

2024-01-18 Th: Spring 2024: Econ 115 :: II. Pre-Modern Societies: Agrarian-Age Society: -4000 to 1500

Last Lecture Lessons:

1.

This Lecture:

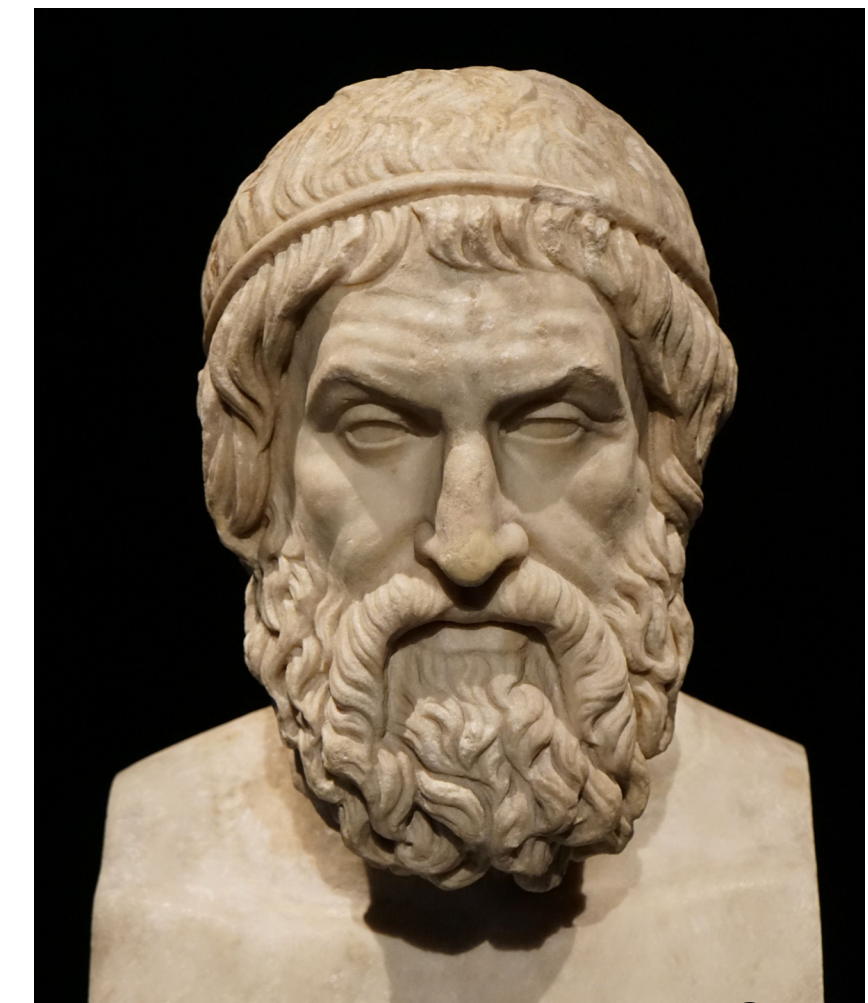
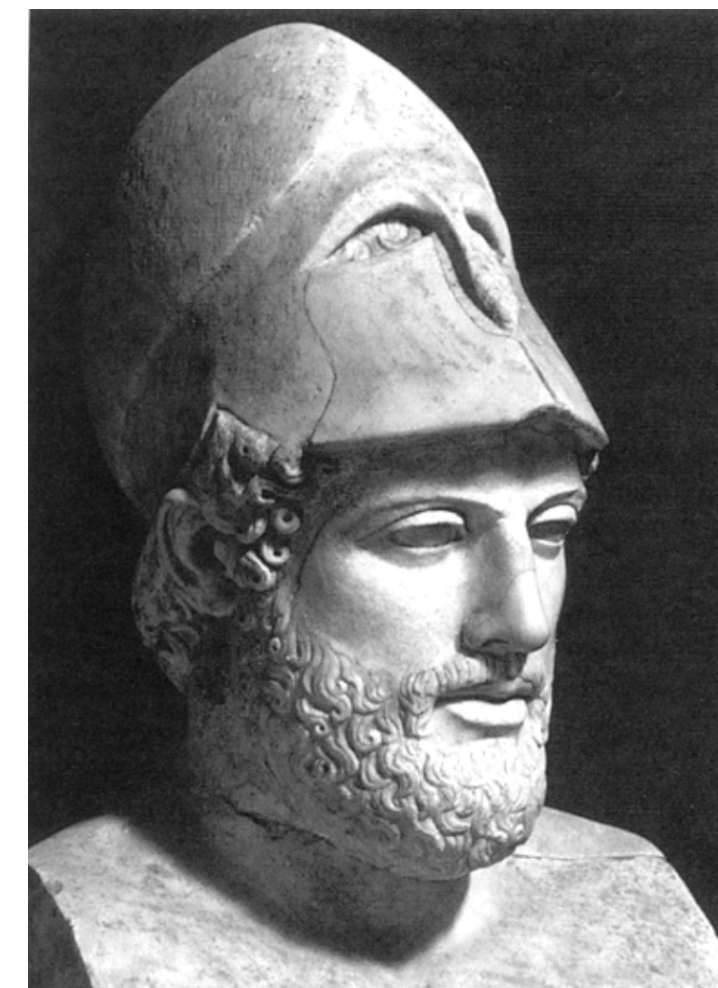
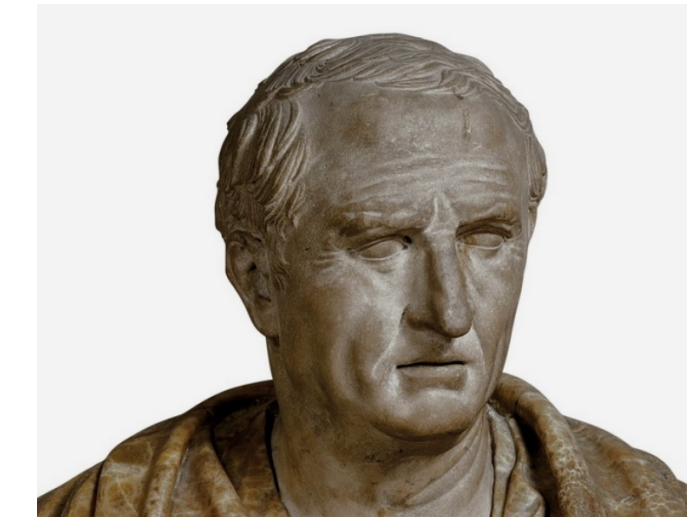
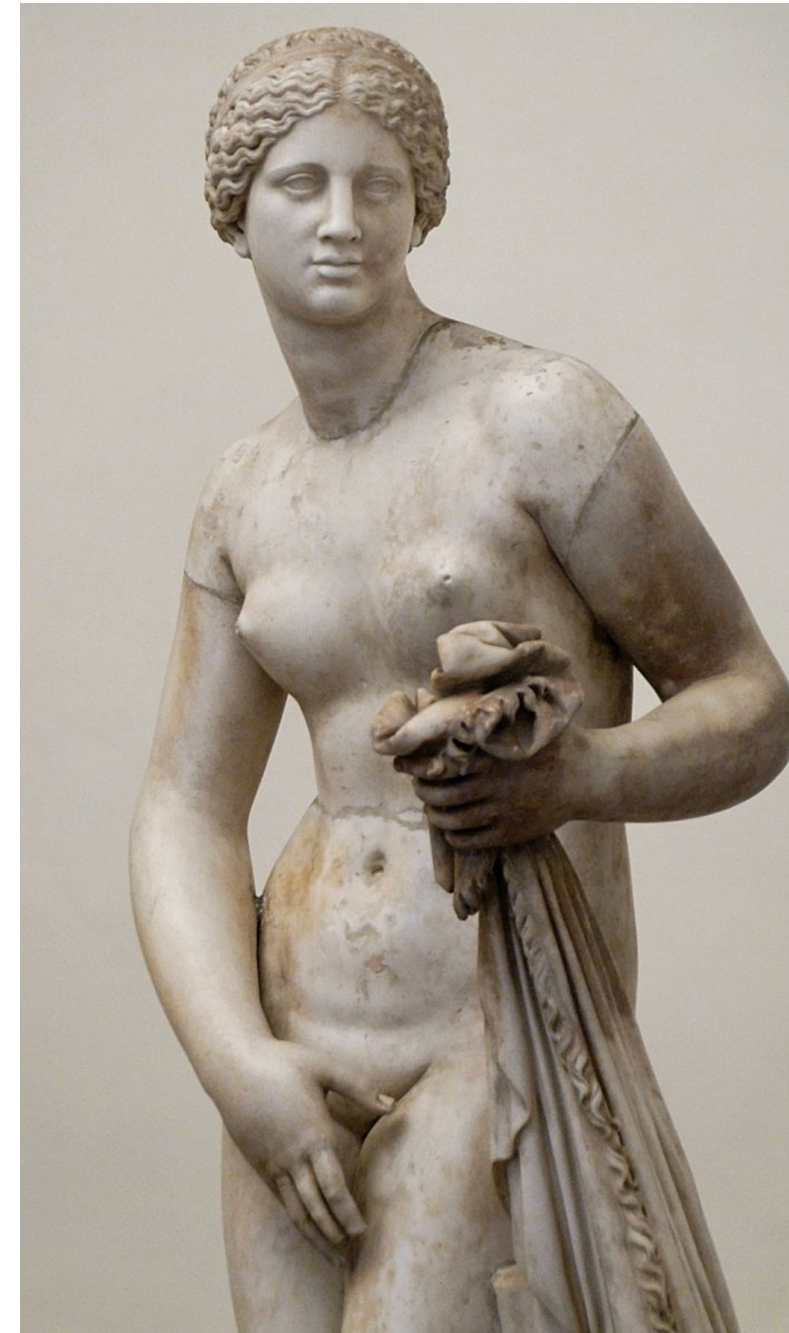
1. Looking at the globe from the discovery of agriculture to 1500 (and, in much of the world, much later)
2. Hinge of history in 1870
3. Transition from 1500 to 1870
4. Slow growth of technology before 1500: Figure 6% per century
5. Malthusian demographic pressures induce dire poverty for the masses
6. Only way to get *enough* for yourself and your family is to join the élite domination-and-exploitation by force-and-fraud gang
7. Yet civilizational accomplishments were mighty—and intra-élite politics, sociology, and economics very interesting
8. Not static: efflorescences and dark ages
9. But they do not lead to any form of escape

READING: Crone: Pre-Industrial Societies

- **Crone, Patricia.** 2014. Pre-Industrial Societies: Anatomy of the Pre-Modern World. Oneworld Publications. <https://openlibrary.org/books/OL34028800M/Pre-Industrial_Societies>:
 1. How did the central role of and reliance on agriculture in the agrarian age shape social, economic, and political structures?
 2. What were the prospects for development in the context of agrarian-age limitations on market economies in pre-industrial societies?
 3. How were pre-industrial societies stratified? What roles did peasants, the ruling elite, and the bourgeoisie play within this social structure?
 4. How did the division of labor and specialization evolve in pre-industrial societies? What were the implications for social organization and economic activity?
 5. How did the emergence of state structures affect power dynamics and social organization?
 6. How did the level of material culture and the nature of intellectual pursuits reflect the broader societal structure?

Agrarian-Age Paradox: In Everything Except Economic Growth, They Were Like Us

Date	Ideas Growth Rate h	Ideas Stock Level H	Real Income/Capita y	Population P (millions)	Total Income Y (billions)
-73000				0.01	
-68000		0.0082	\$1,200	0.1	\$0.12
-48000	0.002%	0.011	\$1,200	0.2	\$0.24
-30000	0.003%	0.018	\$1,200	0.5	\$1
-8000	0.005%	0.057	\$1,200	5	\$6
-6000	0.003%	0.061	\$900	10	\$9
-4000	0.007%	0.070	\$900	13.23	\$12
-3000	0.007%	0.074	\$900	15	\$14
-1500	0.030%	0.117	\$900	37	\$33
-1000	0.030%	0.136	\$900	50	\$45
-400	0.060%	0.195	\$900	103	\$93
150	0.060%	0.272	\$900	200	\$180
800	0.007%	0.285	\$900	220	\$198
1000	0.078%	0.333	\$900	300	\$270
1500	0.062%	0.467	\$1,000	480	\$480
1770	0.146%	0.694	\$1,100	875	\$963
1870	0.365%	1.000	\$1,300	1300	\$1,690
1930	1.793%	3.000	\$3,000	2100	\$6,300
1975	2.256%	9.000	\$6,000	4000	\$24,000
2020	2.282%	27.000	\$12,000	7800	\$93,600
2077	1.939%	81.000	\$33,173	9311	\$308,857
2100	1.939%	127.381	\$50,000	10000	\$500,000
2200	2.000%	941.227	\$369.453	10000	\$3.694.528



They Even Appear “Like Us” in Technological Accomplishments: The Anti-Kythera Mechanism

What is this?

- Built between -150 and -70. Rhodes 13” x 7” x 4” wooden box. Gears—largest 5” in diameter
- Wikipedia: “37 gear wheels enabling it to follow the movements of the Moon and the Sun through the zodiac, to predict eclipses and even to model the irregular orbit of the Moon, where the Moon's velocity is higher in its perigee than in its apogee. This motion was studied in the 2nd century BC by astronomer Hipparchus of Rhodes, and it is speculated that he may have been consulted in the machine's construction. The knowledge of this technology was lost at some point in antiquity. Similar technological works later appeared in the medieval Byzantine and Islamic worlds, but works with similar complexity did not appear again until the development of mechanical astronomical clocks in Europe in the fourteenth century...”

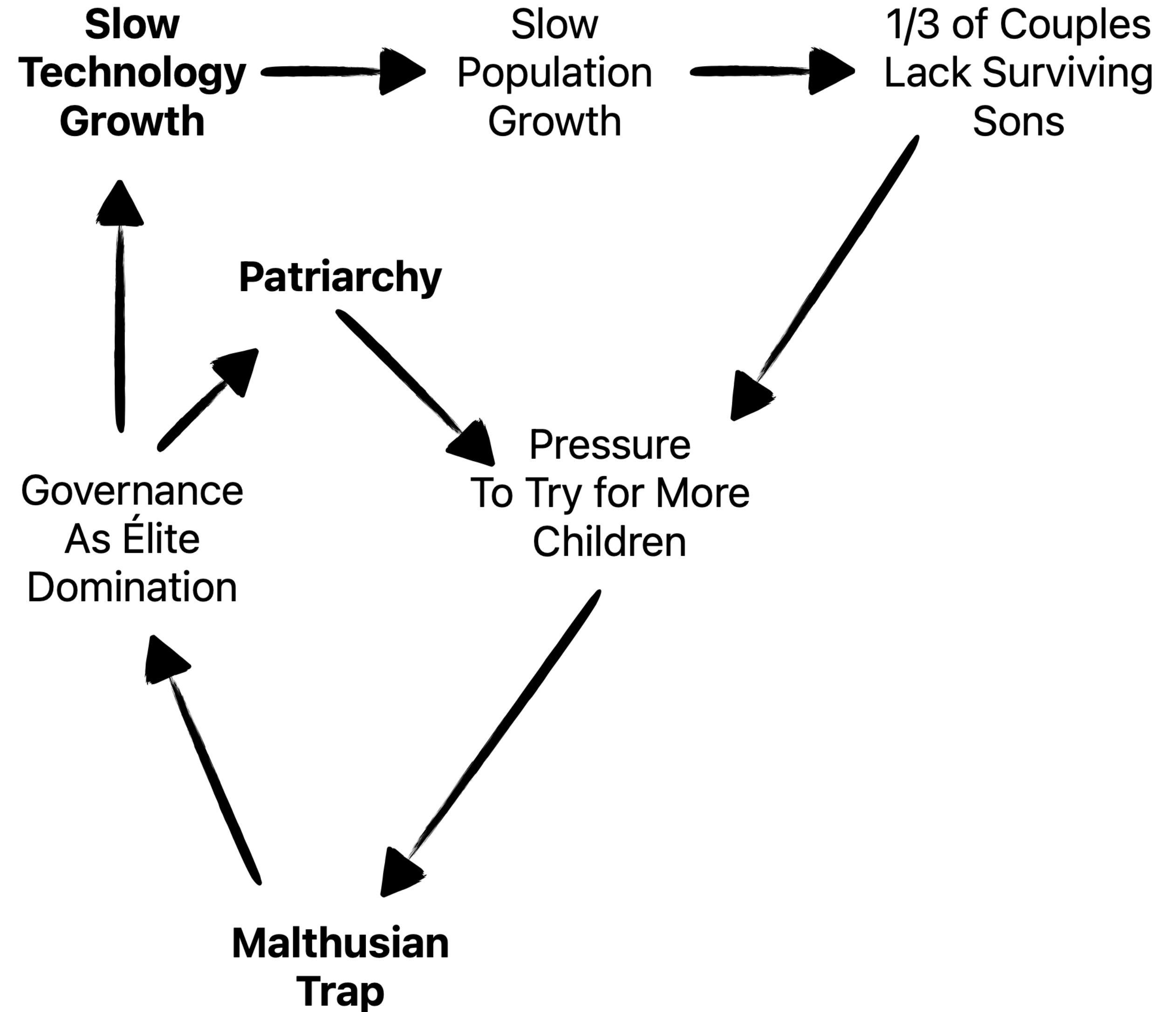


What is this?

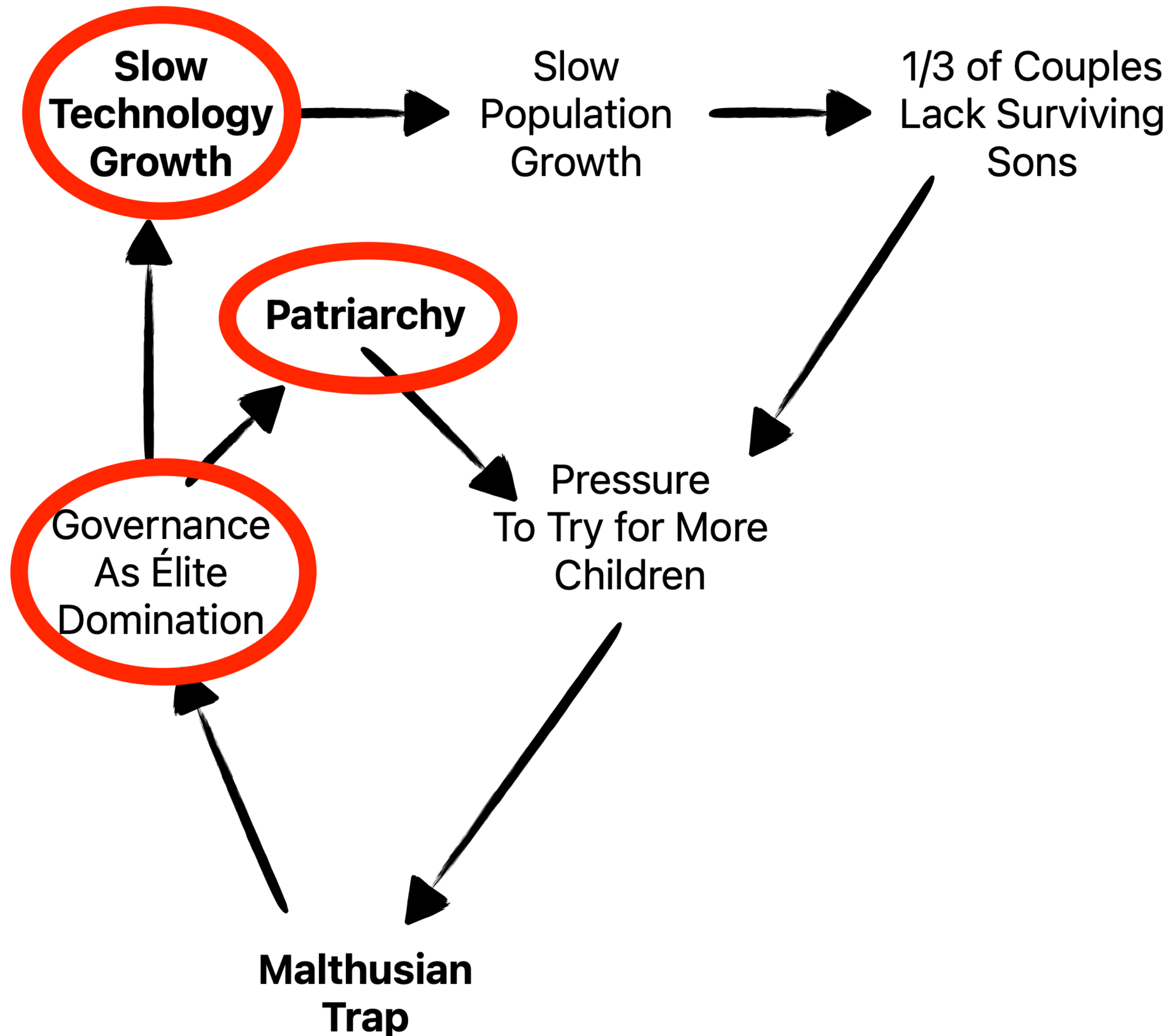
- Brian Resnick:
 - “A main gear would move to represent the calendar year, and would, in turn, move many separate smaller gears to represent the motions of the planets, sun, and moon. So you could set the main gear to the calendar date and get approximations for where those celestial objects would be in the sky on that date....
 - You, as a user, could input a few simple variables and it would yield a flurry of complicated mathematical calculations.... All the user had to do was enter the main date on one gear, and through a series of subsequent gear turns, the mechanism could calculate things like the angle of the sun crossing the sky. (For some reference, mechanical calculators—which used gear ratios to add and subtract—didn’t arrive in Europe until the 1600s)...”
- The Antikythera Mechanism (7:50) <<https://www.youtube.com/watch?v=UpLcnAIpVRA>>
- The Antikythera Mechanism (1:48:50) <<https://www.youtube.com/watch?v=xWVA6TeUKYU>>

The Malthusian Trap: The Circle of Causation

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Points of Vulnerability?

