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Inequality and the Importance of Education for Life Expectancy

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Overview

- **Lifespan inequality has been falling in aggregate** across populations according to many metrics of inequality

- But this is **not true uniformly**: Some subpopulations have seen life expectancies diverging
  - For example subpopulations with high vs low educational attainment

- **Educational attainment** seems to be a significant predictor of life expectancy

- A conjecture:
  - Perhaps education is amongst the most important drivers of lifespan inequality?

Inequality has different dimensions and is measured in different ways

Inequality Variables

Economic

Education

Health

Lifespan

Inequality Statistics

Standard deviation

Centiles of distribution

Gini Coefficient

Subpopulation comparisons

Gender

Age

Location/geography

Socio-economic group

Educational attainment

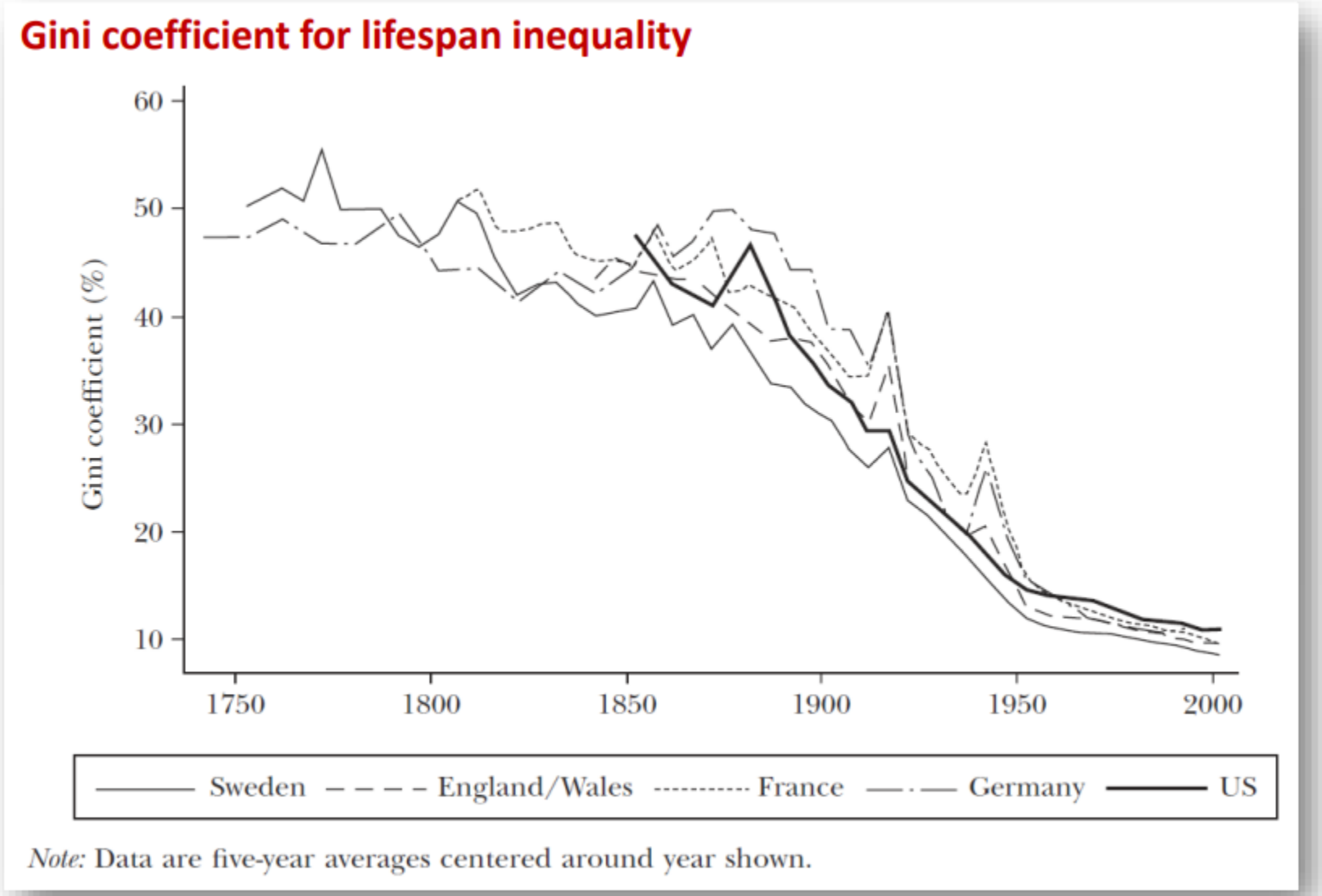
Gini coefficients at the global population level:*

