, but it did not.
The Potato Famine in Ireland: Demographic Consequences
Real Wages in Ireland: 1785-1870

Figure 3. Real earnings of Irish agricultural labourers assuming uniform employment, 1785-1870

Source: app. IV
Figure 11: Average Real Daily Wages for Unskilled Workers

Average Real Daily Wages in Obrajes

Source: Own Calculations based on Borah and Cook (1958), Gibson (1964) and Viqueira and Urquiola (1990)
Why didn’t Real Wages rise in Mexico?

- Data are from the *Repartimiento*, which was a system of central labor allocation. Spaniards who wanted labor had to petition the Viceroy who would allocate Amerindian workers and determine the nominal wage they would be paid. There are also data from labor contracts in textile *obrajes*.

- In both cases, coercion was used to repress wages and at least in the case of the *repartimiento*, the centralized nature of the system possibly stopped the type of ‘enticement’ which undermined the intent of the Statute of Labourers in England.

- Meanwhile in South America, a massive forced labor system called the *mita* system was instituted.

- The relative advantage of the Spanish state was higher than that of the English state in the 14th century.
What was it that allowed the Spanish settlers in Mexico to keep wages so low, when in England after the Black Death the state had been incapable of enforcing the Statue of Laborers and stopping wages from rising?

The economic historian Bruce Campbell has proposed that this may have been because of the differential organization of landholdings in Britain, which increased competition between landowners for workers after the Black Death.

The next figure shows the prices of Mills in different parts of England. These were owned by Lords and valued on their death.
Mills

Mean value of Mills owned by Lords as valued upon their death 1300-1349

Landholdings in England

- After invading England, William the Conqueror rewarded his army by providing them with feudal landholdings.
- In an effort to prevent these nobles from becoming powerful regional warlords who could challenge the king’s power, each noble received landholdings scattered across the country.
- The exception was along the Scottish border, where nobles were given large plots for defensive purposes.
The Manors of Lord Gilbert de Clare (1314)

(a) Estate of Gilbert de Clare, earl of Gloucester and Hertford, 1314.
Landholdings in England

- This division of landholdings meant that in a given region, there were many landholders - and mill owners - in close proximity.
- This created intense competitive pressures for labor, particularly in the wake of the Black Death.
- This contrasts to Mexico, where conquistadors were granted vast contiguous tracks of land called *encomiendas*.
- We will return to land inequality when we discuss income divergence in the Americas.
The Malthusian Model: Summing Up

- The simple Malthusian model may capture some realities. *If* labor markets are competitive, population growth may indeed induce a decline in wages. Or if there is a fixed amount of land and few opportunities for labor intensive cultivation systems, a population increase may lead to a decline in output per worker.

- However, the reality is typically more complex. How wages respond to changes in income will depend on institutions.

- This raises the possibility that institutional or cultural factors may have influenced pre-modern growth, rather than it simply being dictated by the relationship between births, deaths, and income, as suggested by Malthus.
Outline

Theories About Pre-Modern Economic Growth
The Malthusian Model: Theory
The Malthusian Model: Evidence
An alternative framework: Acemoglu and Robinson

The Rise and Fall of Ancient Societies
The Rise and Fall of the Maya
The Rise and Fall of Rome

The Middle Ages
Collapse and Boom During the Middle Ages
The Emergence from the Middle Ages: Second Serfdom
The Emergence from the Middle Ages in Western Europe
Initial Construction of a Modern State in England
Elsewhere in the World
In Lecture 1, we saw evidence that there were no sustained changes in living standards prior to the Industrial Revolution in the 18th century.

The Malthusian model could explain this: improvements in technology do not affect living standards because population expands in response, inexorably driving per-capita income back to the level which equates births and deaths. Certainly, global population did grow substantially between the Neolithic Revolution and the eve of the Industrial Revolution.

However, the Malthusian model, which its fixation on births and deaths, misses a great deal of the interesting action prior to the industrial revolution.

An alternative explanation for why there was no long-run trend in living standards is the theory of ‘rise and decline’ (Acemoglu and Robinson).
Motivation: Ancient Greece

- When the Greek city states emerged they did so with functional systems of governance which provided public goods, such as security for trade and investment.
- This initiated a period of sustained increases in living standards.
Ancient Greece

Table 1
Standard Periodization of Ancient Greek History

<table>
<thead>
<tr>
<th>Name</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bronze Age</td>
<td>c. 3000–1200 BC</td>
</tr>
<tr>
<td>Late Bronze Age</td>
<td>c. 1600–1200 BC (also known as Mycenaean period)</td>
</tr>
<tr>
<td>Early Iron Age</td>
<td>c. 1200–700 BC (also known as Dark Age)</td>
</tr>
<tr>
<td>Archaic</td>
<td>c. 700–480 BC</td>
</tr>
<tr>
<td>Classical</td>
<td>480–323 BC</td>
</tr>
<tr>
<td>Hellenistic</td>
<td>323–30 BC</td>
</tr>
<tr>
<td>Early Empire</td>
<td>30 BC–AD 284</td>
</tr>
<tr>
<td>Late Empire</td>
<td>AD 284–526</td>
</tr>
<tr>
<td>Early Byzantine</td>
<td>AD 526–1081</td>
</tr>
</tbody>
</table>

Population Went Up

Figure 10
The Estimated Population of the Greek World (including the Aegean and western Mediterranean), 800–300 BC

Ancient Greece

Life Expectancy Increased

Figure 2
Average Adult Ages at Death, 1600–300 BC

The solid lines represent Angel’s results, collected in the 1930s–1970s (n = 433 males, 294 females), and the broken lines results collected with new techniques in the (n = 357 males, 416 females).

Ancient Greece

Houses got Bigger

Figure 7
Median House Sizes, 800–300 BC (n = 406)

Note: The lower line shows roofed space in the ground-floor plan; the upper line shows estimated total roofed space, assuming 10% of houses have second floors in the eighth and seventh centuries, 25% in the sixth and fifth centuries, and 50% in the fourth century.

Ancient Greece

- While Ancient Greece did have a period of democracy, it was relative short (less than 200 years) compared to the duration of the polity and most citizens - slaves, poor citizens who couldn’t afford their tax bill, women - could not participate.

- Greek institutions (rules according to which the society was organized) tended to be “extractive.” For example, the economy was largely based upon slavery.

- Extractive political institutions concentrate political power in the hands of some group who can use that power to redistribute wealth and income to themselves. This resulting concentration of wealth tends to reinforce the initial set of political institutions.
Growth and Extractive Institutions

- Acemoglu and Robinson hypothesize that growth was not sustained in ancient societies because their institutions were extractive, and extractive institutions are incompatible with sustaining growth in the long run.
- They argue that this is because extracting resources creates conflicts over who will control those resources, and it may also induce rebellion from below.
- In either case political instability can bring the government and economy down.
- We will examine two other examples of this, which are discussed in the Acemoglu and Robinson book: Rome and the Mayan city states.
Outline

Theories About Pre-Modern Economic Growth
- The Malthusian Model: Theory
- The Malthusian Model: Evidence
- An alternative framework: Acemoglu and Robinson

The Rise and Fall of Ancient Societies
- The Rise and Fall of the Maya
- The Rise and Fall of Rome

The Middle Ages
- Collapse and Boom During the Middle Ages
- The Emergence from the Middle Ages: Second Serfdom
- The Emergence from the Middle Ages in Western Europe
- Initial Construction of a Modern State in England
- Elsewhere in the World
The Mayan City States

- One of the most famous instances of the rise and decline of a civilization is that of the Mayan city states, located in Southern Mexico, Belize, Guatemala and Western Honduras.

