HOW WIDESPREAD UNEMPLOYMENT MIGHT AFFECT RETIREMENT SECURITY

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Introduction

The National Retirement Risk Index (NRRI) measures the share of working-age households that are at risk of being unable to maintain their pre-retirement standard of living. The NRRI, which is constructed by comparing households' projected replacement rates – retirement income as a percentage of pre-retirement income – with target rates, has recently shown about half are at risk.

The NRRI was originally constructed using the Federal Reserve's 2004 *Survey of Consumer Finances* (SCF). The SCF is a triennial survey of a nationally representative sample of U.S. households' assets, liabilities, and demographic characteristics. The NRRI has been updated periodically to reflect data from the 2007, 2010, 2013, and 2016 surveys. We were eagerly awaiting the release of the 2019 SCF this fall to reassess Americans' retirement preparedness.

The problem is that the 2019 SCF will reflect a world that no longer exists. Between those interviews and now, the country has been levelled by the COVID-19 pandemic. Hence, the most pressing question at the moment is how retirement security has been affected by the virus and the shutdown of the economy. This crisis will affect retirement security in a very different way than the Great Recession because the destruction is occurring more through widespread unemployment and less through a collapse in the value of financial assets and housing.

The discussion proceeds as follows. The first section reviews the nuts and bolts of constructing the NRRI. The second section discusses how we have adapted existing research to estimate the impact of unemployment on earnings and retirement preparedness. The third section reports the results, showing that the pandemic is likely to have increased the NRRI by 5 percentage points – with a 7-percentage-point increase for older households and a 3-percentage-point increase for younger ones. The fourth section places the projected increase in context, explaining why the employment effects of this disaster appear to have less of an effect on retirement security than the Great Recession did. Even so, the final section concludes that the pandemic has worsened an already bleak outlook for retirement security.
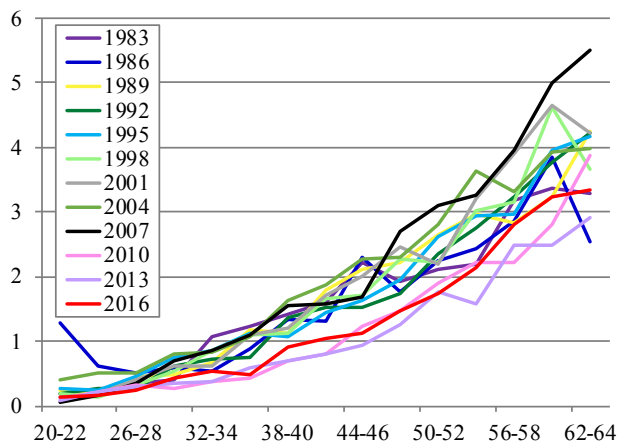
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Nuts and Bolts of the NRRI

The NRRI is designed to assess the retirement risk for households ages 30-59 based on the assumption that they seek to smooth their consumption over their lifetime. Constructing the NRRI involves three steps: 1) projecting a replacement rate – retirement income as a share of pre-retirement income – for each household; 2) constructing a target replacement rate that would allow each household to maintain its pre-retirement standard of living in retirement; and 3) comparing the projected and target replacement rates to find the percentage of households "at risk."

Retirement income at age 65, which is defined broadly to include all of the usual suspects plus housing, is derived by projecting the assets that households will hold at retirement, based on the stable relationship between age and wealth-to-income ratios evident in the 1983-2016 *Surveys of Consumer Finances* (SCFs). As shown in Figure 1, the wealth-to-income lines from each survey rest virtually on top of one another, bracketed by 2007 values on the high side and 2013 values on the low side.

Source: Authors' calculations based on U.S. Board of Governors of the Federal Reserve System, *Survey of Consumer Finances* (1983-2016).

Sources of retirement income that are not derived from SCF-reported wealth are estimated directly. For defined benefit pension income, the projections are based on the amounts reported by survey respondents who have already retired. For Social Security, benefits are calculated separately based on estimated earnings histories for each member of the household.

