

Late Career Unemployment and the Decision to Retire

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Abstract

I study how unemployment experienced late in working life affects the timing of retirement, withdrawal of Social Security benefits, and retirement income. I estimate a dynamic life cycle model of work and retirement using method of simulated moments and data from Health and Retirement Study. The model incorporates the process of job search, layoffs, uncertainty about survival, medical expenses, and earnings. Because job search is costly and takes a long time relative to the remaining career span, unemployment at pre-retirement age results in premature withdrawal from the labor force. I find that this effect dominates the incentives to work longer arising from depletion of savings and penalties for early withdrawal of Social Security benefits. I use the model to predict the time of retirement under a variety of policy experiments that involve changes in job finding and layoff probabilities, return on assets and Social Security rules.

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1 Research question

Late career unemployment is often overlooked because unemployment rates among older workers are low relative to other age groups. However, there is a number of reasons why late career unemployment matters. First, the problem may be larger than it appears from unemployment statistics alone. Statistically low unemployment among older workers may in part be due to misclassification of unemployed and non-participating. While reduction in labor force participation and discouragement may partially offset the growth of unemployment in any age group, this may be particularly so for older workers who may easily leave the labor force by choosing early retirement. Second, in many countries they are more likely to be affected by long-term unemployment. Third, the size of mature workforce makes the problem bigger due to the overall ageing of the workforce that has occurred since the 1980s.

This paper examines how unemployment experienced by older workers affects labor force attachment, the choice of retirement time, the take up of Social Security, and retirement income. A late career unemployment spell is likely to alter the labor market outcomes. Once hit by an adverse shock, individuals who are close to being indifferent between work and retirement face the cost of a new job search. Although they might have intended to continue working, ex-post they prefer to retire from the labor force and withdraw social security benefits before the planned date. Unemployment therefore gives rise to earlier retirement.

The proposition that some of the retirement cases may be induced by unemployment seems to find support in the data. Using the Health and Retirement Study (HRS), I estimate that about 12% of retirement decisions immediately follow a period of unemployment. Another 8% of retirements occur after involuntary separation from employer. As layoffs are more likely to lead to unemployment than quits, these cases may mask transitions to retirement that aim to avoid prolonged job search. On a subjective level, over 40% of retirees claim that they were at least to some extent forced into retirement rather than have chosen to retire.

Early retirement however would be just one part of the story. Unemployment in pre-retirement age may quickly deplete personal savings or prevent one from accumulating the length of coverage sufficient to qualify for higher retirement payments from Social Security. Instead of retiring early, workers concerned about financing of their retirement may have to stay in the labor force longer than anticipated. Comparing workers who have been unemployed for at least one month between ages 55 and 59 to those who had continuous employment spells, I find out that the former retire at earlier ages. For example, they are 10 percentage points more likely to report self as retired at the age of 62. Yet, their labor force participation rates at age 65 are 7 percentage points higher.

The problem is further complicated because unemployment risk varies systematically with the business cycle. Workers may retire earlier in contraction because of higher unemployment rates

and difficulties of new job search. Meanwhile, other factors prevalent in recessions may force them to stay in the labor force longer. For example, devaluation of personal assets, depletion of defined contribution pensions or loss of earnings by other household members can strengthen the labor force attachment. Moreover, some may return to work later as the business environment improves.

Given mixed evidence in the data and inconclusive results on the impact of unemployment on the time of retirement in the literature, I approach the question within structural modelling framework. I estimate a dynamic programming model of optimal retirement and labor supply decisions over the life cycle with exogenous separations and job search and use counterfactual experiments to identify the impact of late career unemployment on the choice between work and leisure later in life. The key benefit of this approach is that it allows to isolate the impact of unemployment from other economic phenomena that tend to occur contemporaneously.

