

It is not only up to you! The effect of retirement on healthcare utilization: The role of physician incentives



Ya Gao, PhD¹; Jiankun Lu, PhD²; Jiyuan Wang, PhD³

¹Ca' Foscari University of Venice, ²Zhejiang University of Finance and Economics,

³Central University of Finance and Economics

Abstract

- We examine the effect of retirement on healthcare utilization using a unique administrative data set from a tertiary hospital in China.
- We use a fuzzy regression discontinuity design that exploits the discontinuity in retirement rates at statutory retirement ages.
- We find a positive effect of retirement on outpatient care expenditures covered by insurance.
- The increase in healthcare use can be explained by physicians' financial incentives.

Introduction

- Ageing population requires more health services and health expenditure.
- China has a rapidly growing aging population and a very low statutory retirement ages (60 for males, 55 for female white-collar and 50 for female blue-collar. Therefore it is a hot debate about raising the statutory retirement age in China.
- From a policy perspective, raising the statutory retirement age could ease financing pressures. At the individual level, however, it is inconclusive whether delayed retirement is beneficial to individual health.

Existing literature:

- The **effect on healthcare utilization is mixed**. The little evidence from China (Zhang et al., 2018; Zhou et al., 2021) suggests an increase in healthcare utilization after retirement.
- As for mechanisms, most studies have focused on using demand-side factors to explain the impact of retirement, with **no evidence of the role of supply-side factors**, such as physicians (Carrera et al., 2018).

Data and Model

Data: administrative data from a tertiary hospital in the capital city of an eastern coastal province, containing outpatient records for patients being treated in 2015, including

- Treatment information: date of visits, outpatient diagnosis, hospital department, total cost, reimbursed cost, and out-of-pocket amount
- Patient information: gender, age, health insurance, and patient residence
- Physician information: gender, age, department, title, educational attainment, and whether she/he is a visiting physician or affiliated to the hospital

Sample: males aged 50-70 years old and females aged 40-60.

Model: we instrument D_i using the indicator for being above the gender-specific statutory retirement age (60 for males and 50 for females)

$$D_i = \alpha I[\text{age}_i \geq c_0] + g(\text{age}_i) + \mathbf{X}'_i \theta + \mu_i$$

$$y_i = \beta I[\text{age}_i \geq c_0] + f(\text{age}_i) + \mathbf{X}'_i \lambda + \varepsilon_i$$

- y_i individual i 's healthcare utilization, outpatient expenditure covered by public insurance(in China yuan) per visit and number of outpatient visits in 2015
- D_i indicator of whether the individual i retired
- \mathbf{X}_i a vector of controls at individual level
- $f(\text{age}_i), g(\text{age}_i)$: functions of individual age