Global **Income** Inequality **65%**

Global **Lifespan** Inequality **18%**

** The higher the Gini Coefficient, the higher the inequality*

Lifespan inequality has fallen significantly over 250 years



Source: Peltzman 2009 Journal of Economic Perspectives 23 (4) Fall 175–190

Lifespan inequality has fallen even as **life expectancy** has risen

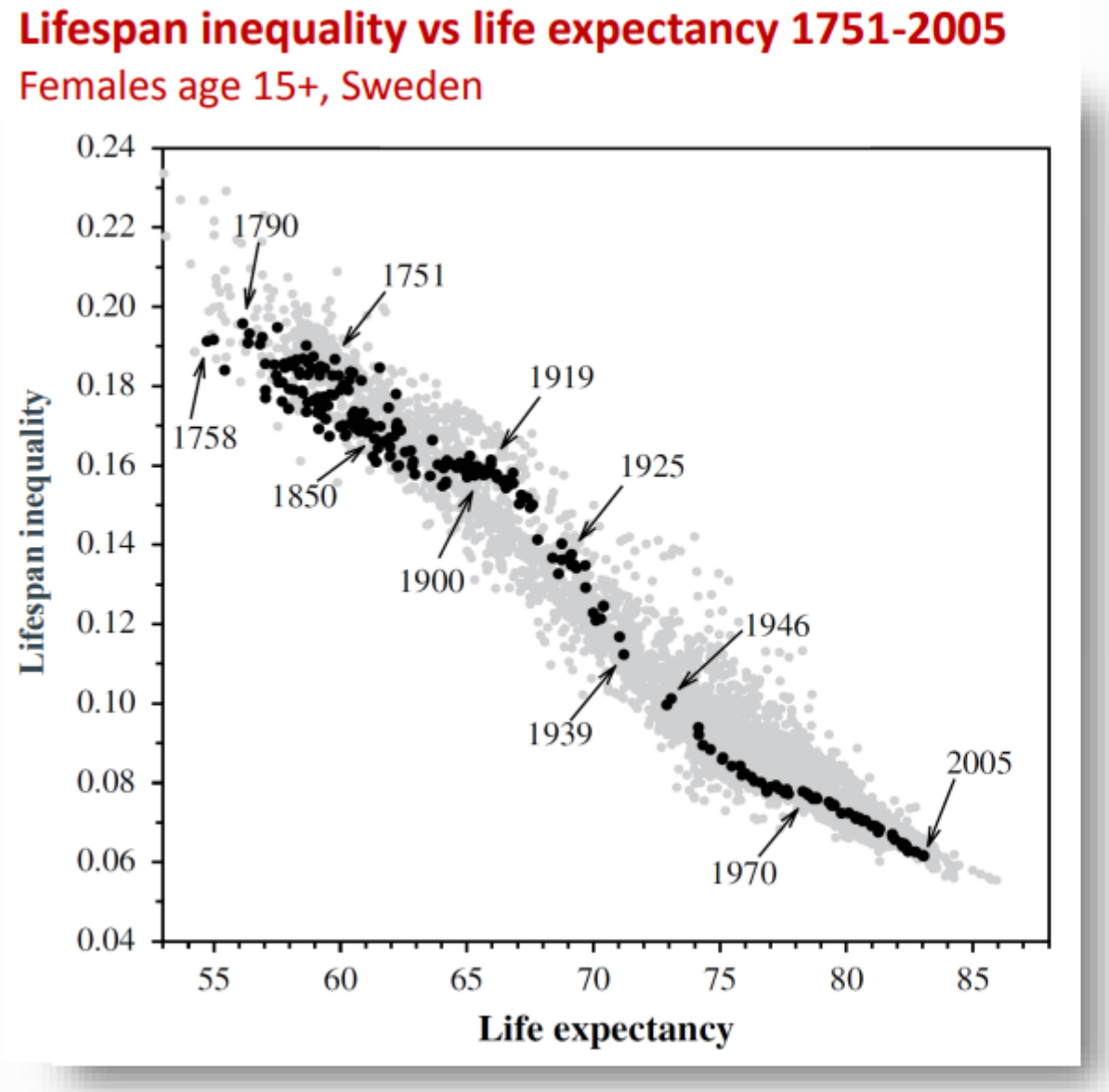
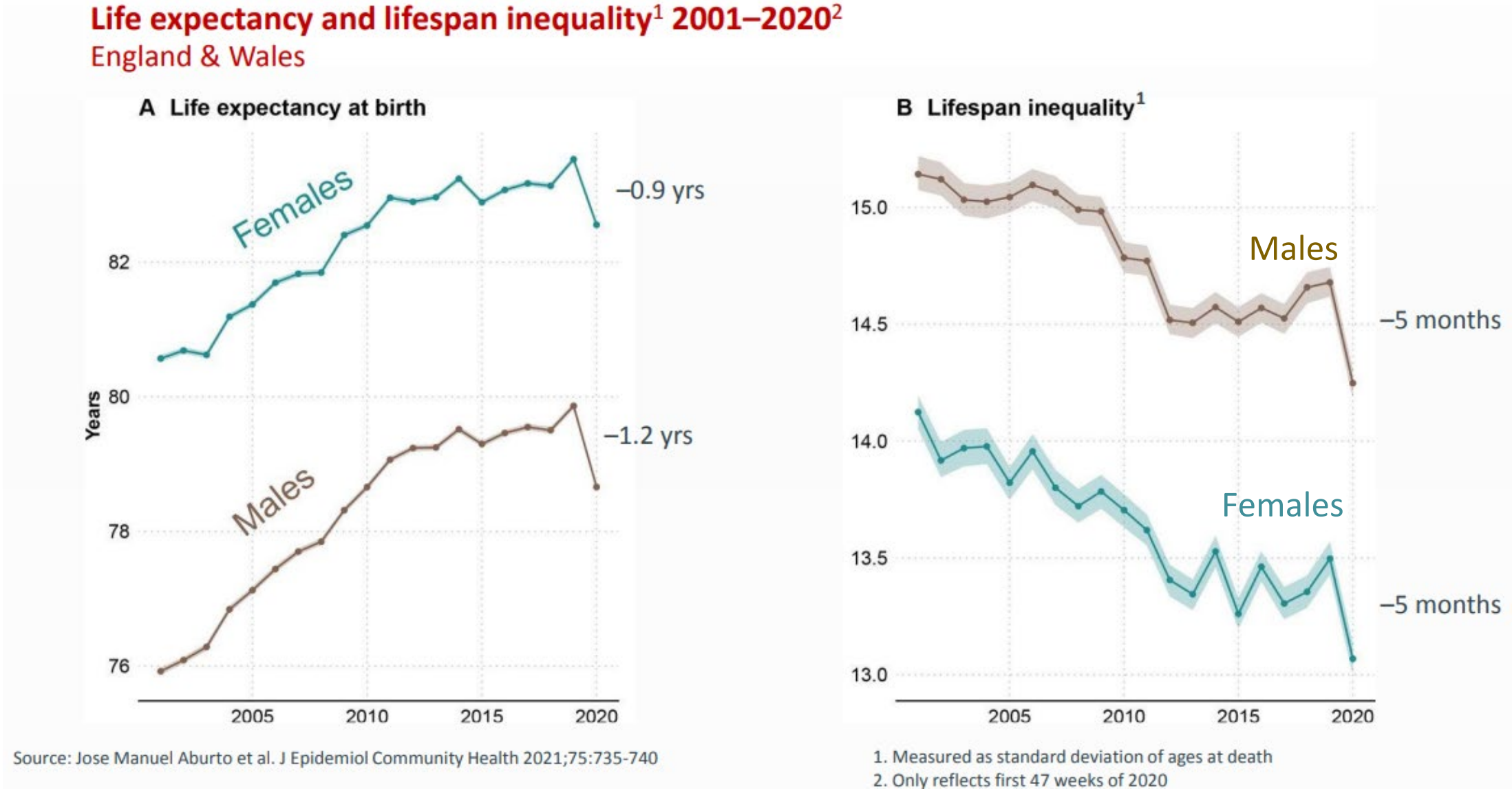


Chart shows:

- Trajectory of **Lifespan Inequality** vs. **Life Expectancy** through time and across countries
- Each dot is a different country in a different year
- Based on 9063 life tables for 212 countries

Source: Smits and Monden 2009, Length of life inequality around the globe. Soc Sci Med. 68(6), 1114-23

