

HEALTH, GROWTH, AND MEDICINES

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Memory of Franco Modigliani

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Health, growth, and medicines

- Does economic growth promote health? Is it *necessary* for health?
- Or is it health that promotes economic growth?
 - ▣ Both have been argued, but either or neither could be true
 - ▣ Or perhaps the answer is “sometimes”?
- Or does something else promote both?
 - ▣ I will argue for “sometimes” and for “something else”
- What is the role of healthcare and of medicines?
 - ▣ Less important than many people assume
 - ▣ Health is NOT healthcare
 - ▣ But healthcare and medicine are important, sometimes more than others
- There are no simple truths here: everything depends on context
- I will argue from both historical and contemporary examples

Progress and inequality

- Great episodes of human progress are what I have called the “Great Escape”
 - From destitution, ill-health, premature mortality
 - To long life and material living standards
 - Better governance: democracy is more widespread around the world
 - Large scale reductions in violence, huge increases in education
 - Increases in life evaluation/happiness: people know they have better lives
- Many of these episodes have allowed only *some* to escape
 - Leaving many others behind, so progress has been an engine of inequality
 - And inequality is itself an incentive to escape
- Progress has often been interrupted, sometimes brutally, but has resumed

The Great Divergence

- The most famous case of progress and inequality
 - ▣ Sustained economic growth, which began in Northwest Europe between 1750 and 1850
 - ▣ Sowed the seeds of the increases in material living standards and increases in life expectancies
 - ▣ Pulling these leading countries away from their neighbors, and the rest of the world
- Not just wealth, but health too
 - ▣ Both driven by a common explosion of knowledge, the Scientific Revolution, and the Enlightenment
 - ▣ Health and wealth both being driven by something else
- For the world as a whole, these gaps have changed but never closed
 - ▣ Country by country, gaps in material living standards are still not closing
 - ▣ Even if person by person, global income inequality is falling
 - ▣ Inequality in life expectancy falling, but not mortality rates

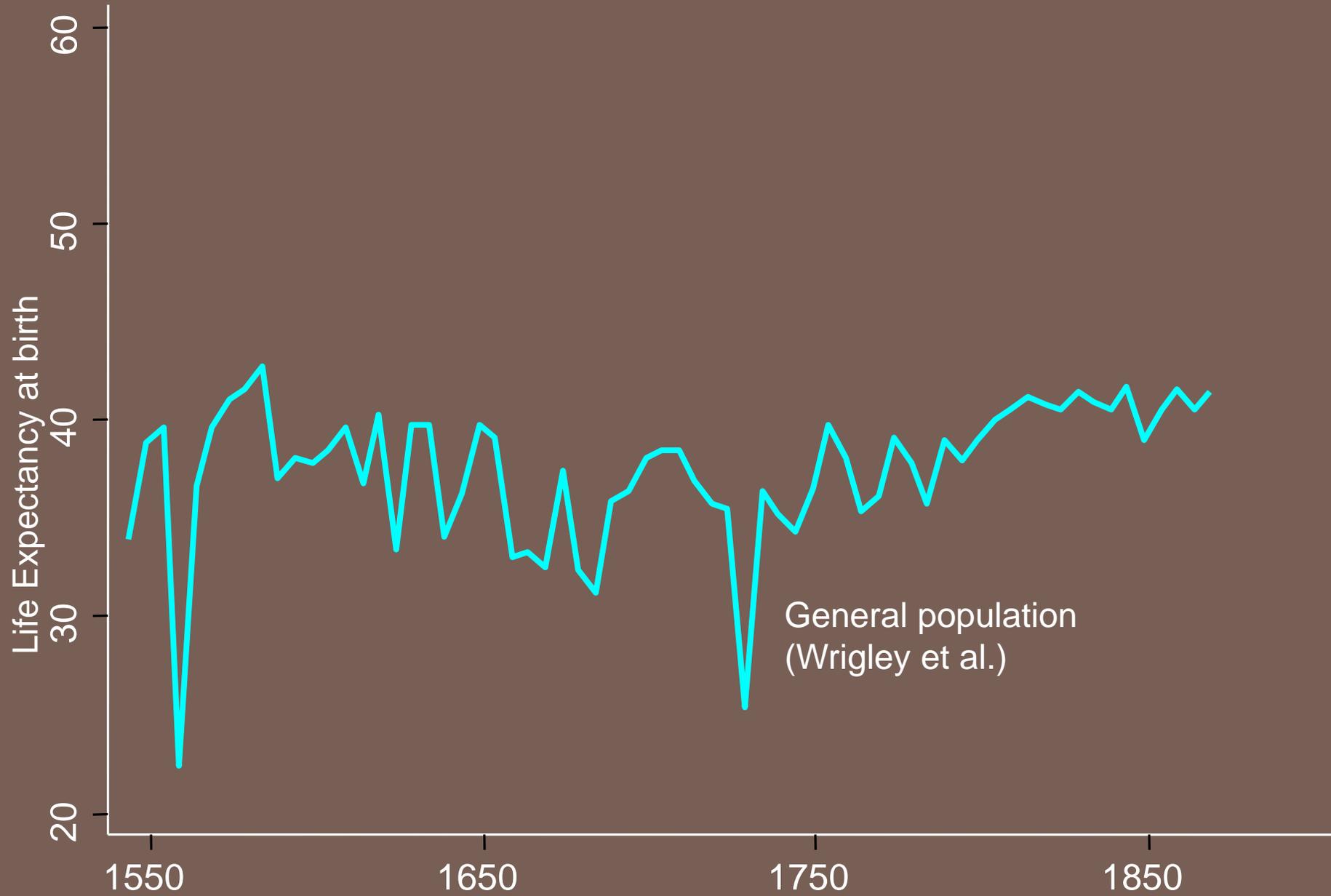
Health as well as wealth

- Life expectancy began to rise in Britain in the middle of the eighteenth century
 - ▣ In parallel with the Industrial Revolution
- Leading to inequality in life chances
 - ▣ Not just with other countries
 - ▣ But also within Britain
 - ▣ The birth of the health “gradient”
- Gradients exist in all countries today: rich live longer than the poor

A long time ago

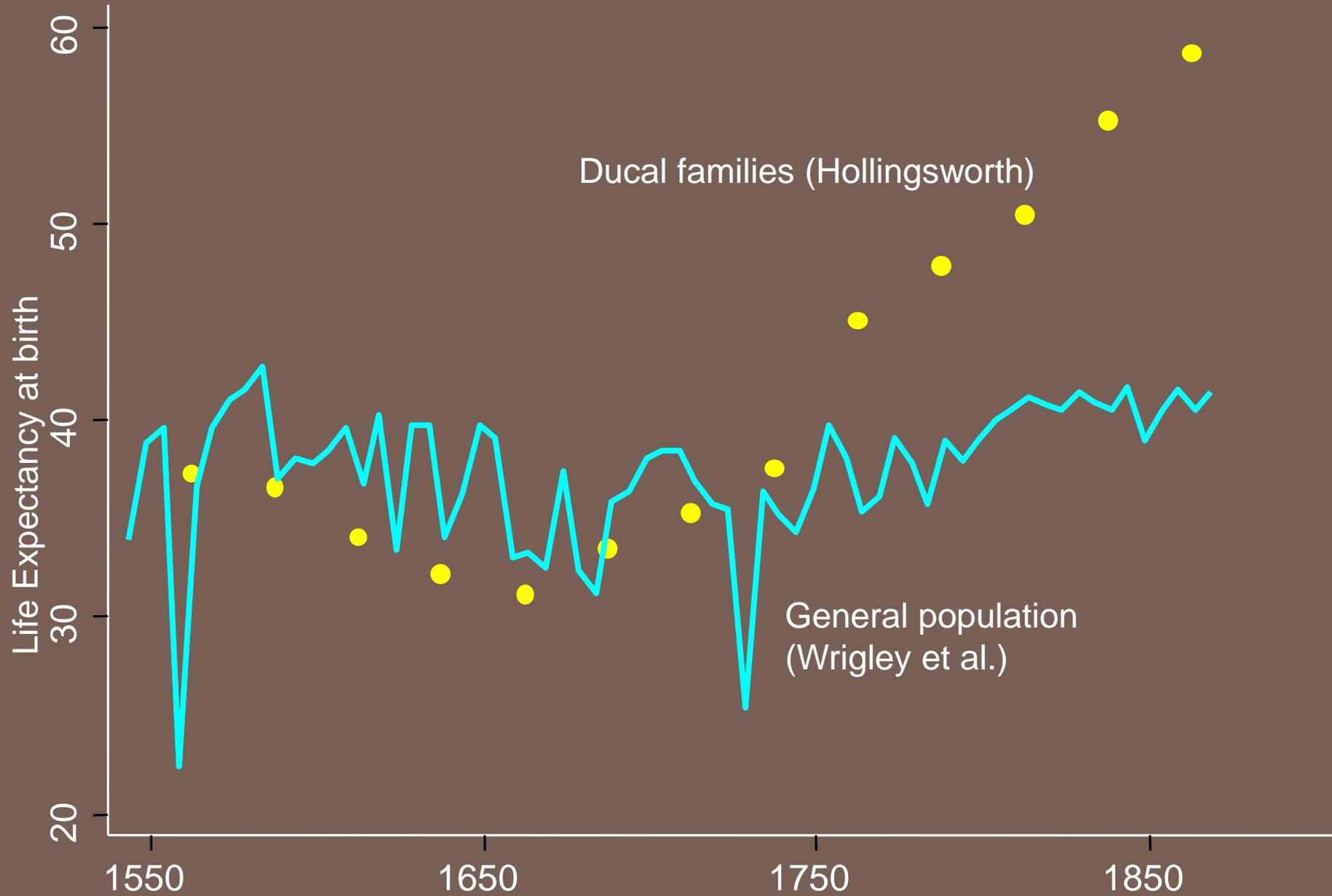
Britain before 1850

Dukes and commoners



General population
(Wrigley et al.)

