



# Is retirement good for men's health? Evidence using a change in the retirement age in Israel<sup>☆</sup>



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## ABSTRACT

This study examines the effect of employment on elderly men's health. A typical OLS analysis yields a positive relationship between employment and health for individuals in their sixties. Causality, however, is difficult to infer because healthier individuals are more capable of working than others. To overcome this endogeneity problem, this paper exploits the increase in the full retirement age for men in Israel from sixty-five to sixty-seven in 2004. After this change, the employment rate of men in this age bracket jumped significantly compared to the last cohort that was able to retire at sixty-five. Using the new retirement law as an exogenous source of variation in the employment status of elderly men, a significant causal relationship in the opposite direction of the correlation is found: employment at older ages impairs health. These findings are found across a broad array of datasets and health outcomes. The results are significantly stronger among less-educated workers, suggesting that employment in physically demanding occupations is more detrimental to health. Placebo analyses using the years preceding the new retirement regime and other health measures unrelated to employment (e.g., dentist visits) reinforce a causal interpretation of my main findings.

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## 1. Introduction

Many countries are debating whether to raise the retirement age in response to aging populations that are straining the resources of national pension programs. The UK, for example, is considering an increase in the state pension age from sixty-five to sixty-six for both men and women and Denmark plans to set its pension age at sixty-seven.<sup>1</sup> These measures may indeed prevent the collapse of a country's pension fund and mitigate the dependency of the retired population on those currently employed.

The postponement of retirement, however, may have unintended adverse consequences. This paper investigates whether delaying retirement affects the health of individuals who are encouraged to work later in life. Establishing a causal relationship between working and health is complicated by the endogeneity

of one's decision to work. The health of people in their sixties is strongly and positively correlated with working. This correlation, however, reveals little about the causal relationship, since healthier individuals are more likely to continue working.

To overcome this simultaneity problem, this paper exploits a unique policy reform in 2004, whereby Israel raised its full retirement age for workers in all sectors from sixty-five to sixty-seven. The reform triggered a dramatic increase in the labor-force participation of men in the relevant age bracket. Employment rates rose from 37 percent in the pre-reform years to 47 percent afterwards.<sup>2</sup> This policy-driven change in the labor-force status of men created exogenous variation in a person's working/retirement status. In particular, the analysis exploits the variation between the last cohorts that retired at age sixty-five and the first cohorts that had to wait until sixty-seven. The results show that the health of older men deteriorates when a legislative change encourages them to work further into their 60's. Working at older ages is found to increase the indices for poor health by one standard deviation.

These findings are more pronounced for less-educated men relative to highly educated men, suggesting that working in physical demanding jobs is more detrimental to health. Importantly, the

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<sup>1</sup> <http://www.oecd-ilibrary.org/finance-and-investment/pensions-at-a-glance-2011.pension.glance-2011-en>.

<sup>2</sup> This analysis was based on the Labor Force Surveys of the Israel Central Bureau of Statistics (hereinafter: ICBS) for the years 2000–2011.

unaffected cohorts just before the change showed no deterioration in health. This placebo analysis reinforces the causal interpretation of my findings by demonstrating that the deterioration in health found among older men was not part of a pre-existing trend.

The existing empirical literature on the effect of retirement on health yields conflicting results. Dave et al. (2008), using panel data from the U.S. Health and Retirement Study (HRS), conclude that retirement leads to an increase in difficulties in mobility, daily activity, morbidity, and mental illness even among individuals who had been healthy before their retirement. Rohwedder and Willis (2010), exploiting variation in retirement policies across Europe and the U.S., find that early retirement is associated with a deterioration in cognitive ability among people in their early sixties. Kuhn et al. (2010) analyze a reform implemented after a steel crisis in the 1980s that affected certain regions in Austria. The reform allowed workers aged fifty and older who had a certain work history and resided in eligible regions to retire up to 3.5 years earlier than non-eligible workers. The authors find that early retirement increases the chances of premature death. Sahlgren (2012), constructs instrument for retirement based on spouses' characteristics. In addition, the author uses the variation in the retirement age across several European countries. The author concludes that there are medium to long term health benefits in continue working. Lei et al. (2011) use the age discontinuity in retirement eligibility in China, and find that retirement has immediate negative impact on health. Behncke (2012), using the rich English Longitudinal Study of Ageing (ELSA) dataset and performing matching and instrumental variable methods, finds that retirement exacerbates the risk of incurring chronic health conditions. Finally, Calvo et al. (2013), use retirement incentives in the security system, and unexpected early retirement windows offered by employers as instruments for retirement. The authors find that early retirement is harmful to health.

