

# Australian Health Insurance Association

## Economic Impact Assessment of the Proposed Reforms to Private Health Insurance

**Final Report**

**28 April 2011**



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## **Statement of Responsibility**

This Report was prepared for the Australian Health Insurance Association as set out in our engagement letter agreed 20 December 2011 to undertake an Economic Impact Assessment of the Proposed Means-test of the 30% Private Health Insurance Rebate.

In preparing this Report we have relied on information provided to us by the Australian Health Insurance Association and from publicly available sources.

We have not audited or otherwise verified the accuracy or completeness of the information. We have not contemplated the requirements or circumstances of anyone other than the Australian Health Insurance Association.

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# Glossary

|                                             |                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANOP                                        | The market research company that designed and conducted the survey along with Newspoll of 2000 Australian Households in early 2011                                                                                                                                                                         |
| Australian healthcare system                | All components, both public and private, of healthcare provision in Australia. Includes including public and private providers of funding, care and insurance                                                                                                                                              |
| Benefits                                    | The term 'benefit' is used in two contexts in this report. The first is to refer to a claim made by a policy holder. The second is to refer to the benefits, or advantages, of a certain action such as purchasing health insurance. Where possible, the word 'claim' has been used to describe the former |
| Capacity                                    | The maximum number of patients that a hospital is able to service                                                                                                                                                                                                                                          |
| Capital expenditure                         | The cost of investing in additional inputs such as infrastructure                                                                                                                                                                                                                                          |
| Consumer                                    | Individual or family who consume or will consume healthcare. The term is used to refer to both those who have private health insurance and those who do not                                                                                                                                                |
| Deloitte Model                              | The model used to estimate results presented in this report                                                                                                                                                                                                                                                |
| Downgrade                                   | A policy holder 'downgrades' their private health cover when they decide to decrease the level of cover they pay for                                                                                                                                                                                       |
| General private health insurance population | Those who hold private health insurance and do not fall into one of the three high-income tiers towards which the proposed policy change is targeted                                                                                                                                                       |
| General treatment cover                     | Policies which provide benefits for general treatment services such as physiotherapy, dental and optical treatment                                                                                                                                                                                         |
| Healthy                                     | Consumers who represent a 'low risk' of illness                                                                                                                                                                                                                                                            |
| No private health insurance                 | Those who do not hold private health insurance. Note that individuals in this group may be in any income bracket                                                                                                                                                                                           |
| Operational expenditure                     | The ongoing cost of providing a service                                                                                                                                                                                                                                                                    |
| Policy holder                               | A consumer who holds a private health insurance policy                                                                                                                                                                                                                                                     |
| Private health insurance                    | Insurance which is paid for by a policy holder against certain types of healthcare services. Private health insurance is synonymous with 'private health cover'                                                                                                                                            |
| Private hospital cover                      | Policies which help cover the cost of in-hospital treatment                                                                                                                                                                                                                                                |
| Private health insurance Rebate             | The amount of money returned to the policy holder from the Government. Calculated as a proportion of the total premiums paid by that policy holder                                                                                                                                                         |
| Premiums                                    | The price of private health insurance                                                                                                                                                                                                                                                                      |
| Price elasticity of demand                  | The decrease in demand for private health insurance as a result of an increase in the price of private health insurance by 1 per cent                                                                                                                                                                      |
| Propensity to claim                         | The likelihood that a policy holder will file a claim with his/her private health insurance fund                                                                                                                                                                                                           |
| Proposed policy changes                     | The Australian Government's proposal to subject the 30% rebate on the premiums paid by private health insurance holders to a means test and introduce corresponding increases to the Medicare Levy Surcharge                                                                                               |

|                                            |                                                                                                                                                                                                                                          |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sensitivity                                | Refers to a consumer's price elasticity of demand                                                                                                                                                                                        |
| Separations                                | Occur when a patient leaves a healthcare facility after receiving treatment. It is a commonly used measure of the utilisation of healthcare services                                                                                     |
| Tiered private health insurance population | Those who hold private health insurance and fall into one of the three high-income tiers towards which the proposed policy change is targeted. That is, if a policy holder earns an income <i>above</i> \$80,000 (\$160,000 for couples) |
| Treasury Model                             | The model used by the Australian Treasury to estimate the impacts of the proposed policy change                                                                                                                                          |
| Unhealthy                                  | Consumers who represent a 'high risk' of illness                                                                                                                                                                                         |
| Withdraw                                   | A policy holder 'withdraws' from private health cover when they decide to no longer pay for that private health cover                                                                                                                    |

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# Executive Summary

The private health sector is an integral component of the Australian healthcare system. Over the last year, private health funds have paid \$12.4 billion in benefits towards the healthcare of the 11.7 million Australians who hold some form of private health cover.<sup>1</sup>

The Australian Government operates several policy measures to encourage members of the population to purchase private health cover. Three such measures, the 30% rebate on private health insurance, Lifetime Health Cover and the Medicare Levy Surcharge seek to make private health cover accessible for all consumers.

In 2009, the Australian Government announced that it intended to subject the 30% Rebate on private health insurance to a means test.<sup>2</sup> The proposed policy change would introduce three 'Private Health Insurance Incentive Tiers' (tiers) based on income thresholds as well as corresponding increases in the Medicare Levy Surcharge for those tiers.

At the time of this announcement, the Australian Treasury projected that following the proposed policy change only 25,000 high-income consumers would withdraw from their private cover. These Treasury projections are driven by a literature-based assumption that the decisions of high-income consumers to purchase private health cover are not strongly dependent on its price.<sup>3</sup>

This Deloitte Report estimates the economic impacts of the proposed means testing of the 30% rebate.<sup>4</sup> It uses the results of an ANOP/Newspoll survey of 2000 Australian households conducted in early 2011 to determine how private health insurance policy holders will respond to the proposed changes to the rebate.

Based on the ANOP/Newspoll Survey, this report finds that the consumer response following the proposed policy change will be significant and will set in motion a series of inter-related impacts that will flow through the wider Australian healthcare system. Specifically, Deloitte estimates that:

- Significant numbers of consumers will withdraw from their private hospital cover (1.6 million consumers over five years) or downgrade to lower levels of private health cover (4.3 million consumers over five years) following the proposed policy change
- Significant numbers of consumers will also withdraw from their general treatment cover (2.8 million consumers over five years) or downgrade to lower levels of private health cover ( 5.7 million consumers over five years) following the proposed policy change
- Private health insurance premiums will rise 10 per cent above what would otherwise be expected. As premiums rise, private health cover will become less affordable for all consumers, that is, not just those who are in the tiers
- As people withdraw from private health insurance, the burden on publically provided healthcare rises. The findings indicate that the cost of treating consumers in the public hospital system are expected to rise substantially above what is currently anticipated by Government (Deloitte estimates that additional operating costs accumulated over five years will be \$3.8 billion and \$1.4 billion in the fifth year alone)

<sup>1</sup> PHIA (2010) accessed online: <http://www.phiac.gov.au/>

<sup>2</sup> The proposed introduction means testing the 30% rebate on private health insurance is also referred to as 'the proposed policy change' through this document

<sup>3</sup> The Treasury (2009) 'Senate Economics Legislation Committee Budget Estimates 2009-10 — Private Health Insurance – Fair and sustainable support for the future'

<sup>4</sup> The report does not consider the impact of the proposed policy change on private sector capacity

- In time, it is expected that the cost of servicing increased demand for public hospital services will outweigh the savings to government from the means testing of the rebate.

The key findings of the report are briefly outlined below:

**Key Finding #1 — Following the proposed policy change, a significant number of consumers are expected to withdraw/downgrade their private health insurance**

Following the proposed policy change, Deloitte estimates that:

- In the first year of implementation, 175,000 consumers will withdraw from private hospital cover and a further 538,000 will downgrade. In addition, 554,000 consumers will withdraw from general treatment cover and 803,000 will downgrade
- Over five years, 1.6 million consumers will withdraw from private hospital cover and 4.3 million will downgrade. A further 2.8 million consumers will withdraw from general treatment cover and 5.7 million will downgrade
- Consumers who withdraw from their private health cover are less likely to have claimed healthcare benefits than those who choose to remain.

The Deloitte projection of the impact following the proposed policy change is substantially larger than those provided by Treasury. The projections differ as a result of three key differences in the modelling approach employed by Deloitte:

1. Predictions of consumer response to changes in the price of private health cover are based on survey results as opposed to a literature review. A literature review, of the potential price sensitivity of private health insurance consumers represents a valid approach. The ANOP/Newspoll Survey, however, presents new evidence and offers the opportunity to revisit analysis of the proposed legislative changes
2. The projections consider not only the private hospital cover market but also the general treatment cover market. This is important as consumers are able to withdraw from general treatment cover without facing the Medicare Levy Surcharge
3. The projections allow for the option that consumers may choose to downgrade their level of cover in response to the policy change.

**Key Finding #2 — Following the proposed policy change, private health insurance is expected to become less affordable for all healthcare consumers, not just those within the tiers**

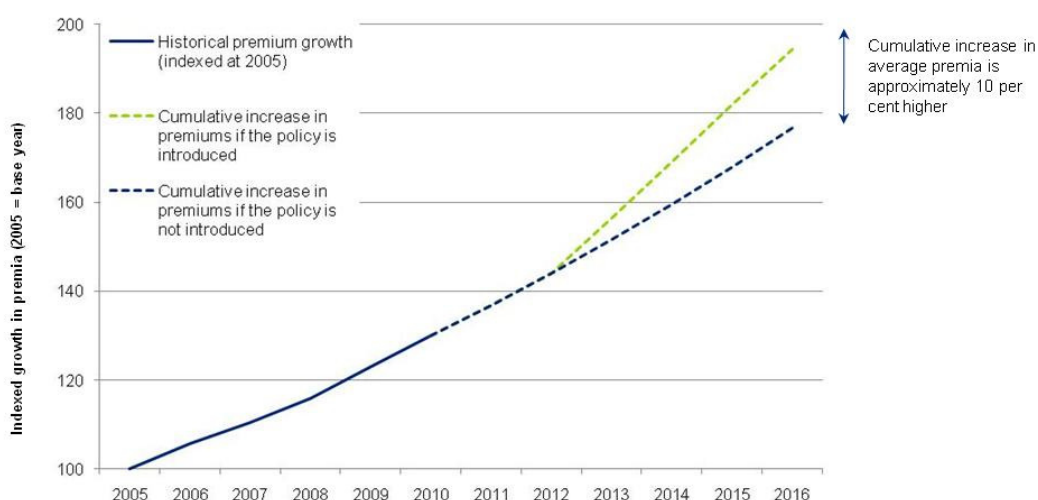
Deloitte estimates that:

- If the policy change is introduced, by 2016, private health insurance premiums will be 10 per cent higher than they otherwise would have been
- This price change will affect *all consumers* who purchase or plan to purchase private health insurance.

Figure ES.1 illustrates projections for growth in premiums over the next five years both under the scenario where the proposed policy change is introduced and the scenario where it is not introduced. The distance between the lines represents the accelerated rate of growth in premiums expected if a means test on the rebate is introduced.



**Figure ES.1. The projected growth in private health insurance premiums owing to the means testing of the rebate**



Source: Deloitte analysis of ANOP/Newspoll 2011 Survey results

There is a cyclical relationship between the increasing number of consumers withdrawing/downgrading their private health cover and the continuing rise in premiums.<sup>5</sup> The Deloitte projections show that year-on-year, the consumers who are less likely to make claims withdraw disproportionately from the private health insurance market in response to increasing premiums, leading to subsequent price rises for all consumers. This projected response is comparable to the 'adverse selection spiral' that was observed following the introduction of Medicare, where between 1984 and 1997 private health coverage across the population fell at a rate of 1.4 per cent annually. During this period, research has shown that it was predominantly younger and healthier consumers who choose to withdraw from their private health cover.<sup>6</sup>

While only private health insurance consumers in the tiers initially will be affected by the proposed policy change, any subsequent changes to premiums that occur as a consequence of the remaining consumers' greater average propensity to claim will be borne by all private health insurance consumers. The Deloitte projections indicate that the greatest decline in private health insurance membership over the five years is among non-tiered private health consumers.

**Key Finding #3 — The chain of events triggered by the proposed policy change is expected to place additional burden on the public health system**

Deloitte estimates that:

- As people withdraw from their private cover they become more reliant on the public healthcare system. Between 2012 and 2016, 845,000 additional separations will need to

<sup>5</sup> Gans, J. S. & King, S.P. (2003) 'Problems and solutions for the Health Insurance System in Australia', *Journal of economic literature*

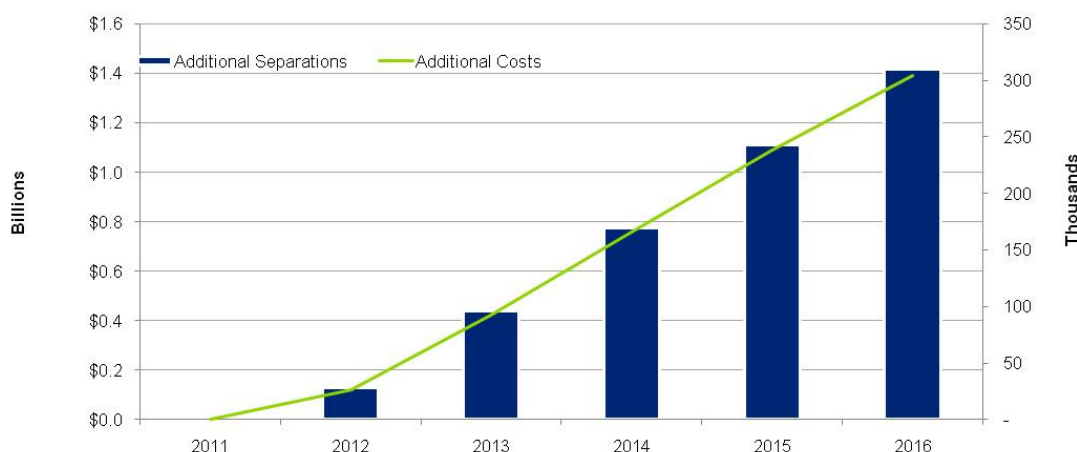
<sup>6</sup> Barrett, G and Conlon, R (2002), 'Adverse selection and the decline in Private Health Insurance Cover in Australia: 1989 -1995', UNSW

- occur in public hospitals as a consequence of the means testing of the rebate
- Between 2012 and 2016, additional separations which occur in the public system as a result of the policy change will cost the Government an additional \$3.8 billion in cumulative recurrent costs over the five years.

In her Second Reading Speech to the proposed change in legislation, the Minister for Health and Ageing estimated that the impact on public hospitals would be limited to the addition of 8000 separations in the two years following the change.<sup>7</sup> Based on the ANOP/Newspoll Survey, Deloitte estimates that in this time frame, 123,000 additional separations will occur in the public sector. Between 2012 and 2016, Deloitte estimates 846,000 additional separations will occur in the public sector following the proposed policy change.

Figure ES.2 illustrates the expected rise in additional separations that will occur in the public hospital system as consumers withdraw from private health insurance and the associated increase in public funding costs. In the absence of the proposed policy change, total public sector separations are expected to grow by 15 per cent between 2012 and 2016. Adding the impact of the proposed policy, total public sector separations would be expected to grow 21 per cent by 2016.<sup>8</sup>

**Figure ES.2. Additional separations and costs expected in the public hospital sector following introduction of the means test (operational costs only)**



Source: Deloitte analysis of ANOP/Newspoll 2011 Survey results

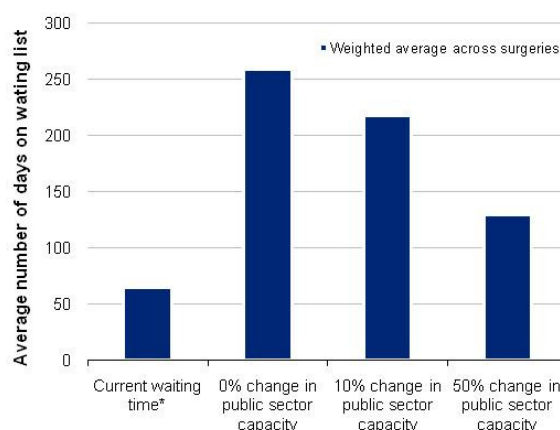
Currently Australian Institute of Health and Welfare data indicate that approximately 1 in 10 consumers requiring hip surgery and 1 in 15 consumers requiring knee surgery wait for approximately a year.

Considering 15 common surgeries, Figure ES.3 illustrates the change in average waiting lists that could be expected under differing levels of government investment in hospital capacity. Deloitte estimates that the average waiting time would increase from 65 days to 259 days if no additional public capital investments were made in the next five years.<sup>9</sup>

<sup>7</sup> Australian Parliamentary Hansard, House of Representatives, 27 May 2009, accessed online: <http://www.aph.gov.au/hansard/rep/dailys/dr270509.pdf>, last accessed 13 April 2011

<sup>8</sup> Note this assumes that all medical services are provided in the public sector in the same year that they would have otherwise been demanded but that surgical services enter the Public sector over a multi-year period. Due to the differences in the propensity to claim of persons keeping Private Health Insurance cover compared with those withdrawing from their cover, the impact on public sector services is small in the early years, when 'healthier' consumers withdraw and increases over time, as progressively 'unhealthy' consumers also begin to withdraw from the private market.

<sup>9</sup> Note: change in waiting times have been calculated using the Poisson function, which provides information about the average waiting list time, given assumed arrival rates and service capacity rates. However, the AIHW does not

**Figure ES.3. Potential impact to public sector elective surgery waiting list times**

Source: Deloitte

#### **Key Finding #4 — The proposed policy change will trigger a series of events that will result in deteriorating government savings, and ultimately net costs to government**

Treasury estimates that savings from the means testing will be equivalent to \$1.9 billion over four years

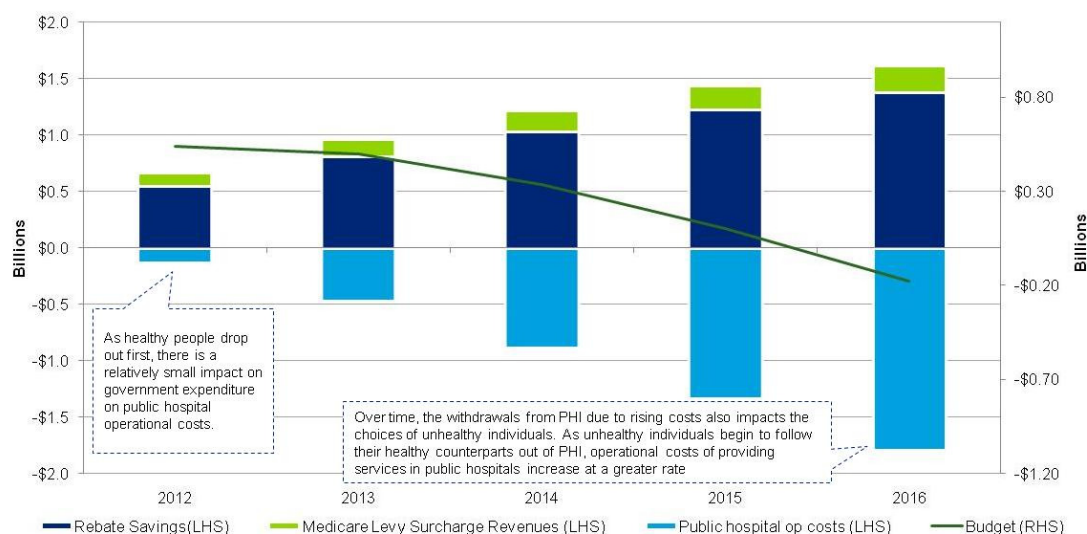
Deloitte estimates that:

- The costs owing to the increase in demand for the public hospital system over these four years will be \$2.4 billion
- By the fifth year, total costs resulting from the policy change will exceed the projected savings.

As consumers withdraw and downgrade their level of private cover, they enter into the public healthcare system at a cost to government. The cost of funding increasing demand in the public hospital system will negate the savings to government that are expected from the means testing of the rebate.