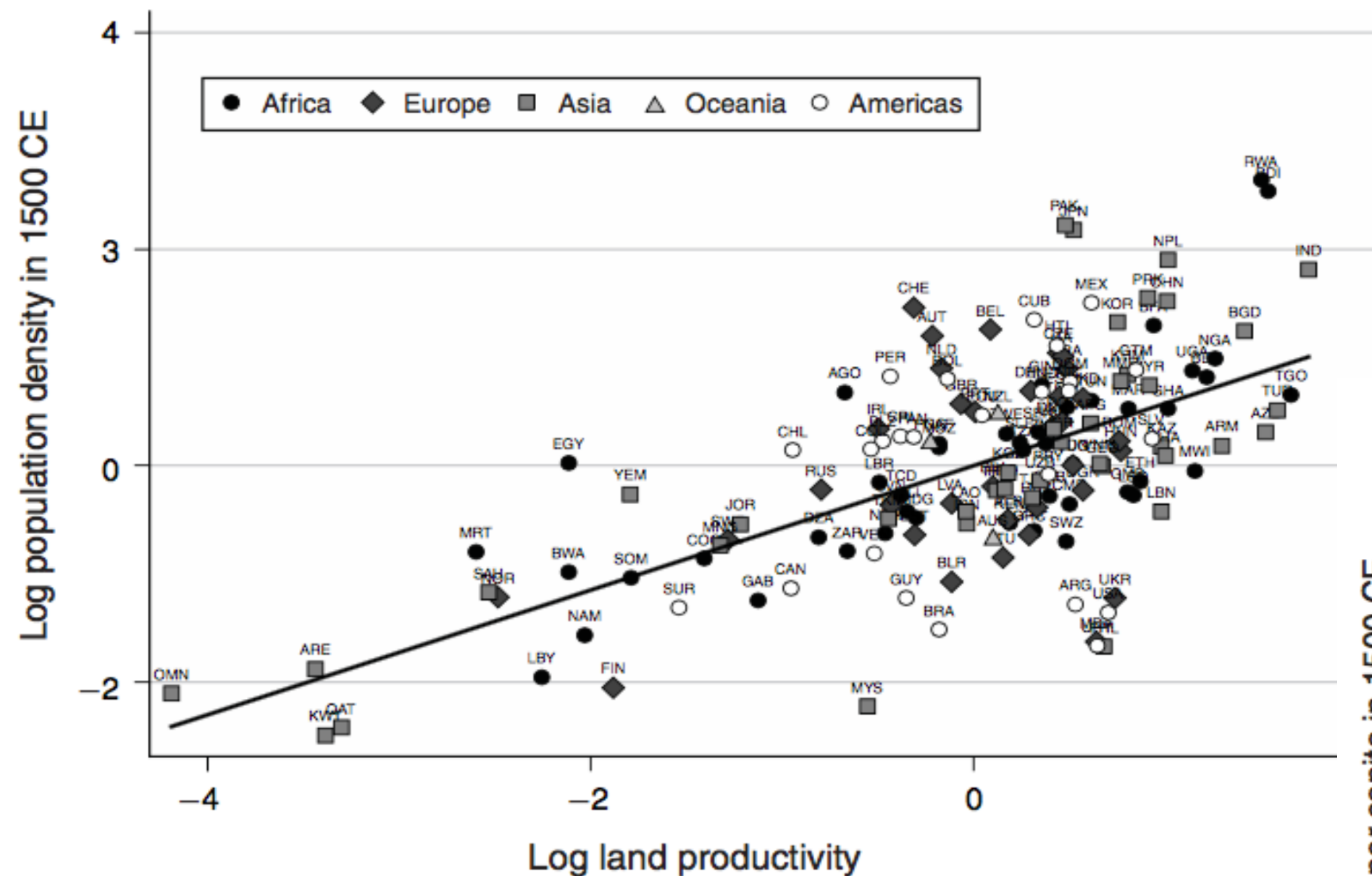


How to Break the Malthusian Trap?

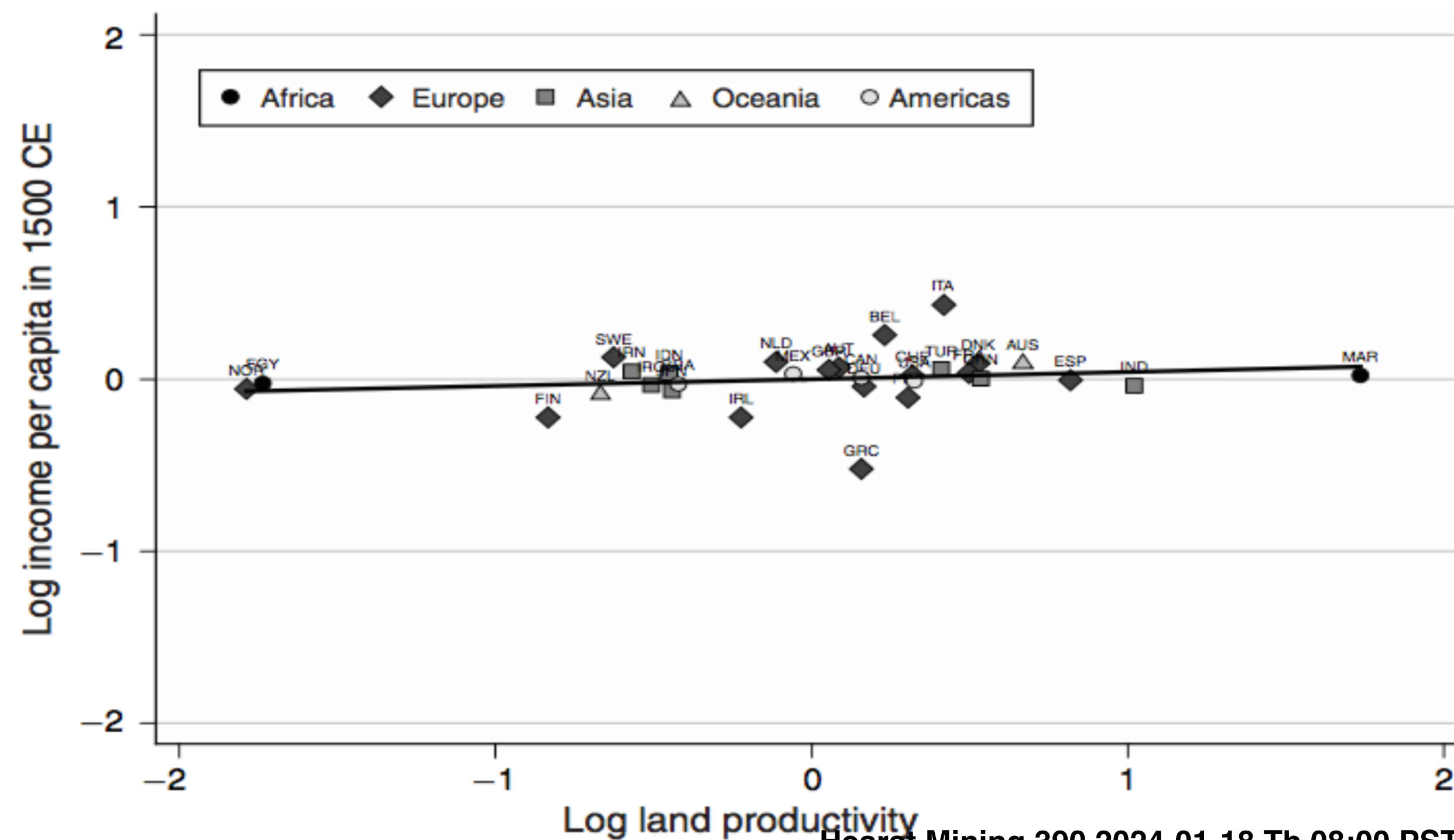
- Could governance be something other than elite domination?
 - Then those who directed society's energies could focus on something else than taking and holding *enough* for themselves
- Could patriarchy lose its hold?
 - A clan-based daughter-friendly society would be one in which the pressure to try to secure a surviving sone would be greatly diminished
- Could technological growth be rapid?
 - Then the historical path to wealth and then the demographic transition could be opened up

Character of Malthusian Equilibrium

Panel B. The Partial Effect of Land Productivity on Population Density in 1500 CE



Panel B. The Partial Effect of Land Productivity on Income per Capita in 1500 CE



After 1870 We Do Get Miracles

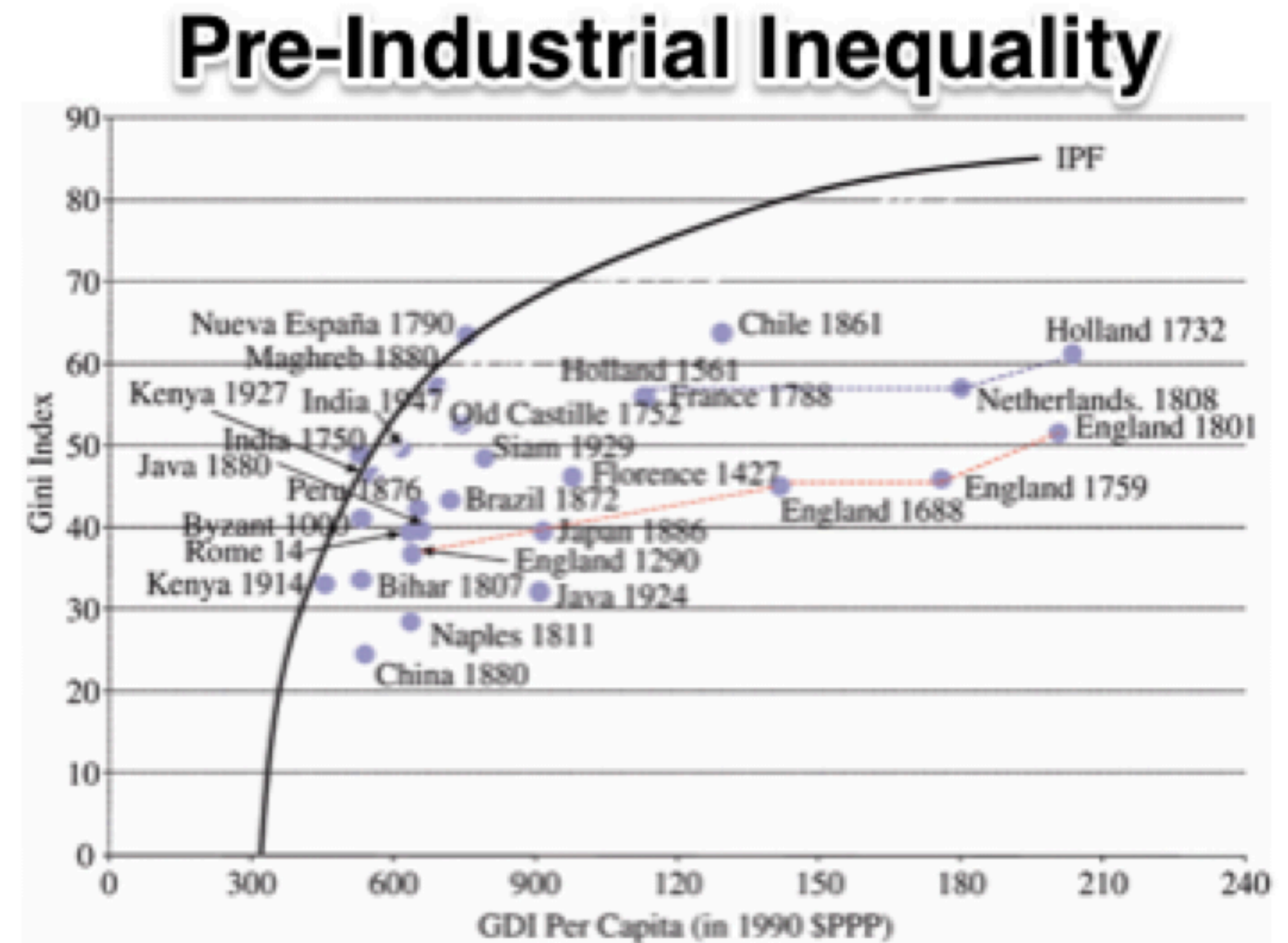
Weaving shuttles and harps without hands:

- We get the autonomous robotic blacksmithing statues of master-craftsman Daedalus—and more, a thousand-fold
- We get food-production food-processing, and food-distribution technology vastly outstripping the self-propelled catering carts of Hephaestus the smith-god—and more, a thousand-fold
- Yet inequality and its maintenance remained important
- Not just capitalist inequality produced by the unequal distribution of property—status-group inequality
- Sociological democracy also important
- The heritage of the religions of the Book, perhaps?



Domination & Plutocracy

- Ever since the invention of agriculture
- Becoming a trained-thug-with-a-spear
- The exploitative are hard targets
- The productive are soft targets
- Agrarian-Age as unequal as it could be
- No Commercial-Age reduction in inequality
- On the other hand, no big increase
- And domination mattered less—perhaps



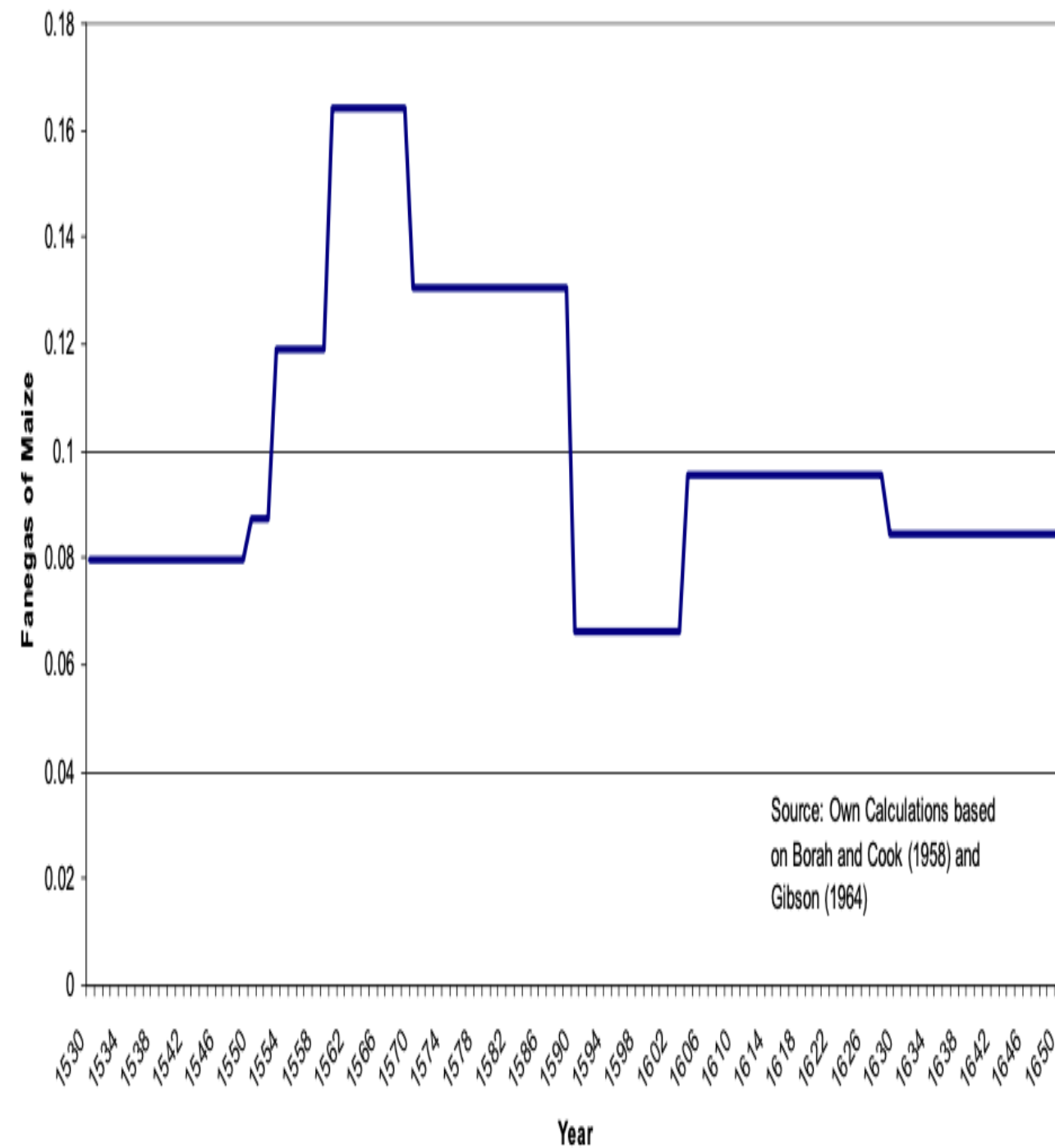
Branko Milanovic, Peter Lindert, and Jeffrey Williamson (2010): Pre-Industrial Inequality <<http://onlinelibrary.wiley.com/doi/10.1111/j.1468-0297.2010.02403.x/full>>

After the Conquest of Mexico: Unskilled & Textile Workers

the Repartimiento—a system of central labor allocation:

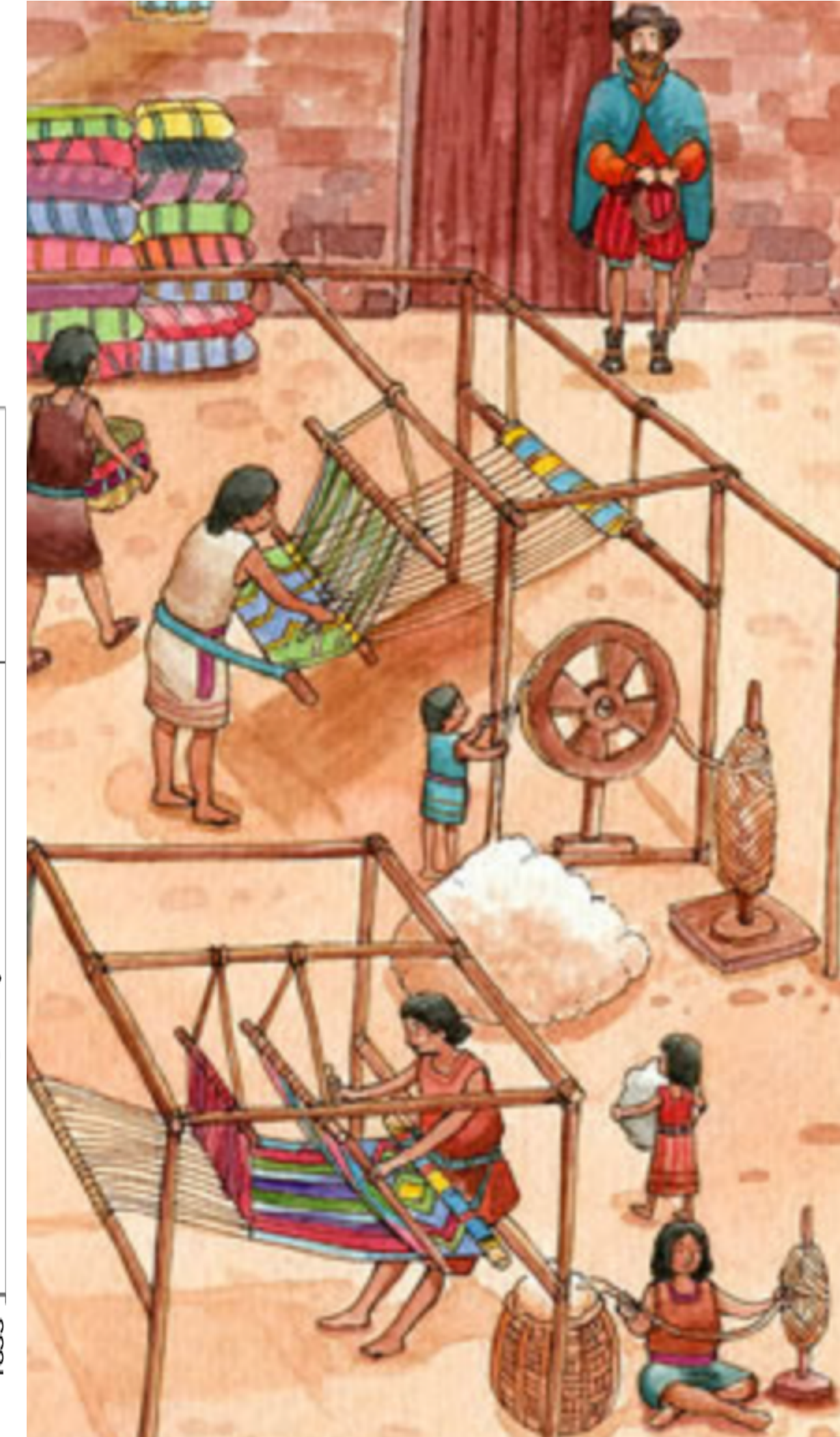
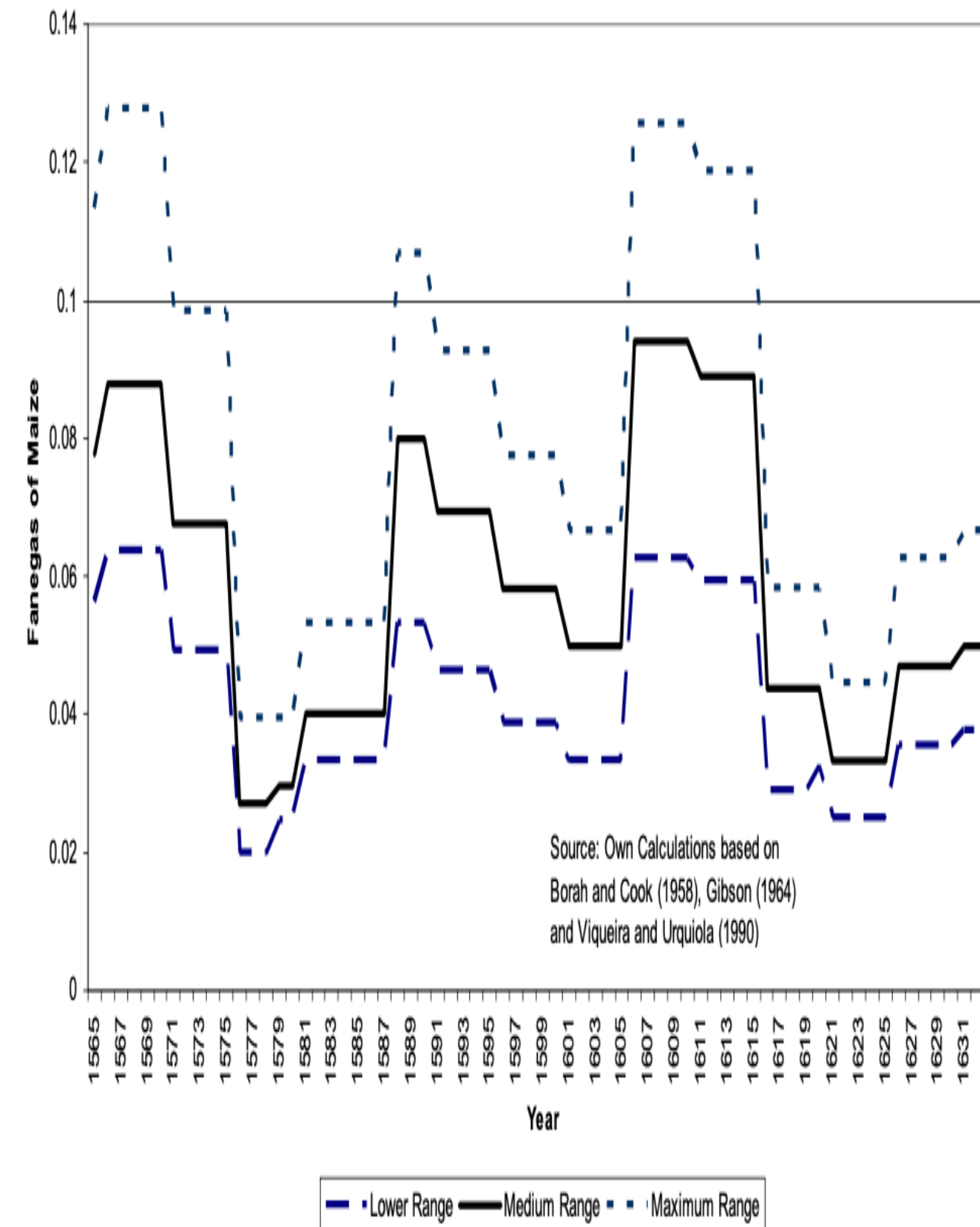
- Spaniards who wanted labor would petition the Viceroy
- He would allocate Amerindian workers
- He would determine the nominal wage they would be paid.
- Coercion to repress wages
- Centralization kept the landlords' cartel intact.
- (Meanwhile in South America, a massive forced labor system called the *mita*)

Average Real Daily Wages for Unskilled Workers



Source: Acemoglu, Daron, Pablo Querubín and James A. Robinson (2008) "Supply and Demand: Population Decline and Real Wages in Mexico, 1530-1650," Work in Progress.