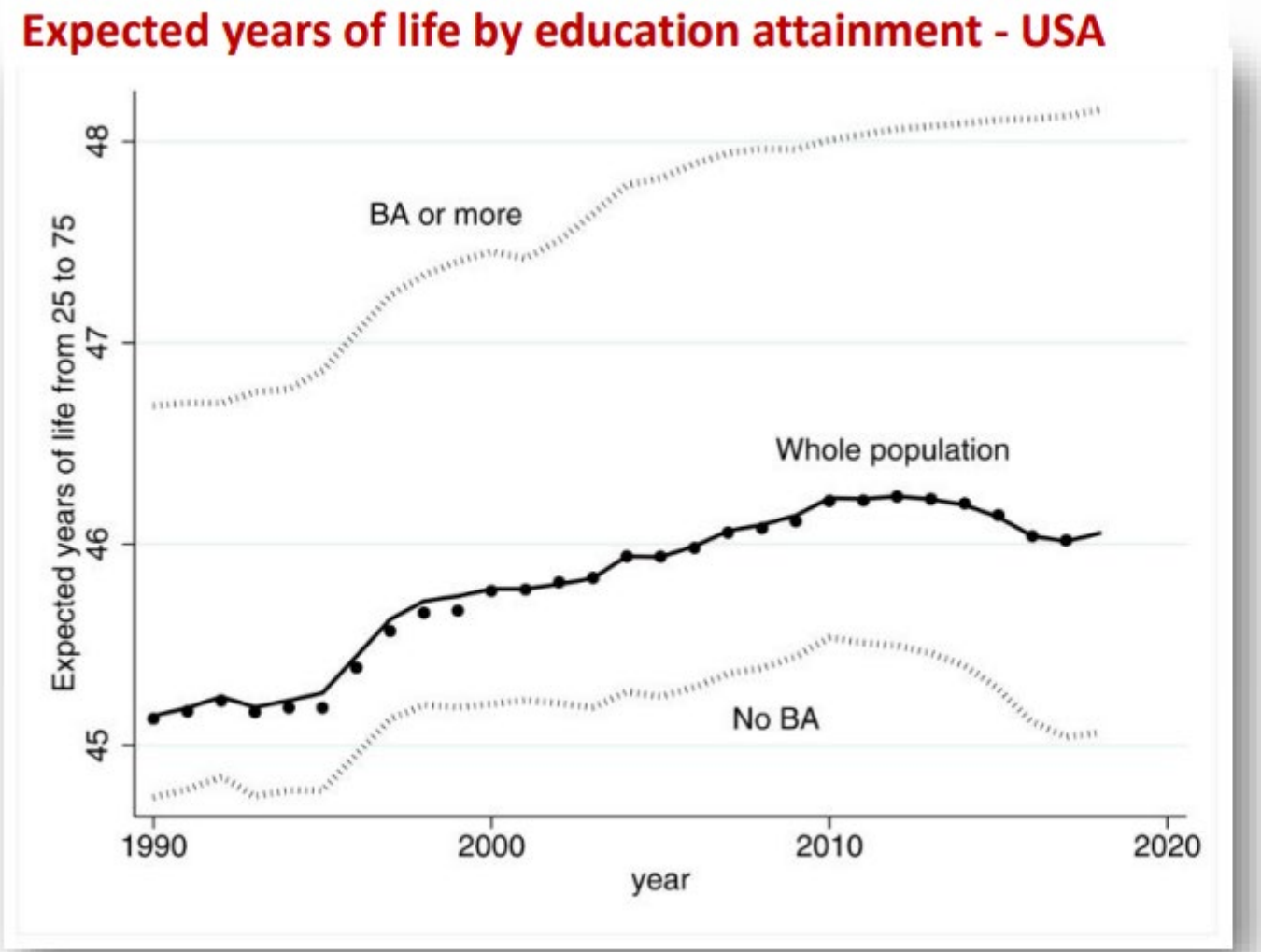
During the Covid pandemic both life expectancy and lifespan inequality fell in England & Wales



Source: Jose Manuel Aburto et al. J Epidemiol Community Health 2021;75:735-740

1. Measured as standard deviation of ages at death
2. Only reflects first 47 weeks of 2020

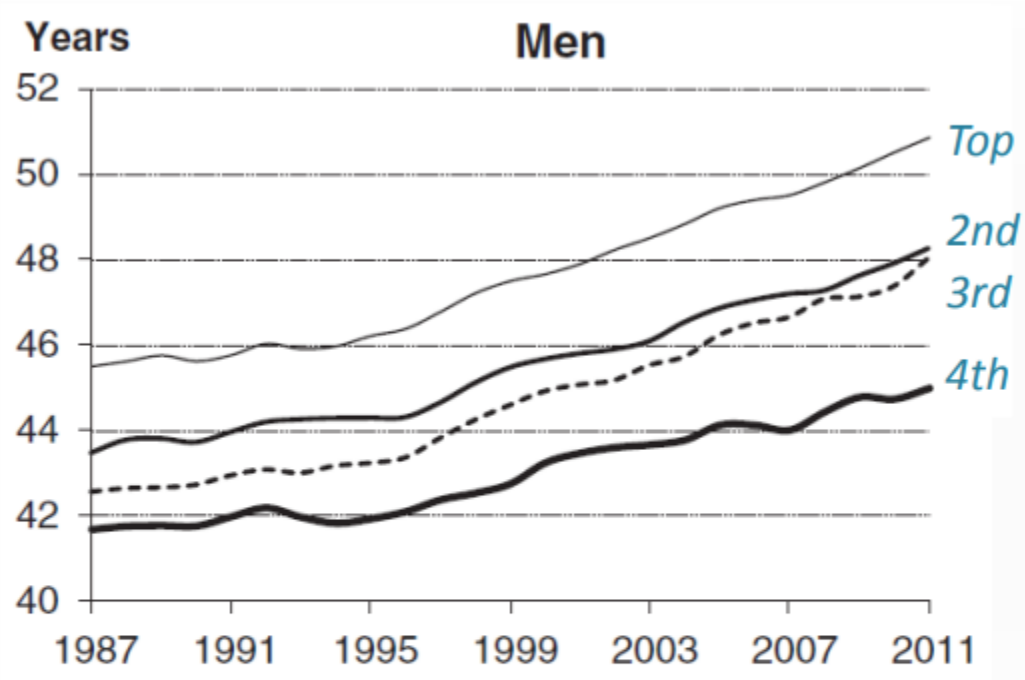
By contrast, life expectancy is falling amongst the least educated in the US, with lifespan inequality increasing