In the first four years following the proposed policy change, the estimated savings in rebate payments and additional revenue from the Medicare Levy Surcharge exceed the increase in costs from the proposed policy change. In the fifth year, however, the cost of servicing additional demand in the public sector is forecast to exceed the expected savings (Figure ES.4). This is because additional costs grow at a rate which exceeds the rate of growth in cost savings. For this reason, it is likely that in the years which follow the period modelled, the total savings resulting from the proposed policy change will be less than the additional costs.

publish average waiting list times, and so we have used the published median as a proxy for the average. Given that each elective surgery procedure has a percentage of people waiting greater than 360 days, it is highly likely that the average waiting list time (in days) is greater than the median waiting list time. Note also this treats the Australian healthcare system as a 'single server' with a 'national queue' for the purposes of evaluating order of magnitude and direction of change. Surgeries considered are: cataract extraction, cholecystectomy, coronary artery bypass graft, cystocopy, haemorrhoidectomy, hysterectomy, inguinal herniorrhaphy, myringoplasty, myringotomy, prostatectomy, septoplasty, tonsillectomy, total hip replacement, total knee replacement and varicose veins stripping and ligation

**Figure ES.4. Government Budget changes following the proposed policy change**

Source: Deloitte analysis of ANOP/Newspoll 2011 Survey results

The costs estimated by Deloitte in Figure ES.4 do not account for any additional capital investments that may be made in public hospitals to meet additional demand. It is important to note, however, that Australian hospitals are currently operating at average bed utilisation levels of approximately 87 per cent,<sup>10</sup> which implies that some areas are operating at levels higher than this. This suggests that Australia's public sector hospitals are at or near capacity and would likely require investment in a mix of new beds, operating theatres, skilled labour and other services in order to meet any additional demand.

<sup>10</sup> National public hospital establishments database (NPHEd)' AIHW. <http://www.aihw.gov.au/national-public-hospital-establishments/>; National Hospital Cost Data Collection Cost Report Round 13' DOHA. <http://www.health.gov.au/internet/main/publishing.nsf/Content/health-casemix-data-collections-NHCDCReports>

# 1 This report

The private health insurance industry has become a major component of the Australian health system. As at December 2010 more than half the population had some form of private health cover.<sup>11</sup>

Over time, the Australian Government has introduced several policy measures to encourage consumers to adopt private health cover with a policy objective of taking pressure off public healthcare services.<sup>12</sup> One of the three policy measures introduced in the late 1990's was a 30% rebate on the premiums paid by members of the population who chose to hold private health insurance. This rebate is not means tested. Five years following its introduction, the rebate was increased to 35 per cent for people aged 65 to 69 and to 40 per cent for people aged 70 and older.

In 2009, the Australian Government announced an intention to introduce means testing of the rebate from 1 July 2010, such that higher income earners will receive a lower rebate or no rebate at all. At the same time, they would face a higher surcharge if they chose not to hold private hospital cover.<sup>13</sup> The proposed policy change introduces three 'Private Health Insurance Incentive Tiers':

- **Tier 1** — For singles earning more than \$80,000 (couples \$160,000); the 30% rebate on private health insurance will be reduced to 20 per cent for those up to 65 years (25 per cent for those over 65, and 30 per cent for those over 70 years). The surcharge for no private hospital cover will remain at one per cent
- **Tier 2** — For singles earning more than \$93,000 (couples \$186,000), the 30% rebate will be reduced to 10 per cent, for those up to 65 years (15 per cent for those over 65, and 20 per cent for those over 70 years). The surcharge for no private hospital cover will be increased to 1.25 per cent
- **Tier 3** — For singles earning more than \$124,000 (couples \$248,000), no rebate will be provided. The surcharge for no private hospital cover will be increased to 1.5 per cent.<sup>14</sup>

All income thresholds will continue to be indexed to wages. For low and middle-income earners, the existing 30, 35 and 40 per cent rebates will remain in place.<sup>15</sup>

In support of this proposed policy change, the Federal Treasury Department conducted an analysis considering the impacts of the proposed policy change. This analysis relied on an assumption, supported by a review of available literature, that consumers across all three income tiers will be relatively insensitive to price changes when deciding to purchase private health insurance.<sup>16</sup> The analysis, however, only considered the possibility that private health

<sup>11</sup> Private Health Insurance Administration Council (2010) 'Quarterly Statistics – hospital treatment and general treatment', accessed online: <http://www.PrivateHealthInsuranceac.gov.au/resources/file/membershipdata/MCDec10.pdf>, last accessed 23.02.2011

<sup>12</sup> Department of Health and Ageing (1996), 'Financial incentives to boost Private Health Insurance', accessed online: <http://www.health.gov.au/internet/main/publishing.nsf/Content/health-pubs-budget96-media-PrivateHealthInsurance.htm>, last accessed 07.03.2011

<sup>13</sup> For the remainder of the report, this proposed change to the Private Health Insurance rebate will be referred to as the 'proposed policy change'

<sup>14</sup> Department of Health and Ageing (2011) 'Rebalancing support for Private Health Insurance', accessed online: <http://www.health.gov.au/internet/budget/publishing.nsf/Content/budget2009-hmedia13.htm>, last accessed 16.03.2011

<sup>15</sup> Department of Health and Ageing, 2010, Health Budget 2009-2010, 'Rebalancing Support for Private Health Insurance', <http://www.health.gov.au/internet/budget/publishing.nsf/Content/budget2009-hmedia13.htm> last accessed 08.03.2011

<sup>16</sup> Senate Economics Legislation Committee, *Private Health Insurance – Fair and Sustainable Support for the Future*, Senate Economics Legislation Committee Budget Estimates 2009-10 1-4 June 2009, Tabled Document No 8, tabled by Marty Robinson, 3 June 2009.

insurance consumers will drop their private hospital cover as a response to the change. It did not allow for the possibility that consumers may choose to downgrade their level of private health cover or reduce other types of cover. Moreover, it did not consider any potential 'second round' shocks to the wider Australian healthcare system, as these flow-on impacts were not expected to eventuate under the assumption that private health insurance membership would not be significantly impacted by the proposed policy changes. That is, the analysis was focused on the immediate impact of the policy change to people who fall into the three high-income tiers without considering subsequent impacts for the remainder of the population.

Deloitte has been engaged by the Australian Health Insurance Association to conduct further analysis considering the potential economic impacts of introducing a means test on the 30% rebate on private health insurance. The analysis is based on results from a national survey conducted by ANOP/Newspoll of 2,000 households in early 2011. Further, the model presented in this paper also allows for the possibility that consumers may choose to downgrade their cover in light of a change in the price of private health insurance.

## 1.1 Report structure

This report is structured as follows:

- **Chapter 2: Private health insurance in Australia** — The purpose of this chapter is to provide background and context for the analysis, outlining the policy environment and the details of the proposed policy change
- **Chapter 3: Defining potential impacts** — The purpose of this chapter is to qualitatively describe the key inter-relationships between consumer decisions, the private health insurance membership pool and the wider Australian healthcare system
- **Chapter 4: Economic impacts** — This chapter presents a quantitative assessment of the expected impacts of the proposed policy change to the private health insurance market, public healthcare system and government revenue outlook based on the results of a national survey of private health insurance consumers
- **Chapter 5: Conclusions** — This chapter summarises the findings of the analysis and presents the key conclusions of the report.

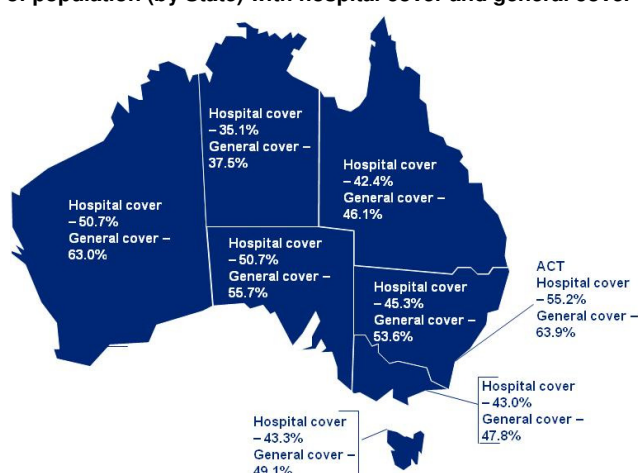
## 2 Private health insurance in Australia

*Chapter 2 describes the role that private health insurance plays in the Australian healthcare system. The discussion includes a description of the three key policy measures that were introduced after 1996, which sought to increase the size and health of the private health insurance population. The chapter concludes by describing the proposed policy change analysed in this paper and outlines the key assumptions and outcomes of the 2009 Treasury analysis, which provided initial estimates of the potential impacts of the proposed policy changes.*

### 2.1 The role of private health insurance in Australian healthcare

Private health insurance has increasingly become a significant component of the Australian healthcare system. The majority of Australians now hold some level of private health cover. As at December 2010, 44.9 per cent of the Australian population was covered by private hospital treatment (private health insurance hospital) cover and over half of the population had some form of private general treatment (private health insurance general treatment) cover (Figure 2.1).<sup>17</sup> Hospital policies help cover the cost of in-hospital treatment by doctors and hospital costs such as accommodation and theatre fees. General treatment policies provide benefits for general treatment services such as physiotherapy, dental and optical treatment. General treatment policies may be offered separately or combined with hospital cover.<sup>18</sup>

**Figure 2.1 Percentage of population (by State) with hospital cover and general cover**



Source: PHIAC (2010) 'Membership and coverage data tables 2010', accessed online: <http://www.phiac.gov.au/for-industry/industry-statistics/datatablesmc/> 24.02.2011

<sup>17</sup> Private Health Insurance Administration Council (2010) 'Quarterly Statistics – hospital treatment and general treatment', accessed online: <http://www.PrivateHealthInsurance.gov.au/resources/file/membershipdata/MCDec10.pdf>, last accessed 23.02.2011

<sup>18</sup> Private Health Insurance Ombudsman (2011) 'How Private Health Insurance Works', accessed online: <http://www.privatehealth.gov.au/healthinsurance/howitworks/>, last accessed 16.03.2011



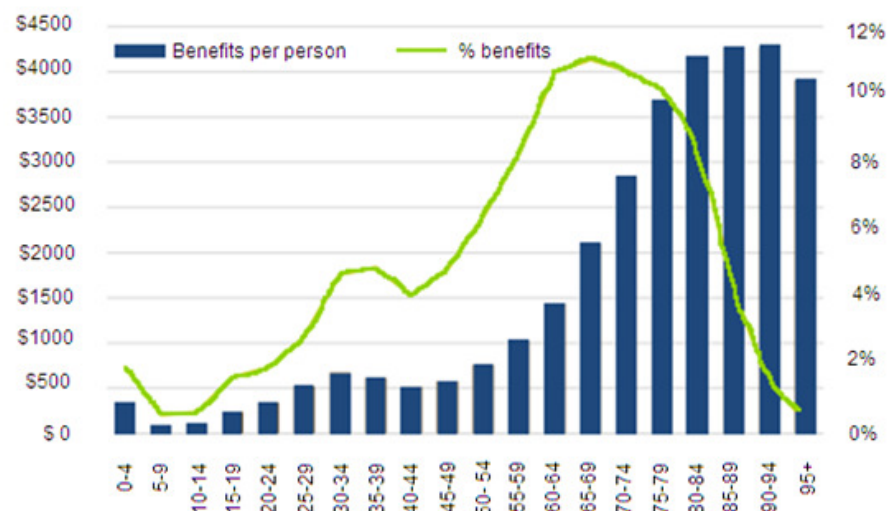
Australia has a mixed system of public and private health insurance funded healthcare. Public health insurance (Medicare) 'overlaps' with private health insurance in that an individual with private health insurance can also access public health services on the same basis as those who are not privately insured.

A healthcare consumer who purchases private health insurance is buying the option of using either the public or private system when they choose to access certain treatments. The range of services provided by the private sector is broad, including services ranging from joint replacement to cardiac surgery. The consumer pays for healthcare through their income taxes and through private health insurance premiums. These additional resources help to keep the average cost of healthcare down in both the public and private healthcare system.

Consumers can be differentiated on the basis of how likely it is that they will require healthcare in the near future. Some will represent 'low risks', that is, they are in good health and do not have any foreseeable need to access a significant level of healthcare in the near future. Others will represent 'high risks', that is, they are either in poor health or are in a demographic which puts them at higher risk of poor health (for example, older consumers) or have plans to access healthcare in the near future (for example, pregnancies). In reality, this risk is like a sliding scale, where consumers represent differing levels of risk relative to each other. However, for the purpose of simplifying the discussion in this paper, consumers can be characterised as those who are 'unhealthy' and represent a 'high risk' of illness and those who are relatively 'healthy' and represent a 'low risk' of illness.

Within an insured group, it is expected that the bulk of the health resources (benefit outlays) will be allocated to those consumers who are relatively 'unhealthy' over time and stand to benefit from medical care. This is because unhealthy consumers have the most to gain from purchasing private health insurance, particularly private hospital cover, as they are the most likely to access healthcare services. This is illustrated in Figure 2.2, where it is clear that the propensity to claim hospital benefits increases with age, where age is closely positively related to level of health risk.

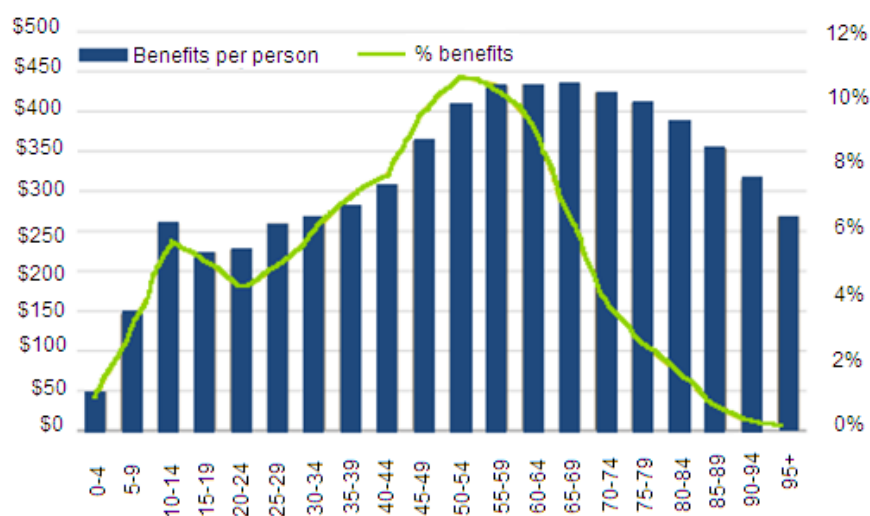
**Figure 2.2 Hospital treatment claims per person insured and percentage of benefits paid by age**



Source: PHIAC (2010) 'Quarterly Statistics'

By contrast, general treatment claims tend to be more evenly distributed across all age groups (Figure 2.3).



**Figure 2.3 General treatment claims per person and percentage of benefits paid by age**

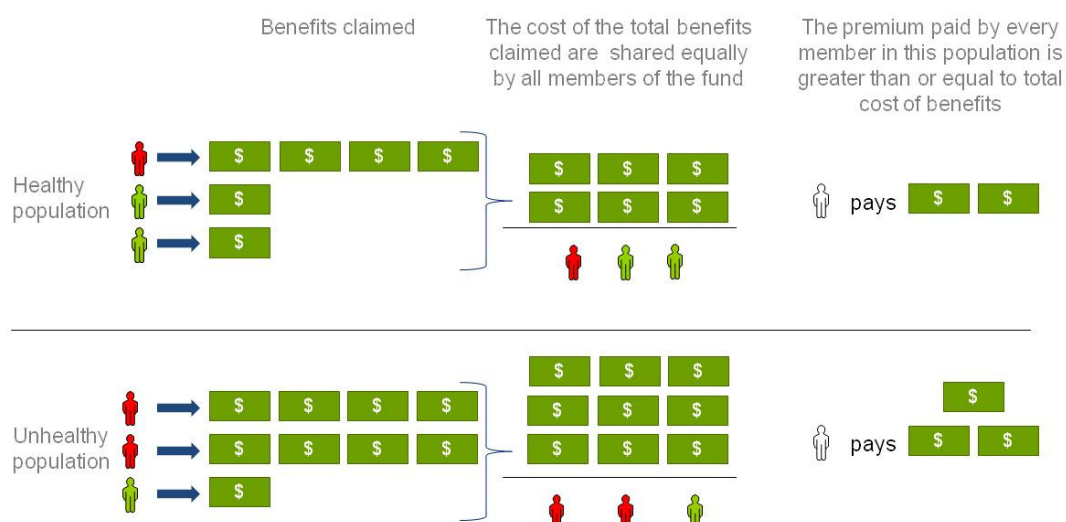
Source: PHIAC (2010) 'Quarterly Statistics'

The amount that is claimed also varies significantly between hospital and general treatment cover. Comparing the left-hand vertical axis of Figures 2.2 and 2.3, it is evident that hospital treatment benefits are for some age groups almost ten times higher than general treatment benefits claimed per person.

The private health insurance industry in Australia is heavily regulated. Of primary importance to the issues canvassed in this paper are the 'community rating' regulations. The *National Health Act 1953* legislates that in setting premiums, or paying benefits, funds cannot discriminate (in relation to a contributor or his / her dependents) on the basis of health status, age, race, sex, sexuality, use of hospital or medical service or general claiming history. This principle of anti-discrimination in private health insurance is termed 'community rating'.<sup>19</sup>

By precluding health insurers from discriminating on the basis of health risk, community rating can induce an 'adverse selection spiral'. Where everyone pays the same premium for any given policy, that policy is naturally more attractive to people who are likely to claim more (the relatively unhealthy consumers), than to those who are likely to claim less (the relatively healthy consumers). Healthy consumers, who have a higher incentive to exit private health insurance, do so leaving unhealthy consumers behind. In response to the changing health status of the insured pool, premiums rise (Figure 2.4). A spiralling or self-perpetuating pattern develops that can be characterised by further rounds of premium increases and private health insurance market contraction.

<sup>19</sup> Department of Health and Ageing (2011), 'Private Health Insurance – glossary of commonly used terms', accessed online: <http://www.health.gov.au/internet/main/publishing.nsf/Content/health-privatehealth-consumers-glossary.htm#rating>, last accessed 07.03.2011

**Figure 2.4 How does average health of the private health insurance population effect premiums?**

N.B Healthy individuals are coloured green, unhealthy individuals are coloured red

In summary, the 'dual' system of public and private insurance in Australia functions more effectively and efficiently as:

- **More consumers adopt private health insurance (Size)** — To decrease pressure on the public health system and decrease premiums within the private health insurance market
- **More healthy consumers adopt private health insurance (Composition)** — To decrease the price of premiums within the private health insurance market.

The presence of an adverse selection spiral where unhealthy members of the population pay twice for their healthcare (through both premiums and taxes) while healthy members of the population only pay once (through taxes) is an undesirable policy outcome. In recent years, the Australian Government has introduced several policy changes to increase the level of private health coverage across the population and to incentivise healthy consumers to stay in private health insurance. These changes are discussed in Section 2.2.