Average Real Daily Wages in Obrajes



Agrarian-Age Domination: Stepping Back: Farmers Cannot Run from Thugs

- Pre-industrial societies were about as unequal as they could have been
- Modern societies are not notably more (or less) unequal than pre-industrial ones

Questions:

- How much social pressure is required to push people down close to the limits of subsistence—as they were in pre-industrial civilizations?
- How durable were social roles and social classes? How much mobility was there?
- How to explain the absence of a clear trend over time in at least these measures of inequality?
- And how much are these numbers simply built on sand? Or mere cloud castles?

The Black Death, 1346-8

Killed off 1/3 of Europe:

- After the population collapse, real wages eventually increased.
- “Eventually”.
- The government of Edward III tried to stop wages from rising by passing the Statute of Labourers:
 - “Because a great part of the people and especially of the, workmen and servants has now died in that pestilence, some, seeing the straits 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 ...”

- “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...”
- They were only partially able to enforce this, however, and after the Peasants Revolt of 1381, they mostly gave up.

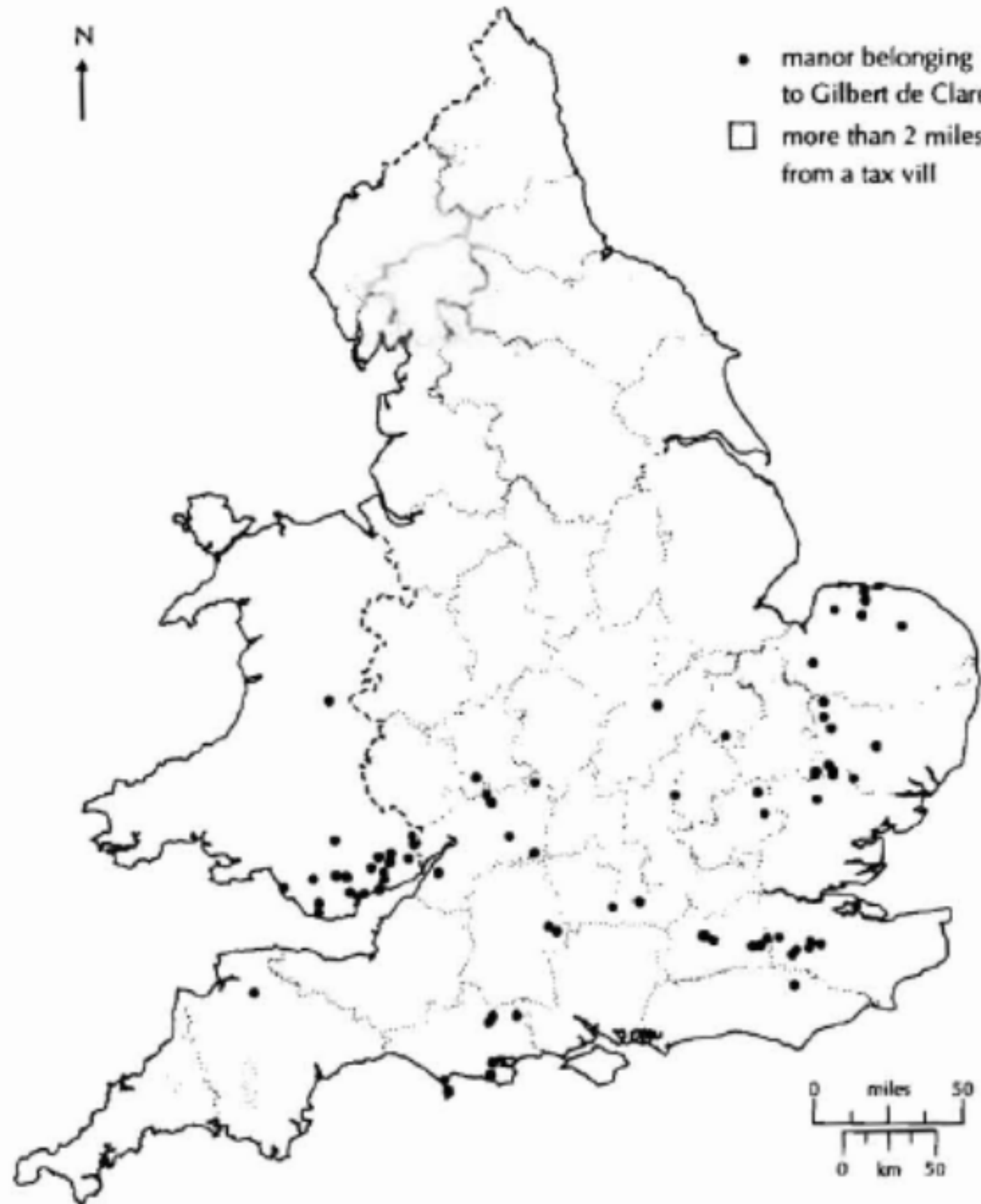
William the Conqueror

It's complicated!

- Emma, great-aunt of Guillaume (William: “Steadfast Guardian”) “the Conqueror”, Duke of Normandy, was the mother of Edward “the Confessor”, King of England 1042-1066.
- Edward had grown up in Normandy, where the Normans had protected him from the Danes.
- In 1042 King Harthacnut of Denmark and England died suddenly at the wedding of Thain Tovi the proud and Gytha daughter of Osgood.
- By treaty, Magnus “the Good” was his successor in Denmark.
- Earls Godwin of Wessex, Leofric of the Mark, and Siward of Northumbria decided to support Edward instead of Magnus.
- Edward’s older brother Alfred the Ætheling had been captured and blinded by Godwin.
- Then “[Alfred] was looked after by the monks [of Ely], who were fond of him, but soon after he died.”
- Godwin’s son Harold got himself elected King after Edward’s death.
- William was not pleased...



The de Clare Family



What kept English lords from being able to keep a lid on wages post-1348?

- 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 Statute 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.
- 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 and Welsh borders), where nobles were given large plots for defensive purposes
- This division of landholdings meant that in a given region, there were many landholders 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



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

Inclusion: Gender & Ethnicity

Inequality & domination as standard procedure for humanity:

- A great deal of inequality in human societies is purely economic inequality: work, income, spending, and prices.
- But a great deal isn't. A great deal is simply things that:
 - you are not allowed to do, or
 - are expected and required to do,
 - by virtue of what we might as well call your status-group, your estate, your caste.
 - Minorities. Serfs. Slaves. Women.
 - A great deal of this fueled-by-status inequality is immutable (or nearly immutable), based on your individual characteristics:
- You had social power only if you were male:
 - Even if you were male, only if you were the right tribe, caste, lineage, & c.
 - That was how it was
 - That was how people expected it would always be
 - Unless and until humans obtained the fantasy technologies of the Golden Age.
- Aristotle:
 - “Chief workmen would not want servants, nor masters slaves [only in the fantasyland in which] every instrument could accomplish its own work, obeying or anticipating the will of others, like the [blacksmithing] statues of Daedalus, or the three-wheeled catering serving-carts of Hephaestus, which, says the poet: "of their own accord entered the assembly of the Gods"... the shuttle would weave and the plectrum touch the lyre without a hand to guide them...
- True in 340 BC. True in 1870
- That ought to have begun to change bigtime after 1870...



The Song of Everlasting Sorrow

姊妹弟兄皆列土，
可憐光彩生門戶。

All her sisters and brothers had royal demesnes granted.
Imperial but pitiful glory on the Yang family was bestowed.

遂令天下父母心，
不重生男重生女。

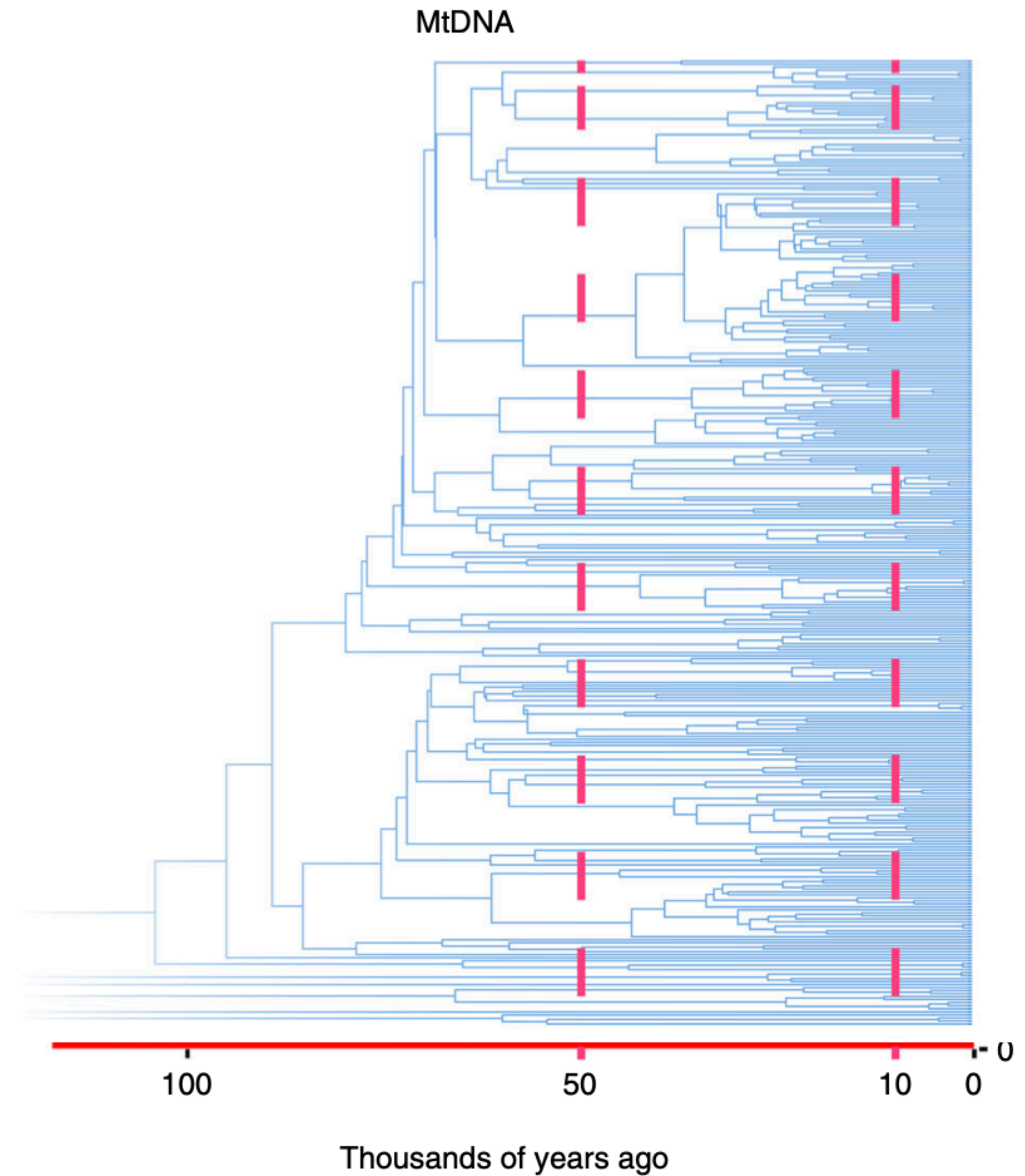
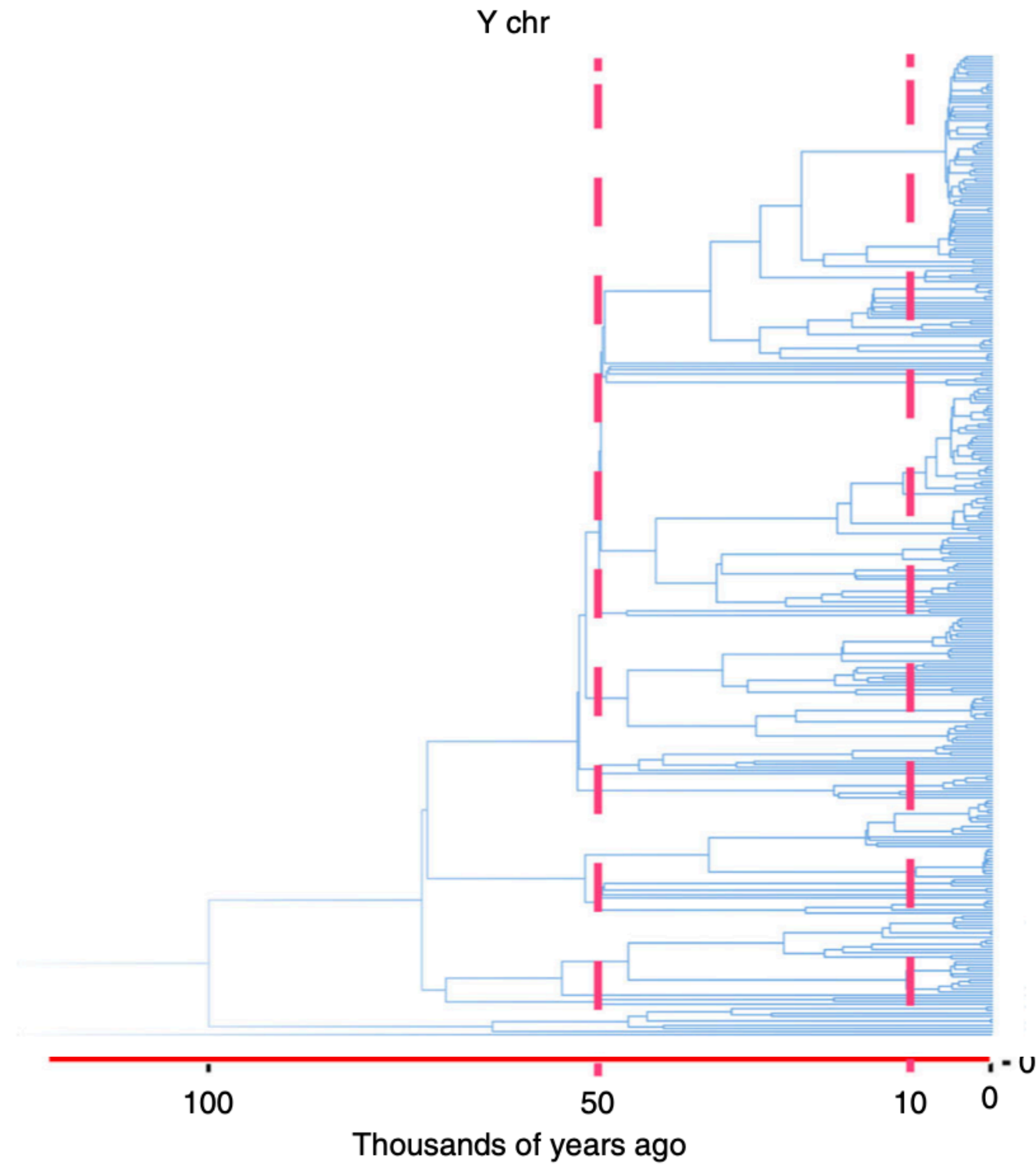
On the mindset of all parents her success was a strong influence.
Baby girls instead of baby boys became the popular preference.

- Tang Dynasty: An-Shi Rebellion
- Bai Juyi
 - Yang Guifei, Emperor Xuanzong, An Lushan, and Yang Guozhong
- The love of the Emperor was so strong as to upset the natural order, and so:
 - Baby girls instead of boys became the popular preference...
 - “In heaven we vow to fly wing to wing.
On earth we vow to tangle branch to branch
Heaven will fade, earth will fade
Our parting is everlasting sorrow.”



Lady Yang Guifei

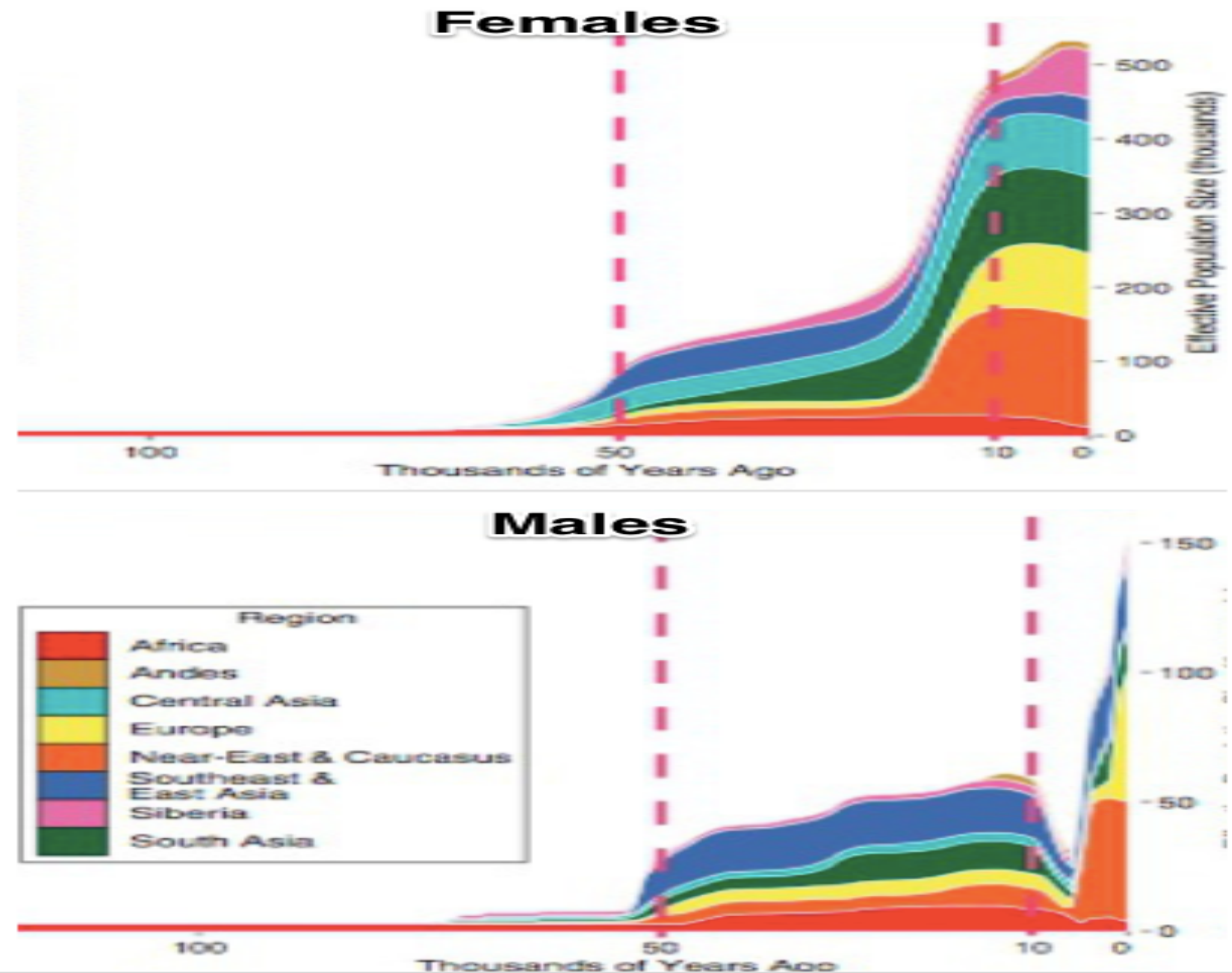
Gender: Patriarchy: Genetic Divergence



The Shadow of the Past

High patriarchy—and men take advantage:

- Extinction of y-chromosome lineages
- But even afterwards: patriarchy
- Emancipation of women comes late: following the political strategies of franchise and rights extension, but happening a century or so later...
- Women rarely have legal personality...
- Childbed mortality: 1 in 7
- Eating for two: 20 years
- Employment: textiles, gardening, in-home production, other occupations with savable state



Women's Place

Deaths in childbed among the most cosseted and highest status women in the British isles:

- 16 generations from Henry IV to Victoria
- 5 queens or heiresses apparent dead in childbed: Charlotte (Victoria's generation), Catherine Parr, Jane Seymour, Elizabeth of York, Mary de Bohun
- At an average of two queens plus heiresses apparent per generation, this is a 16% childbed mortality rate
- 2% maternal mortality **per birth...**
- 1%? extra mortality **per child** from caring for sick children...



Document: Abigail Smith Adams: Letter to John Adams

<https://tinyurl.com/dl20180226a>: Letter to John Adams 31 Mar-5 Apr 1776...

- Braintree March 31, 1776: I wish you would ever write me a Letter half as long as I write you; and tell me if you may:
 - Where your Fleet are gone?
 - What sort of Defence Virginia can make against our common Enemy?
 - Whether it is so situated as to make an able Defence?
 - Are not the Gentry Lords and the common people vassals?
 - Are they not like the uncivilized Natives Brittain represents us to be?
- I hope their Riffel Men who have shewen themselves very savage and even Blood thirsty; are not a specimen of the Generality of the people.

Abigail Smith (20) married John Adams (30) in 1764:

- No formal schooling...
- She ran his Braintree-Boston operation...
- Not just the inside-the-household part—pretty much the whole thing while he was being a High Politician...
- Not present at husband's presidential inauguration: caring for her dying mother instead...
- At 74 in 1818: “Do not grieve, my friend, my dearest friend. I am ready to go. And John, it will not be long...”



Abigail Smith Adams: Eating for Two

Married 1764: Children:

- Abigail ("Nabby") 1765–1813
- John Quincy Adams 1767–1848
- Grace Susanna ("Suky") 1768–70
- Charles 1770–1800
- Thomas Boylston Adams 1772–1832
- 1774 ?
- 1776 ?
- Elizabeth (stillborn) 1777

- Then they stopped, when she was 33...
- Eight pregnancies to have four survive beyond the age of ten...
 - This is low child mortality...
- Have a baby, lose a tooth...



