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CENTER for RETIREMENT RESEARCH at BOSTON COLLEGE

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DOES A UNIFORM RETIREMENT AGE MAKE SENSE?

By Geoffrey T. Sanzenbacher, Anthony Webb, Natalia S. Orlova, and Candace M. Cosgrove*

Introduction

In the face of rising life expectancies, many policy experts argue that today's workers can retire later and still spend the same fraction of their lives in retirement as past generations. But such an argument assumes that all workers, regardless of socioeconomic status (SES), have experienced the same increase in life expectancy. In fact, evidence suggests that life expectancies for low-SES individuals have been improving more slowly than for high-SES individuals in recent decades, causing the life expectancy gap to grow.[1]

This *brief,* based on a recent study, builds on prior research by estimating trends in mortality (the flip side of life expectancy) from 1979-2011 by education, a common measure of SES.[2] These estimates are then used to see how much longer each educational group can work today if the goal is to maintain the same ratio of retirement years to working years as existed in 1979.

The discussion is organized as follows. The first section describes the data and methodology used in the analysis. The second section presents the results. The final section concludes that, due to growing mortality inequality, policies aimed at extending worklives uniformly may not be fair to low-SES individuals.

Data and Methodology

The analysis uses the *National Longitudinal Mortality Study* (NLMS) to estimate the increase in mortality inequality between 1979 and 2011. The NLMS consists of individual-level observations from the *Current Population Survey* (CPS) matched to data from death certificates obtained from the National Center for Health Statistics. For each individual, demographic and socioeconomic characteristics are obtained at the time of their CPS interview. Individuals are then followed from their CPS interview through 2011 and, if they die, additional information on date, cause, and location of death are collected from death certificates. The sample used in this study consists of individuals ages 25 or older in their sample year and includes 1.5 million observations.[3]

The study defines education by quartiles of educational attainment. Assigning individuals to any one quartile can be difficult. For example, individuals with exactly 12 years of education represent roughly the 40th to 60th percentiles of the education distribution and could be assigned to either the second quartile (25th to 50th percentile) or the third quartile (50th to 75th percentile). To address this problem, a regression-based approach assigns people to a quartile based on

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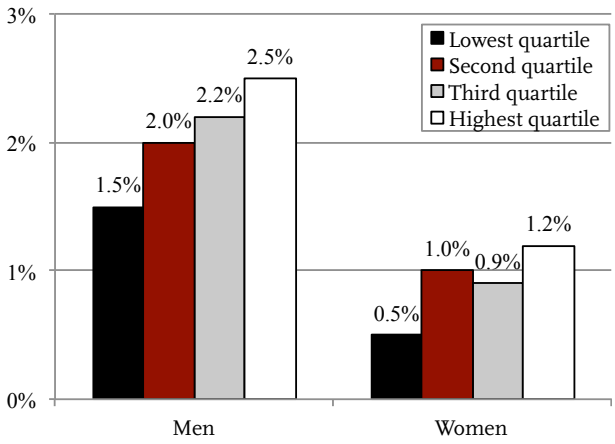
characteristics that are correlated with education level in the overall population (e.g., earnings, industry of employment, race, and family income).[4]

To estimate how mortality has changed over time across the education quartiles, the analysis adopts two assumptions. The first is that mortality increases exponentially with age. This assumption is based on research going back almost two hundred years and is true until advanced ages.[5] The second assumption is that, within each gender and SES group, all ages experience the same annual percentage changes in their mortality rates.[6] These two assumptions make it possible to estimate regressions to find out how much, on average, mortality has improved by SES over the last three decades.

Results

Figure 1 shows the regression results and illustrates two facts. First, the expected pattern of growing mortality inequality by SES exists: the least educated men and women saw improvements from 1979-2011 of 1.5 percent and 0.5 percent per year, respectively, compared to 2.5 percent and 1.2 percent per year for the most educated. Second, mortality has improved more for men than for women.[7]

Figure 1. Average Annual Improvement in Mortality, by Gender and Education, 1979-2011



Source: Authors' calculations using restricted *National Longitudinal Mortality Study* (NLMS) data provided by the U.S. Census Bureau (1979-2011).

Mortality improvements directly translate to higher life expectancies. Table 1 shows so-called "period" life expectancies for each gender and educational quartile at two points in time, 1979 and 2011, conditional on surviving until 65.[8] From 1979-2011, life expectancy increased by 4.0 years for the least-educated men and 6.1 years for the most-educated men. For women, the gains were lower but similarly spread, at 1.4 and 3.2 additional years respectively.

Table 1. Period Life Expectancies Conditional on Surviving to 65, by Gender and Education

	1979 cohort	2011 cohort	Difference
Men			
Lowest quartile	77.5	81.5	4.0
Second quartile	77.7	82.8	5.1
Third quartile	77.8	83.3	5.5
Highest quartile	78.9	85.0	6.1
Women			
Lowest quartile	82.3	83.7	1.4
Second quartile	82.6	85.3	2.7
Third quartile	82.9	85.2	2.3
Highest quartile	83.4	86.6	3.2

Source: Authors' calculations using restricted NLMS data provided by the U.S. Census Bureau (1979-2011).

The goal is to show how this growing gap in life expectancy has impacted inequality in the length of time that individuals spend in retirement relative to working. The first step is to determine the ratio of retirement years to working years in 1979. For simplicity, all individuals are assumed to start working at 22 and retire at 65. Then, for example, the lowest quartile males would spend 43 years working (65-22) and 12.5 years in retirement (from Table 1). These men thus spend 0.29 years in retirement for each year working (12.5/43) (see Table 2 on the next page). Due to the existing mortality gap in 1979, these ratios are higher for the more educated; for example, the highest educated males had a ratio of 0.32 in 1979. With these results, the next step is to calculate the age to which individuals in each cohort could work in 2011 to achieve the same ratio. Using this ratio as the target maintains, but does not exacerbate, any inequality that existed in 1979.