A calculation of projected replacement rates also requires income *prior to* retirement. The items that comprise pre-retirement income include earnings, the return on taxable financial assets, and imputed rent from housing. In essence, income in retirement equals the annuitized value of all financial and housing assets; income before retirement is simply the return on those same assets.[1] Average lifetime income then serves as the denominator for each household's replacement rate.

Determining the share of the population at risk requires comparing projected replacement rates with the appropriate target rates. Target replacement rates are estimated for different types of households assuming that households spread their income so as to have the same level of consumption in retirement as they had before they retired. Households whose projected replacement rates are more than 10 percent below the target are deemed to be at risk of having insufficient income to maintain their pre-retirement standard of living. The NRRI is simply the percentage of *all* households that fall more than 10 percent short of their target.

In 2016, the year of the most recent SCF, the overall share at risk was 50 percent (see Figure 2). The expectation was that the NRRI would improve by incorporating data from the 2019 SCF, given the
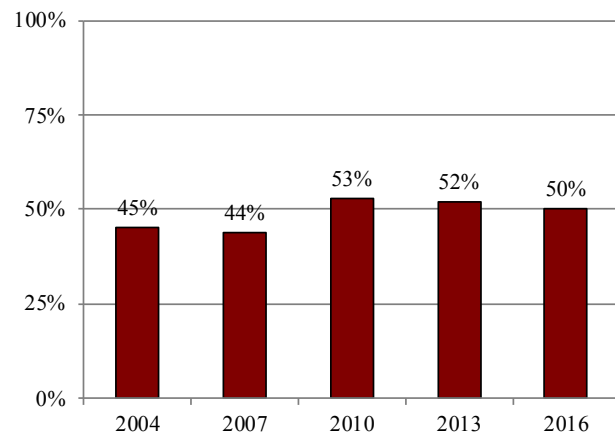
Source: Authors' calculations.

robust economy between 2016 and 2019, an extended period of stock market gains, rising house prices, and low unemployment. Instead, the country has been forced to deal with a pandemic, which has resulted in a decline in equity prices, further declines in interest rates, and widespread unemployment – the topic of this *brief*.

Incorporating Unemployment into the NRRI

The approach for incorporating unemployment into the NRRI is to use the results of an existing study that relates unemployment to earnings in subsequent years and then apply those effects to workers in the NRRI who were likely to experience a job loss.

The first question is how many workers are likely to be affected. In April 2020, the U.S. unemployment rate reached 14.7 percent, the worst since the Depression-era (see Figure 3). However, even this high number may understate actual unemployment by almost five percentage points due to technical difficulties noted in the May 8 release.[2] A roughly 20-percent unemployment rate represents an increase of 16.5 percentage points from the 3.5 percent rate reported in February 2020. Hence, one approach would be to apply an earnings response to 16.5 percent of the workforce.

FIGURE 3. UNEMPLOYMENT RATE, 1929-2020*
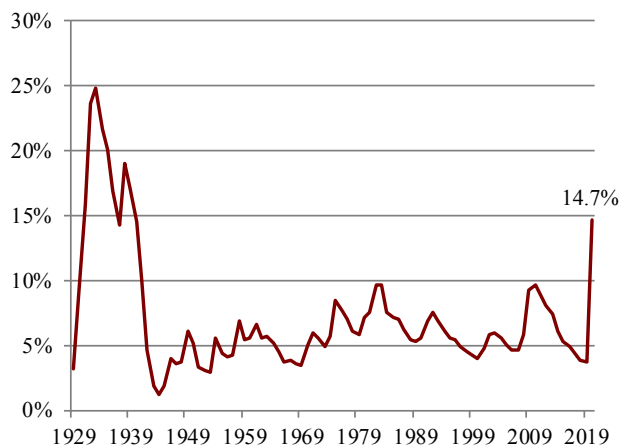
* 2020 data are through April.
Sources: U.S Bureau of Labor Statistics (1948, 2020b).

