

**2024-01-25 Th: Spring 2024: Econ
115 ::**

III. Modern Economic Growth:

**Escaping from the Shadow of
Malthus: Demographic Transition
1700 to 2024**

2024-01-25 Th: Spring 2024: Econ 115 :: III. Modern Economic Growth: Escaping from the Shadow of Malthus: Demographic Transition 1700 to 2024

Last Lecture Lessons:

1. Worldwide, the world goes from 6% per century of technology growth before 1500 to $\frac{1}{3}\%$ per year over 1770-1870
2. This is not nearly enough to break the ensorcellment of humanity by the Devil of Malthus
3. But it is, definitely, a start
4. There is also *some* improvement in typical-human standards of living, as the population explosion lags productivity a bit
5. There are also powerful and important changes in organization and the forms of élite domination: commercial-gunpowder is not feudal or classical agrarian; and steampower is even more different
6. Why the two triplings *ca.* 1500 and 1770?
7. Why not China?

2024-01-25 Th: Spring 2024: Econ 115 :: III. Modern Economic Growth: Escaping from the Shadow of Malthus: Demographic Transition 1700 to 2024

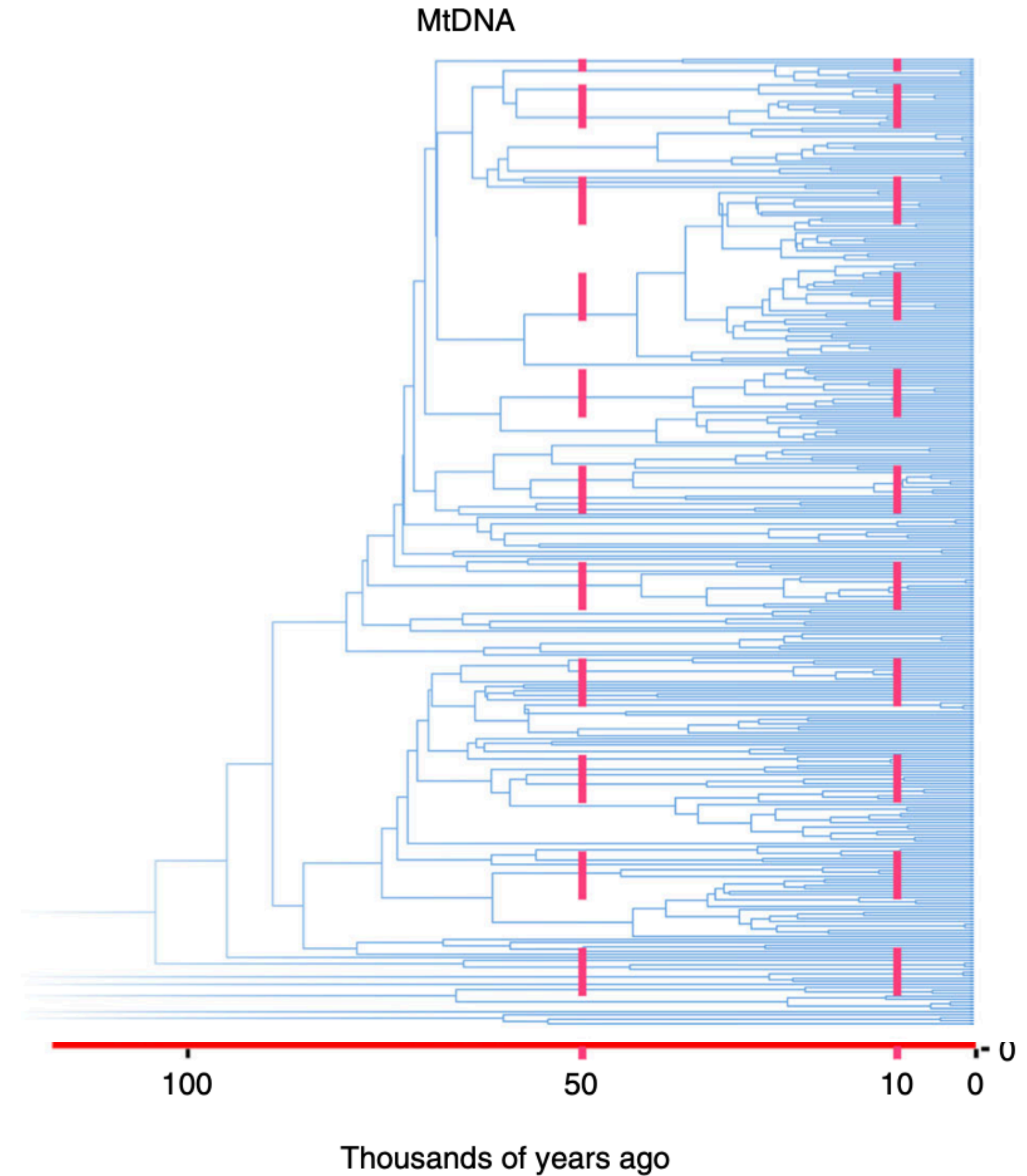
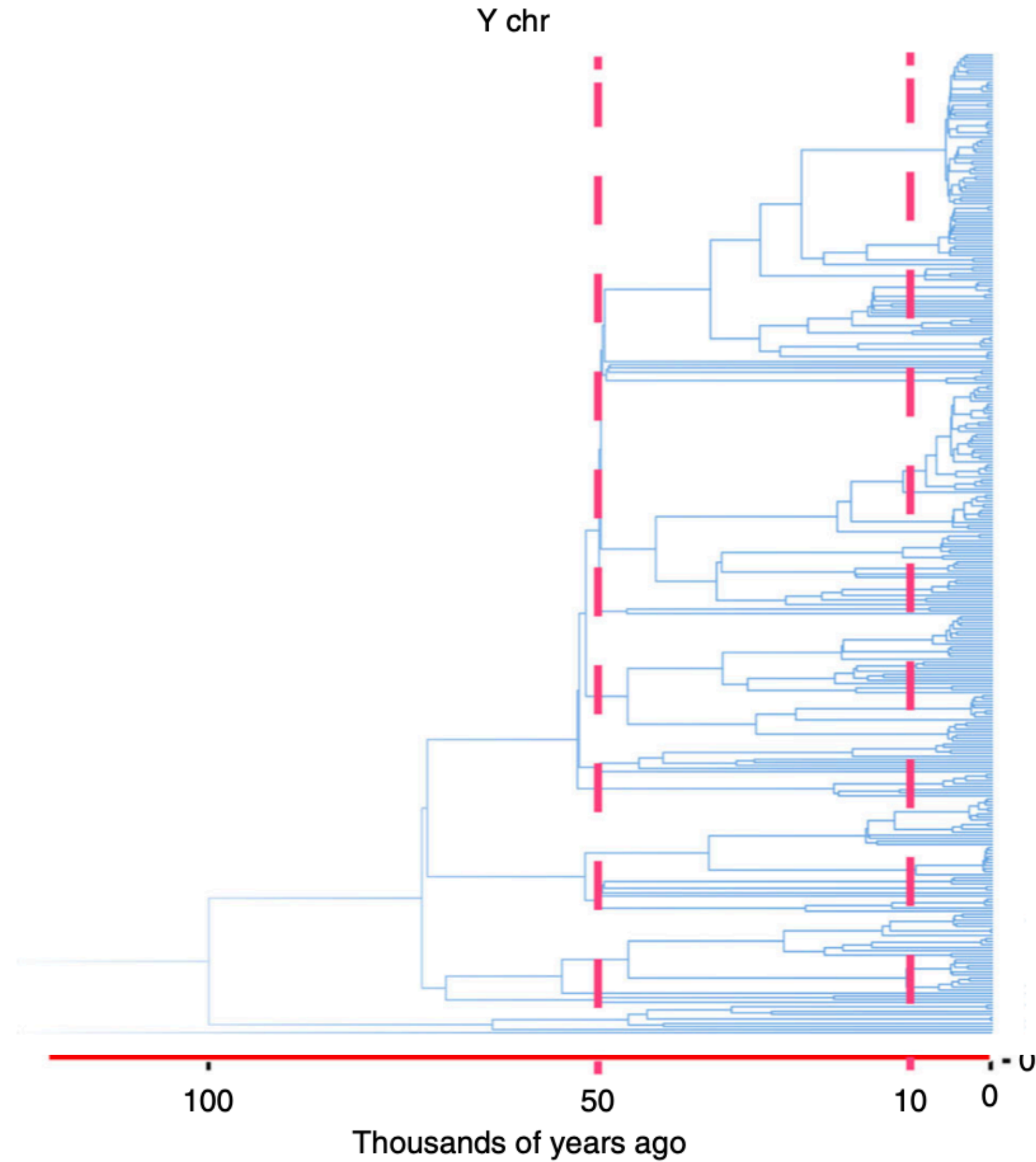
This Lecture:

1. Looking at the globe from the discovery of agriculture to 1500 (and, in much of the world, much later)
- 2.

READING: This Week: Lee

- **Lee, Ronald.** 2003. “The Demographic Transition: Three Centuries of Fundamental Change.” *Journal of Economic Perspectives* 17 (4): 167–190 <<https://www.aeaweb.org/articles?id=10.1257/089533003772034943>>
1. **Lee:** How did the demographic transition alter the life cycle of individuals and the structure of populations globally since 1800?
 2. What role did Thomas Malthus' theories play in understanding population growth before the demographic transition, and how accurate were they in hindsight?
 3. What were the primary drivers of mortality decline during the demographic transition, and how did these differ between high-income and low-income countries?
 4. Discuss the economic and societal factors that contributed to the fertility transition in Europe between 1890 and 1920.
 5. How do the demographic trajectories of Europe and India during the demographic transition compare and contrast in terms of fertility, mortality, and population growth?
 6. Examine the changes in age distribution, especially the dependency ratios, during the demographic transition, using India as a case study.
 7. How do lower fertility and longer life expectancy differently contribute to population aging, and what are their implications for societal resource allocation?
 8. Discuss the various economic, social, and familial consequences of the demographic transition as outlined by Ronald Lee.
 9. How have international migration and capital flows been influenced by the demographic transition, particularly in More Developed Countries?
 10. What are the potential challenges and opportunities in the final stages of the global demographic transition, particularly in terms of economic and political aspects?

