FORCED RETIREMENT RISK AND PORTFOLIO CHOICE

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HIGHLIGHTS

• Older Americans and Canadians face a significant risk of being forced to retire before their planned retirement ages. On average, every year, 4 percent of older American employees are forced to retire; 10 percent of older Canadian employees experience involuntary job separations.

• The chance of forced retirement is higher after downturns in the stock market, as witnessed during the Great Recession in 2008-2009 and once again during the current coronavirus crisis.

• The optimal portfolio adjustment in late life, under the forced retirement risk, is to have a relatively conservative portfolio before retirement and increase the share of risky assets after retirement. This is the opposite of conventional wisdom that suggests reducing the share of risky assets as individuals get older and enter retirement.

RESEARCH QUESTION AND CONTEXT

Conventional wisdom on late-in-life portfolio management is to reduce the share of risky assets as one gets older and enters retirement. Most financial advisers provide suggestions to retail clients based on this conventional wisdom; Target-dated funds, which are becoming a standard default option in defined-contribution pensions, are also designed based on the same idea. Whether this is indeed an optimal reallocation strategy or not depends on the size and the nature of the labor market risk older workers face. The current consensus in the literature on this issue is that older workers do not face much labor market risk. If that is true, it makes their human capital a good substitute for risk-free assets, and hence holding a less conservative portfolio while working than in retirement is deemed optimal.

The literature, however, overlooked a crucial source of labor market risk among older workers. In estimating the labor market risk of older workers, the existing studies focus only on the volatility in earnings they face before their retirement. By construction, those studies cannot capture a significant labor market risk for older workers that takes the form of uncertainty in the timing of retirement. In this project, we find that many older workers in the U.S. and Canada face the risk of being forced into retirement well before their planned retirement ages. Furthermore, the risk of forced retirement increases after downturns in the stock market, further amplifying the implication of the risk on the optimal portfolio choice of households. We re-examine the optimal portfolio adjustment strategy in late life, taking into account the forced retirement risk.

OVERVIEW OF THE CURRENT STATE OF THE PROJECT

This project is composed of two parts: Part 1 based on the U.S. data and Part 2 based on the Canadian data. A complete working paper from Part 1 is revised and resubmitted to the Journal of Empirical Finance (impact factor: 1.244). We have recently started working on Part 2. In this industry report and the executive summary, we focus on the main findings from Part 1 and their implications. We will also describe some preliminary findings from Part 2.

KEY FINDINGS FROM THE U.S. DATA

1. Forced Retirement Risk in the U.S.

We use the Health and Retirement Study (HRS) data to estimate the forced retirement risk among older individuals in the U.S. The HRS sample represents the older population in the U.S (age 50 and above).

The HRS survey asks the retired respondents the self-assessed reason for retirement. This allows us to identify whether the retirement was voluntary or involuntary. Using this information, we estimate that about a quarter of total retirements between 1996 and 2012 turn out to be involuntary. About half of forced retirements are due to health-related issues while the others are due to non-health-related issues, including employer decisions.

We then estimate the size of forced retirement risk, defined as the share of the forced retirees among those who wanted to continue working. Figure 1 presents the results by age group and year. On average, the forced retirement risk is not small. For example, workers in the age group 60-64 who want to continue working face, on average, a 3-4 percent chance of being forced to retire every year. The figure also shows that the size of the risk varies across age groups and years.

Figure 1: Forced Retirement Risk

Note: This figure presents the probability of being forced to retire by age group and year. We sort our sample into three age groups: 55-59, 60-64, and 65-69. The probability of forced retirement is defined as the share of the forced retirees among those who wanted to continue working. The yellows bars indicate years right after stock market crashes: 2003 after the burst of the dot-com bubble and 2009 after the Great Recession.
To understand how forced retirement risk affects the optimal portfolio choice, we need to investigate the correlation between the estimated forced retirement risk and stock returns. Intuitively, when workers face a higher chance of forced retirement during downturns of the stock market, their labor income does not provide a good hedge for the stock market risks. In Figure 2, we present the scatter plot between the size of forced retirement each year and for each age group and the return on the S&P 500 in the previous year. Notwithstanding the small number of observations due to the data limit, it clearly indicates the negative correlation between the two. When the market goes down, which is often accompanied by a recession, it becomes more likely that older workers get forced into retirement. This correlation implies that human capital is not a good hedge against negative asset returns. Forced retirement risk and its correlation with stock returns indeed make human capital stock-like, which has an important implication for the optimal portfolio adjustment strategy in late life.

Figure 2: Forced Retirement Risk and S&P Returns

Note: This figure presents the scatter plots together with the fitted lines from univariate linear regressions of forced retirement risk on lagged S&P 500 annual returns for the age groups 55-59, 60-64, and 65-69.
2. Optimal portfolio adjustment under forced retirement risk

A common rationale for conventional wisdom—that older households should decrease the share of risky assets as they get older and enter retirement—is that human capital is a good hedge for negative returns on assets. A standard life-cycle portfolio choice model that does not account for the forced retirement risk supports the conventional wisdom. Figure 3 plots the simulated age profile of the optimal stock share generated from such a model. It shows that the optimal stock share is monotonically decreasing until the planned retirement age (65 in this case).

Figure 3: Life-Cycle Stock-Share Profile without Forced Retirement Risk

Note: The profile is constructed as the average of 10,000 simulations from the life-cycle model that does not account for the forced retirement risk.
When we incorporate the forced retirement risk estimated from the HRS data into the same model, we obtain the opposite result. Figure 4 plots the age profile of the optimal stock share. The blue curve is the average of the cases where individuals in the simulation are not forced into retirement until the planned retirement age (65). The red curve is that of the cases where individuals are forced into retirement at age 60, five years earlier than the planned retirement age. The figure clearly shows that the optimal stock share increases with age. The gap between the two curves at age 60 indicates that those who enter the retirement should increase the share of risky assets. The difference between Figures 3 and 4 demonstrates the importance of taking into account the forced retirement risk in designing the optimal portfolio strategy for older households.