Abigail Smith

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Document: Abigail Smith Adams Letter to Her Husband John

<https://tinyurl.com/dl20180226a>: Letter to John Adams 31 Mar-5 Apr 1776...

Virginians: Are these slavemasters true friends of liberty?

- Braintree March 31, 1776: I wish you would ever write me a Letter half as long as I write you; and tell me if you may:
 - Where your Fleet are gone?
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 - Are not the Gentry Lords and the common people vassals?
 - Are they not like the uncivilized Natives Brittain represents us to be?
- I hope their Riffel Men who have shewen themselves very savage and even Blood thirsty; are not a specimen of the Generality of the people.
- I [illegible] am willing to allow the Colony great merrit for having produced a Washington but they have been shamefully duped by a Dunmore.
- I have sometimes been ready to think that the passion for Liberty cannot be Eaquelly Strong in the Breasts of those who have been accustomed to deprive their fellow Creatures of theirs. Of this I am certain that it is not founded upon that generous and christian principal of doing to others as we would that others should do unto us.



Document: Abigail Smith Adams

Things to note about the letter as you read it:

1. Spelling...
2. Public concerns:
 - Suspicion of Virginia...
 - State of Boston after the occupation...
 - Power of the colonies to resist...
 - Soapmaking... saltpeter... gunpowder...
3. Private concerns:
 - Family security...
 - “Gorge the Eldest... Billy the youngest... Becky Peck... your brother’s youngest child lies bad with convulsion fits...”
 - Why don’t you write more, and at longer length?
4. Feminist concerns...



Managing the Boston Operation

<https://tinyurl.com/dl20180226a>: Letter to John Adams 31 Mar-5 Apr 1776...

- Do not you want to see Boston? I am fearfull of the small pox, or I should have been in before this time.
- I got Mr. Crane to go to our [Town] House [in Boston] and see what state it was in.
- I find it has been occupied by one of the Doctors of a Regiment, very dirty, but no other damage has been done to it.
- The few things which were left in it are all gone. Cranch has the key which he never deliverd up. I have wrote to him for it and am determined to get it cleand as soon as possible and shut it up.
- I look upon it a new acquisition of property, a property which one month ago I did not value at a single Shilling, and could with pleasure have seen it in flames.
- The Town in General is left in a better state than we expected, more oweing to a percipitate flight than any Regard to the inhabitants, tho some individuals discovered a sense of honour and justice and have left the rent of the Houses in which they were, for the owners and the furniture unhurt, or if damaged sufficent to make it good.
- Others have committed abominable Ravages. The Mansion House of your President is safe and the furniture unhurt whilst both the House and Furniture of the Solisiter General have fallen a prey to their own merciless party. Surely the very Fiends feel a Reverential awe for Virtue and patriotism, whilst they Detest the paricide and traitor.



Keeping Her Spirits Up

<https://tinyurl.com/dl20180226a>: Letter to John Adams 31 Mar-5 Apr 1776...

- I feel very differently at the approach of spring to what I did a month ago. We knew not then whether we could plant or sow with safety, whether when we had toiled we could reap the fruits of our own industry, whether we could rest in our own Cottages, or whether we should not be driven from the sea coasts to seek shelter in the wilderness, but now we feel as if we might sit under our own vine and eat the good of the land.
- I feel a *gaieti de Coar* to which before I was a stranger. I think the Sun looks brighter, the Birds sing more melodiously, and Nature puts on a more chearfull countenance. We feel a temporary peace, and the poor fugitives are returning to their deserted habitations.
- Tho we felicitate ourselves, we sympathize with those who are trembling least the Lot of Boston should be theirs. But they cannot be in similar circumstances unless pusillanimity and cowardise should take possession of them. They have time and warning given them to see the Evil and shun it.



“Remember the Ladies”

<https://tinyurl.com/dl20180226a>: Letter to John Adams 31 Mar-5 Apr 1776...

- I long to hear that you have declared an independency
- -- and by the way in the new Code of Laws which I suppose it will be necessary for you to make I desire you would Remember the Ladies, and be more generous and favourable to them than your ancestors.
- Do not put such unlimited power into the hands of the Husbands.
- Remember all Men would be tyrants if they could.
- If perticular care and attention is not paid to the Laidies we are determined to foment a Rebellion, and will not hold ourselves bound by any Laws in which we have no voice, or Representation.



“Your Sex Are Naturally Tyrannical”

<https://tinyurl.com/dl20180226a>: Letter to John Adams 31 Mar-5 Apr 1776...

- That your Sex are Naturally Tyrannical is a Truth so thoroughly established as to admit of no dispute,
- But such of you as wish to be happy willingly give up the harsh title of Master for the more tender and endearing one of Friend.
- Why then, not put it out of the power of the vicious and the Lawless to use us with cruelty and indignity with impunity?
- Men of Sense in all Ages abhor those customs which treat us only as the vassals of your Sex.
- Regard us then as Beings placed by providence under your protection and in imitation of the Supreme Being make use of that power only for our happiness.



A Week Later: Biomedical Concerns

<https://tinyurl.com/dl20180226a>: Letter to John Adams 31 Mar-5 Apr 1776...

- Not having an opportunity of sending this I shall add a few lines more; tho not with a heart so gay.
- I have been attending the sick chamber of our Neighbour Trot whose affliction I most sensibly feel but cannot discribe, striped of two lovely children in one week.
 - Gorge the El
 - dest died on wedensday and Billy the youngest on fryday, with the Canker fever, a terrible disorder so much like the throat distemper, that it differs but little from it.
- Betsy Cranch has been very bad, but upon the recovery. Becky Peck they do not expect will live out the day.
- Many grown persons are now sick with it, in this street. It rages much in other Towns.
- The Mumps too are very frequent. Isaac is now confined with it.
- Our own little flock are yet well. My Heart trembles with anxiety for them. God preserve them.
- I want to hear much oftener from you than I do. March 8 [John to Abigail, 08 March 1776] was the last date of any that I have yet had.



Experiments in Making Gunpowder

<https://tinyurl.com/dl20180226a>: Letter to John Adams 31 Mar-5 Apr 1776...

- -- You inquire of whether I am making Salt peter. I have not yet attempted it, but after Soap making believe I shall make the experiment. I find as much as I can do to manufacture cloathing for my family which would else be Naked.
- I know of but one person in this part of the Town who has made any, that is Mr. Tertias Bass as he is calld who has got very near an hundred weight which has been found to be very good. I have heard of some others in the other parishes. Mr. Reed of Weymouth has been applied to, to go to Andover to the mills which are now at work, and has gone.
- I have lately seen a small Manuscrip describing the proportions for the various sorts of powder, such as fit for cannon, small arms and pistols [illegible]. If it would be of any Service your way I will get it transcribed and send it to you..



Closing

<https://tinyurl.com/dl20180226a>: Letter to John Adams 31 Mar-5 Apr 1776...

- -- Every one of your Friends send their Regards, and all the little ones.
- Your Brothers youngest child lies bad with convulsion fitts. Adieu.
- I need not say how much I am Your ever faithfull Friend...



John Adams's Reply to Abigail

As to your extraordinary code of laws, I cannot but laugh:

- We have been told that our struggle has loosened the bonds of government everywhere; that children and apprentices were disobedient; that schools and colleges were grown turbulent; that Indians slighted their guardians, and negroes grew insolent to their masters.
- But your letter was the first intimation that another tribe, more numerous and powerful than all the rest, were grown discontented.
- This is rather too coarse a compliment, but you are so saucy, I won't blot it out.
- Depend upon it, we know better than to repeal our masculine systems. Although they are in full force, you know they are little more than theory. We dare not exert our power in its full latitude. We are obliged to go fair and softly, and, in practice, you know we are the subjects.
- We have only the name of masters, and rather than give up this, which would completely subject us to the despotism of the petticoat, I hope General Washington and all our brave heroes would fight.



Abigail Smith Adams Had a Very Favored Place for an Agrarian-Age Woman...

- Other women had less favored places...
- **Abigail Adams to Thomas Jefferson**, 27 June 1787 <<https://founders.archives.gov/documents/Jefferson/01-11-02-0420>>:
 - "LONDON... I had the Honour of addressing you yesterday and informing you of the safe arrival of your daughter. She was but just come when I sent of my letter by the post, and the poor little Girl was very unhappy being wholly left to strangers. This however lasted only a few Hours, and Miss is as contented to day as she was misirable yesterday. She is indeed a fine child. I have taken her out to day and purchased her a few articles which she could not well do without and I hope they will meet your approbation.
 - "The Girl who is with her is quite a child, and Captain Ramsey is of opinion will be of so little Service that he had better carry her back with him. But of this you will be a judge. She seems fond of the child and appears good naturd..."
- "The Girl who is with her" is Sally Hemings, then 14. Rather than have Sally Hemings continue on to Paris for a reunion with her brother, Abigail Adams wants her sent back to Virginia...

What Happened When Women's Opportunities Opened Up— Even a Little?

- Market income and factory work...
- In 1840, in Lowell, unmarried young women (16-30) one quarter of the city's industrial workforce.
 - Expected to attend church
 - “Not employ anyone... known to be guilty of immorality”
- The Lowell mills in boom:
 - A way to acquire a dowry...
 - A way to have some extra freedom...
- The Lowell mills in bust:
 - Labor organization...

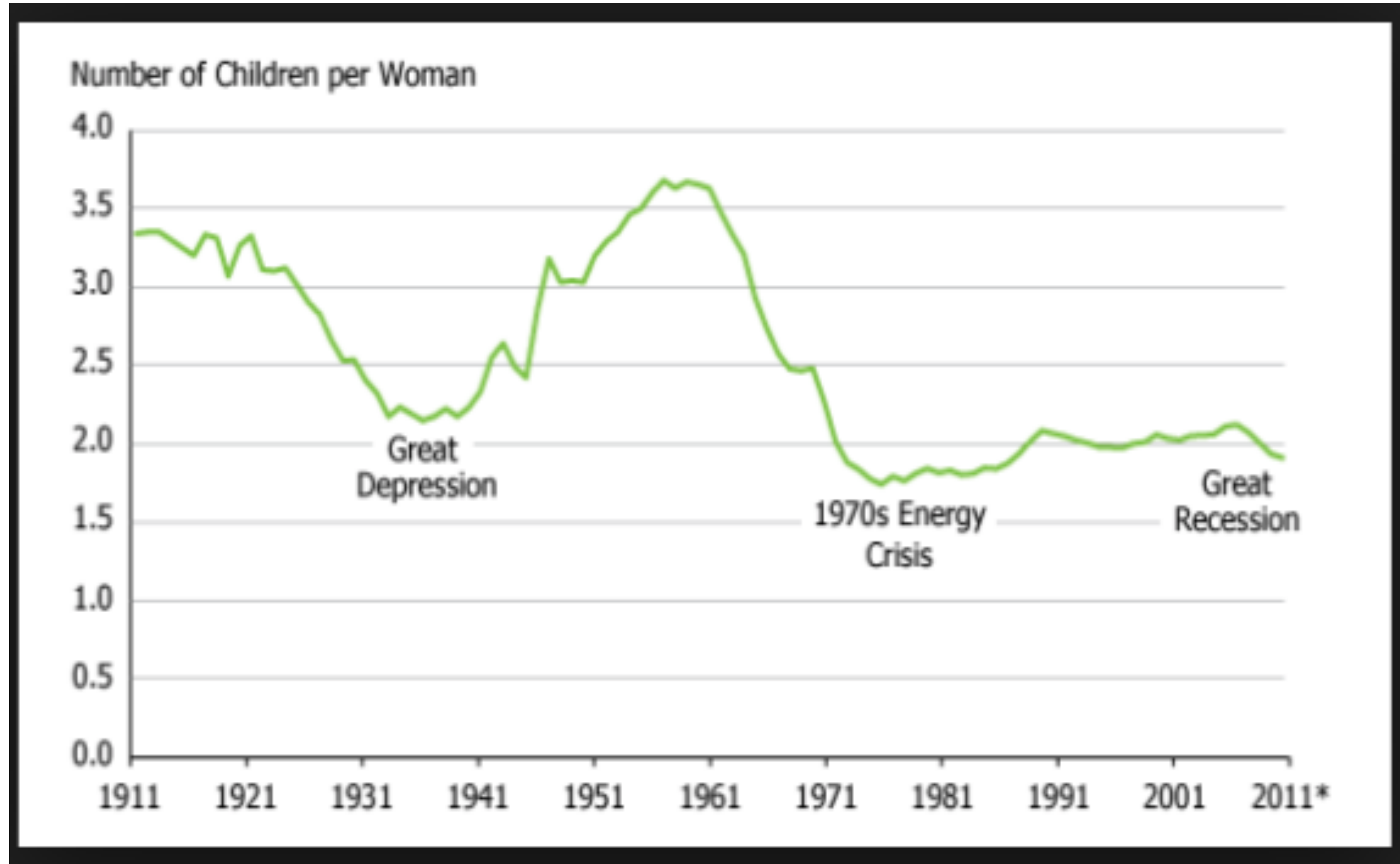


Tintype of two young women in
Lowell, Massachusetts



The Demographic Transition

- The U.S.: The Demographic Transition:
 - In 1820: 7 live births per mother -> 4 to adulthood
 - In 1820: 10 pregnancies... 7 live births... 4-5 alive at 5... 2-3 at 22...
 - 75 months pregnant... 168 months breastfeeding... 240 months p & n...
 - By 1900: down to 3.5
- Then followed: Great Depression, Baby Boom, and baby bust
- Now: ZPG: 3.5 years rather than 20

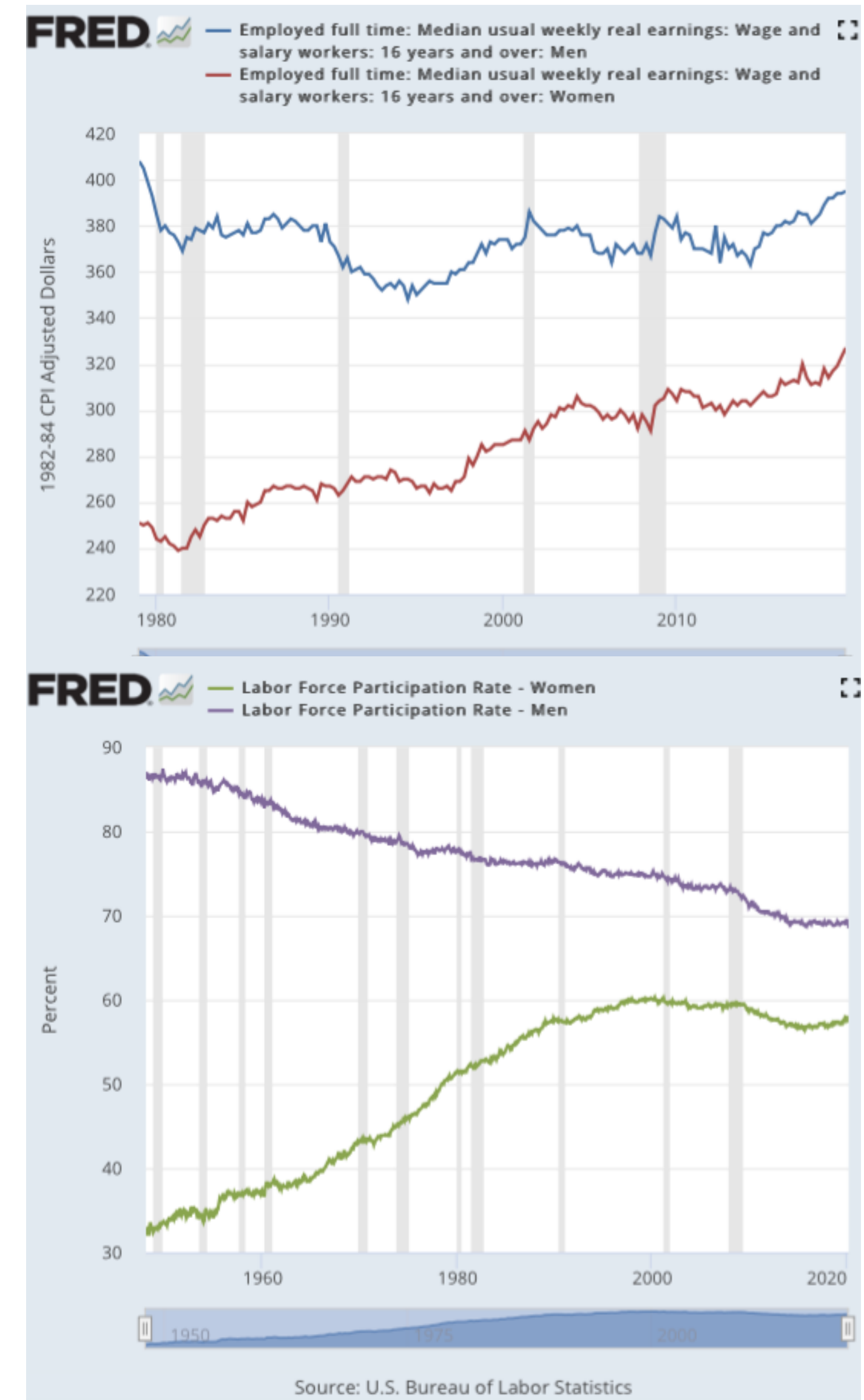


Wages and Paid Labor Force Participation

Wage gap from 67% to 25% since 1979

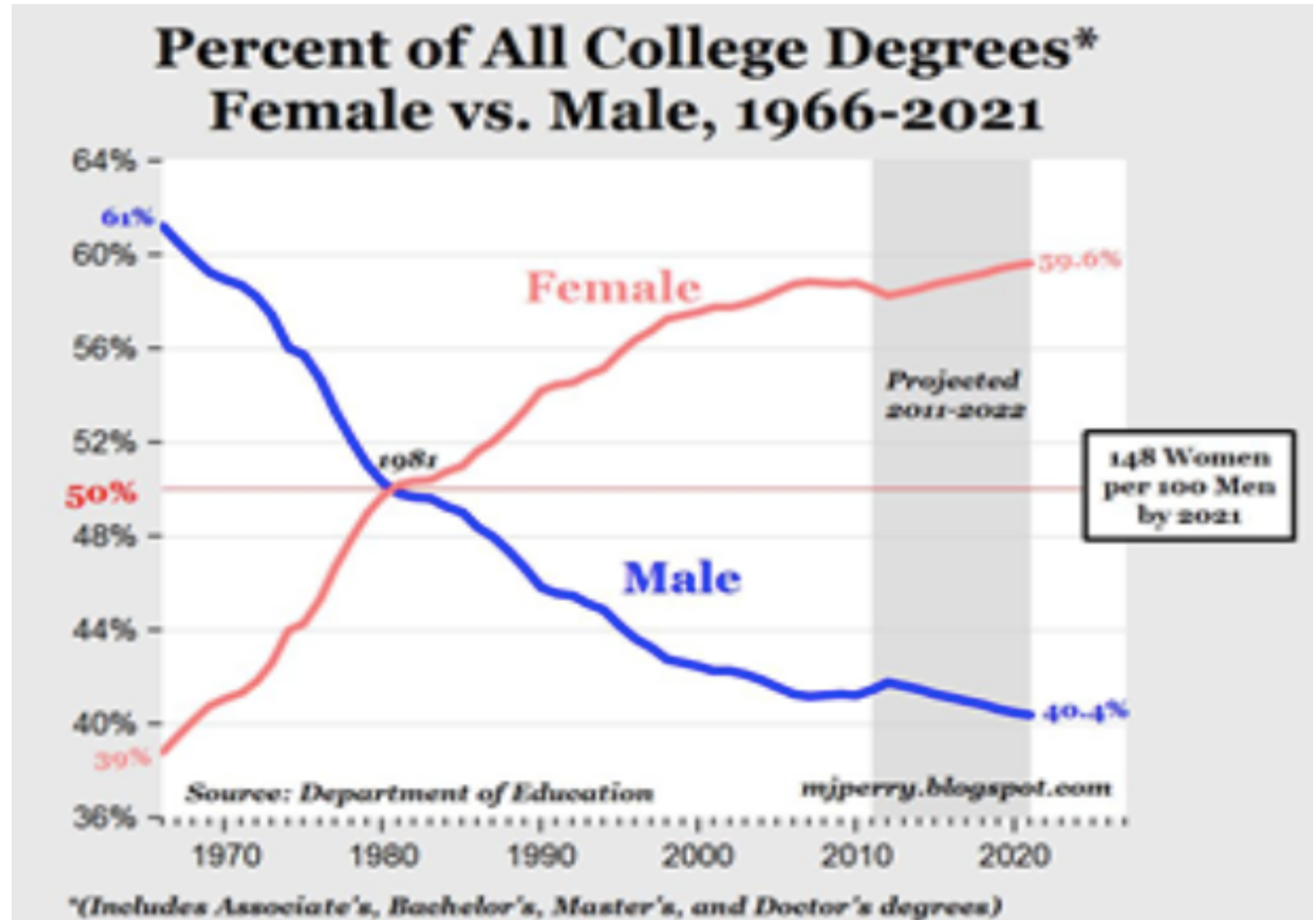
- Share of women with jobs from 30% to 60%
- Share of men with jobs from 85% to 70%
- Aging
- Longer schooling
- 7% “missing men”
- Current female wage gap
 - Primarily a career-interruption childbearing gap
 - Women without interruptions in employment earn almost as much as men
 - In what way(s) this as unfair?

Memo: Males: 85% in 1948; 66% today: Half of this male fall from retirement... Women are aging too... Males 25-54 from 95% to 85%... Females 25-54 from 38% to 70%...