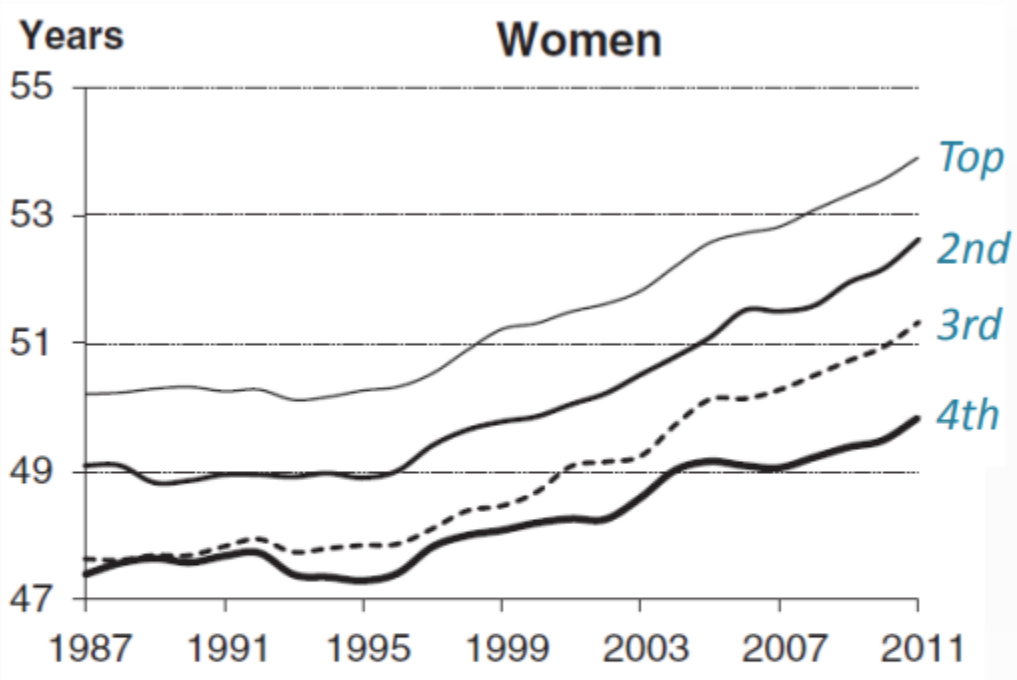


Source: Anne Case and Angus Deaton, 2020
PNAS Vol. 118, No. 11 https://www.pnas.org/doi/epdf/10.1073/pnas.2024777118

