

## Appendix A – Additional Details on the Survey

This section discusses the structure and content of information presented to respondents in the DCE. The choice task was inspired by the Private Health Insurance Ombudsman (PHIO) website [www.privatehealth.gov.au](http://www.privatehealth.gov.au), where consumers can compare all private health insurance policies available in Australia. The details of policies are presented in Standard Information Statements (SIS), which are regulated by the *Private Health Insurance (Complying Product) Rules*. The main similarities and discrepancies between the DCE and SIS are described below.

### Comparison of DCE to SIS

#### Notable similarities

(1) The order and terminology of rows. (2) Expressing premiums as monthly figures. (3) Expressing ancillaries benefits as annual caps. (4) The definitions of ambiguous health services (see below) were adapted from the PHIO website’s glossary page.

#### Discrepancies

(1) The SIS does not include a single insurer’s co-payment figure because most policies have more complicated co-payment structures. To accommodate this, the SIS has an extra column where insurers report the average expected benefits per typical claim for each health service. This structure was too complicated to incorporate into the DCE so a single co-payment figure was used instead. (2) There are 16 ancillaries health services (including ambulance) listed on the SIS for stand-alone ancillaries policies. To reduce the dimensionality of the choice task, the DCE only focused on a subset of services.<sup>1</sup> (3) No information on waiting periods. Waiting periods are to combat adverse selection from prospective members and are generally similar across policies.

Overall, the discrepancies between the SIS and the DCE resulted in the DCE being a simpler choice task. This is an important point given the research is concerned with choice quality and

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<sup>1</sup>Note that some hospital features that were not varied in the DCE were still included in the policy description to avoid respondents making their own assumptions. For example, the row “What is covered if I have to go to hospital” has the same value for every policy.

choice quality is expected to decrease with complexity.

### **Attribute levels**

The levels for attributes were chosen based on searches of policies offered by major insurers in August 2015. Search was limited to basic and medium level policies. This was for two reasons. First, the sample includes uninsured respondents and higher level policies are unlikely to be attractive to this group. Second, higher level policies necessarily cover more health services. Incorporating additional health services would increase the complexity of the choice task and was not feasible given constraints on consumer engagement and survey length. The levels were tested in a small pilot and the level of trading-off observed indicated they were reasonable.

Note that physical health services (physiotherapy, chiropractic, osteopathy and acupuncture) were amalgamated into a single cap. The search of insurance policies found that insurers often combined these services or a subset of these services, which are often substitutes.

### **Preambles**

#### Treatment 1

*“The following questions are designed to understand what features of health insurance policies are important to you. You will be asked to choose between two different general treatment (‘extras’) private health insurance plans a total of eight times. These plans provide cover for you only (i.e. cannot be used to cover health services received by your child or partner). Please indicate your preferred plan, taking into account all features and your personal circumstances.*

#### ***Important information before you start***

*For each health service, the amount displayed is the annual cap, which is the maximum amount the insurer will cover each year. For example, a \$350 cap for General Dental means that the most you can get back from the insurer on General Dental services is \$350 each year. For definitions and further information on policy features, you can hover your cursor over the feature you would*

*like more information about.”*

## Treatment 2

*“The following questions are designed to understand what features of health insurance policies are important to you. You will be asked to choose between two different combined hospital and general treatment (‘extras’) private health insurance plans a total of eight times. These plans provide cover for you only (i.e. cannot be used to cover health services received by your child or partner). Please indicate your preferred plan, taking into account all features and your personal circumstances.*

### ***Important information before you start***

*Each policy described below provides full exemption from the Medicare levy surcharge and Lifetime Health Cover loading.*

*For the ancillaries health services, the amount displayed is the annual cap, which is the maximum amount the insurer will cover each year. For example, a \$350 cap for General Dental means that the most you can get back from the insurer on General Dental services is \$350 each year. For definitions and further information on policy features, you can hover your cursor over the feature you would like more information about.*

*Note that you may find it easier to compare policies by reducing the text size. On most browsers you can reduce the text size by pressing ‘ctrl’ and ‘-’ (minus sign) together (or ‘command’ and ‘-’ together on Safari).”*

### **Definitions available to respondents**

*Excess:* Also known as a front-end deductible, an excess is an amount you must pay to the insurer if you are admitted to hospital. The excess is only payable for the first admission in a given year.

