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An Actuarial Perspective on Long Term Care Insurance

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Coverage

Need for Long Term Care (LTC) Insurance
Increasing potential role of Private LTC markets
Financing and Insuring LTC
Types of LTC insurance
Actuarial aspects – risks, pricing
Actuarial research at CEPAR
LTC costs - Mostly Public Expenditure

Figure 14 – LTC expenditures as a percent of GDP (total and public share)

Reflects many factors:
Social security
Demographics
Informal care - Family and community care

Source: International Actuarial Association Population Issues Working Group, (2017), Long Term Care: An Actuarial Perspective on Societal and Personal Challenges

Source: OECD Health Data, 2011
### Australian LTC Costs and Public Share

#### Table 6.6  Aged care services funding by funding source

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Ave public $ per recipient in 2010</th>
<th>Ave. private contribution %</th>
<th>Ave. Gov. share %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential high care</td>
<td>51,550</td>
<td>26</td>
<td>74</td>
</tr>
<tr>
<td>Residential low care</td>
<td>20,150</td>
<td>53</td>
<td>47</td>
</tr>
<tr>
<td>EACH packages</td>
<td>39,250</td>
<td>4</td>
<td>96</td>
</tr>
<tr>
<td>EACH-Dementia packages</td>
<td>43,450</td>
<td>4</td>
<td>96</td>
</tr>
<tr>
<td>CACPs</td>
<td>12,700</td>
<td>10</td>
<td>90</td>
</tr>
<tr>
<td>HACC</td>
<td>5</td>
<td>5</td>
<td>95</td>
</tr>
<tr>
<td>Other Australian Government programs (for example, National Respite for Carers)</td>
<td>Variable</td>
<td>No compulsory contribution</td>
<td>100</td>
</tr>
</tbody>
</table>

Bridget Brown, (2011), Long Term care Insurance in Australia
Funding and Insurance

Pre-funding - Financing and Insurance

- Social insurance contributions (e.g. Germany, Japan)
- Private insurance (US, France, Germany)
- Private savings – housing equity, private retirement savings

Pay-as-you go

- General tax revenues, often with means tests (Australia)
- Safety net cost sharing (US Medicare and Medicaid)
- Personal savings and insurance (includes LTC insurance and Reverse Mortgages)
- Family and community
Types of LTC Insurance

- Periodic LTC benefits from stand alone LTC Insurance contract (income payments, specified amount or indemnity based)
- Lump sum benefits (critical illness insurance, acceleration of life insurance)
- Increase in pension or annuity payments (care annuity)
- Disability income insurance (conversion to LTC insurance)
- Innovations – reverse mortgage and LTC insurance

“Combo” products in US market

LTC insurance usually based on Activities of Daily Living (ADL’s) sometimes Instrumental Activities of Daily Living (IADL’s) and Cognitive Impairment

ADLs’s - six basic ADLs: bathing, eating, continence, toileting, getting dressed and transferring
ADL’s – Triggers for LTC

Bathing: The ability to sponge bathe or get in and out of bath tub or shower.

Eating: The ability to feed oneself by getting food into the body or by a feeding tube.

Continence: The ability to maintain control of bladder and bowel functions.

Toileting: The ability to get to and from the toilet and perform associated personal hygiene.

Dressing: The ability to put on and remove all items of clothing and any braces or artificial limbs.

Transferring: The ability to get in and out of bed, chair, or wheelchair. A person qualifies for benefits when they are unable to perform two or three ADLs, depending on the long-term care insurance policy.

Source National Association of Insurance Commissioners
IADL’s – Triggers for LTC

Instrumental Activities of Daily Living (IADLs)

Shopping - Can the person select and buy food and clothing by themselves, or are they unable to shop at all?

Traveling locally and afar—Is the person able to drive safely or travel independently on buses or taxis either by themselves or with a companion; or are they simply unable to travel at all?

Managing their money – Is the person able to manage their finances, such as paying bills or balancing their checkbook? Can the person manage their daily purchases, but needs help paying bills; or are they simply unable to handle money at all?

Housework and chores – Can the person do heavy housework that must be done, such as cleaning the floors and taking out the trash; or can they perform light housework but may need help with heavy chores; or are they unable to perform any household duties at all?

Preparing food – Can the person plan and cook full meals; or are they able to prepare only light meals by themselves; or are they unable to prepare any food by themselves?

Using the phone – Can the person independently dial and receive calls with no help? Can the person answer the phone or dial 911 in emergencies, or do they require a special telephone to assist with finding the number and dialing? Is the person unable to use the telephone at all?