Female vs. Male: Education

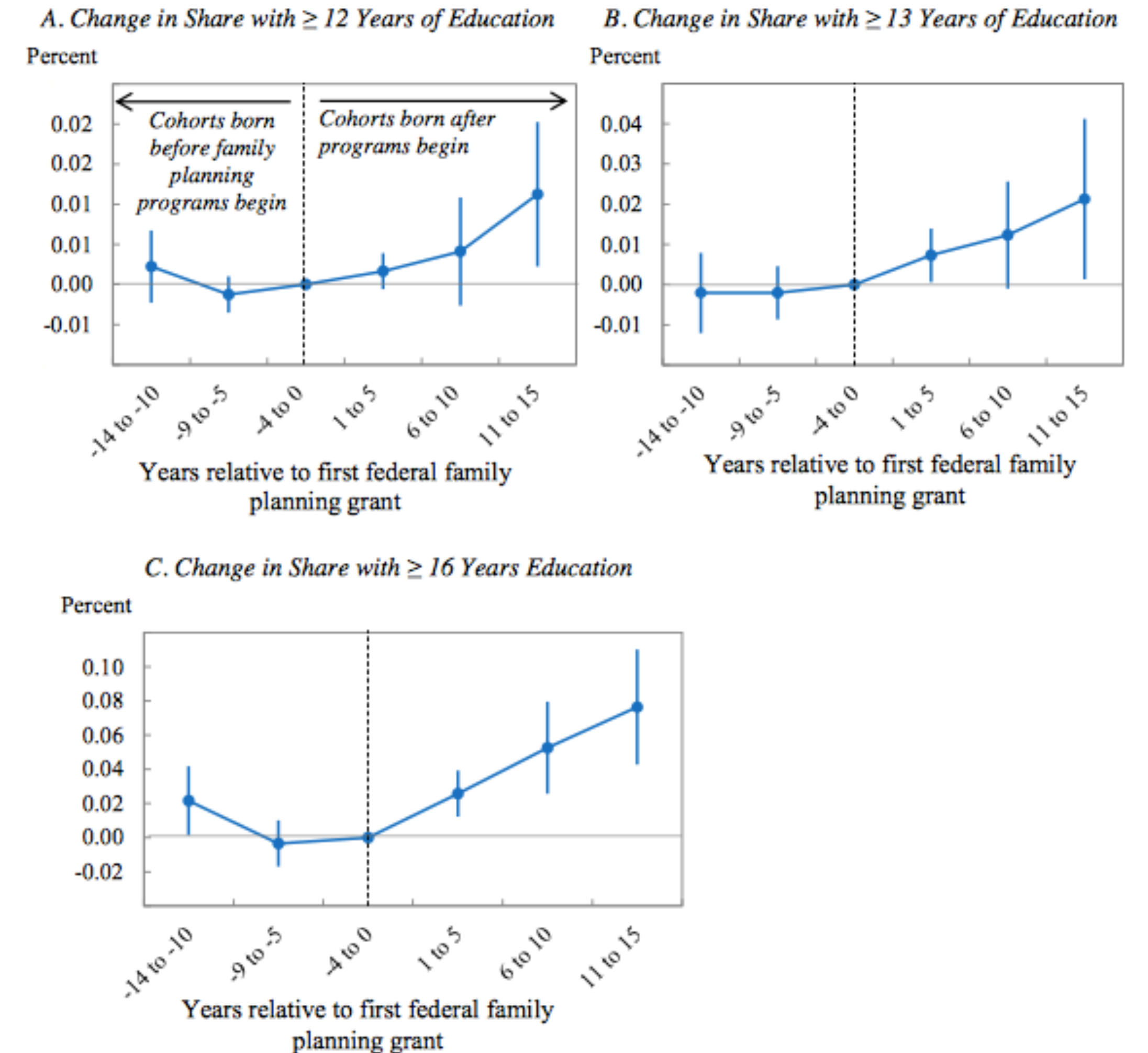
- In 2011, women held 51.4% of “managerial and professional jobs”
- Up from 26.1% in 1980
- Redefinition of “secretaries”
- Seven years of longer life expectancy counts...
- You would expect 53%-47% from that alone...



Family Planning

- Current generation: Hard to lean in when you could get pregnant any month...
- Next generation: Unbelievably large numbers from Martha Bailey (2013):
 - From different state start dates...
 - 2%-points up on HS completion rates...
 - 6%-points up on BA completion rates...

Figure 11. Estimates of the Effects of Family Planning Programs on Next-Generation Educational Attainment^a



Source: Author's calculations using data from the 5 percent sample of the 2000 decennial census and the 2005–11 ACS. See the online appendix for details of the data sources and the regressions.

a. See the notes to figure 10 for details of the estimation..

Eating for Two...

Heather Antecol, Kelly Bedard, and Jenna Stearns (2016): Equal but Inequitable: Who Benefits from Gender-Neutral Tenure Clock Stopping Policies? <<https://tinyurl.com/dl20180226b>>

- Using a unique data set on the universe of assistant professor hires at top-50 economics departments from 1985-2004, we show that the adoption of gender-neutral tenure clock stopping policies substantially reduced female tenure rates while substantially increasing male tenure rates...



Leah Boustan
@leah_boustan

Following

Replying to @de1ong @Amber_D_Stubler

I have been a pregnant lady three times. I have ***definitely*** fallen asleep on my office floor!

6:07 PM - 25 Jan 2018

Table 3. Gender-Neutral Clock Stopping Policies and Tenure Outcomes

	Tenure at Policy University (1)	Eventually Get Tenure Somewhere (2)
Gender-neutral clock stopping (GNCS)	0.194** (0.086)	0.079 (0.051)
Gender-neutral clock stopping × female	-0.419** (0.137)	-0.122 (0.205)
<u>Total GNCS effect for women</u>		
GNCS + GNCS × female	-0.224** (0.103)	-0.043 (0.191)
<u>Summary measures for GNCS adopters</u>		
Female pre-treatment mean	0.26	0.71
Male pre-treatment mean	0.27	0.80
Sample size	1048	1038

The sample includes 49 universities. Standard errors are clustered at the policy university-level. All models also include gender-specific indicators for the year the policy job started, gender-specific university indicators, a female indicator, an indicator for graduating from a top-10 PhD program, time-varying university characteristics (number of undergraduates, number of graduate students, faculty size, average salary of full professors, average salary of assistant professors, annual revenue, fraction of faculty who are female, fraction of faculty who are full professors), gender-specific indicators for having a female-only policy, and gender-specific indicators for starting a job within two years of a policy change interacted with each of the policy indicators. Pre-treatment means are for universities that adopt a gender-neutral tenure clock stopping policy by 2004 and are provided for context. * (**) Statistically significant at the 10 (5) percent level or better.

Ethnicity

Inequality & domination as standard procedure for humanity:

- A great deal of inequality in human societies is purely economic inequality: work, income, spending, and prices.
- But a great deal isn't. A great deal is simply things that:
 - you are not allowed to do, or
 - are expected and required to do,
 - by virtue of what we might as well call your status-group, your estate, your caste.
 - Minorities. Serfs. Slaves. Women.
 - A great deal of this fueled-by-status inequality is immutable (or nearly immutable), based on your individual characteristics:
- You had social power only if you were male:
 - Even if you were male, only if you were the right tribe, caste, lineage, & c.
 - That was how it was
 - That was how people expected it would always be
 - Unless and until humans obtained the fantasy technologies of the Golden Age.
- Aristotle:
 - “Chief workmen would not want servants, nor masters slaves [only in the fantasyland in which] every instrument could accomplish its own work, obeying or anticipating the will of others, like the [blacksmithing] statues of Daedalus, or the three-wheeled catering serving-carts of Hephaestus, which, says the poet: "of their own accord entered the assembly of the Gods"... the shuttle would weave and the plectrum touch the lyre without a hand to guide them...
- True in 340 BC. True in 1870
- That began to change bigtime after 1870...



Slave Trades & Ethnicity Markers

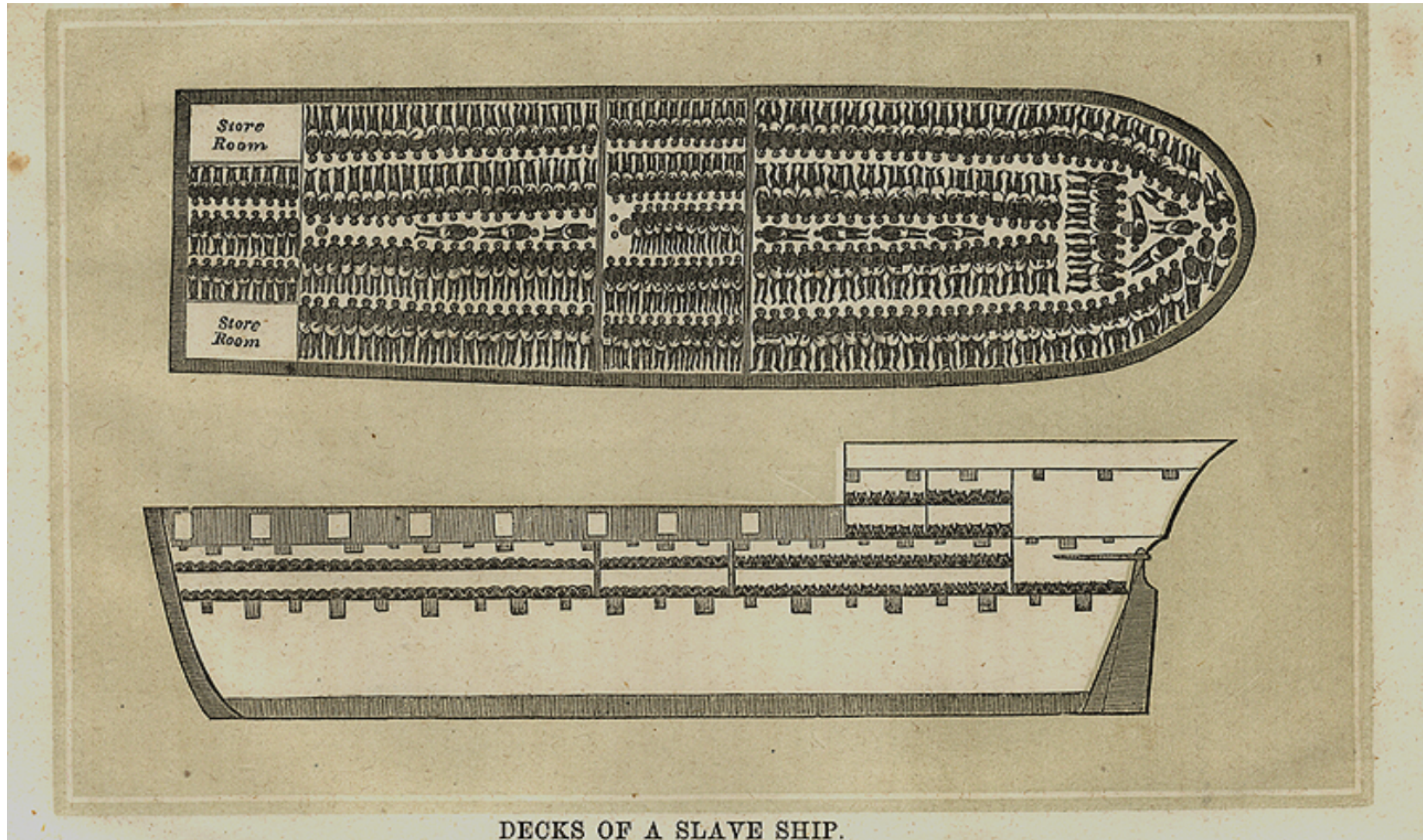
Over history:

- Classical Greek and Roman powers: 30 million
- Vikings: 1 million
- Mediterranean: 1.5 million
- Black Sea: 3 million
- African trans-Atlantic: 13 million over 1600-1850
- African Indian: 5 million over 1000-1900
- African Sahara: 3 million 1200-1900,
- Internal African: ????
- Population of Africa in 1700: 60 million
- Born in Africa and surviving to 5 over 1500-1800: 360 million



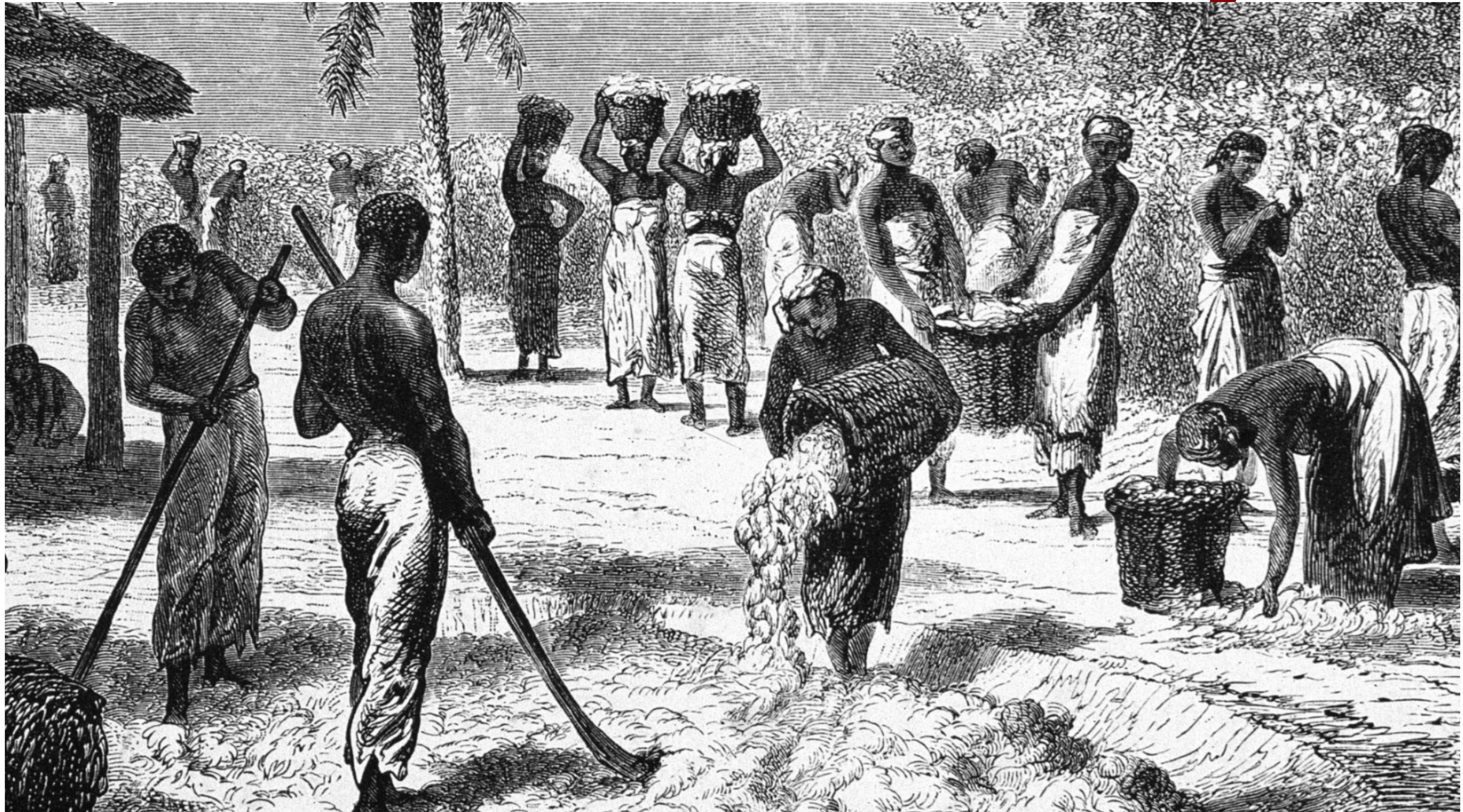
Slavery & Status

- Plantation
- Household
- Serfdom
- Sharecropping
- Debt
- Wage-work
- Renter
- Freehold



DECKS OF A SLAVE SHIP.

Plantation Slavery



African Retardation & Slave Trade Legacy

In 1953 Africa was not “behind” the rest of the global south:

- Today it is—by far
- In 1950 1/7 of the world’s extreme poor were in Africa
- Today 3/5 of the world’s extreme poor are in Africa
- In the late colonial era Africa was doing good at exports: coffee, chocolate, palm oil, ground nuts, cotton
- In 1950 Zambia was more industrialized than and almost as rich as Portugal
- The same for Ghana



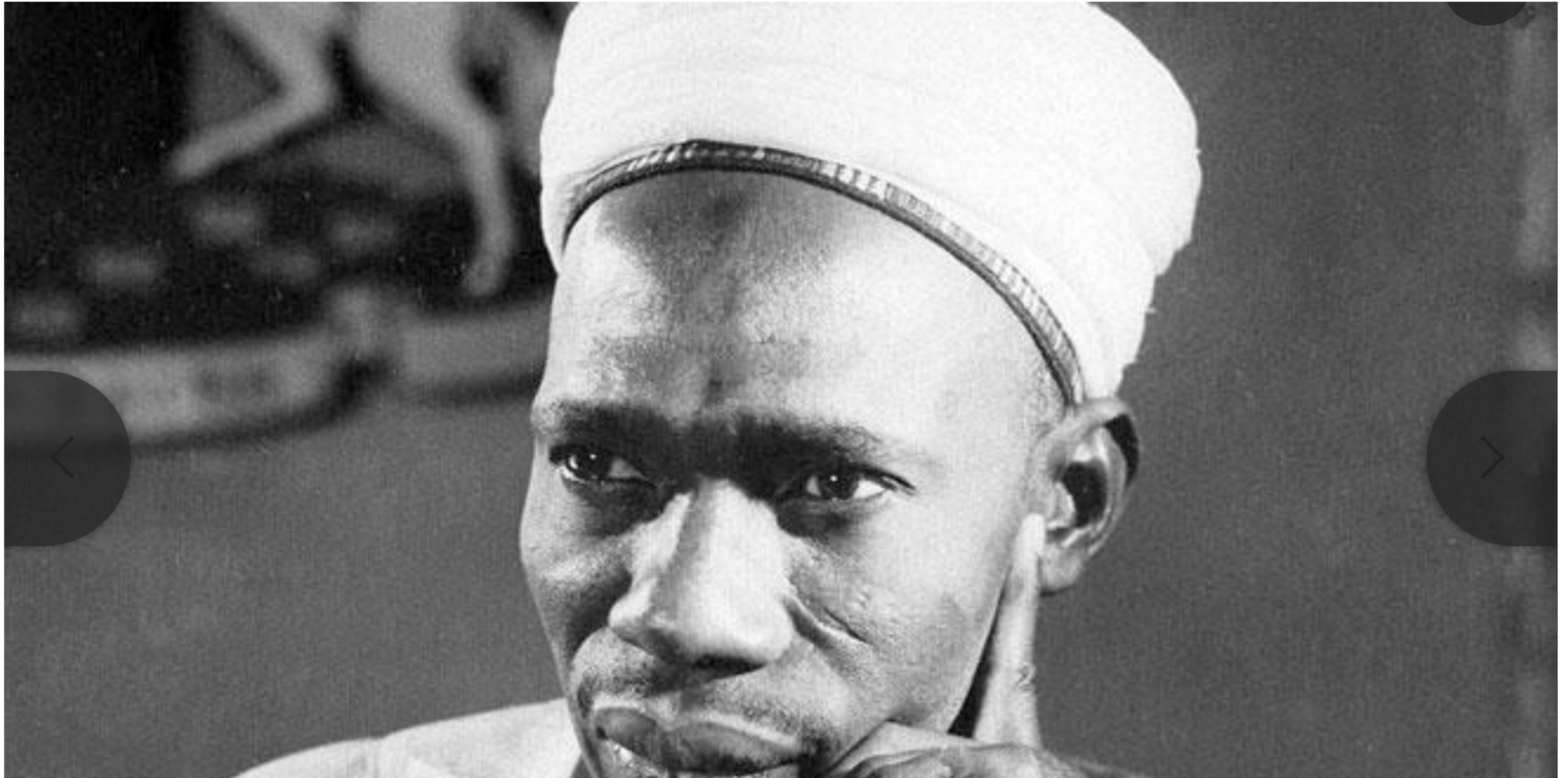
Abysmal Growth After Autonomy & then Independence

North Africa grows along with the rest of the global south—an average of 2%/year or so:

- But south of the Sahara things are different
- Ethiopia, Ghana, Zambia grow at 0.3%/year
- Three very different countries: an industrial, a primary-product exporter, an independent non-colonized
- What could apply to Africa south of but not north of the Sahara?
- And what could apply to pretty much all of Africa south of Sahara?
- The answer: the slave trade—primarily the early-modern imperial-commercial age Atlantic slave trade
- But also Indian Ocean and trans-Saharan



Abubakar Tafawa Balewa



A Hypothesis

Why does African retardation vis-a-vis the rest of the global south start only with independence?

- Adam Smith: “it is not from the benevolence of the butcher or the baker that we expect our meat or bread, but from their self-interest”
- But is the self-interest of the butcher to sell you meat for money?
- Or is it the self-interest of the butcher to threaten you with his knife, take your money, tie you up, and sell you as a slave?
- Reciprocity and gift-exchange are powerful patterns of human interaction...
- But what if history leads you not to expect them?
- Not disastrous as long as colonial patterns of property and exchange dominate, but...