## 2.2 Recent changes in private health insurance policy

In 1984, the Australian Government introduced Medicare – a compulsory government-operated health insurance scheme, requiring progressive contributions and access to care in accordance with need. At the time when Medicare was introduced, coverage of the population by private health insurance was approximately 50 per cent, which is similar to the percentage of the population which is covered today. Between 1984 and 1997, however, this percentage fell gradually to 30.5 per cent of the population — a rate of decline of about 1.4 per cent a year.<sup>20</sup> Critically, Barrett and Conlon (2003) show that between 1989 and 1995 coverage fell more for younger consumers than for older ones, leaving an increasingly high proportion of unhealthy consumers in the private health insurance market.<sup>21</sup>

Following an inquiry by the Productivity Commission (then Industry Commission) into private health insurance in 1997, a number of policy changes were introduced by the incoming

<sup>20</sup> McAuley, I (2005) 'Private Health Insurance: still muddling through', *Agenda*, Volume 12 (2), pp159-179

<sup>21</sup> Barrett, G and Conlon, R (2002), 'Adverse selection and the decline in Private Health Insurance Cover in Australia: 1989 -1995', UNSW

government in an attempt to reverse this trend.<sup>22</sup> Within two months of the election, the government issued a press statement outlining the rationale for the policy decision:

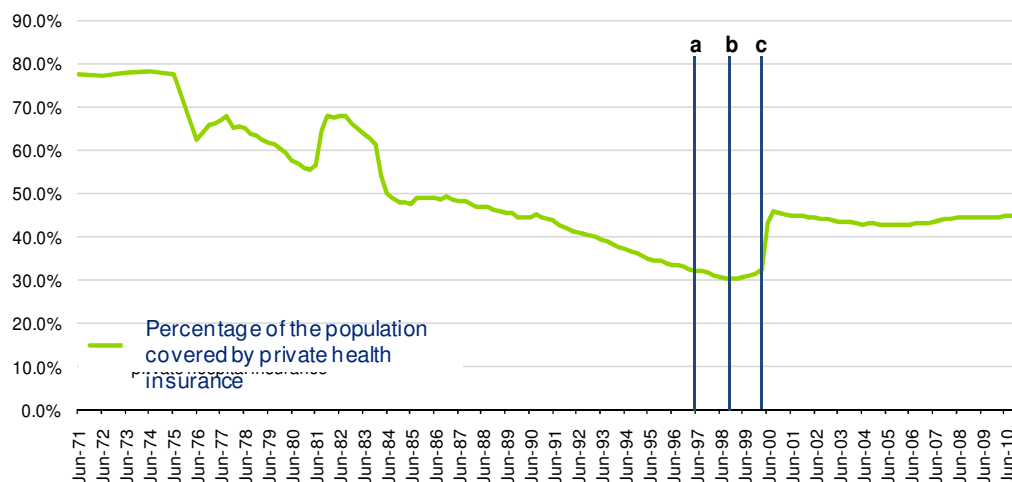
*"In June 1996, just 33.6 per cent of Australians had private health cover, about half the level of coverage in early 1983. This is perhaps the single most serious threat to the viability of our entire health system ... The Australian public hospital system is in overload."*<sup>23</sup>

The Commonwealth Government then introduced three different changes in rapid succession:

- a. **Private health insurance Incentives Act (July 1997)** — A means tested fixed-rate subsidy for private insurance and a tax surcharge (one per cent) imposed on medium to high-income earners without private insurance
- b. **Private health insurance Incentives Scheme (January 1999)** — A non-means tested 30% rebate on private health insurance premiums
- c. **Lifetime Health Cover (July 2000)** — Lifetime cover agreements, whereby premiums rise by two percent a year for up to 10 years as a surcharge if that person has not joined private health insurance by age 30.

Figure 2.5 illustrates the percentage of the Australian population holding private health insurance over time, highlighting the points at which the above three changes were introduced.

**Figure 2.5 Introduction of three changes**



Source: PHIA data (2010), accessed online: <http://www.phiac.gov.au/>, last accessed 07.03.2011

The combined effect of the three changes was the dramatic increase in private health insurance membership from late 1999, as is observable in Figure 2.5. Given the rapid introduction of all three changes, debate remains over which policy measure was most effective in achieving the subsequent rise in membership. It is typically considered that some combination of the latter two changes, which were introduced within 6 months of each other, had the strongest effect on membership levels, with the 1 per cent tax levy having some impact on those with higher levels of income.<sup>24</sup>

<sup>22</sup> Butler, J.R.G. (2002), 'Policy change and Private Health Insurance: did the cheapest policy do the trick?', *Australian Health Review*, 25(6), pp 33 – 41

<sup>23</sup> Department of Health and Ageing (1996), 'Financial incentives to boost Private Health Insurance', accessed online: [http://www.health.gov.au/internet/main/publishing.nsf/Content/health-pubs-budget96-media-Private Health Insurance.htm](http://www.health.gov.au/internet/main/publishing.nsf/Content/health-pubs-budget96-media-Private%20Health%20Insurance.htm), last accessed 07.03.2011

<sup>24</sup> Harper, I (2003) 'Preserving Choice- a defence of Public support for private healthcare funding in Australia'

Opponents of the 30% rebate have argued that the subsidy simply replaces private funding with Commonwealth funding with limited gain to the public healthcare system. For example, Deeble (2003) argues that private health insurance membership is relatively insensitive to price and that almost all of the increase in membership observed in the early 2000s can be associated to the marketing, or “fear campaign”, which was associated with the policy change.<sup>25</sup>

Proponents argue that this position ignores the implicit cross subsidy between subscribers to private health insurance and the public hospital system. For example, Harper (2003) proposes that the introduction of the 30% rebate moved the Australian system closer to a system where good health risks cross-subsidise those with poor health risks by lowering the level of cross-subsidy paid per privately insured person. Harper (2003) further argued that public expenditure on the 30% rebate was outweighed by savings to the public purse in avoided increases in public hospital expenditure.<sup>26</sup>

## 2.3 The proposed policy change

In 2009, the government announced that from 1 July 2010 the 30% rebate on the premiums paid by private health insurance holders would be subject to a means test. The proposed policy change introduces three ‘Private Health Insurance Incentive Tiers’ based on income thresholds which will continue to remain indexed to wages. For low and middle-income earners, the existing 30, 35 and 40 per cent private health insurance rebates will remain in place.<sup>27</sup> Higher income earners will receive a lower rebate if they choose to hold private health cover, but will face a higher surcharge if they choose not to hold private health cover, as a result of the increase in the Medicare Levy Surcharge. Further detail regarding the proposed changes is provided in Box 2.1 below.

### Box 2.1 The proposed policy change

**Tier 1** — For singles earning more than \$80,000 (couples \$160,000), the 30% rebate on private health insurance will be reduced to 20 per cent for those up to 65 years (25 per cent for those over 65, and 30 per cent for those over 70 years). The Medicare Levy Surcharge will remain at one per cent.

**Tier 2** — For singles earning more than \$93,000 (couples \$186,000), the 30% rebate on private health insurance will be reduced to 10 per cent, for those up to 65 years (15 per cent for those over 65, and 20 per cent for those over 70 years). The Medicare Levy Surcharge will be increased to 1.25 per cent.

**Tier 3** — For singles earning more than \$124,000 (couples \$248,000), no rebate will be provided. The Medicare Levy Surcharge will be increased to 1.5 per cent.

The stated policy objective of the proposed changes is to provide a ‘fairer distribution’ of benefits, aligning government support for private health insurance with the underlying principle of Australia’s tax-transfer system – providing the largest benefits to those with lower incomes.<sup>28</sup> The purpose of introducing the means test is to rebalance the suite of existing policies supporting private health insurance such that those with a greater capacity to pay for their own private health insurance do so.<sup>29</sup>

The proposed policy change has been met with considerable public debate. Proponents of the policy change argue that the means test will enable savings for the government by

<sup>25</sup> Deeble, J (2003) ‘The Private Health Insurance rebate: report to State and Territory Health Ministers’

<sup>26</sup> Harper, I (2003) ‘Preserving Choice- a defence of Public support for private healthcare funding in Australia’

<sup>27</sup> Department of Health and Ageing, 2010, Health Budget 2009-2010, ‘Rebalancing Support for Private Health Insurance’, <http://www.health.gov.au/internet/budget/publishing.nsf/Content/budget2009-hmedia13.htm> last accessed 08.03.2011

<sup>28</sup> Ibid.

<sup>29</sup> Ibid.

targeting those who could afford to pay more.<sup>30</sup> By contrast, opponents of the change have argued that the proposed means test will increase the costs of private health insurance premiums, as healthy individuals drop private health insurance in response to the price increase, adversely affecting the composition of the community rating pool.<sup>31</sup> Opponents have also argued that the means test will increase pressure on the public health system as consumers leave private health insurance and rely on public health facilities.<sup>32</sup> It has been argued that this will result in longer public hospital waiting lists.<sup>33</sup>

In support of the announcement of the proposed change, Federal Treasury conducted an analysis considering the impacts of this proposed policy change. As no survey data was available at the time, this analysis relies on several key assumptions which are outlined in Table 2.1 on the following page.

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<sup>30</sup> Ibid.

<sup>31</sup> Sid Maher, "Means-testing Private Health Insurance rebate will 'stretch public system", *The Australian*, September 16 2010, <http://www.theaustralian.com.au/national-affairs/means-test-to-stretch-public-system/story-fn59niix-1225924282627> last accessed 10 March 2011.'

<sup>32</sup> Ibid.

<sup>33</sup> Sid Maher, "Health rebate means-test battle back on", *The Australian*, September 15 2010, <http://www.theaustralian.com.au/news/health-science/health-rebate-means-test-battle-back-on/story-e6frg8y6-1225923032398> last accessed 10 March 2011.'

Table 2.1 Key assumptions of Treasury analysis of the proposed means test

| Key Treasury assumptions                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                            |
|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Assumption                                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                      | Rationale                                                                                                                                                                  |
| <b>Price elasticity</b>                                | Assumed price elasticity of -0.2 for consumers in Tier 1.<br>This assumption implies that an increase in the price of private health insurance by 1 per cent will cause a 0.2 per cent decrease in the demand for private health insurance from Tier 1 individuals.                                                                                                                                                                              | Based on literature review                                                                                                                                                 |
| <b>Tier 2 and 3</b>                                    | No net change in private health insurance coverage assumed for these two tiers as the percentage increases in the Medicare Levy Surcharge (25 per cent and 50 per cent respectively) are similar to the estimated percentage increase in out-of-pocket costs for those facing a reduction in rebates (28.6 per cent and 42.9 per cent respectively).<br>Note that it is assumed that no one in either of these tiers will downgrade their cover. | As the percentage increases in the Medicare Levy Surcharge are similar to the estimated percentage increase in out-of-pocket costs for those facing a reduction in rebates |
| <b>Downgrade</b>                                       | No downgrade option is allowed for. Private health insurance policy holders assumed to choose between retaining private health cover and dropping private health cover.                                                                                                                                                                                                                                                                          | Not specified                                                                                                                                                              |
| <b>Second round impacts</b>                            | The impact of any change in the number of consumers retaining private health coverage following the policy change on the remainder of the population is not considered. This includes the financial implication for public healthcare funding and for private health insurance members who, while not immediately affected by the policy, may later face increased premiums.                                                                     | First round impact found to be too small to trigger subsequent rounds                                                                                                      |
| <b>Treatment of general treatment cover membership</b> | Not considered                                                                                                                                                                                                                                                                                                                                                                                                                                   | Not specified                                                                                                                                                              |
| <b>Health status of consumers</b>                      | Not considered                                                                                                                                                                                                                                                                                                                                                                                                                                   | Not Specified                                                                                                                                                              |
| Key Treasury outcomes                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                            |
| Outcomes                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                            |
| <b>Private health insurance membership</b>             | Treasury modelling estimates that 99.7 per cent of consumers will remain in private health insurance with only 25,000 consumers withdrawing from private health cover. Membership levels are expected to grow overall.                                                                                                                                                                                                                           |                                                                                                                                                                            |
| <b>Private Health Insurance premiums</b>               | None                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                            |
| <b>Demand for public healthcare</b>                    | None                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                            |
| <b>The government budget</b>                           | \$1.98b in savings over four years                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                            |

Source: The Treasury (2009) 'Senate Economics Legislation Committee Budget Estimates 2009-10 — Private Health Insurance – Fair and sustainable support for the future'

# 3 Private health insurance and the Australian healthcare system

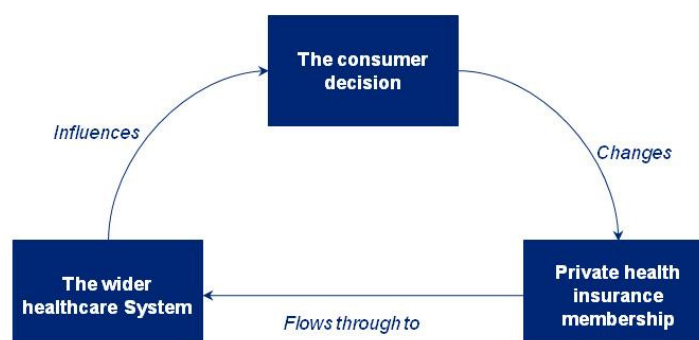
*Chapter 3 qualitatively describes the key interrelationships between consumer decisions, the private health insurance membership pool and the wider Australian healthcare system. The chapter is structured to follow the pathway by which the initial introduction of the proposed policy change, the so-called 'policy shock', can have an impact that cycles through the wider Australian healthcare system.*

## 3.1 Overview of key relationships considered

The Australian healthcare system is composed of many elements including public and private providers of funding, care and insurance. As such, changes in private health insurance membership can have substantial implications for all other components of the Australian healthcare system.

Consumer decisions regarding the purchase of private health insurance affect private health insurance membership, in terms of both size (that is, the number of consumers who have private health insurance), and composition (that is, the health status of consumers who have private health insurance). Private health insurance membership, in turn, has implications for the government budget, demand for public healthcare and private health insurance premiums, determined by the community rating pool. Equally, government policy, demand for public healthcare and private health insurance premiums have implications for private health insurance membership (Figure 3.1).

**Figure 3.1 Consumer decision → private health insurance membership → Australian healthcare system → Consumer decision**



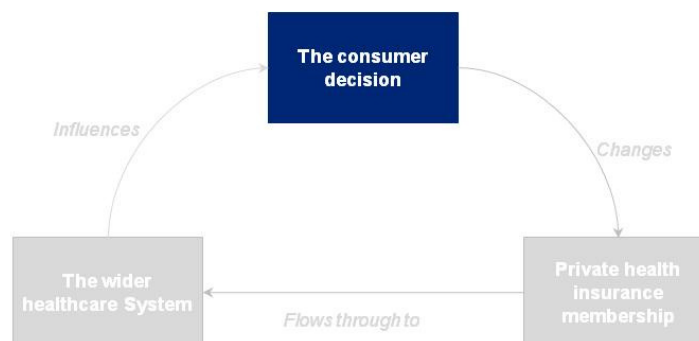
Treasury analysis in 2009 assumed that the consumers who will be directly impacted by the proposed policy change will not react strongly to the change in cost. This represents a potential outcome to the proposed policy changes. The modelling outcomes from 2009 show no significant change in either the size or composition of private health insurance membership resulting from the policy change. Accordingly, the modelling outcomes also

show no flow-on effects to the remainder of the healthcare system. Demand for public services, government funding and revenue (with the exception of savings from reduced rebate payments) and private health insurance premiums all remain unchanged.

The purpose of this chapter is to explore different scenarios of how private health insurance consumers will change (or not change) their decisions regarding the purchase of private health insurance in response to the proposed policy change and how these decisions can flow through the wider healthcare system. Specifically, this chapter is organised under the following discussions:

- **The consumer decision**, which outlines the key considerations of different private health insurance populations to changes in the cost of private health insurance
- **Private health insurance membership**, which explains how different scenarios for the change in the size and composition of the private health insurance market may affect the community rating pool
- **The wider healthcare system**, which shows how under different scenarios of consumer response, private health insurance premiums, public hospitals and government budget outcomes may change
- **The feedback loop: second round impacts on the general population**, which shows the ripple effect if a sufficiently large number of private health insurance consumers withdraw in response to the proposed policy change.

## 3.2 The consumer decision



### 3.2.1 Who decides?

All consumers, both healthy and unhealthy, can be categorised into three population subgroups:

- **‘Tiered’ private health insurance population** — Those who hold private health insurance and fall into one of the three high-income tiers (see Box 2.1 for definitions of Tiers 1, 2 and 3) towards which the proposed policy change is targeted
- **The general private health insurance population** — Those who hold private health insurance and do not fall into one of the three high-income tiers towards which the proposed policy change is targeted
- **No private health insurance** — Those who do not hold private health insurance. Individuals in this group may be in any income bracket.

Consumers across all three groups make decisions about the level of private health cover they would like to hold, or if they should have it at all, based on a number of different factors described in Section 3.2.2.



### 3.2.2 Key consumer decision factors

In deciding whether to purchase private health insurance, the consumer balances the costs of the purchase, expected advantages (referred to here as 'benefits') as well as their ability to purchase private health insurance:

- **The cost** — The price of purchasing private health cover is the cost of the premium minus the private health insurance rebate
- **The benefit** — The benefits of private health insurance vary between consumers based on health, income and preference:
  - *Health* — The benefits of having private health insurance are high for a consumer who is unwell. For such a consumer, there is a high probability that their benefits will exceed their costs
  - *Income* — Consumers over a certain income level (currently \$77,000 for individuals and \$154,000 for couples) who have private hospital cover benefit from avoiding the Medicare Levy Surcharge
  - *Preference* — Some consumers, regardless of their health or income, simply have a preference to avoid risk, such as the potential for long treatment delays in the public system.

Considering these factors, the consumer can decide, with respect to his or her income, whether the cost of purchasing private health insurance outweighs the benefits.

### 3.2.3 Proposed policy change and the 'first round' consumer decision

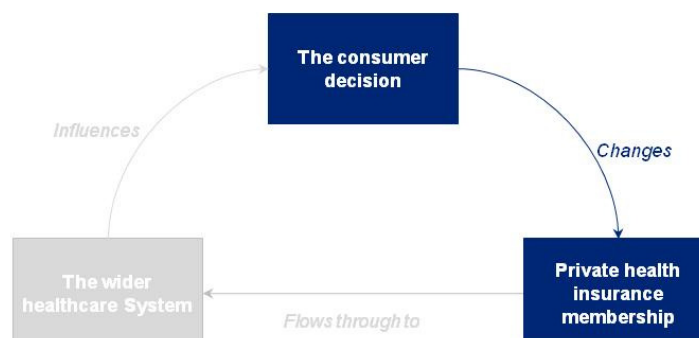
The proposed policy change will affect the net cost of purchasing private health insurance for all consumers in the tiered private health insurance group. In light of the change, members of this group will weigh up whether the new cost of private health insurance is worth the benefits they expect to receive from purchasing it. They will react in one of three ways:

- **No change** — Continue to hold the same level of cover
- **Withdraw** — Cancel their existing private health insurance policy and choose to have no health insurance cover
- **Downgrade** — Downgrade their existing private health cover to a less expensive level of cover.

The measure of how much a change in price of private health insurance will impact the decision to hold private health insurance is termed as the 'price elasticity of demand'. In simple terms, this measures how 'price sensitive' a consumer is.

The proposed policy change does not immediately change the cost of purchasing private health insurance for consumers who are not in the tiered private health insurance group.

## 3.3 Private health insurance membership



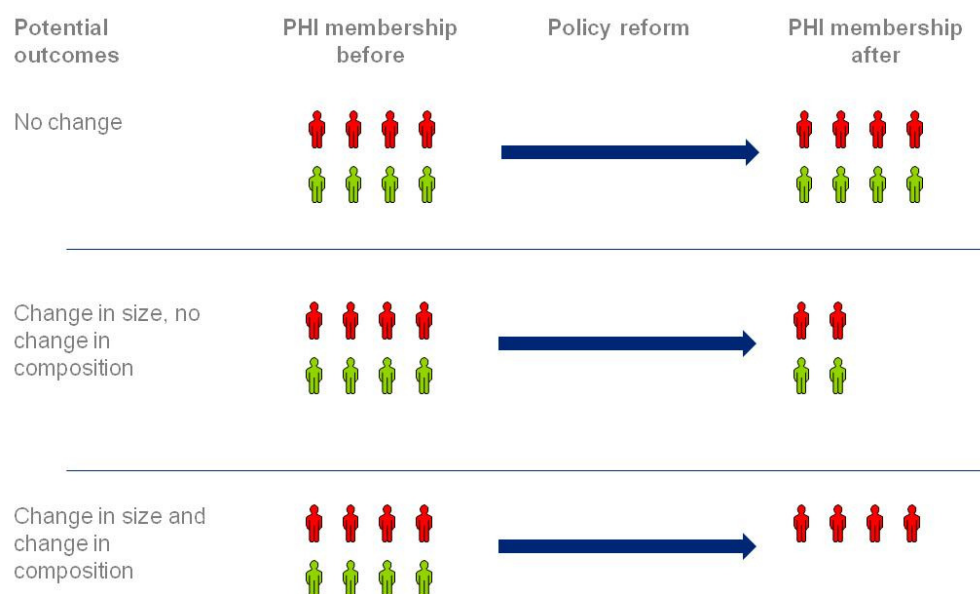
The decision of a single consumer regarding the purchase of private health insurance can make a significant difference to that individual's health experience, but has little impact on overall private health insurance membership. When a large number of consumers simultaneously make decisions regarding the purchase of private health insurance, there can be significant change in the size and composition of the private health insurance membership pool:

- **Size** — The number of consumers who purchase private health insurance
- **Composition** — The demographic profile of consumers within the pool, including the ratio of 'healthy' to 'unhealthy' consumers.