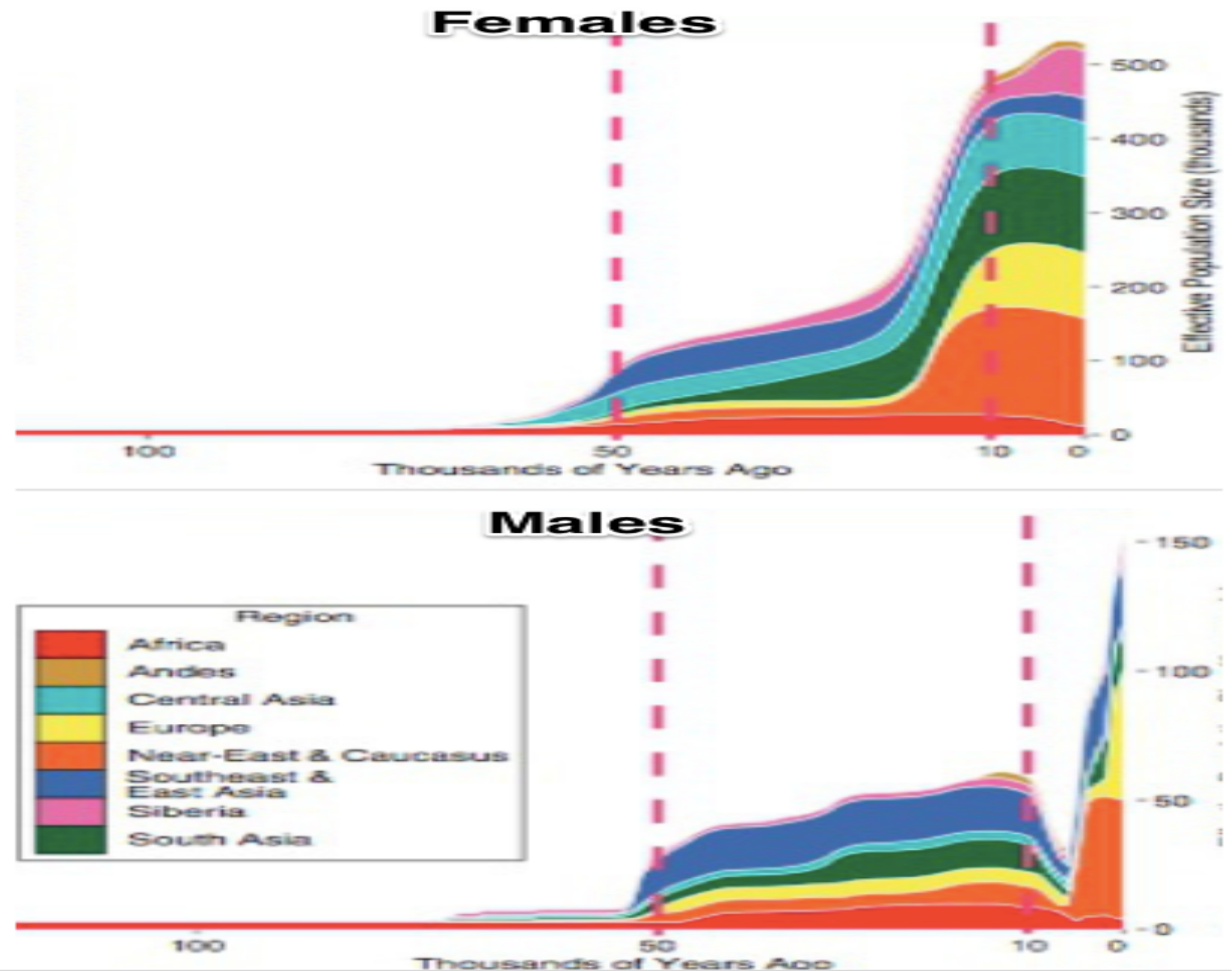
Gender: Patriarchy: Genetic Divergence



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?
 - 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.
- 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...

