Candidate Origins of the Recent Stagnation in Midlife Mortality in the United States

An Extended Abstract

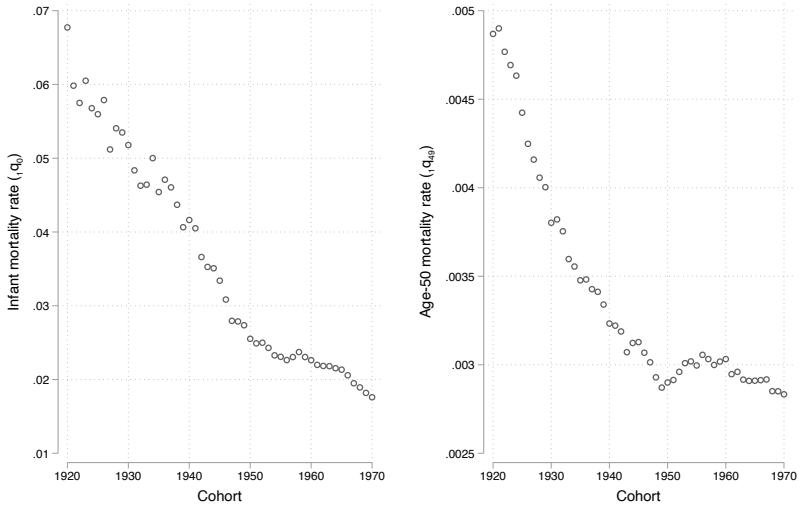
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At the turn of the 21st Century, midlife mortality rates in the United States stopped improving and have since broken away from peer countries, where midlife mortality rates continued falling. This fact, brought to light by Case and Deaton (2015), has given rise to a burgeoning literature on its proximate causes, but the reasons remain unclear. This paper posits that the explanation could lie in a similar trend that unfolded decades earlier.

In the middle of the 20th Century, progress in infant mortality, death in the first year of life, slowed as well in the United States. Health officials at the time, in particular Moriyama (1960), wrote about the break from trend, which occurred around 1950, but it has not received the attention it deserves, and it has not been linked formally to the recent stagnation in midlife mortality.[1]

These two trends could be intimately tied because infant mortality is a strong signal of latent health status. A large literature, headlined by Finch & Crimmins (2004), has found strong links between early-life disease environment, proxied by infant mortality, and older-age mortality, especially death from cardiovascular disease, which is responsible for most of the recent stagnation (Mehta et al., 2020).

Fig. 1: Infant and midlife mortality in the US depart from trend around the noted cohorts

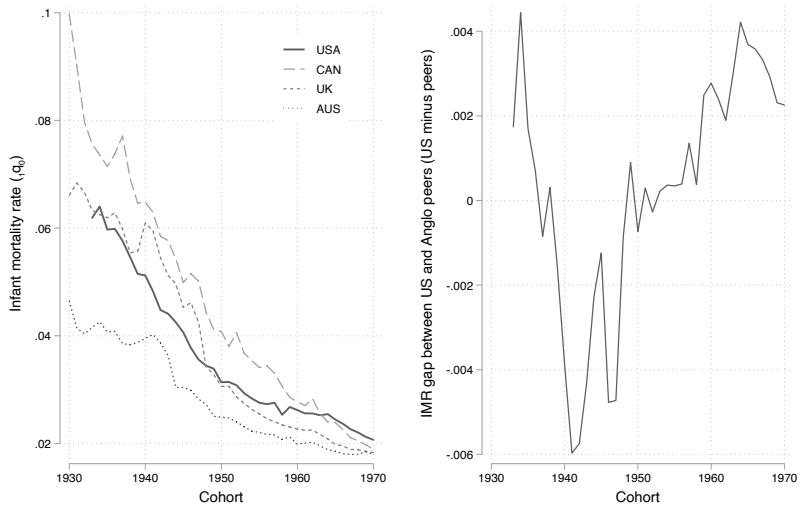


[1] Health officials also noted a trend break in childhood health, as indicated by height. Hamill et al. (1977) writes, "The marked diminution and near cessation of the trend to constantly increasing size of successive generations of American children is the most dramatic and significant finding relating to human biology and human growth in general."

We first note that the timing coincides: The cohorts who initiated the recent stagnation in midlife mortality are also the cohorts who initiated the prior stagnation in infant mortality decades earlier. Figure 1 illustrates the agreement. We plot, by year of birth, infant mortality ($_1q_0$) and age-50 mortality ($_1q_{49}$) using publicly available cohort life tables from the Social Security Administration.[2] Both mortality rates break from trend for cohorts born around 1950.

We then show that the stagnation in infant mortality appears to be unique to the United States, just as the recent stagnation in midlife mortality was shown to be in Case & Deaton (2015). In Figure 2, we plot the infant mortality rate in the United States against the infant mortality rate in three other Anglo countries. We also separately plot the difference in infant mortality rates between the United States and the average of the UK, Canada, and Australia. Around the same cohorts for whom infant (and midlife) mortality stalls, the United States exhibits departure from these peer countries.