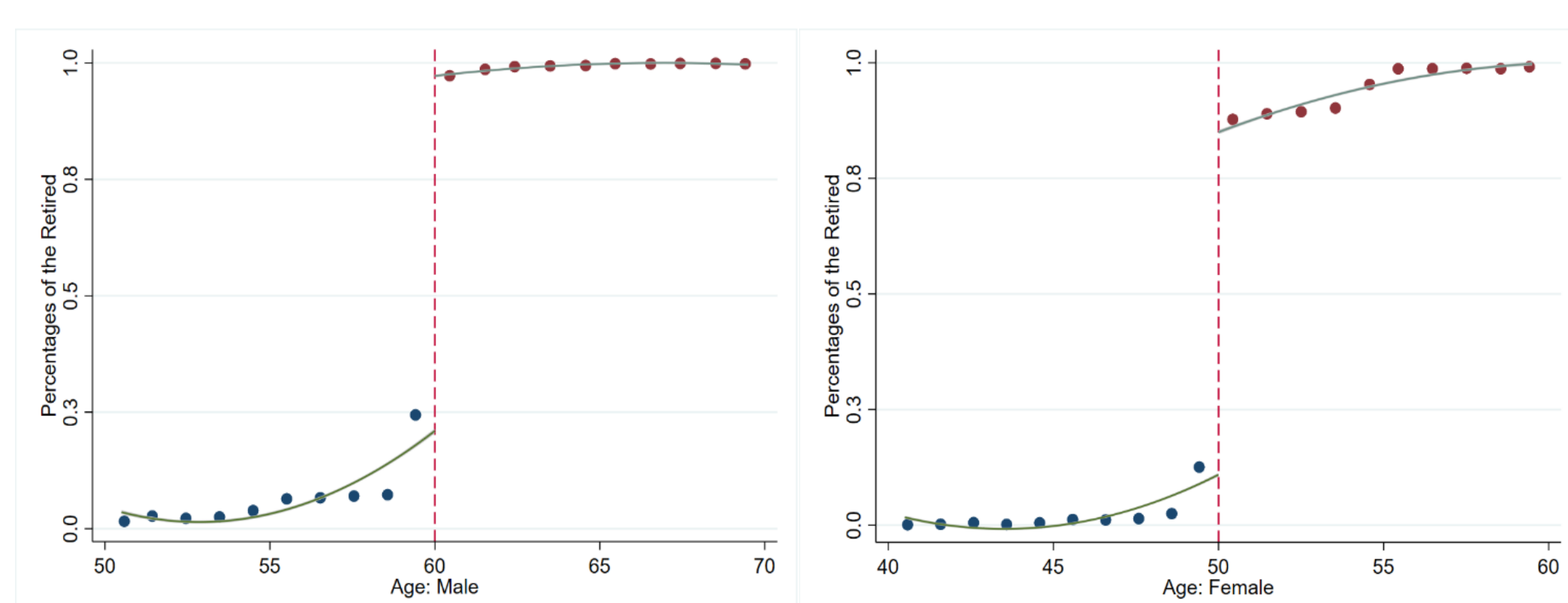


Figure 1. First stage: retirement rates across ages.

The effect on healthcare utilization

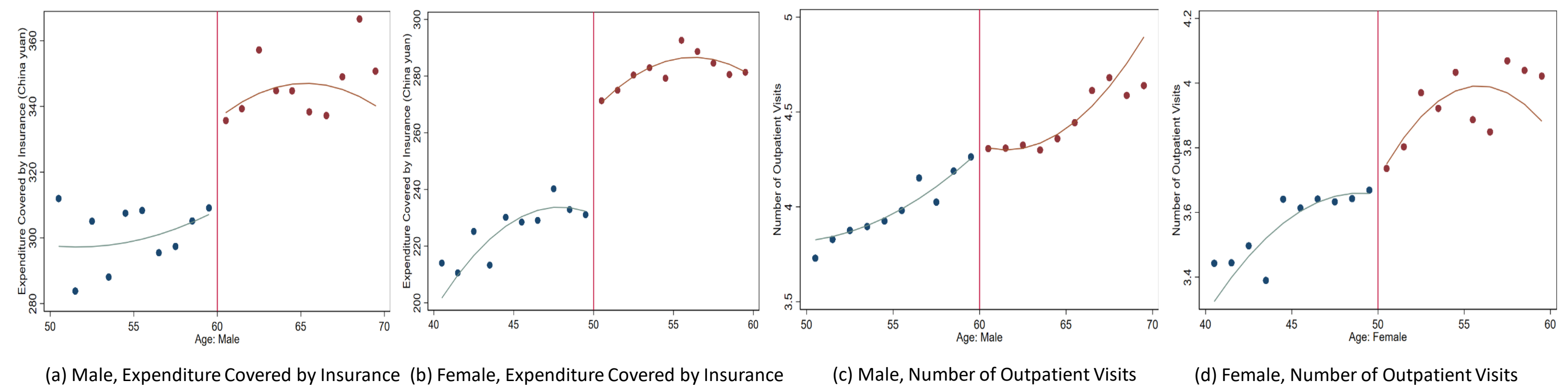


Figure 2. The effects of retirement on healthcare utilization.