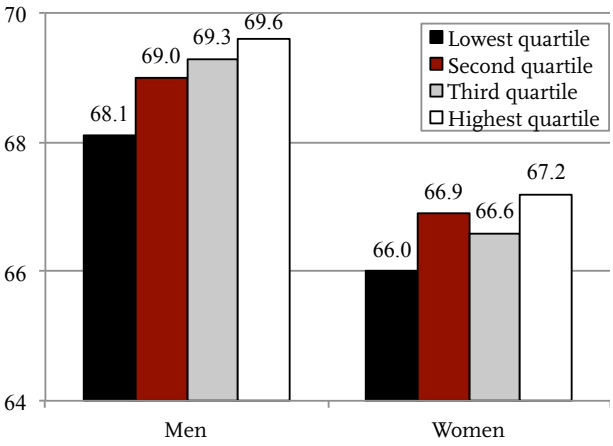
Table 2. Ratio of Retirement to Work Years for Individuals Who Retired in 1979, by Gender and Education

	Ratio of retirement years to work years
Men	
Lowest quartile	0.29
Second quartile	0.30
Third quartile	0.30
Highest quartile	0.32
Women	
Lowest quartile	0.40
Second quartile	0.41
Third quartile	0.42
Highest quartile	0.43

Source: Authors' calculations using restricted NLMS data provided by the U.S. Census Bureau (1979-2011).

Figure 2 shows the results of this calculation: the retirement age in 2011 consistent with the 1979 ratio of retirement to work years. The good news is that because all education quartiles saw mortality improvements over this period, each group *can* work longer while maintaining its 1979 ratio of retirement to work years (whether they *do* work longer depends on many factors, such as their health and job requirements.) The bad news is that since inequality has increased considerably, those in the lowest quartiles cannot work as long. For men, those in the lowest quartile can work until age 68.1 compared to 69.6 for those in the highest quartile, a gap of 1.5 years. For women, the results are similar – 66.0 for the lowest quartile compared to 67.2 for the highest quartile, a gap of 1.2 years. Furthermore, women in the lowest three quartiles would see their ratio reduced if they worked to Social Security's future "full retirement age" of 67.

Figure 2. Retirement Age in 2011 to Maintain 1979 Ratio of Retirement to Work Years, by Gender and Education



Source: Authors' calculations using restricted NLMS data provided by the U.S. Census Bureau (1979-2011).

The results in Figure 2 maintain the 1979 level of inequality. An alternative approach would ensure that all quartiles have the *same* ratio of retirement to work years in 2011. Raising the bar in this way means that the lowest quartile men can only work until 67 in 2011 – down from 68.1 in the previous calculation – while the age for the highest quartile remains unchanged at 69.6, increasing the inequality gap from 1.5 years to 2.6 years.[9]

Conclusion

While mortality inequality is increasing, this analysis suggests that workers in all SES groups are likely to live longer today than in the past. As a result, assuming people maintain their health, they can work longer while still spending similar proportions of time working and in retirement as those who retired 30 years earlier. Still, policies seeking to extend worklives that treat all workers the same will tend to cut into the retirement of low-SES workers more than high-SES workers. As a result, policymakers seeking to encourage working longer should be cautious about the potential effects that such policies could have on inequality.

Endnotes

1 The existence of a mortality gap has been documented back to the 17th century (Antonovsky 1967). For research indicating a growing gap in recent decades, see National Academy of Sciences (2015), Bound et al. (2014), and Waldron (2007). For detailed calculations of mortality disparities by SES as measured by education and race/ethnicity, see Brown, Leibman, and Pollet (2002).

2 For the full study, see Sanzenbacher et al. (2015).

3 Individuals under age 25 at the time of their CPS interview were excluded because they may not have finished their education yet.

4 For more details, see Sanzenbacher et al. (2015).

5 For example, see Gompertz (1825).

6 This assumption is adopted to simplify the analysis. In reality, mortality rates have tended to improve somewhat faster at younger ages and slower at older ages.

7 This pattern has also been found by others. For example, the U.S. Social Security Administration (2015) has estimated that male mortality improved by an annual average of 1.3 percent between 1982 and 2011 and female mortality by 0.6 percent. Our results suggest a similar improvement of 0.7 percent for women (averaging across the four quartiles), but a larger 2.0-percent average gain for men. For this reason, and because most analysts do not expect male mortality to continue declining at a faster rate than female mortality, our calculations on retirement age will not project these estimates into the future.

8 Period life expectancies assume no further improvements in mortality. For example, an individual who reaches 65 in 2011 and who will be 66 in 2012 will then face the same mortality risk as a 66 year old in 2011. When 67 in 2013, he will face the same mortality risk as a 67 year old did in 2011, etc. The period approach is used in this study to avoid projecting mortality improvements decades into the future based on just 30 years of data. Doing so may exaggerate any increased inequality to the extent the trends described here lessen in the future. Thus, the calculations presented here can be viewed as a conservative estimate of rising inequality. Indeed, recent evidence suggests mortality improvements have slowed since 2011, making the period approach more appropriate (see Ma et al., 2015).

9 The highest quartile remains unchanged because it is used as the benchmark for all quartiles.

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