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Chin-Hsien Yu

Institute of Development Studies

Southwestern University of Finance & Economics

chinhsienyu@swufe.edu.cn

Ding Li

Institute of Development Studies

Southwestern University of Finance & Economics

liding@vip.sina.com

Lei Fang

Institute of Development Studies

Southwestern University of Finance & Economics

sfanglei@yeah.net

Jinxiu Ding

Department of Public Economics, School of Economics

Xiamen University

jinxiu ding@xmu.edu.cn

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Whether Residents' Environmental Risk Perceptions Affect Their Attitudes toward Medical Insurance: Evidence from China

Chin-Hsien Yu¹, Ding Li², Lei Fang³, Jinxiu Ding⁴

Southwestern University of Finance and Economics^{1,2 & 3}, Xiamen University⁴



Introduction

Nearly thirty-year rapid economic development in China has improved people's living standard, but also caused severe environmental pollution. Increasing attention has been devoted to the impact of environmental pollution on human health and life expectancy (Chen et al. 2013; Ebenstein 2012; Tanaka 2015). As environmental pollution poses a major risk to human health, people become more inclined to know the surrounding environment conditions such as air quality, water quality, food quality and etc. Moreover, people's awareness of environmental pollution might affect their attitudes toward risk reduction strategies, for example, purchasing medical insurance. Few studies have been found on the relationship between risk perceptions on environmental pollution and insurance acceptance, with more on the linkage between disaster risk perceptions and insurance demand (Tian et al. 2014; Lo 2013). To fill up the research gap, we use the 2013 Chinese General Social Survey (CGSS) data to investigate the effect of environmental risk perceptions on medical insurance acceptance.

The 2013 CGSS data was collected from 29 provinces and municipalities in China, and there were 11,438 valid responses. Residents' insurance acceptance were measured on a binary value with 1 = participating in insurance program. Two types of insurance program are considered here, one is policy-supported medical insurance, and the other is commercial medical insurance. This study thus contributes to existing studies by examining the effect of environmental risk perceptions on different types of medical insurance using micro survey data in China.

Method: Bivariate Probit Regression Model

$$y_1^* = X_1\beta_1 + \varepsilon_1 \quad (1)$$

$$y_2^* = X_2\beta_2 + \varepsilon_2$$

$$\begin{pmatrix} \varepsilon_1 \\ \varepsilon_2 \end{pmatrix} \sim N \left(\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{bmatrix} 1 & \rho \\ \rho & 1 \end{bmatrix} \right) \quad (2)$$

$$y_i = \begin{cases} 1 & \text{when } y_i^* > 0 \\ 0 & \text{when } y_i^* \leq 0 \end{cases} \quad i = 1 \text{ or } 2 \quad (3)$$

The independent variables consist of risk perception, environmental knowledge, media use, pension options and demographic characteristics. The dependent variables represent the purchases of medical insurance with $y=1$ if the individual pays for medical insurance. Subscript 1 and 2 indicate the purchase of public medical insurance and private medical insurance, respectively.

Descriptive Statistics

Overall, respondents are predominantly 47.09% female. They average 47 years in age, with a range of 17-96, and 10.17 years in education, with around 59.89% respondents are educated less than high school. Their average annual individual income is ¥26,120 (about USD \$4,179) and only 35.4% earn ¥30,000 (about USD \$4,800) or more per year. Besides, 12.01% participants join Chinese Communist Party.