- Mayan cities began to develop around 500BCE. The early cities failed some time in the first century AD but at the same time a new political ‘model’ emerged which created the foundations for the Classic Era between 250 and 900AD. This period marks the full flowering of Mayan technology.

- The Mayans had writing, a very sophisticated calendar, occupational specialization with skilled potters, weavers, woodworkers, tool and ornament makers, they traded obsidian, salt and feathers with themselves and other polities over long distances in Mexico. However, agricultural technology was stagnant.
The Political Model

- Dynastic kingdoms emerge around 100AD at Tikal in Guatemala. A ruling class emerged based on the *ajaw* (lord or ruler) with a king called the *k’uhul ajaw* (divine lord), who communicated with the Gods and governed the society.
- We know little about who owned the land, labor market institutions, levels of taxation or tribute.
Endemic Warfare

- Mayan states seem to have engaged in constant warfare. There were long contests for power between the larger states, such as Tikal, Calakmul, Copán and Palenque, and these also subjugated smaller states into a vassal status.

- Evidence for this comes from glyphs which mark royal accessions. Instead of just giving the name of the new king, there is a glyph indicating ‘he supervised it’, suggesting the dominance of another ruler.
Figure 6. Name clause and titles recorded in the Álvaro Obregón Box (Drawing by Peter Mathews).

http://www.famsi.org/reports/01080/section05.htm
The rulers of Bonampak with their captives
Interrelationships between Mayan States

Endemic Warfare

- This experience is interesting since one of the great theses about ‘European exceptionalism’ is that in contrast to other parts of the world Europe was different because it was composed of many competing states that had to innovate to survive. In contrast China was a large unified empire without these pressures.

- For example, this view is argued in the Epilogue of *Guns, Germs and Steel*.

- Leaving aside whether this makes sense for China, it ignores the political history of the rest of the world.
The ‘Collapse’ of the Mayan States

The collapse was a multifaceted event which influenced the southern Mayan areas. David Webster summarizes it as follows (p. 213-214):

1. Beginning in the late 8th century royal dynasties disappeared over huge regions. This happened rapidly in some places, but took 100 years in others. In some places non-royal elites also vanish at the same time.
2. Royal courts did not function, monuments and temples were not carved.
3. With notable exceptions, major centers (e.g. Dos Pilas and the cities of the Petexbatun) were abandoned without signs of widespread and severe violence, though later many monuments were defaced or destroyed.
4. This happened at a time of maximum population, intense warfare and possible environmental degradation.
No More Kings

Monuments

![Graph showing the number of dated monuments per Katun period in the Southern Maya Lowlands. All monuments that were erected during a given Katun period are indicated in the position directly above the start of the Katun. Included are 415 LC dates carved on 359 stelae and 56 altars from 62 Southern Lowland sites.](image)

Documenting the Collapse

- AnnCorinne Freter, Nancy Golin, and David Webster (*Copán: The Rise and Fall of an Ancient Mayan Kingdom*) have used archaeological surveys of the extent of settlement along with radio-carbon dating to estimate the historical population of Copán.
- The figure of 28,000 around 800AD, though it is obviously uncertain, would make Copán bigger than London or Paris! Other cities, such as Tikal or Calakmul were quite a bit larger.
- The dynamics of population vividly illustrate the collapse.
The Rise and Fall of Copán

The Malthusian Model: Theory
The Malthusian Model: Evidence
An alternative framework: Acemoglu and Robinson

The Rise and Fall of Ancient Societies
The Rise and Fall of the Maya
The Rise and Fall of Rome

The Middle Ages
Collapse and Boom During the Middle Ages
The Emergence from the Middle Ages: Second Serfdom
Initial Construction of a Modern State in England
Elsewhere in the World
This pattern was replicated elsewhere
Explaining the Collapse

- Webster gives a comprehensive overview of the different theories.

- What seems clear is that the collapse coincided with a loss of power/legitimacy of the Divine Kings. It is hard to know if this was the result of warfare or some ideological crisis.

- The kingship collapsed and with it the public goods that the state provided. Political decentralization occurred, population fell (the area was very depopulated when Cortés travelled through it in the early 16th century) and trade declined.
A Malthusian Crisis?

- Webster discusses this idea but it is hard to describe these dynamics simply in terms of rising population and declining living standards.

- First of all there is little evidence of declining living standards. Though skeletal evidence certainly suggests that Mayan were unhealthy and had low life expectancy, it does not suggest any general tendency for a deterioration despite of the fact that population grew enormously.

- The striking thing is the institutional collapse which occurs right at the transition between expansion and decline.

- The institutional organization of the Mayan states was enough to create growth, but it was not sustainable, possibly because it created large rents for an elite, which generated conflicts over rents.
Outline

Theories About Pre-Modern Economic Growth
- The Malthusian Model: Theory
- The Malthusian Model: Evidence
- An alternative framework: Acemoglu and Robinson

The Rise and Fall of Ancient Societies
- The Rise and Fall of the Maya
- The Rise and Fall of Rome

The Middle Ages
- Collapse and Boom During the Middle Ages
- The Emergence from the Middle Ages: Second Serfdom
- The Emergence from the Middle Ages in Western Europe
- Initial Construction of a Modern State in England
- Elsewhere in the World
The Rise and Fall of Rome

- Acemoglu and Robinson argue that the rise and fall of Rome can be described in a similar way (Chapter 6).
- The origins of Rome’s economic and military success are plausibly rooted in institutional innovation.
- In 510BC, the citizens of Rome overthrew their king, Lucius Tarquinius Superbus, known as ‘Tarquin the Proud’ and created a republic.
- The state was run by elected officials, two consuls who had the job for one year, magistrates and tribunes. The fact that the office was elected, annual, and held by multiple people at the same time reduced the ability of any one person to consolidate or exploit his power.
- The institutions of the Republic contained a system of checks and balances which distributed power fairly widely. Even if elite families had far more power, it was possible for non elites, so called plebeians, to get to the top, and they constrained the power of the elites.
The Assemblies

- Rome had three types of assembly: the centuriate (a military division), the tribal assembly (a civil division based on geography), and the plebeian assembly (where only commoners could vote).

- The centuriate assemblies consisted of one hundred and ninety three centuries on the basis of military organization. The tribal assembly, after 241 BC, consisted of thirty five tribes which were formed on the basis of geographical location.
The Assemblies

- Different assemblies had different areas in which they had powers. For example only the centuriate assembly could vote on issues of war and peace. The plebeians assembly voted on issues that affected commoners.
- The officials who summoned the assemblies controlled the agenda in the sense that they determined what issues would be voted on and citizens could not amend laws or propose different issues to vote on.
- There was also the Senate.
Economic Growth

- The military and political expansion of Rome is perhaps more striking than the economic expansion.
- There are many interesting ways to track this expansion.
Measuring Expansion

- Shipwrecks indicate trade, but they also track the movement of goods by fiat. For example, the citizens of Rome were kept happy by the free distribution of bread after 58BC. This was later extended to olive oil and even wine. This had to be shipped (mostly from Egypt and North Africa).

- The Romans also moved around taxes levied in the provinces and supplied their troops. Some argue that 2/3 of all the ‘trade’ was actually the state moving stuff around.

