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ECONOMIC Synopses

How the Death Rate Affects the Aging of the US Population

B. Ravikumar, Senior Vice President and Deputy Director of Research
Iris Arbogast, Senior Research Associate

In 1950, the proportion of people 65 years of age and over in the US was 8.2%. By 2019, that proportion had increased to 15.8%. In 2017, the US Census projected that by 2034 the population of people 65+ will be larger than the population of people under 18.[1] US Commerce Secretary Gina Raimondo commented that aging demographics were going to hit the country "like a ton of bricks."[2] Vespa (2018) predicts greater demand for healthcare, in-home caregiving, and assisted living facilities, as well as problems for social security.

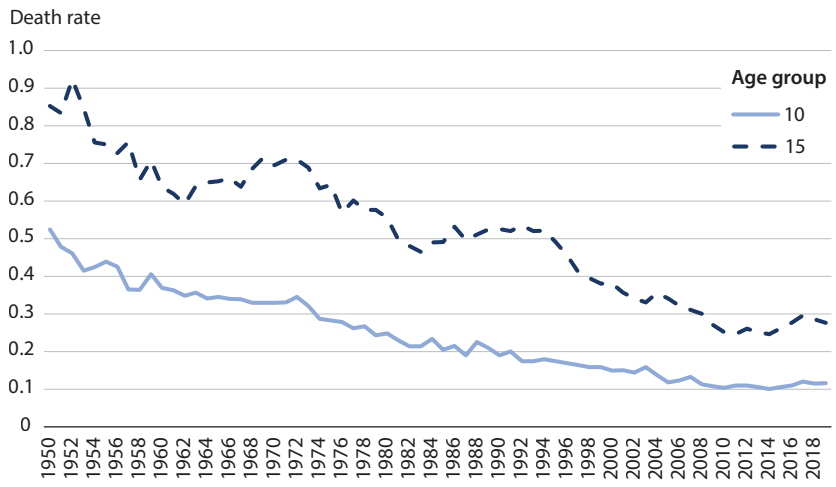
The age distribution of the population is affected by the birth rate, death rate, and net migration rate. If the inflow of immigrants exceeds the outflow, and if immigrants are on average younger than citizens, then the population would get younger. Similarly, higher birth rates imply that the population will get younger. Much of the discussion on US population aging has been on birth rates and immigration (Howard, 2019; Murray, 2021; and Williams, 2020). We focus on the effect of death rates on the increased average age of the US population.

From 1950 to 2019, the death rate, calculated as the number of people per 1,000 who die each year divided by the mid-year population, decreased for all age groups—but at different rates. It decreased from 28.6 to 12.8 for age 65 and from 42.7 to 18.2 for age 70. Over the same period, the death rate decreased only slightly from 0.5 to 0.1 for age 10 and from 0.9 to 0.3 for age 15. Figures 1 and 2 show the data.

To find the impact of these death rate changes on the US age distribution, we run two counterfactuals. First, we hold the death rate fixed at the 1950 level for ages 60-79. Second, we hold the death rate fixed at the 1950 level for ages 0-19. In these counterfactuals, if holding the death rate fixed for a specific age group does not result in a significant change in the proportion of people 65 years of age and older, then we can conclude that the decline in mortality of the specific age group did not contribute to the increased average age of the US population.

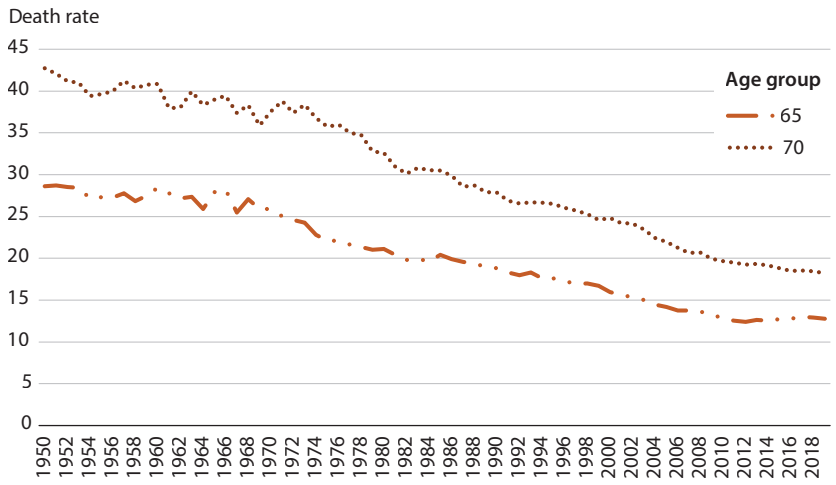
We use the United Nations World Population Prospects database from 2022 to run these counterfactual experiments. This database does not include the age distribution of migrants, so we run counterfactuals excluding net migration. However, we focus on the population 65+ for which net migration does not significantly impact the age distri-

Figure 1
Death Rates for Young Age Groups, 1950-2019



NOTE: Death rates are the number of people per 1,000 who die each year divided by the mid-year population.
SOURCE: United Nations World Population Prospects 2022 and authors' calculations.

Figure 2
Death Rates for Old Age Groups, 1950-2019



NOTE: Death rates are the number of people per 1,000 who die each year divided by the mid-year population.
SOURCE: United Nations World Population Prospects 2022 and authors' calculations.

bution. The proportion of people 65+ in 2019 is 15.8% in data with net migration and 15.9% in our calculations without net migration.

We calculate the yearly population in each age group using data from the previous year. For instance, we start with the age distribution and population in 1950. The number of people 0-years-old in 1951 is the number of births in 1950. The number of people 1-year-old in 1951 is the number of people 0-years-old in 1950 minus the number of deaths in that age group in 1950. We use the same process to calculate the number of people for those up to 100 years of age.

Next, we run the first counterfactual, holding the death rate fixed at the 1950 level for ages 60-79. Each year, we use this death rate multiplied by the population to find the number of deaths, which we use to find the population for each age in the following year, as noted above.

If death rates for older age groups had remained at 1950 levels, the proportion of people 65+ would be 3.2 percentage points less, changing from 15.9% of the population to 12.7%. Thus, part of the age distribution shift to an older population has been a result of the decrease in death rates for older people.

We run a similar counterfactual, holding the death rate fixed at the 1950 level for ages 0-19, and find that the proportion of people 65+ is almost unchanged, from 15.9% to 16.2%. The magnitude of the change for the counterfactual holding death rates fixed for older people is 10 times more than the magnitude of the change holding death rates fixed for younger people. ■

Notes

[1] Vespa, 2018.

[2] Shalal, 2021.

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