

The Early Retirement Decision and Its Impact on Health – What the Chinese Mandatory Retirement Reveals

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The following is an extended abstract of my on-going project “The Early Retirement Decision and Its Impact on Health - What the Chinese Mandatory Retirement Reveals.” This short summary of the project discusses 1) motivation, 2) complications and existing approaches, 3) the objective of this study, 4) reasons for looking at this issue in China, and 5) data and methods.

1 Motivation

Two striking worldwide phenomena over the past few decades are rapidly aging populations and a trend toward earlier retirement. Despite rising life expectancy, the average age of retirement has been declining (Bound, 2007, Blundell, Meghir and Smith, 2002). For example, from the 1950’s to 2000 the average retirement age for men in the United States declined from 68.5 to 62.6 years, and that for women declined from 67.9 to 62.5 years (Gendell, 2001). The average age of retirement in Canada in 2000 is about 61 years, and that in China is only 51.2 years.

With the population aging rapidly and more individuals retiring at earlier ages, public health insurance and social security systems in many countries are increasingly stressed. It has been claimed that the US Social Security system will pay out more in benefits than it collects in payroll taxes by 2018 and that China’s current social security system

will not be sustainable if it does not increase its mandatory retirement age. Whether an increase in retirement age would be socially or individually beneficial depends in part on its impact on subsequent health outcomes. While numerous studies have examined the role health plays in the retirement decision, relatively few studies have analyzed how retirement affects health.

Traditionally, retirement has been assumed to be harmful to health. The main argument is that retirement is associated with an abrupt change in lifestyle, e.g., loss of career identity, social attachment, and sense of value from one's contribution to society. For some individuals, job-related activities are also the only forms of physical activity they participate in. Arguably, retirement can be good for health too because it frees people from work stress and allows more time for healthy activities. Limited empirical studies show mixed evidence, partly due to the complications discussed below.

2 Complications and Existing Approaches

The main complication in estimating the effect of retirement on health is that deteriorating health could be both a cause and a consequence of retirement. For example, existing research generally finds that health is a significant determinant for retirement, though its relative impact versus economic factors is still debated (McGarry, 2004, Dwyer and Mitchell, 1999, Ettner et al., 1997, Belgrave et al., 1987, Anderson and Burkhauser, 1985, Bazzoli, 1985). Therefore, to determine the causal effect of retirement on health, one needs to take into account the two-way causality between health and the retirement decision.

Two strategies have been used in the existing literature to deal with this endogeneity issue. Interestingly, they yield completely different answers to the question of how retirement affects physical or mental health, which may reflect the different types of biases inherent in each approach. The first strategy is to compare individuals' health before and after they retire (e.g. Dave, Rashad, and Spasojevic, 2006). Researchers following this strategy often find that retirement has large negative effects on health. However, if deteriorating health leads individuals to retire, this approach will exaggerate the negative effects of retirement on health.

The second approach is to exploit special features of pension systems in some countries like the US or the UK. For example, in the UK, men at 65 and women at 60 can begin

to receive state retirement benefits; as a result, many workers retire at those ages, which are referred to as normal retirement ages. In the US, empirical evidence shows that there are two spikes in retirement, one at age 62 (early retirement age) and one at age 65 (normal retirement age). The related studies then examine health changes before and after a “normal retirement age,” or apply Instrumental Variables (IV) estimation using instruments based on social security eligibility ages. Studies using this approach tend to find no effect or a small positive effect of retirement on health. For example, Bound and Waidmann (2007) examine UK data for changes in morbidity and mortality around the public pension eligibility age and find small positive effects. However, although the administration of a policy based on age is plausibly exogenous, individuals’ responses to the policy may not be exogenous; i.e., those who choose to retire as soon as they qualify for social security are not a random sample of all individuals who reach the age of public pension eligibility. In particular, people who prefer social security benefits over wages for work, or who desire additional flexible time to improve their health, are more likely than others to choose to retire as soon as they are qualified, so it is not surprising to see health improvement among these individuals. Others who enjoy their jobs may choose to postpone retirement. Therefore, there is positive self-selection into retirement at the age of eligibility, which may confound the before-and-after health comparison.

Charles (2004) uses linear IV to estimate the effects of retirement on psychological well-being in the US, using early or normal retirement age dummies, including a dummy indicating age 65 or above, as instruments. However, 65 is also an age at which Americans become eligible for Medicare. This health insurance availability may confound, or more specifically bias upwards, the measured impact of retirement. In addition, linear IV is problematic given that both retirement and health measures are binary. Neuman (2008) uses an extended set of age dummies and categorical age variables as instruments and finds retirement may preserve health in the US. Other studies based on similar approaches using European country data include Coe and Zamarro (2008). They find positive health effects of retirement for those who retire at the age of 65 and above, and no health effect for those retiring before age 65.