- For Roman citizens, economic institutions were quite good. However, the Italian economy was based on slavery (about 35% of the population of Italy were slaves at the time of the Emperor Augustus). There was little technological change.
Rise and Fall of Rome as Measured by Shipwrecks

![Graph 1: dated shipwrecks (from De Catalaï 2005)](image)

Source: Jongman, Willem M. (2007) “Gibbon was Right: The Decline and Fall of the Roman Economy,” in O. Hekster et. al. eds. *Crises and the Roman Empire*, Brill.
Rise and Fall of Rome as Measured by Lead Pollution in Greenland

Graph 2: Lead pollution in Greenland ice cores

Source: Jongman, Willem M. (2007) “Gibbon was Right: The Decline and Fall of the Roman Economy,” in O. Hekster et. al. eds. Crises and the Roman Empire, Brill.
Rise and Fall of Rome as Measured by Wood Remains

Source: Jongman, Willem M. (2007) “Gibbon was Right: The Decline and Fall of the Roman Economy,” in O. Hekster et. al. eds. *Crises and the Roman Empire*, Brill.
Rise and Fall of Rome as Measured by Archaeological Finds

Source: Jongman, Willem M. (2007) “Gibbon was Right: The Decline and Fall of the Roman Economy,” in O. Hekster et. al. eds. *Crises and the Roman Empire*, Brill.
Archaeological Finds

Monte Testaccio (Pottery Mountain) in Rome - 53 million broken amphorae
The expansion of Rome’s conquests created inequality and increasing political instability.

There were calls for the redistribution of land and power.

For example, Plebeian Tribune Tiberius Gracchus started to develop very ‘populist’ political platforms which threatened the senatorial elites.

The culmination of this was civil war, the dictatorship of Julius Caesar, and finally the creation of the Empire under Augustus.
Political Transition

- Augustus reformed the army, removing it as a bastion of plebeian power.
- His successor Tiberias stripped the assemblies of powers and gave them to the senate.
- A hereditary monarchy replaced the Republic.
- This was a move towards more extractive political institutions and though it stabilized things for awhile, there was an eventual movement towards even more extractive economic institutions.
When did decline set in?

- While the existing data are somewhat contradictory, the consensus amongst archaeologists is the early 2nd century.
- A new social distinction between *honestiores* (high status) and *humiliores* (low status with different laws) was introduced.
- Citizens began to lose their rights and by the end of the 2nd century, they were being tied to the land as serfs.
The Decline of Rome

- The Barbarians were at the gates, but it seems reasonable to see this as an outcome of the weakening of Roman institutions.
- Earlier Rome had defeated far more formidable and better organized enemies like the Carthaginians.
- Acemoglu and Robinson argue that the big fact about what preceded the decline is that political institutions moved in a much more extractive direction and this was followed by economic institutions.
A Malthusian Crisis?

- Jongman ("Gibbon was Right") proposes that the Antonine plague which hit the Roman Empire around 160AD is the most likely explanation for the collapse of Rome.

- But Malthusian crises are supposed to increase living standards, not reduce them.

- Let me explain the Domar hypothesis which underpins Jongman’s discussion.
The Incentive to Enslave - The Domar Hypothesis

- Real wage
- Cost of enslaving People (per-capita)
- Initial equilibrium wage
- Labor Demand
- Initial labor supply

The Malthusian Model: Theory
The Malthusian Model: Evidence
An alternative framework: Acemoglu and Robinson

The Rise and Fall of Ancient Societies
The Rise and Fall of the Maya
The Rise and Fall of Rome

The Middle Ages
Collapse and Boom During the Middle Ages
The Emergence from the Middle Ages: Second Serfdom
The Emergence from the Middle Ages in Western Europe
Initial Construction of a Modern State in England
Elsewhere in the World
Consequences of the Antonine Plague

When population falls it becomes worthwhile to incur the costs of enslaving.

Real wage

Post-plague equilibrium
Wage without slavery
Cost of enslaving
People (per-capita)

Labor Demand

Post-plague labor supply

L
Summary: The Logic of Acemoglu and Robinson’s Theory of Ancient Rise and Decline

- Historically economic growth coincided with institutional innovation: creation of states with working political institutions that could provide public goods, law and order, encourage trade etc.
- Functioning states could also raise taxes and fund armies, allowing widespread conquests.
- However, they argue these were fundamentally extractive institutions, even if in some cases economic institutions were initially relatively inclusive.
- They argue that extractive growth is not sustained because there is little technological change. Moreover, it naturally creates political instability which eventually destroys the institutions which started the growth.
Outline

Theories About Pre-Modern Economic Growth
  The Malthusian Model: Theory
  The Malthusian Model: Evidence
  An alternative framework: Acemoglu and Robinson

The Rise and Fall of Ancient Societies
  The Rise and Fall of the Maya
  The Rise and Fall of Rome

The Middle Ages
  Collapse and Boom During the Middle Ages
  The Emergence from the Middle Ages: Second Serfdom
  The Emergence from the Middle Ages in Western Europe
  Initial Construction of a Modern State in England
  Elsewhere in the World
From Collapse to Boom

- Earlier we talked about two boom and bust cycles, that of Rome and that of the Mayan city states.

- The decline after the collapse of Roman authority was pronounced, particularly in the West: By 450AD all the trappings of Roman economic prosperity were gone. Money vanished from circulation. Urban areas were abandoned and buildings stripped of stone. The roads were overgrown with weeds. The only type of pottery which was fabricated was crude and hand made, not manufactured. People forgot how to use mortar and they also forgot how to read and write. Roofs were made of branches, not tiles.

- The Eastern Roman Empire lived on but it contracted significantly with the rise of Islam in the 7th Century.

- However, the view that the entire Middle Ages was a period of economic stagnation is inaccurate
A subject peasantry; widespread use of the service tenement (i.e. the fief) instead of a salary . . . ; the supremacy of a class of specialized warriors; ties of obedience and protection which bind man to man and, within the warrior class, assume the distinctive form called vassalage; fragmentation of authority — leading inevitably to disorder; and, in the midst of all this, the survival of other forms of association, family and State . . . \textsuperscript{22}
The Medieval ‘Boom’ in Europe

- The decline of central authority plausibly led to feudalism, which was a very decentralized system of governance.
- Nevertheless, by the late Middle Ages feudalism was a stable system, and in the context of this relative stability, trade expanded.
- We can measure this in various ways. There is scattered data on the size of cities from which economic historians have constructed urbanization numbers. These show the number of cities increasing and also urbanization increasing. More monasteries were built and more books were written/produced (copied).
- Less systematic data suggests that trade expanded.
- If urbanization is a good proxy for income per-capita, we would expect that this increased as well.
### Urbanization Rates

