The Future of Mortality

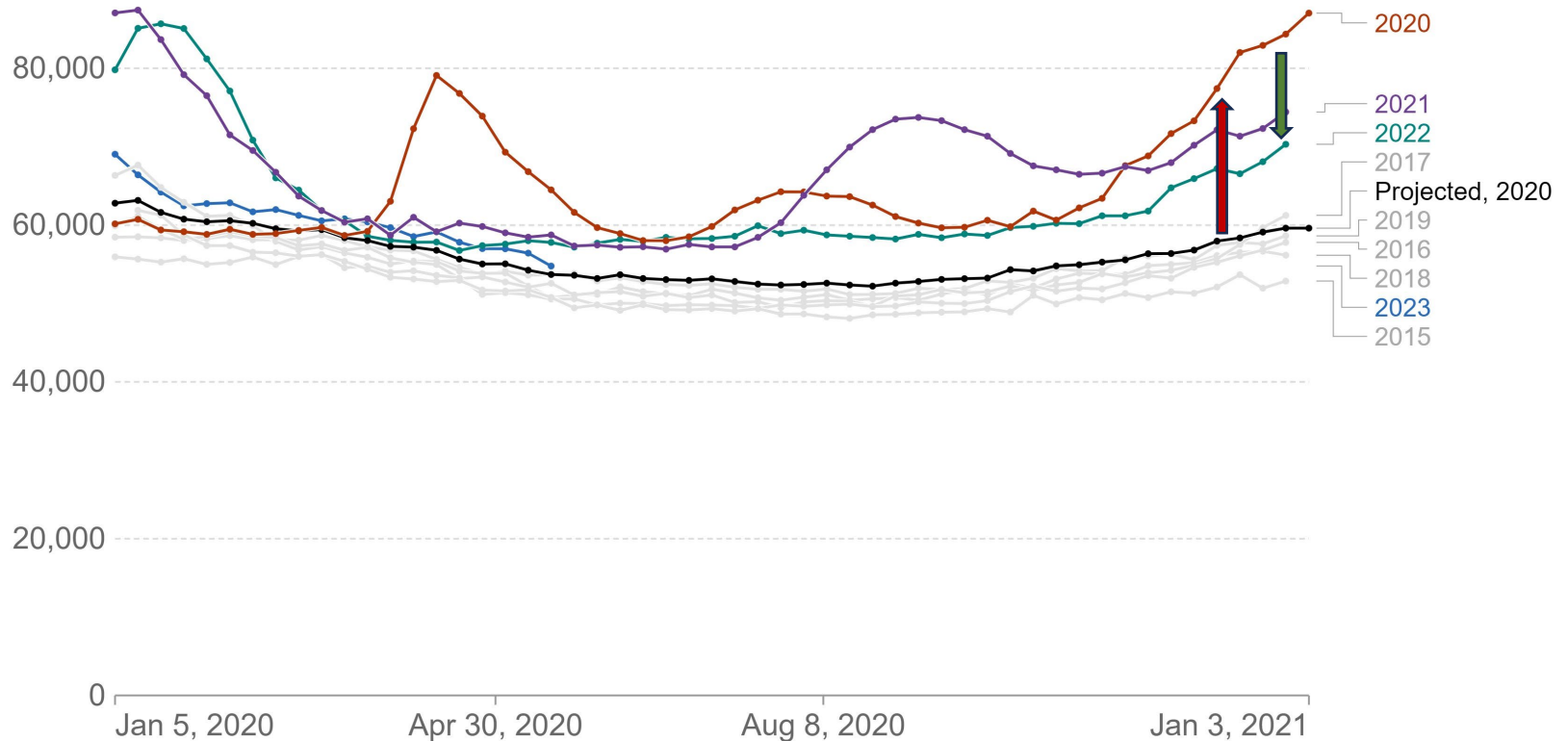David M. Cutler

Harvard University and NBER

We can say for sure

- (In expectation) most people will die (unfortunately).