(After Harris, *Soc Hist Med*, 2004.)



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Why?

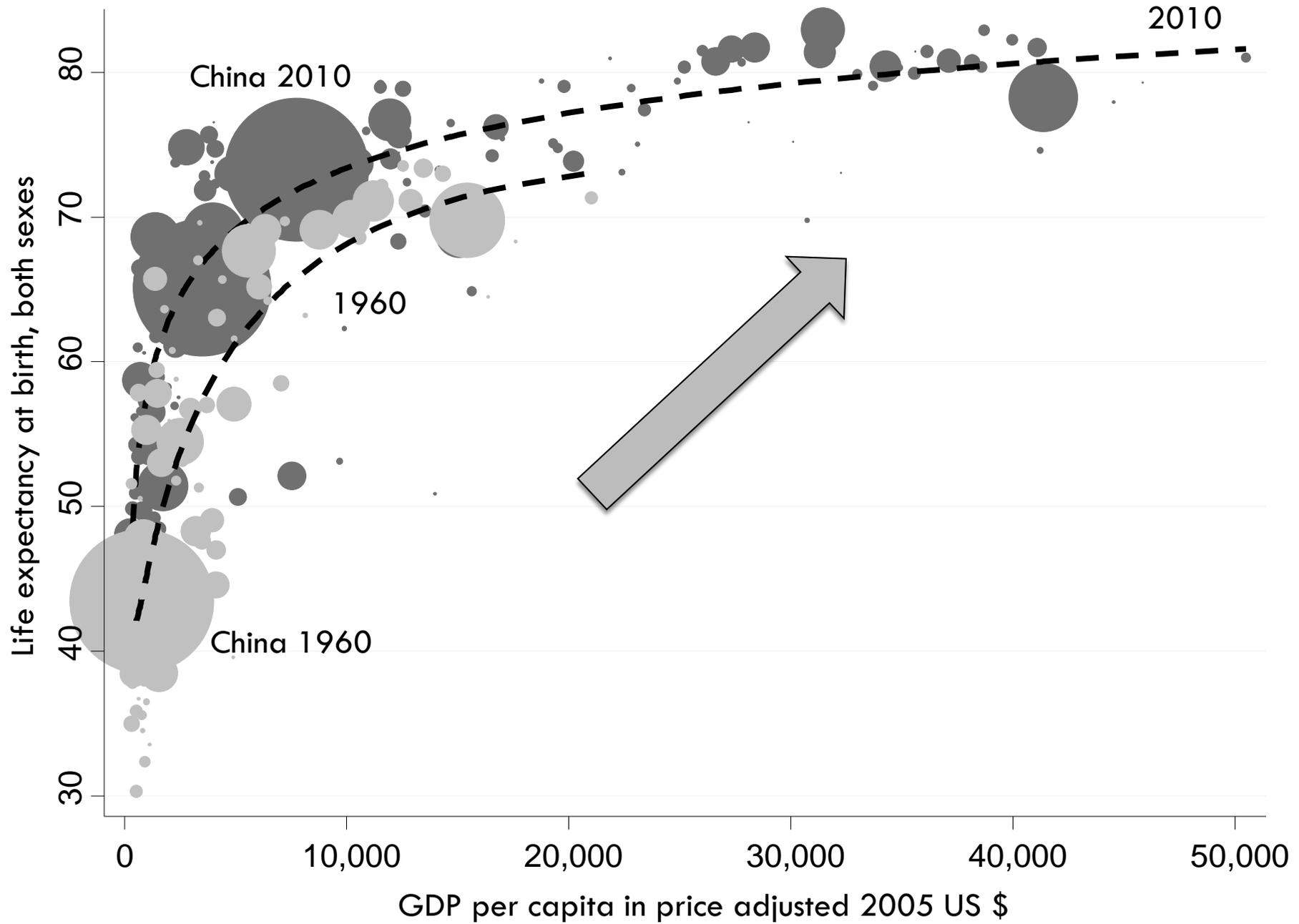
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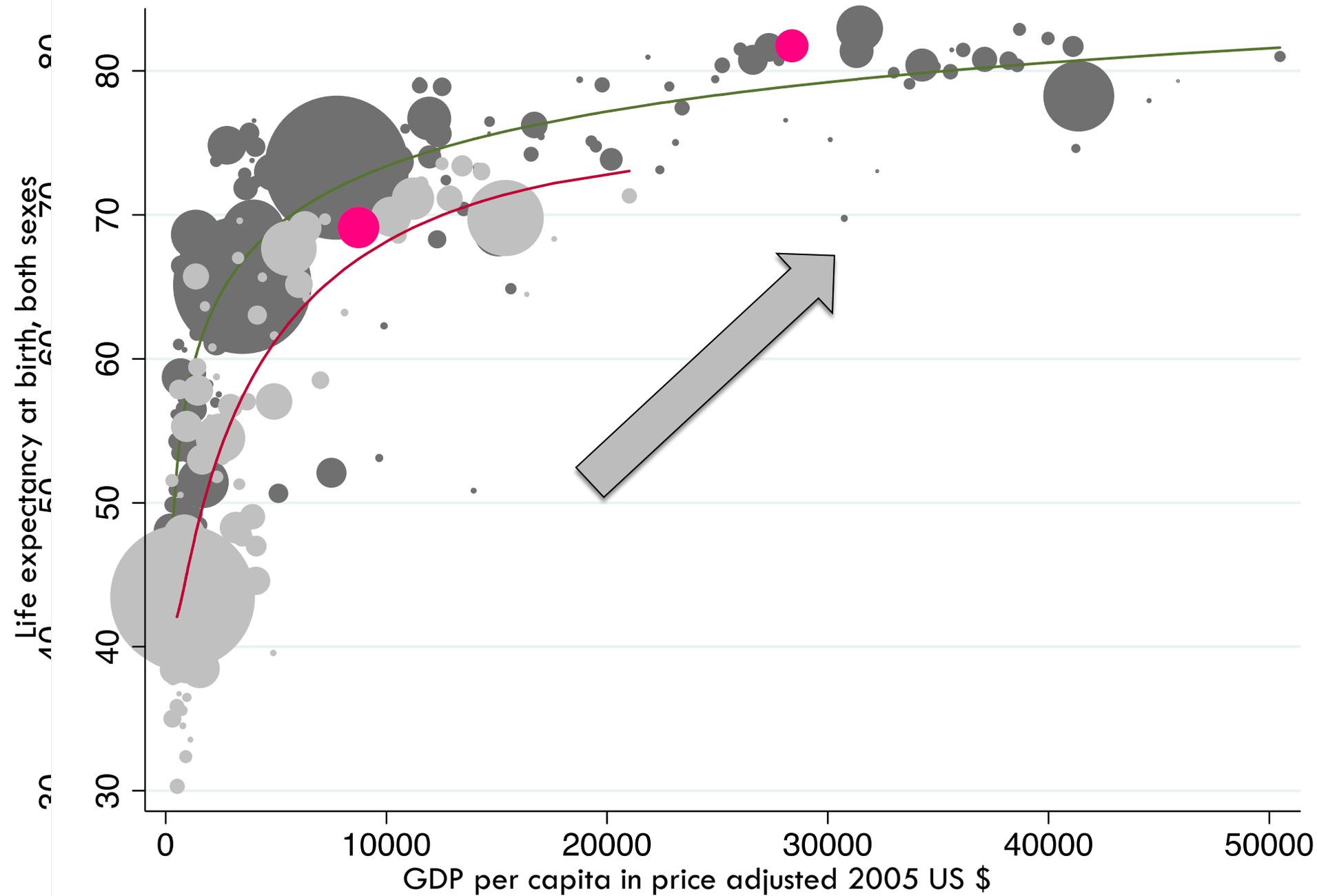
- British enlightenment, experimentation, fundamental move from “being good” to “being happy”
- We don’t know what caused improvement among the wealthy, but important was
 - ▣ Inoculation for smallpox (not vaccination) from China, Turkey, Africa (healthcare)
 - ▣ Many other innovations that came from abroad: globalization
 - ▣ Medicines included chinchona (quinine) from Peru, Ipecac for “bloody flux” from Brazil, Holy wood for syphilis from Caribbean
- All of these are *benevolent, expensive*, and later spread more widely
 - ▣ Better if they had been introduced uniformly
 - ▣ But likely impossible to do
- Health inequalities indicate later health improvements to come for everyone
 - ▣ Good to remember today when new medicines seem to reach wealthy people first



