

Residential aged care : can the house pay for it?

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Summary

To what extent could the cost of residential aged care be met from house assets?
This depends on

- The cost of the residential care eventually required by the members of the household
- The distribution of house values, amongst those who own a house

For the purpose of this exercise, other assets are ignored.
Calculations presented here are speculative, but suggest that around 60% of households in which at least one member requires residential care would have housing assets sufficient to pay for all the costs of that care.

1. The expected cost of residential care per person

Costs depend on

- The likelihood of requiring residential care (1.1)
- Length of stay in residential care (1.1)
- Cost per day (care and capital) (1.2)

1.1 Residential care usage

Probabilities of needing residential aged care at some stage of life have been calculated by the Australian Institute of Health and Welfare (AIHW).

Age	Probability of eventually needing residential care	
	Females	Males
65	0.64	0.39
70	0.67	0.41
75	0.70	0.45
80	0.74	0.49
85	0.79	0.55
90	0.87	0.61
95	1.00	0.50

Source : AIHW working paper 36, Table 1

For length of stay once in care, there are a number of different statistics available. For example, AIHW provides data on length of stay, by State, and for Australia as a whole.

Expected length of stay (years)	
Females	Males
3.1	2.1

Source : AIHW 2001 Table 3.9

The same source (3.7) may enable rough estimates to be made of the probability of any particular length of stay for a person who is in residential care. The method is set out in the Appendix to this note, and does not allow for variation by age. More accurate values may be available, but are not known to the writer. As the use of the values is only for indicative results, inaccuracies in the assumptions may not impact significantly on the conclusions.

From (weeks)	To	Females	Males
0	4	5.3%	10.5%
4	8	3.9%	6.7%
8	13	3.5%	5.8%
13	26	6.3%	10.1%
26	39	5.2%	7.4%
39	52	4.3%	5.8%
52	104	14.3%	16.3%
104	156	11.8%	11.2%
156	208	11.1%	8.6%
208	260	9.1%	5.6%
260	416	15.3%	8.1%
416	0	9.9%	4.0%
Total		100.0%	100.0%

1.2 Costs per annum

Costs of providing a service are taken here as the relevant measure, rather than any amounts currently charged. Following Madge (pp 44-45), a reasonable figure to take for an annual cost in 2003 may be

Cost in 1999 dollars	\$35,000
AWE 99	611.1
AWE 03	724.9
Cost in 2003 dollars	\$42,000

This value is intended to include the cost of capital. Average weekly earnings figures are from the Australian Bureau of Statistics, and are for Australia (all states) - May values.

1.3 Costs per person

An average cost in 2003 dollars for someone entering aged care accommodation may then be of the order of

Cost per annum	\$42,000	
	Females	Males
times expected years	3.1	2.1
expected cost	\$130,000	\$88,000

These values ignore both future inflation and investment return, or, equivalently, that costs rise at the same rate as investment returns.

1.4 Expected cost for a household

Age	House type		
	Single Female	Single Male (female aged 5 years younger than male)	Couple
65	\$83,200	\$34,320	\$119,280
70	\$87,100	\$36,080	\$126,700
75	\$91,000	\$39,600	\$134,120
80	\$96,200	\$43,120	\$144,600
85	\$102,700	\$48,400	\$156,380
90	\$113,100	\$53,680	\$157,100
95	\$130,000	\$44,000	

These figures are based on the values of 1.1-1.3, and assume independence of the various probabilities

2. The accommodation of households

2.1 Housing tenure - by age

2001 values of % type of tenure are

Age group	Type					Total
	Owner	Purchaser	Tenant	Other	Non-private	
65-69	73.0	5.7	12.5	6.1	2.7	100
70-74	73.2	4.4	11.9	6.8	3.7	100
75-79	70.4	4.2	11.2	8.1	6.1	100
80-	56.8	3.3	9.9	9.3	20.7	100

Source : Howe 2001

2.2 Household composition - by age

Likewise, the structure of households is

Age group	Couples	Lone	Group Non-private		Total
	+ ..	person			
65-69	77.6	18.0	1.7	2.7	100.0
70-74	71.5	23.2	1.6	3.7	100.0
75-79	62.8	29.7	1.4	6.1	100.0
80-	43.6	34.6	1.1	20.7	100.0

Source : Howe 2001

2.3 Household composition, by age and tenure - persons

Allowing for the totals above, assuming that the non-private groups are for the same persons, that no couples are in Other, and otherwise assuming independence of probabilities, the following estimates are obtained, for persons