- What I will guess at:
  - COVID and mortality
  - General mortality trends

Excess mortality: Raw number of deaths from all causes compared to projection based on previous years, United States

The reported number of weekly or monthly deaths in 2020–2023 and the projected number of deaths for 2020, which is based on the reported deaths in 2015–2019. The reported number might not count all deaths that occurred due to incomplete coverage and delays in reporting.

What is the endgame with COVID?

- Eradication – like smallpox
  - Unlikely b/c there are natural animal réservoirs.

- Elimination – like measles
  - Harder b/c vaccine immunity wears off + virus mutates

- **Cohabitation – like the seasonal flu**
  - **Most likely**
  - **In 2022, COVID deaths ~ 3x PNA/influenza deaths**

- Conflagration – like Ebola
  - Periodic large and possibly serious outbreaks

Econometric question

- What is the impact of the seasonal flu on total mortality? E.g.:

    Total deaths$_{s,t}$ = $X_{s,t}\beta + \alpha \cdot$PNA/IF deaths$_{s,t}$ + $\varepsilon_{s,t}$

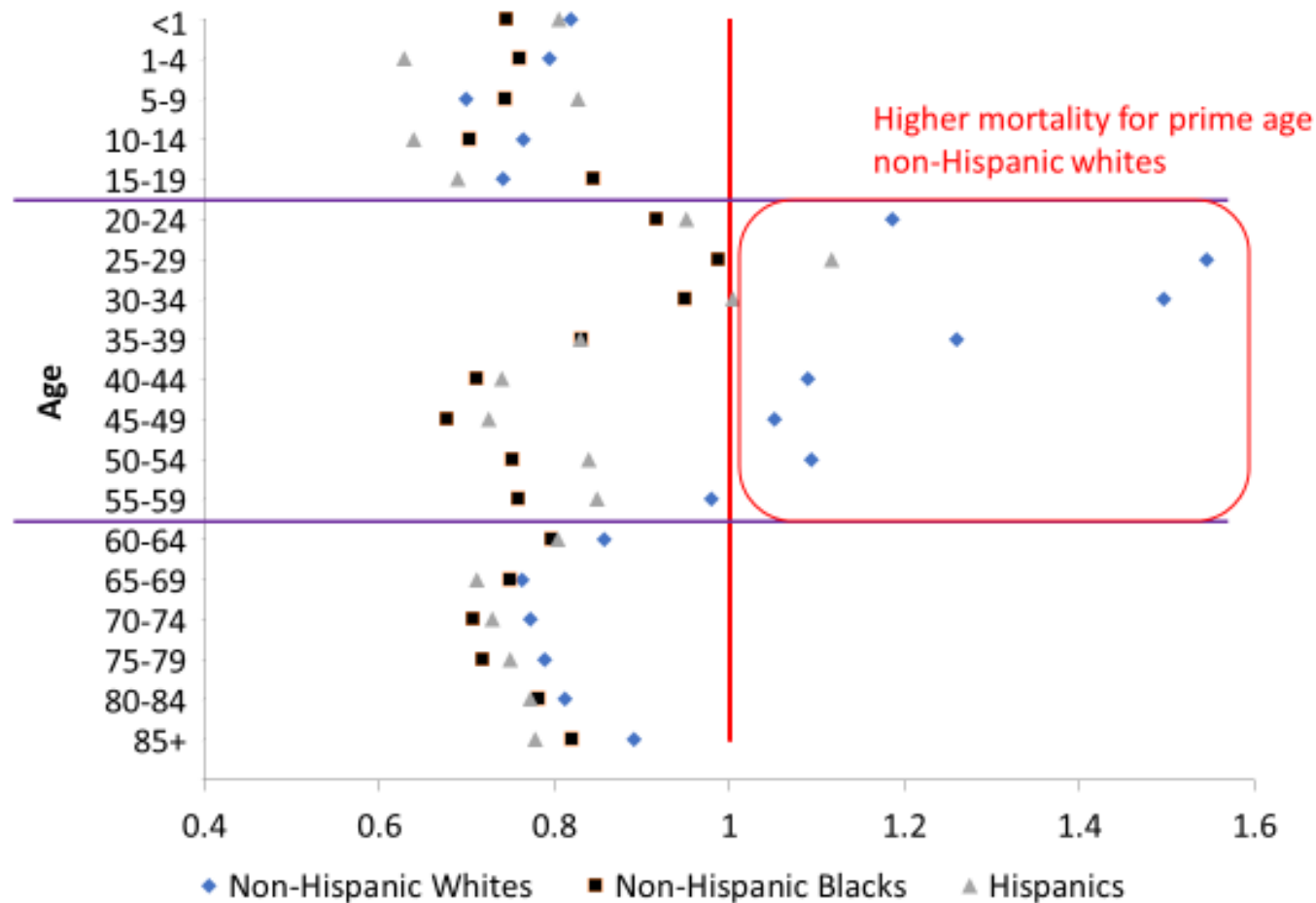I haven't seen anyone estimate this.

