




## Does the positive relationship between health and marriage reflect protection or selection? Evidence from middle-aged and elderly Japanese

Rong Fu <sup>1</sup> · Haruko Noguchi<sup>1</sup>

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**Abstract** This study investigates the marriage protection and selection effects among middle-aged and elderly Japanese. Using 9 years of a longitudinal data set from a nationally representative survey in Japan from 2005 to 2013, we extract 15,242 respondents aged 50–59 years in the baseline year. We utilize positive self-rated health to present subjective health status and lifestyle diseases to present objective health status. Using dynamic panel data approach to control for endogeneity issue, we find that being married does protect respondents' subjective health, in terms of a higher probability of self-ratings of “very good” or “good” health statuses. Nonetheless, we find that marriage deteriorated their objective health in terms of a higher probability of having lifestyle diseases. Regarding the selection effect, better subjective health is found to select middle-aged and elderly Japanese into marriage, but such influence is fairly modest. Although objective health status also selects respondents into marriage, it positively affects women but adversely affects men. The findings provide a more comprehensive understanding of the relationship between marriage and health, which may have substantial implications for health-related public policies for middle-aged and elderly people in Japan.

**Keywords** Marriage protection effect · marriage selection effect · dynamic panel data model · longitudinal data · Japan

**JEL** I10 · I19

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**Electronic supplementary material** The online version of this article (<https://doi.org/10.1007/s11150-018-9406-4>) contains supplementary material, which is available to authorized users.

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(資料 2) Cheolmin Kang, Akira Kawamura, Haruko Noguchi. (2019.6) The 2019 Asia Meeting of the Econometric Society. Xiamen University, located in the resort-like island city of Xiamen (also called Amoy), China. Accepted 採択レター



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2019 Asian Meeting of the Econometric Society

Paper ID: 655

Paper Title: Does Free Healthcare Affect Children's Healthcare Use and Outcomes? Evidence from Japan's Medical Subsidy for Infants and Children

Co-authors/Presenter: Cheolmin Kang

Dear Cheolmin Kang:

Thank you for submitting your paper to the 2019 Asian Meeting of the Econometric Society (2019 AMES). We are pleased to inform you that your paper has been accepted for presentation at the 2019 AMES, which will be held at Xiamen University, Xiamen, China, from **the 14th to the 16th of June, 2019**. The Econometric Society is the most respected society in the Economics profession.

The conference Registration Period is from **March 18 to April 30, 2019 EST** and the Early Bird Registration Period is from **March 18 to March 31, 2019 EST**. Below please see the fees for registration:

Type		Early Bird (USD)	Regular (USD)
Professionals	Econometric Society Members	350	450
	Non-Econometric Society Members	500	600
Students	Econometric Society Members	100	200
	Non-Econometric Society Members	150	250
Accompanying Person (For spouse or child of 12 years or older)		100	200

For registration, please log in Conference Maker (from March 18, 2019 EST): <https://editorialexpress.com/conference/ames2019>. There, you can deal with online registration, the invitation letter for visa application, accommodation information and registration fee payment. More details about the conference can be found at the conference website <http://conf.srn.cornell.edu/ames2019>.

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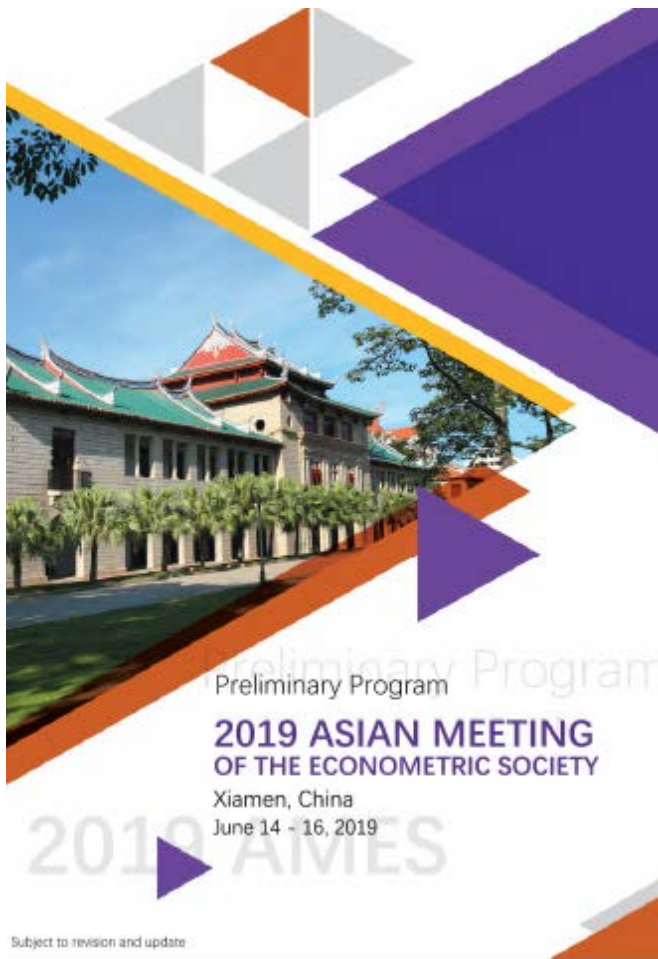
Xiamen is located in Southeast China with convenient flight connections to most major Asian cities. We are looking forward to seeing you in Xiamen in June.

