

Discussion of:

Using Cause-of-Death Data to Better Understand the U.S
Increasing Disadvantage in Mortality
by Magali Barbieri

Nicholas Reynolds

University of Essex
Department of Economics

March 10, 2022

Cause of death decomposition of differences in life-expectancy between US and comparison countries

- Decomposition method
- What differences should we be trying to “explain”/decompose?
- What can we learn from cause of death data generally, and this type of decomposition specifically?
- Historical perspective

Decomposition method

Quantitative accounting of how different causes of death contribute to life expectancy gap

Decomposition method for heart disease (I believe):

- Replace US cause-specific mortality rates from heart disease at all ages with comparison country rates
- Calculate counterfactual all cause mortality for US w/ these heart disease mortality rates changed but all other causes same
- Use new mortality rates to calculate life expectancy in US, and gap

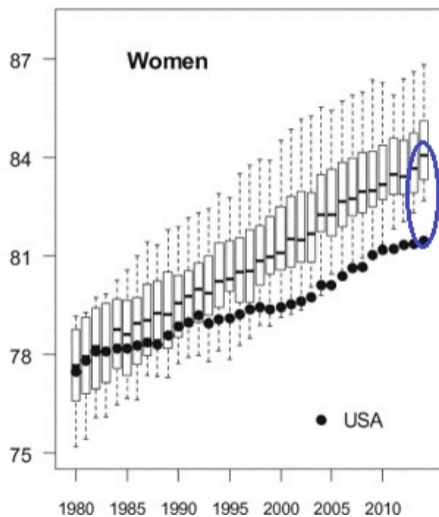
Not a “counterfactual” but very useful descriptive tool

- highlights **magnitude** of contribution of different causes of death
- great to have a set of comparison countries

What should we be trying to explain?

- This paper: 1. diff in LE between US and avg for set of high income countries in 2019— cross-country difference
- Other papers: 2. decline in LE since 2010 — time difference
- But could be: some kind of “difference in difference” 3. US falling behind other countries since early 1990s

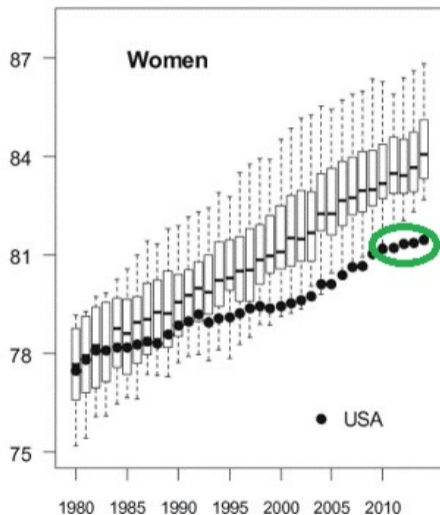
What are we trying to explain?



This paper:

1. diff between US and avg for set of high income countries in 2019— cross-country difference

What are we trying to explain?

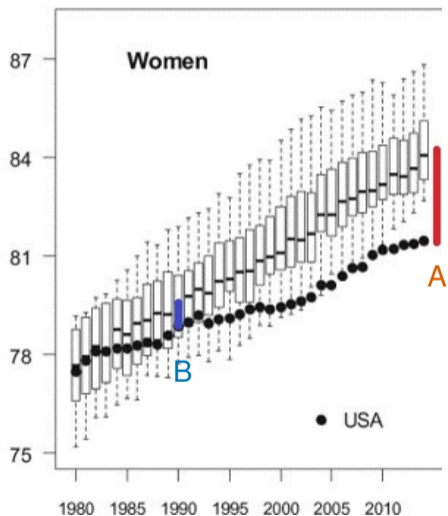


Other papers:

2. stagnating life expectancy in US since 2010 — time difference

eg Mehta et. al 2020 PNAS
ask what would happen if
cardiovascular mortality
improvements had continued
at prior trend

What are we trying to explain?



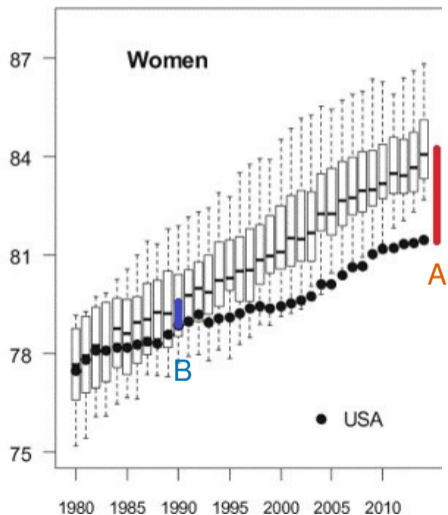
3. US falling behind other countries since 1990s

- Has been emphasized eg. in Schwandt et. Al (2021)
- (Note that many comparison countries also stagnated post 2010)

Trying to explain:

A - B

What are we trying to explain?



3. US falling behind other countries since 1990s

- Has been emphasized eg. in Schwandt et. Al (2021)
- (Note that many comparison countries also stagnated post 2010)

How have differential changes in cause-specific mortality contributed?

- replace change in eg. heart disease mortality in US between 2019 and 1990 with change in heart disease mortality in comparison countries between 2019 and 1990

What are we trying to explain?

My personal preference is probably 3

- Having comparison countries means don't have to extrapolate trends linearly
- Partially addresses concerns about differential coding across countries

But mainly just want to emphasize

- is that “explanation” of 1-3 need not be the same:
 - Eg. if heart disease mortality is much higher in US than comparison countries in 2019,
 - But already was in 1990 ...
 - Then can explain 1 but not 3

Is period life expectancy the best thing to try to "explain"?