The unemployment rate, however, is only a snapshot for a given month and does not reflect the number of workers who will be affected over the next few years as a result of the shock generated by COVID-19. Data from the *Displaced Worker Survey* (DWS) suggest that the total number affected will be considerably more than those counted in the employment report for April. The DWS attempts to measure the number of workers who have lost their job through no fault of their own, such as a plant closing, a layoff, the abolition of a job or other events unrelated to the worker's performance. The advantage of this survey is that it looks at employment disruptions over the previous three years.

Figure 4 compares the three-year displacement rate to the unemployment rate over the period 1994-2018.[3] On average, the displacement rate is 1.8 times

FIGURE 4. THREE-YEAR JOB DISPLACEMENT RATE AND UNEMPLOYMENT RATE, 1994-2018
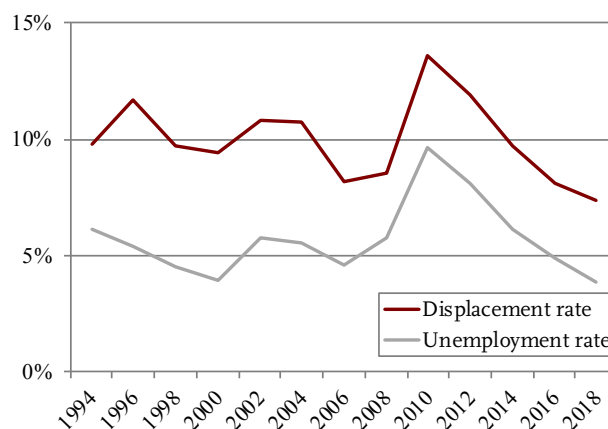
Sources: Authors' calculations from the U.S. Bureau of Labor Statistics, *Displaced Worker Survey* (1994-2018); and U.S. Bureau of Labor Statistics (2020b).
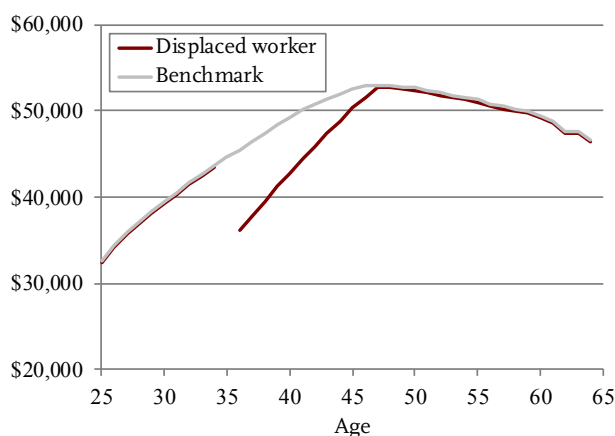
the unemployment rate. As a result, we assume that 30 percent more workers (1.8 x 16.5 percent) will experience a job loss because of the COVID-19 pandemic.

The next step is to randomly assign employment shocks to workers in the NRRI, based on the demographic characteristics – such as age, gender, race, education, and marital status – of those who became

unemployed in April.[4] It would have been nice to also match workers by industry, but detailed industry codes are not available in the public version of the SCF.

The final step is to project how a job loss reduces the future earnings of each impacted worker. The estimates come from a 2013 study that follows workers over time and estimates the relationship between unemployment and workers' earnings trajectories.[5] The equation relates wages in subsequent periods to whether the worker suffered a spell of unemployment and the number of years since that spell, controlling for age, gender, education, and homeownership. The results show that unemployment initially reduces wages by 31 percent, after which wages return slowly to their former trajectory (see Figure 5).[6]

Impact of Widespread Unemployment on the NRRI

Widespread unemployment would increase the NRRI from 50.2 percent to 54.9 percent of all working-age households, resulting in an additional 4.7 percent of households at risk in retirement. Of course, the results for the 30 percent of households that experience the job loss are much more dramatic. The NRRI for this group increases from 54.4 percent to 75.4 percent, a 21-percentage-point jump (see Figure 6).