Would love to see an IV version.

Non-COVID mortality trends

- Heart disease treatments
- Deaths of despair
- High maternal mortality

Recent changes in mortality

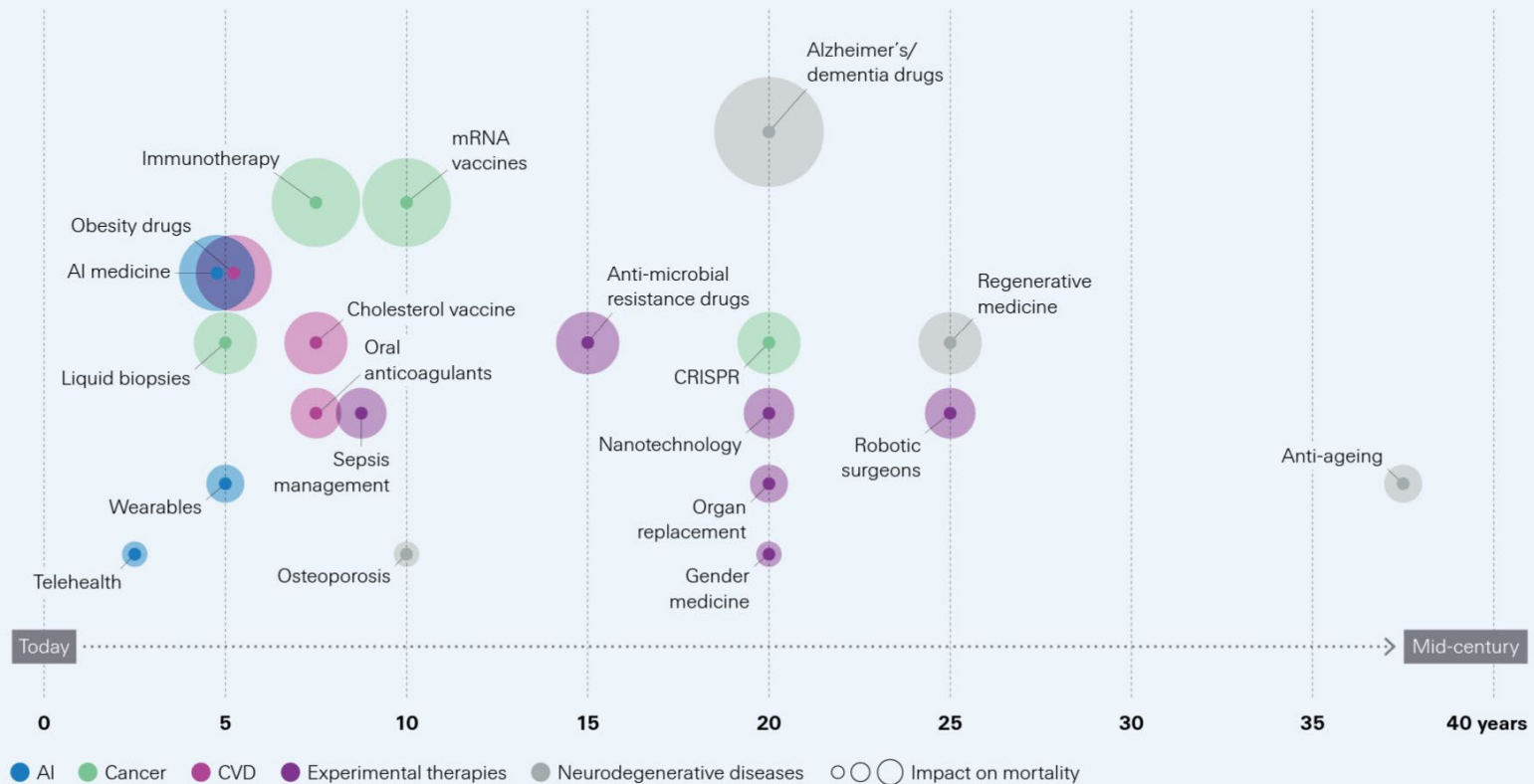
Change in Mortality by Ethnicity and Age, 1999-2015