### 3.3.1 Proposed policy change and private health insurance membership

Depending on the decisions consumers make in response to new private health insurance prices, the membership pool can stay the same, change in size but not composition, or change in both size and composition. Figure 3.2 illustrates these three potential outcomes.<sup>34</sup>

**Figure 3.2 Potential outcomes for private health insurance membership following the proposed policy change**



Treasury expected the 'no change' scenario to eventuate, based on its review of the literature on consumer price sensitivity available at the time. This is a potential outcome of the proposed policy changes.

Empirical research has also shown that that price increases can often cause individuals and families who are relatively healthier to 'quit the pool of the insured' as the price of private health insurance increases.<sup>35</sup> The third potential outcome in Figure 3.2, therefore, illustrates a situation where the composition of the private health insurance membership pool changes to include *fewer* healthy consumers following the policy change. An example of this occurred in the period following the introduction of Medicare between 1984 and 1998. During this time

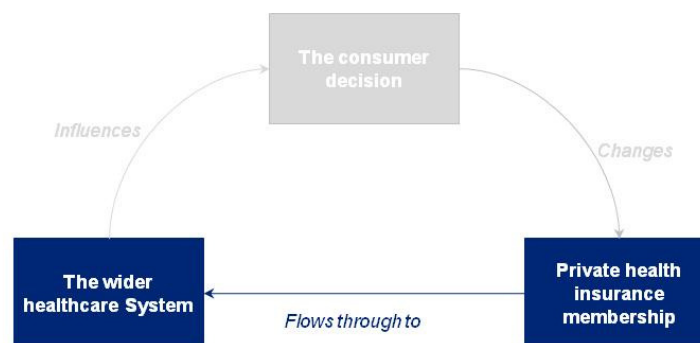
<sup>34</sup> We do not consider the possibility that the composition of private health insurance could change without the size of private health insurance changing. For this to occur, the exact number of people exiting private health insurance of one type (for example, healthy) would have to equal the exact number of people purchasing private health insurance of the other type (for example, unhealthy)

<sup>35</sup> Barrett and Conlon, 'Adverse Selection and the Decline in Private Health Insurance Coverage in Australia: 1989-1995', October 2002.

the overall percentage of consumers with private health insurance fell by 14 percentage points, but the composition changed dramatically:

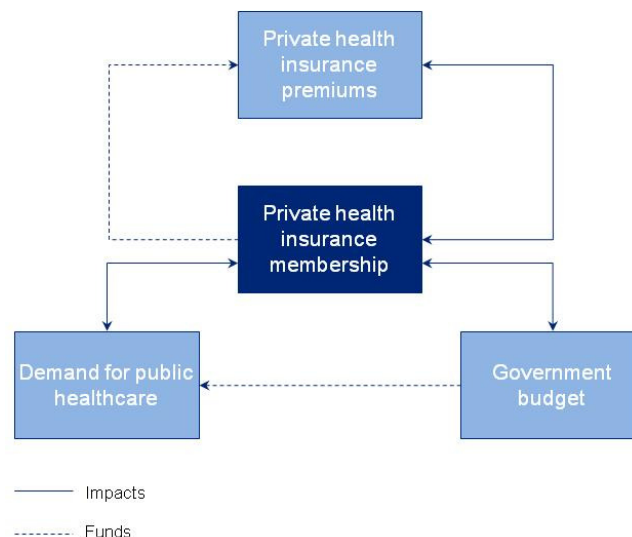
- Private health insurance coverage in the 70+ year old population *increased* from 31 per cent to 37 per cent, while
- Private health insurance coverage in the in the 25 – 34 year old population fell from 46 per cent to 22 per cent.<sup>36</sup>

### 3.4 The wider Australian healthcare system



Private health insurance membership has implications for the government budget, demand for public healthcare and private health insurance premiums. Equally, government funding levels, the demand for public healthcare and private health insurance premiums have implications for private health insurance membership (Figure 3.3).

**Figure 3.3 Key interdependencies: private health insurance membership and the Australian healthcare system**



#### 3.4.1 Proposed policy change and private health insurance premiums

Over the last five years, the value of claims made by private health insurance policy holders have been increasing as the population ages and the costs of new medical technologies

<sup>36</sup> Connelly, L.B. and Brown H.S. III (2006) 'Lifetime subsidies in Australian Private Health Insurance markets with community rating', *Geneva Papers on Risk and Insurance – Issues and Practice*, 31(4), pp 705 - 19

rise.<sup>37</sup> This is reflected in annual premium increases, which have been rising at an annual rate of approximately five per cent.<sup>38</sup> As the population continues to age and the cost of medical technologies continues to rise, it is expected that premiums will continue to increase. Depending on the effect of the proposed policy change on private health insurance membership, any resultant increase in claims will *add* to this increase.

In other words, if the policy change has no effect on private health insurance membership, there will be no associated impact on private health insurance premiums above that which would occur in the absence of policy change.

If there were a change in the size of private health insurance membership but not its composition, it is likely that private health insurance premiums will not change drastically as the ratio of benefits claimed to premiums paid remains the same.<sup>39</sup> In practice, however, it is likely that private health insurance premiums may vary slightly to cover the fixed costs faced by private health insurance providers.

Alternatively, there could be a change in both the size and composition of private health insurance membership such that the overall health of the private health insurance membership population *decreases* as healthy consumers withdraw or downgrade their private health cover. For this to occur, the number of consumers withdrawing from private health insurance is disproportionately higher than the associated reduction in claims paid by private health insurance funds. Fewer consumers are left to share a proportionately larger sum of costs within the community rating pool. In this situation, it is expected that private health insurance premiums rise. Refer to Chapter 2 for further discussion of how the average health of the private health insurance population affects private health insurance premiums (Figure 2.4).

### 3.4.2 Proposed policy change and demand for public healthcare

To the extent that a rise in the cost of private health insurance causes consumers to withdraw or downgrade their cover, this can increase demand for public hospital services and in turn, waiting times for elective surgery procedures.

In 2008-09, there were approximately 4.7 million separations in the public hospital system and 2.8 million separations in the private hospital system. Consumers being treated in the private hospital sector generally have private health insurance (78.8 per cent of consumers treated are insured) and consumers seeking treatment in the public sector generally do not (9.2 per cent of consumers treated in the public sector are insured).

It follows that as consumers reduce or cancel their private health cover, they tend to seek treatment in the public sector. Depending on the number of consumers seeking additional treatment in the public sector and the capacity of the public sector to absorb this additional demand, this may have a range of impacts on access to care in the public sector.

If very few consumers drop their cover in response to the policy change, then this is likely to have very little impact on the public sector. For example, in the Treasury modelling it was assumed that only 25,000 consumers would drop their cover. With more than 5 million separations occurring in the public sector each year, this additional demand would have no noticeable impact on demand for public health services.

If, however, a more significant number consumers were to drop their cover in response to the policy change and cause subsequent private health insurance premiums to increase, this

<sup>37</sup> Parliament of Australia (2010) 'Private Health Insurance Premium Increases – an overview', accessed online: <http://www.aph.gov.au/library/pubs/bn/sp/HealthInsurancePremia.pdf>, last accessed 15.03.2011

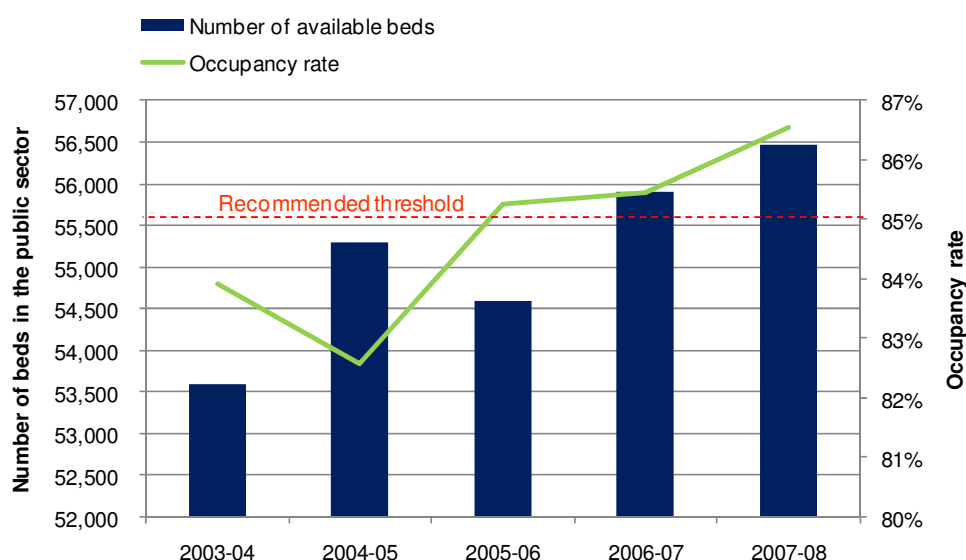
<sup>38</sup> Parliament of Australia (2010) 'Private Health Insurance Premium Increases – an overview', accessed online: <http://www.aph.gov.au/library/pubs/bn/sp/HealthInsurancePremia.pdf>, last accessed 15.03.2011

<sup>39</sup> NB there will be a rise in the short term, however, as fixed costs of private health insurance provision are shared by fewer people.

may have a more significant impact on access to the public health system and the quality of care.

Currently, hospitals are operating at relatively high occupancy rates (Figure 3.5). In 2007-08, the national occupancy rate was 87 per cent, which implies that in some parts of the country the occupancy rate exceeded this rate.

**Figure 3.5 Public hospital beds and national occupancy rates**



Source: National public hospital establishments database (NPHEd)' AIHW. <http://www.aihw.gov.au/national-public-hospital-establishments/>; National Hospital Cost Data Collection Cost Report Round 13' DOHA. <http://www.health.gov.au/internet/main/publishing.nsf/Content/health-casemix-data-collections-NHCDCReports>

Historically, hospital occupancy has been used as an indicator for the level of activity within a health service and operating at levels higher than 85 per cent have generally been discouraged. For example:

- In *Acute Hospital Bed Capacity* (March 2005), the Irish Medical Organization reported that an average bed occupancy of 85 per cent was an 'internationally recognized measure' that should not be exceeded<sup>40</sup>
- High hospital bed occupancies have been directly related to an increase in the mortality of patients presenting to emergency departments in Western Australia, independent age, season, diagnosis or urgency<sup>41</sup>
- The Department of Health in the United Kingdom found that bed occupancy rates exceeding 85 per cent in acute hospitals are associated with problems dealing with both emergency and elective admissions. The United Kingdom has instituted target bed occupancy of 82 per cent as one of its quality measures<sup>42</sup>
- The Australian Medical Association and the Australasian College of Emergency Medicine have acknowledged that bed occupancy rates above 85 per cent negatively impact on the safe and efficient operation of a hospital<sup>43</sup>

<sup>40</sup> Hospital Bed Occupancy [http://www.adf.com.au/archive.php?doc\\_id=168](http://www.adf.com.au/archive.php?doc_id=168)

<sup>41</sup> PC Sprivulis, JA Da Silva, IG Jacobs, ARL Frazer, GA Jelinek. The association between hospital overcrowding and mortality among patients admitted via Western Australian emergency departments. *MJA* 2006;184:208-212

<sup>42</sup> Specific Text (UK). Department of Health (UK). Shaping the future NHS: long term planning for hospitals and related services. Consultation document on the findings of the national beds inquiry. London: Department of Health, 2000

<sup>43</sup> Hospital Bed Occupancy [http://www.adf.com.au/archive.php?doc\\_id=168](http://www.adf.com.au/archive.php?doc_id=168)

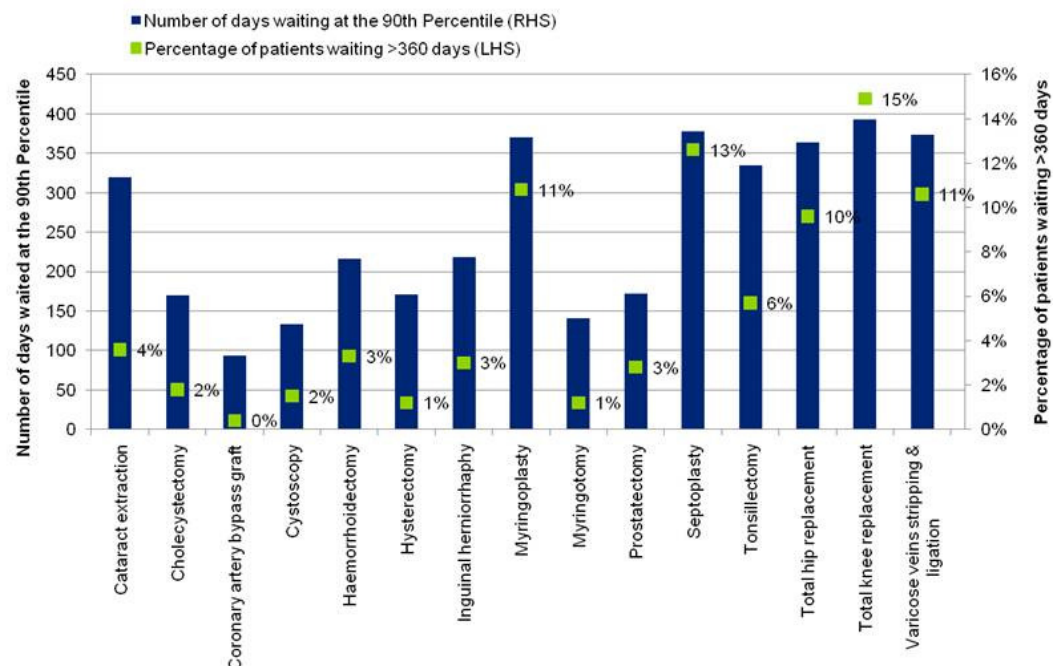
- Borg<sup>44</sup> found a significant correlation between bed occupancy and MRSA infection rates. Moreover, the introduction of additional beds to a ward during periods of high demand directly contributed to extra cases of MRSA.

Increasingly, measurement of occupancy is complicated by the rapidly changing models of care and administrative practices for patient admission, with some wards able to operate at very high occupancy rates without any impact on patient outcomes. Nevertheless, given the high levels of occupancy already observed, this may indicate that governments may need to invest in additional capacity through some mix of beds, operating theatres, labour to meet higher levels of demand.

In the short run, if demand increases substantially, hospitals will need to prioritise patients on the basis of need. This may result in longer waiting times for services – particularly elective surgical services. Figure 3.6 shows current national averages for waiting times for 14 elective surgery procedures at the 90<sup>th</sup> percentile (e.g., 90 per cent of consumers are seen within this time) and the percentage of consumers who wait longer than 360 days (considered to be a 'long wait').

According to annual Australian Institute of Health and Welfare statistics of waiting list times, approximately 1 in 10 consumers on the waiting list for hip replacements wait more than 360 days, while 1 in 15 consumers on the waiting list for knee replacements wait more than 360 days.

**Figure 3.6 National waiting list times for elective surgery procedures (2008-09)**



Source: AIHW, 2010, Interactive Data cubes Elective Surgery Waiting List times, <http://www.aihw.gov.au/national-elective-surgery-waiting-times-interactive-data/>

If a significant number of consumers from the private sector were to seek care in the public sector and it were not possible to rapidly expand the capacity of the public sector to meet this new demand, this would result in the average time on waiting lists to increase and the number of consumers experiencing 'long waits' (>360 day waits) to increase.

<sup>44</sup> MA Borg. Bed Occupancy and overcrowding as determinant factors in the incidence of MRSA infections within general ward settings. *J Hosp Infect* 2003;54:316-318



To alleviate long wait lists that may develop over time, the government would need to invest in new capacity. This would also impact on government budget, with new beds recently costing in the order of \$126,000 to \$4 million per new bed depending on the type of facility. On average, a new bed is estimated to cost approximately \$2 million (Table 3.1). Expanding bed capacity by 10 per cent, for example, would translate into additional public capital costs of approximately \$11.6 billion. In practice, capacity expansions are a function of not just additional beds but a mixture of beds, operating theatres, labour and other components of supply.

**Table 3.1 Capital costs of new public hospital infrastructure**

| Major infrastructure project                                      | Public Beds | Total Public Project Cost (\$millions) | Public Cost per Bed (\$millions) |
|-------------------------------------------------------------------|-------------|----------------------------------------|----------------------------------|
| Gold Coast (QLD)                                                  | 750         | \$1,760.0                              | \$2.3                            |
| Sunshine Coast (QLD)                                              | 450         | \$1,970.0                              | \$4.4                            |
| Townsville (QLD)                                                  | 15          | \$9.0                                  | \$0.6                            |
| Canberra (ACT)                                                    | 400         | \$687.0                                | \$1.7                            |
| Dandenong Hospital Redevelopment Stage 2 (Vic)                    | 72          | \$34.0                                 | \$0.5                            |
| Royal Melbourne Hospital Emergency Department Redevelopment (VIC) | 27          | \$56.3                                 | \$2.1                            |
| Kingston Centre (VIC)                                             | 65          | \$45.0                                 | \$0.7                            |
| Northern Hospital (VIC)                                           | 6           | \$2.5                                  | \$0.4                            |
| Nathalia District Hospital & Aged Care Redevelopment (VIC)        | 26          | \$18.0                                 | \$0.7                            |
| Bendigo Hospital emergency (VIC)                                  | 8           | \$9.5                                  | \$1.2                            |
| New Bendigo Hospital (VIC)                                        | 376         | \$473.0                                | \$1.3                            |
| New Children's Hospital (WA)                                      | 274         | \$1,170.0                              | \$4.3                            |
| Fiona Stanley Hospital (WA)                                       | 738         | \$2,000.0                              | \$2.7                            |
| Across the Metro System (WA)                                      | 130         | \$16.5                                 | \$0.1                            |
| Royal Prince Alfred Hospital (NSW)                                | 8           | \$2.4                                  | \$0.3                            |
| Sutherland Hospital (NSW)                                         | 17          | \$6.0                                  | \$0.4                            |
| Kids Hospital (NSW)                                               | 27          | \$11.5                                 | \$0.4                            |
| Orange Hospital (NSW)                                             | 300         | \$250.0                                | \$0.8                            |
| Rural and Regional hospitals (NSW)                                | 123         | \$227.0                                | \$1.8                            |
| Across the Public System (NSW)                                    | 800         | \$227.0                                | \$0.3                            |
| Royal Adelaide Hospital (SA)                                      | 800         | \$1,700.0                              | \$2.1                            |
| <b>Average cost per new bed</b>                                   |             |                                        | <b>\$2.0 million</b>             |

