Prospects of Aging and Health in Thailand

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What we will cover

• Background and objectives
• Education and health
• Data and methods
• Results
• Discussion and conclusion
Number and share of older persons in Thailand, 1950-2050

In thousands

Source: UN World Population Prospects 2015
<table>
<thead>
<tr>
<th>Socio-economic indicators</th>
<th>Thailand</th>
<th>Myanmar</th>
<th>Singapore</th>
<th>Vietnam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population, 2015 (in thousands)</td>
<td>67,959</td>
<td>53,897</td>
<td>5,604</td>
<td>93,448</td>
</tr>
<tr>
<td>Total fertility rate, 2010-15</td>
<td>1.53</td>
<td>2.25</td>
<td>1.23</td>
<td>1.96</td>
</tr>
<tr>
<td>Life expectancy at birth ($e_0$), 2010-15</td>
<td>74.1</td>
<td>65.6</td>
<td>82.6</td>
<td>75.6</td>
</tr>
<tr>
<td>Life expectancy at age 60 ($e_{60}$), 2010-15</td>
<td>21.4</td>
<td>16.7</td>
<td>25.1</td>
<td>22.4</td>
</tr>
<tr>
<td>% aged 60+, 2015</td>
<td>15.8</td>
<td>8.9</td>
<td>17.9</td>
<td>10.3</td>
</tr>
<tr>
<td>% aged 60+, 2050 (medium projection)</td>
<td>37.1</td>
<td>18.8</td>
<td>40.4</td>
<td>29.7</td>
</tr>
<tr>
<td>% in urban areas, 2014</td>
<td>49.2</td>
<td>33.6</td>
<td>100.0</td>
<td>33.0</td>
</tr>
<tr>
<td>% Adult literacy rate&lt;sup&gt;c&lt;/sup&gt;</td>
<td>96.4</td>
<td>92.7</td>
<td>96.5</td>
<td>93.5</td>
</tr>
<tr>
<td>Gross domestic product per capita (PPP), 2015</td>
<td>13,931.8</td>
<td>1,221.4</td>
<td>76,236.8</td>
<td>5,124.6</td>
</tr>
<tr>
<td>(est)</td>
<td></td>
<td>(est)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human development index rank (out of 186 countries), 2015</td>
<td>93</td>
<td>148</td>
<td>11</td>
<td>116</td>
</tr>
</tbody>
</table>

Sources: International agencies (UN, IMF, WB)
Health and education

- Health is an important component of active aging
- Evidence for causal relationship between education and health
- Majority of studies from Western societies
- Increasing number of articles in Asian context, several on Thailand (Zimmer and Amornsiribomboon 2001; Porapakkham et al. 2008; Muangpaisan et al. 2011; Thanakwang et al. 2012; Zimmer and Prachuabmoh 2012)
- Projections of persons with ill-health: simple demographic extrapolation invariably leads to increasing numbers
- However, inclusion of educational attainment shows less severe increases (Lagergren and Thorslund 2009 for Sweden; KC and Lentzner 2010 for 70 countries) or an even more pronounced increase (Ansah et al. 2015 for Singapore)
Objectives of our study

• To analyze prevalences of ill health among the population 50+ in Thailand with three different definitions of health limitations

• To estimate potential future health benefits obtained from past investments in education
Data

- Four waves of nationally representative Surveys of Older Persons in Thailand:
  - 2002
  - 2007
  - 2011
  - 2014

- Population projections for Thailand (WIC population projections by age, sex, and highest level of educational attainment, 2013)
Sample characteristics

<table>
<thead>
<tr>
<th>Sample characteristics</th>
<th>2002</th>
<th>2007</th>
<th>2011</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Female</td>
<td>55.2</td>
<td>55.9</td>
<td>56.5</td>
<td>55.0</td>
</tr>
<tr>
<td>Age distribution</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50-59</td>
<td>42.8</td>
<td>45.7</td>
<td>45.6</td>
<td>45.6</td>
</tr>
<tr>
<td>60-69</td>
<td>32.5</td>
<td>28.8</td>
<td>29.5</td>
<td>30.8</td>
</tr>
<tr>
<td>70+</td>
<td>24.6</td>
<td>25.5</td>
<td>24.9</td>
<td>24.5</td>
</tr>
<tr>
<td>Education distribution</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No educ/some primary</td>
<td>20.6</td>
<td>11.6</td>
<td>12.0</td>
<td>13.9</td>
</tr>
<tr>
<td>Primary education</td>
<td>63.4</td>
<td>67.3</td>
<td>69.0</td>
<td>67.1</td>
</tr>
<tr>
<td>Secondary or higher</td>
<td>16.1</td>
<td>16.3</td>
<td>19.0</td>
<td>19.0</td>
</tr>
<tr>
<td>% Urban</td>
<td>57.1</td>
<td>58.6</td>
<td>58.8</td>
<td>54.4</td>
</tr>
<tr>
<td>No. of observations</td>
<td>43,447</td>
<td>56,002</td>
<td>62,840</td>
<td>69,894</td>
</tr>
</tbody>
</table>