<table>
<thead>
<tr>
<th>Country</th>
<th>800</th>
<th>900</th>
<th>1000</th>
<th>1100</th>
<th>1200</th>
<th>1300</th>
<th>1400</th>
<th>1500</th>
<th>1600</th>
<th>1700</th>
<th>1800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scandinavia</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.5</td>
<td>1.7</td>
<td>3.6</td>
</tr>
<tr>
<td>Great Britain</td>
<td>0.0</td>
<td>0.6</td>
<td>3.6</td>
<td>3.4</td>
<td>3.2</td>
<td>2.7</td>
<td>2.1</td>
<td>2.5</td>
<td>3.0</td>
<td>3.8</td>
<td>4.3</td>
</tr>
<tr>
<td>Ireland</td>
<td>0.0</td>
<td>0.0</td>
<td>3.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Low Countries</td>
<td>0.0</td>
<td>0.0</td>
<td>3.4</td>
<td>10.0</td>
<td>12.3</td>
<td>23.4</td>
<td>13.6</td>
<td>21.2</td>
<td>27.3</td>
<td>19.7</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>3.0</td>
<td>2.6</td>
<td>3.8</td>
<td>4.4</td>
<td>5.8</td>
<td>6.1</td>
<td>6.3</td>
<td>6.2</td>
<td>7.0</td>
<td>8.7</td>
<td>9.0</td>
</tr>
<tr>
<td>Germany</td>
<td>3.2</td>
<td>3.7</td>
<td>5.7</td>
<td>5.2</td>
<td>4.8</td>
<td>4.6</td>
<td>5.5</td>
<td>4.7</td>
<td>5.2</td>
<td>4.6</td>
<td>7.6</td>
</tr>
<tr>
<td>Austria/Switzerland</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.7</td>
<td>0.7</td>
<td>1.6</td>
<td>1.5</td>
<td>2.2</td>
<td>4.9</td>
<td>8.3</td>
</tr>
<tr>
<td>Italy</td>
<td>3.8</td>
<td>4.7</td>
<td>8.3</td>
<td>8.6</td>
<td>10.6</td>
<td>13.5</td>
<td>12.9</td>
<td>12.8</td>
<td>17.5</td>
<td>15.7</td>
<td>17.3</td>
</tr>
<tr>
<td>Iberia</td>
<td>5.8</td>
<td>8.2</td>
<td>13.1</td>
<td>10.4</td>
<td>8.9</td>
<td>8.6</td>
<td>9.9</td>
<td>10.1</td>
<td>12.3</td>
<td>10.6</td>
<td>14.4</td>
</tr>
<tr>
<td>Poland</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.4</td>
<td>0.6</td>
<td>2.2</td>
<td>3.3</td>
<td>4.5</td>
<td>3.1</td>
<td>3.1</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>0.0</td>
<td>0.6</td>
<td>0.0</td>
<td>0.7</td>
<td>0.5</td>
<td>1.7</td>
<td>3.8</td>
<td>3.1</td>
<td>2.2</td>
<td>2.0</td>
<td>1.8</td>
</tr>
<tr>
<td>Hungary/Slovakia</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.7</td>
<td>1.0</td>
</tr>
<tr>
<td>Yugoslavia/Albania</td>
<td>0.0</td>
<td>0.0</td>
<td>2.8</td>
<td>0.9</td>
<td>1.1</td>
<td>3.0</td>
<td>3.9</td>
<td>4.1</td>
<td>7.6</td>
<td>5.6</td>
<td>5.4</td>
</tr>
<tr>
<td>Bulgaria/Rumania</td>
<td>2.3</td>
<td>4.1</td>
<td>4.4</td>
<td>3.7</td>
<td>4.9</td>
<td>6.0</td>
<td>5.3</td>
<td>6.0</td>
<td>5.0</td>
<td>5.9</td>
<td>5.9</td>
</tr>
<tr>
<td>Greece</td>
<td>2.5</td>
<td>6.7</td>
<td>5.5</td>
<td>4.8</td>
<td>4.2</td>
<td>6.0</td>
<td>8.6</td>
<td>2.9</td>
<td>5.5</td>
<td>3.5</td>
<td>3.6</td>
</tr>
</tbody>
</table>

Major Cities

Map 1. Cities in the sample
Major Cities

<table>
<thead>
<tr>
<th>Country</th>
<th>nr. cities &gt;=10000 inhabitants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>800</td>
</tr>
<tr>
<td>Scandinavia</td>
<td>-</td>
</tr>
<tr>
<td>Great Britain</td>
<td>-</td>
</tr>
<tr>
<td>Ireland</td>
<td>-</td>
</tr>
<tr>
<td>Low Countries</td>
<td>-</td>
</tr>
<tr>
<td>France</td>
<td>10</td>
</tr>
<tr>
<td>Germany</td>
<td>6</td>
</tr>
<tr>
<td>Austria/Switzerland</td>
<td>-</td>
</tr>
<tr>
<td>Italy</td>
<td>5</td>
</tr>
<tr>
<td>Iberia</td>
<td>9</td>
</tr>
<tr>
<td>Poland</td>
<td>-</td>
</tr>
<tr>
<td>Czech Rep.</td>
<td>-</td>
</tr>
<tr>
<td>Hungary/Slovakia</td>
<td>-</td>
</tr>
<tr>
<td>Yugoslavia/Albania</td>
<td>-</td>
</tr>
<tr>
<td>Bulgaria/Rumania</td>
<td>1</td>
</tr>
<tr>
<td>Greece</td>
<td>1</td>
</tr>
<tr>
<td>Turkey</td>
<td>6</td>
</tr>
<tr>
<td>Lebanon/Israel</td>
<td>2</td>
</tr>
<tr>
<td>Syria</td>
<td>3</td>
</tr>
<tr>
<td>Iraq</td>
<td>4</td>
</tr>
<tr>
<td>Egypt</td>
<td>2</td>
</tr>
<tr>
<td>North Africa</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
</tr>
</tbody>
</table>

### Expansion of Monastery Building

Table 7. Estimated numbers of monasteries in the Western Europe (sixth to fifteenth centuries).

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centr</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>16</td>
<td>79</td>
<td>458</td>
<td>718</td>
<td>695</td>
<td>690</td>
</tr>
<tr>
<td>Scol</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>32</td>
<td>113</td>
<td>119</td>
<td>167</td>
<td>113</td>
</tr>
<tr>
<td>Rom</td>
<td>236</td>
<td>480</td>
<td>463</td>
<td>437</td>
<td>437</td>
<td>526</td>
<td>1,325</td>
<td>1,530</td>
<td>1,447</td>
<td>1,333</td>
</tr>
<tr>
<td>Ger</td>
<td>586</td>
<td>988</td>
<td>1,240</td>
<td>1,636</td>
<td>2,091</td>
<td>5,051</td>
<td>8,104</td>
<td>8,564</td>
<td>8,199</td>
<td>7,554</td>
</tr>
<tr>
<td>Bldg</td>
<td>0</td>
<td>53</td>
<td>68</td>
<td>70</td>
<td>88</td>
<td>175</td>
<td>312</td>
<td>364</td>
<td>361</td>
<td>335</td>
</tr>
<tr>
<td>Neth</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>7</td>
<td>13</td>
<td>20</td>
<td>68</td>
<td>189</td>
<td>336</td>
<td>679</td>
</tr>
<tr>
<td>Germ</td>
<td>0</td>
<td>138</td>
<td>622</td>
<td>924</td>
<td>1,129</td>
<td>1,652</td>
<td>2,873</td>
<td>3,110</td>
<td>2,967</td>
<td>2,752</td>
</tr>
<tr>
<td>Swiz</td>
<td>10</td>
<td>19</td>
<td>37</td>
<td>71</td>
<td>104</td>
<td>144</td>
<td>247</td>
<td>321</td>
<td>337</td>
<td>333</td>
</tr>
<tr>
<td>Aust</td>
<td>12</td>
<td>11</td>
<td>70</td>
<td>99</td>
<td>113</td>
<td>186</td>
<td>344</td>
<td>406</td>
<td>413</td>
<td>372</td>
</tr>
<tr>
<td>Italy</td>
<td>291</td>
<td>306</td>
<td>495</td>
<td>704</td>
<td>995</td>
<td>2,072</td>
<td>2,990</td>
<td>3,405</td>
<td>3,416</td>
<td>3,333</td>
</tr>
<tr>
<td>Denl</td>
<td>58</td>
<td>117</td>
<td>170</td>
<td>537</td>
<td>1,340</td>
<td>2,549</td>
<td>3,250</td>
<td>3,223</td>
<td>3,003</td>
<td>2,876</td>
</tr>
</tbody>
</table>

Source: Eltjo Buringh and Jan Luiten van Zanden (2005) “Charting the "rise of the West". Manuscript and printed books in Europe, a long-term perspective from the sixth through eighteenth century”
### Table 1. Manuscript production in absolute numbers per century (sixth to fifteenth centuries)