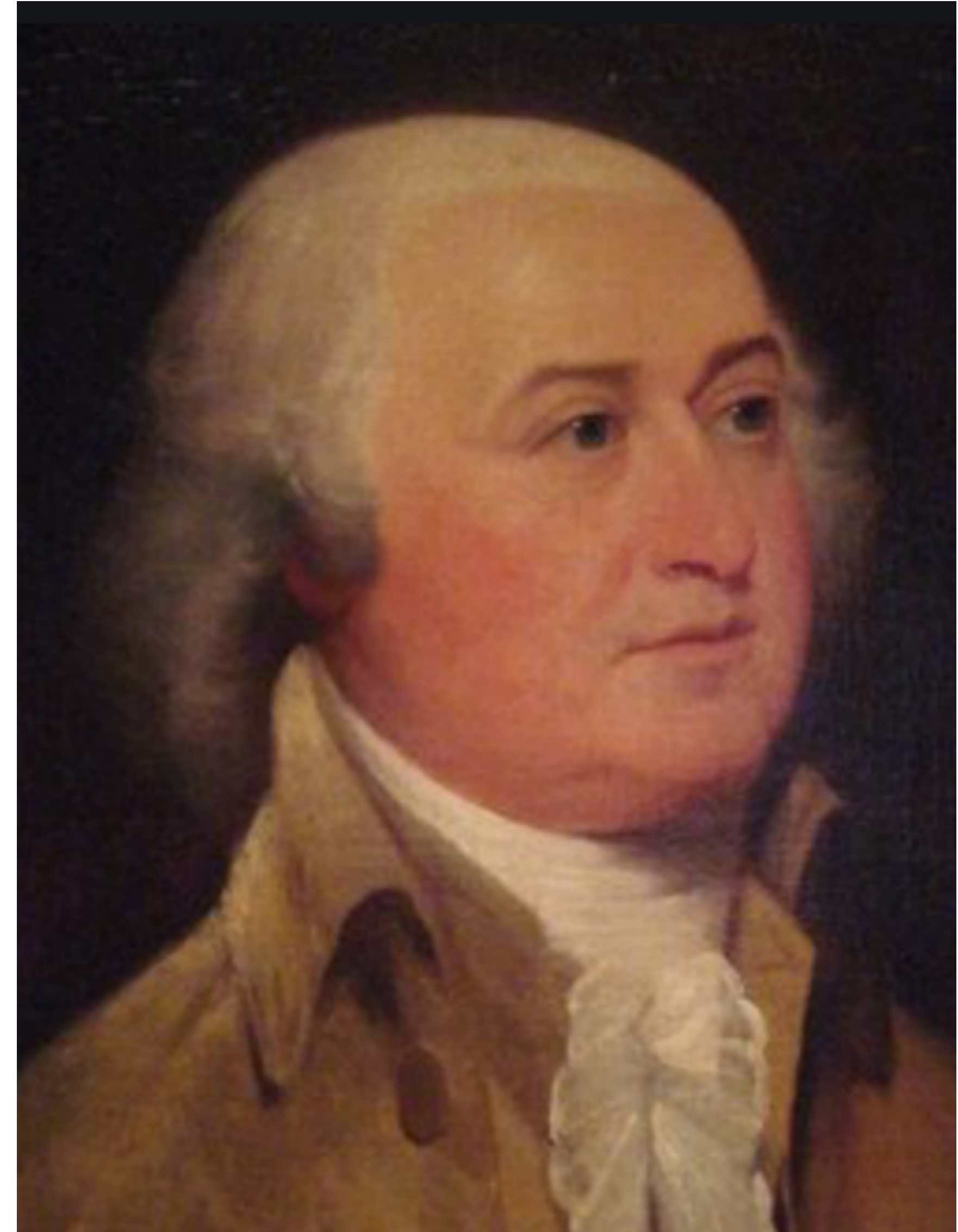
- -- Every one of your Friends send their Regards, and all the little ones.
- Your Brothers youngest child lies bad with convulsion fitts. Adieu.
- I need not say how much I am Your ever faithfull Friend...



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...

Population, Life Expectancy, & Fertility

Worldwide trends:

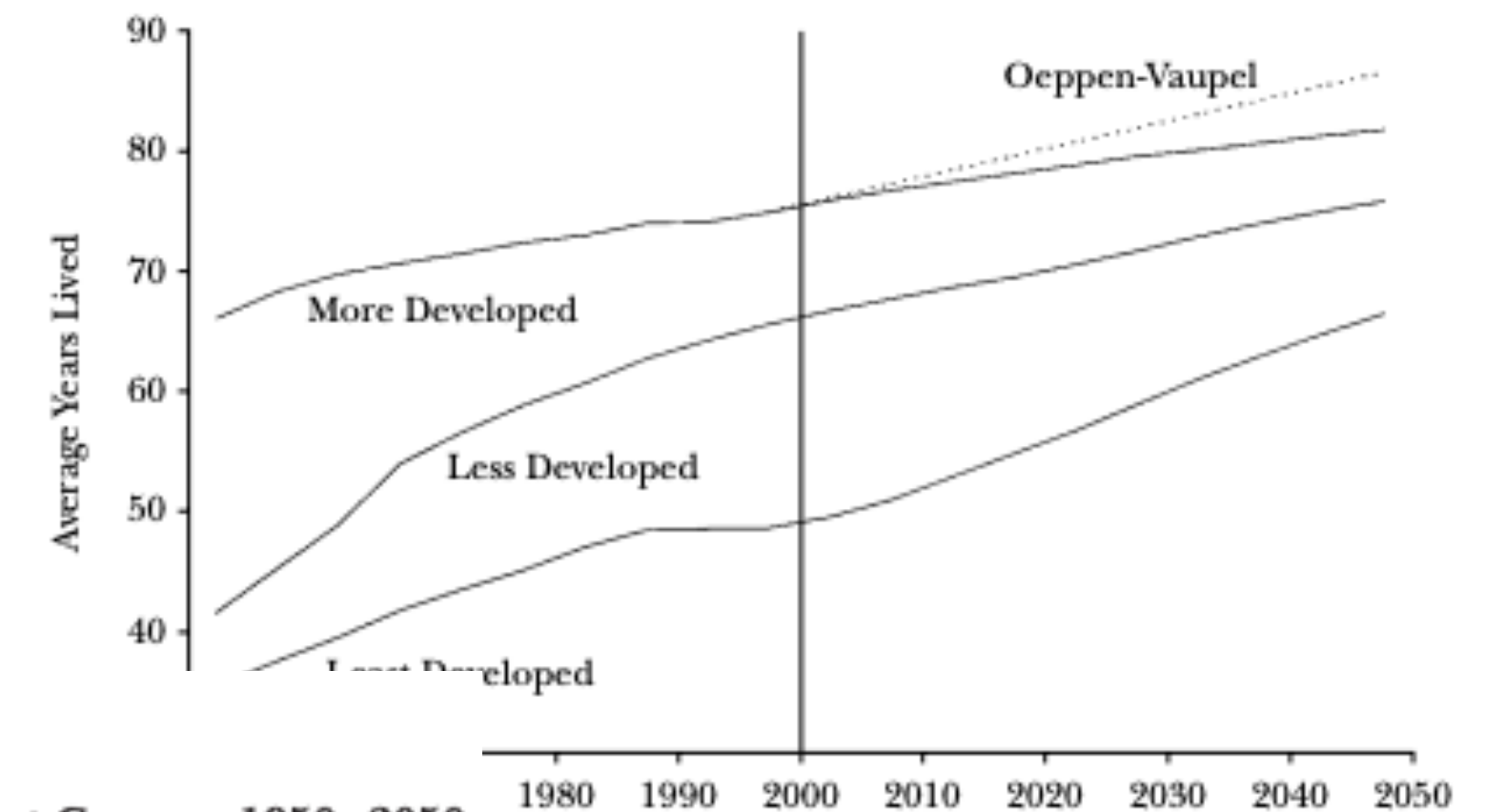
- A thoroughly Malthusian world before 1500, with 6- births per woman and life expectancy < 25 years...
- Already by 1700 some shifts— 0.5%/year of population growth rather than 0.1%/year...
- A richer world brings: We are richer, so let us try to have another son...
- 6 live births means 8 pregnancies...
- From 1900 to 1975 the global life-expectancy transition...
- From 1950 to 2030 the global fertility transition...
- But still population momentum...
- The difference between:
 - The pre-1700 world where 36% of the population is less than 15 and 4% greater than 65...
 - The world after 2100 where 18% of the population is less than 15 and 21% greater than 65...

Table 1
Global Population Trends Over the Transition: Estimates, Guesstimates and Forecasts, 1700–2100

| | <i>Life Expectancy</i> (Years at Birth) | <i>Total Fertility Rate</i> (Births per Woman) | <i>Pop Size</i> (Billions) | <i>Pop Growth Rate</i> (%/Year) | <i>Pop < 15</i> (% of Total Pop) | <i>Pop > 65</i> (% of Total Pop) |
|------|--|---|-------------------------------|------------------------------------|--|--|
| 1700 | 27 | 6.0 | .68 | 0.50 | 36 | 4 |
| 1800 | 27 | 6.0 | .98 | 0.51 | 36 | 4 |
| 1900 | 30 | 5.2 | 1.65 | 0.56 | 35 | 4 |
| 1950 | 47 | 5.0 | 2.52 | 1.80 | 34 | 5 |
| 2000 | 65 | 2.7 | 6.07 | 1.22 | 30 | 7 |
| 2050 | 74 | 2.0 | 8.92 | 0.33 | 20 | 16 |
| 2100 | 81 | 2.0 | 9.46 | 0.04 | 18 | 21 |