Taking medicine – Can the person take medications safely at the correct time of day or they unable to take medications without supervision at all?
Risks for LTC Insurance

Figure 11 – Analysis of LTC insurance claims (U.S.) by age at incurral and cause of claim

Source: Society of Actuaries’ 2000-2011 Long Term Care Experience Study

Source: International Actuarial Association Population Issues Working Group, (2017), Long Term Care: An Actuarial Perspective on Societal and Personal Challenges
Risks for LTC Insurance

Figure 12 – Analysis of outstanding LTC insurance claims (U.S.) by incurreal year and cause of claim

Source: Society of Actuaries’ 2000-2011 Long Term Care Experience Study

Source: International Actuarial Association Population Issues Working Group, (2017), Long Term Care: An Actuarial Perspective on Societal and Personal Challenges
Healthy Life Expectancy – UK Data

Figure 13 – Periods of total and healthy life expectancies by income deciles in the U.K. (2011-2013)

Source: Office for National Statistics, U.K.
### Estimated Functional Disability Life Table – HRS data

<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean years of life after age 65</td>
<td>16.33</td>
<td>19.43</td>
</tr>
<tr>
<td>Mean years with mild disability</td>
<td>1.78</td>
<td>2.80</td>
</tr>
<tr>
<td>Mean years with severe disability</td>
<td>0.89</td>
<td>1.68</td>
</tr>
<tr>
<td>Share with disability</td>
<td>56.43%</td>
<td>72.70%</td>
</tr>
<tr>
<td>Share with mild disability</td>
<td>47.89%</td>
<td>63.37%</td>
</tr>
<tr>
<td>Share with severe disability</td>
<td>26.82%</td>
<td>42.39%</td>
</tr>
<tr>
<td>Average age of first disability, conditional on becoming disabled</td>
<td>76.23</td>
<td>76.52</td>
</tr>
<tr>
<td>Average age of first mild disability, conditional on becoming mildly disabled</td>
<td>75.83</td>
<td>76.38</td>
</tr>
<tr>
<td>Average age of first severe disability, conditional on becoming severely disabled</td>
<td>80.51</td>
<td>81.70</td>
</tr>
</tbody>
</table>

- Disability (functional) free life expectancy
- Estimated from Health and Retirement Study (HRS) data

SOA Online survey – likelihood of needing LTC

- **Nursing Home**
  - 9% Very Likely
  - 35% Likely
  - 39% Not Very Likely
  - 17% Not At All Likely

- **Assisted Living Facility**
  - 14% Very Likely
  - 44% Likely
  - 30% Not Very Likely
  - 12% Not At All Likely

- **In-Home Care**
  - 17% Very Likely
  - 44% Likely
  - 27% Not Very Likely
  - 11% Not At All Likely

Society of Actuaries, Long Term Care and the Middle Market: Sizing the Opportunity for New Ways to Finance Long Term Care, July 2018.
Functional Disability including Trends and Uncertainty – HRS Data

## LTC Risks – HRS data

Table 4. Proportion of survivors in each health state for the simulated 65-year-old healthy male and female cohorts.

<table>
<thead>
<tr>
<th>Age</th>
<th>Survivors</th>
<th>Healthy</th>
<th>Mildly Disabled</th>
<th>Severely Disabled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>65</td>
<td>40,000</td>
<td>100.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>70</td>
<td>35,834</td>
<td>90.30%</td>
<td>7.45%</td>
<td>2.25%</td>
</tr>
<tr>
<td>75</td>
<td>29,735</td>
<td>83.96%</td>
<td>11.68%</td>
<td>4.36%</td>
</tr>
<tr>
<td>80</td>
<td>22,129</td>
<td>78.44%</td>
<td>14.54%</td>
<td>7.02%</td>
</tr>
<tr>
<td>85</td>
<td>13,912</td>
<td>71.37%</td>
<td>17.91%</td>
<td>10.72%</td>
</tr>
<tr>
<td>90</td>
<td>6,612</td>
<td>61.04%</td>
<td>21.46%</td>
<td>17.50%</td>
</tr>
<tr>
<td>95</td>
<td>2,064</td>
<td>47.77%</td>
<td>24.90%</td>
<td>27.33%</td>
</tr>
<tr>
<td>100</td>
<td>340</td>
<td>27.35%</td>
<td>22.94%</td>
<td>49.71%</td>
</tr>
</tbody>
</table>

Incidence of Disability – HRS data

State 1 – Healthy
State 2 – Mildly Disabled – 1 ADL and at home
State 3 – Severely Disabled – 2 or more ADL and at home
State 4 – Institutionalised

Proportion of survivors

LTC Insurance Premiums

Stand Alone Product – at home care support
Costs are relatively substantial

Table 6. Premiums ($) of generic stand-alone LTC insurance policies sold to individuals in different health states and at different ages. The generic stand-alone LTC insurance pays $100 per day while the insured is severely disabled.