In the last fifty years

Around the world



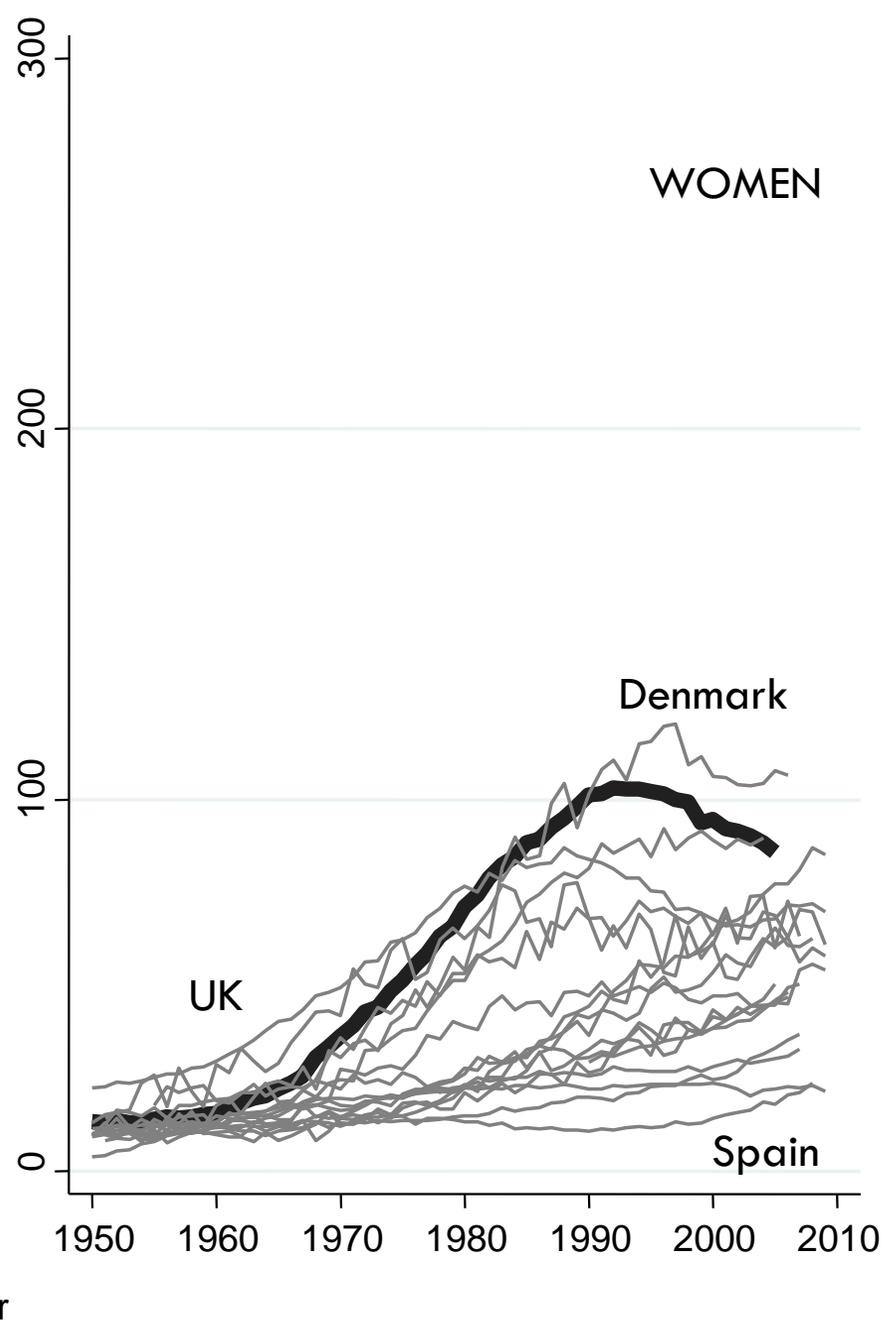
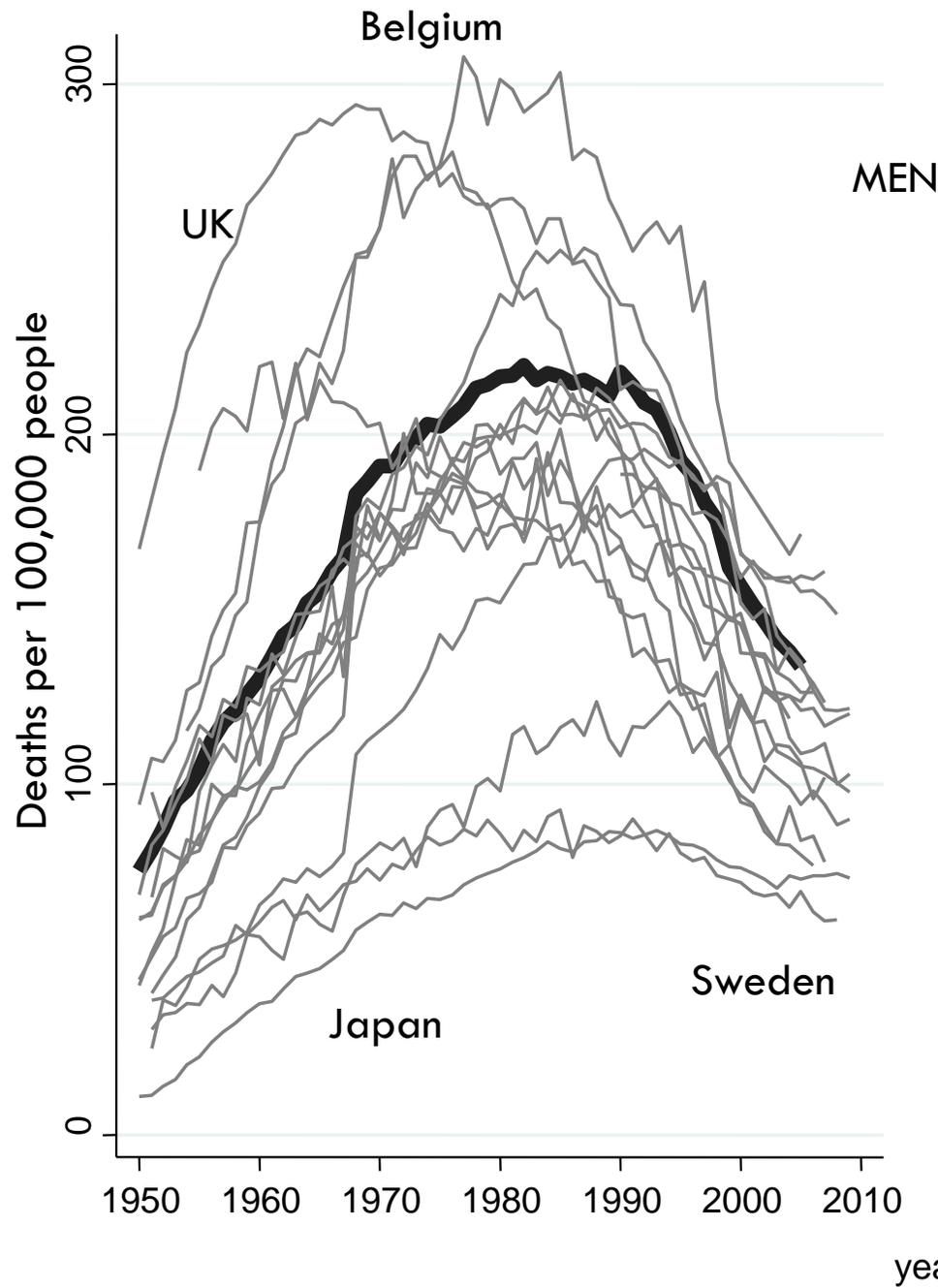