*Co-payment (hospital):* This is the amount you must contribute for each hospital admission or night in hospital.

*Insurer’s co-payment (ancillaries):* This is the percentage of the service fee that you can claim

back from your insurer. The remaining service fee must be paid by you.

*General dental:* Includes minor dental services, such as annual checkups, cleaning and fluoride treatment. Does not include endodontic services, orthodontic services or significant dental services, such as complex fillings, tooth extractions, crowns and bridges.

*Optical:* Includes prescription lenses, spectacle frames, and contact lenses.

*Physiotherapy; chiropractic; osteopathy; acupuncture:* Includes visits to a physiotherapist, osteopath, chiropractor or acupuncturist.

*Naturopathy:* Naturopathy uses a range of alternative approaches to medical treatments. Naturopathy can include nutrition, dietetics, herbal medicine and homoeopathy.

### **Health insurance comprehension questions**

1) *Which of the following correctly defines a co-payment in the context of insurance?*

- a) The amount that must be paid by the claimant before the insurer begins to cover any costs.
- b) A contribution that the claimant pays for each service claimed (answer).
- c) A refund paid back to the insurance holder when no claims are made during a specified period.
- d) A claim threshold above which the insurer stops paying benefits to the claimant.
- e) I don't know.

2) *Which of the following correctly defines a deductible (excess) in the context of insurance?*

- a) The amount that must be paid by the claimant before the insurer begins to cover any costs (answer).
- b) A contribution that the claimant pays for each service claimed.
- c) A refund paid back to the insurance holder when no claims are made during a specified period.
- d) A claim threshold above which the insurer stops paying benefits to the claimant.
- e) I don't know.

3) *If the chance of getting a disease is 10 percent, how many people out of 1,000 would be expected to get the disease?*

a) I don't know.

b) If you think you know the answer, please write it below.

## Appendix B – Details on Expected Cost Calculations

This section describes how ancillaries health care costs were estimated for the purpose of Table 9. I also provide some summary statistics on costs.

Data on utilization for each health service was collected in the survey. Specifically, respondents were asked how many visits they had with each type of health care provider in the previous 12 months up to a maximum of five.<sup>2</sup>

Expected costs for general dental, physical health services, natural therapies and remedial massage are simply the number of visits multiplied by the average cost for the service.

**General dental:** Average costs are from Teusner et al. (2013), who estimate dental expenses for Australian adults. They find that most demographics are not statistically significantly correlated with average cost per visit. One exception is whether the person experiences toothaches (either sometimes, often or very often). I use this as a source of variation in average costs. Visits to the dentist for respondents who rarely or never experience toothaches are assumed to cost \$292.50 and visits for those who experience toothaches are assumed to cost \$328.

One issue with costs for dental is that they include both general dental (e.g. check-ups, cleaning etc.) and major dental (e.g. surgical tooth removal). Unfortunately Teusner et al. (2013) do not separate general and major dental costs, although fillings and scale and cleans (which are general) account for 82% of services for dentate adults aged 25-64 and 65% of visits are for check-ups (Chrisopoulos & Harford, 2013), so it is likely that the costs exclusive major dental would not be significantly lower. Furthermore, if we are overestimating costs then we are also underestimating over-insurance in Table 9, so this cannot reverse the conclusions in the paper.

**Physical health services:** Utilization data was collected for each type of physical health service (i.e. physiotherapy, chiropractic, osteopathy and acupuncture). Average costs were calculated using September 2015 quarter Australian Prudential Regulation Authority (APRA) data on the value and number of claims made for each of these health services. The APRA data include

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<sup>2</sup>While this top-coding does bias downwards estimates for total health costs, it is not a problem for analysing policy choice because five visits to any health care provider ensures costs are above any of the caps used in this study. Moreover, very few respondents had this many visits to any provider.

the entire universe of claims made by Australians with private health insurance. Different prices were estimated for each state and territory. Average costs for each service ranged from \$46.97 for acupuncture visits in New South Wales to \$106.92 for osteopathy in the Australian Capital Territory.

**Natural therapies and remedial massage:** These costs were calculated identically to physical health service costs. The average cost to visit a natural therapist ranged from \$61.28 in New South Wales to \$79.94 in the Northern Territory. Remedial massage is included in the natural therapies category in the APRA data so was assumed to have the same costs.