**Figure 4: Life-Cycle Stock-Share Profile with Forced Retirement Risk**

*Note:* The profile is constructed as the average of 10,000 simulations from the life-cycle model that incorporates the forced retirement risk. The figure suggests that the optimal portfolio for those still working at age 56 is a very conservative one, with the stock share lower than 30 percent. In contrast, the optimal stock share for those who are retired at age 65 goes up to 45 percent. Also, at age 60, those who are retired (red curve) should have 10 percentage points higher stock share than those who are still working (blue curve).
3. Implications of the Key Findings

The main findings from this project reveal that the common advice from financial advisors regarding late-in-life portfolio adjustment, as well as the design of target-dated funds, are based on invalid assumptions. A key premise behind conventional wisdom is that older workers do not face much labor income risk that is correlated with stock returns. Our findings suggest that that is not true, once we take into account the forced retirement risk. Financial advice, and target-dated funds, should acknowledge significant labor market risk faced by older workers and hence suggest a relatively more conservative portfolio before retirement than after retirement.

PRELIMINARY RESULTS FROM THE CANADIAN DATA

1. Dataset Used

For the analysis of the Canadian economy, we use the Public Use Microdata File (PUMF) of the Labour Force Survey (LFS). LFS is a monthly cross-sectional survey. Though the survey does not have questions on whether a reported retirement was voluntary or not, it has information on the reasons for separation from the previous job. Given that an involuntary job loss in late life is very likely to end up transitioning into retirement or at least a large reduction in the permanent income (Chan and Stevens, 2001, 2004), the risk of involuntary job loss we measure from the LFS should be very close, in its nature, to the risk of forced retirement we measure from the Health and Retirement Study (HRS) data in the U.S.

For the current analysis, we use waves from 2001 to 2019. One critical advantage of the PUMF of the LFS is that recent data become available relatively quickly (with only about a couple of months of delay, compared to the HRS that becomes available with about a couple of years of delay). In a couple of months, we should be able to measure the impact of the COVID 19 pandemic on the involuntary job losses in late life.

2. Definition of the Risk

In the LFS data, we focus on whether older Canadians experience an involuntary job loss in late life. We estimate the following ratio in each wave:

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ForcedJobSeparationRisk_{i,j} = \frac{N(ForcedJobSeparation_{i,j})}{N(ForcedJobSeparation_{i,j}) + N(Working_{i,j})}
\]

where the only difference compared to the formula used in the U.S. analysis is that the number of forced retirement is replaced by the number of forced job separations. The estimated number can be interpreted as the share of those who lost jobs involuntarily out of all the respondents who wanted to keep working in the considered survey wave.

We can think of reasons that this new measure may over- or under-estimate the late-in-life risks in earnings compared to the forced retirement risk. The forced job-separation risk will include job separations that do not lead to forced retirement. On the other hand, the forced job-separation risk may not be able to capture late-in-life earnings risks that take subtler forms (e.g., own decision to retire under some pressures from the employer). But we believe that these two measures are comparable in their nature and we expect them to be highly correlated.
3. Estimated Risk and its Correlation with Stock Returns

Figure 5 shows the time series of the probability of a forced job separation from 2001 to 2019, separately for the age groups 55-59, 60-64, and 65-69. For all the age groups, the risk is significant. Older Canadians, on average, face about a ten-percent chance of losing their jobs involuntarily each year. The risk is larger for older groups.

We also find some negative correlations between the forced job-separation risk and the lagged S&P/TSX returns. The correlation between the risk measure and the lagged stock returns is -0.27, -0.33, and -0.26, for the age groups 55-59, 60-64, and 65-69, respectively. The negative correlation mostly reflects turmoils during the Great Recession. For the age group 60-64, we also see an increase in the risk during the burst of the dot-com bubble (2002) as well as after the negative return in 2015-2016. When we regress the risk measure on the lagged stock returns, the negative slope of the age group 60-64 comes with a p-value close to 0.10, while for the other two groups, the estimates are statistically not significant.

Figure 5: Forced job-separation risk and lagged S&P\TSX returns

Note: This figure presents the probability of a forced job separation by age group and year (the units are shown in the left vertical axis). We sort our sample into three age groups: 55-59, 60-64, and 65-69. The probability of a forced job separation is defined as the share of respondents who got separated from their job involuntarily among those who wanted to continue working. The figure also plots the returns on the S&P/TSX index (January to January, the units are shown in the right vertical axis).

When the data for the first half of 2020 becomes available, we will find another period where the risk of a forced job-separation and stock returns noticeably move in the opposite direction.
FUTURE PLANS

We will update our empirical analysis using the LFS as data for the first half of 2020 becomes available. This will allow us to incorporate the large shocks we experience during the coronavirus crisis. We anticipate that the pandemic had disproportionately impacted older workers when we also had a substantial loss in the stock market.

We will then incorporate the estimated risk of involuntary job separations into the life-cycle portfolio choice model we used for the U.S. analysis. While the average risk of forced job separations being significant, its correlation with stock returns is weaker compared to what we found in the U.S. analysis. We will examine whether the main message from the U.S. analysis—the optimal portfolio choice around retirement is to increase the stock share as one nears and enters retirement—also holds for older Canadians.

REFERENCES