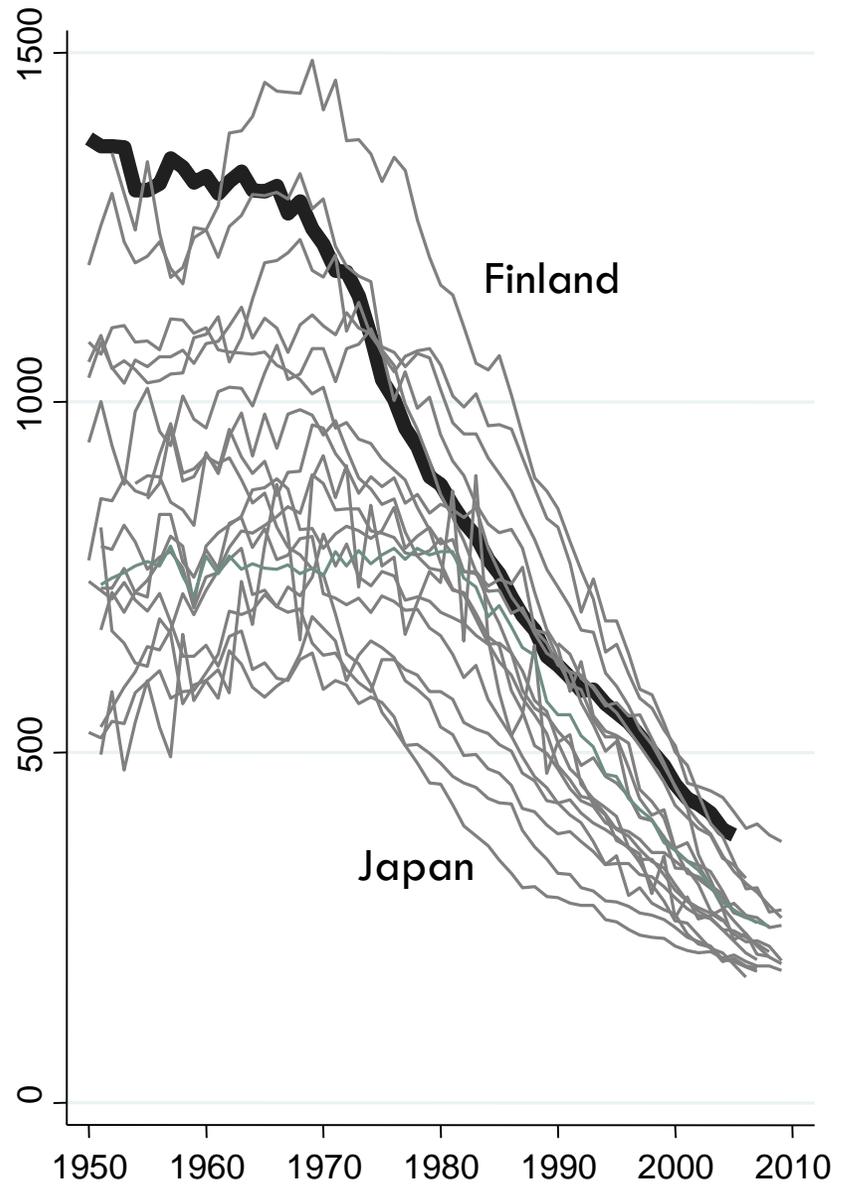
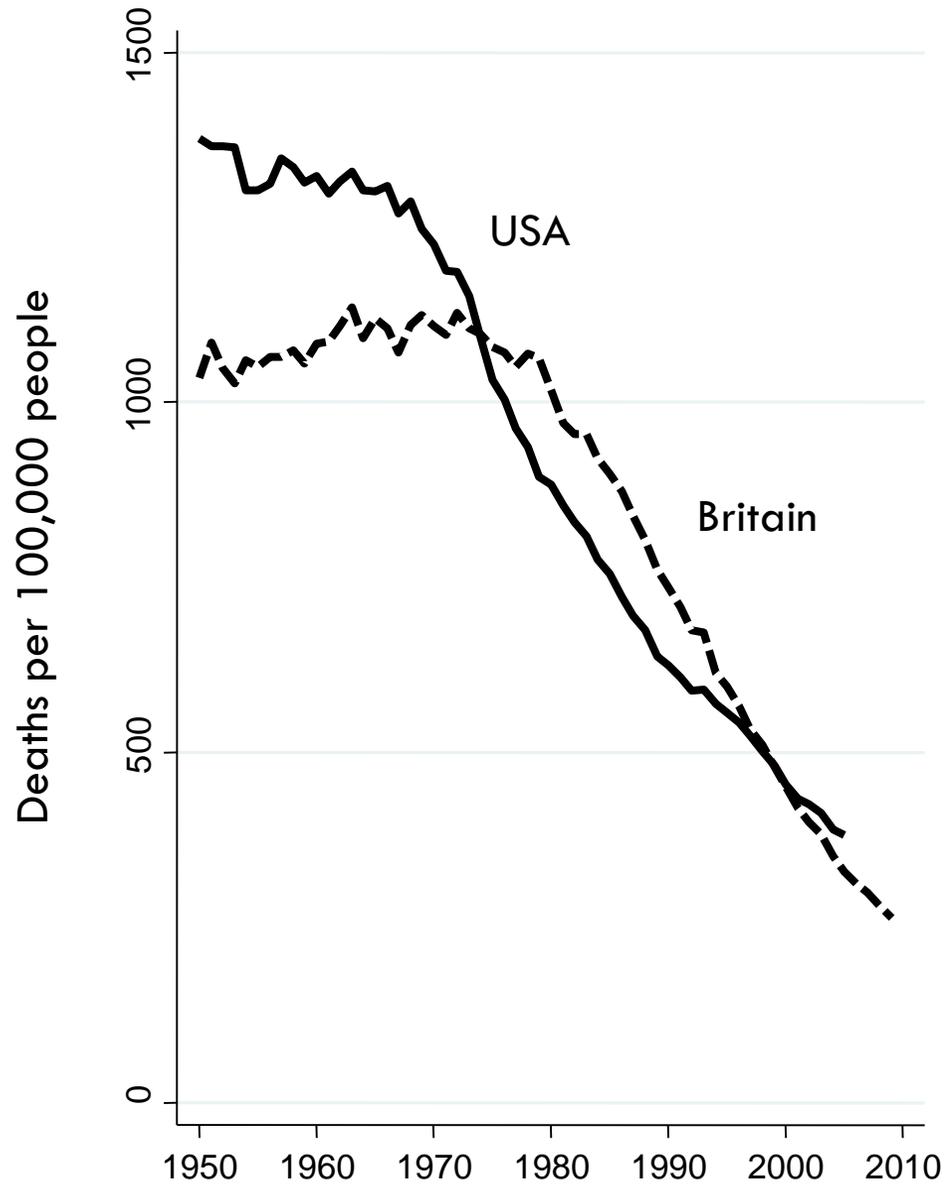
Correlation is not causality

- Lots of reason to doubt that it is income that drives health
- US and Europe, growth was higher before 1970 than after
 - Mortality fell much more rapidly **AFTER** 1970
 - See why in a minute
- China and India
 - Rapid improvement in health in China **BEFORE** reforms
 - Stagnant infant and child mortality afterwards
 - Policy decision to switch from health to growth
 - Rapid economic growth in India post reforms, but health improvements not affected
- What about business cycles and mortality?
 - “throughout the 20th century economic expansions in the US are associated with increasing mortality for all groups and causes of death” Tapia-Granados (2005)
 - Many similar studies in other countries
 - Note the important exception for suicide

So what IS important for mortality decline?

- No general consensus on this amazingly important topic
- For rich countries of the world in the last 50 years
 - ▣ Reductions in smoking
 - ▣ Better control of hypertension through (very cheap) medicines
 - ▣ Statins too, though less clear
 - ▣ Perhaps about a third we don't know
 - Better nutrition a long time ago
 - Healthier childhoods for people who are elderly now
 - Social expenditures may be as or more effective than health expenditures
- Medicines and healthcare are relatively unimportant, at least over this period
- Until very recently, little progress against cancer (except lung cancer)
 - ▣ Positive signs in recent years, and I will return to this
 - ▣ Cancer treatment involves screening and expensive drugs
 - ▣ Both of these are fraught with difficulties