Education seems to be a significant predictor of Life Expectancy

Denmark: Life expectancy age 30 by level of education quartile



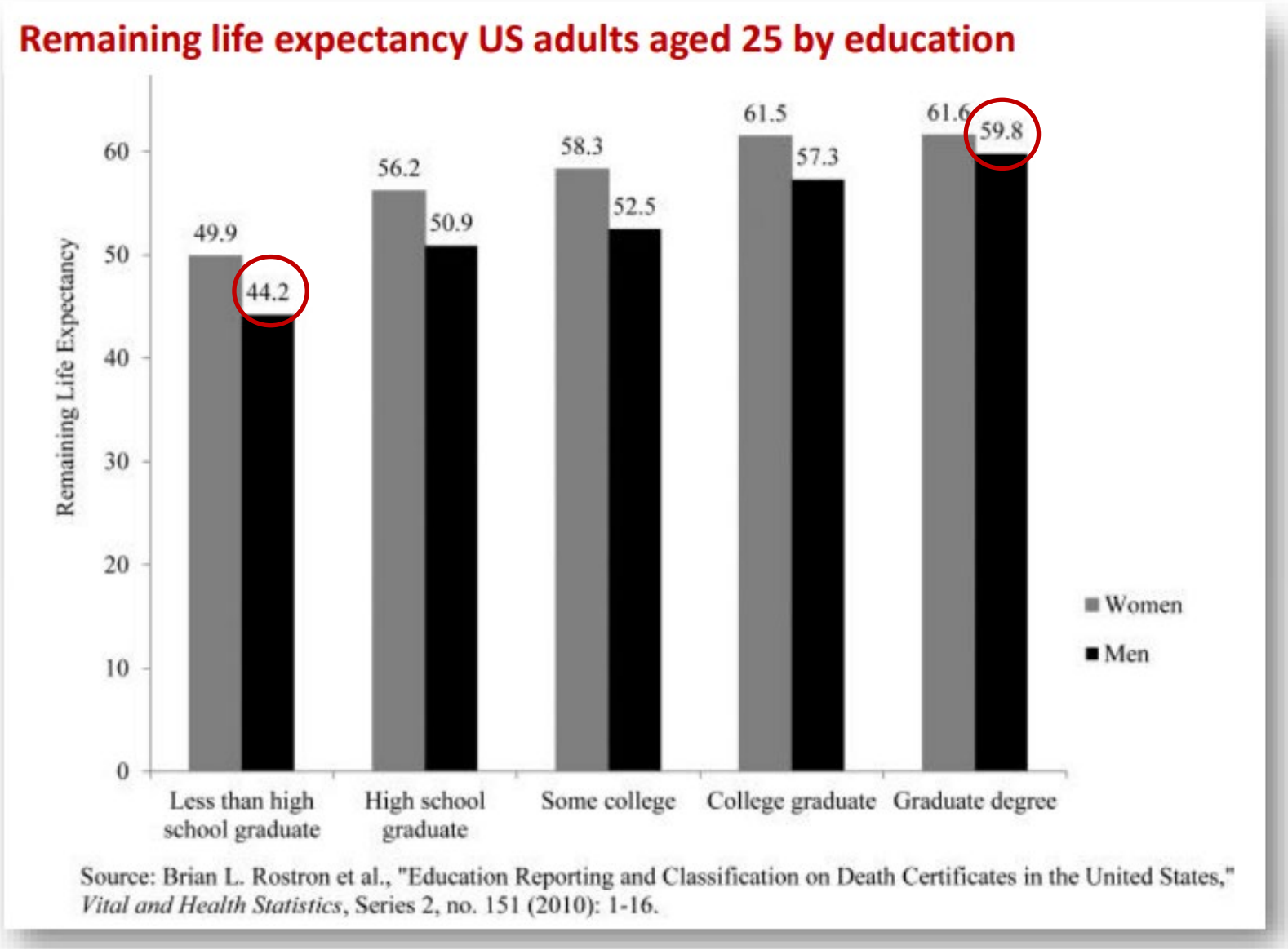


Gap: 5.8 years

Gap: 4.1 years

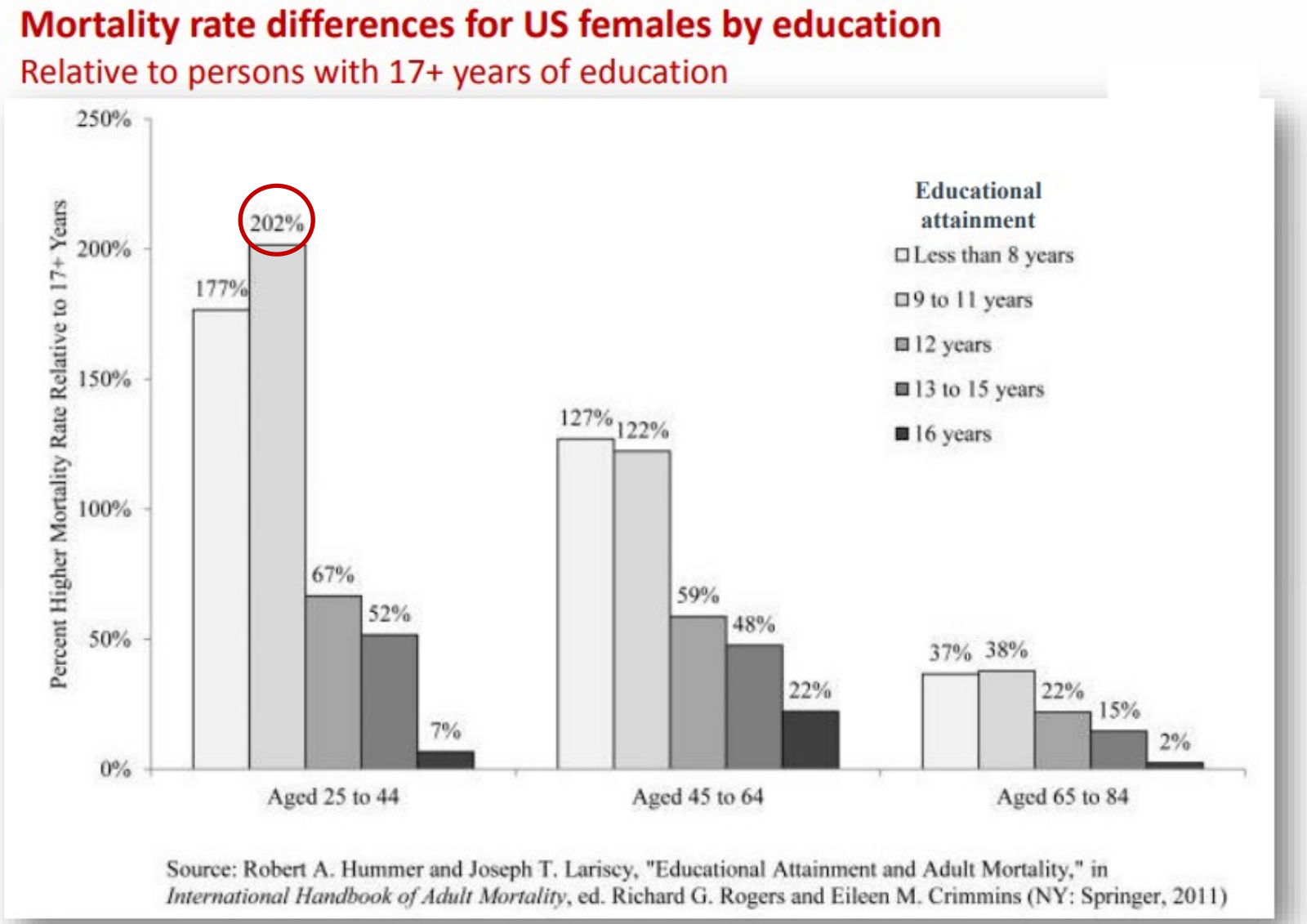
Source: Brønnum-Hansen and Baadsgaard (2012). Widening social inequality in life expectancy in Denmark. BMC Public Health 2012, 12:994

Some studies suggest the difference in life expectancy due to education can be as much as 15+ years



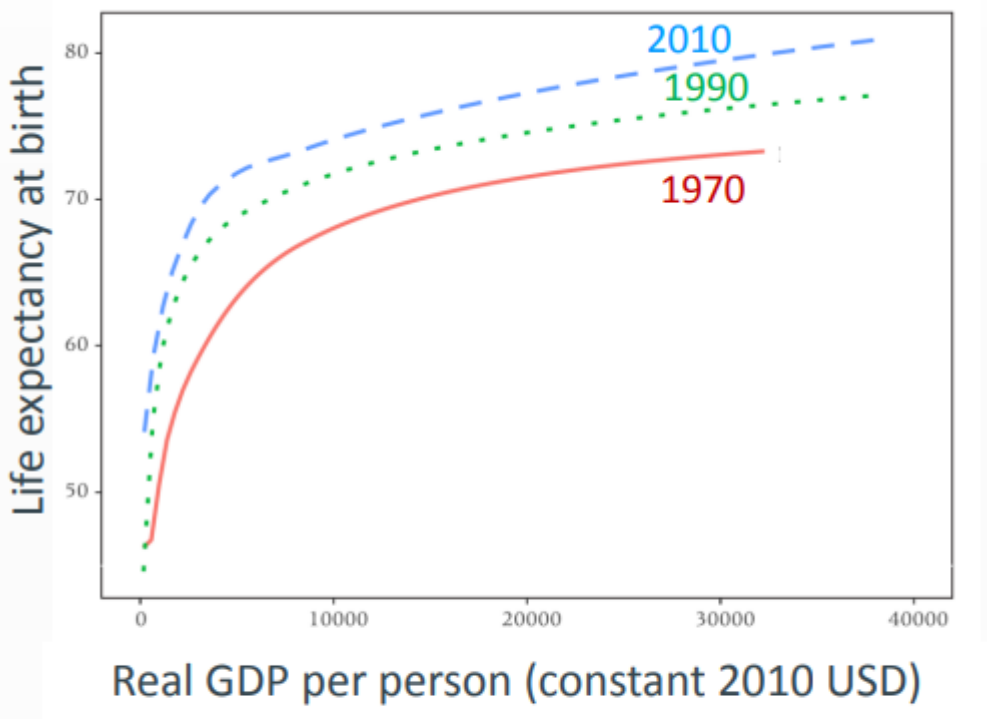
Mortality rates for those with little education can be 200% of the rates for the most highly educated*