FIGURE 6. NRRI BEFORE/AFTER EMPLOYMENT SHOCK

Source: Authors' calculations.

FIGURE 5. PROJECTED IMPACT OF UNEMPLOYMENT ON FUTURE EARNINGS, FOR A JOB LOSS AT AGE 35

Source: Authors' calculations using typical wage profile and regression coefficients in Cooper (2013).
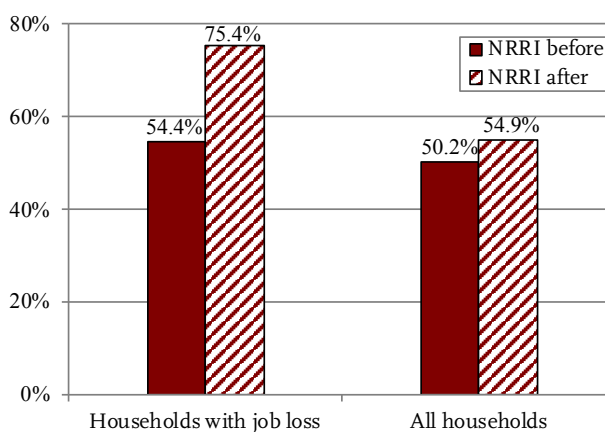
A closer look by income groups and age shows some interesting patterns. In 2020, low-income households have a greater chance of losing their job than those in the upper two groups, but their NRRI does not increase proportionately (see Table 1). In

These impacts are then incorporated into the NRRI. Assuming the workers who experience lower earnings would like to maintain their current standard of living, by definition they would have to save less in retirement accounts or other types of assets such as home equity.[7] Therefore, we make two adjustments to recalculate their NRRI. The first involves translating lost earnings to less accumulated wealth at retirement and, hence, less annuitized retirement income. The second involves recalculating their benefits from Social Security and defined benefit plans to reflect lower projected lifetime earnings.

TABLE 1. NRRI BY INCOME, BEFORE/AFTER EMPLOYMENT SHOCK

Income	Before	After	Percentage-point change
Low	56.0%	60.4%	4.4%
Middle	54.3	59.7	5.4
High	40.6	44.7	4.1
All	50.2%	54.9%	4.7%

Source: Authors' calculations.

fact, the percentage-point increase across the three income groups is relatively flat. One reason for this pattern is the progressivity of the Social Security benefit formula. Reduced lifetime earnings due to the employment shock increase the Social Security replacement rates for the unemployed in all income groups, but this effect is particularly important for the bottom third, which relies almost entirely on Social Security for retirement income.

Younger households have shorter tenure in the labor force and, thus, face higher risk of unemployment as well, but the impact on their NRRI is relatively small for two reasons. First, 56 percent of households ages 30-39 were already at risk before the spike in unemployment (see Table 2), compared to only

Table 2. NRRI by Age, Before/After Employment Shock

Ages	Before	After	Percentage-point change
30-39	55.9%	59.0%	3.1%
40-49	51.7	55.3	3.6
50-59	44.2	51.0	6.8
All	50.2%	54.9%	4.7%

Source: Authors' calculations.

44 percent for households ages 50-59, which means many of those affected by unemployment may already have been classified as at risk. Second, younger households have a longer time to recover from the

shock compared to older households, who experience a tremendous earnings loss near their career peak and have less time before retirement to make up the loss.

The Results in Perspective

While the results of this exercise appear to be internally consistent, the increment in the NRRI seems modest for the most calamitous economic event since the Great Depression. This concern is heightened by comparing the increment in the percentage at risk from the Great Recession to the increment from today's mass unemployment. Over the period 2007-2010, the NRRI increased by 9 percentage points compared to only 5 percentage points as a result of the 2020 employment shock (see Table 3).

Several factors are at play here. First, the current exercise focuses only on employment and does not consider changes in asset prices. Even though the stock market has largely recovered from its 35-percent decline earlier this year, it is still below previous highs and remains very volatile. And although housing prices have not received any attention so far, they may decline in the future, as homeowners under enormous financial pressure due to a job loss are forced to sell. Second, this exercise also does not account for the further decline in already-low interest rates, which reduces the annuity income that households can receive from their accumulated assets.