Age group	Household type	Tenure				Total
		Owner	Purchaser	Tenant	Other Non-private	
65-69	Couples	63.5	4.4	9.7		77.6
	Lone	9.5	1.3	2.3	5.0	18.0
	Group			0.6	1.2	1.7
	Non-private				2.7	2.7
	Total	73.0	5.7	12.5	6.1	100.0
70-74	Couples	59.8	3.1	8.5		71.5
	Lone	13.4	1.3	2.8	5.8	23.2
	Group			0.6	1.0	1.6
	Non-private				3.7	3.7
	Total	73.2	4.4	11.9	6.8	100.0
75-79	Couples	53.1	2.6	7.0		62.8
	Lone	17.3	1.6	3.3	7.5	29.7
	Group			0.8	0.6	1.4
	Non-private				6.1	6.1
	Total	70.4	4.2	11.2	8.1	100.0
80-	Couples	36.2	1.4	6.0		43.6
	Lone	20.6	1.9	3.4	8.7	34.6
	Group			0.5	0.6	1.1
	Non-private				20.7	20.7
	Total	56.8	3.3	9.9	9.3	100.0

2.4 Household composition, by age and tenure - households

For those households where residential aged care could be required in the future, percentages are

Age group	Household type	Tenure			Total
		Owner	Purchaser	Tenant	
65-69	Couples	54.3%	3.8%	8.3%	
	Lone	16.3%	2.2%	3.8%	8.5%
	Group			0.9%	2.0%
70-74	Couples	49.4%	2.6%	7.0%	
	Lone	22.1%	2.1%	4.6%	9.6%
	Group			1.0%	1.6%
75-79	Couples	42.5%	2.1%	5.6%	
	Lone	27.6%	2.5%	5.3%	12.1%
	Group			1.3%	0.9%
80-	Couples	31.4%	1.3%	5.2%	
	Lone	35.9%	3.2%	6.0%	15.1%
	Group			0.8%	1.1%

where values for couples are taken as one-half the number of people in 2.3, and as equal to the person count in other cases. Those counts are then expressed as a % of the total then obtained.

3. House values

3.1 Some data

The Valuer-general of Victoria provides the following information in respect of 2002 sales for the Melbourne metropolitan area (p 13)

		Houses	Unit/ apartment	All
Sales		61,364	23,482	84,846
Fraction		72%	28%	100%
Values	Median	258,000	240,075	
	Average	316,294	275,294	

3.2 Estimates of ranges

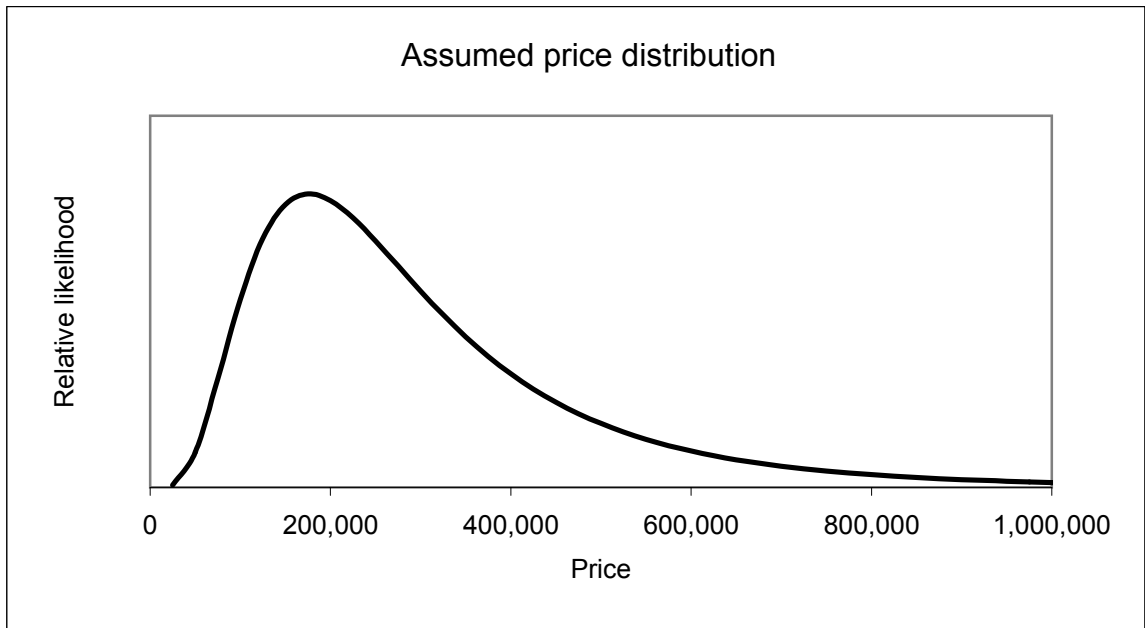
Assuming a log-normal distribution of prices would provide parameter values of

	Houses	Units
mu	12.46	12.39
sigma	0.64	0.52

The lognormal shape is only one of a number of possible probability distributions, but may provide a reasonable indication of the spread of values.