Best regards,  
Yongmiao Hong

Program Chair  
2019 Asian Meeting of the Econometric Society

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(資料 3) Cheolmin Kang, Akira Kawamura, Haruko Noguchi. (2019.6) The 2019 Asia Meeting of the Econometric Society. Xiamen University, located in the resort-like island city of Xiamen (also called Amoy), China. 学会ホームページ



<b>Session c16pm.S13</b>	Date Jun 14, 2019	Time 17:05-18:35	Venue TBA
<b>Child Health and Fertility</b>			
<b>Could the Child Benefit Save the Low Fertility Country?: Evidence from the Expansion of Child Benefit Policy in Japan</b>			
Shinsuke Asakawa, Osaka University			
<b>Does Free Healthcare Affect Children's Healthcare Use and Outcomes? Evidence from Japan's Medical Subsidy for Infants and Children</b>			
Cheolmin Kang, Waseda University*			
<b>Improving Child Health Outcomes: Evidence from a Conditional Cash Transfer Scheme for Maternity Support in India (MAMATA)</b>			
Aishwarya Kekre, Ashoka University			
<b>Session c16pm.S14</b>	Date Jun 14, 2019	Time 17:05-18:35	Venue TBA
<b>Innovation and Development</b>			
<b>Policy-Driven Innovation: The Case of China</b>			
Han Yuan, The University of Arizona			
<b>Endogenous Growth: Innovation, Credit Constraints, and Stock Price Bubbles</b>			
Sicheng He, Iowa State University*			
<b>Financial Intermediation Development and Skill Premium in China</b>			
Tat-kai Lai, ISEMG School of Management			
<b>Session c16pm.S15</b>	Date Jun 14, 2019	Time 17:05-18:35	Venue TBA
<b>Household Finance II</b>			
<b>Forward Guidance (Puzzle) with Rule-of-thumb Households</b>			
Alexander Scheer, Deutsche Bundesbank*			
<b>House Prices, Frictions, and Excess Consumption Volatility in Emerging Countries</b>			
Wonmun Shin, Columbia University			
<b>Shifting Housing Price Gradients: Theory and Empirical Evidence</b>			
Han Liu, George Washington University			
<b>Session c16pm.S16</b>	Date Jun 14, 2019	Time 17:05-18:35	Venue TBA
<b>Macroeconomics and Public Policy</b>			
<b>Flexible Retirement and Optimal Taxation</b>			
Abdou Ndalya, Federal Reserve Bank of Chicago*			
<b>Implementing the Modified Golden Rule? Optimal Ramsey Taxation with Incomplete Markets Revisited</b>			
Yunmin Chen, Shandong University			
<b>Zombie Firm Dynamics and China's Monetary Policy</b>			
Wei Li, Beihang University			

\* Session Chair

(資料 4) Shuhei Kaneko, Haruko Noguchi. (2019.7) International Health Economic Association (iHEA). Basel, The Switzerland. Accepted. 学会ホームページ



## Kill Two Issues with One Stone - Simple Methodology for Dealing with Sample Selection and Endogenous Regressor (The Case of Mental Health and Labor Productivity)-

Monday, July 15, 2019  
08:30 - 10:00  
Universität Basel - Kollegienhaus - Seminarraum 209

### Abstract

#### Background and Objective

Numerous studies have been investigating the relation between subjective health and labor productivity. However, few studies have tackled squarely the endogeneity issue caused by omitted variable and selection bias. We propose a methodology to adjust abovementioned two sources of endogeneity for examining the role of health in labor market and its gender difference among the working age population in Japan.

#### Data

We use the data of the Comprehensive Survey of Living Conditions (CSLC), which is a nation-wide repeated cross-sectional survey conducted by Ministry of Health, Labour and Welfare. The CSLC has been conducted once every three years since 1986, and consists of four questionnaires for basic questions about household members, health status, income/saving, and long-term care (LTC) utilization. All sampled individuals are required to answer questions about household and health status. However, regarding questionnaires for income/saving and LTC, approximately 10% respondents are randomly chosen from the entire sample. We utilize the latest three waves of CSLC from 2010 to 2016, because some variables

2019 World Congress on Health Economics

necessary to this study such as educational attainments are missing before 2007. Since this study focus on working population, we extract people aged from 20 to 65 years old from the data.