<table>
<thead>
<tr>
<th>Century</th>
<th>6th</th>
<th>7th</th>
<th>8th</th>
<th>9th</th>
<th>10th</th>
<th>11th</th>
<th>12th</th>
<th>13th</th>
<th>14th</th>
<th>15th</th>
</tr>
</thead>
<tbody>
<tr>
<td>CentR</td>
<td>1682</td>
<td>2,441</td>
<td>15,920</td>
<td>74,190</td>
<td>12,752</td>
<td>45,061</td>
<td>197,831</td>
<td>510,828</td>
<td>564,624</td>
<td>1,195,783</td>
</tr>
<tr>
<td>Brit</td>
<td>0</td>
<td>0</td>
<td>657</td>
<td>1,136</td>
<td>5,377</td>
<td>42,066</td>
<td>45,363</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fr</td>
<td>0</td>
<td>0</td>
<td>7,503</td>
<td>59,771</td>
<td>45,703</td>
<td>49,548</td>
<td>166,876</td>
<td>370,292</td>
<td>293,814</td>
<td></td>
</tr>
<tr>
<td>Germ</td>
<td>0</td>
<td>0</td>
<td>594</td>
<td>1,799</td>
<td>1,090</td>
<td>2,355</td>
<td>3,821</td>
<td>6,349</td>
<td>10,652</td>
<td></td>
</tr>
<tr>
<td>Austr</td>
<td>0</td>
<td>0</td>
<td>2,755</td>
<td>8,414</td>
<td>2,088</td>
<td>37,370</td>
<td>37,498</td>
<td>59,777</td>
<td>88,623</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>10,194</td>
<td>4,478</td>
<td>6,536</td>
<td>20,367</td>
<td>15,215</td>
<td>38,768</td>
<td>98,207</td>
<td>253,013</td>
<td>879,364</td>
<td></td>
</tr>
<tr>
<td>Iberia</td>
<td>1,594</td>
<td>2,512</td>
<td>3,770</td>
<td>21,693</td>
<td>48,763</td>
<td>40,871</td>
<td>114,422</td>
<td>237,818</td>
<td>344,284</td>
<td>390,478</td>
</tr>
<tr>
<td>Europe</td>
<td>12,552</td>
<td>16,610</td>
<td>43,702</td>
<td>201,742</td>
<td>125,637</td>
<td>220,030</td>
<td>788,721</td>
<td>1,741,051</td>
<td>2,746,051</td>
<td>4,090,161</td>
</tr>
</tbody>
</table>

Source: Eltjo Buringh and Jan Luiten van Zanden (2005) “Charting the "rise of the West". Manuscript and printed books in Europe, a long-term perspective from the sixth through eighteenth century”
The Population of England

English Wool and Cloth Exports

Figure 4. English exports of wool and cloth, 1279–1544 (cloth exports are only consistently recorded from the mid-fourteenth century).


The Medieval Boom and the Black Death

- Acemoglu and Robinson argue that in Western Europe, feudalism and the Medieval Boom collapsed with the Black Death, ultimately leading to a new set of institutions that sustained economic growth.

- The collapse of institutions in Western Europe came with a great deal of disorganization and chaos - for instance the 100 Years War between 1337 and 1453 between England and France.

- We saw that Jongmans’ idea about the collapse of the Roman Empire was that the Antonine Plague tipped institutions in a direction that emphasized labor coercion. The Black Death did that in Eastern Europe. In Western Europe, it did not. However, a new political model needed to develop before the economic benefits of the decline of feudalism could be experienced.
The Emergence from the Middle Ages

▶ We will now consider the Middle Ages in Europe, and why different societies emerged from it very differently.
▶ Again, political institutions - particularly as they relate to labor coercion - will be important.
Outline

Theories About Pre-Modern Economic Growth
The Malthusian Model: Theory
The Malthusian Model: Evidence
An alternative framework: Acemoglu and Robinson

The Rise and Fall of Ancient Societies
The Rise and Fall of the Maya
The Rise and Fall of Rome

The Middle Ages
Collapse and Boom During the Middle Ages
The Emergence from the Middle Ages: Second Serfdom
The Emergence from the Middle Ages in Western Europe
Initial Construction of a Modern State in England
Elsewhere in the World
Returning to the Black Death

- Some time around the middle of 1346 the bubonic plague reached the city of Tana at the mouth of the River Don on the Black Sea. It traveled from China brought by traders along the Silk Road.

- The plague was transmitted by fleas that lived on rats.

- Tana was a port and the rats were soon spreading the fleas and devastation around the Mediterranean through Genoese ships.

- By early 1347 it had reached Constantinople.

- In the spring of 1348 it spread through France and North Africa and up the boot of Italy.
The Advance of the Black Death

1. Spread of the Black Death in the Old World, 1346–1353
The Plague in Florence

The plague wiped out around half of the population of any area it hit. Its arrival in the Italian city of Florence was witnessed first hand by the Italian writer Giovanni Boccaccio. He later recalled

“In the face of its onrush, all the wisdom and ingenuity of man were unavailing .. the plague began, in a terrifying and extraordinary manner, to make its disastrous effects apparent. It did not take the form it had assumed in the East, where if anyone bled from the nose it was an obvious portent of certain death. On the contrary, its earliest symptom . . . was the appearance of certain swellings in the groin or armpit, some of which were egg-shaped whilst others were roughly the size of a common apple .. Later on the symptoms of the disease changed, and many people began to find dark blotches and bruises on their arms, thighs and other parts of their bodies ... Against these maladies .. all the advice of physicians and all the power of medicine were profitless and unavailing .. and in most cases death occurred within three days from the appearance of the symptoms we have described.”
The Black Death in Eastern Europe

- The plague seems to have hit most of Europe, and the percentage of people killed was similar across space.
- After the plague, landlords in Eastern Europe started to take over large tracts of land and expand their holdings, which were already larger than those in Western Europe.
- Towns were weaker and less populous and rather than becoming freer, workers began to see their already existing freedoms encroached on: the Domar hypothesis at work.
- This contrasts with the English case, which we discussed last lecture, and with Western Europe more generally.
The Second Serfdom

- This phenomenon is known as the Second Serfdom, to distinguish it from the original serfdom which had happened in the early Middle Ages.
- The effects became especially pronounced after 1500, when Western Europe began to demand the agricultural goods which the East produced such as wheat, rye and livestock.
- 80 percent of the imports of rye into Amsterdam came east from the Elbe, Vistula and Oder river valleys. Soon half of the Netherlands’ booming trade was with Eastern Europe.
- Eastern landlords ratcheted up their control over the labor force to expand their production.
The Second Serfdom

The historical literature emphasizes that the Second Serfdom was distinct and more intense than the original.

Lords increased the taxes they levied on their tenants. In Mecklenberg in Eastern Germany in 1500, peasants owed only a few days unpaid labor services a year to landowners. By 1550 this was one day a week and by 1600 three days per week. Workers’ children had to work for the lord for free for several years.