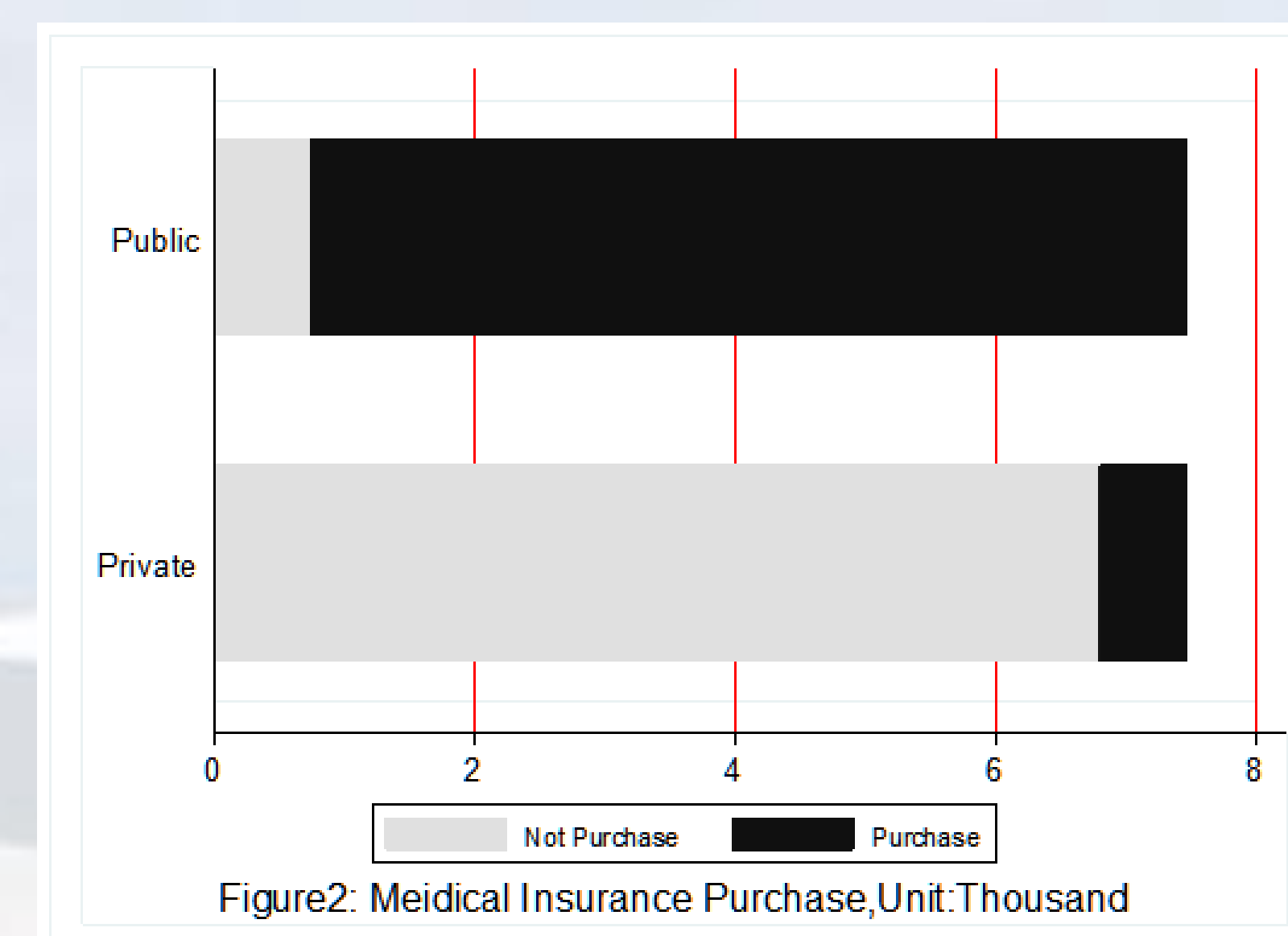
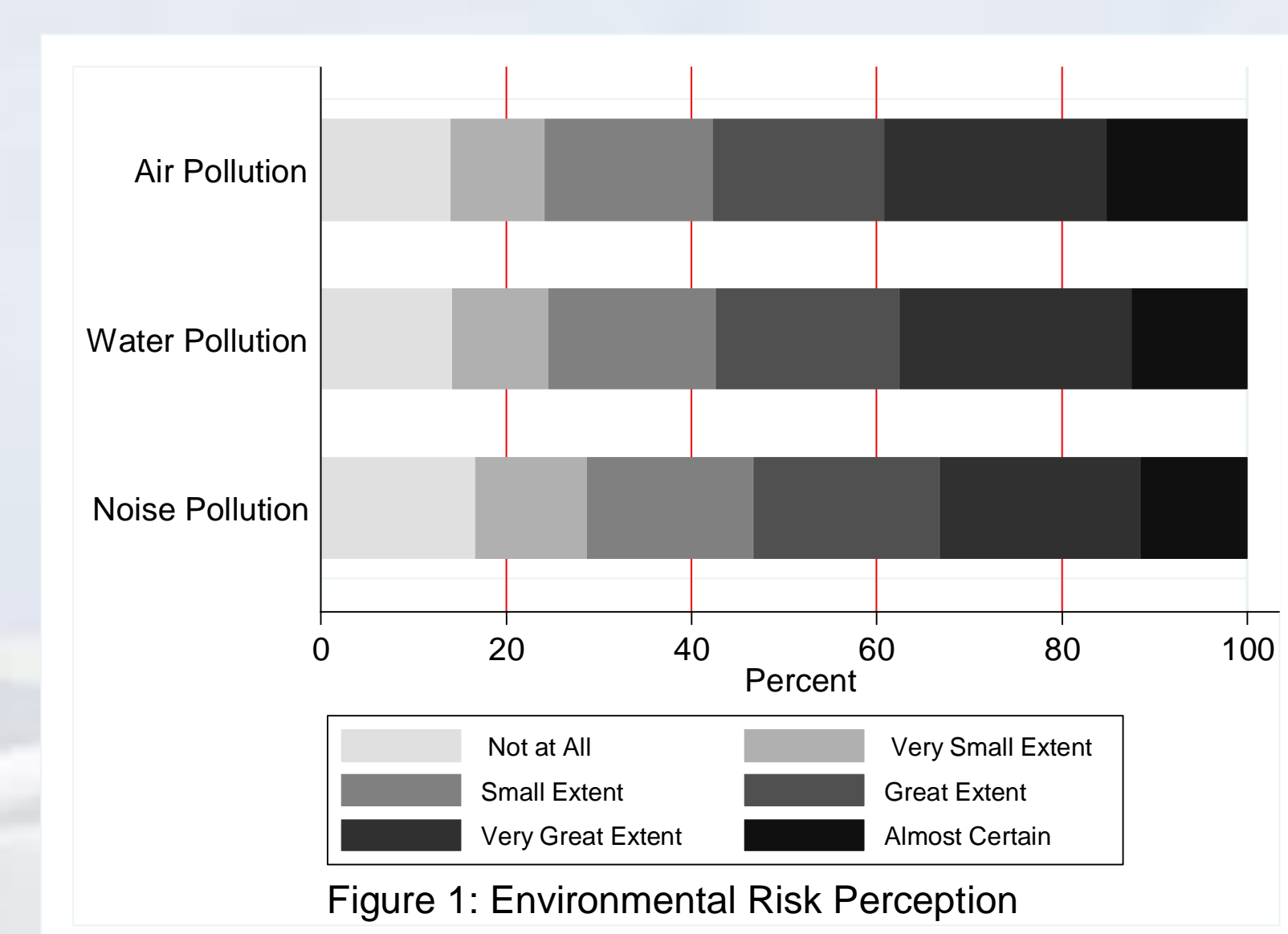