3 The Objective of This Study

This paper investigates the effects of retirement on health, using the mandatory retirement policy in China as a source of identification. Since individuals can decide to retire early before they reach the mandatory retirement age, a structural model of retirement decisions and health production is constructed. Estimates based on this structural model are compared with nonparametric approaches such as regression discontinuity.

There are two types of health measures to consider: subjective health, i.e., self-perceived health or self-reported health, and objective health measures. Although research shows that subjective health is a good predictor of objective health, important differences exist between the two measures. Several studies have highlighted discordances between health perception and other health indicators considered to be more objective. (Johnston et al. 2007, Baker et al, 2004, Bound, 1991). This paper considers the retirement effect on both measures of health and examines whether the retirement impact on objective health, if any, can match that on subjective health.

4 Why China?

Given the magnitude of costs associated with both pensions and health care, the effects of retirement on health outcomes are important from a public policy perspective. Examining this issue in China has added importance for the following reasons.

Unlike other countries, China has strikingly low retirement ages. The current mandatory retirement age is 55 for male workers and 50 for female workers, with a five-year extension for officials and professionals with special expertise. Possibly influenced by this policy, Chinese people generally expect to retire early. A recent Asia-wide “Study of Lifestyles Attitudes and Relationships” (SOLAR) reveals that Chinese people see themselves retiring in their early 50s, in contrast to, e.g., early 60s by residents of India. Official statistics show that in 2000 the average retirement age in China was 51.2 years, about 10 years lower than that of many other countries. Therefore, studying this issue is particularly relevant to China. China’s experience may also be referenced to by other countries with declining retirement ages. Also, from a technical point of view, at younger ages fewer people will choose to retire for health reasons, so the selection problem could be smaller with China than in other countries.

The mandatory retirement age in China varies only across broad categories, i.e., blue

collar workers vs. professionals or officials. Large-scale retirement happens around age 50 for females and around 55 for male (The China Quarterly, 2006). Therefore, there is likely to be a relatively sharp discontinuity in the retirement hazard at these ages, which may be useful for identifying the causal effect of retirement on health.

A useful feature of China's system is that access to public health insurance does not change much at the time of retirement, in sharp contrast to the US and other developed countries. In the US, individuals are eligible for Medicare, a government health insurance plan, when they reach the age of 65. This is also a popular retirement age. The coincidence of this Medicare eligibility with the general popularity of retiring at this age could confound the observed effects of retirement on health. China started to set up a public insurance system in 1998. In covered employment, such as state owned enterprises (SOE's) or some urban collective enterprises, both employees and retirees are provided health insurance. The copayments and deductibles are slightly different for workers and retirees to match their age needs, but other than that, no separate health insurance plans are available to retirees. Therefore, the relatively simple policy environment in China results in fewer simultaneity complications.

Further, since the latest retirement age in China is mostly anticipated, income shocks as another potential confounding factor for the retirement effect on health could be small, though this issue needs to be further examined. The majority of Chinese rely on savings after retirement. Similar to its health insurance system, the Chinese social security system, such as pension and old age insurance, cover only a small part of the economy (e.g., private sectors, joint venture, and foreign-owned companies are not in the system). Due to low pension incomes and an incomplete social security system, Chinese generally start to save for retirement at very early ages. A recent survey by the wealth management and insurance firm AXA Group shows that 80 percent of working people in China think their retirement income will be sufficient and about one-thirds begin to prepare for their retirement at 37 years old on average.

5 Data and Methods

The dataset used in this paper is from the China Health and Nutrition Survey (CHNS). The CHNS is an ongoing longitudinal survey conducted jointly by the Chinese Academy of Preventive Medicine (CAPM) and the University of North Carolina's Carolina Popu-

lation Center (CPC). The survey gathers demographic and socioeconomic data as well as data on health, health behaviors, insurance coverage, and medical utilization from 3,800 households in eight provinces of China. Further details of the survey design can be found in Popkin, Paeratakul, Keyou, and Fengying (1995). The baseline survey was conducted in 1989. Follow-up surveys are conducted every two years. So far, seven waves of data have been collected and released.

The CHNS provides an excellent tool to examine the impacts of retirement on health and vice versa. It is unique in three important ways. First, it is a panel dataset and so reveals health changes that occur both before and after the transition into retirement. Second, it contains substantial detail on individuals' professions and work patterns, such as wage vs. non-wage and sideline activities. Third, it contains a wide range of health measures, including self-reported health, limitations in cognitive conditions, particularly memory status, as well as more objective health measures, such as the presence of physical or visual impairment and chronic conditions.

A structural model is estimated using this dataset to identify the effects of retirement on individuals' objective and subjective health measures. The model exploits mandatory retirement rules in China to obtain identification. Unlike existing studies that only compare people before and after they retire at normal retirement ages, this paper's structural model accounts for the effects of individuals who self-select into early retirement before reaching the mandatory retirement age. The result is a structural model of labor supply and health production with mandatory retirement as a constraint. A nonparametric (local linear) regression discontinuity estimator is also implemented, and the results are compared with those from the parametric structural model.

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