In Hungary, landlords legislated one day a week of unpaid labor services for each worker. In 1550 this was raised to 2 days per week. By the end of the century it was 3 days. Serfs subject to these rules made up 90% of the rural population by this time.
The Incentive to Enslave - The Domar Hypothesis

- Real wage
- Cost of enslaving People (per-capita)
- Initial equilibrium wage
- Labor Demand
- Initial labor supply

The Incentive to Enslave - The Domar Hypothesis
- Real wage
- Labor Demand
- Initial labor supply
- Cost of enslaving People (per-capita)
- Initial equilibrium wage
Consequences of a Plague

When population falls it becomes worthwhile to incur the costs of enslaving.
The Second Serfdom

- Jongmans explicitly compares the decline of Rome to the Second Serfdom.
- His argument is that the most important potential impact of population collapse is on institutions. His argument is that the Antonine plague pushed economic institutions into a much more extractive mode and this is why the Empire collapsed.
- An obvious mechanism is that extractive institutions create conflict and instability, as we saw with the Mayans.
- But this is outside the scope of the Domar model. Clearly, the model needs not just to be amended by introducing power but also the fact that when the labor market ‘power’ of workers is high this can not only avoid slavery or serfdom but can induce other institutional changes in society.
Outline

Theories About Pre-Modern Economic Growth
- The Malthusian Model: Theory
- The Malthusian Model: Evidence
- An alternative framework: Acemoglu and Robinson

The Rise and Fall of Ancient Societies
- The Rise and Fall of the Maya
- The Rise and Fall of Rome

The Middle Ages
- Collapse and Boom During the Middle Ages
- The Emergence from the Middle Ages: Second Serfdom
- The Emergence from the Middle Ages in Western Europe
- Initial Construction of a Modern State in England
- Elsewhere in the World
Recall Our Discussion of Mill Prices in England

- What was it that allowed landlords in Eastern Europe to intensify serfdom, when in England after the Black Death the state was incapable of enforcing the Statue of Laborers and stopping wages from rising?
- The economic historian Bruce Campbell has proposed that this may have been because of the differential organization of landholdings in Britain, which increased competition between landowners for workers after the Black Death.
- He uses data on the prices of mills in different parts of England. These were owned by Lords and valued on their death.
Landholdings in England

- After invading England, William the Conqueror rewarded his army by providing them with feudal landholdings.
- In an effort to prevent these nobles from becoming powerful regional warlords who could challenge the king’s power, each noble received landholdings scattered across the country.
- The exception was along the Scottish border, where nobles were given large plots for defensive purposes.
The Manors of Lord Gilbert de Clare (1314)
Mills

Mean value of Mills owned by Lords as valued upon their death 1300-1349

Landholdings in England

- This division of landholdings meant that in a given region, there were many landholders - and mill owners - in close proximity.
- This created intense competitive pressures for labor, particularly in the wake of the Black Death
- This contrasts to Eastern Europe
The Plague in Western versus Eastern Europe

- The direction in which institutions move can differ dramatically depending on the initial conditions.

- In the 1340s in Eastern Europe the Grand Duchy of Lithuania (founded by Mindaugas in 1253) was expanding East and South.

- Hungary was ruled by Charles I, from the House of Anjou in France. Another line of this family ruled England until the present day - the House of Plantagenet, Lancashire, York, Tudor ... were all decedents of the Angevins.

- European states all ruled over a rural economy using similar technology and with similar institutions, but certain differences - like landholding patterns - may have been critical.
A famous analysis of the divergence between Eastern and Western Europe at the end of the Middle Ages is by the Marxist historian Robert Brenner. Brenner’s goal is to explain what led to ‘capitalism’ in Western Europe.

By capitalism, Brenner means an interlocking set of institutions that emerged from feudalism: private ownership of land and assets, free markets for goods and services, and people motivated by profit and self-interest maximization.

Brenner argues that the emergence of capitalistic institutions and values are what created the industrial revolution.
What drove the ‘Transition to Capitalism’ from feudalism?

- Brenner is interested in what drove this change. He wants to criticize two views of the emergence of capitalism which he regards as wrong: (1) the Commercialization Model, (2) the Demographic Model.

- Brenner himself puts forward what he calls the Class Conflict Model (which of course originates with Marx).
The Commercialization Model: Evidence in Favor

- The Commercialization view argues that it was expanding trade and the spread of what M.M. Postan called the ‘money economy’ - during the Medieval Boom - that gradually eroded the feudal ‘non-market’ economy, inevitably leading to capitalism.

- In the Medieval period the market certainly expanded. By 1330 most of England’s wool production was sold in markets, and about 1/3 of grain production was sold in markets (John Hatcher and Mark Bailey, *Modelling the Middle Ages* p. 144).
The situation was very different 500 years previously. In the wake of the collapse of the Western Roman Empire, money even stopped being used. Trade contracted, as we saw from the shipwreck evidence.

Significant that early commercial successes were in places practically exempt from traditional feudal institutions - Venice and the Netherlands.
What is the impact of the rise of the market on social norms? Could the spread of the market have created a different culture that in turn promoted modernization?

People are not simply self-interested but sometimes behave altruistically and comply with norms of behavior that cannot be explained simply by the anticipation that if they do not follow these norms they will be punished.

Some economists go further and argue that legal systems are imperfect ways of contract enforcement and that without such norms, it is impossible to have a functioning market economy.
Market and Society

- Very little evidence remains about the attitudes and beliefs of common people during the late Middle Ages. To the extent we know anything, it is mostly about the most elite members of society.

- However, researchers have pointed to modern evidence about the relationship between markets and social norms to support the commercialization hypothesis.

- Consider the large comparative interdisciplinary project on the “Foundations of Human Sociality.”

- This project has collected experimental data from different societies around the world in an attempt to explain variation in behavior in simple games: the ultimatum game and the dictator game.
The Ultimatum and Dictator Games

- In the ultimatum game two players play each other. One is chosen as the proposer and proposes a split of some given amount of money - how much for him and how much for the other player.

- After the proposer proposes, the other (the responder) says yes or no. If yes then the money is split according to the division proposed by the proposer. If the responder says no then neither player gets anything.

- The dictator game is the same but without \{reject;accept\}.

- They also play a game where players are given money and can decide how much to contribute to a pool. The pool is increased by 50% and then distributed equally to the players. This creates a classic free rider problem where it would be advantageous for all the players to contribute to the pool but each individual has the incentive to let others contribute to this public good.
Locations of Study