Source: Queensland Health (2010) 'Gold Coast University Hospital', accessed online: <http://www.health.qld.gov.au/gcuhospital/default.asp>, last accessed 5.4.2011; Queensland Health (2011) 'Sunshine Coast University Hospital', accessed online: [http://www.health.qld.gov.au/scuhospital/the\\_project-fast\\_facts.asp](http://www.health.qld.gov.au/scuhospital/the_project-fast_facts.asp), last accessed 5.4.2011; Australian Labor Party (2010) 'Prime Minister announces more hospital beds for Townsville', accessed online: <http://www.alp.org.au/blogs/alp-blog/july-2010/prime-minister-announces-more-hospital-beds-for-to/>, last accessed 5.4.2011; CathNews (2011) 'ACT explores options for extra hospital beds', accessed online: <http://www.cathnews.com/article.aspx?aeid=25235>, last accessed 5.4.2011; Department of Health (2010) 'Public Hospitals & Health Services – Capital Projects', accessed online: <http://www.health.vic.gov.au/hospitalprojects/budget04-05.htm>, last accessed 5.4.2011; Department of Health (2010) 'Public Hospitals & Health Services – Capital Projects – 2006/07', accessed online: <http://www.health.vic.gov.au/hospitalprojects/budget0607.htm>, last accessed 5.4.2011; Department of Health (2010) 'Public Hospitals & Health Services – Capital Projects', accessed online: <http://www.health.vic.gov.au/hospitalprojects/metro.htm>, last accessed 5.4.2011; Department of Health (2010) 'Public Hospitals & Health Services – Capital Projects', accessed online: <http://www.health.vic.gov.au/hospitalprojects/metro.htm>, last accessed 5.4.2011; Department of Health (2010) 'Public Hospitals & Health Services – Capital Projects – 2007/08', accessed online: <http://www.health.vic.gov.au/hospitalprojects/budget0708.htm>, last accessed 5.4.2011; Department of Health (2010) 'Public Hospitals & Health Services – Capital Projects', accessed online: <http://www.health.vic.gov.au/hospitalprojects/rural.htm>, last accessed 5.4.2011; Bendigo Health (2010) 'New Bendigo Hospital Blog',

accessed online: [http://www.newbendigohospital.org.au/NBH\\_blog\\_detail.asp?blog\\_item\\_id=26](http://www.newbendigohospital.org.au/NBH_blog_detail.asp?blog_item_id=26), last accessed 5.4.2011; Victorian Government (2010), '2010-11 Treasurer's Speech' p. 6, accessed online: [http://www.budget.vic.gov.au/CA2576BD0016DD83/WebObj/BP1/\\$File/BP1.pdf](http://www.budget.vic.gov.au/CA2576BD0016DD83/WebObj/BP1/$File/BP1.pdf), last accessed 5.4.2011; Department of the Premier and Cabinet (2010) '\$1.17 billion for new children's hospital', accessed online: [http://docs.google.com/viewer?a=v&q=cache:WnsHoOkIajOJ:newchildrenshospitalproject.health.wa.gov.au/Libraries/documents/20101129\\_Business\\_case\\_approval\\_1.sflb.ashx+beds+new&hl=en&pid=bl&srcid=ADGEEsGvH6SokxE0cMZ5Zz8qPL0KK9a6mZ0jnUrkxhdq9wjgZbGUnts0-TIXWbP\\_jW5L6tRSLGaTOpPkHBPn1NikZ7mWB2ftsJlhfv4JTB7sFEph0\\_Yjtopf3DXsIT\\_Idl6uF11g\\_&sig=AHIEtbSQ52hZCXhCVQBVMBev\\_IFhk8WCKw&pli=1](http://docs.google.com/viewer?a=v&q=cache:WnsHoOkIajOJ:newchildrenshospitalproject.health.wa.gov.au/Libraries/documents/20101129_Business_case_approval_1.sflb.ashx+beds+new&hl=en&pid=bl&srcid=ADGEEsGvH6SokxE0cMZ5Zz8qPL0KK9a6mZ0jnUrkxhdq9wjgZbGUnts0-TIXWbP_jW5L6tRSLGaTOpPkHBPn1NikZ7mWB2ftsJlhfv4JTB7sFEph0_Yjtopf3DXsIT_Idl6uF11g_&sig=AHIEtbSQ52hZCXhCVQBVMBev_IFhk8WCKw&pli=1), last accessed 5.4.2011; Department of Health (2011) 'Construction underway on Fiona Stanley Hospital', accessed online: <http://www.fionastanley.health.wa.gov.au/about/index.cfm>, last accessed 5.4.2011; Government of Western Australia (2004) 'Delivering a healthy WA – 300 new beds for public hospital system', accessed online: <http://www.mediastatements.wa.gov.au/Pages/Results.aspx?ItemID=115979>, last accessed 5.4.2011; Department of Health (2010) 'New beds for Royal Prince Alfred Hospital', accessed online: [http://www.health.nsw.gov.au/news/2010/20100702\\_02.html](http://www.health.nsw.gov.au/news/2010/20100702_02.html), last accessed 5.4.2011; Department of Health (2010) 'New beds for Sutherland Hospital', accessed online: [http://www.health.nsw.gov.au/news/2010/20100629\\_00.html](http://www.health.nsw.gov.au/news/2010/20100629_00.html), last accessed 5.4.2011; Department of Health (2010) 'New Beds for Kids Hospitals', accessed online: [http://www.health.nsw.gov.au/news/2010/20100618\\_00.html](http://www.health.nsw.gov.au/news/2010/20100618_00.html), last accessed 5.4.2011; Usher & Company (2011) 'Usher & Company Projects – Orange Hospital', accessed online: <http://www.usherandcompany.com.au/land-surveyors-projects/orange-hospital>, last accessed 5.4.2011; Department of Health (2005) '123 permanent new beds for rural and regional hospitals', accessed online: [http://www.health.nsw.gov.au/news/2005/20050501\\_01.html](http://www.health.nsw.gov.au/news/2005/20050501_01.html), last accessed 5.4.2011; Department of Health (2005) '\$227 million for 800 new beds in major boost for NSW public hospitals', accessed online: [http://www.health.nsw.gov.au/news/2005/20050501\\_02.html](http://www.health.nsw.gov.au/news/2005/20050501_02.html), last accessed 5.4.2011; SA Health (2010) 'The new Royal Adelaide Hospital', accessed online: <http://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/health+change/the+new+royal+adelaide+hospital/the+new+royal+adelaide+hospital>, last accessed 5.4.2011

### 3.4.3 Proposed policy change and the government budget

From a purely financial perspective, a change in private health insurance membership can impact the government budget in three ways:

- **Private health insurance rebate costs** — Government expenditure on the private health insurance rebate is currently a function of:
  - The number of consumers who have private health insurance
  - The age of consumers who have private health insurance (consumers over the age of 65 receive higher levels of rebate)
  - The average claims made by an insured person, which drives the average premiums and in turn the level of rebate paid.
- **Medicare Levy Surcharge** — Revenue collected through the Medicare Levy Surcharge that is applied to individuals who earn over \$77,000 (and couples over \$154,000), who do not have private health insurance.
- **Costs of public health funding** — Government expenditure on public health, at the broadest level, is dependent on the number of consumers using public health facilities and the types of illnesses being treated.

Based on the different changes in private health insurance membership, government expenditure can be expected to be impacted in a number of different ways.

For example, where there is no change in private health insurance membership there will be no associated change in government expenditure.

However, if the size of the private health insurance membership pool were to decrease following the proposed policy change, government expenditure would change in the following ways:

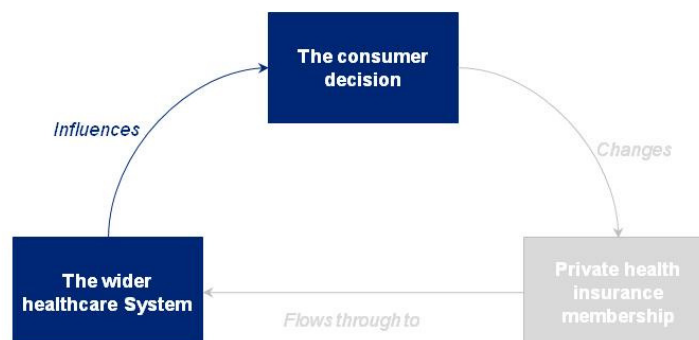
- **Saving: private health insurance rebate costs** — Government expenditure on the private health insurance rebate would decrease for two reasons:
  - The proposed policy change would reduce the private health insurance rebate that is to be paid to individuals in the tiered private health insurance group



- As consumers in the tiered private health insurance group withdraw from private health insurance, the number of consumers who can claim for the rebate would decrease.<sup>45</sup>
- **Revenue: Medicare Levy Surcharge** — Government revenue from the Medicare Levy Surcharge would increase as individuals in the tiered private health insurance group withdraw from the private health insurance market. There would be an additional increase in revenue resulting from the higher surcharge rates faced by consumers in income Tiers 2 and 3.
- **Expenditure: Costs of public health funding** — Government expenditure on public healthcare increases as demand for public healthcare rises.

Alternatively, where there is a change in both the size and composition of private health insurance membership, the outcomes for the government budget are much the same as those identified above where there is only a change in the size of private health insurance membership. In contrast to the above described scenario where there is a change in size but not the composition of private health insurance membership, the initial rise in demand for public healthcare will be small if healthy consumers are the first to withdraw from the private health insurance market. Over time, however, demands on the public system will increase at a growing rate, as progressively ‘unhealthy’ consumers withdraw from the private health insurance market.

### 3.5 Feedback loop: second round impacts on the general population



Changes to the community rating pool, private health insurance premiums and the accessibility of healthcare flow back into the factors the consumer considers in their decision to purchase private health insurance.

If average private health insurance premiums rise, the cost of purchasing private health insurance changes for *all consumers*. Where in Section 3.2, we considered the initial response of consumers in the tiered private health insurance group, now all consumers must weigh up whether the increased cost of private health insurance<sup>46</sup> is worth the benefits they expect to receive. Consumers who do not already have private health insurance are generally likely to have decided the costs outweigh the benefits and are unlikely to purchase private health insurance as costs increase. Consumers who have private health insurance will react in one of three ways:

<sup>45</sup> Note, however, that the rate by which savings accrue to Government from people reducing private health insurance cover is dependent on the type of persons reducing cover. If relatively unhealthy people do not withdraw from their cover, this adversely impacts the community rating pool and leads to higher premiums, which in turn leads to higher rebate costs.

<sup>46</sup> Note the ‘new cost of private health insurance’ consists of two components. The first is any price rise would occur in the absence of policy change. The second is the premium rise that occurs *solely* as a result of the policy change. The consumer responds to the sum of these changes.

- No change
- Withdraw
- Downgrade.

If the rise in demand for public healthcare impacts upon the accessibility to this service, some consumers, especially those who are most likely to need access to healthcare, will see new benefits in purchasing private health insurance. That is, as the public healthcare system becomes more difficult to access, the option to have access to private healthcare may appear more attractive. This change may tip the balance for some consumers who do not have private health insurance between the relative costs and benefits, causing them to purchase it.<sup>47</sup>

Once consumers make their decisions, their actions again redefine the size and composition of the private health insurance membership pool, setting in motion, another round of changes through the wider Australian healthcare system.

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<sup>47</sup> See Appendix B for a discussion of the relationship between the demand for private health insurance and access to public hospital measures.

# 4 Economic impacts

*Chapter 3 qualitatively describes the key interrelationships between private health insurance consumers, the wider healthcare system and government revenues. Building on this analysis and the findings of a national survey of consumers by ANOP and Newspoll, this chapter presents a quantitative assessment of the expected impacts to the private health insurance market, public healthcare system and government revenue.*

*Specifically, the economic modelling in this chapter shows the change in private health insurance membership and composition, the community rating pool and private health insurance premiums, public hospital demand, average elective surgery waiting list times and government revenue as a result of the proposed legislative changes to private health insurance.*

## 4.1 Survey method and economic impact model

To date, analysis of the potential impact of the proposed rebate changes has been based on a literature review of the potential price sensitivity of private health insurance consumers. This represents a valid approach in the absence of better data. The ANOP/Newspoll survey, however, presents new evidence and offers the opportunity to revisit the analysis of the proposed legislative changes. This section outlines the ANOP and Newspoll survey approach and the economic impact model developed by Deloitte which incorporates the outputs of this survey.

### 4.1.1 Estimating consumer responses: the ANOP / Newspoll survey

In February 2011, the Australian Health Insurance Association engaged ANOP and Newspoll to conduct a statistically significant survey of tiered private health insurance consumers to determine their likely reaction to the proposed policy changes. At the same time, ANOP and Newspoll also conducted a statistically significant survey of the general private health insurance population (e.g., persons with private health insurance under the income thresholds for the proposed rebate means test) to determine their likely reaction to potential increases in premiums if the composition of the community rating pool were to be adversely affected.

In total, 2,000 households were surveyed to determine elasticity of demand for private health insurance. Those interviewed were the decision makers regarding private health insurance in the household and were aged between 18 – 64 years. The sample comprised 1,296 persons in the “Tiered private health insurance” population and 704 persons with private health insurance below the income thresholds for the proposed rebate changes. The results were weighted using the latest ABS statistics from the 2008 National Health Survey.

Survey respondents were asked whether they would ‘withdraw’, ‘downgrade’ or ‘keep’ their current level of private health insurance under a range of pricing scenarios. Questions were also included to control for the potential impact on consumer decisions of the Medicare Levy Surcharge and the Lifetime Health Cover policy. This enabled estimates for consumer demand elasticity to be developed for the tiered private health insurance consumer groups and the general private health insurance population by:

- Household type (single, couple, family)
- Policy type (‘Hospital only’, ‘Ancillary only’ or ‘Combined Hospital and Ancillary’ cover)
- Level of cover (Top/Comprehensive, Medium, or Basic).

In addition, respondents were asked about their claims history in the past 2 years, to determine whether persons dropping or downgrading their private health coverage were more or less likely to make a claim than their peers. In this way, the survey collected data to measure not only the potential *size* of the consumer response to the proposed changes, but also the *composition* of the population exiting the private system.

#### 4.1.2 Evaluating the flow-on impacts to the community: the Deloitte Economic Impact model

The results from the ANOP/Newspoll survey were used by Deloitte to determine the likely impact on:

- Private health insurance membership and composition
- Private health insurance premiums by type and level of cover
- Public hospital demand
- Average elective surgery waiting list times for selected services, where national data is currently collected/available
- Government revenue.

The report does not consider impacts of the proposed policy change on private sector capacity.

A dynamic, 5-year model was constructed to model the change in private health insurance membership and estimate the wider economic impacts of these changes in the size and composition of the private health insurance market.

The Deloitte Model was structured to analyse the reactions of 2,640 individual markets for private health insurance. The markets were differentiated by five key variables:

- Income
- Age of policy holder
- Family type
- Insurance type
- Level of cover.

The reaction of each market to the proposed rebate changes was modelled separately and then aggregated to assess the national impact. The elasticity and propensity to claim assumptions derived from the survey were applied across the markets, with the ‘first round’ shocks to private health insurance membership in Year 1 (2011) of the model driving subsequent ‘second round’ impacts in the wider market and healthcare system.

The model derives a quantitative estimate of the relationship between private health insurance consumers and the wider Australian healthcare system as described in Chapter 3. As shown in Figure 4.1 (below), the following key impacts are estimated:

1. In Year 1, the legislation is enacted, changing the cost of private health insurance dependent on income level, family type and age for members in the tiered private health insurance population
2. This causes, in Year 1, tiered private health insurance consumers to decide to withdraw, downgrade or keep their cover
3. Based on survey estimates of demand elasticity and the likelihood of consumers to claim among the tiered private health insurance group, the model estimates the number of consumers exiting the market and the new risk profile of the private health insurance market

4. The model then makes 3 calculations:

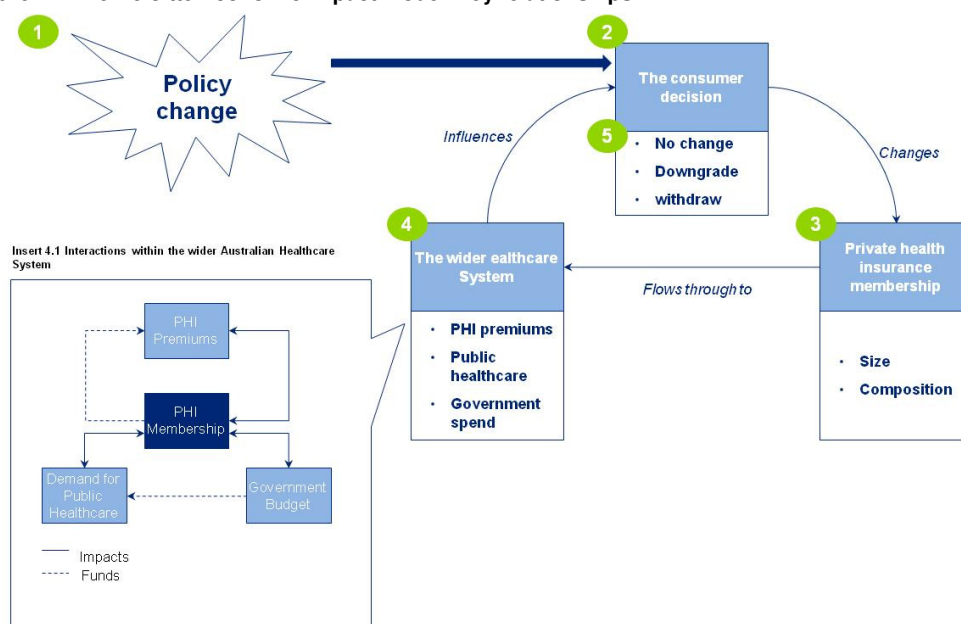
- a. *Impact on the community rating pool and premiums* — Based on the lost revenue (from consumers withdrawing or downgrading their hospital and general treatment cover) and the change in the average claim profile of remaining private health insurance consumers, the model calculates the increase in premiums required to maintain margins across the community rating pool. If more 'healthy' consumers exit the private health insurance market than stay, premiums increase to compensate for this change
- b. *Impact on public health services* — Based on survey results for the likelihood that consumers would make a claim (or, in other words, require a health service), the model assumes this demand is transferred to the public hospital system. Reflecting survey results, the model also assumes that healthier consumers demand services at a lower rate than the average private health insurance population, particularly in the early years where the 'healthiest' consumers would be expected to drop out first. The model assumes all medical services are provided in the same year that they would otherwise have been demanded, but that surgical services are provided over a multiyear period
- c. *Impact on Government revenue* — The model also calculates the change in savings from the rebate that would otherwise have been paid to private health insurance consumers, new revenues from additional Medicare Levy Surcharge payments and the additional costs of transferring demand from the private to the public healthcare system

5. In Year 2, the change in premiums caused by the loss of revenue and revised risk profile of the private health insurance market (as calculated in Step 4a) causes **all private health insurance consumers** (not only the tiered private health insurance group) to decide to withdraw, downgrade or keep their cover. At this point, consumers are basing their decision on the *total* real change in premiums.

The model then calculates the number of consumers exiting the market and the new risk profile of the private health insurance market (on the basis of survey estimates of demand elasticity and the propensity of consumers to claim among both tiered and general private health insurance populations). This in turn drives subsequent changes to private health insurance premiums, public healthcare demand and government revenue.

The model iteratively calculates these impacts over a 5 year period to show how the changes compound over time.

Figure 4.1 The Deloitte Economic Impact model: key relationships



This chapter presents the results of the Deloitte Economic Impact model, based on inputs from the ANOP/Newspoll survey. Appendix B provides more detail on the structure of the model and the key assumptions underpinning the analysis.

## 4.2 Modelling outcomes: the additional economic impact

It is important when interpreting these outcomes to consider the fact that they represent the expected change in various variables, such as private health insurance membership, that *follow from the proposed policy impact*. These changes occur *in addition* to other changes that are not related to the implementation of the proposed policy change.

For example, the number of individuals who access public healthcare services increases every year for a number of different reasons such as a growing population, an ageing population and the increasing prevalence of chronic diseases. The increase in public hospital separations which is reported in the following sections only reports the expected increase that is directly related to the proposed policy change. It, therefore, represents only one part of a potentially much greater change in public hospital separations that would be expected in any given year.