<table>
<thead>
<tr>
<th>Age</th>
<th>Males</th>
<th></th>
<th></th>
<th></th>
<th>Females</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lump sum</td>
<td>Continuous</td>
<td>Annual</td>
<td>Monthly</td>
<td>Lump sum</td>
<td>Continuous</td>
<td>Annual</td>
<td>Monthly</td>
</tr>
<tr>
<td>55</td>
<td>15,923</td>
<td>1,138</td>
<td>1,126</td>
<td>95</td>
<td>27,526</td>
<td>1,825</td>
<td>1,806</td>
<td>152</td>
</tr>
<tr>
<td>60</td>
<td>16,766</td>
<td>1,350</td>
<td>1,333</td>
<td>112</td>
<td>28,913</td>
<td>2,127</td>
<td>2,101</td>
<td>177</td>
</tr>
<tr>
<td>65</td>
<td>17,448</td>
<td>1,619</td>
<td>1,596</td>
<td>135</td>
<td>30,313</td>
<td>2,535</td>
<td>2,501</td>
<td>211</td>
</tr>
<tr>
<td>70</td>
<td>17,915</td>
<td>1,964</td>
<td>1,933</td>
<td>163</td>
<td>31,469</td>
<td>3,084</td>
<td>3,036</td>
<td>257</td>
</tr>
<tr>
<td>75</td>
<td>18,193</td>
<td>2,428</td>
<td>2,383</td>
<td>202</td>
<td>32,099</td>
<td>3,824</td>
<td>3,753</td>
<td>318</td>
</tr>
<tr>
<td>80</td>
<td>18,403</td>
<td>3,094</td>
<td>3,025</td>
<td>257</td>
<td>31,924</td>
<td>4,828</td>
<td>4,719</td>
<td>402</td>
</tr>
</tbody>
</table>

LTC Insurance Premiums

Combo products – at home care support

Table 7. Premiums ($) of generic rider benefit policies and life care annuities. The generic rider benefit policy pays $100 per day while the insured is severely disabled and pays a death benefit of $500,000 when the insured dies. The generic life care annuity pays $50 per day while the insured is alive and additional $50 per day while the insured is severely disabled.

| Age | Males | | | | Females | | |
|-----|-------|----------|-----|-----|-----|----------|-----|-----|
|     | Lump sum | Continuous | Annual | Monthly | Lump sum | Continuous | Annual | Monthly |
| 55  | 226,927 | 16,219 | 16,042 | 1,350 | 209,708 | 13,906 | 13,759 | 1,158 |
| 60  | 258,649 | 20,826 | 20,570 | 1,734 | 239,785 | 17,637 | 17,426 | 1,468 |
| 65  | 291,614 | 27,053 | 26,675 | 2,252 | 272,847 | 22,820 | 22,509 | 1,900 |
| 70  | 324,797 | 35,615 | 35,044 | 2,964 | 307,940 | 30,183 | 29,708 | 2,512 |
| 75  | 357,067 | 47,658 | 46,767 | 3,965 | 343,570 | 40,930 | 40,171 | 3,406 |
| 80  | 387,212 | 65,096 | 63,649 | 5,415 | 377,597 | 57,100 | 55,821 | 4,750 |

LTC Insurance Costs and Reverse Mortgage

Private Insurance Genworth data (2016)
Assumed annual LTC costs

- Health State 2 - $20k
- Health State 3 - $40k
- Health State 4 - $80k
- LTC costs growth rate 3% p.a.

Indicative pure risk premiums (no loadings or expenses)
LTC Annual Premiums – HRS data

Significantly higher annual premiums for females
Substantial increases for later age purchases

Consumption with and without LTC Insurance and Reverse Mortgage

Reverse mortgage increases earlier consumption but lowers later consumption

Slightly lower consumption because of LTC insurance annual premiums

LTC insurance supports higher consumption at older ages

Liquid Wealth with and without LTC Insurance and Reverse Mortgage

Reverse mortgage increases liquid wealth at younger ages

Lower liquid wealth because of LTC insurance annual premiums

Higher liquid wealth at older ages because of LTC insurance payments

Wrap Up

Currently mostly government funded but increasing need for individual private LTC - changes expected in risk and cost sharing in many countries

Range of ways of insuring and funding LTC

- LTC insurance depending on functional disability (higher benefits for higher levels), stand alone and “combo” products
- life care pensions/annuities,
- life insurance riders for critical illness,
- reverse mortgages and other private savings

Risks and costs are substantial and earlier funding or insuring is beneficial

Need for integration with public/government financing, community and family support


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