Table 1: Private Medical Insurance Purchase and Air Pollution Perception (%)

		The Perceived Extent of Air Pollution Risk						Total
		Not at All	Very Small Extent	Small Extent	Great Extent	Very Great Extent	Almost Certain	
Private Medical Insurance	Not purchase	13.23	17.31	16.97	8.67	20.51	14.24	90.93
	Purchase	0.56	1.03	1.31	0.94	3.31	1.92	9.07
Total		13.79	18.34	18.28	9.61	23.82	16.17	100

Table 2: Private Medical Insurance Purchase and Self-Reported Economic Condition (%)

		Self-Reported Economic Condition					Total
		Far Below Average	Below Average	Average	Above Average	Far Above Average	
Private Medical Insurance	Not purchase	3.85	27.35	53.29	6.24	0.23	90.96
	Purchase	0.07	1.74	5.62	1.53	0.08	9.04
Total		3.92	29.09	58.91	7.77	0.31	100

Table 3: Private Medical Insurance Purchases and Pension Plan Responsibility (%)

		Pension Plan				Total
		Government is Responsible	Children are Responsible	Selves are Responsible	Three are Equally Responsible	
Private Medical Insurance	Not purchase	9.27	44.37	4.89	32.40	90.93
	Purchase	0.75	4.06	0.41	3.85	9.07
Total		10.02	48.43	5.30	36.25	100

Note: The question of pension plan is "Who do you think that should be responsible for the elders' pension?"