Higher mortality for prime age non-Hispanic whites

◆ Non-Hispanic Whites   ■ Non-Hispanic Blacks   ▲ Hispanics

Cutler, *BPEA*, 2017; comment on Case and Deaton

Big trends

Factors leading to reductions in mortality	Factors leading to increase in mortality
Medical "progress" - Preventive meds (anti-HTN, statins)* - System reorganization - Cancer/ADRD *prevention*	- Opioid marketing** - Limited health care access
Reduced pollution***	
Social insurance programs**** - Social Security and Medicare generosity	Economic dislocation (despair)*****
Risk factor changes:****** - smoking	Risk factor changes: - obesity
	Future pandemics

* Cutler et al., *AER*, 2022; ** Cutler and Glaeser, *JEP*, 2021; *** Qian et al., *JAMA*, 2017; **** Noghanibehambari and Engelman, *JHE*, 2022; ***** Case and Deaton, 2020; ****** Stewart et al., *NEJM*, 2009

This may or may not be the future… But I want to view it as conventional wisdom
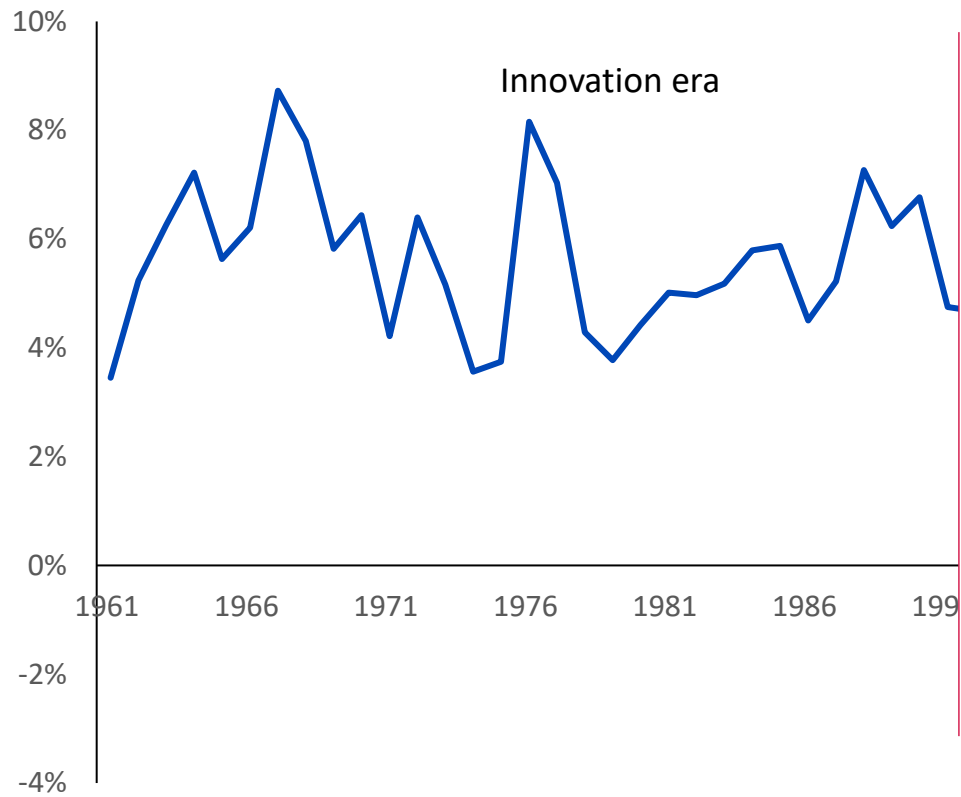