In conjunction with the sales volumes of 3.1, this would imply parameter values of 12.39 and 0.68, and value ranges of

From \$000	To \$000	Percent
-	100	6%
100	200	29%
200	300	26%
300	400	16%
400	500	9%
500	1000	12%
1000	-	1%
Total		100%



These values are for 2002 sales, and are thus considerably out of date. However the values should understate the current market, and so may provide for conservative estimates of wealth. The distribution values may be reasonable overall, even though the specific basis chosen is only one of many that are plausible.

4. Capacity of the house value to pay for residential care

4.1 Population by age

AIHW 2001 page 18 provides population figures of

Age group		Females	Males	Total	% Female
From	To	000s	000s	000s	
65	69	343.3	329.7	673.0	51%
70	74	331.2	297.1	628.3	53%
75	79	290.3	223.5	513.8	57%
80	84	196.8	127.3	324.1	61%
85	-	180.4	82.2	262.6	69%
Totals	0	1,342.0	1,059.8	2,401.8	

Using the household compositions of 2.2, the female fraction for lone households could be

Age group	Couples	Other	Females (couple)	Males (couple)	Females (single)	Males (single)	Single female %
65-69	522.2	150.8	261.1	261.1	82.2	68.6	55%
70-74	449.2	179.1	224.6	224.6	106.6	72.5	60%
75-79	322.7	191.1	161.3	161.3	129.0	62.2	67%
80-	141.3	182.8	70.7	70.7	126.1	56.6	69%

Couple numbers are from 2.2 and the table above, with "Other" by subtraction from the totals. Single figures are by subtraction of couple numbers from gender totals.

These calculations assume that all non-couple households will produce at most one aged care recipient. This may not be true for group households.

4.2 House values relative to care costs

The assumptions above provide for the following measures of the potential for aged care residential costs to be met by the house values

Age group	Probability a person's costs are covered	Probability household costs are met	Percentage of costs covered
65-69	62.9	59.7	63.5
70-74	60.4	57.1	63.3
75-79	63.0	59.7	60.6
80-	55.2	51.5	57.2

As no attempt has been made to fit theoretical distributions to the various probabilities, these results have been obtained by simulation. The process is as follows :

For each simulation

- Determine household type and tenure, from the probabilities in 2.3
- If some accommodation is owned, simulate the value of it, from the distribution in 3.2. If the occupier is deemed "purchaser", take 75% of the value
- In the household type is "couples", simulate for each partner whether residential care would be required, using the probabilities in 1.1. For lone households, determine gender from 4.1, then determine if care is require.
- For any person requiring residential care, determine length of stay from 1.1
- Multiply cost per annum (1.2) by expected duration, and compare with available funds

Sources

AIHW : "Residential aged care in Australia 2000-01" A statistical overview

AIHW : "The probability of using and aged care home over a lifetime " Ziu, Mason and Braun, September 2001

Howe, A : Housing an older Australia, AHURI, November 2003

Madge, A : Long-term aged care, October 2000

Victorian DSE : A guide to property values, 2002. Valuer-general

Appendix Estimation of length of stay probabilities

Average length of stay of permanent residents : AIHW table 3.9

Average period (years) 3.1 2.1

Separations of permanent residents : AIHW Table 3.7

From (weeks) (a)	To (b)	Period (c)	Females (d)	Males (e)	Estimated likelihoods of stay	
					Females (f)	Males (g)
0	4	0.038	2034	1771	5.3%	10.5%
4	8	0.115	1418	1124	3.9%	6.7%
8	13	0.202	1247	962	3.5%	5.8%
13	26	0.375	2127	1659	6.3%	10.1%
26	39	0.625	1688	1210	5.2%	7.4%
39	52	0.875	1332	928	4.3%	5.8%
52	104	1.500	4260	2613	14.3%	16.3%
104	156	2.500	3387	1766	11.8%	11.2%
156	208	3.500	3065	1349	11.1%	8.6%
208	260	4.500	2420	871	9.1%	5.6%
260	416	6.500	3933	1249	15.3%	8.1%
416		9.600	2460	608	9.9%	4.0%
Total			29371	16110	100.0%	100.0%

Average period (years) 3.0 2.1 3.4 2.1
 Implied average exit rate pa 39% 62% 35% 59%

- (a)-(b) From table 3.7
 (c) $=((a)+b)/2$
 (d)-(e) from table 3.7
 (f)-(g) Based on (a)-(e), but reducing the earlier probabilities and increasing the later probabilities so that the average durations obtained equal AIHW Table 3.7 values

The average values calculated using columns (c) to (e) alone would overstate rate of exit, and understate length of stay. As the numbers of persons entering residential care has increased, the proportion of the total resident population will be weighted to the earlier durations

Using the estimated likelihoods of length of stay, 90% of stay would be expected to be less than

	Females	Males
Years	8.0	5.8
Cost	\$336,000	\$242,504