** "Highly educated" means 17+ years of education*

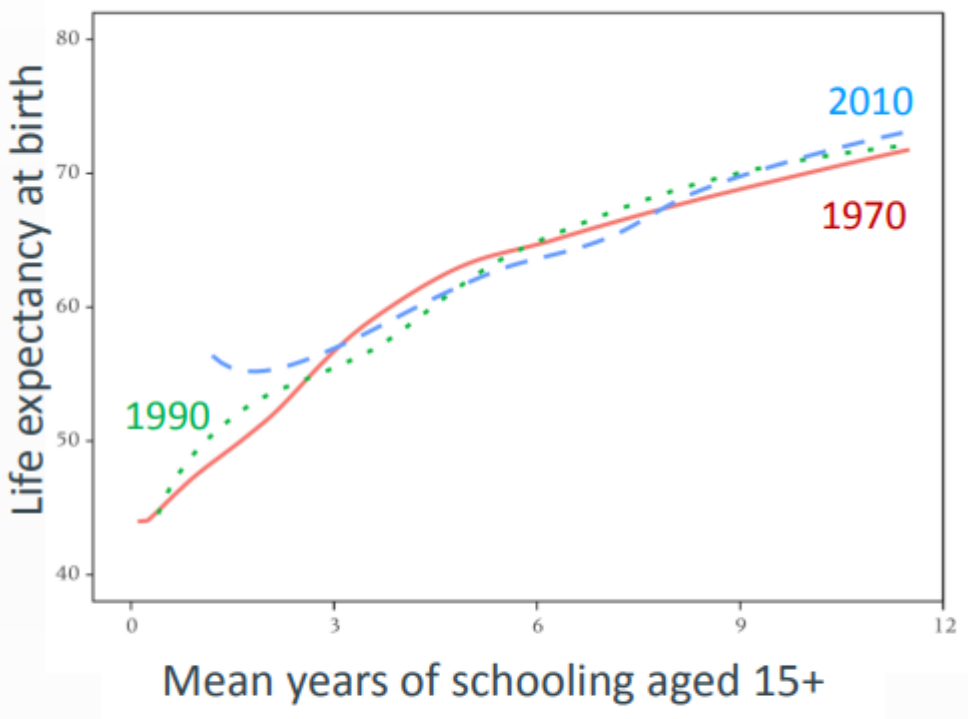


Education seems to be a better predictor of life expectancy than income or affluence over time at the population level

Traditional Preston Curve – LE vs GDP*



New* Preston Curve – LE vs Education



*Based on multivariate analyses on 174 countries for 1970–2015

Source: Lutz and Kebede (2018) Education and Health: Redrawing the Preston Curve. *Population and Development Review* 44(2) 343-361.

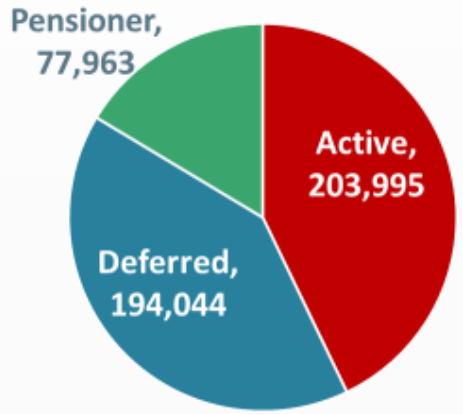
This suggests that education policy may be a key element of addressing lifespan inequality

Do highly-educated people really live a lot longer? A case study of UK university academics

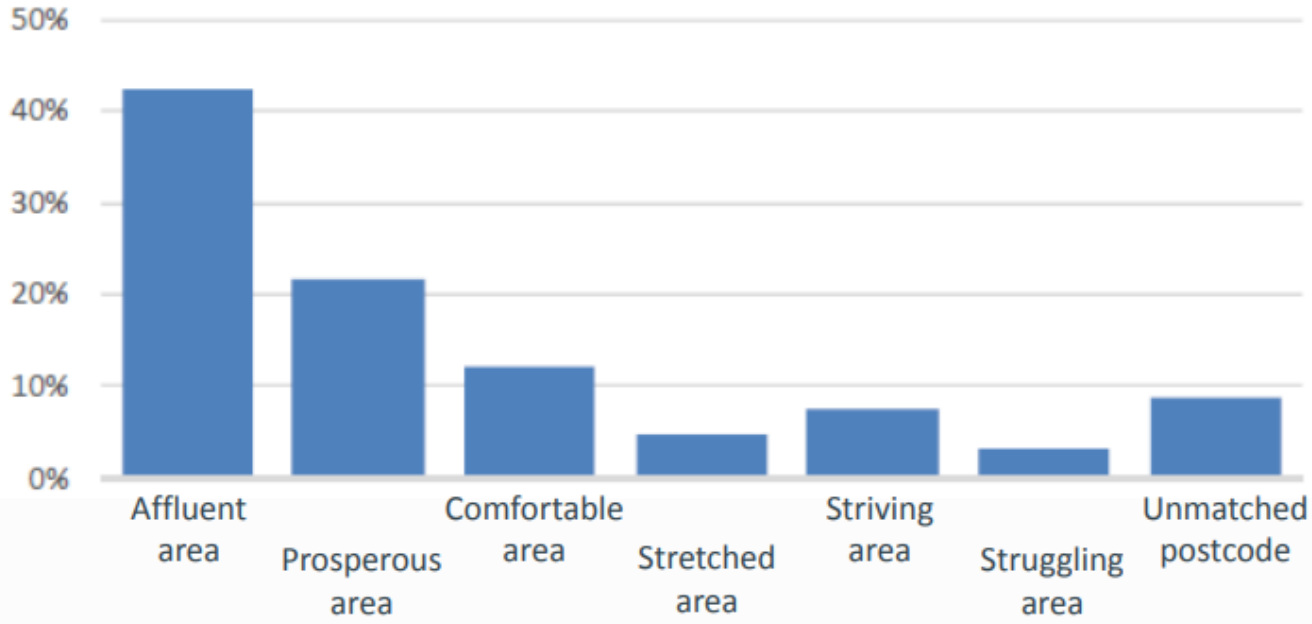
USS is an open pension plan for academics and senior administrative staff at UK universities

- **Members: 476,002**[1]
- **Highly-educated, homogeneous population**
- **Assets: £80.6bn** in Defined Benefit (DB) section (31 March 2021)[1]

Member breakdown[1]



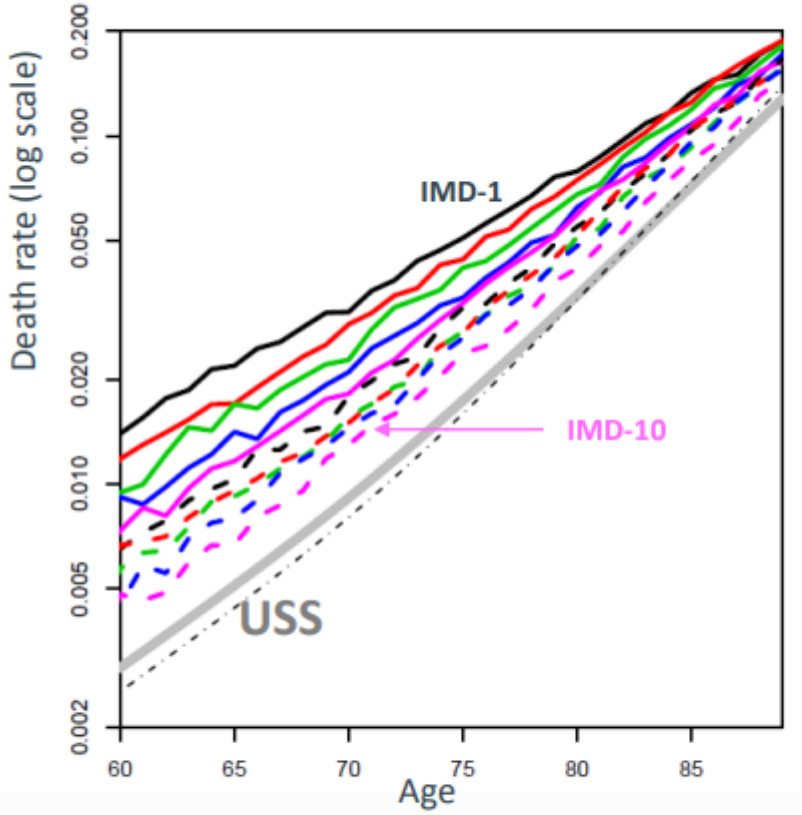
Spread of USS members across socio-economic categories[2]