Characteristics of Participant Societies

<table>
<thead>
<tr>
<th>Group</th>
<th>Language family</th>
<th>Environment</th>
<th>Economic base</th>
<th>Residence</th>
<th>Complexity</th>
<th>Researchers</th>
<th>Settlement Size</th>
<th>Payoffs to Cooperation</th>
<th>Anonymity</th>
<th>Market Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machiguenga</td>
<td>Anuwakan</td>
<td>Tropical forest</td>
<td>Horticulture</td>
<td>Bilocality semi-nomadic</td>
<td>Family</td>
<td>Heinrich, Smith</td>
<td>250</td>
<td>1</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Quichua</td>
<td>Quichua</td>
<td>Tropical forest</td>
<td>Horticulture</td>
<td>Sedentary/semi-nomadic</td>
<td>Family</td>
<td>Patton</td>
<td>187</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Achuar</td>
<td>Jivarcoan</td>
<td>Tropical forest</td>
<td>Horticulture</td>
<td>Sedentary/semi-nomadic</td>
<td>Family plus extended ties</td>
<td>Patton</td>
<td>187</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Hadza</td>
<td>Khoisan/Isolate</td>
<td>Semi-tropical woodlands</td>
<td>Foraging</td>
<td>Nomadic Sedentary</td>
<td>Band</td>
<td>Marlowe, Hill</td>
<td>75</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Ache</td>
<td>Tupi-Guarani</td>
<td>Savanna-woodlands</td>
<td>Foraging</td>
<td>Sedentary Sedentary</td>
<td>Band</td>
<td>Gurven</td>
<td>300</td>
<td>6</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Tsimaic</td>
<td>Maero-panoaan Isolate</td>
<td>Tropical forest</td>
<td>Foraging</td>
<td>Semi-nomadic</td>
<td>Family</td>
<td>Gurven</td>
<td>93</td>
<td>1</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Au</td>
<td>Torricelli/Wapei</td>
<td>Mountainous tropical forest</td>
<td>Foraging/Horticulture</td>
<td>Sedentary</td>
<td>Village</td>
<td>Tracer</td>
<td>300</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Gaur</td>
<td>Isolate</td>
<td>Temperate plains</td>
<td>Foraging/semi-nomadic</td>
<td>Sedentary</td>
<td>Village</td>
<td>Tracer</td>
<td>300</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Targnids</td>
<td>Mongolian</td>
<td>High-latitude desert, seasonally-flooded grassland</td>
<td>Pastoralism</td>
<td>Transhumance Clan</td>
<td>Gil-White</td>
<td>1900</td>
<td>2</td>
<td>9</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Kazakhs</td>
<td>Turkic</td>
<td>High-latitude desert, seasonally-flooded grassland</td>
<td>Pastoralism</td>
<td>Transhumance Clan</td>
<td>Gil-White</td>
<td>1900</td>
<td>2</td>
<td>9</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Sangu</td>
<td>Bantu</td>
<td>Savanna-woodlands, seasonally-flooded grassland</td>
<td>Agro-Pastoralists</td>
<td>Sedentary or Nomadic</td>
<td>Clan-Chiefdom</td>
<td>McElreath</td>
<td>250</td>
<td>5</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Orma</td>
<td>Bushite</td>
<td>Savanna-woodlands</td>
<td>Pastoralism</td>
<td>Sedentary or Nomadic</td>
<td>Multi-Clan Chiefdom</td>
<td>Ensminger</td>
<td>500</td>
<td>2</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Lamalera</td>
<td>Malayo-Polynesian</td>
<td>Island tropical coast</td>
<td>Foraging-Trade</td>
<td>Sedentary</td>
<td>Village</td>
<td>Alvard</td>
<td>1219</td>
<td>7</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Shona</td>
<td>Niger-Congo</td>
<td>Savanna-woodlands</td>
<td>Farming</td>
<td>Sedentary</td>
<td>Village</td>
<td>Barr</td>
<td>480</td>
<td>5</td>
<td>10</td>
<td>8</td>
</tr>
</tbody>
</table>
Fig. 2.2. A Bubble Plot showing the distribution of Ultimatum Game offers for each group

Notes: The diameter of the bubble at each location along each row represents the proportion of the sample that made a particular offer. The right edge of the lightly shaded horizontal gray bar is the mean offer for that group. Looking across the Machiguenga row, for example, the mode is 0.15, the secondary mode is 0.25, and the mean is 0.26.
Understanding Variation

- What explains different play in these games?
- They looked at various features of the societies such as payoffs to cooperation. For instance Lamalera society depends on whale hunting which requires a lot of cooperation.
- Market integration – how often do people engage in market activity?
- Settlement size, sociopolitical complexity.
- **Main conclusion**: Market integration is positively correlated with ‘pro-social behavior’, for example equal shares in the ultimatum game.
Understanding Variation

The dependent variable in Table 2.5 is the group mean offer in the ultimatum game.

<table>
<thead>
<tr>
<th>PC</th>
<th>AN</th>
<th>MI</th>
<th>PR</th>
<th>SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC</td>
<td>0.242</td>
<td>0.778</td>
<td>0.913</td>
<td>0.374</td>
</tr>
<tr>
<td>PC</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>AN</td>
<td>—</td>
<td>—</td>
<td>0.039</td>
<td>—</td>
</tr>
<tr>
<td>MI</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>0.743</td>
</tr>
<tr>
<td>PR</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>SS</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

**Table 2.4. Correlation matrix among predictor variables**

<table>
<thead>
<tr>
<th>β</th>
<th>Std. error</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>0.261</td>
<td>0.036</td>
</tr>
<tr>
<td>PC</td>
<td>0.021</td>
<td>0.007</td>
</tr>
<tr>
<td>AMI</td>
<td>0.012</td>
<td>0.005</td>
</tr>
</tbody>
</table>

### Table 2.5. Regression coefficients and statistics

SC = Socio-Political Complexity; PC = Payoffs to Cooperation; AN = Anonymity; PR = Privacy; SS = Settlement Size; MI = Market Integration; AMI = Aggregate Market Integration
Ancient and Medieval Growth
Melissa Dell

Understanding Variation

Fig. 2.5. Partial regression plots of mean Ultimatum Game offer as a function of indexes of Payoffs to Cooperation and Market Integration.

Notes: The vertical and horizontal axes are in units of standard deviation of the sample. Because Aggregate Market Integration and Payoffs to Cooperation are not strongly correlated, these univariate plots give a good picture of the effect of the factors captured by these indexes on the Ultimatum Game behavior.
The Commercialization Model: Brenner’s Attack

- After the Black Death there seems to have been a collapse in international trade, but this is exactly at the point where feudal institutions declined most rapidly.

- We saw the expansion of grain exports and market exchange from Eastern Europe to Western Europe spurred the Second Serfdom in the East. So commerce is perfectly consistent with feudal economic institutions and labor coercion, indeed it may encourage it (i.e. the later Atlantic slave trade).

- Brenner argued that there was no simple relationship between expanding trade and the development of institutions, particularly capitalism. In response to an increase in commercialization, what happened to institutions depended on the ‘balance of class power’.
The Demographic Model

- This proposes that it was the demographic collapse of the Black Death which undermined the institutions of feudalism and allowed the creation of capitalism.
- This was originally proposed by Postan, who critiqued the Commercialization Model during the 1940s.
- Brenner’s attack on this is obvious: both Western and Eastern Europe experienced the same demographic shock but while feudalism led to capitalism in the West, feudalism intensified in the East.
- We’ve already seen other examples like this.
The Class-Conflict Model

- Brenner instead argues that class conflict was key.
- For instance, wages in England were falling and rents rising 1050-1340. Changes in the Common Law in the late 12th century led to the exclusion of the unfree from the protection of the Royal courts and large increase in the extent of villeinage (about 3/5ths of all rural people were unfree by the late 13th century England, Hatcher and Bailey, p. 99).
- Mixed evidence on the extent of conflict before Black Death. However, intense conflict in England after the Black Death and leading up to the Peasants Revolt in 1381 followed by rapid decline of feudal institutions very consistent with the notion that the emergence from the Middle Ages was driven by conflict.
Outline

Theories About Pre-Modern Economic Growth
- The Malthusian Model: Theory
- The Malthusian Model: Evidence
- An alternative framework: Acemoglu and Robinson

The Rise and Fall of Ancient Societies
- The Rise and Fall of the Maya
- The Rise and Fall of Rome

The Middle Ages
- Collapse and Boom During the Middle Ages
- The Emergence from the Middle Ages: Second Serfdom
- The Emergence from the Middle Ages in Western Europe

Initial Construction of a Modern State in England
Elsewhere in the World
From Feudalism to Absolutism

- Following the collapse of feudalism in Western Europe, political power re-centralized.
- The decline of serfdom and feudalism weakened the lords relative to the king, who centralized power.
- In England this happened significantly during the Tudor Dynasty, which came to power in 1485 after a long civil war called the Wars of the Roses. This was a conflict between the House of York and the House of Lancaster. It was elites fighting over who was going to extract rents from the population.
- Soon the nature of political conflict began to change in England.
Construction of a Modern State in England

- The first two Tudor Kings Henry VII and Henry VIII made fundamental changes to the state.