Differences to 100% due to rounding. Exception: in 2007, 4.8% of respondents fell into “other” education category, hence difference to 100%.
3 Health impairment measures

- Self-rated health status
- Difficulty with activities of daily living (ADLs)
- Functional difficulties
Self-rated health (self)

- A subjective measure
- All 4 surveys have identical question: “In the past 7 days prior to the interview, how do you feel about your physical health?”
- Possible answers: ‘very good’, ‘good’, ‘fair’, ‘bad’, and ‘very bad’
- Construction of dichotomous variable:
  - ‘bad’ or ‘very bad’ -> bad self-rated health
  - ‘fair’, ‘good’ or ‘very good’ -> fair/good self-rated health
# Functional difficulties, ADLs & IADLs

<table>
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<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Functional difficulties</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifting 5 kilograms</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Squatting</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Walking 200-300 meters</td>
<td></td>
<td></td>
<td>(1 km)</td>
<td>x</td>
</tr>
<tr>
<td>Climbing 2 or 3 stairs</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td><strong>ADL difficulties</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get up from lying down</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Using toilet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bathing</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Dressing</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Wash face/brush teeth</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Putting on shoes</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Grooming self</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Eating</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td><strong>IADL difficulties</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Take bus or boat on own</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Counting change</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Taking medicines</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>
ADLs & Functional difficulties

• Question: “Can you perform the following activities by yourself?”

• Possible answers:

• Construction of dichotomous variable:
  – ‘no’ or ‘with aid’ -> difficulty/functional limitation
  – ‘yes’ -> no difficulty/functional limitation

• Those who reported having difficulty in at least one of the activities are regarded as having ADL or functional limitations, respectively
Calculations of prevalences of health limitations

- Observed prevalences by age and sex (simple weighted means)
- Estimated prevalences by age, sex and education (binary logistic regression)
  - Age (in 5-year age-groups, from 50 to 70+)
  - Highest level of educational attainment (no education and some primary; completed primary; lower secondary and higher)
ADL, SRH and functional limitations over time, by sex

**men**

- **ADL**
  - 2002
  - 2007
  - 2011
  - 2014

- **self**
  - 2002
  - 2007
  - 2011
  - 2014

- **func**
  - 2002
  - 2007
  - 2011
  - 2014

**women**

- **ADL**
  - 2002
  - 2007
  - 2011
  - 2014

- **self**
  - 2002
  - 2007
  - 2011
  - 2014

- **func**
  - 2002
  - 2007
  - 2011
  - 2014

*Observed distributions, weighted*
ADL, SRH and functional limitations, by sex and education

Estimated distributions

men 2014 women
ADL, SRH and functional limitations, by sex and education

men  

2002  

women

Estimated distributions
ADL by education over time, by sex

Estimated distributions
Population composition

<table>
<thead>
<tr>
<th>Year</th>
<th>Less than primary</th>
<th>Primary</th>
<th>More than primary</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>8% - 1%</td>
<td>72% - 33%</td>
<td>20% - 66%</td>
</tr>
<tr>
<td>2050</td>
<td>1% - 8%</td>
<td>33% - 72%</td>
<td>66% - 20%</td>
</tr>
</tbody>
</table>

Projections of persons with ADL, SRH and functional limitations, 2015 to 2050

Constant education gradients -> changes in education composition reduce number of persons with ADL (15%), functional limitations (7%) and poor self-rated health (24%)
Projections of persons with ADL, 2015 to 2050: Effect of selection of last open-ended age-group (70+ vs. 80+)

Men (2014)

E1: less than primary education
E2: primary education
E3: more than primary education

Estimated distributions
Discussion and conclusion

• Development over time of age-specific prevalences
  – Self-rated health: lower prevalence of bad health
  – ADL difficulties: increase in shares with any ADL difficulty
  – Functional limitation: mixed picture

• Education-specific prevalences
  – Education gradient in expected direction
  – Most pronounced gradient for self-rated health

• Keeping education gradients constant -> fewer people with bad health/limitations than when education is not considered

• Small variation in educational attainment of elderly
• Meaning of each education category in the future? (relative distributions)
• What is „stronger“, effect of education on life-expectancy (mortality) or on health status (morbidity)?

• Next steps:
  – Inclusion of urban/rural dimension
  – Consideration of time-trends, where possible
  – Scenarios with changing education gradient
Thank you!

Comments and questions are welcome

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