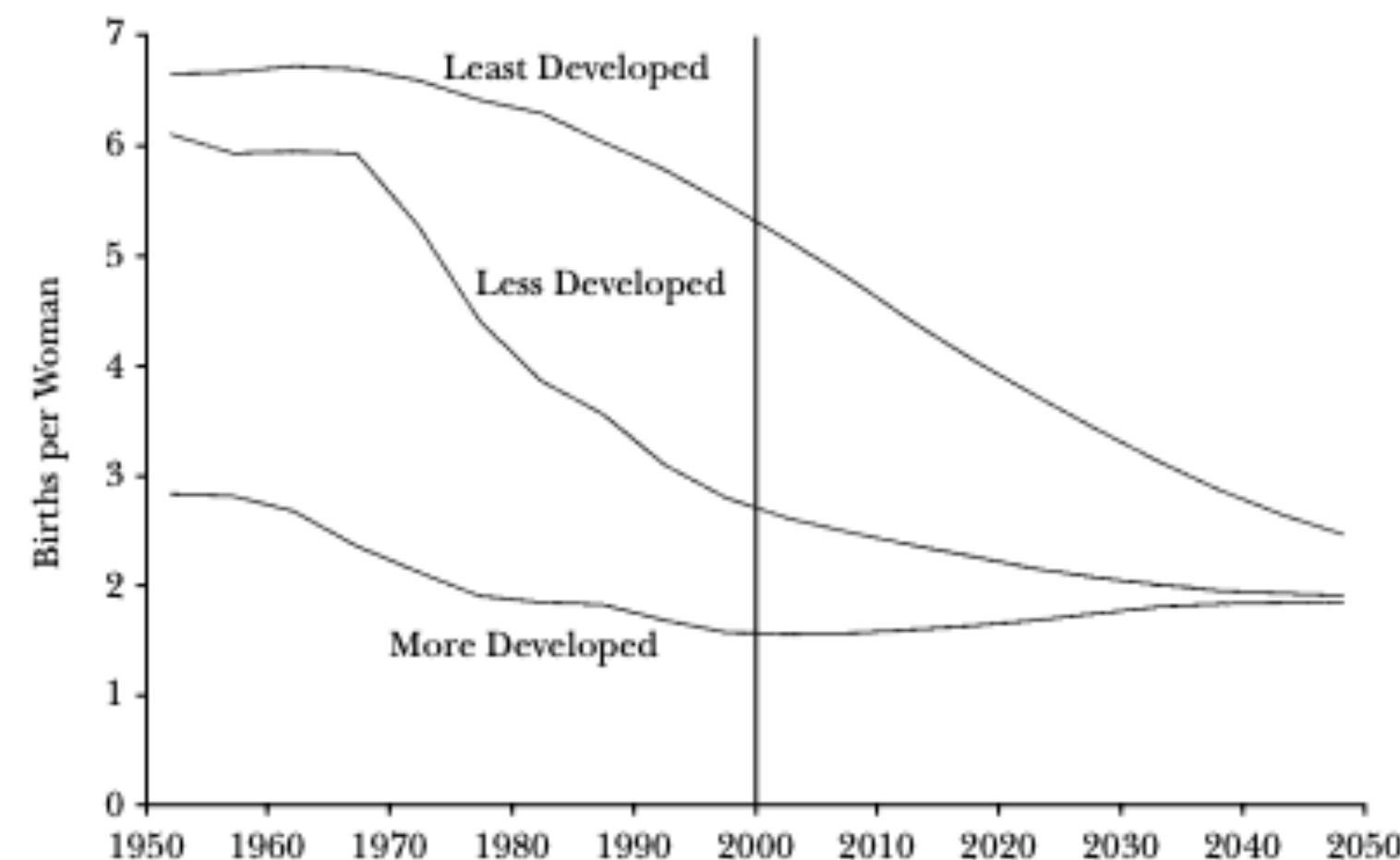
Source: Population numbers and growth rates for 1700 are taken from Biraben (1980) and for 1800 from United Nations (1999). The figures for TFR and $e(0)$ are best guesses by the author, consistent with the population growth rate based on Coale-average age of childbearing of 31 and likewise based on these model stable pop from United Nations (2003) and for 21

Figure 1
Past and Projected Life Expectancy at Birth, by Major Development Groups, 1950–2050



As forecasts are taken from United Nations (2003). Record life ppen and Vaupel (2002).

Figure 2
Past and Projected Total Fertility Rate by Major Development Groups, 1950–2050



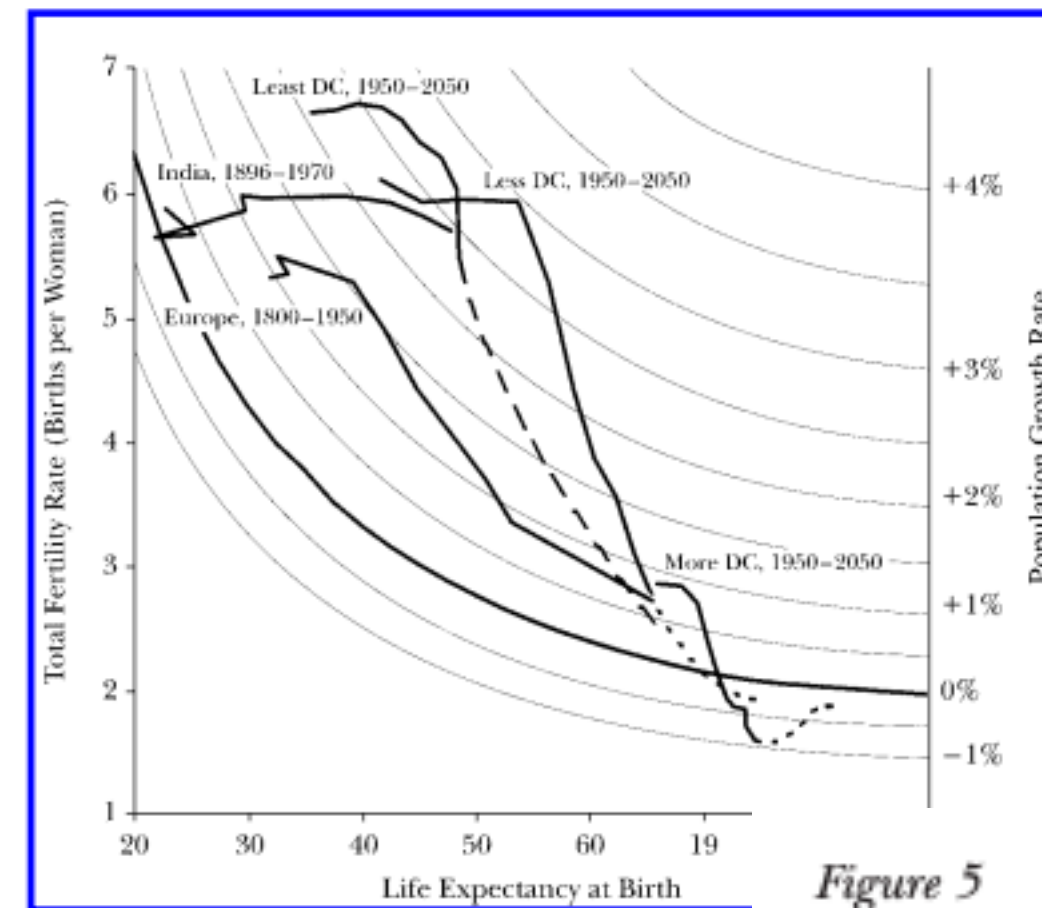
Source: Historical and Middle Series forecasts are taken from United Nations (2003).