Conversely, Ekerdt et al. (1983), comparing pre- to post-retirement changes in the health status of male retirees and males in the same age cohort who continue working, find that retirement does not impair health. Mein et al. (2003), comparing civil servants who retired at the mandatory age of sixty with peers who continued working, find that retirement improves mental health and does not affect physical functioning. Charles (2004), focuses solely on the effect of retirement on psychological well-being. By using retirement incentives in the social security system and changes in the mandatory retirement laws in the US, he finds that retirement decreases the feeling of depression and loneliness. Coe and Lindeboom (2008) use the Health and Retirement Study, and create an instrument for retirement based on employer incentives for workers to accept early retirement. They conclude that retirement is not harmful to health. Neuman (2008) uses the age discontinuity in early retirement eligibility for Social Security and finds that retirement preserves subjective health. Coe and Zamarro (2011), using the first wave of the SHARE data to exploit variation in the retirement age across several European countries, find that retirement lowers the probability of reporting a deterioration in health. Blake and Garrouste (2012), examining a pension reform in France that targeted private-sector employees, find that retirement improves health. Bloemen et al. (2013), using an early retirement opportunity offered by central government employers in the Netherlands to encourage civil servants aged 55+ to retire, conclude that early retirement reduces the probability of death. Hernaes et al. (2013) examine the effect of an early retirement program targeted at a group of workers on mortality in Norway. According to this new program, employees in the program – participating firms, were allowed to retire earlier than workers in non-participating firms. The authors find that retirement age has no effect on mortality. Atalay and Barrett (2014), examining a pension reform in Australia that targeted only women, find that retirement

has a positive impacts on health. Insler (2014) uses the Health and Retirement Study, and constructs an instrument for retirement based on individuals' retirement expectations. The author finds that retirement is beneficial to health. Finally, Eibich (2015) uses the age discontinuity in retirement eligibility in the German pension system, and finds that retirement improves subjective health status and mental health.<sup>3</sup>

The aforementioned studies typically fall into one of several categories. The first strategy is to compare the health outcomes of retirees with those of non-retirees. The possible drawback of such an approach is that healthier individuals are more likely than others to choose to continue working – a selection problem. The second strategy exploits variation across countries in retirement ages. However, differences across countries in the retirement age may be correlated with differences in the health of individuals across countries. The third strategy exploits reforms that allow certain employees or workers in specific sectors to retire earlier than other workers. This type of strategy could be problematic if the employees or workers in the selected sectors are different from the general population in terms of their health and work behaviors (the weakness of the design in this strategy traces primarily to the generalizability of the results). The fourth strategy uses age specific retirement eligibility. However, health deterioration may occur around certain ages regardless of the retirement eligibility.<sup>4,5</sup>

Since the previous research on this subject presents conflicting results, this paper contributes to the literature by using an exogenous source of variation in retirement status – one that targets all working sectors – to estimate the causal effect of working on a wide range of different health measures. In addition, since Israel has similar labor force characteristics as other OECD countries, the consequences of changing the retirement age may be relevant to other countries that consider rising their retirement age as well. Moreover, to the best of my knowledge this study is one of the first studies that finds an increase in individuals' healthcare spending as a result of the new retirement policy. Thus, the increase in healthcare expenditure weakens the ability of the reform to attain its goal of mitigating pension financial challenges. Therefore, the main contribution of this paper is its public policy implication. Although I use data from only one country, this itself is advantageous in that variation in retirement status cannot be traced to cross-country differences in health outcomes, practices, and systems (see for example Bingley and Martinello, 2013). The new retirement law in Israel affected all working sectors. Therefore, the affected age cohorts truly represent the entire population in terms of their health and work behaviors. In addition, the identification strategy in this paper has an advantage over studies that employ regression discontinuity designs – by observing the same age cohort before and after the intervention, I can control for the health deterioration that may occur around certain ages regardless of the retirement eligibility. Finally, the study sheds some light on the mechanism behind the negative effect of working during the mid-60's on health.

The paper is organized as follows: Section 2 describes Israel's full retirement age reform. Section 3 presents the econometric model. Section 4 presents the data and discusses the main variables of interest, with the main results in Section 5. Sections 6 and 7 conduct a placebo analysis and Section 8 concludes.

<sup>3</sup> Other papers study the effect of retirement on cognitive abilities (see for example Mazzonna and Peracchi (2012)), which is beyond the scope of this paper.

<sup>4</sup> Regarding the fourth strategy, I am referring to papers that use regression discontinuity designs.

<sup>5</sup> For instance, as mentioned in Behncke (2012), if reaching the age of 65 has direct psychological effects.

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