## 4.3 Modelling outcomes: the consumer decision

### Key ANOP/Newspoll survey outcomes

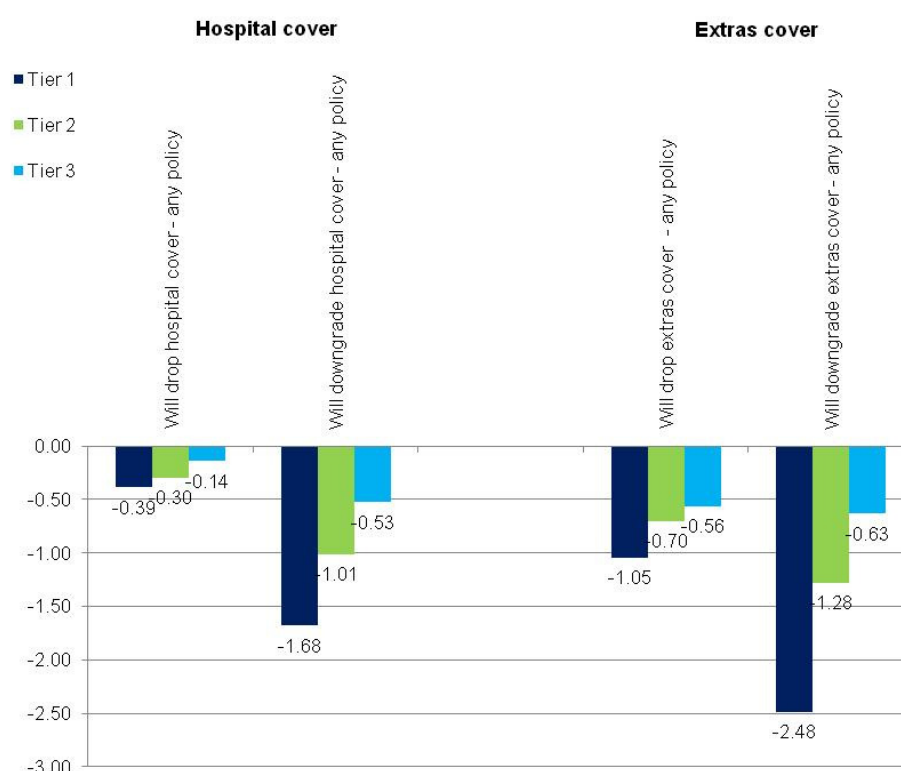
- Consumers were found to be more price sensitive than previously assumed under analysis based on literature reviews
- Tiered private health insurance consumers were twice as likely to drop hospital cover than previously estimated as consequence of proposed rebate changes
- Impact of rebate changes is also likely to affect:
  - General treatment cover levels
  - The level of cover held by consumers, with significant downgrading of policies
- General private health insurance consumers were highly price sensitive to potential future premiums growth

### 4.3.1 Expected consumer responses to the proposed rebate changes

ANOP and Newspoll surveyed a statistically significant sample of more than 2,000 Australian households to assess the price sensitivity of different markets within the private health insurance population, including the various groups within the tiered private health insurance population and the general private health insurance population. The survey *controlled for the impact of the Medicare Levy Surcharge and the Lifetime Health Cover policies* to isolate the impact of the proposed changes to the rebate.

After controlling for the impacts of the Medicare Levy Surcharge and the Lifetime Health Cover policies, the survey predicted the following demand responses (point elasticity estimates) by each of the tiered private health insurance income groups. This is shown in Figure 4.2.<sup>48</sup>

**Figure 4.2 Elasticity estimates for the tiered private health insurance groups, by level of cover**



Source: Deloitte analysis of ANOP/Newspoll 2011 survey results

- Figure 4.2 relates to a change in the total price of private health insurance, that is, the combined effect of a change in the rebate and MLS as related to that tier. The figure shows that: **Tier 1** — For a 10 per cent change in the price of private health insurance, 4 per cent of persons with Hospital Cover would drop their cover altogether and 9 per cent of persons with Ancillary Cover would drop their cover altogether. This compares with a previous assumption that for an equivalent 10 per

<sup>48</sup> Note that because the legislation introduces different price changes for each Tier, the elasticity estimates are for each group at that point on the demand elasticity curve.



cent price increase that only 2 per cent of consumers with Hospital Cover would drop their cover.<sup>49</sup>

In addition, for a 10 per cent increase in price, 14 per cent of persons with Hospital Cover would seek to downgrade their level of cover (e.g., from 'Top' cover to 'Medium' Cover, or from 'Medium' Cover to 'Basic' Cover) and 21 per cent of persons with Ancillary Cover would downgrade their cover. This impact was also not estimated by previous analysis.

- **Tier 2** — For a 10 per cent change in the price of private health insurance, 3 per cent of persons with Hospital Cover would drop their cover altogether and 6 per cent of persons with Ancillary Cover would drop their cover altogether. It has been previously assumed that there would be no change in the level of cover among the Tier 2 population (refer to Chapter 2 for rationale).<sup>50</sup>

In addition, for a 10 per cent increase in price, 9 per cent of persons with Hospital Cover would seek to downgrade their level of cover (e.g., from 'Top' cover to 'Medium' Cover, or from 'Medium' Cover to 'Basic' Cover) and 11 per cent of persons with Ancillary Cover would downgrade their cover. This impact was not estimated by previous analysis

- **Tier 3** — For a 10 per cent change in the price of private health insurance, 1 per cent of persons with Hospital Cover were expected to drop their cover altogether and 5 per cent of persons with Ancillary Cover would drop their cover altogether. It has been previously assumed that there would be no change in the level of cover among the Tier 3 population.<sup>51</sup>

In addition, for a 10 per cent increase in price, 5 per cent of persons with Hospital Cover would seek to downgrade their level of cover (e.g., from 'Top' cover to 'Medium' Cover, or from 'Medium' Cover to 'Basic' Cover) and 5 per cent of persons with Ancillary Cover would downgrade their cover. This impact was also not estimated by previous analysis.

The new survey data suggests that the tiered private health insurance population is more price sensitive than previously assumed. As outlined in Chapter 3, this potentially will have more significant outcomes for the wider private health insurance population and the wider healthcare system than previously estimated.

While the Treasury modelling presents a legitimate outcome based on the information available at the time, the ANOP / Newspoll survey presents an alternative outcome upon which we have based our analysis.

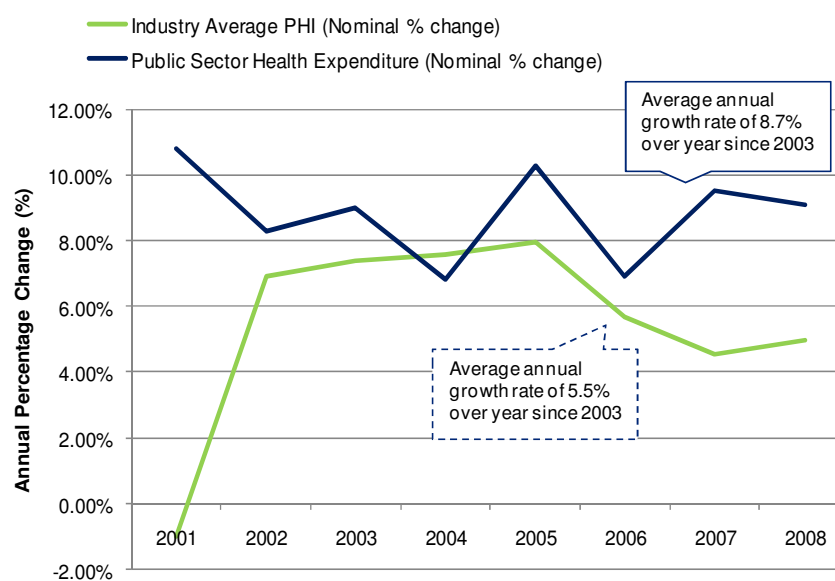
### 4.3.2 Expected consumer responses to potential subsequent premiums growth

The cost of private health insurance has been increasing at an average rate of 5.5 per cent (nominal) per annum since 2003. This has been driven in the main by rising claims costs due to the ageing of the population and the increase in chronic disease prevalence. Currently, the government approves all private health insurance premium increases. These cost increases have compared favourably to the average increase in the cost of public sector healthcare costs, which have been increasing at an equivalent average annual growth rate of 8.7 per cent over the same time period in nominal terms (Figure 4.3).

<sup>49</sup> Note: Ancillary Cover (also referred to as General Treatment or Extras Cover) not considered by Treasury Modelling.

<sup>50</sup> *The Treasury (2009) 'Senate Economics Legislation Committee Budget Estimates 2009-10 — Private Health Insurance – Fair and sustainable support for the future'*

<sup>51</sup> *The Treasury (2009) 'Senate Economics Legislation Committee Budget Estimates 2009-10 — Private Health Insurance – Fair and sustainable support for the future'*

**Figure 4.3 Comparing private health insurance premiums and public sector cost increases (2003-2008)**

Source: PHIAC and AIHW, 2009, *Health Expenditure Australia: 2007–08*, Health and Welfare Expenditure Series, Number 37. Note: Data is in nominal terms.

**Table 4.1 Consumer responses to potential future private health insurance cost increases: tiered private health insurance and the general private health insurance populations**

|                                            | Tier 1   |           |       |           |           | Tier 2   |           |           |       |           | Tier 3   |           |           |           |       | Non-Tiers |       |           |
|--------------------------------------------|----------|-----------|-------|-----------|-----------|----------|-----------|-----------|-------|-----------|----------|-----------|-----------|-----------|-------|-----------|-------|-----------|
| Change in Premium                          | 5.0<br>% | 10.0<br>% | 15.0% | 30.0<br>% | 45.0<br>% | 5.0<br>% | 10.0<br>% | 15.0<br>% | 30.0% | 45.0<br>% | 5.0<br>% | 10.0<br>% | 15.0<br>% | 30.0<br>% | 45.0% | 5.0%      | 10.0% | 15.0<br>% |
| Will drop hospital cover - any policy      | -0.25    | -0.25     | -0.25 | -0.47     | -0.64     | -0.31    | -0.31     | -0.31     | -0.44 | -0.67     | -0.27    | -0.27     | -0.27     | -0.4      | -0.45 | 0.95      | -1.34 | -1.84     |
| Will downgrade hospital cover - any policy | -1.61    | -1.61     | -1.61 | -1.58     | -1.02     | -1.46    | -1.46     | -1.46     | -1.42 | -0.89     | -0.99    | -0.99     | -0.99     | -0.9      | -0.82 | 4.14      | -4.09 | -2.56     |
| Will drop extras cover - any policy        | -0.57    | -0.57     | -0.57 | -0.95     | -1.16     | -0.50    | -0.50     | -0.50     | -0.89 | -1.08     | -0.60    | -0.60     | -0.60     | -0.7      | -0.83 | 1.31      | -1.97 | -2.64     |
| Will downgrade extras cover - any policy   | -2.04    | -2.04     | -2.04 | -1.47     | -0.80     | -1.97    | -1.97     | -1.97     | -1.42 | -0.77     | -1.39    | -1.39     | -1.39     | -1        | -0.82 | 4.19      | -3.80 | -2.56     |

Source: Deloitte analysis of ANOP/Newspoll 2011 Survey results.

Note: Table 4.1 relates to a change in premiums, not a change in the cost of private health insurance to an individual (that is, not through a change in rebate or MLS). In general, one expects demand elasticities to increase as the price change increases. One also expects demand elasticities to decline as income increases - that is, as consumers make more money, they become less price sensitive. These relationships hold across all of the elasticities but the downgrading columns. The elasticities in the 'downgrading' rows decline (for both hospital and extras) because as prices increase more consumers tend to drop their cover rather than downgrade their cover. In other words, 'downgraders' have some characteristics of 'droppers' in that they are price sensitive and react to the price changes (unlike 'keepers') but they respond more 'weakly'

to the price change than droppers. As the price changes become more substantial, more consumers tend to become droppers rather than downgraders. Because downgraders are the residual of keepers versus droppers, the more consumers drop in response to the rising price, the proportion downgrading declines. This causes elasticities to diminish within a market (e.g., Tier 1 being a market distinct from Tier 2 and Tier 3) as the prices increase.

The ANOP/Newspoll survey found that if premiums were to increase further following the proposed legislative changes, then consumers in the general private health insurance population and the tiered private health insurance population would be highly sensitive to any further increase in the cost of private health insurance. As shown in Table 4.1, in some cases, there would be a 1:1 relationship (or greater) between a percentage increase in the cost of private health insurance and the reduction in coverage by consumers. The general private health insurance population, which is defined as persons below the \$80,000 income threshold where the proposed rebate changes start, was found to be particularly price sensitive (Table 4.1 above).

As previous analysis did not expect the tiered private health insurance population to be sensitive to the proposed rebate changes, the potential broader impacts were not considered. Given the greater price sensitivity of the tiered private health insurance population and the subsequent sensitivity of the general private health insurance population to additional increases in premiums, there may be more significant impacts for the wider healthcare system than previously considered. The subsequent sections consider the implications over time of the expected withdrawal and downgrade profiles of the tiered private health insurance population.

## 4.4 Modelling outcomes: private health insurance membership

### Key modelling outcomes

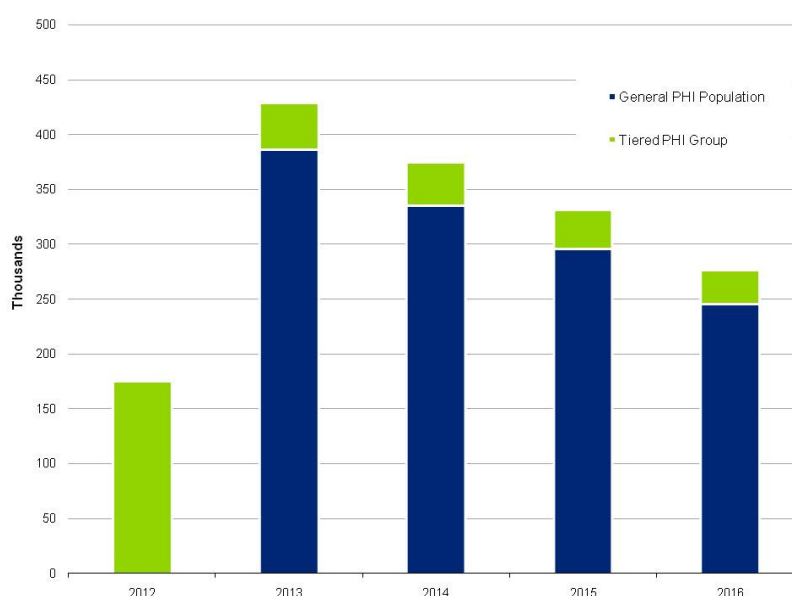
- In the first year, the survey results indicate 175,000 consumers would be expected to withdraw from private hospital cover (1.7 per cent private health insurance hospital membership) and a further 583,000 (5.7 per cent private health insurance hospital membership) downgrade
- Over the five year period, 1.6 million consumers would be expected to withdraw from private hospital cover and 4.3 million would be expected to downgrade (14.7 per cent and 39.6 per cent of private health insurance hospital membership respectively). In addition to this, 2.8 million consumers would be expected to withdraw from general treatment cover and a further 5.7 million would be expected to downgrade (22.2 per cent and 44.6 per cent of private health insurance general treatment membership respectively)
- Over the years, the consumers who are choosing to withdraw and downgrade from private health insurance are increasingly members of the general private health insurance population as opposed to the tiered private health insurance population. This means that over the years, the greatest change in private health insurance membership is observed in the purchasing behaviour of consumers who are *not in the high-income brackets* that are intended to be the target of the proposed policy change. For every high-income 'tiered' individual those withdraw from private hospital cover, four more individuals who are not in these targeted high-income brackets withdraw from private hospital cover
- Those who were *less likely* to claim were *less likely* to retain their current level of private health cover in the face of a private health insurance price rise.

### 4.4.1 Private health insurance membership — size

Initially, it is estimated that the proposed policy change only impacts the price of purchasing private health insurance for individuals in the tiered private health insurance group. Accordingly, the change in private health insurance membership size in 2012 is driven exclusively by the decisions of tiered private health insurance members. In subsequent years, as the impacts of the decisions made by this group cycle through to the wider healthcare system, the decision impacts the general private health insurance population. From 2013 onwards, *all private health insurance consumers* face both increased prices and new challenges to accessing public healthcare. Their decision to continue, downgrade or stop purchasing private health insurance is reflected in changes to private health insurance membership size from 2013.

Figure 4.4 illustrates the progressive withdrawal of private health insurance members from private hospital cover over the years 2012 – 2016 as estimated by the ANOP / Newspoll Survey and the Deloitte Model. As each year passes, the proportion of the general private health insurance population group that withdraws from private health insurance *grows* relative to the proportion of tiered private health insurance members, to whom the policy change is targeted, reflecting the much higher cost sensitivities of these members of the population.

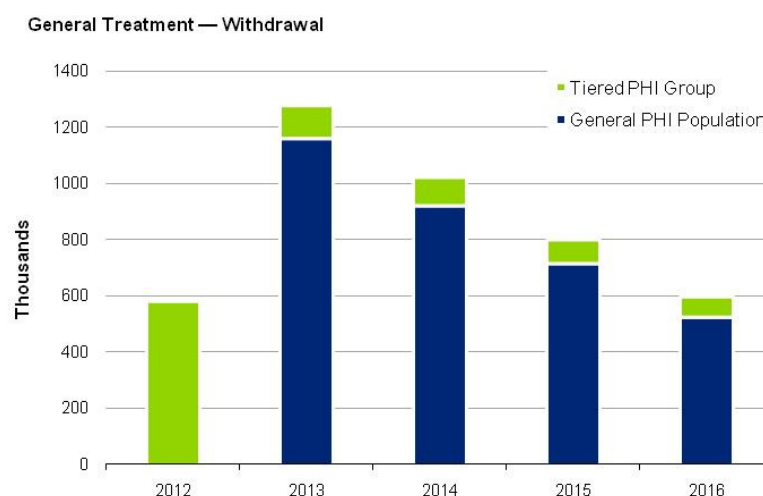
**Figure 4.4 Expected withdrawals from private hospital cover following the proposed policy change (number of consumers)**



Source: Deloitte analysis of ANOP/Newspoll 2011 Survey results

A similar pattern of withdrawal from private health insurance was found in the general treatment cover market (Figure 4.5). The total number of withdrawals over the five year period is far greater from general treatment cover (2.8 million consumers) than that for private hospital cover (1.6 million consumers). This reflects how much more price sensitive consumers are in their decision to purchase general cover as opposed to hospital cover. This elevated level of sensitivity is potentially related to the fact that a consumer can drop general treatment cover without facing the Medicare Levy Surcharge, as long as they continue to hold private hospital cover.

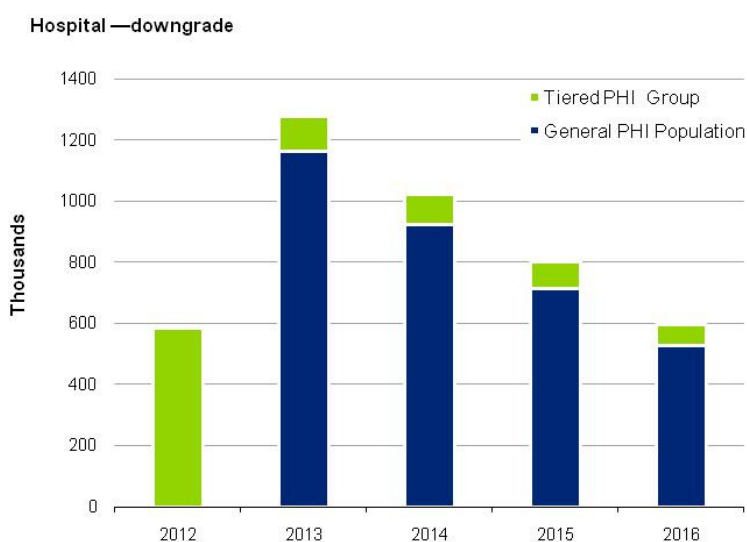
**Figure 4.5 Expected withdrawals from general treatment cover following the proposed policy change (number of consumers)**



Source: Deloitte analysis of ANOP/Newspoll 2011 Survey results

Without withdrawing entirely from private health insurance, some consumers may opt to downgrade their level of private health cover following a price change. Figure 4.6 illustrates the number of consumers, both in the tiered group and the general private health insurance group who downgrade their cover in the five years following the proposed policy change.

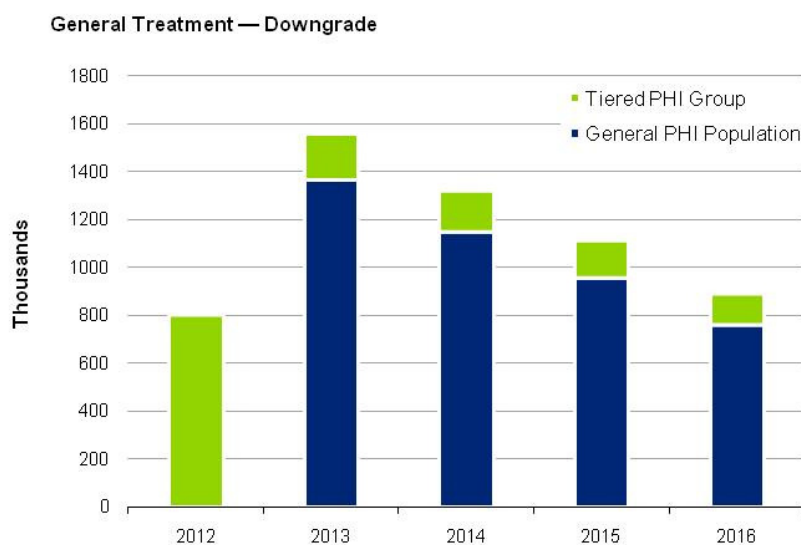
**Figure 4.6 Expected downgrades from private hospital cover following the proposed policy change (number of consumers)**



Source: Deloitte analysis of ANOP/Newspoll 2011 Survey results

Once more, while a similar pattern is observed in the population of consumers who hold general treatment cover, many more individuals downgrade over the five year period within this form of cover (5.7 million) than those who hold private hospital cover (4.3 million).

