This article describes the relationship between incarceration and mortality, controlling for demographic factors known to have an impact. Several potential pathways connect the two. Individuals may be exposed to greater health risks from their living conditions while incarcerated or after they are released. On the other hand, they may be protected from risks — such as violence — that they would have otherwise faced outside of prison. Examining the relationship between incarceration and mortality contributes to our understanding of the economic prospects of individuals and families who face the risk of incarceration.

The U.S. has the world's largest prison population with an estimated 2.1 million individuals in prison at the end of 2018, according to the Institute for Crime and Justice Policy Research's 2018 World Prison Population List. The prison population rate — at 655 per 100,000 — is also the highest in the world.

In our previous article "Incarceration's Life-Long Impact on Earnings and Employment," we measured the effect of incarceration on lifetime earnings and employment prospects across demographic groups. In this article, we examine the relationship between incarceration and mortality.

While this relationship is of interest from a public health perspective, it can also contribute to our understanding of the savings behavior and financial prospects of individuals and families who face the risk of incarceration.\(^1\)

**Measuring the Impact of Incarceration on Mortality**
There are several potential pathways connecting incarceration to mortality. On one hand, individuals in jail may be exposed to risks such as infectious diseases. After they are released, they could find themselves in living conditions that negatively impact their physical and mental health. On the other hand, individuals in jail may be protected from risks that they would otherwise have faced on the outside, such as violence or drug overdose.

Isolating the effect of incarceration on mortality requires controlling for confounding factors. For example, the criminal activity that led to incarceration (such as violent crime) may adversely affect the individual's health irrespective of whether they are jailed.

We also need to consider that mortality rates differ by gender, race and educational attainment. According to the 2020 article "The Increasing Mortality Gap by Education: Differences by Race and Gender," the mortality rates in 2016 for men and women with high school degrees were 16 and 14 percentage points lower, respectively, than for those without. At the same time, the mortality rate for White men with a high school degree was 18 percentage points lower than for Black men with the same education level.

One way to control for confounding factors is to use panel data — which follows individuals over their lives — and calculate the mortality risk of those who were incarcerated over the course of the survey after controlling for demographic variables. The 2020 paper "The Consequences of Incarceration for Mortality in the United States" uses this approach and finds that incarceration is associated with a four- or five-year loss in life expectancy (a 13 percent loss) at age 45. Its findings also suggest that between 3 and 10 percent of the gap in mortality between the U.S. and a peer country (in this case, the United Kingdom) can be attributed to incarceration.

We also use panel data in this article to illustrate the relationship between demographics, incarceration and mortality. We use data from the National Longitudinal Survey of Youth that began in 1979. Respondents were between 14 and 22 when they were first surveyed in 1979. Since then, 28 rounds of the survey have been completed, with 2018 being the most recent year for which data are available.

### Mortality Differences by Race, Education and Incarceration History

Table 1 shows the fraction of individuals who died over the survey period, broken out by whether they were ever incarcerated. Except for those with less than a high school diploma, we see that those who were never incarcerated were typically less likely to have died than those who had been incarcerated, though the difference is usually not statistically significant. Within education groups, we see that mortality risk is higher for Black men than for White men.
To more precisely estimate mortality risk, we estimate survival probabilities. We begin by first showing — as others have done — that survival probabilities differ by gender and race and increase substantially with education. Regarding gender, Figure 1 shows that survival rates are higher for women than men and for White individuals than Black.
Regarding education, Figure 2 shows as an example that the probability of White men surviving to age 55 is 93 percent for those with less than a high school education, compared to 98.5 percent for those with a college degree.

![Figure 2: Survival Probability by Education for White Men](image)

Putting race and education together, the survival probability for White men is higher than for Black men at comparable levels of education, as seen in Table 2. Black men who have completed high school face similar survival probabilities to White men with less than a high school education.

| Table 2: Survival Probabilities for Men by Age, Race and Educational Attainment |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                                | Black Men       | White Men       |                                |                  |                  |                  |                  |                  |
|                                | LTHS | High School | Some College | College Graduate | LTHS | High School | Some College | College Graduate |
| Age 35                        | 0.9935 |0.9967 | 0.9975 | 0.9966 | 0.9958 |0.9985 | 0.9980 | 0.9991 |
| Age 45                        | 0.9860 |0.9874 | 0.9925 | 0.9928 | 0.9878 |0.9948 | 0.9964 | 0.9985 |
| Age 55                        | 0.9362 |0.9642 | 0.9669 | 0.9811 | 0.9303 |0.9546 | 0.9585 | 0.9847 |

Source: Author’s calculations using the National Longitudinal Survey of Youth that began in 1979 (NLSY79).
Note: LTHS=Less than High School.
Finally, we examine the role of incarceration on survival. In our article "Incarceration's Life-Long Impact on Earnings and Employment" from earlier this year, we showed that incarceration rates vary greatly by gender, race and educational level. The rates decrease with education, and men are far more likely to be incarcerated than women. Up to two-thirds of Black men with less than a high school degree are incarcerated at least once in their lifetime.

How does having been incarcerated affect mortality risk? We focus on less-educated men — for whom the risk of incarceration is highest — to address this question, and Figure 3 provides the answer.

For White men with less than a high school diploma, those who are incarcerated at least once in their lives have a higher survival probability than those who are never incarcerated. The pattern is reversed for Black men with a high school diploma, though the difference is not statistically significant.

**Why Incarceration May Imply Higher Survival Rates**
What can explain the perhaps surprising finding that those who were ever incarcerated may sometimes have higher survival rates? The 2021 working paper "The Effect of Incarceration on Mortality" suggests that this reflects the high-risk environment faced by these individuals when they are not incarcerated.

The research uses administrative data from Ohio to compare mortality risk across incarcerated and non-incarcerated individuals before and after their scheduled release. They find that mortality risk is reduced while the individuals are incarcerated but not after they are released. Thus, the increase in survival of the ever-incarcerated results from the fact that they face reduced risks (particularly in murders, overdoses and natural causes of death) while they are in prison.

**Conclusion**

How long a person will live is an essential determinant of many life choices and lifetime outcomes, especially savings rates, wealth building and bequests. In this brief, we've shown that survival rates differ dramatically by race, gender, education and incarceration status. Being White, male or more educated is associated with higher survival. This means higher income groups have more years to accumulate earnings, a greater incentive to build wealth in preparation for a long retirement and a greater capacity for leaving bequests.

For incarceration, the findings were more nuanced. Surprisingly, incarceration tends to have either a positive effect on longevity or an effect that is not statistically significant. We highlighted other research which also suggests a positive effect obtained only while actively incarcerated. In ongoing research with economists John Bailey Jones and Kartik Athreya, we are exploring the importance of these differential mortality patterns in explaining large and persistent wealth gaps observed in the data.

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1. A strand of the consumption-savings literature focuses on the effect of mortality risk in general on savings behavior. For example, see the 2009 paper *"Life Expectancy and Old Age Savings"* by Mariacristina De Nardi, Eric French and John Bailey Jones.

2. Our estimates are "non-parametric," which means that we need not assume that the survival function follows any particular distribution.