**Optical:** Cover for optical primarily subsidises the cost of new glasses and lenses (consultations with an optometrist are generally covered by Medicare). While APRA data are available on optical claims and benefits, since the choice of glasses is highly discretionary I decided against using these data. Instead, respondents (conditional on requiring corrective eye-wear) were asked their expected probability (on a sliding scale from 0% to 100%) of purchasing new corrective eye-wear in the next 12 months and how much it would cost to replace their corrective eye-wear. Although respondents were told to ignore any rebates they might get from their private health insurer or otherwise, when reporting replacement costs a small number of respondents (5%) reported \$0. The average reported replacement cost was imposed on these respondents.

The average reported replacement cost is \$461, which is higher than expected. Inspection of the data found that this was being driven up by a small number of very high costs. The mean for respondents with replacement costs < \$1000 is \$269, which is more reasonable. Outliers are not a serious issue in terms of Table 9 because the maximum cap on optical of \$300 means there is effectively no difference between someone who reports a replacement cost of \$500 versus \$5000.

Finally, to estimate expected costs the self-reported probability of buying new glasses was multiplied by the self-reported replacement cost. This takes a prospective view on costs. I also considered a retrospective view (more in line with the approach for other services, where the cost distribution relates to the previous 12 months) in which costs were calculated as self-reported replacement cost times a dummy variable equal to one if the respondent visited an optometrist in

the previous 12 months. This effectively assumes that any visit to an optometrist for a respondent who wears glasses resulted in new glasses. The implied OOP cost minimizing distribution using this approach for optical costs was not materially different from the one reported in Table 9.

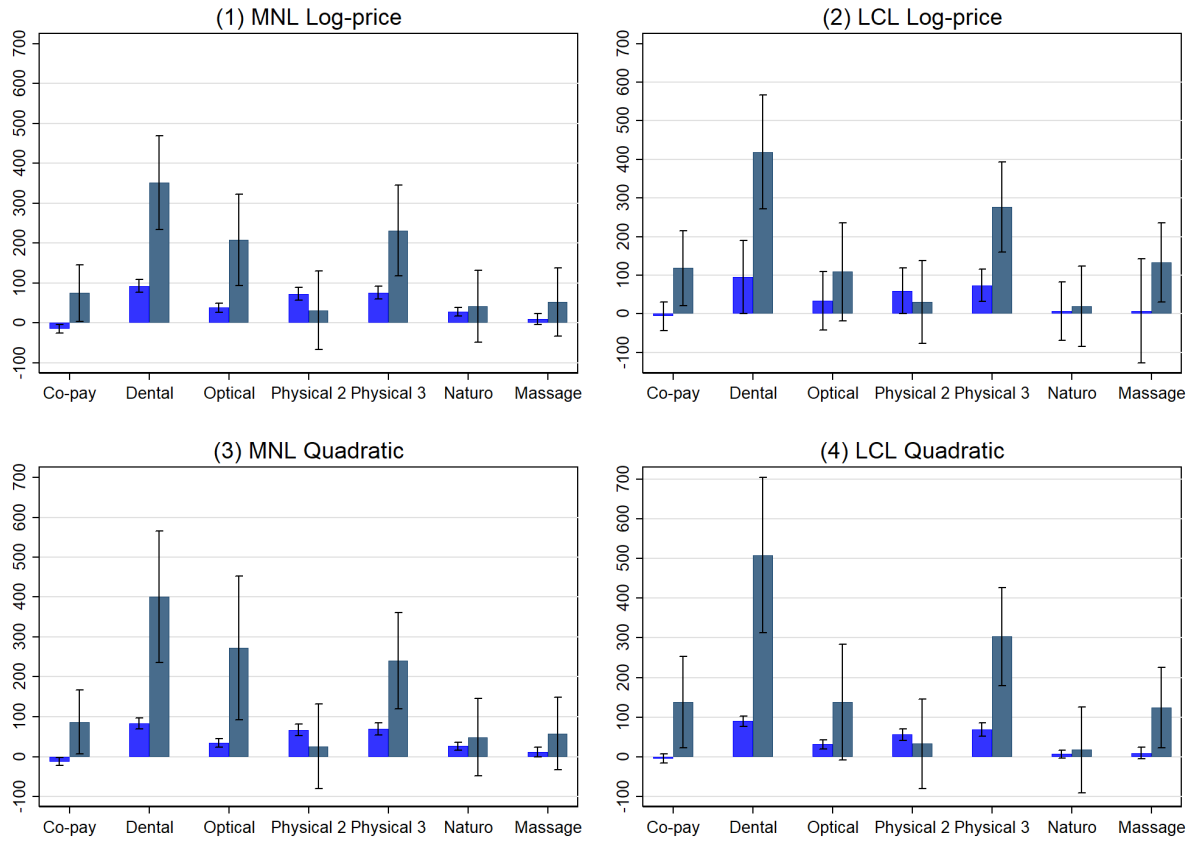
Below are the means, medians and 75<sup>th</sup> and 25<sup>th</sup> percentiles for the costs of each ancillaries health service. For every health service there is a mass of respondents who do not have any costs. For only dental and optical are costs > 0 for the median respondent. However, more than 75% of respondents incur some cost.