Finally, the pattern of increase in the NRRI across income groups helps clarify what is happening here. In the 2007-2010 period, the biggest effect was the decline in the prices of financial assets and housing. As a result, the households most hurt were those that held these assets, so the biggest percentage-point increases were among the top two-thirds of the income

Table 3. Increase in NRRI, 2007-2010 and 2016-Employment Shock

Income group	2007	2010	Percentage-point increase (2007-2010)	2016	Employment shock	Percentage-point increase (2016-shock)
Low	53.7%	61.1%	7.4%	56.0%	60.4%	4.4%
Middle	42.9	54.0	11.1	54.3	59.7	5.4
High	34.9	43.9	9.0	40.6	44.7	4.1
All	43.7%	52.9%	9.2%	50.2%	54.9%	4.7%

Source: Authors' calculations.

distribution. As noted, this time around – taking assets out of the equation – the increase in the NRRI is flat across income groups.

The most important point, however, is that the change in the NRRI does not fully capture the harm done to households. Consider the case of low-income households; before the pandemic, 56 percent of these households were at risk. If all of the increase in unemployment occurred among those *already* in the at-risk group, the NRRI would not increase at all. But this group would still be worse off than before, as they would face a deeper shortfall in their retirement savings. Thus, to get a fuller picture of the harm done by the increase in unemployment, Table 4 shows the percentage increase in the "savings gap" relative to income, by income group. The savings gap is the dollar difference between what households with a shortfall have actually saved up to a given year and what they *should have* saved up to that year in order to maintain their living standards in retirement. The pattern, as one might expect, reveals a greater increase in the savings gap for the bottom third than for the top two-thirds.

TABLE 4. SAVINGS GAP TO INCOME, BY INCOME GROUP, BEFORE/AFTER EMPLOYMENT SHOCK

Income	Before	After	Percentage-point change
Low	19.7%	24.2%	4.5%
Middle	14.4	18.1	3.7
High	15.4	18.3	2.9
All	16.7%	20.4%	3.7%

Source: Authors' calculations.

The bottom line is that the NRRI results in perspective look reasonable. The NRRI would be higher if changes in asset values and the interest rate were taken into account. And looking at the savings gap, instead of the change in the NRRI itself, confirms that the income group most hurt is the bottom third.

Conclusion

Ensuring retirement security for an aging population was one of the most compelling challenges facing the nation before the onslaught of COVID-19. The unemployment associated with the pandemic has made the situation worse across the board. The NRRI has most likely increased from 50 percent to 55 percent, and changes in asset prices and further declines in the interest rate would only make the increase larger. Finally, the NRRI does not fully capture the harm done to a population with so many households already at risk, as the pandemic has made the savings gap larger.

These results underscore the need for policies that provide well-targeted assistance to employers and individuals aimed at preventing more people from becoming unemployed and getting those who are unemployed back to work quickly as the pandemic subsides. The shorter the spell of unemployment, the less harm people will experience to their long-term retirement prospects.

Endnotes

1 For the measures of retirement income and pre-retirement income, both mortgage debt and non-mortgage debt are subtracted from the appropriate income components.

2 U.S. Bureau of Labor Statistics (2020a).

3 This figure is generated based on the method in Farber (2015).

4 For married couples, the assignment of employment shocks also takes into account whether the couple consists of one earner or two earners.

5 Cooper (2013).

6 Other studies have found similar effects in terms of initial wage reduction and the longer-term impact on future earnings. For example, see Couch and Placzek (2010) and von Wachter, Song, and Manchester (2009).

7 Previous research suggests that consumers do not significantly alter their consumption behavior in response to income shocks caused by unemployment. For example, see Koc (2015). Carroll et al. (2019) also show evidence on consumption "habits," from a macroeconomic point of view.

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