year

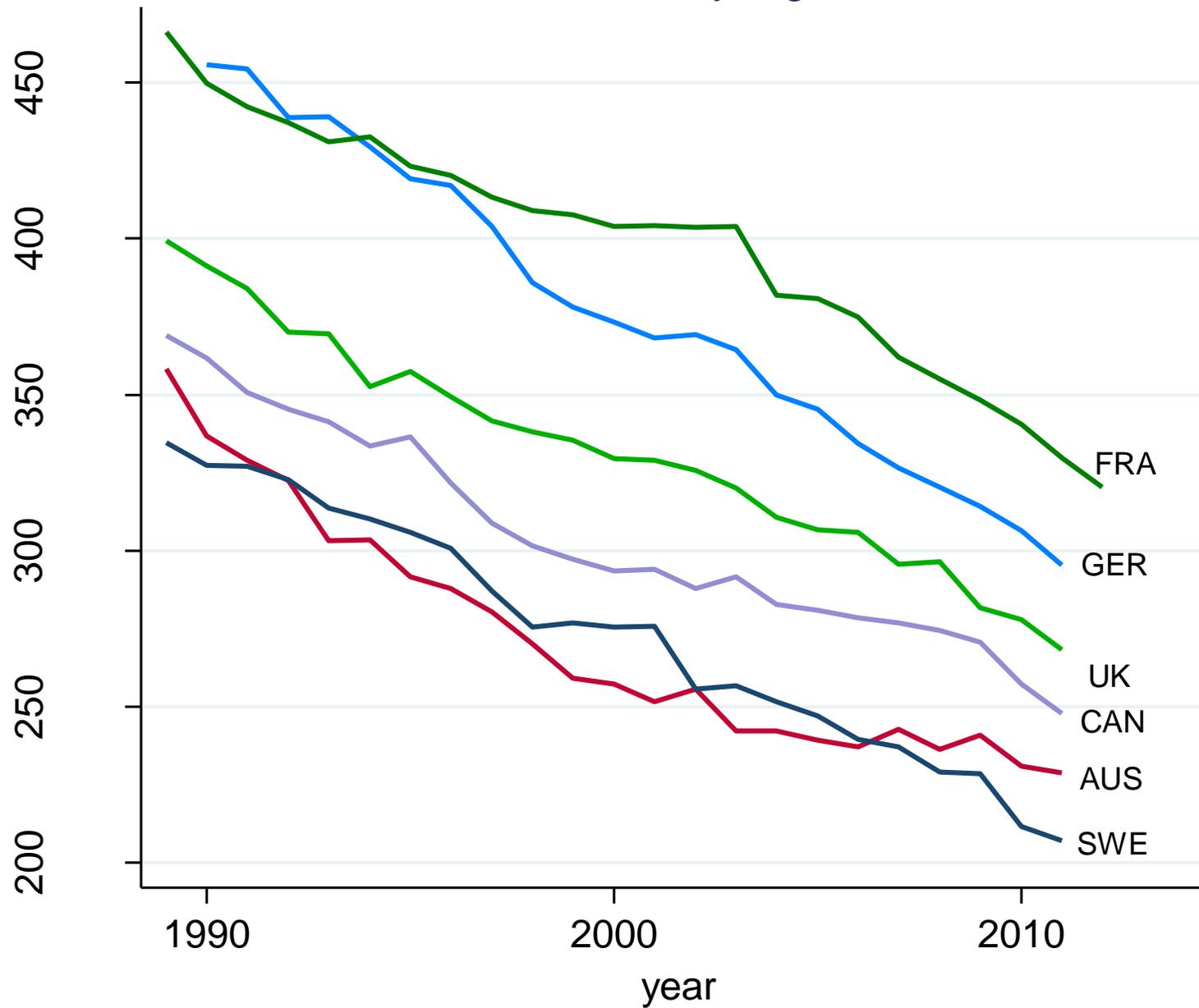
Progress reversed

Rising mortality among midlife whites in the US

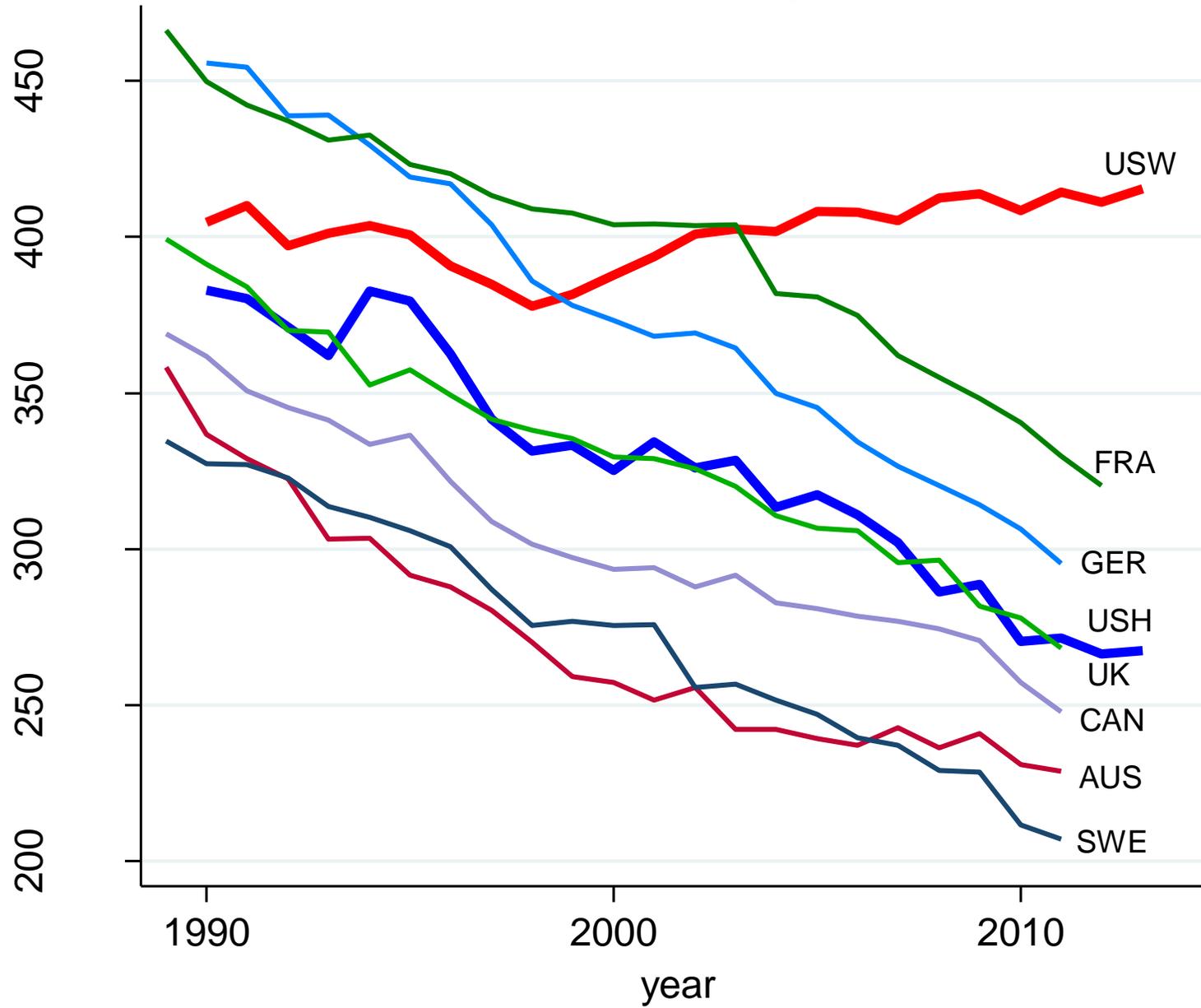
More non-healthcare causes

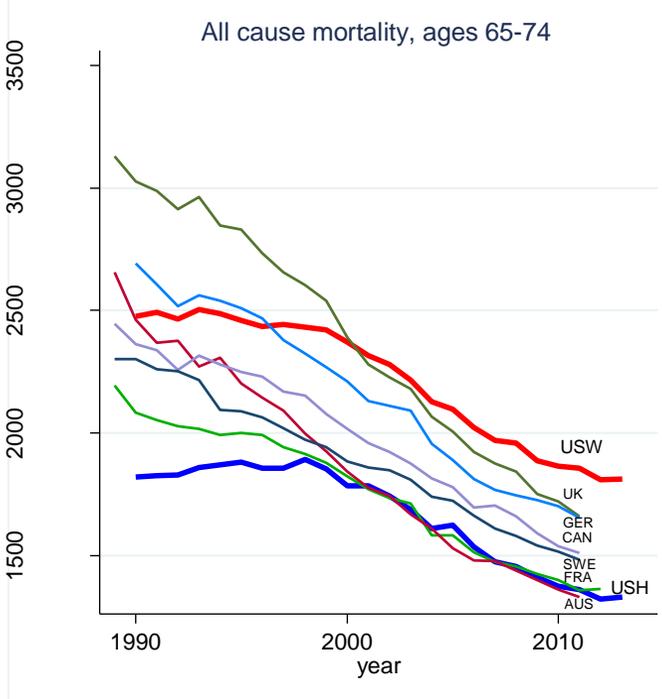
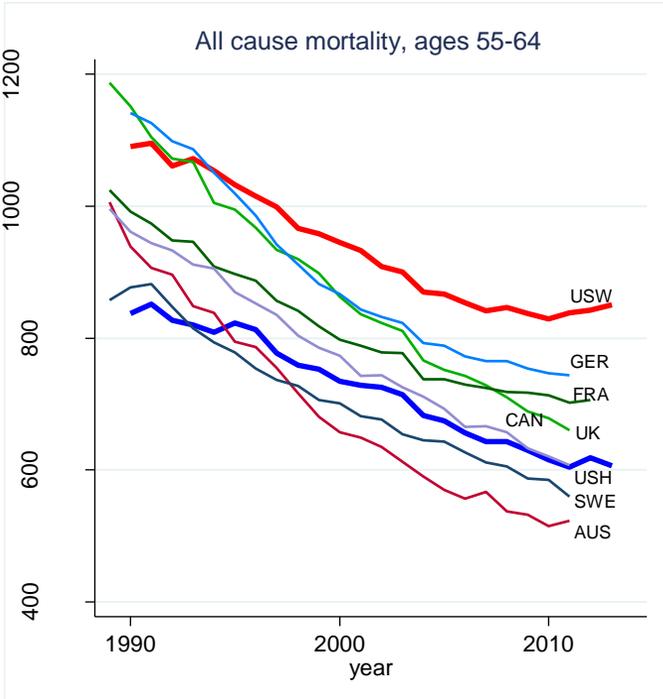
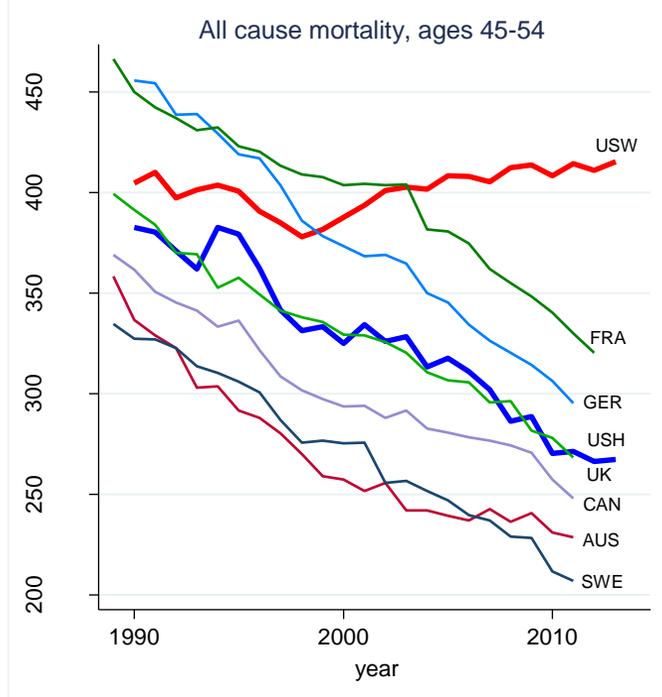
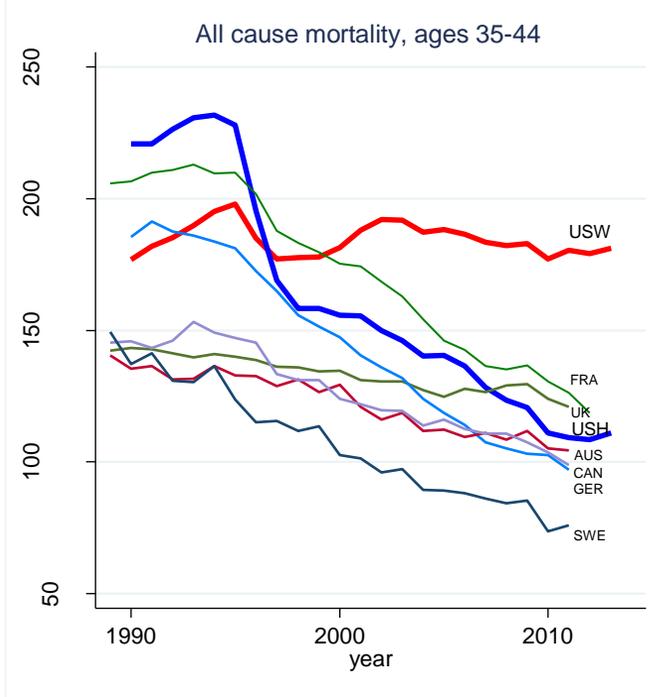
Medicines here are implicated **NEGATIVELY**