	Dental	Optical	Physical	Naturo	Massage	Total
Mean	\$336	\$213	\$79	\$7	\$33	\$669
Median	\$328	\$41	\$0	\$0	\$0	\$461
75 <sup>th</sup> Perc.	\$656	\$198	\$69	\$0	\$0	\$875
25 <sup>th</sup> Perc.	\$0	\$0	\$0	\$0	\$0	\$102



# Appendix C – Additional Results

Figure C1: WTP estimates with alternative price variables



Note: The left columns in each panel are WTP estimates for T1 and the right columns are for T2. WTP is calculated as  $-12 \cdot \frac{\sum_{c=1}^C U'_i(x^k)}{\sum_{c=1}^C U'_i(P)}$  for each attribute  $k$ , with the price  $P$  evaluated at the sample mean price (\$22.92 in T1 and \$121.09 in T2). Error bars are 95% confidence intervals calculated using the delta method.

Table C1: Additional policy choice probabilities

Set	Attribute levels (\$)						T1 performance			T2 performance		
	Price	Dental	Optical	Physical	Naturo	Massage	Predicted	OOP min	Correct	Predicted	OOP min	Correct
1.00	28.57	350.00	300.00	150.00	100.00	100.00	0.56	0.88	0.63	0.41	0.88	0.18
1.00	35.71	700.00	150.00	300.00	100.00	0.00	0.44	0.12	0.63	0.59	0.12	0.18
2.00	35.71	700.00	150.00	300.00	100.00	0.00	0.43	0.11	0.49	0.62	0.11	0.11
2.00	14.29	350.00	150.00	0.00	0.00	0.00	0.57	0.89	0.49	0.38	0.89	0.11
3.00	30.00	350.00	300.00	300.00	0.00	100.00	0.46	0.31	0.52	0.48	0.28	0.62
3.00	27.14	700.00	150.00	0.00	0.00	100.00	0.54	0.69	0.52	0.52	0.72	0.62
4.00	25.71	350.00	150.00	300.00	0.00	100.00	0.50	0.74	0.60	0.48	0.75	0.40
4.00	28.57	700.00	300.00	0.00	0.00	0.00	0.50	0.26	0.60	0.52	0.25	0.40
5.00	35.71	700.00	300.00	150.00	0.00	100.00	0.45	0.19	0.70	0.52	0.16	0.32
5.00	32.86	700.00	300.00	150.00	0.00	0.00	0.55	0.81	0.70	0.48	0.84	0.32
6.00	22.86	350.00	150.00	300.00	0.00	0.00	0.50	0.23	0.57	0.53	0.22	0.43
6.00	20.00	350.00	150.00	0.00	100.00	100.00	0.50	0.77	0.57	0.47	0.78	0.43
7.00	24.29	350.00	150.00	150.00	100.00	100.00	0.45	0.19	0.70	0.52	0.16	0.32
7.00	21.43	350.00	150.00	150.00	100.00	0.00	0.55	0.81	0.70	0.48	0.84	0.32
8.00	22.86	350.00	300.00	150.00	0.00	0.00	0.66	0.90	0.73	0.41	0.91	0.26
8.00	34.29	700.00	300.00	0.00	100.00	100.00	0.34	0.10	0.73	0.59	0.09	0.26
9.00	42.86	700.00	300.00	300.00	100.00	100.00	0.42	0.13	0.50	0.63	0.13	0.25
9.00	21.43	350.00	300.00	0.00	100.00	0.00	0.58	0.87	0.50	0.37	0.87	0.25
10.00	30.00	350.00	300.00	300.00	0.00	100.00	0.56	0.90	0.63	0.44	0.90	0.10
10.00	40.00	700.00	300.00	300.00	100.00	0.00	0.44	0.10	0.63	0.56	0.10	0.10
11.00	35.71	700.00	150.00	300.00	100.00	0.00	0.45	0.17	0.59	0.53	0.16	0.42
11.00	27.14	700.00	150.00	0.00	0.00	100.00	0.55	0.83	0.59	0.47	0.84	0.42
12.00	34.29	700.00	150.00	150.00	100.00	100.00	0.44	0.19	0.51	0.58	0.17	0.44
12.00	21.43	350.00	300.00	0.00	100.00	0.00	0.56	0.81	0.51	0.42	0.83	0.44