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Preliminary Results

Table 4: Influence Factors on Public and Private Medical Insurance Purchase in China (Partial Results)

Variables	Specification (1)		Specification (2)		Specification (3)	
	Public	Private	Public	Private	Public	Private
Perception of Air Pollution	-0.054*** (0.018)	0.071*** (0.021)	-0.055** (0.018)	0.067*** (0.021)	-0.045** (0.019)	0.066*** (0.023)
Perception of Water Pollution	-0.005 (0.016)	-0.017 (0.018)	-0.005 (0.017)	-0.016 (0.019)	-0.010 (0.018)	-0.004 (0.020)
Perception of Noise Pollution	-0.013 (0.016)	-0.014 (0.017)	-0.017 (0.016)	-0.022 (0.018)	-0.030* (0.017)	-0.026 (0.019)
Environment Knowledge	0.028*** (0.009)	0.037*** (0.009)	0.025*** (0.009)	0.020** (0.010)	0.018* (0.010)	0.013 (0.011)
Pension is responsible by (base = Government)						
Selves					0.165 (0.118)	0.148 (0.140)
Children					0.191** (0.077)	0.150 (0.099)
All Three					0.250*** (0.077)	0.196** (0.096)
Number of Minor Kids					-0.079* (0.042)	0.032 (0.050)
Gender	-0.076* (0.044)	-0.060 (0.046)	-0.080* (0.044)	-0.069 (0.047)	-0.081* (0.049)	-0.118** (0.053)
Age	0.015*** (0.002)	-0.009*** (0.002)	0.014*** (0.002)	-0.005** (0.002)	0.009*** (0.003)	-0.006** (0.003)
Education Years	0.032*** (0.007)	0.043*** (0.008)	0.025*** (0.007)	0.018** (0.009)	0.023*** (0.008)	0.015 (0.010)
Health	0.035 (0.023)	0.075*** (0.025)	0.026 (0.023)	0.069*** (0.026)	0.038 (0.025)	0.052* (0.028)
Chinese Communist Party (1=Yes)	0.222*** (0.080)	0.069 (0.068)	0.176** (0.081)	-0.008 (0.068)	0.193** (0.089)	0.016 (0.074)
Annual Income	0.014 (0.010)	0.035*** (0.006)	0.01 (0.010)	0.031*** (0.006)	0.014 (0.011)	0.034*** (0.006)
Constant	-0.014 (0.197)	-1.820*** (0.210)	-0.393* (0.228)	-2.054*** (0.245)	-0.300 (0.287)	-1.998*** (0.303)
Media Effect Control		NO		YES		YES
Region Effect Control		YES		YES		YES
Model Test		YES		YES		YES
Wald Chi2(74)		816.04		907.74		808.22
N		7485		7480		6488

Note: The values in the parenthesis in the first column and the rest of columns are p-values and robust standard errors, respectively. * p<0.1, ** p<0.05 and *** p<0.01.

Comments

- The preliminary results indicate that Chinese resident's perception on air pollution significantly positively affects the purchase of private medical insurance, while that on water or noise pollution has insignificant effect on the private medical insurance.
- The result also indicates that residents who perceive higher risks of air pollution have lower demand for public medical insurance but higher demand for private medical insurance.
- Environmental knowledge plays a crucial role in influencing the purchase of public medical insurance.
- Elder women are likely to purchase public medical insurance while younger women tend to purchase private medical insurance. Besides, higher educational communist is likely to purchase public medical insurance.