Presentation by Ms. Rong Fu at IDEON in Lund University
Does Marriage Make Us Healthier?
—Evidence from Japanese Elderly—
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Background and Motivation

- **Motivation**
  Elicited health relates to social insurance, fiscal balance, labor markets...
- **Previous work shows,**
  Marriage protection effect vs Marriage selection effect on health
- **But, they are**
  Medical science, descriptive results without theoretical models
  Case study, insufficient data
  Working for Western societies, diametrical culture in Asia
- **Therefore present study aims to investigate,**
  marriage protection effect by theoretical model and generalized data

Theoretical Approach

- Following Grossman's Model $H_{t+1} = I_t + (1 - \delta_t)H_t$, but assume $\delta_t = \delta(1_{t,1} + 1_{t,2})H_t$. Solve the UMP to derive the F.O.C.,

$$\frac{\partial H}{\partial t} = \delta_t + (\delta_{1} / \delta_{2})I_t$$

By which optimal health capital (OHC).

- Confirm the influence of Marriage and Aging on the OHC,

Empirical Strategy

- Three theoretical hypotheses to be empirically investigated,
  1. Married individuals enjoy higher OHC vs unmarried ones
  2. An endogenous $\delta$ depleting to $I_t$, contributes a higher OHC
  3. OHC decreases to time $t$, and eventually approaches minimal required $H_{min}$

- By linearization of equation (1) and specification of $\delta_t$,

$$\delta_t - \delta_0 = \frac{\partial H}{\partial t} (m_t + 1)^2 I_t$$

- Derive the regression function as,

$$\ln H_t = \alpha_0 + \alpha_1 \ln w_t - \alpha_2 \ln p_t + \alpha_3 E_t + \alpha_4 \ln I_{t-1} - \alpha_5 \ln t - \alpha_6 \ln t^2$$

1. $\alpha_3 > 0$ - positive investment effect
2. $-\alpha_4 < 0$ - deterioration on health due to aging
3. $\alpha_5 > 0$ - positive marriage protection

Data and Measurements

- **Dependent Variable – Health Indicator**

<table>
<thead>
<tr>
<th>Health Indicator</th>
<th>Health Index</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D_{IAB}$</td>
<td>1</td>
<td>if situated on health is “excellent” or “very good”</td>
</tr>
<tr>
<td>$D_{IAB}$</td>
<td>2</td>
<td>if has difficulty on health is “suffering”</td>
</tr>
<tr>
<td>$D_{IAB}$</td>
<td>3</td>
<td>if has difficulty on health is “stages of disease”</td>
</tr>
<tr>
<td>$D_{IAB}$</td>
<td>4</td>
<td>if has difficulty on health is “suffering from disease”</td>
</tr>
<tr>
<td>$D_{IAB}$</td>
<td>5</td>
<td>if has difficulty on health is “suffering from disease”</td>
</tr>
</tbody>
</table>

- **Treatment and Instruments**

Survey “Health and Retirement”
- by the National Institute of Population and Social Security Research (NIPSSR)
- annually implemented from 2007 to 2012, total six waves
- targets aged from 45 to 50 randomly selected from 39,331 interviewees in 2007

Results and Implications

- **Marriage DOES Protect Health? — YES!**

<table>
<thead>
<tr>
<th>OLS 2007</th>
<th>OLS 2012</th>
<th>OLS 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D_{IAB}$</td>
<td>1</td>
<td>(4.1)</td>
</tr>
<tr>
<td>$D_{IAB}$</td>
<td>2</td>
<td>(3.0)</td>
</tr>
<tr>
<td>$D_{IAB}$</td>
<td>3</td>
<td>(0.8)</td>
</tr>
<tr>
<td>$D_{IAB}$</td>
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<td>(0.0)</td>
</tr>
<tr>
<td>$D_{IAB}$</td>
<td>5</td>
<td>(0.0)</td>
</tr>
</tbody>
</table>

In summary, regardless of gender:
- $D_{IAB}$: Strongly marginal increased probability of optimistic self rating
- $D_{IAB}$: Strongly marginal increased probability of not suffering difficulties
- $D_{IAB}$: Marginal increased probability of suffering no disease (except for male)
- $N_{IAB}$: Strongly marginal decreased number of endured disease

What Can Government Do?
- As a mutual support of elderly couples protect both mental and physical health
  1. Take marriage into account when implement public health policies for elderly.
  2. Long-term care insurance Cost-saving