Nunn: Consequences of Rum, Guns, and Slaves

- From 8 to 6.5 in the natural log...
- $\exp(1.5) = 4.5$
- Do we need controls?
- Or, rather, what controls do we need?
 - What else might be going on here?
- Nathan Nunn (2008): The Long-Term Effects of Africa's Slave Trades, *Quarterly Journal of Economics* 123 (February): 139–176. <http://www.jstor.org/stable/pdfplus/25098896.pdf>

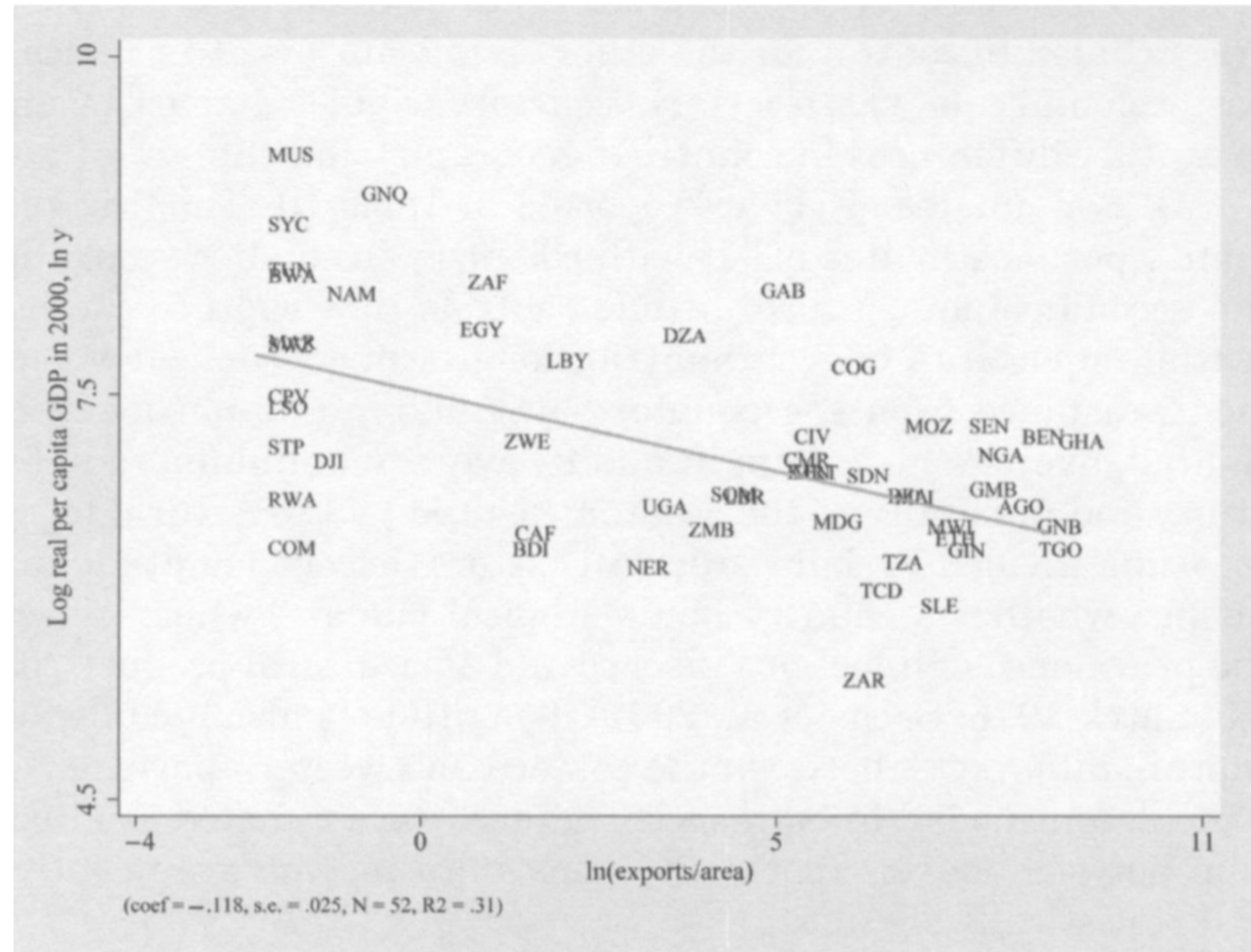


FIGURE III
Relationship between Log Slave Exports Normalized by Land Area, $\ln(\text{exports/area})$, and Log Real Per Capita GDP in 2000, $\ln y$

Nunn: Consequences of Rum, Guns, and Slaves

- In column (3), I omit island and North African countries, dropping Morocco, Algeria, Tunisia, Libya, Egypt, Seychelles, Mauritius, Comoros, Sao Tome and Principe, and the Cape Verde Islands.
- In column (4), Islamic and French civil law
- In column (5), I also control for the natural log of the annual average per capita production between 1970 and 2000 of gold, oil, and diamonds
- In column (6), I simultaneously include all control variables and drop islands and North African countries

TABLE III
RELATIONSHIP BETWEEN SLAVE EXPORTS AND INCOME

	Dependent variable is log real per capita GDP in 2000, ln y					
	(1)	(2)	(3)	(4)	(5)	(6)
ln(exports/area)	-0.112*** (0.024)	-0.076*** (0.029)	-0.108*** (0.037)	-0.085** (0.035)	-0.103*** (0.034)	-0.128*** (0.034)
Distance from equator		0.016 (0.017)	-0.005 (0.020)	0.019 (0.018)	0.023 (0.017)	0.006 (0.017)
Longitude		0.001 (0.005)	-0.007 (0.006)	-0.004 (0.006)	-0.004 (0.005)	-0.009 (0.006)
Lowest monthly rainfall		-0.001 (0.007)	0.008 (0.008)	0.0001 (0.007)	-0.001 (0.006)	-0.002 (0.008)
Avg max humidity		0.009 (0.012)	0.008 (0.012)	0.009 (0.012)	0.015 (0.011)	0.013 (0.010)
Avg min temperature		-0.019 (0.028)	-0.039 (0.028)	-0.005 (0.027)	-0.015 (0.026)	-0.037 (0.025)
ln(coastline/area)		0.085** (0.039)	0.092** (0.042)	0.095** (0.042)	0.082** (0.040)	0.083** (0.037)
Island indicator				-0.398 (0.529)	-0.150 (0.516)	
Percent Islamic				-0.008*** (0.003)	-0.006* (0.003)	-0.003 (0.003)
French legal origin				0.755 (0.503)	0.643 (0.470)	-0.141 (0.734)
North Africa indicator				0.382 (0.484)	-0.304 (0.517)	
ln(gold prod/pop)					0.011 (0.017)	0.014 (0.015)
ln(oil prod/pop)					0.078*** (0.027)	0.088*** (0.025)
ln(diamond prod/pop)					-0.039 (0.043)	-0.048 (0.041)
Colonizer fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number obs.	52	52	42	52	52	42
R ²	.51	.60	.63	.71	.77	.80

Notes. OLS estimates of (1) are reported. The dependent variable is the natural log of real per capita GDP in 2000, ln y. The slave export variable ln(exports/area) is the natural log of the total number of slaves exported from each country between 1400 and 1900 in the four slave trades normalized by land area. The colonizer fixed effects are indicator variables for the identity of the colonizer at the time of independence. Coefficients are reported with standard errors in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% levels.

Instruments?

- Do we need instruments?
- What are our instruments?
 - What is our first stage?
 - Is this a “weak instrument”?
 - Is $F < 10$?
- Under what circumstances is an instrument that looks strong “weak”?
- Do we need channels?
- What are our channels?
- What would a Bayesian say about the publication filter and the file-drawer problem?
- Nathan Nunn (2008): The Long-Term Effects of Africa’s Slave Trades, *Quarterly Journal of Economics* 123 (February): 139–176. <http://www.jstor.org/stable/pdfplus/25098896.pdf>

TABLE IV
ESTIMATES OF THE RELATIONSHIP BETWEEN SLAVE EXPORTS AND INCOME

	(1)	(2)	(3)	(4)
Second Stage. Dependent variable is log income in 2000, $\ln y$				
$\ln(\text{exports/area})$	−0.208*** (0.053) [−0.51, −0.14]	−0.201*** (0.047) [−0.42, −0.13]	−0.286* (0.153) [−∞, +∞]	−0.248*** (0.071) [−0.62, −0.12]
Colonizer fixed effects	No	Yes	Yes	Yes
Geography controls	No	No	Yes	Yes
Restricted sample	No	No	No	Yes
<i>F</i> -stat	15.4	4.32	1.73	2.17
Number of obs.	52	52	52	42
First Stage. Dependent variable is slave exports, $\ln(\text{exports/area})$				
Atlantic distance	−1.31*** (0.357)	−1.74*** (0.425)	−1.32* (0.761)	−1.69** (0.680)
Indian distance	−1.10*** (0.380)	−1.43*** (0.531)	−1.08 (0.697)	−1.57* (0.801)
Saharan distance	−2.43*** (0.823)	−3.00*** (1.05)	−1.14 (1.59)	−4.08** (1.55)
Red Sea distance	−0.002 (0.710)	−0.152 (0.813)	−1.22 (1.82)	2.13 (2.40)
<i>F</i> -stat	4.55	2.38	1.82	4.01
Colonizer fixed effects	No	Yes	Yes	Yes
Geography controls	No	No	Yes	Yes
Restricted sample	No	No	No	Yes
Hausman test (<i>p</i> -value)	.02	.01	.02	.04
Sargan test (<i>p</i> -value)	.18	.30	.65	.51

Notes. IV estimates of (1) are reported. Slave exports $\ln(\text{exports/area})$ is the natural log of the total number of slaves exported from each country between 1400 and 1900 in the four slave trades normalized by land area. The colonizer fixed effects are indicator variables for the identity of the colonizer at the time of independence. Coefficients are reported, with standard errors in brackets. For the endogenous variable $\ln(\text{exports/area})$, I also report 95% confidence regions based on Moreira’s (2003) conditional likelihood ratio (CLR) approach. These are reported in square brackets. The *p*-value of the Hausman test is for the Wu–Hausman chi-squared test. ***, **, and * indicate significance at the 1%, 5%, and 10% levels. The “restricted sample” excludes island and North African countries. The “geography controls” are distance from equator, longitude, lowest monthly rainfall, avg max humidity, avg min temperature, and $\ln(\text{coastline/area})$.

Weak Instruments...

Consider the simplest classical homoskedastic IV model:

$$\begin{aligned}y_t &= \beta x_t + u_t \\x_t &= Z_t \pi + v_t,\end{aligned}$$

Not relevant instrument. Imagine a situation when one has 1 endogenous regressor and 1 instrument which is independent of everything (totally irrelevant, $\pi = 0$). That is, the instrument is not valid and β is not identified. The question is how $\hat{\beta}_{TSLS}$ behaves? This should explain what we see in Bounder, Jaeger, Baker's (1995) "random quarter of birth" exercise:

$$\hat{\beta}_{TSLS} - \beta_0 = \frac{\sum Z_t u_t}{\sum Z_t v_t} = \frac{\frac{1}{\sqrt{T}} \sum Z_t u_t}{\frac{1}{\sqrt{T}} \sum Z_t v_t} \Rightarrow \frac{\xi_u}{\xi_v},$$

where $(\xi_u, \xi_v)' \sim N(0, \Sigma)$, $\Sigma = \begin{pmatrix} \sigma_u^2 & \sigma_{uv} \\ \sigma_{uv} & \sigma_v^2 \end{pmatrix}$. Let $\delta = \sigma_{uv}/\sigma_v^2$, then $\xi_u = \delta \xi_v + \xi$, and $\hat{\beta}_{TSLS} - \beta_0 \Rightarrow \delta + \frac{\xi}{\xi_v}$.

Conclusions:

- $\hat{\beta}_{TSLS}$ is inconsistent (as expected, since β is not identified).
- $\hat{\beta}_{TSLS}$ is centered around $\beta_0 + \delta$ (since $\frac{\xi}{\xi_v}$ has symmetric distribution), which is the limit of OLS.
- Asymptotically $\hat{\beta}_{TSLS}$ has heavy tails (since $\frac{\xi}{\xi_v}$ has Cauchy distribution)

Race: The “Promissory Note”: Still in Arrears

Yet status-group inequality & domination based on ethnicity is still an important thing today:

- If not as important a thing as it was in Abraham Lincoln’s day in 1858
- And not as important a thing as it was in Martin Luther King Jr.'s day in 1958
- Yet having the right kind of—and enough—property remains crucial
- And having the right kind of—and enough—education remains crucial
- And having been born in the right country has become crucial
- Still, at the end of WWII:
 - All indications then were that discrimination against African-Americans would continue into the indefinite future
 - It was inconsistent with the “American creed” of equality of opportunity
 - But the contradiction had been there since 1776
 - Even though the Republican Party after WWII retained its ancestral commitment to African-American uplift



Black Congressmen

No Black members of congress from 1901 to 1929:

- Eight African-Americans served in congress in 1875-77
- That number was not to be exceeded until 1969-71
- 1929: Republican Oscar Stanton De Priest from Southside Chicago.
- 1945: Adam Clayton Powell from Harlem
- 1955: Clarence Diggs from Michigan
- 1958: Robert Nix from Pennsylvania
- 1963: Augustus Hawkins from California
- 1965: John Conyers from Michigan
- Four African-American congressmen, all Democrats, in the last pre-Voting Rights Act congress...

Making Progress?

As of 1940, a three-year education gap:

- Discrimination in employment widely applauded
 - The near consensus was that infringement on individual liberty to outlaw people's power to discriminate on the basis of race in the use of their property
- African-American male college graduates made half of what white *high school graduates* made
- 48% of whites below today's poverty line, 81% of African-Americans
- Yet today:
 - AA men's weekly wages 67% of whites
 - AA women's 95% of whites
- The Civil Rights leaders played an extremely weak hand with immense skill and patience

Sources of Black-White Partial Convergence

Four principal factors in progress 1940-1980:

- The end of formal, legal, state-sanctioned discrimination
- The migration of African-Americans from the rural south to the urban north
- The associated shift from low-paid low-skill agricultural employment to industrial and service industries
- Title VII of the 1964 Civil Right Act made employment discrimination on the basis of race illegal
- Yet since 1980 convergence has stalled out:
 - By the end of the 1980s at least one in five of African-American prime-aged men (aged 25-54) reported no earnings in a given calendar year
 - Real per capita family income for African-Americans today is still only some sixty percent of whites
- Why?

The Rising Significance of Class

General inequality rise first; family structure changes second:

- The extraordinary rise in income and wealth inequality since 1980
- The rise in single-parent households
 - The poverty rate for two-parent African-American families with children today is 12.5%
 - The poverty rate for single-parent African-American families with children today is 40%
- Right-wing claim: Charles Murray & George Gilder & c.: more generous welfare payments triggered the collapse of the African-American family by making it more profitable to be on the dole than to keep a man
- Haven't done their arithmetic:
 - By the mid-1990s welfare payments were lower in inflation-adjusted terms than they had been in 1960
 - Real wages were some fifty percent higher for African-American males.
 - Maintaining a two-parent household was, in material terms, a much more advantageous option relative to split-up and welfare receipt in the 1990s than it had been in the 1950s and 1960s

Backwash: Links Between Economic and Cultural Changes:

- Divorce no longer stigmatized for males:
 - The 1980s saw the election of America's first divorced president, Ronald Reagan
 - By the 1990s the children of one Speaker of the House of Representatives—the Republican Newt Gingrich—had grown up in a single-parent family
- Plus families do not hold together when economic uncertainty is rife
- Seminal document of Murray-Gilder: a mid-1960s document written by a then-Johnson administration policymaker: Daniel Patrick Moynihan: *The Negro Family: The Case for National Action*:
 - But Moynihan's vision was shaped more by Moynihan's memories of Irish-American family dynamics under material pressure than an analysis of African-American families

Signs of Additional Hope?

Promissory note remains in substantial arrears:

- But we care
- Or, at least, it is impolite to acknowledge that you do not care about ethnic, gender, and status-group inequality
- That is itself a big difference about how things were 100 years ago
- Moving goalposts & ethnogenesis:
 - Being on a conference panel with Muhammed El-Erian
 - Mark Krikorian in 2007, executive director of the “Center for Immigration Studies”...



Mark Krikorian? WAT?

Pizza Patrón in East Dallas, one of 59 in five Southwestern and Western states:

- Antonio Swad, president and founder of Pizza Patrón
- Italian-Lebanese and was born and raised in Columbus, Ohio
- Saw a business opportunity in the growing Latino minority in his neighborhood
- Changed the name from Pizza Pizza to Pizza Patrón, hired bilingual staff members and added items like La Mexicana, a pizza that includes spicy chorizo sausage and jalapeños
- Mark Krikorian, executive director of the Center for Immigration Studies in Washington, a group that seeks to limit immigration, said he was concerned that Hispanics could create a parallel mainstream in the United States. “It's a trivial example, but Hispanics now have their own pizza chain,” Mr. Krikorian said. “It's a consequence of having too many people arrive from a single foreign culture, and may well reflect a kind of cultural secession...”



“Efflorescences”: Classical Greece

Table 1

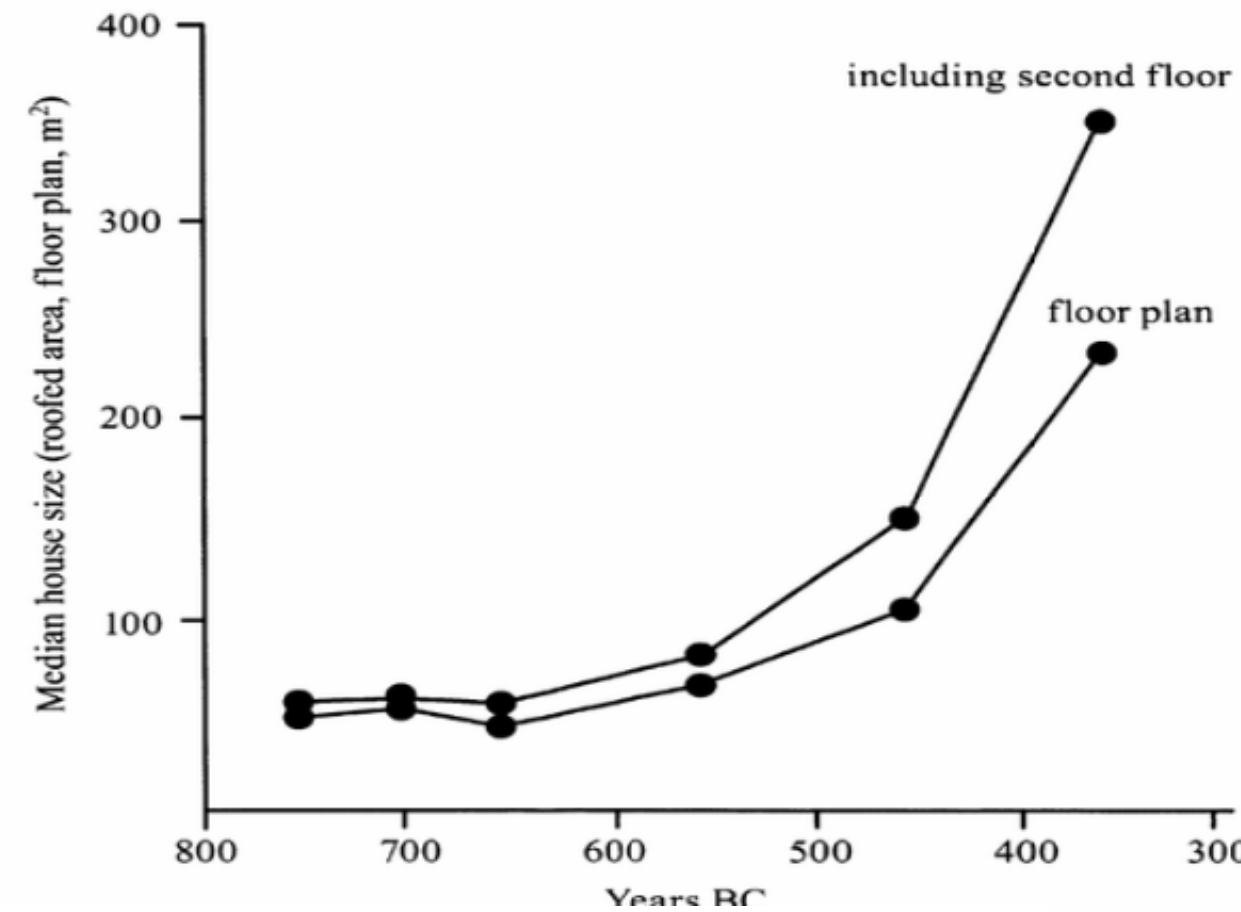
Standard Periodization of Ancient Greek History

Name	Dates
Bronze Age	c. 3000–1200 BC
Late Bronze Age	c. 1600–1200 BC (also known as Mycenaean period)
Early Iron Age	c. 1200–700 BC (also known as Dark Age)
Archaic	c. 700–480 BC
Classical	480–323 BC
Hellenistic	323–30 BC
Early Empire	30 BC–AD 284
Late Empire	AD 284–526
Early Byzantine	AD 526–1081

Source: Morris, Ian (2004) “Economic Growth in Ancient Greece,” *Journal of Institutional And Theoretical Economics*, 160, 709-742.

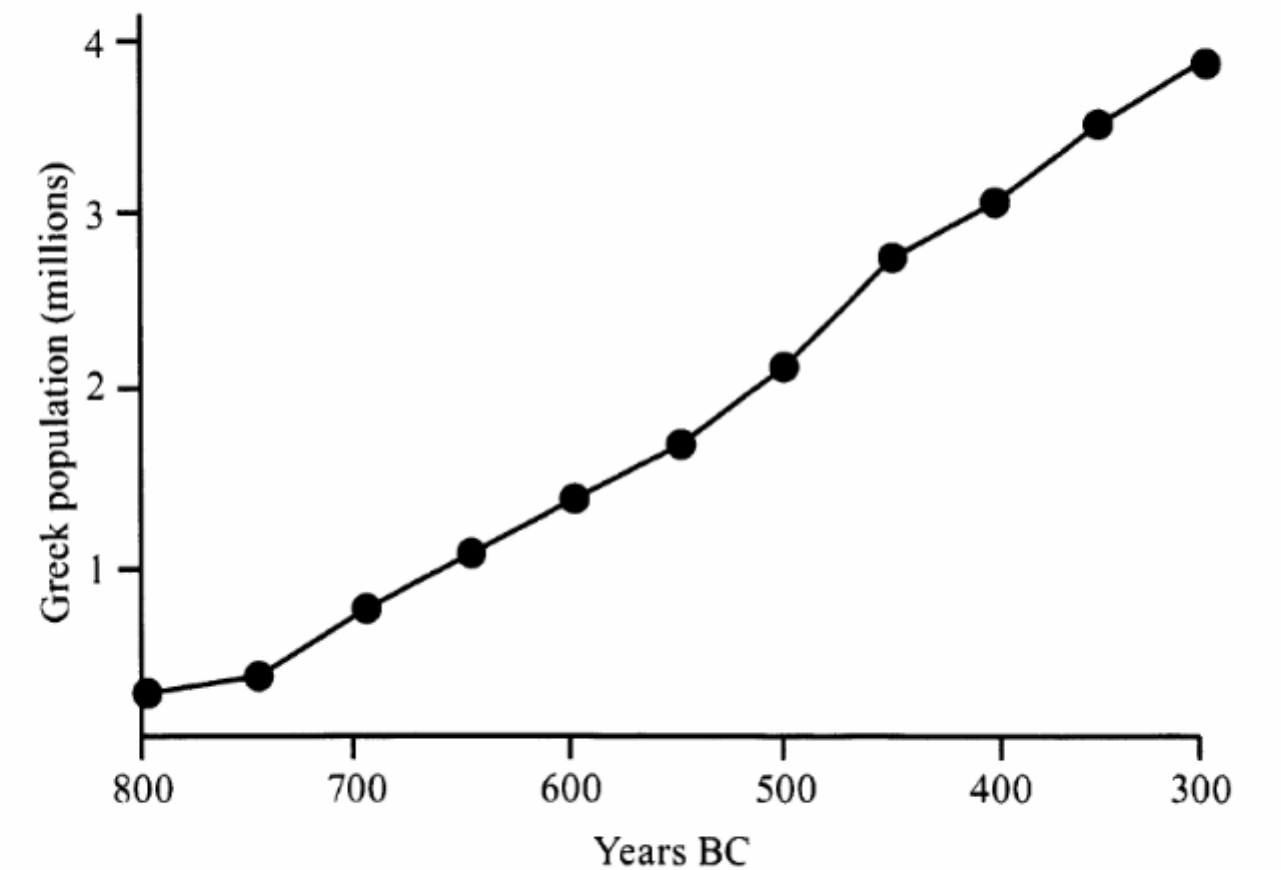
Houses got Bigger

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



Population Went Up

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



Source: Morris, Ian (2004) “Economic Growth in Ancient Greece,” *Journal of Institutional And Theoretical Economics*, 160, 709-742.

Odysseus Describes His Departure from Troy

What of my sailing, then, from Troy?
What of those years of rough adventure,
weathered under Zeus?
The wind that carried west from Ilion
brought me to Ísmaros, on the far shore,
a strongpoint on the coast of the Kikonês.
I stormed that place and killed the men who
fought.

Plunder we took, and we enslaved the
women,
to make division, equal shares to all—
but on the spot I told them: ‘Back, and
quickly!
Out to sea again!’ My men were mutinous,
fools, on stores of wine. Sheep after sheep
they butchered by the surf, and shambling
cattle,
feasting,—while fugitives went inland,
running
to call to arms the main force of Kikonês.
This was an army, trained to fight on
horseback
or, where the ground required, on foot.
They came
with dawn over that terrain like the leaves

and blades of spring. So doom appeared to
us,
dark word of Zeus for us, our evil days.