Table 3: The effects of retirement on healthcare utilization: Fuzzy RD

Variables	Male Sample		Female Sample	
	Insurance Payments (1)	Outpatient Visits (2)	Insurance Payments (3)	Outpatient Visits (4)
I(Retirement Age > Statutory Retirement Age)	43.327*** (10.176)	0.24906 (0.16624)	63.37*** (6.3121)	0.09787 (0.12751)
Effective N	28,748	7,750	32,779	10,639
Order of Polynomials	2	2	2	2
Bandwidth Selection	CER	CER	CER	CER

Notes: Robust standard errors are reported in parentheses. *Significant at 10%; ** at 5%; *** at 1%. Dependent variable *Insurance Payments* means the healthcare expenditure covered by public insurance fund. Effective N is the sample size chosen by the CER-optimal bandwidth which is used to approximate the age polynomials.

The role of physicians' incentives

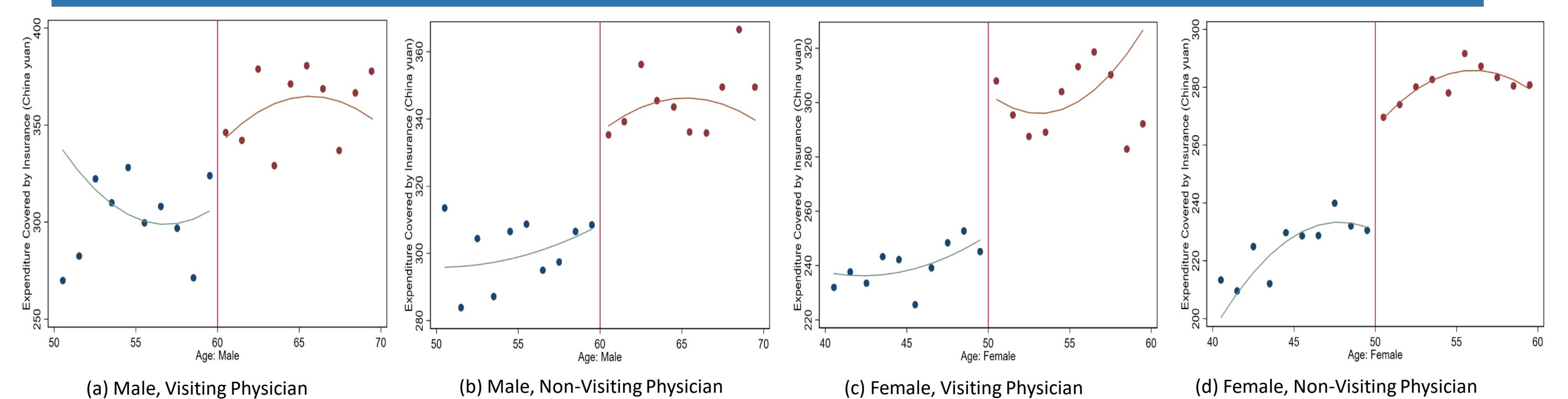


Figure 3. The effects of retirement on expenditure covered by insurance: by type of physician.

Results

Main results:

- The first stage results show a sharp increase in the proportion of retirements around the statutory retirement ages.
- After retirement, outpatient expenditures covered by the insurance funds increase by 43.3 China yuan (about \$7) per visit for males and 63.4 China yuan (about \$10) per visit for females; and there is no evidence for the number of annual outpatient visits.

The role of physicians' incentives:

- Two types of physicians provide care at the hospital
 - Visiting physicians**, whose income is not related to hospital revenue;
 - Non-visiting (affiliated) physicians**, whose income depends in part on department and hospital revenue.
- Non-visiting physicians produce more expenditures covered by insurance funds, especially for male patients. This implies that physicians' financial incentives play an important role in the increase of medical costs for retirees.
- Moreover, young and male physicians are more likely to exaggerate the retirement effect on healthcare utilization.

Conclusions

- In China, the positive impact of retirement on healthcare utilization results from not only patients' healthcare use decisions, but also from physicians' incentives to increase public health insurance payments.
- Retirement increases outpatient care expenditures. In addition, the effect is more pronounced when physicians have more incentives.
- Public health system reform and raising the mandatory retirement age have been hot topics over the past decade. This study suggests that in addition to demand-side factors, policymakers need to consider supply-side factors as well.

References

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Contact

Jiyuan Wang
School of Insurance, Central University of Finance and Economics
Email: jiyuanwangcufe.edu.cn
Website: <https://jiyuanwang.weebly.com/>