

Household borrowing and shocks to retirement benefits

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Introduction

Individuals participating in the workforce face a complex trade-off between either consuming more now and working longer until retirement, or saving more now and being able to retire earlier. This trade-off is clearly manifested when an individual receives a shock to her total wealth. Consider a worker who wins a modest lottery prize of \$20,000. The worker could spend the lottery winnings over the next few years and continue to work until she had previously planned. Alternatively, she could save that money in a retirement account and retire sooner than she had otherwise planned. Finally, she could pursue a mixture of the previous two strategies by consuming a little more while also retiring a little sooner.

This project examines how workers respond to a different version of the scenario described above. What happens when a worker suffers a decrease in total wealth? One context in which this can occur is through changes to benefit levels in a retirement plan. Aubry et al. (2018) find that the funding ratios of public sector defined benefit plans have demonstrated a steady decline over the past 15 years. Unfortunately, this isn't just a pattern in the public sector. Leibowitz and Ilmanen (2016) document a similar trend in the funding ratios of corporate defined benefits plans from the Milliman Top 100. The degree of underfunding in these plans can create uncertainty regarding future retirement income levels. This is exemplified, for example, by recent pension reform enacted in Kentucky under Senate Bill 151, signed into law on April 10, 2018 (Park (2018)). Impacted public school employees experienced a reduction in their expected lifetime wealth from the changes to their retirement benefits. As more employers and politicians have to decide whether to reduce pension benefits due to funding costs, it is important to understand how employees affected by such a wealth shock will respond.

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This project examines a similar example of wealth reduction from pension reform to see how affected workers responded along two dimensions—how long they worked until retiring and how much consumer credit they used. Other studies have also examined how a change in wealth affects a person's retirement and saving/borrowing decisions. However, they generally use the arrival of a sudden cash windfall such as a lottery win (Imbens et al. (2001), Cesarini et al. (2017)) or the receipt of an inheritance (Brown et al. (2010)). A worker may respond differently to a sudden change in current wealth that she can readily spend than to a change in the expected future wealth that she will receive in retirement.

To study how a change in future expected wealth affects a worker's retirement and borrowing choices, I focus on a 2005 Texas pension reform act. In May 2005, the Texas State Legislature passed State Bill (SB) 1691. In effect, the bill reduced future benefits for current employees in the public school system in two ways. First, the bill extended from three years to five years the period over which an employee's average salary is computed. Average salary is used to determine monthly retirement benefits. Given that wages typically increase over time, this extension results in a decreased expected retirement benefit. Second, the law eliminates an employee's ability to receive a subsidized early retirement. Instead, employees retiring prior to age 60 face a significant reduction in their benefits. If a teacher faces any risk of exiting the labor market prior to the full vesting of retirement benefits, this second change also leads to a decrease in expected retirement benefits. In sum, these modifications reduced expected retirement benefits for an employee who keeps her retirement date unchanged. At the same time, SB 1691 did not impact existing salaries or the likelihood of being fired.

Importantly, the pension reform act “grandfathered” some existing employees so that no changes were made to their benefits. More precisely, a worker qualified for the grandfather provision if she met either of the following criteria: 1) she was at least 50 years old as of August 31, 2005, or 2) her age and years of service as of August 31, 2005, summed to at least 70 years. The strategy used to study how workers respond to the

reduction in benefits involves comparing individuals who barely qualified for the grandfather provision to those who narrowly missed qualifying for the provision.

I find that workers respond in two ways to the reduction in expected wealth resulting from the pension reform. First, a worker who had her retirement benefits reduced responds by delaying her retirement by approximately three months. This change is easily illustrated in Figure 1. To generate the figure, I first estimate how close (in years) each worker is to meeting the criteria necessary for the grandfather provision. This distance is referred to as the *Running Variable*, where a positive number indicates that a person qualifies for the grandfather provision. I then group workers based on the *Running Variable* and plot the average time until retirement (measured relative to May 2005) for each group of people.

Two trends emerge from the figure. First, the average years of remaining service for a worker generally decreases with *Running Variable*. This result is unsurprising as a more negative value of *Running Variable* corresponds to a worker that is either younger, has worked fewer years, or both. More importantly, the figure shows an increase in remaining years of service for a worker who slightly misses qualifying for the grandfather provision (left side of the dashed vertical line) compared to an individual who just meets the grandfather requirements (right side of the dashed vertical line). This suggests that an individual extends her time to retirement when experiencing a reduction in expected future wealth.

Next, I examine the effect of the retirement benefit reduction on the amount of credit a worker uses. Figure 2 performs a similar exercise to the previous figure, except now the outcome is the change in a person's total outstanding debt balance. More precisely, I focus on the change in balances from the month prior to the passage of the law (April 2005) relative to 18 months later (October 2006). Perhaps a little counterintuitive, the figure shows that for those workers narrowly missing the criteria for the grandfather provision (left side of the dashed line), outstanding debt increases more than among those people who retained their original

retirement benefits. When estimating the precise effect, I find that a worker responds to the reduction in retirement benefits by increasing her outstanding debt balances by roughly \$1,600.

This second response is almost exclusively due to an increase in auto-related debt and installment loans. These specific types of credit may represent an increase in the consumption of durable goods. One possible explanation for this second response is that an individual has a different pattern of consumption while in the workforce than during retirement since leisure time is much scarcer while still participating in the workforce. An individual may make up for the delayed leisure of

retirement by spending more on durable goods. Thus, if a worker decides to delay retirement, she may also continue to spend more on costly options that are convenient while still working.

Taken together, these results should be taken into consideration when debating reforms to Social Security or defined benefit pension plans. While workers are likely to offset a reduction in benefits by working longer, the associated increase in debt-financed consumption may lead to even lower consumption for an individual when reaching her new retirement age.

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About the author

Jordan Nickerson graduated in 2014 and accepted a position at Boston College as an Assistant Professor of Finance. Dr. Nickerson's research is empirical and covers a wide range of topics, including research in structured finance products, corporate finance, and household finance. His research generally makes use of unique settings, such as public school teachers, to study the behavior of households and firms. His research has been published in leading peer-reviewed journals, including the *Review of Financial Studies*, *Journal of Financial Economics*, and the *Journal of Financial and Quantitative Analysis*.

Nickerson earned both his bachelor's degree in mathematics and Ph.D. in Finance from the University of Texas in Austin.