My men stood up and made a fight of it
backed on the ships, with lances kept in
play,
from bright morning through the blaze of
noon
holding our beach, although so far
outnumbered;
but when the sun passed toward unyoking
time,
then the Akhaians, one by one, gave way.

Six benches were left empty in every ship
that evening when we pulled away from
death.
And this new grief we bore with us to sea:
our precious lives we had, but not our
friends.
No ship made sail next day until some
shipmate
had raised a cry, three times, for each poor
ghost
unfleshed by the Kikonês on that field.



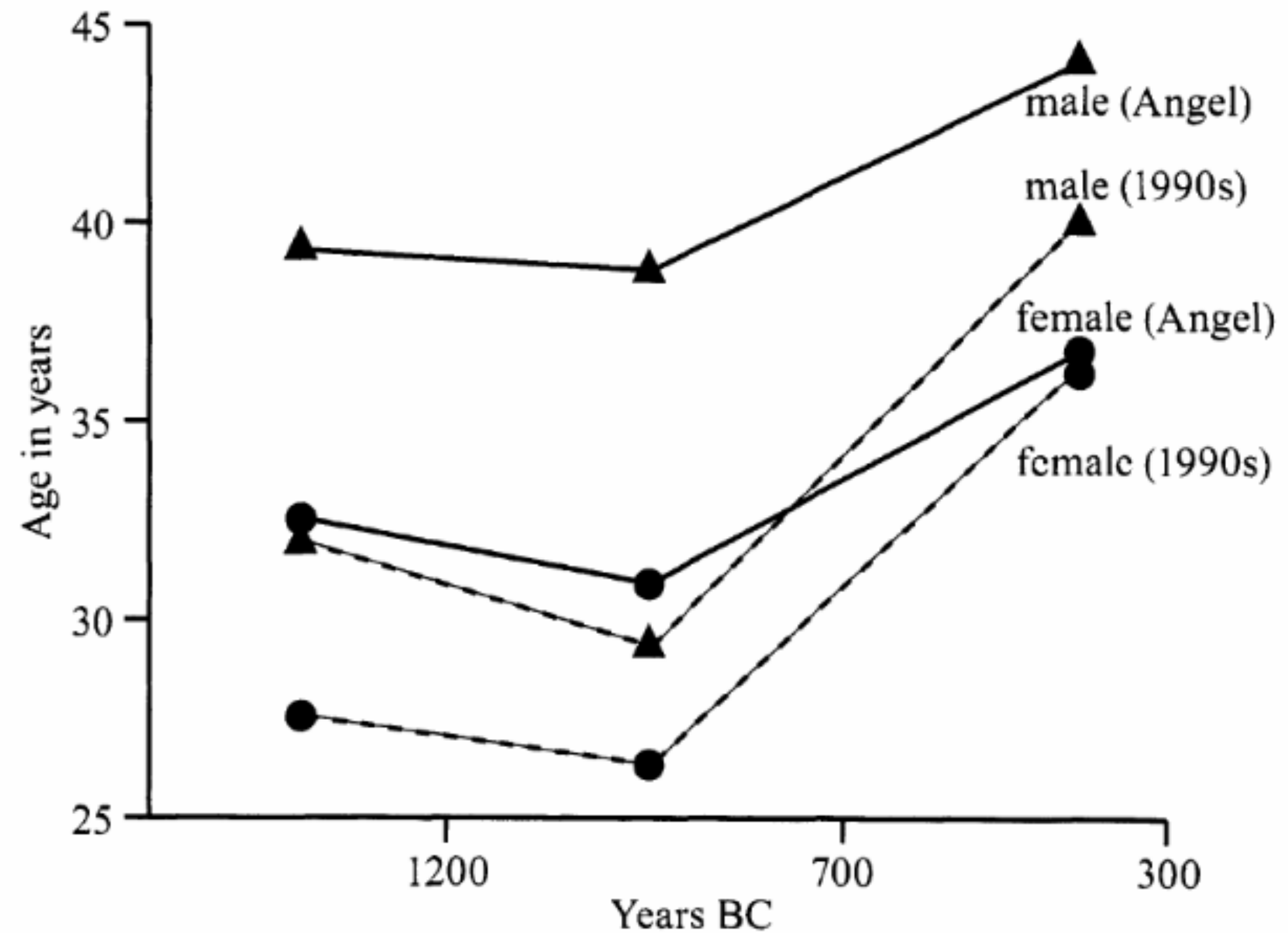
Peace, Order, & Long Life

Adults have already survived horrific infant mortality:

- Yet your typical adult female skeleton found in the Bronze Age is 27, and in the early Iron Age is 26
- Ditto for males: 33 and 31.
- By the year -400, however, the typical adult-male skeleton is of a 40-year old, and the typical adult-female skeleton is of a 37 year old.
- These are differences that I find astonishing!

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 ($n = 433$, 294 females), and the broken lines results collected with new techniques in the ($n = 357$ males, 416 females).

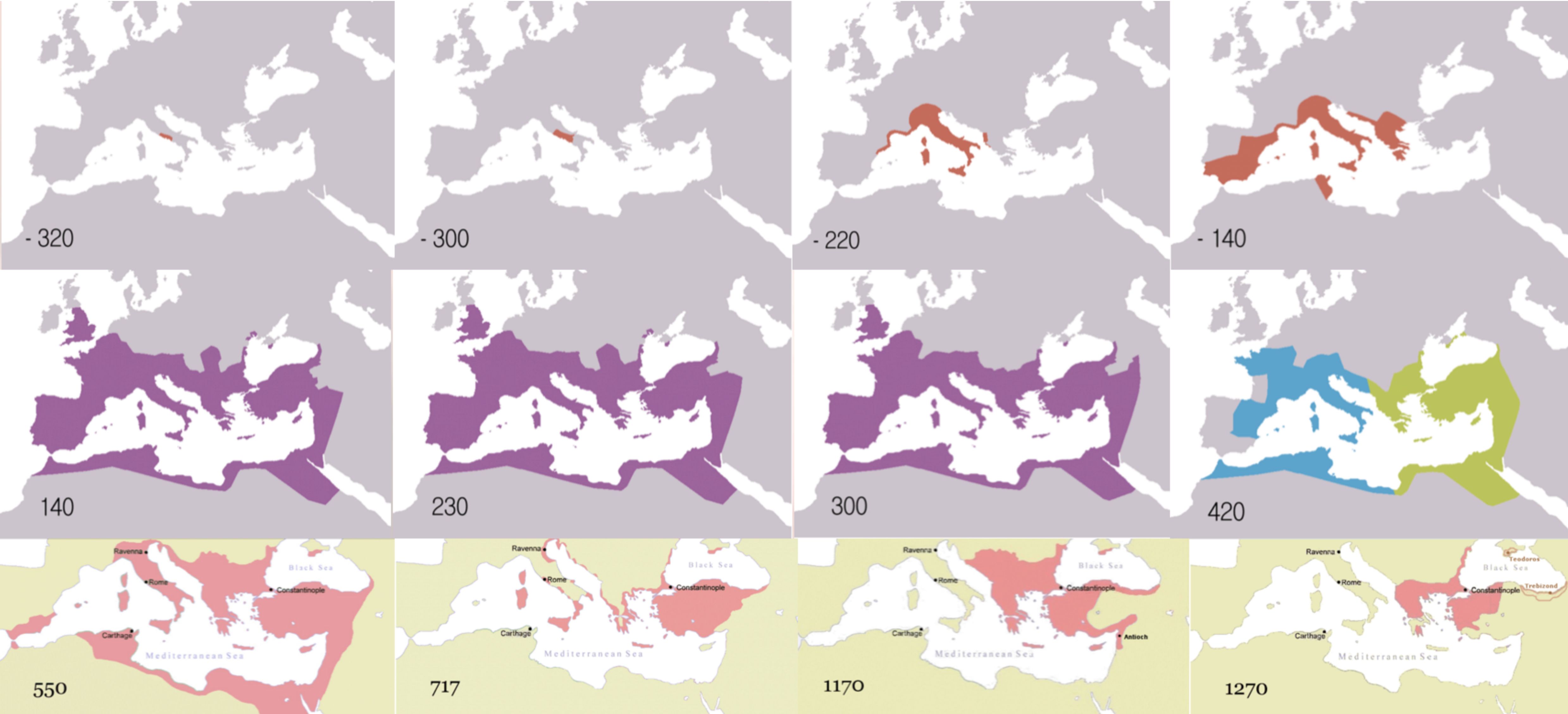
The Greek City-State

Emerging out of the Iron “Dark Age” of
-1200 to -800:

- When the Greek city states emerged they did so with functional systems of governance which provided public goods—security, boundary stones, marketplaces, mediators, dispute resolution.
- This initiated a period of sustained increases in living standards.
- While Ancient Greece did have a period of democracy, it was relative short (less than 200 years) compared to the duration of the polity
 - Remember! Most citizens—slaves, poor citizens who couldn’t afford their tax bill, women—could not participate even in smallholder democracy
- Many *poleis* oligarchies...
- Greek institutions (rules according to which the society was organized) tended to be “extractive”—at least if you were not one of the equals:
 - Economy largely based upon slavery.



Roman Efflorescence & Decline, -320 to 1270



The Rise of Rome

Key Factors:

- **Militarism** (on the part of élites competing for authority)
- **Mobilization** (of the citizenry)
- **Mandate** for the élite to continue conquest, driven by the wide sharing benefits (of conquest)
- **Mass**: incorporation (of conquered communities) into the Roman citizen body
- **Mammoth** military and political expansion after -340, and substantial economic expansion



From Republic to Empire

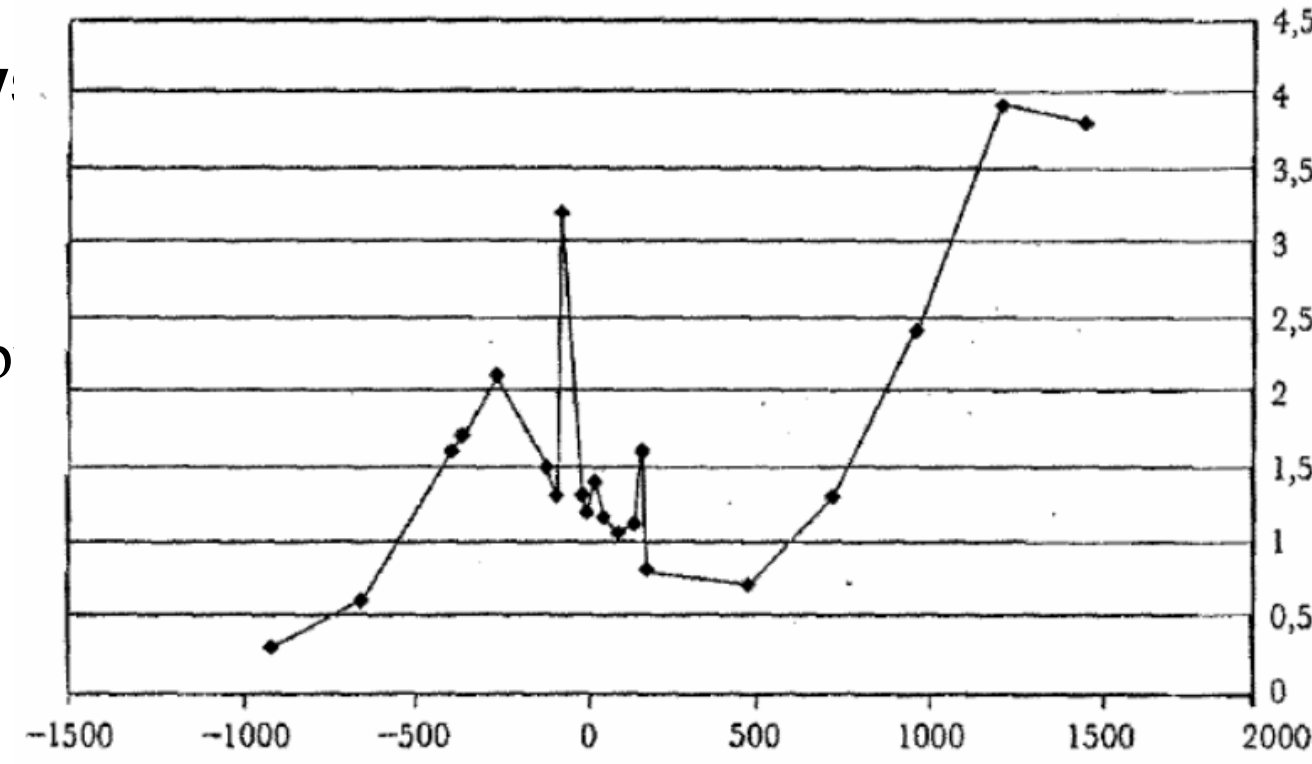
Political Transition:

- 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.
 - First the *principate*
 - Then the *dominate*
- Augustus reformed the army, removing it as a bastion of plebeian power.
- His successor Tiberius stripped the assemblies of powers and gave them to the senate—and then neutered the senate
- A semi-hereditary monarchy replaced the Republic:
 - “May good success attend the Roman senate and people and myself. I hereby adopt as my son Marcus Ulpius Nerva Traianus...”
- 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

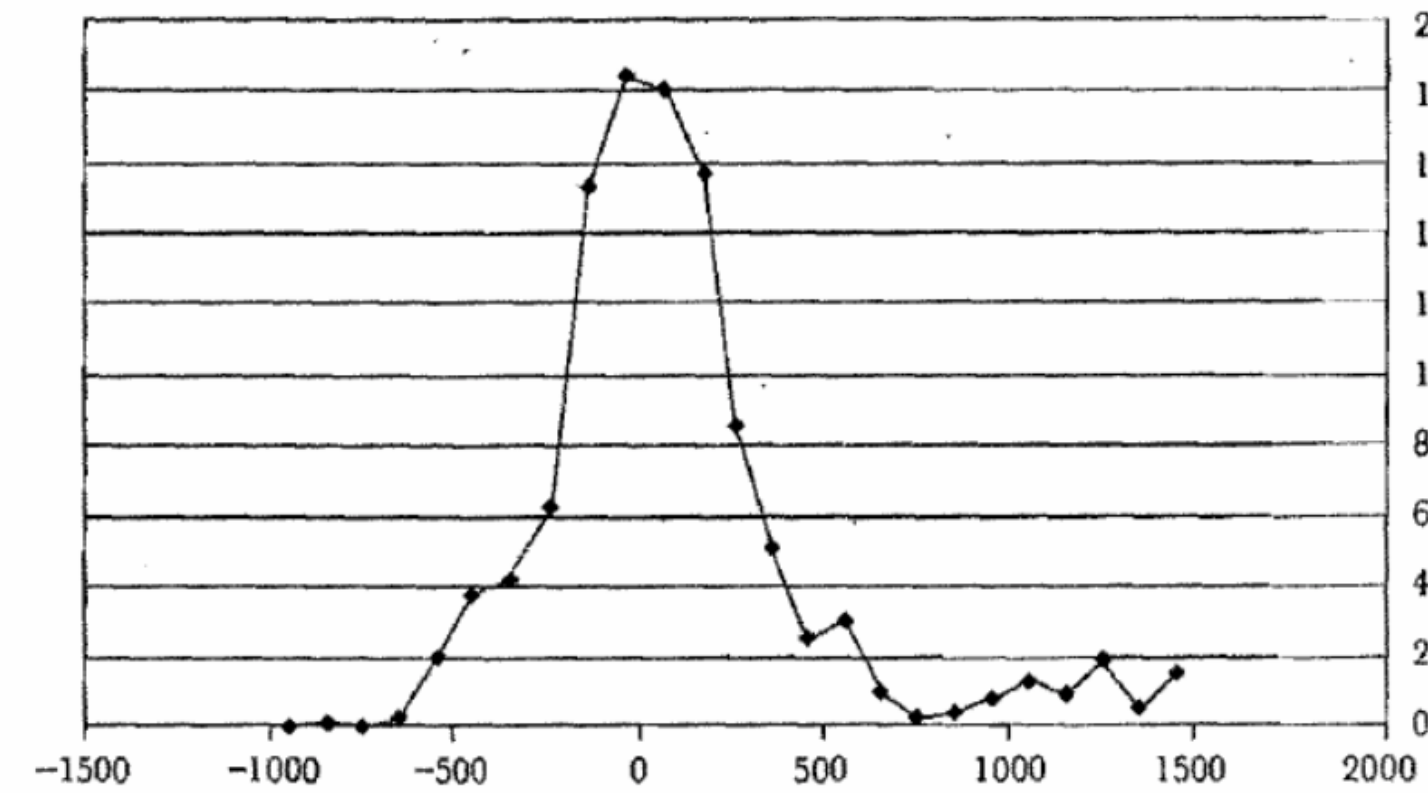
Measuring Roman Efflorescence

There are many interesting ways to track economic expansion:

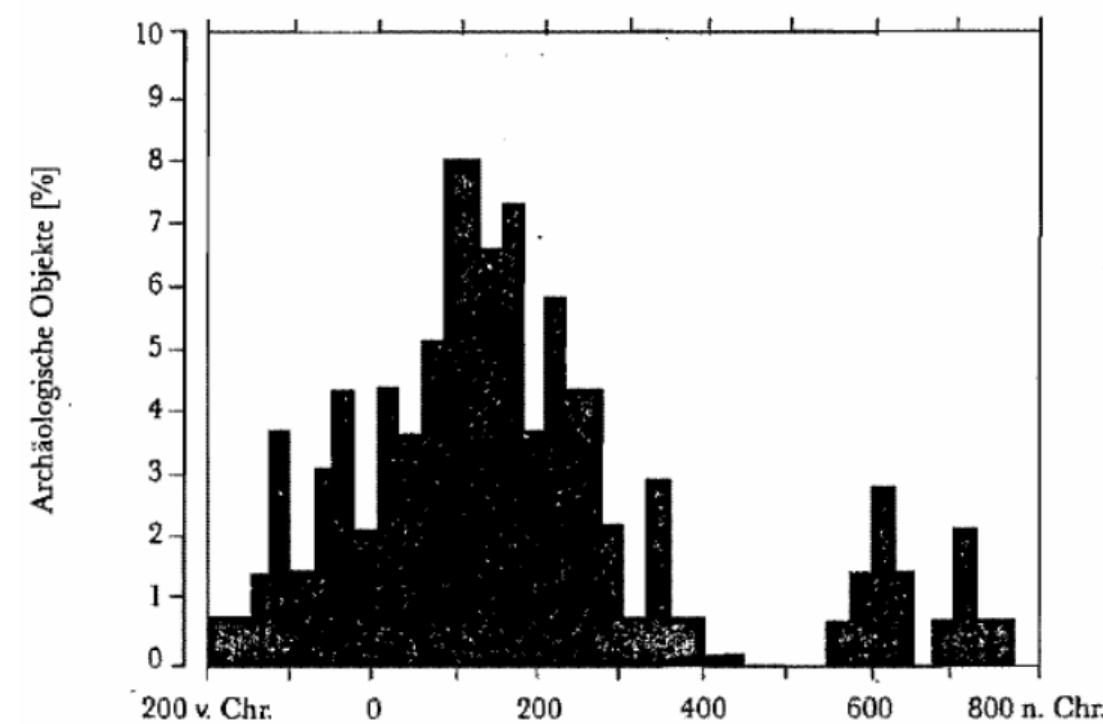
- Shipwrecks indicate trade, but they also track the movement of goods by fiat. For example, the citizens of Rome were kept happy by the free distribution of bread after 58BC. This was later extended to olive oil and even wine. This had to be shipped (mostly from Egypt and North Africa).
- The Romans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



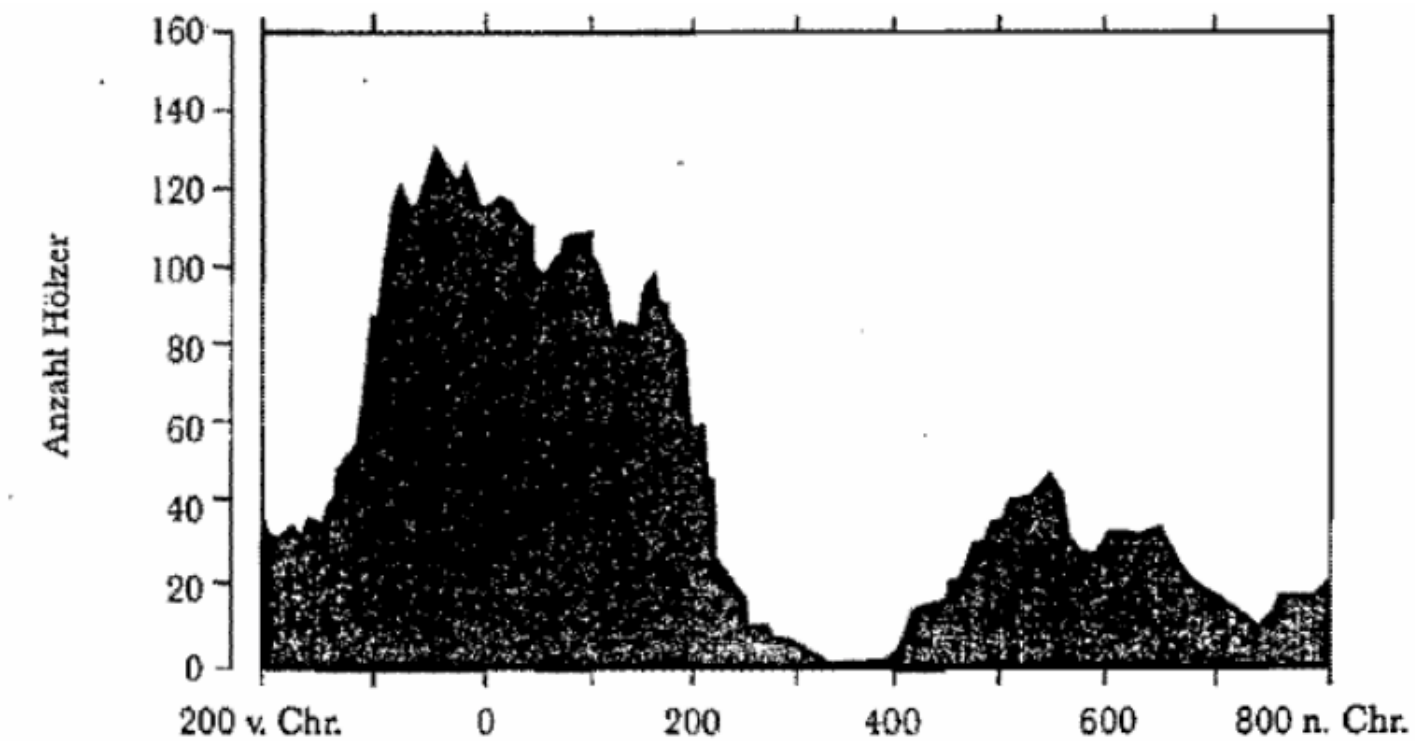
Graph 2: Lead pollution in Greenland ice cores²²



Graph 1: dated shipwrecks (from De Catalaj 2005)



Graph 4: archaeological finds in western Germany (Trier laboratory)



Graph 3: dated wood remains from western Germany (Trier laboratory)



Han Empire

Han Dynasty (-202 to 220)

- Western Han
- Eastern Han
- Protectorate of the Western Regions
- Daoist Rebellions: Yellow Turbans & Five-Pecks-of-Rice
- Generals vs. eunuchs
- Cao Wei, Eastern Wu, & Shu Han
- Three Kingdoms—Six Dynasties—Sixteen Kingdoms—Sui



The Crisis of the Middle 200s

Julio-Claudian, Flavian, Antonine, Severan Dynasties:

- Antonine Dynasty 96-193
 - Plague 165-180
- Interregnum: Pertinax, Pescennius Niger, Clodius Albinus, Didius Julianus
- Severan Dynasty 193 (196)-235
- Then: 27 emperors, 35 claimants in 50 years; loss of Dacia and the Ten-Canton Fields; sacking of Athens, Ephesus, and Antioch
- The economy is falling apart...
- The exploitative screws are being tightened...
- The beginnings of commendation and serfdom...
- Perhaps the miracle was that the crisis was of the mid-200s rather than the late-100s...