The Population Explosion

An 1800-2040 Thing:

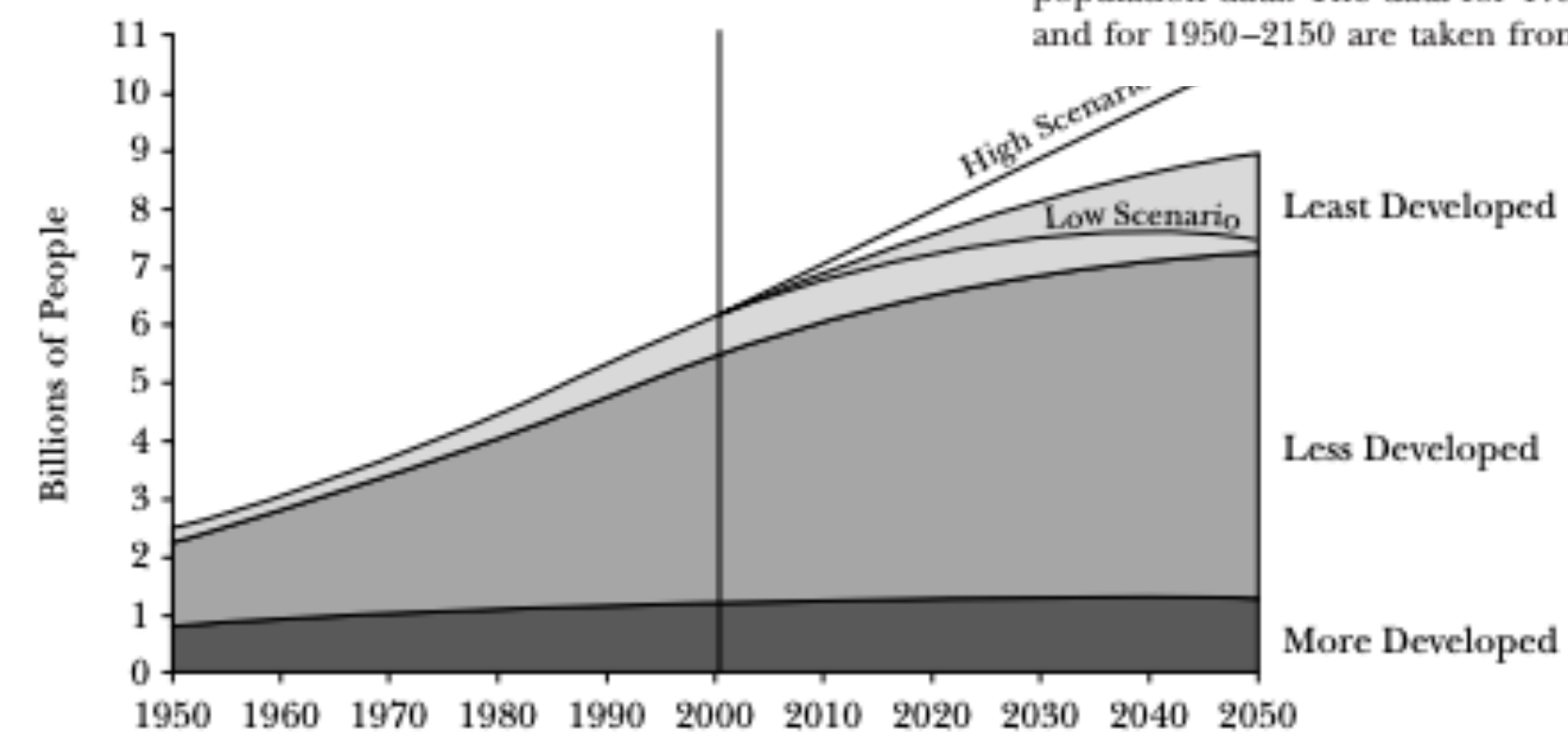
- As of 1750, the world was already rich enough that population growth was 0.4%/year...
- Cf. to a pre-1500 average world rate of population growth of 0.1%/year...
- A faster rate of technological progress in the commercial-society gunpowder-empire age had already set in motion something unprecedented...
- (Due to a tinkering culture in Europe, globalization, and the Columbian Bioresource Exchange)...
- After 1900, the world as a whole is rich enough and public health good enough that population truly explodes...
- And after 1975 the fertility transition has proceeded far enough that population growth rates fall...
- Headed for ZPG, or less—and soon...