Note: 'Predicted' is the sample average prediction for choosing the relevant policy. 'OOP min' is the distribution of policy choices if respondents are choosing the cost minimizing option. 'Correct' is the proportion of respondents predicted to choose the lowest cost policy (choice probability > 0.5) based on their individual expected health costs (see Appendix B for details on how these are calculated).

Table C2: Attribute non-attendance  
first stage results: T1

Attribute	Price		Ancillaries	
	Coeff.	AME	Coeff.	AME
Age	<b>0.017</b> (0.008)	0.004	0.022 (0.013)	0.004
Male	0.338 (0.179)	0.076	-0.219 (0.300)	-0.042
University	<b>0.632</b> (0.214)	0.141	0.040 (0.328)	0.008
No PHI	<b>0.829</b> (0.187)	0.184	<b>-0.679</b> (0.285)	-0.132
Log rtime	0.168 (0.139)	0.038	<b>1.257</b> (0.324)	0.241
PHI literate	<b>0.773</b> (0.240)	0.178	<b>2.012</b> (0.886)	0.334
Constant	<b>-2.366</b> (0.503)		<b>-3.384</b> (0.858)	
Mean prob.	41.41%		56.98%	

Note: Clustered standard errors in parentheses. Average marginal effects (AME) for binary variables are the sample average change in probability of attribute attendance when switching the value from zero to one. For continuous variables, marginal effects are calculated for each individual and the AME is the mean of this vector. Coefficients in bold are statistically significant at the 5% level.

Table C3: Attribute non-attendance first stage results:  
T2

Attribute	Price		Ancillaries		Hospital	
	Coeff.	AME	Coeff.	AME	Coeff.	AME
Age	<b>-0.026</b> (0.011)	-0.003	0.007 (0.009)	0.001	-0.007 (0.014)	-0.001
Male	0.161 (0.257)	0.020	<b>-0.529</b> (0.204)	-0.113	<b>-0.661</b> (0.330)	-0.125
University	0.215 (0.296)	0.028	-0.371 (0.254)	-0.077	-0.134 (0.381)	-0.025
No PHI	0.496 (0.262)	0.063	0.252 (0.210)	0.054	-0.589 (0.350)	-0.111
Log rtime	0.254 (0.157)	0.032	<b>0.921</b> (0.172)	0.195	<b>0.917</b> (0.349)	0.171
PHI literate	0.433 (0.312)	0.060	<b>0.613</b> (0.255)	0.135	<b>1.531</b> (0.408)	0.323
Constant	<b>-1.650</b> (0.686)		<b>-2.896</b> (0.618)		<b>-2.255</b> (1.024)	
Mean prob.	15.26%		39.66%		36.11%	

Note: See Table C2.

## References

Chrisopoulos, S., & Harford, J. (2013). *Oral health and dental care in Australia: Key facts and figures 2012*. Australian Institute of Health and Welfare Cat. no. DEN 224.

Teusner, D. N., Brennan, D. S., & Gnanamanickam, E. S. (2013). Individual dental expenditure by Australian adults. *Australian Dental Journal*, 58, 498–506.