The Fall of Rome (& Others)

The Fall of Rome:

- The demands of the empire for revenue and of the upper class for resources remain the same
- Three great plagues:
 - Antonine Plague (smallpox?): Antonine ⇒ Severan dynasty
 - Plague of St. Cyrian (Ebola-like?):
 - Things fall completely apart, then Diocletian
 - Between Philip the Arab and Diocletian, 18 emperors in 35 years, plus two breakaways; 12 of the 18 were assassinated
 - Plague of Justinian (Bubonic):
- Flavius Apion...



The Later Roman Empire

Justinian I in 542:

- Writing to his Praetorian Prefect concerning the army—trained and equipped and paid for by the Roman State to control the barbarians and to "increase the state." Peter Sarris reports in his *Economy and Society in the Age of Justinian*, upset that:
 - Certain individuals had been daring to draw away soldiers and *foederati* from their duties, occupying such troops entirely with their own private business.... The emperor... prohibit[ed] such individuals from drawing to themselves or diverting troops... having them in their household... on their property or estates.... Any individual who, after thirty days, continues to employ soldiers to meet his private needs and does not return them to their units will face confiscation of property... "and those soldiers and *fioderati* who remain in *paramonar* attendance upon them... will not only be deprived of their rank, but also undergo punishments up to and including capital punishment."

One of Flavius's tenants and debtors, Anoup, wrote:

- No injustice or wickedness has ever attached to the glorious household of my kind lord, but it is ever full of mercy and overflowing to supply the needs of others.
- On account of this I, the wretched slave of my good lord, wish to bring it to your lordship's knowledge by this present entreaty for mercy that I serve my kind lord as my fathers and forefathers did before me and pay the taxes every year. And by the will of God... my cattle died, and I borrowed the not inconsiderable amount of 15 solidi....
- Yet when I approached my kind lord and asked for pity in my straits, those belonging to my lord refused to do my lord's bidding. For unless your pity extends to me, my lord, I cannot stay on my *ktema* and fulfill my services with regard to the properties of the estate.
- But I beseech and urge your lordship to command that mercy be shown to me because of the disaster that has overtaken me...

The Later Roman Empire

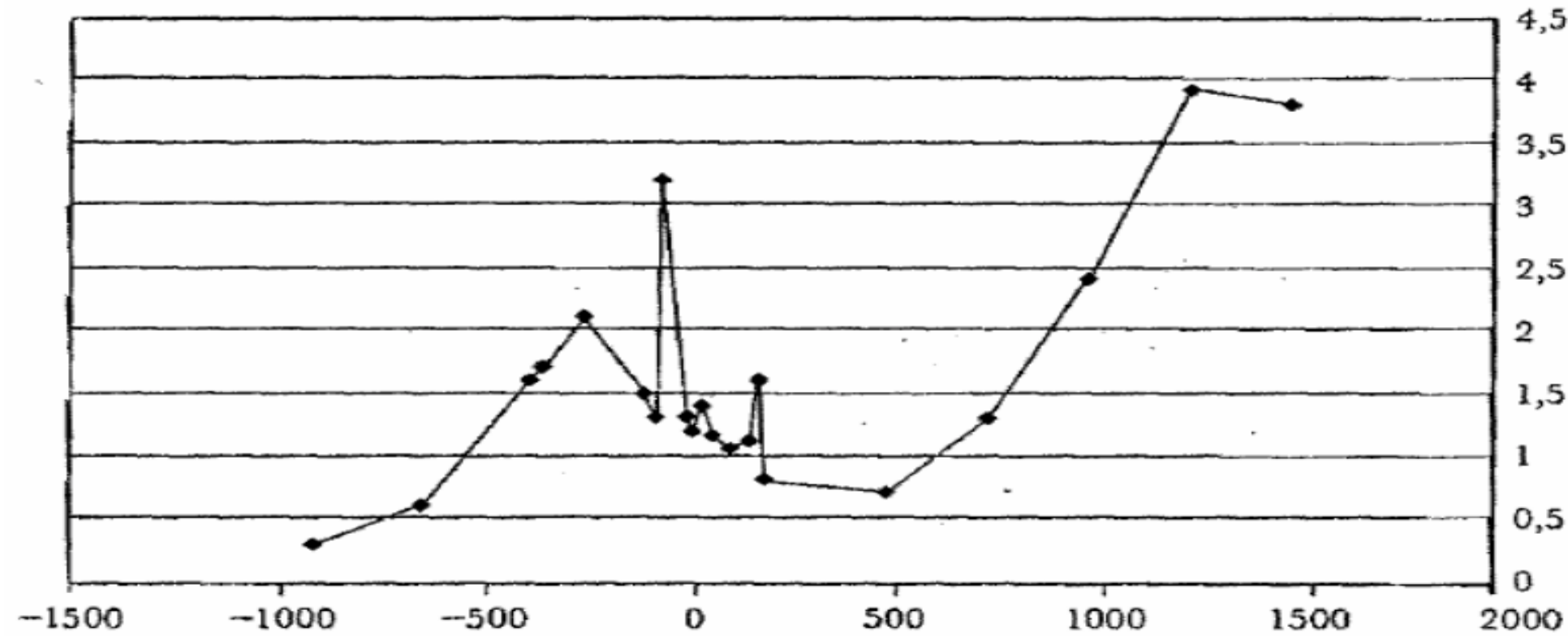
How does it compare to the expanding Roman Republic?

- **Militarism:** in striking contrast to earlier days, a successful general is a threat to the emperor. Eighteen emperors in 35 years between Philip the Arab and Diocletian
- **Mobilization:** In order to extract resources from a smaller population, the people must be disarmed rather than mobilized.
- **Mandate:** Absent: the smaller pool of benefits needs to be hoarded for those with connections, not shared.
- **Mass:** Not achieved—you can join the Goths: you cannot join the Roman upper class unless you know someone...

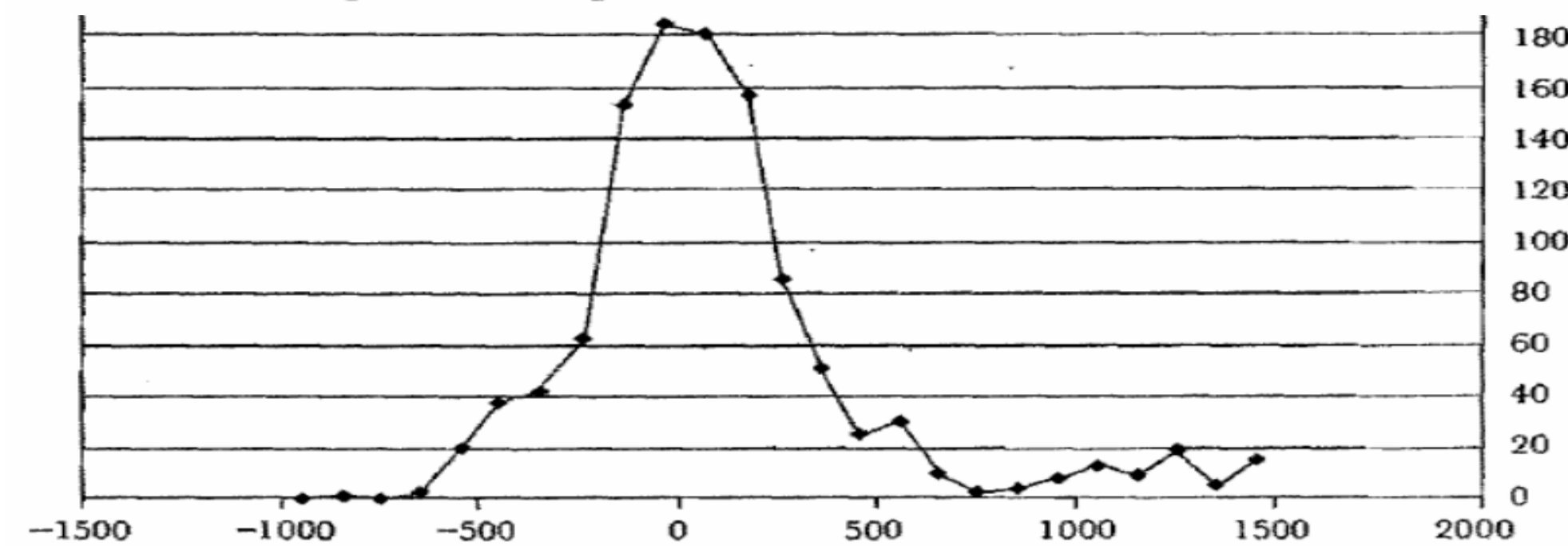
The Dark Age Begins...

For the Roman Empire, the collapse of Roman authority was pronounced, particularly in the West:

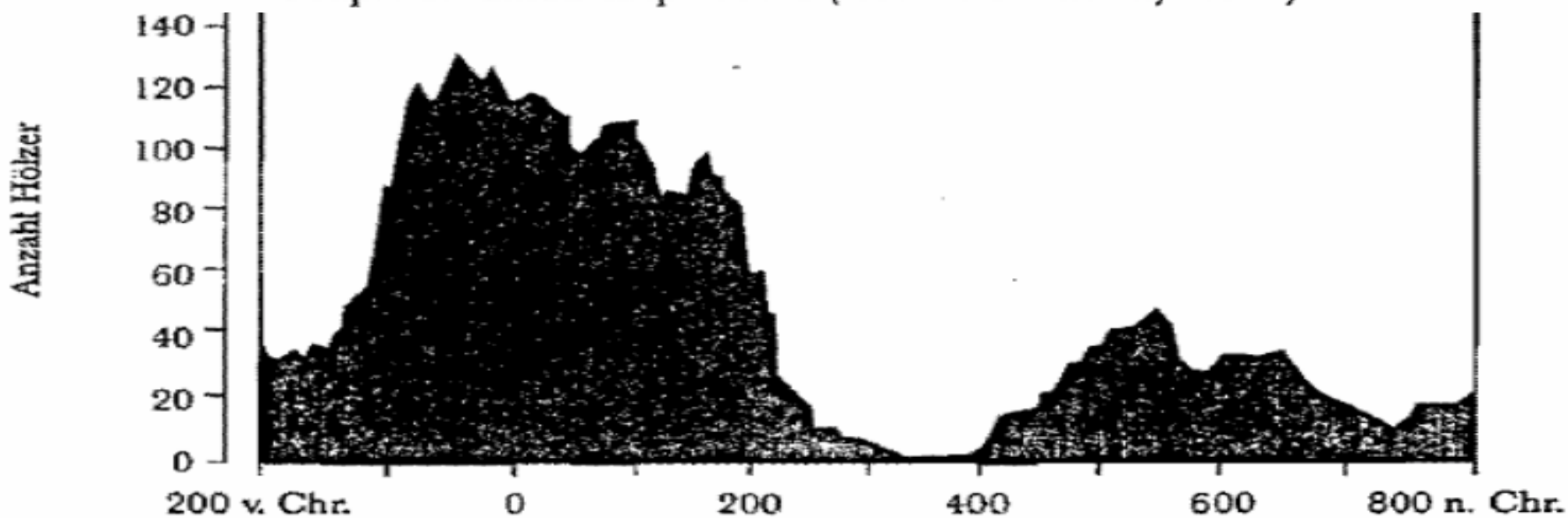
- By 450AD all the trappings of Roman economic prosperity were gone.
- Money vanished from circulation.
- Urban areas were abandoned and buildings stripped of stone.
- The roads were overgrown with weeds.
- The only type of pottery which was fabricated was crude and hand made, not manufactured.
- People 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.



Graph 2: Lead pollution in Greenland ice cores²²



Graph 1: dated shipwrecks (from De Catalay 2005)



Graph 3: dated wood remains from western Germany (Trier laboratory)

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.

Slow Technological Growth

Date	Ideas Growth Rate h	Ideas Stock Level H	Real Income/ Capita y	Popula- tion P (millions)	Total Income Y (billions)
-73000				0.01	
-68000		0.0082	\$1,200	0.1	\$0.12
-48000	0.002%	0.011	\$1,200	0.2	\$0.24
-30000	0.003%	0.018	\$1,200	0.5	\$1
-8000	0.005%	0.057	\$1,200	5	\$6
-6000	0.003%	0.061	\$900	10	\$9
-4000	0.007%	0.070	\$900	13.23	\$12
-3000	0.007%	0.074	\$900	15	\$14
-1500	0.030%	0.117	\$900	37	\$33
-1000	0.030%	0.136	\$900	50	\$45
-400	0.060%	0.195	\$900	103	\$93
150	0.060%	0.272	\$900	200	\$180
800	0.007%	0.285	\$900	220	\$198
1000	0.078%	0.333	\$900	300	\$270
1500	0.062%	0.467	\$1,000	480	\$480
1770	0.146%	0.694	\$1,100	875	\$963
1870	0.365%	1.000	\$1,300	1300	\$1,690
1930	1.793%	3.000	\$3,000	2100	\$6,300
1975	2.256%	9.000	\$6,000	4000	\$24,000
2020	2.282%	27.000	\$12,000	7800	\$93,600
2077	1.939%	81.000	\$33,173	9311	\$308,857
2100	1.939%	127.381	\$50,000	10000	\$500,000
2200	2.000%	941.227	\$369.453	10000	\$3.694.528

What Are the Major Theories?

- Two-heads are better than one
 - Then those who directed society's energies could focus on something else than taking and holding *enough* for themselves
- Could patriarchy lose its hold?
 - A clan-based daughter-friendly society would be one in which the pressure to try to secure a surviving sone would be greatly diminished
- Could technological growth be rapid?
 - Then the historical path to wealth and then the demographic transition could be opened up

Two Heads Are Better than One

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150	0.060%	0.272	\$900	200	\$180

Jared Diamond, Paul Romer, Michael Kremer...

- Most commodities are *rival*—if I am using this computer, you can't be (at least not right now)
- Ideas are *non-rival*—write once, run everywhere
- Suppose that knowledge is cumulative—that each proportional gain in technological competence requires the same amount of thinking effort
- More brains to think means technological progress is faster
- How well does this do as a theory?

But It Falls Apart After 150...

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1000	0.078%	0.333	\$900	300	\$270
1500	0.062%	0.467	\$1,000	480	\$480

The Late-Antiquity Pause

- What is going on here?
- And what is the pace when we resume, after 800 or so?

Technologies of Communication and Discovery

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2020	2.282%	27.000	\$12,000	7800	\$93,600

There Are Many...

- Brains
- More brains—two-heads-are-better-than-one
- “Cultural learning”
- Tools as reminders
- Language
- Settlement—inscribing knowledge and reminders on the landscape
- Animal domestication
- Property
- Gift exchange
- Multi-level hierarchy
- Accounting
- Writing
- Mathematics
- Metalworking
- Long-distance trade
- Empirical inquiry
- Ideas true about the world as opposed to ideas useful for solidarity or useful for exploitation
- Bureaucracy
- Law as force-multiplier for imperium
- Bellows
- Money
- Tinkering culture Law as limit to imperium
- Professional judges
- Market-economy relations of production
- Gunpowder as a force-leveller
- Printing
- Globalization
- Peaceful competition as a major spur to innovation
- Limited yet powerful government—able to maintain its property-rights order against roving bandits, local notable, and its own functionaries
- Higher math
- Experimental method
- Science—”nothing via authorities”
- Steam engines
- Machine tools
- Industrial-research laboratories
- Modern corporations
- Really cheap globalization

Moses Finley's Theory

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Moses Finley: *Technical Innovation and Economic Progress in the Ancient World* <<https://delong.typepad.com/finley-technical.pdf>>

- “There was... technical...progress.... The range and quality of products were enhanced and standards of life rose, at least for the rich... A larger share of the total income was available for non-productive expenditure...
- “Intellectually (or scientifically) speaking, there was a basis for more technical advance-in production-than was actually made. Why did productivity then not advance markedly, if the interest, the knowledge, and the necessary intellectual energy would seem to have been present? The question cannot be dismissed simply by pointing to alternative values...
- “The pejorative judgments of ancient writers about labour, and specifically about the labour of the artisan, and of anyone who works for another, are too continuous, numerous, and unanimous, too wrapped up in discussions of every aspect of ancient life, to be dismissed as empty rhetoric...
- Tocqueville[’s]... notebooks... are filled with the theme that 'slavery is even more prejudicial to the masters than to the slaves', because, as a leading Louisville merchant said to him, 'it deprives us of the energy and spirit of enterprise that characterizes the States that have no slaves'. Greek and Roman slavery functioned in a different context, to be sure, both internally and externally, and comparisons must be made with caution and reserve. But this particular one seems to me to be valid and necessary...

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Moses Finley: *Technical Innovation and Economic Progress in the Ancient World* <<https://delong.typepad.com/finley-technical.pdf>>

- “From the second century on, the emperors were faced with continuing difficulties and crises in supplies and revenues. They had good reason to think of more production. That, instead, they thought of more regimentation, of a bigger bite out of the old pie, seems to me explicable largely in terms of attitudes, of thought-processes...
- “Archimedes’s practical inventions, I hasten to add, were military and were made only under the extraordinary and irresistible stimulus of the siege of his native Syracuse by the Romans.... Why did neither the Ptolemies nor the Sicilian tyrants nor the Roman emperors systematically (or even spasmodically) turn their engineers to the search for higher productivity, at least in those sectors of the economy which produced the royal revenues?...
- “Whatever the answer, it was not lack of capital (or lack of authority). Funds, manpower and technical skills were made available (and wasted) in vast and ever increasing amounts for roads, public buildings, water supply, drainage and other amenities, but not for production. Of course, the effort to increase productivity might have proved unsuccessful - but it was never even attempted...

Might Finley Be Wrong? Seneca vs. Posidonius on Whether Technology Is Philosophy



Lucius Annaeus Seneca

Minor (64): *Moral Letters to Lucilius 90: On the Part Played by Philosophy in the Progress of Man:* ‘That philosophy discovered the arts of which life makes use in its daily round I refuse to admit.... I, for my part, do not hold that philosophy devised these shrewdly-contrived dwellings of ours which rise story upon story, where city crowds against city, any more than that she invented the fish-preserves, which are enclosed for the purpose of saving men’s gluttony from having to run the risk of storms....

Was it philosophy that taught the use of keys and bolts? Nay, what was that except giving a hint to avarice?... All this sort of thing was born when luxury was being born...

On another point also I differ from Posidonius, when he holds that mechanical tools were the invention of wise men.... Nay, the sort of men who discover such things are the sort of men who are busied with them.... The hammer [and] the tongs... were both invented by some man whose mind was nimble and keen, but not great or exalted; and the same holds true of any other discovery which can only be made by means of a bent body and of a mind whose gaze is upon the ground....

Which man, pray, do you deem the wiser—the one who invents a process for spraying saffron perfumes to a tremendous height from hidden pipes, who fills or empties canals by a sudden

rush of waters, who so cleverly constructs a dining-room with a ceiling of movable panels that it presents one pattern after another, the roof changing as often as the courses,—or the one who proves to others, as well as to himself, that nature has laid upon us no stern and difficult law when she tells us that we can live without the marble-cutter and the engineer, that we can clothe ourselves without traffic in silk fabrics, that we can have everything that is indispensable to our use, provided only that we are content with what the earth has placed on its surface? If mankind were willing to listen to this sage, they would know that the cook is as superfluous to them as the soldier....

Posidonius then passes on to the farmer.... This trade also, he declares, is the creation of the wise,—just as if cultivators of the soil were not even at the present day discovering countless new methods of increasing the soil’s

fertility!... He even degrades the wise man by sending him to the mill.... Posidonius came very near declaring that even the cobbler’s trade was the discovery of the wise man....

Not so; these early inventions were thought out by no other class of men than those who have them in charge today. We know that certain devices have come to light only within our own memory... windows which admit the clear light through transparent tiles,.. baths with pipes let into their walls for the purpose of diffusing the heat... marble... rounded and polished masses of stone.... Or our signs for whole words, which enable us to take down a speech, however rapidly uttered, matching speed of tongue by speed of hand?

All this sort of thing has been devised by the lowest grade of slaves...

2024-01-18 Th: Spring 2024: Econ 115 :: II. Pre-Modern Societies: Agrarian-Age Society: -4000 to 1500

Last Lecture Lessons:

1. Hinge of history in 1870
2. Before technological progress abysmally slow—0.06%/year or less before 1500, rising to 0.4% per year worldwide in the years before 1870
3. After 1870—the possibility, and soon certainty of baking a sufficiently large economic pie for everyone to have *enough*, at least by the standards of all previous centuries
4. But slicing and tasting the pie—equitably distributing it, and utilizing it to live wisely and well, so that people feel safe and secure, and are healthy and happy—continue to pretty much completely flummox us
5. Before 1870, Malthusian demographic pressures induce dire poverty for the masses: hence to get *enough* for yourself and your family, you had to find a way to join the elite domination-and-exploitation by force-and-fraud gang
6. After 1870, humanity's technological competence doubles every generation
7. After 1870, Schumpeterian creative destruction
8. After 1870, von Hayek vs. Polanyi as we frantically try to rewrite society's socio-politico-economic software on the fly to run on the rapidly changing technological mode-of-production base
9. Pre-literate, ancient, classical, asiatic, feudal, commercial-gunpower, steampower, applied-science, mass-production, global value-chain, and now attention-algorithmic info-biotech ages

This Lecture:

1. Looking at the globe from the discovery of agriculture to 1500 (and, in much of the world, much later)

Catch Our Breath

Let's reflect on what we have just heard & seen...

1. Comments
2. Questions
3. Readings