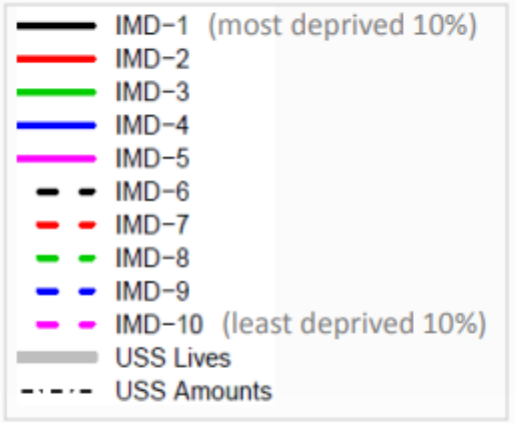


1 Source: USS 2021 Annual Report and Accounts
2 Source: LCP calculations using USS data

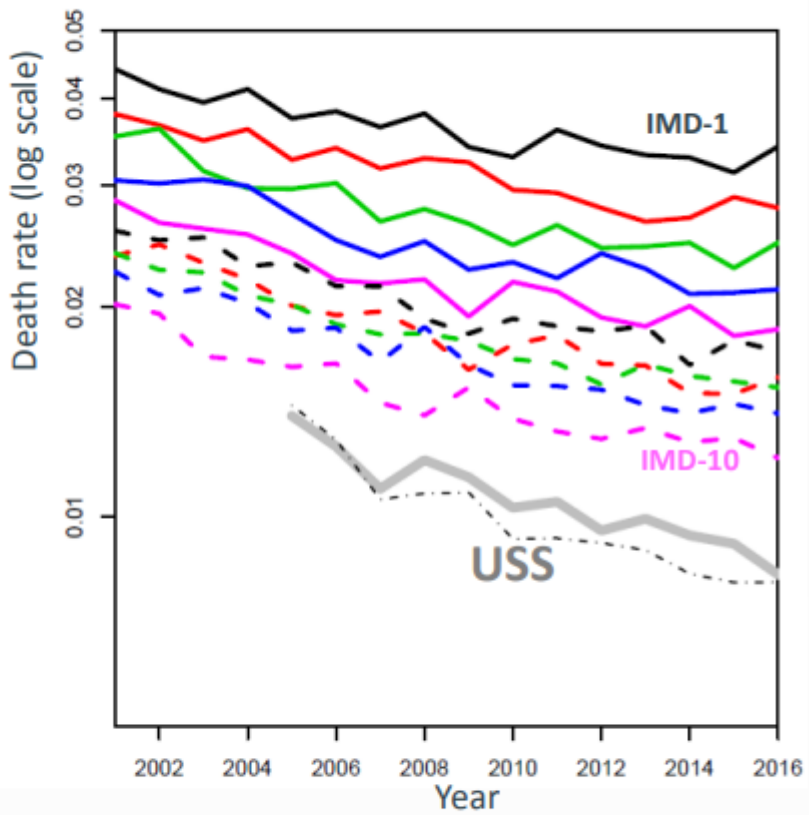
USS all-cause mortality **is much lower** than even the least-deprived decile (IMD-10)[1] of the English population

2015 male death rates by age: USS vs English IMD deciles[1]





Historical death rates for males age 70: USS vs English IMD deciles[1]