**Figure 4.7 Expected downgrades from private hospital cover following the proposed policy change (number of consumers)**



Source: Deloitte analysis of ANOP/Newspoll 2011 Survey results

#### 4.4.2 Private health insurance membership — Composition

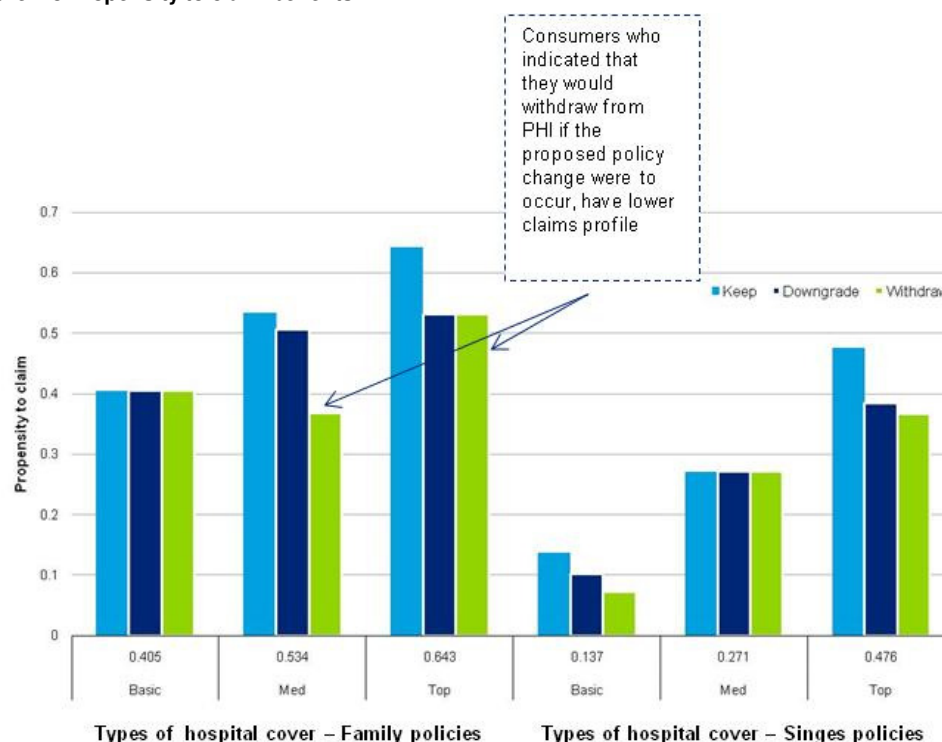
Theory suggests that healthy consumers will be more likely to leave private health insurance as a consequence of a price increase than unhealthy consumers.<sup>52</sup> This has been evidenced in recent Australian experience. The benefits of purchasing private health insurance are associated with the healthcare that can be accessed in times of illness or in the prevention of illness. For this reason, the expected benefits of purchasing private health insurance are *more likely* to be high enough to outweigh the costs for those who are of poor health.

This theory is supported by the results of the ANOP/Newspoll survey, where the consumers who indicated that they would keep their cover in spite of price rises had a higher propensity to claim than those who stated they would withdraw (Figure 4.8).

<sup>52</sup> Gans, J. S. & King, S.P. (2003) 'Problems and solutions for the Health Insurance System in Australia', *Journal of economic literature*



Figure 4.8 Propensity to claim benefits



Source: Deloitte analysis of ANOP/Newspoll 2011 Survey results

The consequence of this expected claims and withdrawal profile is that both the size and composition of the private health insurance market is expected to change (scenario 3 as discussed in Chapter 3), which, in turn, is expected to have flow-on impacts for the community rating pool and private health insurance premiums.

## 4.5 Modelling outcomes: the wider healthcare system

### Key outcomes

#### *private health insurance premiums*

- The cost of private health insurance rises initially only for those in the tiered private health insurance group, as the rebate they receive on their private health insurance purchase is reduced as a result of the policy
- In following years, the cost of private health insurance rises for the *entire private health insurance purchasing population*, as private health insurance premiums rise. The rise in private health insurance premiums reflects the impact of healthy individuals withdrawing or downgrading at a disproportionately higher rate than their unhealthy counterparts in addition to the underlying rate of growth in premiums

#### *Demand for public hospitals*

- An additional 310,000 separations are expected to take place in public hospitals in the fifth year following the implementation of the policy representing an 6 per cent increase in total public sector separations
- If the policy were not implemented, total public sector separations is expected to increase by 15 per cent between 2012 and 2015. If the policy change was implemented, total public sector separations would be expected to grow by 20.5 per cent within the five year period
- The additional recurrent cost of servicing additional separations in the public sector are expected to be \$3.8 billion cumulated over the five years and \$1.4 billion in the fifth year alone
- Depending on the potential increase in capacity of the public sector, average public sector

elective waiting list times could increase by a significant percentage

- Because public sector hospitals are currently operating at 87 per cent occupancy rate, some additional capital infrastructure would likely be required to meet the increase in demand.

#### *Government Budget*

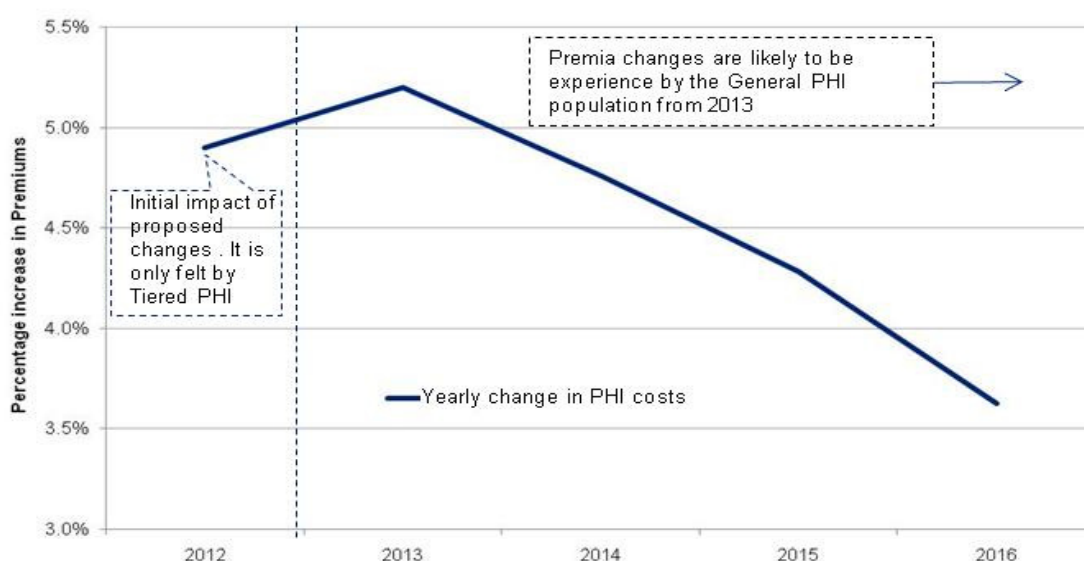
- In the first four years following the policy change, the additional savings and revenue exceed the increase in recurrent costs from the proposed policy change. In the fifth year, however, the recurrent costs of servicing additional demand in the public sector is expected to exceed the expected savings.
- Recurrent costs grow at a rate which exceeds the rate of growth in savings. For this reason, it is likely that in the years which follow the modelled period, the total savings resulting from the proposed policy change is expected to be exceeded by the additional recurrent costs
- Further, as public hospitals are already operating at above target capacity levels, this additional increase in demand for public healthcare will be required to be met through expanding public sector capacity.

### 4.5.1 Private health insurance premiums

As private health insurance premiums are community rated, relatively 'unhealthy' policy holders claim more but pay the same premiums as 'healthy' policy holders. As healthy policy holders withdraw or downgrade their private health cover at a disproportionately higher rate than their unhealthy counterparts (Figure 4.8), the modelling results indicate that private health insurance premiums will rise in the years following the proposed policy change to cover the increasing ratio of benefits claimed to private health insurance members. This rise is expected to occur in addition to any other growth in premiums.

Figure 4.9 illustrates the year-on-year rise in private health insurance premiums that is expected to occur in the years following the policy change. In the first year, the increased cost of private health insurance is only faced by the tiered private health insurance group. From 2013 - 2015, however, the increased cost for purchasing private health insurance is driven by rising private health insurance premiums. These latter increases in cost are applicable to the *entire private health insurance purchasing population*, not just those who are in the tiered private health insurance group.

**Figure 4.9 The yearly increase in the additional cost of private health insurance**

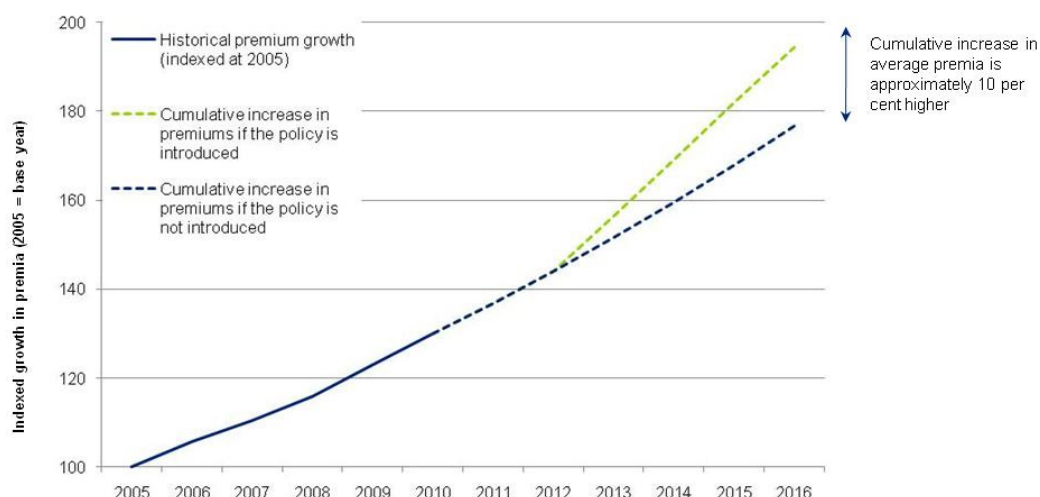


Source: Deloitte analysis

As noted earlier in this section, even in the absence of the proposed policy change, private health insurance premiums rise would continue to rise. The rise in private health insurance

premiums estimated in the modelling results would occur *in addition to* the normal growth in private health insurance premiums. Figure 4.10 illustrates the cumulative increase in premiums that is forecast to occur both in the absence and presence of the proposed policy change.

**Figure 4.10 The projected growth in private health insurance premiums following the means testing of the rebate**



Source: PHIAC data and Deloitte analysis. Note to figure: the premiums increases are indexed to year 2005. The baseline forecast is based on the average growth rate of industry premiums between 2000 and 2010.

The figure shows that by 2016, the cumulative increase in average industry premiums would be expected to be approximately 10 per cent more if the proposed policy change is introduced than if it is not introduced.

Also, it is important to contextualise what these price changes may mean for private health insurance consumers. This helps to illustrate why consumers may be more price sensitive than previously assumed, as indicated by the ANOP/Newspoll survey results. Box 4.1 provides a series of case studies to show how the above modelled changes may affect some households.

#### Case studies: Why premiums increases may impact on the consumer decision?

The following three case studies outline how three different households could be impacted by the modelled premiums increases shown above. These consumers are real private health insurance members and their names have been changed.

##### Case study 1. John and Jane (general private health insurance population)

John (29) and Jane (23) live in Caroline Springs in the outer-west of Melbourne. John works in retail and Jane stopped work 18 months ago to be the fulltime carer of their first child (now 15 months old). In 2011, they earn **\$740** after tax and superannuation per week. If their income were to grow at 3.8 per cent per annum, in 2016, they will earn **\$892** per week. They have medium level hospital private health cover and dropped their extras cover recently. They currently pay **\$48** every week to maintain their private health cover, which is approximately **6.6 per cent** of their after tax / superannuation income. If no policy change occurred, by 2016, John and Jane could expect to pay **\$62** a week to maintain their private health cover, or approximately **7 per cent** of their then weekly income. If the policy change is introduced, by 2016, John and Jane could expect to pay **\$70** a week to maintain their private health cover, representing **7.7 per cent** of their then weekly income. Over the year they

will pay **\$330** more than if the proposed policy change were not introduced.

#### **Case study 2. Jack and Jess (tiered private health insurance group)**

Jack (57) and Jess (58) live in Surrey Hills in an apartment. They have two adult children who they no longer support. They run a successful importing business. They have a need for comprehensive cover as Jack has hypertension and a shoulder injury, which requires regular physiotherapy so he can continue to work.

In 2011, they earn **\$4,166** after tax and superannuation per week. If their income were to grow at 3.8 per cent per annum (Latest ABS Wage Price Index), in 2016, they will earn **\$5,020** per week. They currently have top hospital and top extras cover. They currently pay **\$78** every week to maintain their private health cover, or approximately **1.9 per cent** of their after tax / superannuation income.

If no policy change occurred, by 2016, Jack and Jess could expect to pay **\$100** a week to maintain their private health cover, which would be approximately **2 per cent** of their then weekly income.

If the policy change is introduced, by 2016, Jack and Jess could expect to pay **\$150** a week to maintain their private health cover, representing **3 per cent** of their then weekly income. Over the year they will pay **\$2570** more than if the proposed policy change were not introduced. It is important to note that their increase also factors in that they will no longer receive a 30% rebate on their premium.

#### **Case study 3 Joan (general private health insurance population)**

Joan lives in Brisbane and is a 66 year old retired nurse. She is a pensioner who will likely need a knee replacement soon. She has had private health insurance her entire working life. She is keen to keep her insurance as long as possible.

Joan's income is her pension with minimal superannuation. In 2011, she collects **\$577** per week, which if grown at CPI will grow to \$660 per week in 2016. Joan currently has top hospital cover plus \$500 excess. She currently pays \$19 every week to maintain this level of private health cover, or approximately **3.4 per cent** of her weekly income.

If no policy change occurred, by 2016, Joan could expect to pay **\$25** a week to maintain her private health cover (**3.8 per cent** of her then weekly income).

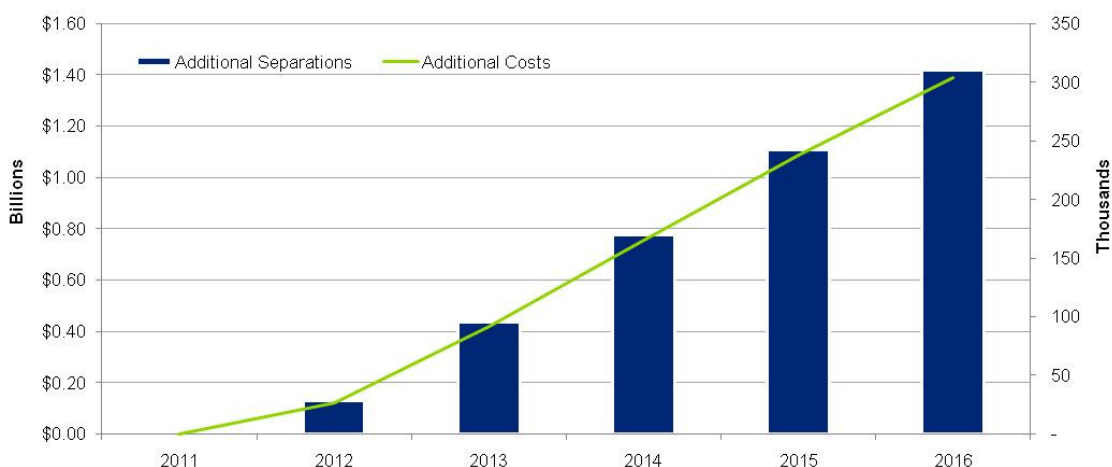
If the policy change is introduced, by 2016, Joan could expect to pay **\$28** a week to maintain their private health cover, representing **4.2 per cent** of their then weekly income. Over the year she will pay **\$130** more than if the proposed policy change were not introduced.

## **4.5.2 Demand for public hospitals**

### **Impact on separations growth**

As policyholders withdraw from private health insurance, they increase their demand for public hospital services. The modelling estimates indicate that five years following the implementation of the proposed policy change (2016) there are expected to be 310,000 more separations at public hospitals in that year than there otherwise would have been which is a 6 per cent increase in total public sector separations. The additional recurrent cost of servicing these separations in the public sector is \$3.8 billion cumulated over five years and \$1.4 billion in the fifth year alone (Figure 4.11).

**Figure 4.11 additional separations and costs expected in the public hospital sector following introduction of the means test**



Source: Deloitte analysis

It is important to note that the 6 per cent increase is expected to occur *in addition* to the growth in public sector separations which would occur in the absence of the proposed policy change (approximately 15 per cent growth is expected between 2012 and 2016). This means that if the policy change were implemented, the number of public sector separations in 2016 would be expected to be 20.5 per cent higher than in 2012.

### Elective Surgery Waiting List Times

As outlined in Chapter 3, in the short run, if demand increases substantially, hospitals will need to prioritise patients on the basis of need. This may result in longer waiting times for services – particularly for elective surgical services.

Elective surgery waiting list times in the public hospital system are challenging to estimate. This is because they are a function of supply and demand side that affect their rate of growth, including:

- The availability of beds, operating theatres, labour (including specialists, nurses, etc) and funding levels by hospital
- Public hospital productivity growth, including the impact of new models of care by hospital
- Variability in the addition of new patients to waiting lists by practitioner
- Potential variability in the measurement of waiting list times
- Policies to improve the management of waiting lists
- Contracting out to the private sector to expand capacity
- Subsidisation of private health insurance.<sup>53</sup>

As a consequence, it is difficult to estimate the relationship between waiting list times and private health insurance membership because there are a range of potential demand and supply side responses that can be employed to help manage the increase in waiting list times. Indeed, the introduction of the rebate was originally one of these demand side policies implemented to control excessive public sector elective surgery waiting list times in the public hospital sector.

<sup>53</sup> See for example, Hurst, J. and Siciliani, L, 2003, *Tackling Excessive Waiting List Times for Elective Surgery: A Comparison of Policies in Twelve OECD Countries*. OECD Health Working Papers, Paris.

Notwithstanding the above, there are well developed models for predicting the growth in average waiting list times which have been applied to not only public sector hospital waiting list times, but also in the telecommunications and other consumer industries.<sup>54</sup> Collectively, this field of research is referred to as queuing theory.

Applying queuing theory formulae for average waiting list times<sup>55</sup> to Australian Institute of Health and Welfare<sup>56</sup> data on elective surgery waiting lists (and using the current median waiting list time for each surgery<sup>57</sup>), the estimates of base case public sector demand growth and new demand from the private sector, provides an indication of the potential order of magnitude change in average waiting list times for selected procedures. This is shown in Table 4.2.