Figure 3
Life Expectancy and Total Fertility Rate with Population Growth Isoquants: Past and Projected Trajectories for More, Less and Least Developed Countries



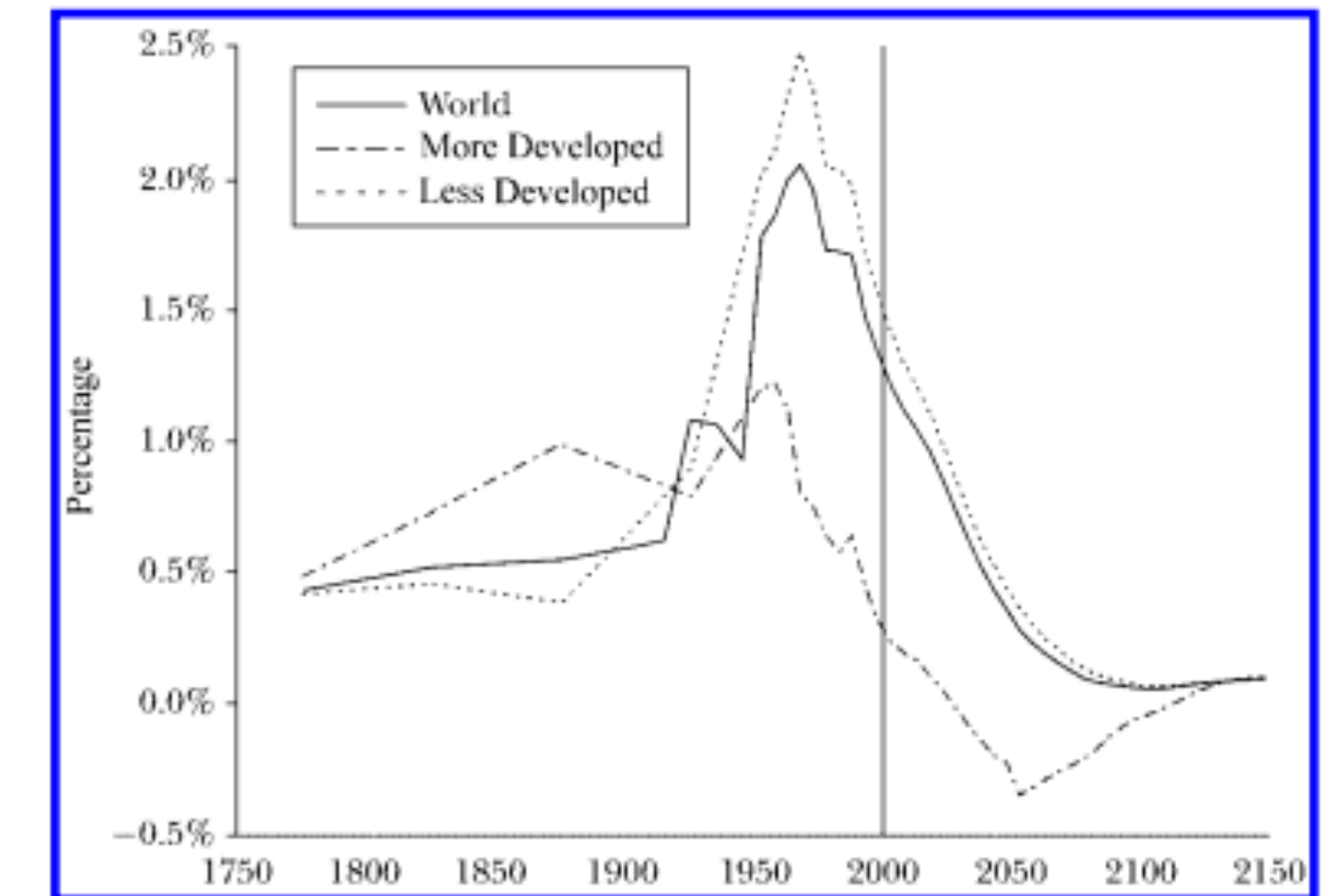
Sources: Historical and Middle Series forecasts for Least, Less and More DC taken from the United Nations (2003). Data for India are taken from 1891-1901 to 1941-1951, and from the United Nations (2003) for Europe are based on Tables 6.2-6.5 in Livi-Bacci (2000) for the period 1900-1950. For the period 1800-1900, Europe are derived as a population-weighted average of country-specific data estimated based on regression using the crude birth rate and death rate and $e(0)$, respectively, for other European countries in this period. Single series of crude birth rates and death rates for all Europe are data from 1900 to 1950 is used to predict total fertility rate and $e(0)$ and death rate, respectively. The growth isoquants are derived from the Model West Female life table when the mean age of childbearing is 19.

Figure 5
Population by Major Development Groups, Scenario Forecasts for Total World Population



Source: Historical and Middle Series forecasts are taken from United Nations (2003), as are High and Low scenarios.

Figure 4
Population Growth Rates, 1750-2150



Source: The population growth rates are calculated as instantaneous ($\exp(rt)$) rates based on population data. The data for 1750-1950 are taken from Tables 1 and 2 of United Nations (1999) and for 1950-2150 are taken from United Nations (2000).

Catch Our Breath

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

1. Comments
2. Questions
3. Readings