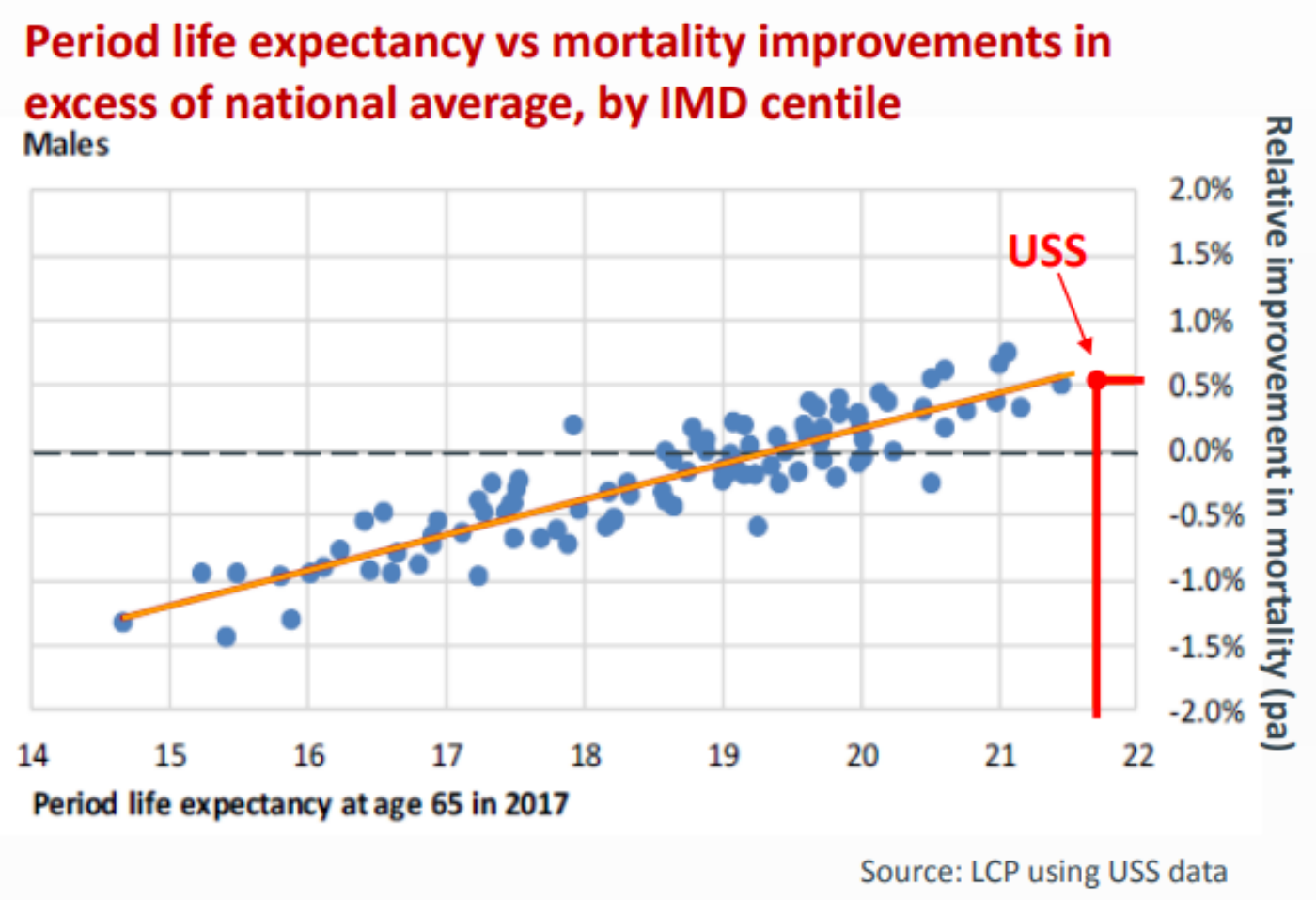


[1] IMD = Index of Multiple Deprivations

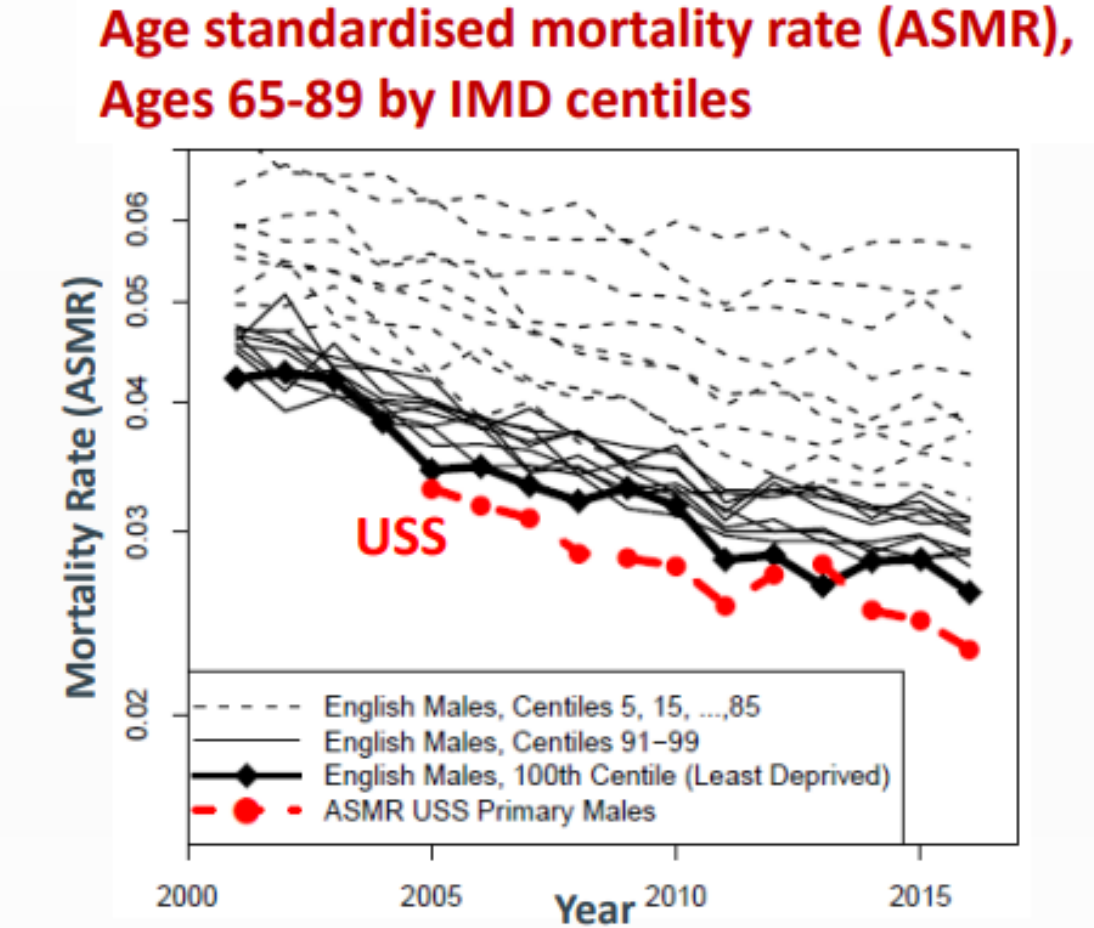
IMD-10 = Least deprived and longest lived decile of the English population

Source: Cairns, Blake, Dowd, Coughlan, Jones & Rowney, 2022
European Actuarial Journal *https://link.springer.com/article/10.1007/s13385-022-00309-1*

A closer look at IMD centiles shows **USS male life expectancy lies in the top 1%** of the national population



USS male mortality has been consistently lower than the lowest 1% of the national population



Source: Cairns, Blake, Dowd, Coughlan, Jones & Rowney, 2022 European Actuarial Journal
https://link.springer.com/article/10.1007/s13385-022-00309-1

- Pension amount and post code/zip code have **less predictive power** for USS than other pension plans
- This suggests that there is an important **occupational driver** for the high life expectancy of UK academics

Why do UK academics live so long?

- **There is no data on this, but intuition suggests that some of the factors might be:**
  - Informed **decision making**
    - They tend to be well informed and analytical
    - They are equipped to make better life choices
  - High levels of **mental activity** throughout their lives
    - By virtue of their occupation
  - Many continue to **work post-retirement**
    - So they benefit from the sense of community, sense of purpose and mental activity well into old age

Anecdotal evidence from other pension plans also suggests high life expectancies for academics and teachers

Conclusions

- **Lifespan inequality across populations has been falling according to many metrics of inequality**
  - Populations in aggregate have benefited from the secular increase in life expectancy

- **But some groups within populations have seen deteriorating lifespan inequality**
  - Some subpopulations have seen life expectancies diverging

- **Educational attainment seems to be a significant predictor of life expectancy**
  - Education policy is one potential way of tackling lifespan inequality

- **Analysis of UK academics in the USS pension plan may suggest some general conclusions that should be tested:**
  - Highly-educated people are amongst the most long-lived members of the population
  - Common variables typically correlated to life expectancy (such as pension amount and post/zip code) have less predictive power for highly-educated people