Timing of US divergence in life expectancy seems to differ from timing of divergence of age-specific mortality rates

- eg. we may be looking for something that hit the US in the early-1990s
- but mortality divergence at certain ages, could've begin earlier ... been offset by patterns at other ages
 - could be interesting to decompose each of these divergences separately
 - may each have own cause
- differences in cohort health would also manifest as staggered timing of mortality divergence at different ages

Timing

- is there a cause of death which diverges at same time as life expectancy (or as mortality of particular age groups)
- “Canary in the coalmine” — quantitatively unimportant but signal (eg. liver disease in Russian mortality crisis was signal of alcohol problems)
- Or is this the sum of various trends that just happen to manifest in aggregate life expectancy in this way

Medical perspective very important!

VITAL and HEALTH STATISTICS ANALYTICAL STUDIES

the change in

Mortality Trend in the United States

An analytical study of mortality trends by age, color, and sex to identify the diseases with a course of mortality causing the recent change in general mortality trend, and discussion of future prospects for further declines in mortality.

- Moriyama (1964), Klebba (1971), many other reports and publications
- lessons to be learned?

Leading Components of Upturn in Mortality for Men United States - 1952-67

An analysis of rising mortality among men by cause presented separately for white men and for men of other races.

- Moriyama (1964), Klebba (1971), many other reports and publications
- lessons to be learned?

Historical perspective

INTRODUCTION

In a preliminary report,¹ attention was called to the recent change in the mortality trend for the United States and for a number of other countries. After a long period of decline, the trend of the crude death rate now appears to have leveled off. In the United States, the crude death rate has been more or less stationary during the period 1950-60.

The failure to experience a decline in mortality during this period is unexpected in view of the intensified attack on medical problems in the postwar years. As Spiegelman² pointed out, there has been a growth in the volume and scope of health services in prevention, diagnosis, medical and surgical therapy, and rehabilitation, and also an improvement in their quality. The rapid growth of health insurance plans has made high quality medical care readily accessible to ever increasing numbers of people. The rising level of living has resulted in improvement of work and home environment, quality and variety of food, educa-

- Moriyama (1964), Klebba (1971), many other reports and publications
- lessons to be learned?

Historical perspective

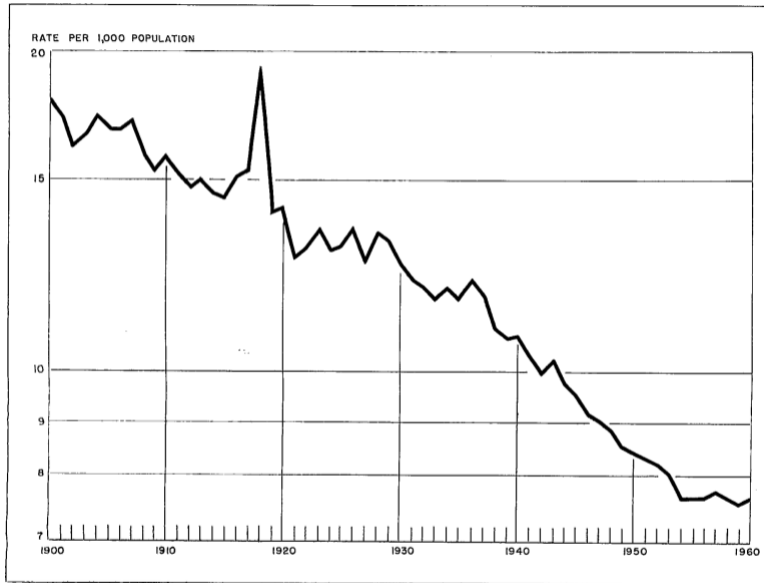
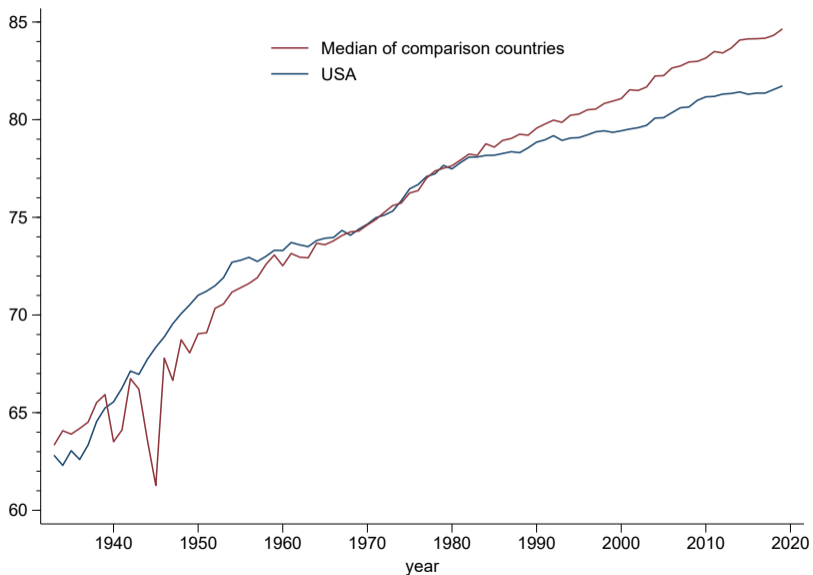


Figure 2. Age-adjusted death rates: United States, 1900-1960.

- Moriyama (1964), Klebba (1971), many other reports and publications
- lessons to be learned?

Female life expectancy



Male life expectancy