Fig. 2: Infant mortality in the US departs from peer countries around the noted cohorts



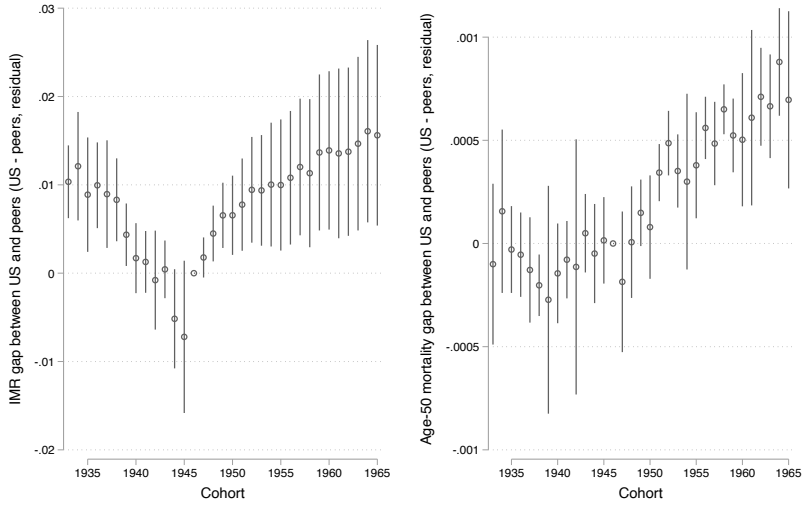
The previous figures indicate stagnation in both infant and midlife mortality for American cohorts born around 1950 and that the stagnations appear to be a primarily American phenomena. We summarize these two facts in an "event study," comparing mortality in the United States to all other countries for which data exists in Figure 3.[3]

In ongoing work, we estimate the degree to which the stagnation in infant mortality decades ago can, under various assumptions, "explain" the recent stagnation in midlife mortality. As part of this exercise, we consider geography within the United States. We combine county-level infant mortality records from Bailey et al. (2018) with restricted-access adult mortality data from the Social Security Administration

[2] We plot the rates for women only in Figure 1, but the shape of the figures for men are nearly identical.

[3] Specifically, we estimate the gap each year between the US and other countries in the Human Mortality Database, while controlling for secular annual changes in mortality (year fixed effects) as well as time-invariant country-specific differences (country fixed effects), where the gap in 1946 (chosen arbitrarily) is normalized to zero.

Fig. 3: Event studies confirm departure of US from peers in infant and midlife mortality around noted cohorts



that, unlike any other source, include county of birth, and we test whether people born in counties where trend breaks in infant mortality were largest have particularly high mortality risk later in life.

We of course caution against assigning the recent stagnation in midlife mortality to any singular cause. Deaths often labelled as deaths of despair, many of which are overdoses on overprescribed opioids, certainly play a role. Case & Deaton (2017) describe those deaths as the accumulation of disadvantage in educational opportunity, in employment outcomes, in marriage prospects, and beyond. Our preliminary results suggest, however, that other determinants of the malaise are rooted even earlier in life.[4] Some of the disadvantages that Case & Deaton (2017) outline may even be partially the result of the lifelong health deficiencies we document here.

Bailey, Martha, Clay, Karen, Fishback, Price, Haines, Michael R., Kantor, Shawn, Severnini, Edson, and Wentz, Anna. U.S. County-Level Natality and Mortality Data, 1915-2007. Inter-university Consortium for Political and Social Research [distributor], (2018).

Bleakley, Hoyt, Dora L. Costa, Adriana Lleras-Muney. "Health, Education, and Income in the United States, 1820-2000." (2014): 121-160.

Case, Anne, and Angus Deaton. "Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century." *Proceedings of the National Academy of Sciences* 112, no. 49 (2015): 15078-15083.

Finch, Caleb E., and Eileen M. Crimmins. "Inflammatory exposure and historical changes in human life-spans." *Science* 305, no. 5691 (2004): 1736-1739.

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[4] Given the strong association between height, education, and socioeconomic status, as in Bleakley et al. (2014), the aforementioned trend break in child height also lends credence to an earlier origin of disadvantage for Americans born around 1950.

Hamill, Peter V. "NCHS Growth curves for children." Department of Health, Education, and Welfare, Public Health Service, National Center for Health Statistics, series 11, no. 165 (1977).

Mehta, Neil K., Leah R. Abrams, and Mikko Myrskylä. "US life expectancy stalls due to cardiovascular disease, not drug deaths." *Proceedings of the National Academy of Sciences* 117, no. 13 (2020): 6998-7000.

Moriyama, Iwao M. "Recent change in infant mortality trend." *Public Health Reports* 75, no. 5 (1960): 391.