All cause mortality, ages 45-54



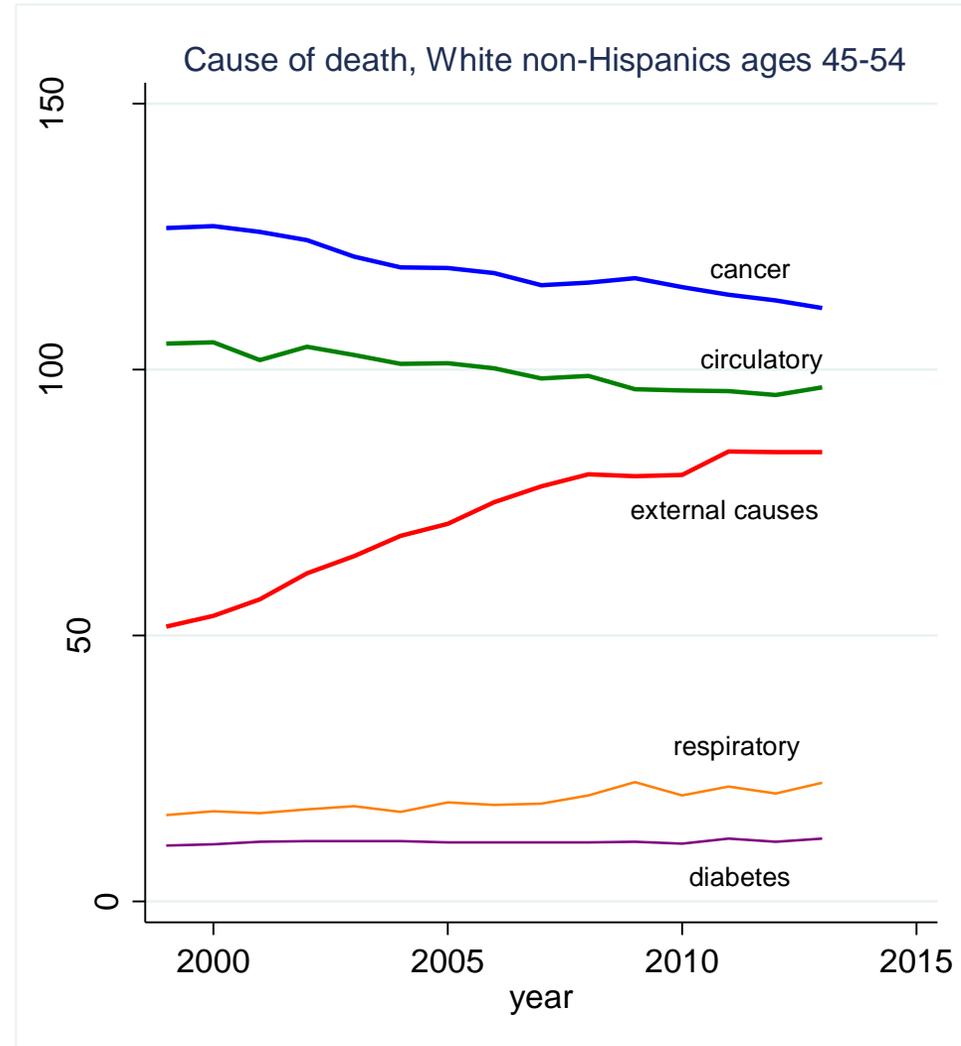
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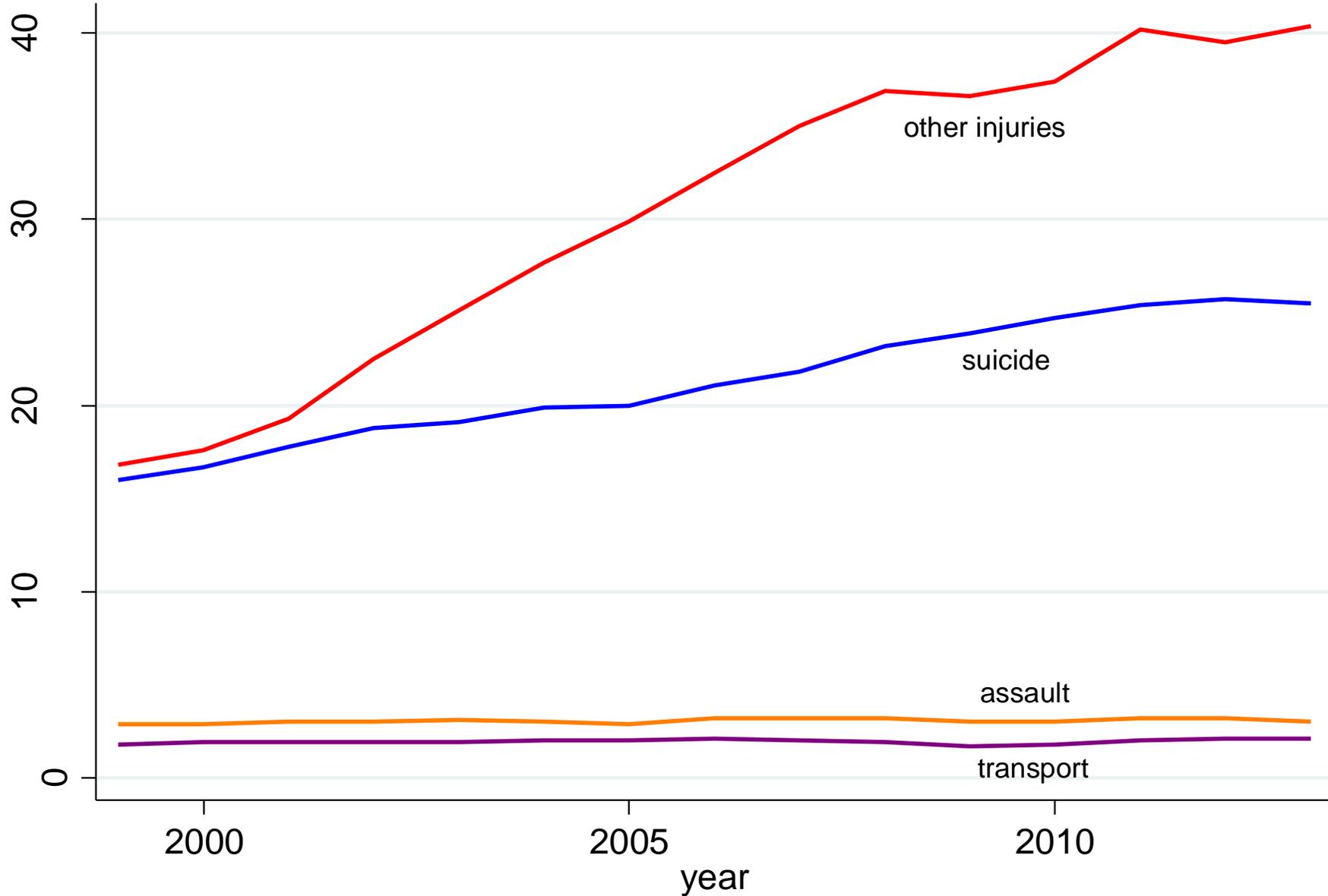