2 Data

I use the Health and Retirement Study (HRS) dataset, a nationally representative panel of individuals after age 50, and information on earnings and social security benefits from HRS restricted dataset. I use six most recent waves of the data from 2000 to 2010. This period covers two NBER contractions: March to November 2001 and December 2007 to June 2009. The sample used in estimation includes white non-hispanic males aged 55 and above, who have ever worked for pay for more than a few months and were interviewed in the community. I use the Current Population Survey to estimate monthly job finding and layoff probabilities.

In addition to employment at the time of the interview, the HRS retrospectively asked respondents about changes in employment status that took place between the waves. I use this information to construct monthly employment histories that include labor force participation, employment, search, wages, changes of employers and separation reasons. Adding data on the tenure with the current employer for new survey entrants and the date at which the respondent left the last job, I obtain duration of initial employment and unemployment spells. I also use information on assets, timing of social security applications, health and mortality.

3 Methods

I estimate a dynamic programming model of optimal retirement and labor supply decisions over the life cycle with exogenous separations and job search. Workers maximize expected discounted lifetime utility subject to the exogenous processes for mortality, health, medical expenses, employment and wage determination and a set of budget constraints. Individuals face exogenous mortality risk at all ages and die with probability one upon reaching the terminal age T . Those who die leave

their assets as bequest to the heirs. People are differentiated by year of birth and lifetime earning measured by Average Indexed Monthly Earnings (AIME).

In the beginning of each period an individual can be working or not working. Employment can end with voluntary retirement from the labor force or exogenous job loss that occurs with probability δ . Nonworking individuals can search for a job or stay out of the labor force. Searching is associated with costs that are measured as hours of time endowment. It yields an acceptable wage offer in the beginning of the next period with probability λ . Choosing not to search is free and means withdrawal from the labor force. If no wage offer is received as an outcome of the search process, the worker stays unemployed for another period.

There are three sources of income: earnings, social security and returns on assets. The size of social security benefits is determined by the age of application, individual type, and parameters of the social security system. Having applied, individual draws a constant stream of benefits until death. The assets are invested at risk free rate, and no borrowing is allowed. Individuals pay income and payroll taxes, while the government provides a minimum consumption level through transfers.

The quantity of leisure depends on the amount of labor supplied out of a fixed endowment, the fixed costs of work that increase linearly with age, the cost of search and the cost of reentering the labor market. Depending on the current labor force status, an individual can make decisions about the amount of consumption and labor supply, job search and take up of social security. The values of employment and unemployment are then defined recursively from the terminal period T .

I estimate the model parameters in two steps. First, I estimate the parameters of Markov state transition probability distribution functions and calibrate the values of parameters that can be determined outside of the structural framework without using the whole model. These include the probability of survival, layoff and job finding, health, wage and medical expenses transition probabilities.

I compute layoff and job finding probabilities from the panel part of the CPS data using continuous time correction for time aggregation bias. Survival probabilities for each age are estimated from mortality tables. Health transition probabilities are predicted using logit model conditional on age, lag health and average lifetime earnings. Wage process and out of pocket medical expenses follow error components models with autoregressive error term and white noise.

Second, I take the first stage estimates as given and use the method of simulated moments to estimate parameters of utility and bequest functions, fixed costs of work, search and reentry costs, time endowment and the amount of government transfers.

4 Results

I obtain structural estimates of the model by matching the first moments of labor supply and participation, the labor force exit rate, median assets and search intensity. As a result, I can distinguish between three different retirement paths. First, there are individuals who retire directly from employment. Second, there are individuals whose retirement immediately follows a job loss. Finally, there are those who do search unsuccessfully after a job loss and at some point get discouraged and retire. The last two groups would not be identified in a life cycle model of retirement without search.

I then study these groups using counterfactual analysis. For example, I can explore how retirement behavior and the distribution of retirees between the three groups changes with shocks to asset values, job loss and job finding probabilities, or various parameters of the Social Security policy. I show that unemployment experience alone increases the likelihood of early retirement and withdrawal from the labor force. I only find stronger labor force attachment among people who suffered prolonged unemployment spells when other factors are present alongside unemployment, such as asset depreciation, improvement of job finding rates, or raise of real wages in the economy.