#### Method

We apply two-stage estimation strategy such that the probability of job participation are estimated at the first stage and Mincer-type wage are assessed the second stage. And, mental health status is included in each equation as endogenous regressor. In the first stage, we apply Heckman's selection model w instrumental variables (IVs) probit. Next, we compute the inverse mills ratio for each individual and put it into second stage estimated by 2 stages least squares. We employ common symptoms of cold (general malaise, headache, and cough) IVs. These symptoms can strongly correlate with the self-rated health status, but these symptoms can randomly occur to individuals after controlling for an opuler number of characteristics. The results of Sargan and F tests imply the validity of these IVs.

#### Result and Discussion

We find that an increase in Kessler 6 (K6) score would negatively affect the probability of labor force participation and wage for both male and female. The  $\beta$  of effect tend to be slightly larger in the first stage for females, while it seems to larger in the second stage for males. For example, six-point deterioration in K6 score might decrease the probability of labor participation by 4.8% and 4.6% for female and male, respectively, and also it tend to decrease wage by 3.6% and 4.2% each for female and male workers. The result is robust when we shrink the sample to 25-60 years old population or when we drop the outlier sample (below percentiles and above 99 percentiles in wage distribution). Most previous literatu in Japan could not find statistically significant effects of health on labor outcome female workers. However, significant effects of health for both genders observed our results would reveal the importance of adjusting multiple sources of endogeneity to avoid either underestimation or overestimation.

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<https://health.economics.confex.com/health/economics/2019/maastin.noon.noi/Paper1512>

(資料 5) Cheolmin Kang, Akira Kawamura, Haruko Noguchi. (2019.7) International Health Economic Association (iHEA). Basel, The Switzerland. Accepted.

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NEW HEIGHTS IN HEALTH ECONOMICS  
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## Does Free Healthcare Affect Children's Healthcare Use and Health Outcomes? Evidence from the Medical Subsidy Program for Children in Japan

Monday, July 15, 2019  
13:30 - 15:00  
Universität Basel - Kollegienhaus - Seminarraum 103

### Abstract

#### Background

Many developed countries provide health insurance with generous coverage, often free of charge, for children, because it is widely recognized that investments to child health would result in good quality of living when they become adult, such as healthy life, high educational attainments, and even success in labor market. However, our knowledge whether generous healthcare policies actually benefit health outcomes of children is limited, in contrast to numerous scientific evidence from studies regarding adults or elderly.

#### Purpose and Method

Exploiting the unique variation in the eligibility of subsidy program for children among municipalities in Japan, we investigate the effect of free healthcare for children on their healthcare use and health outcomes of children in preschool age from 0 to 6 years old. Because each city introduced and expanded the subsidy program for children at different eligible age in different timing, there are large variations in subsidy eligibility at city-age-time level, which allow us to estimate behavioral responses to the free access to healthcare by difference-in-differences framework.

2019/5/5

2019 World Congress on Health Economics

### Data

We newly collect data on subsidy status at 33 cities with relatively large population of more than 0.5 million in 1990's through reviewing text file of minutes from city council at homepage. Although the regions focused by this study are limited, we can cover 19% of preschool child population in Japan. We then merge this information with 4 nationally representative individual-level data on healthcare and health status – Patient Survey, Statistics of Medical Care Activities in Public Health Insurance, Comprehensive Survey of Living Conditions, and Census and Vital Statistics –.

### Results

We find that free child healthcare would significantly increase outpatient use measured by visit intervals, the number of outpatients, and monthly spending. Size of effects tends to be larger particularly among infants aged from 0 and 1. Further, the size of effect on the number of outpatients is larger at repeated visit rather than the first visit. This result implies that the subsidy program would not lead children with any disease to use healthcare more frequently, while moral hazard such that healthy children use unnecessary outpatient service might not be occurred. On the other hand, we find no evidence of an increase in inpatient use under the subsidy program. We then find the subsidy program significantly improves children's subjective symptoms, such as fever, cough, and nose problems. In addition, we observed that the subsidy program could decrease mortality rate of infants aged 0 by 1.1 per 1,000 children.

### Discussion

A back-of-the-envelope calculation from our estimates suggests that annual cost per saved life is 55 million JPY. Considering the value of statistical life for Japan person is roughly 103 – 350 million JPY by previous studies, the subsidy program would be a cost-effective policy. Taken together, our study suggests that free child healthcare is valid for improving children's healthcare use as well as health, while its effect is limited for adults or the elderly as shown in previous studies.

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