External Causes:

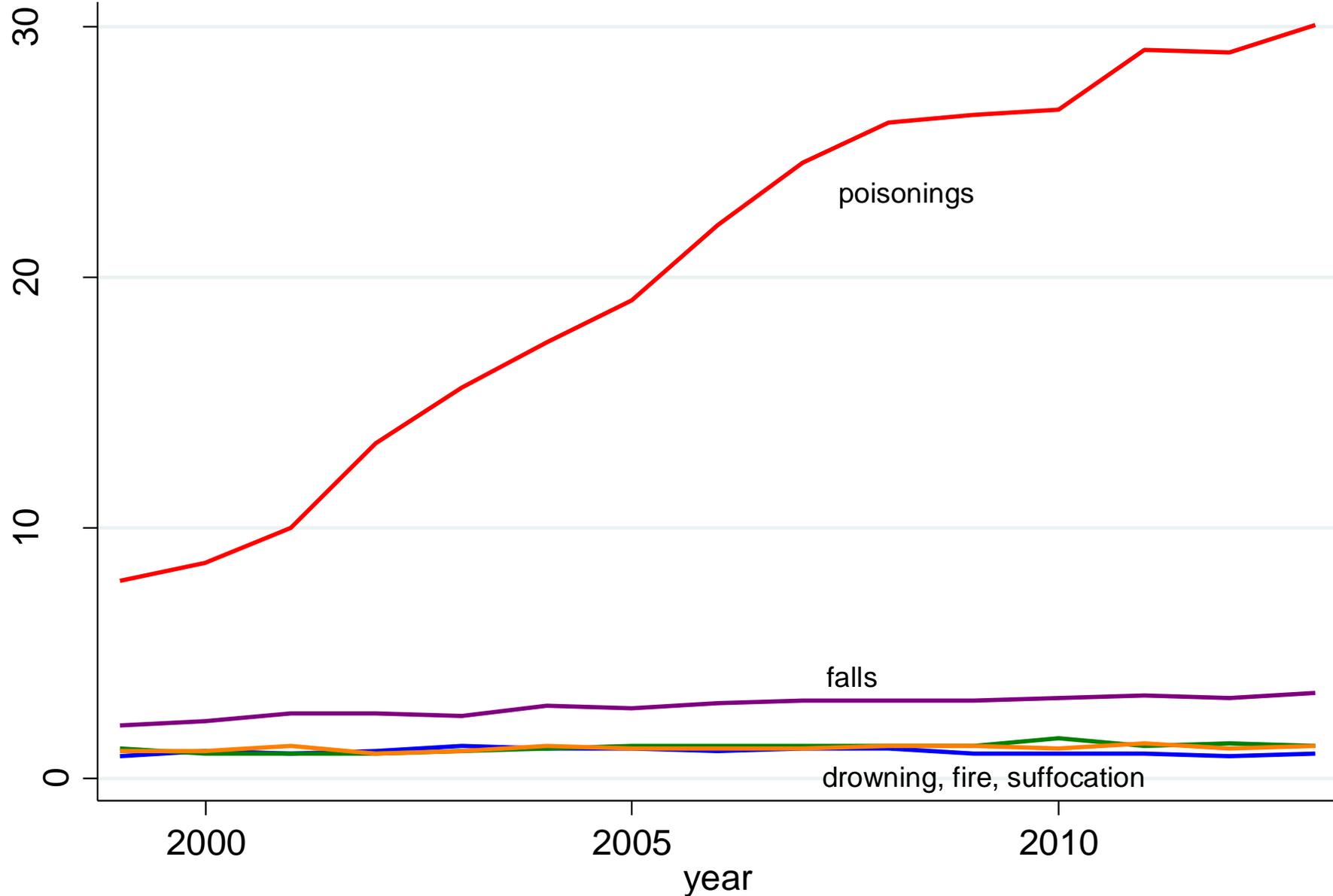
- Intentional self-harm
- Injuries
- Traffic accidents
- Assault
- Events of undetermined intent
- Legal intervention
- Complications med/surgical care
- Sequelae of external causes