- Until the early 16th Century there was little distinction between the King’s household and the executive, between the King’s resources and that of the state. Cromwell gave the King’s household specific well defined tasks and separated key departments which became nascent bureaucratic institutions. He formed the key Privy Council, the members of which were members of a national institution, not personal companions of the reigning monarch.
Dissolution of the Monasteries

- Henry VIII broke with the Roman Catholic Church and expropriated the land of the Church.
- This made the state stronger and it had a fundamental impact on the social structure.
Landownership in England

Table V  Distribution of landownership in England: percentages of cultivated land owned

<table>
<thead>
<tr>
<th></th>
<th>Mid 15th century (1436)</th>
<th>Late 17th century (1688)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great magnates</td>
<td>15–20</td>
<td>15–20</td>
</tr>
<tr>
<td>Middling and lesser gentry</td>
<td>25</td>
<td>45–50</td>
</tr>
<tr>
<td>Yeomen, family farmers and other small owners</td>
<td>20</td>
<td>25–33</td>
</tr>
<tr>
<td>Church</td>
<td>25–35</td>
<td>5–10</td>
</tr>
</tbody>
</table>


The English Social Hierarchy in 1688 according to Gregory King, take from D.C. Coleman (1977) *The Economy of England 1450-1750*, OUP.

<table>
<thead>
<tr>
<th>Ranks, Degrees, Titles, and Qualifications</th>
<th>Number of families</th>
<th>Heads per family</th>
<th>Number of persons</th>
<th>Yearly income per family</th>
</tr>
</thead>
<tbody>
<tr>
<td>160 Temporal Lords</td>
<td>40</td>
<td>6400</td>
<td>2800</td>
<td></td>
</tr>
<tr>
<td>26 Spiritual Lords</td>
<td>20</td>
<td>520</td>
<td>1300</td>
<td></td>
</tr>
<tr>
<td>800 Barons</td>
<td>16</td>
<td>12 800</td>
<td>880</td>
<td></td>
</tr>
<tr>
<td>600 Knights</td>
<td>13</td>
<td>7800</td>
<td>650</td>
<td></td>
</tr>
<tr>
<td>3000 Esquires</td>
<td>10</td>
<td>30 000</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>12 000 Gentlemen</td>
<td>8</td>
<td>96 000</td>
<td>280</td>
<td></td>
</tr>
<tr>
<td>5000 Persons in Offices</td>
<td>8</td>
<td>40 000</td>
<td>240</td>
<td></td>
</tr>
<tr>
<td>5000 Persons in Offices</td>
<td>6</td>
<td>30 000</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>2000 Merchants and Traders by Sea</td>
<td>8</td>
<td>16 000</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>8000 Merchants and Traders by Sea*</td>
<td>6</td>
<td>48 000</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>10 000 Persons in the Law</td>
<td>7</td>
<td>70 000</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>2000 Clergymen</td>
<td>6</td>
<td>12 000</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>8000 Clergymen</td>
<td>5</td>
<td>40 000</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>40 000 Freeholders</td>
<td>7</td>
<td>280 000</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>140 000 Freeholders</td>
<td>5</td>
<td>700 000</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>150 000 Farmers</td>
<td>5</td>
<td>750 000</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>16 000 Persons in Sciences and Liberal Arts</td>
<td>5</td>
<td>80 000</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>40 000 Shopkeepers and Tradesmen</td>
<td>4</td>
<td>240 000</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>60 000 Artisans and Handicrafts</td>
<td>4</td>
<td>20 000</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>5000 Naval Officers</td>
<td>4</td>
<td>70 000</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>4000 Military Officers</td>
<td>4</td>
<td>16 000</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>511 586</td>
<td></td>
<td></td>
<td>67</td>
<td></td>
</tr>
</tbody>
</table>

Source: Two Tracts by Gregory King, ed. G. E. Barnett (Baltimore, 1936).
Establishing a Monopoly of Violence

- The War of the Roses, a civil war between the House of York and the House of Lancaster, ended when King Richard III was defeated and killed at the Battle of Bosworth 22 August, 1485.
- Henry Tudor was crowned Henry VII.
- Richard’s army: The Duke of Norfolk had around 3,000 spearmen and archers on the right flank, protecting the cannon. Richard’s group, comprising 3,000 infantry, formed the centre. The Earl of Northumberland’s 4,000 men guarded the left flank. The Stanleys 6,000 men were on Dadlington Hill.
- What happened?
The Defeat of Richard III

The Malthusian Model: Theory

An alternative framework: Acemoglu and Robinson

The Rise and Fall of Ancient Societies

The Rise and Fall of the Maya

The Rise and Fall of Rome

The Middle Ages

Collapse and Boom during the Middle Ages

The Emergence from the Middle Ages: Second Serfdom

The Emergence from the Middle Ages in Western Europe

Initial Construction of a Modern State in England

Elsewhere in the World
The Defeat of Richard III
The Implications

- **Conclusion:** Richard III did not have a monopoly of violence.

- In fact the War of the Roses came at the end of a long period of ‘bastard feudalism’ which had seen the central state become weaker while the armed lords became more powerful.

  “Government at the center relinquished the reins, and the institutions of law and order fell under the sway of overly-powerful individuals with armed men at their backs. The famous evils of this time were all the result of this. Livery (the equipping of armed retainers with their lords’ uniform and badge to signify their sole allegiance), maintenance (the lord’s support for his followers in courts of law) . . . embracery (the corruption and intimidation of judges).” (Elton (1991, p. 6)
Establishing the Monopoly

- The project to eliminate ‘liveried retainers’ was not new. Henry IV and Edward IV had passed legislation to restrict the distribution of livery and the retaining of followers but these measures were not enforced.

- Henry VII’s strategy was more subtle. Rather than initially banning livery, a statue of 1504 stated that it had to be licensed by the king. Henry wanted to first gain control over armed retainers, indeed he had relied on them to keep order and his throne early in his reign.

- Nevertheless, he set a path towards a much stronger monopoly on violence and by 1558 liveried retainers were incorporated into the local militias under the control of the centrally appointed lord lieutenants.

- This was a critical phase in the establishment of a monopoly of violence by the central state.
Outline

Theories About Pre-Modern Economic Growth
  The Malthusian Model: Theory
  The Malthusian Model: Evidence
  An alternative framework: Acemoglu and Robinson

The Rise and Fall of Ancient Societies
  The Rise and Fall of the Maya
  The Rise and Fall of Rome

The Middle Ages
  Collapse and Boom During the Middle Ages
  The Emergence from the Middle Ages: Second Serfdom
  The Emergence from the Middle Ages in Western Europe
  Initial Construction of a Modern State in England
  Elsewhere in the World
Ancient and Medieval Growth

Melissa Dell

Theories About Pre-Modern Economic Growth

The Malthusian Model: Theory
The Malthusian Model: Evidence
An alternative framework: Acemoglu and Robinson

The Rise and Fall of Ancient Societies
The Rise and Fall of the Maya
The Rise and Fall of Rome

The Middle Ages
Collapse and Boom During the Middle Ages
The Emergence from the Middle Ages: Second Serfdom
The Emergence from the Middle Ages in Western Europe
Initial Construction of a Modern State in England

Elsewhere in the World

→ Plenty coming on this later in the course...
Mokyr (1990, Chapter 9) lists many of the ways in which China was more technologically advanced than Europe. Paper and paper money (1,000 years before Europe), printing, gunpowder were all invented first in China. The compass was invented in 960AD (In Europe it was not until about 1300 that a proper compass emerged). Blast furnaces and casting of iron dates to 200BC but arrived in Europe in the late 14th century. The spinning wheel arrived at about the same time in the 13th century.
So Sung Water Clock from 1086 AD

“Chinese water clocks ... far exceeded in mechanical complexity, mastery of materials And mechanism, and accuracy of measurements anything that Europe had to offers circa 1100AD”
A treasure ship of Zheng He was several times larger than Christopher Columbus's Santa María.
Chinese Map Making

The Kangnido map was made in Korea from Chinese source material in 1402
Chinese Map Making

Kangnido map details