Figure 7
Future medical innovations likely to drive mortality improvements
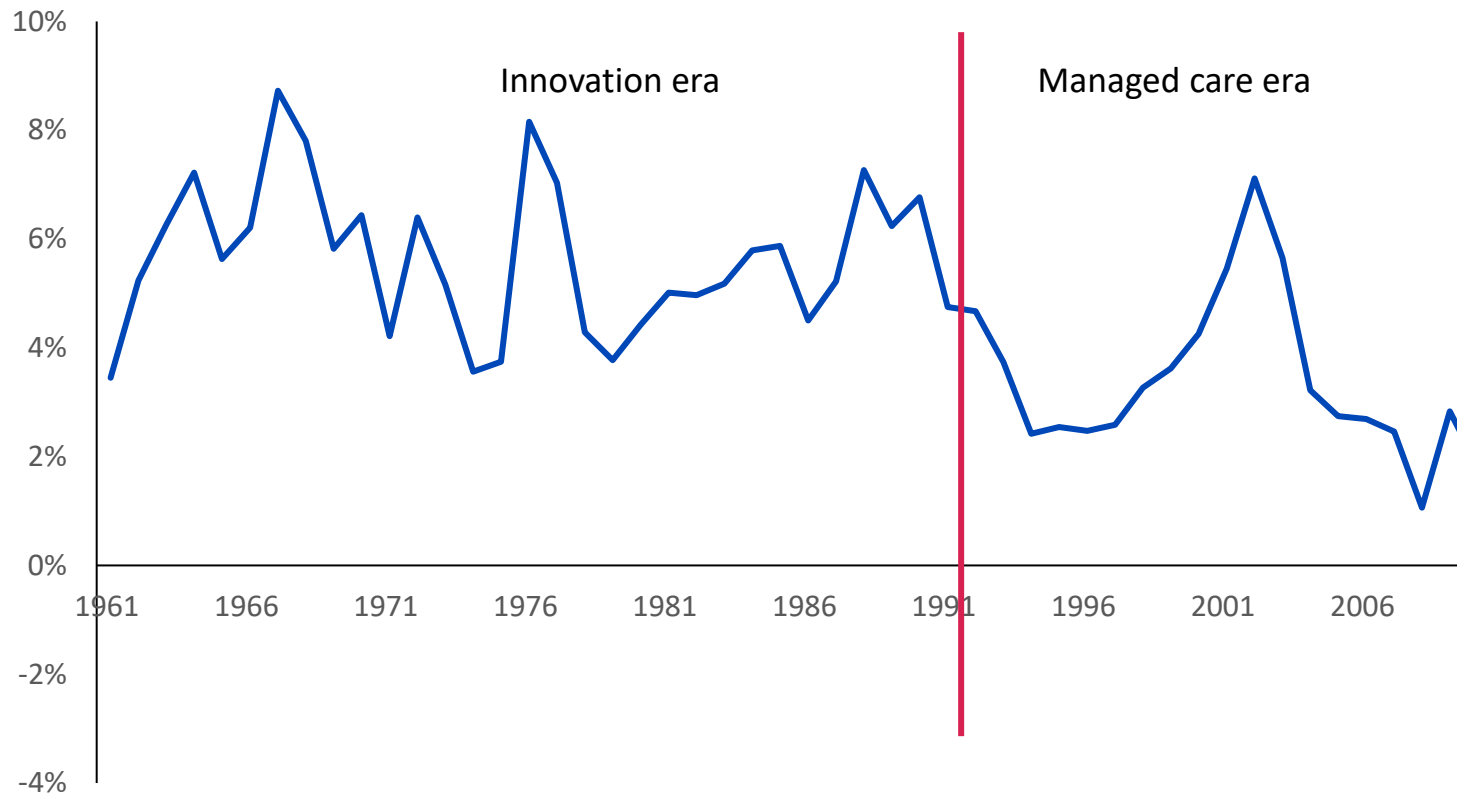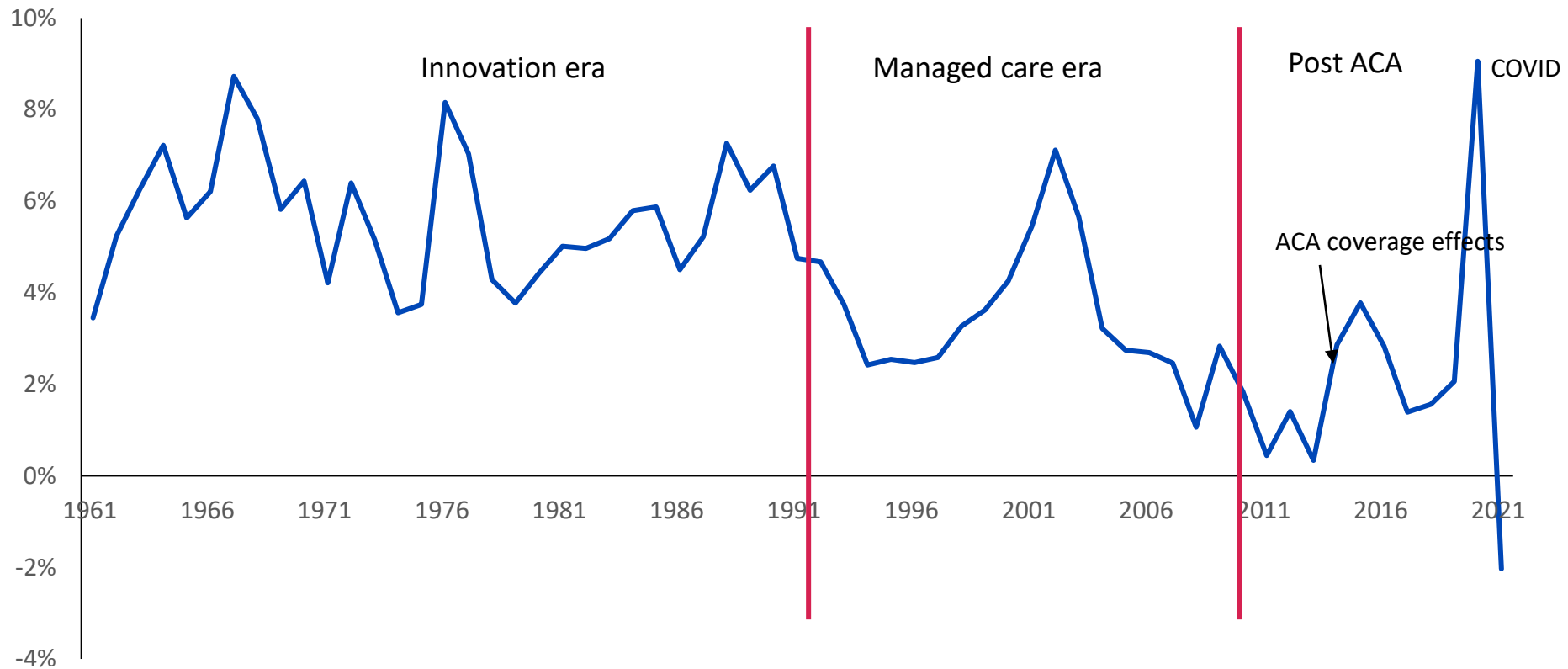
Source: Swiss Re Institute

How good a guide is the past?

Growth of real, per capita, medical spending, 1960-2021

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If I had to bet…

- Progress is more likely than regress
  - We only have to solve problems once

- Extensions in healthy life may be a better bet than extensions in longevity
  - We know many ways to keep people healthy

- The biggest unknowns
  - Prevention/treatment of ADRD
  - Social structure and health