External causes, White non-Hispanics 45-54

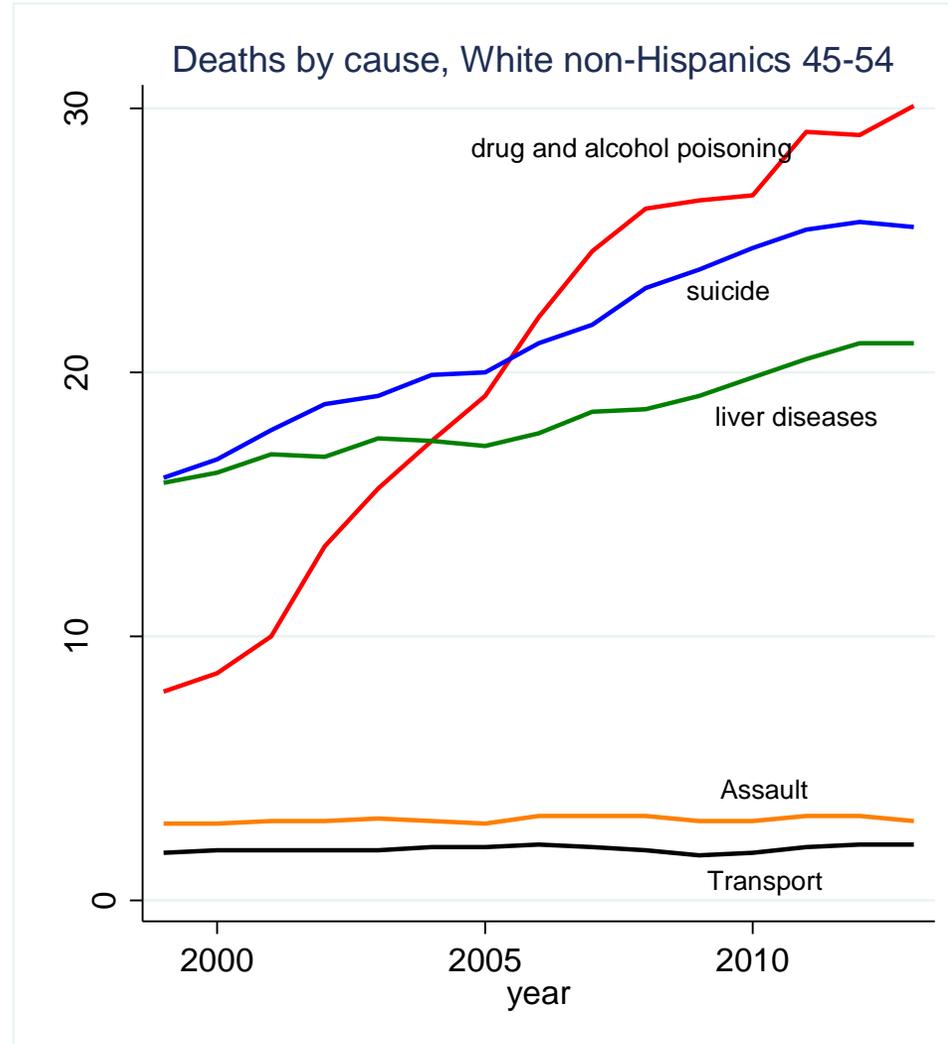


Other injuries, White non-Hispanics 45-54

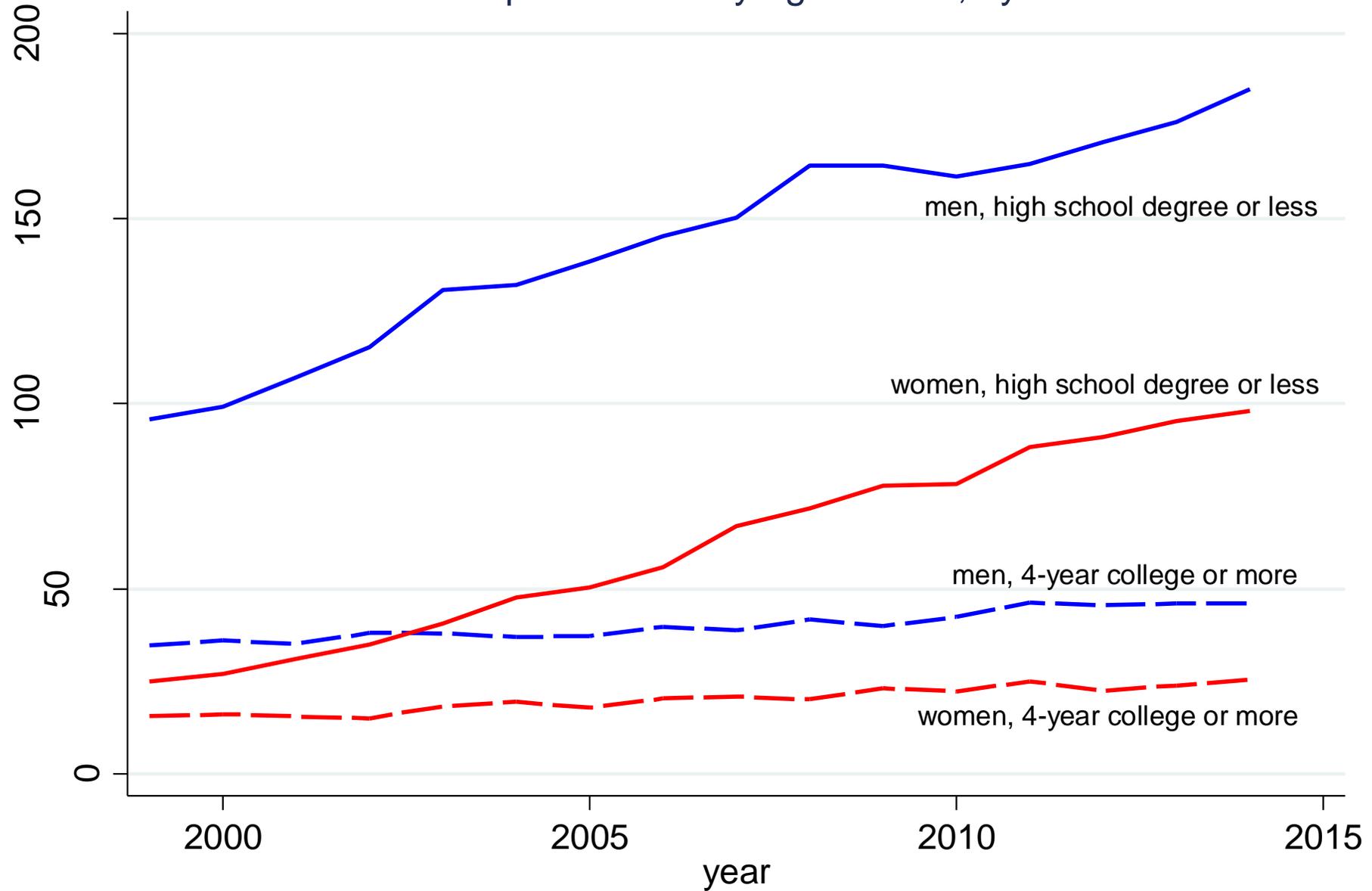


In the past 15 years, the biggest increases are seen for:

- Alcohol and drug poisoning (accidental or intent undetermined)
- Suicide
- Alcoholic liver diseases and cirrhosis
- These are 3rd, 4th, and 5th largest causes of death for the age group (after cancer and heart disease) Taken together larger than heart disease



White non-Hispanic mortality ages 50-54, by education



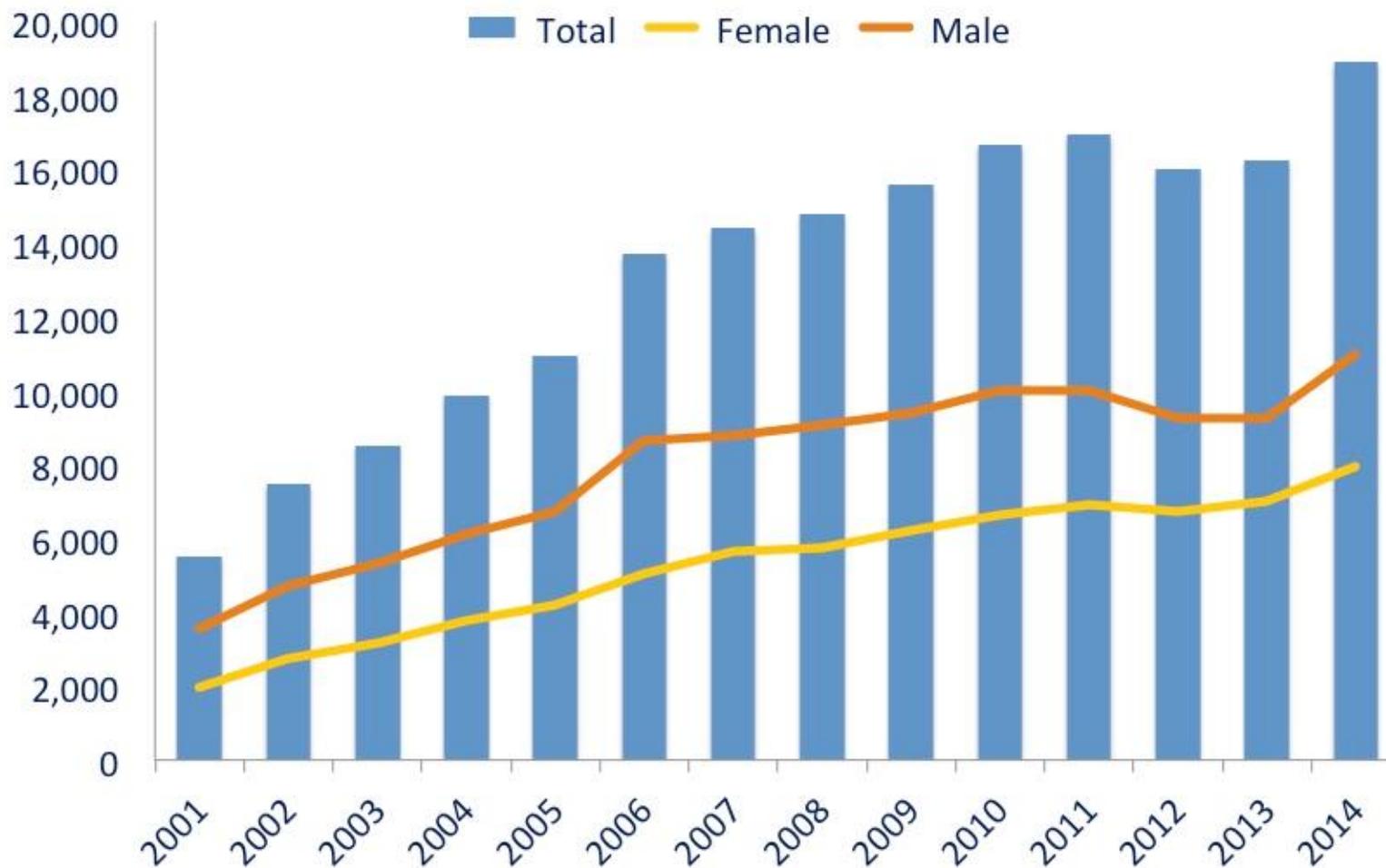
Opioids

- Are a major cause of accidental poisoning deaths
- These are **LEGAL** prescription drugs: legalized heroin
- Only became available in mid-1990s, think **OXYCONTIN**
- Very effective pain relievers
- Widely prescribed: enough for every adult in the US to have a month's supply
 - ▣ Yet pain has increased
- People switch to illegal drugs when supply is restricted
 - ▣ They become addicted
 - ▣ They overdose and die
- Perhaps 150,000 died since 2000 from prescription opioid drugs alone
 - ▣ Both men and women: mostly white



National Overdose Deaths

Number of Deaths from Prescription Opioid Pain Relievers



Source: National Center for Health Statistics, CDC Wonder

Thinking forward

Today's and tomorrow's medicines

Going ahead from here

- Opioid crisis is a warning that not all medicines have positive effects
 - ▣ FDA approval process is not always social optimal
- Drugs have saved millions of lives, and reduced morbidity
 - ▣ Anti-hypertensives, statins, aspirins, e.g.
- New drugs are playing and will play an important role in cancer treatment
 - ▣ Other speakers will discuss some of the important issues there, especially financial
 - ▣ I want to close by mentioning some pitfalls, especially with screening

Screening and number to treat

- Randomized controlled trial for diuretics had only 100 participants
 - No effect was anticipated
 - Effect was very large
 - Test people for hypertension, give AHT medicines, which are cheap, few side effects, and save many lives per person treated
- Many modern trials have small effects, and so require many participants, and are very expensive
 - Screen and treat many people, perhaps thousands, to save one life
 - Turns large fractions of the population into patients
 - Essentially makes people sick who were perfectly healthy until then
 - Discovery of “incidentalomas,” have same effects
- Mobile based health detection devices have the possibility to make this much worse
 - Make everyone sick: dangers as well as possibilities



Thank you