**Table 4.2 Potential change in average elective surgery waiting times**

| Elective Surgery Procedure   | Current median number of days waiting* | Increase in the average number of days waiting above base case expectations, given changes in public sector operating capacity |                                      |                                      |                                      |                                      |
|------------------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
|                              |                                        | 0% change in public sector capacity                                                                                            | 10% change in public sector capacity | 20% change in public sector capacity | 30% change in public sector capacity | 50% change in public sector capacity |
| Cataract extraction          | 84 days                                | 232 days                                                                                                                       | 201 days                             | 178 days                             | 160 days                             | 134 days                             |
| Cholecystectomy              | 47 days                                | 144 days                                                                                                                       | 123 days                             | 107 days                             | 95 days                              | 77 days                              |
| Coronary artery bypass graft | 14 days                                | 339 days                                                                                                                       | 280 days                             | 235 days                             | 200 days                             | 150 days                             |
| Cystoscopy                   | 25 days                                | 74 days                                                                                                                        | 62 days                              | 54 days                              | 47 days                              | 38 days                              |
| Haemorrhoidectomy            | 51 days                                | 391 days                                                                                                                       | 326 days                             | 276 days                             | 238 days                             | 183 days                             |
| Hysterectomy                 | 48 days                                | 171 days                                                                                                                       | 145 days                             | 125 days                             | 110 days                             | 88 days                              |
| Inguinal herniorrhaphy       | 52 days                                | 165 days                                                                                                                       | 140 days                             | 120 days                             | 105 days                             | 83 days                              |
| Myringoplasty                | 92 days                                | 586 days                                                                                                                       | 489 days                             | 415 days                             | 358 days                             | 277 days                             |
| Myringotomy                  | 44 days                                | 421 days                                                                                                                       | 348 days                             | 294 days                             | 251 days                             | 190 days                             |
| Prostatectomy                | 41 days                                | 130 days                                                                                                                       | 110 days                             | 94 days                              | 83 days                              | 66 days                              |
| Septoplasty                  | 128 days                               | 247 days                                                                                                                       | 213 days                             | 187 days                             | 168 days                             | 140 days                             |
| Tonsillectomy                | 85 days                                | 152 days                                                                                                                       | 131 days                             | 116 days                             | 104 days                             | 87 days                              |
| Total hip replacement        | 100 days                               | 162 days                                                                                                                       | 138 days                             | 119 days                             | 105 days                             | 86 days                              |
| Total knee replacement       | 147 days                               | 199 days                                                                                                                       | 168 days                             | 145 days                             | 127 days                             | 103 days                             |

<sup>54</sup> Curtis, A., J., Russell, C. O. H., Stoelwinder, J. U., and McNeil, J. J., 2010, 'Waiting lists and elective surgery: ordering the queue', *The Medical Journal of Australia*, 192(4):217-220; Iversen, T., 1997, 'The effect of a private sector on the waiting time in a national health service', *Journal of Health Economics*, 16:381-396; Ciripiano, L. E., Chesworth, B. M., Anderson, C. K., and Zaric, G. S., 2007, 'Predicting joint replacement waiting times', *Healthcare Management Science*, 10:195-215; van Ackere, A., and Smith P. C., 1999, 'Towards a macro model of National Health Service Waiting Lists', *System Dynamics Review*, 15(3): 225-252.

<sup>55</sup> Specifically we used the Poisson function (M/M/1) for average waiting times as identified by van Ackere and Smith (1999) in their analysis of NHS waiting list times. This approach assumes a 'national' server and a 'national' queue, which provides an order of magnitude estimate for the change in waiting list times.

<sup>56</sup> See AIHW, 2010, Interactive Datacubes Elective Surgery Waiting List times, <http://www.aihw.gov.au/national-elective-surgery-waiting-times-interactive-data/>

<sup>57</sup> The Poisson function provides information about the average waiting list time, given assumed arrival rates and service capacity rates. However, the Australian Government does not publish average waiting list times, and so we have used the published median as a proxy for the average. Given that each elective surgery procedure has a percentage of people waiting greater than 360 days (see Chapter 3), it is highly likely that the average waiting list time (in days) is greater than the median waiting list time.



| Elective Surgery Procedure                            | Current median number of days waiting* | Increase in the average number of days waiting above base case expectations, given changes in public sector operating capacity |                                      |                                      |                                      |                                      |
|-------------------------------------------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
|                                                       |                                        | 0% change in public sector capacity                                                                                            | 10% change in public sector capacity | 20% change in public sector capacity | 30% change in public sector capacity | 50% change in public sector capacity |
| Varicose veins stripping & ligation                   | 87 days                                | 138 days                                                                                                                       | 121 days                             | 108 days                             | 99 days                              | 85 days                              |
| <b>Weighted average across surgeries</b>              | <b>65 days</b>                         | <b>259 days</b>                                                                                                                | <b>218 days</b>                      | <b>188 days</b>                      | <b>164 days</b>                      | <b>130 days</b>                      |
| <b>% increase compared with current waiting times</b> |                                        | <b>400%</b>                                                                                                                    | <b>334%</b>                          | <b>287%</b>                          | <b>250%</b>                          | <b>200%</b>                          |

Source: AIHW, 2010, op cit, and Deloitte analysis. \*Note: The Poisson function provides information about the average waiting list time, given assumed arrival rates and service capacity rates. However, the AIHW does not publish average waiting list times, and so we have used the published median as a proxy for the average. Given that each elective surgery procedure has a percentage of consumers waiting greater than 360 days (see Chapter 3), it is highly likely that the average waiting list time (in days) is greater than the median waiting list time. Weighted average across surgeries is the calculation of the weighted average of the surgeries listed above. The percentage increase considers the change in weighted average.

As shown in Table 4.2, depending on the potential increase in capacity of the public sector, public sector elective waiting list times could increase significantly. Increased capacity could be achieved through either increasing the availability of beds, operating theatres, labour (including specialists, nurses, etc) and funding levels by hospital, improvements in productivity, or expanding use of the private sector.

Because public sector hospitals are currently operating at an 87 per cent occupancy rate, they are arguably currently at capacity. It is likely that some capital infrastructure investment would also be required to meet the increase in public sector surgery demand.

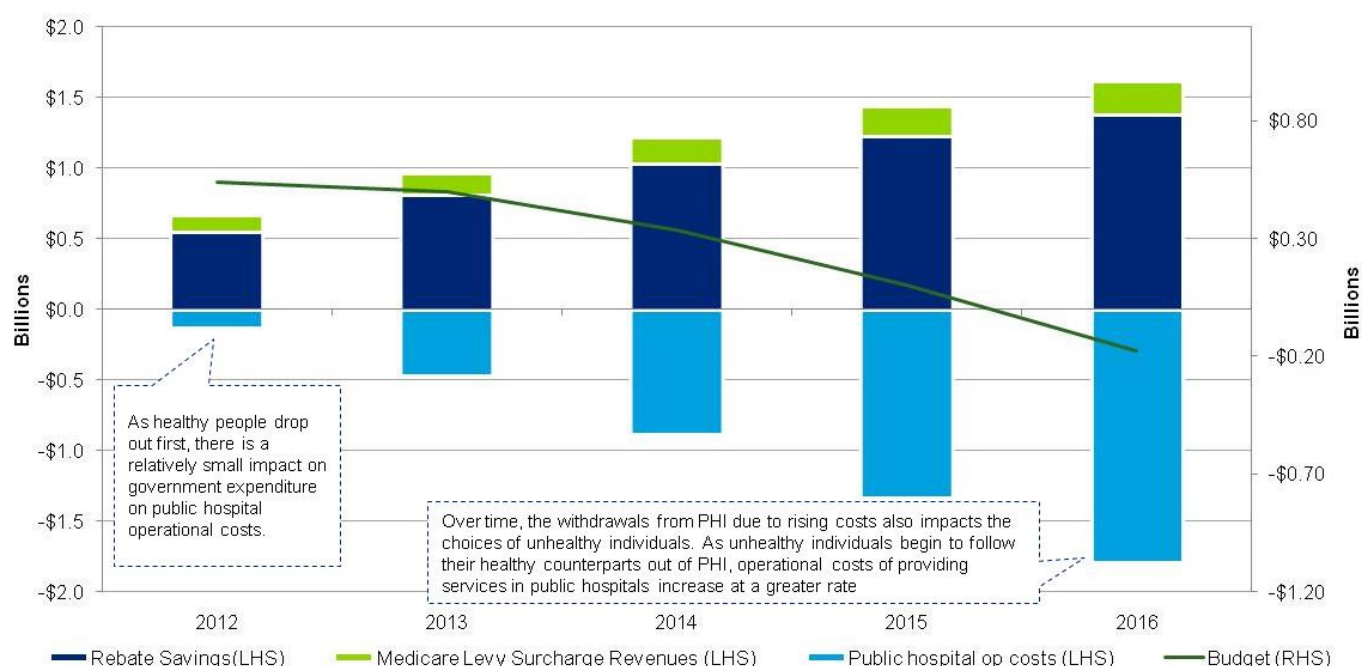
### 4.5.3 Government budget

As outlined in Chapter 3, from a purely financial perspective, a decrease in the size of private health insurance membership can impact the government budget in three ways:

- Increasing savings from a decrease in the rebate for private health insurance
- Increasing revenues from an increase in the number of consumers paying the Medicare Levy Surcharge
- Increasing expenditure through an increased demand for public healthcare. This expenditure reflects the additional cost to government from meeting demand in a public rather than private setting. This will result in increasing recurrent costs in the short term beyond, which may also require expansion of public healthcare capacity (capital investment).

Figure 4.12 illustrates these three impacts over the five year period. The green line tracks the net position in every year, that is, the savings expected from the proposed policy change, minus the expected costs. Importantly, this diagram only considers recurrent costs, that is, the cost of treating additional patients in the public system without increasing public sector capacity.

Figure 4.12 Net changes in the Government expenditure / savings



Source: Deloitte analysis

In the first year following the change, the expected savings from the proposed policy change exceed expected costs. In this year, the modelling has shown that only members in the tiered private health insurance group are withdrawing or downgrading their private health cover. Further, it is the healthier members of this group who are choosing to do so, and so there is very little additional burden on the public health system.

In the second year following the introduction of the proposed policy change, a number of consumers from across the *entire private health insurance population* choose to withdraw or downgrade their private health cover as private health insurance premiums rise. Once more, these consumers are healthier than others in the private health insurance population and their healthcare demands, which they bring across to the public sector over time, are not as significant as those of the consumers remaining in the private health insurance market.<sup>58</sup>

In the third and fourth years, the additional demands being placed on public healthcare continues to grow as more consumers from the *entire private health insurance population* continue to drop or withdraw from their private health cover in the face of rising private health insurance costs. By the fifth year, the cost of servicing the additional demand for public healthcare has outgrown the savings.

By the fifth year, \$4.6 billion of revenue is expected to be removed from the private sector as a result of consumers withdrawing and downgrading their private health cover. The loss of revenue in the private sector reflects a decrease in private funding of healthcare.

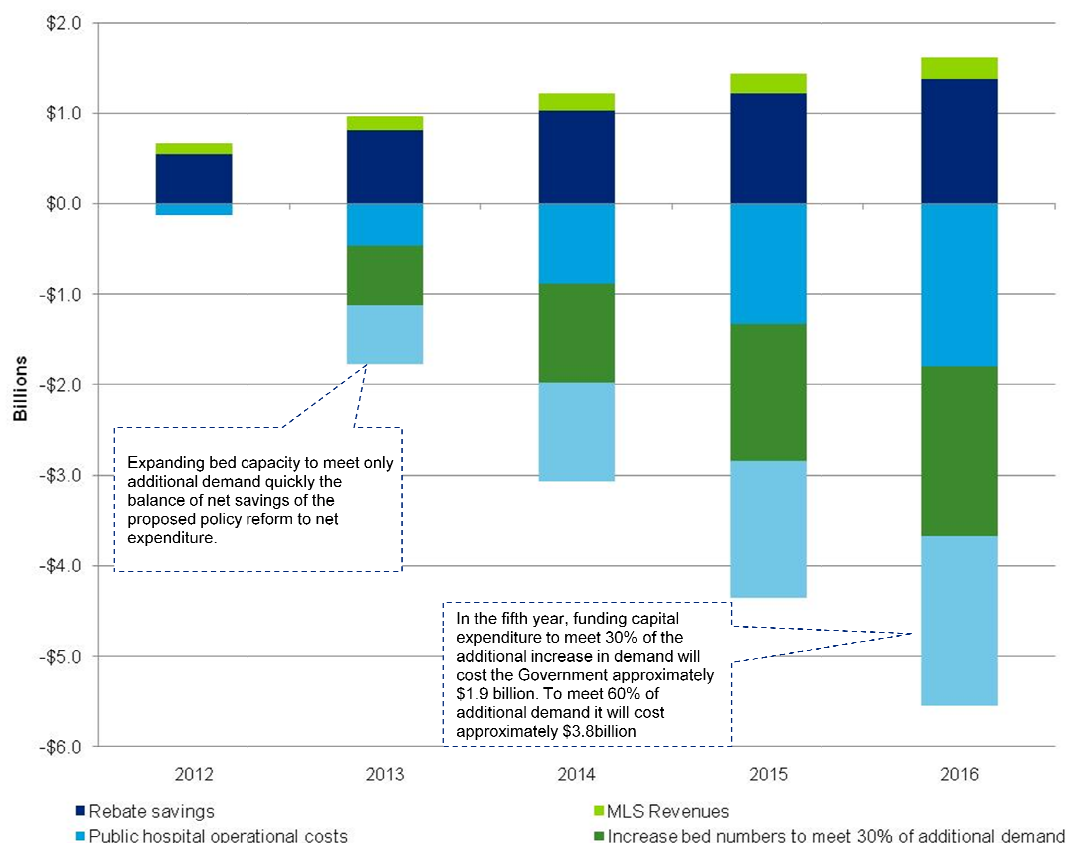
The Deloitte Model only considers the five years which follow the introduction of the proposed policy change. The diagram presents an outcome, however, where recurrent costs are growing at a faster rate than the savings accrued as a result of the policy. If this trend were to continue past the five years, it is reasonable to assume that at some point the cumulative savings expected from the proposed policy change would be exceeded by the expected rise in recurrent costs in the public healthcare system alone.

<sup>58</sup> Note the model assumes all medical DRGs are seen in the same year they would have otherwise been demanded but surgical demand is assumed to enter the public sector over a multiyear period.



Moreover, public hospitals are currently operating at 87 per cent capacity which exceeds targets of 85 per cent. As demand for public healthcare grows, governments will eventually need to make investments in increasing public sector capacity by increasing some mix of new beds, operating theatres, labour and funding. While capital investment takes time, Figure 4.13 is provided to illustrate the additional costs that would be incurred if bed capacity expansions were required to cover 30 per cent or 60 per cent of the additional separations.

**Figure 4.13 Cost of building bed capacity to meet additional demand – two scenarios**



Source: Deloitte analysis

## 4.6 Summary of key modelling outcomes

In summary, the Deloitte economic impact analysis based on the ANOP/Newspoll survey results indicates the following outcomes are likely to occur (Table 4.2).

**Table 4.2 Key estimates of the ANOP and Deloitte analysis of the proposed means test**

| Key assumptions  |                                                                                                                                                                                                                                                                                                                                   |                                                                                              |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Assumption       | Description                                                                                                                                                                                                                                                                                                                       | Rationale                                                                                    |
| Price elasticity | <p>Consumers are more price sensitive than previously assumed under analysis based on literature reviews of demand elasticity for private health insurance.</p> <p>Tiered private health insurance consumers are twice as likely to drop hospital cover than previously estimated as a consequence of proposed rebate changes</p> | Based on ANOP / Newspoll Survey of 2,000 private health insurance consumers across Australia |

| Key assumptions                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                               |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Assumption                                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Rationale                                                                                                     |
| <b>Tier 2 and 3</b>                                    | Consumers across all three Tiers are sensitive to the price changes implied by the proposed policy change.<br><br>Tiered private health insurance consumers are twice as likely to drop hospital cover as previously estimated as a consequence of proposed rebate changes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Based on ANOP / Newspoll Survey of 2,000 private health insurance consumers across Australia                  |
| <b>Downgrade</b>                                       | The model allows for the option to downgrade. The survey results indicate that many consumers are expected to downgrade when faced with an increase in the cost of private health insurance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Based on ANOP / Newspoll Survey of 2,000 private health insurance consumers across Australia                  |
| <b>Second round impacts</b>                            | The initial impacts of the proposed policy change are limited to the private health insurance purchase decisions of those in the three high-income brackets. As the effects of the change flow through the wider Australian healthcare system and cause increasing private health insurance premiums, consumers across all income groups must factor in higher costs to their decision of whether to purchase private health insurance.                                                                                                                                                                                                                                                                                                                       | Literature review                                                                                             |
| <b>Treatment of general treatment cover membership</b> | General treatment cover is considered as part of the analysis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Private health insurance general treatment cover is a substantial part of the private health insurance market |
| <b>Health status of consumers</b>                      | The health status of consumers is considered as part of the model.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Based on ANOP / Newspoll Survey of 2,000 private health insurance consumers across Australia                  |
| Key outcomes                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                               |
| Outcomes                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                               |
| <b>Private health insurance membership</b>             | Over the five year period, 1.6 million consumers would be expected to withdraw from private hospital cover and 4.3 million would be expected to downgrade (14.7% and 39.6% of private health insurance hospital membership respectively). In addition to this, 2.8 million consumers would be expected to withdraw from general treatment cover and a further 5.7 million would be expected to downgrade (22.2% and 44.6% of private health insurance general treatment membership respectively).<br><br>Those who were <i>less likely</i> to claim in the next few years were <i>less likely</i> to retain their current level of private health cover in the face of a private health insurance price rise.                                                 |                                                                                                               |
| <b>Private health insurance premiums</b>               | The cost of private health insurance rises initially only for those in the tiered private health insurance group, as the rebate they receive on their private health insurance purchase is reduced as a result of the policy. For many members of the tiered private health insurance group, this cost increase is offset by a corresponding increase in the Medicare Levy Surcharge.<br><br>In the following years, the cost of private health insurance rises for the <i>entire private health insurance purchasing population</i> , as private health insurance premiums rise. The rise in private health insurance premiums reflects the impact of healthy individuals withdrawing at a disproportionately higher rate than their unhealthy counterparts. |                                                                                                               |
| <b>Demand for public healthcare</b>                    | An additional 310,000 separations are expected to take place in public hospitals in the fifth year following the implementation of the policy representing a 6 per cent increase in total public sector separations.<br><br>If the policy were not implemented, total public sector separations would grow by 15% between 2012 and 2015. This means that if the policy change were implemented, total public sector separations would be expected to grow by 20.5% within the five year period                                                                                                                                                                                                                                                                |                                                                                                               |
| <b>The government budget</b>                           | In the first four years following the policy change, the additional savings and revenue exceed the increase in recurrent costs from the proposed policy change. In the fifth year, however, the recurrent costs of servicing additional demand in the public sector exceed the expected savings.<br><br>Recurrent costs grow at a rate which exceeds the rate of growth in savings. For this reason, it is likely that in the years which follow the modelled period, the total savings resulting from the proposed policy change are expected, over time, to be wholly exceeded by the additional recurrent costs                                                                                                                                            |                                                                                                               |

# 5 Conclusions

The purpose of this research was to estimate the economic impacts of the proposed policy change using the latest available data collected from a statistically significant sample of households.

The analysis presented in this report is based on the results of the ANOP/Newspoll survey of 2,000 Australian households who have private health cover, both those who are in the targeted income tier and those who are not.

Using the results of the survey to inform assumptions of consumer behaviour, the subsequent impacts of the policy on private health insurance membership and the wider Australian healthcare system were estimated.

The key conclusions of the report are:

***1.) Following the proposed policy change, a significant number of consumers are expected to withdraw / downgrade their private health insurance***

The analysis presented in this paper finds that in total 175,000 consumers will withdraw from private hospital cover in the first year alone, with a further 554,000 withdrawing from general treatment cover.

Critically, those who were *less likely* to claim were *less likely* to retain their current level of private health cover in the face of a private health insurance price rise. This indicates that it is the healthier individuals who are more likely to decide to leave the private health insurance market, leaving an unhealthier group of consumers behind.

This conclusion is central to the outcomes of the overall analysis as it determines whether the initial consumer response to the policy change will be substantial enough to set in motion a chain of impacts through to the wider Australian healthcare system.

***2.) Following the proposed policy change, private health insurance is expected to become less affordable for all healthcare consumers, not just those who are in the tiered private health insurance population***

The analysis presented in this paper finds that if the policy change is implemented, consumers will face premiums that are higher over the following five years than they would have been in the absence of the policy. If introduced, Deloitte estimates that in 2016, consumers will face premiums that are on average 10 per cent higher than they otherwise might have been.

There is a cyclical relationship between the increasing number of consumers withdrawing/downgrading their private health cover and the continuing rise in premiums.<sup>59</sup> The Deloitte projections show that year-on-year, the consumers who are less likely to make claims withdraw from the private health insurance market in response to increasing premiums, leading to subsequent rounds of price rises. This projected response is comparable to the 'adverse selection spiral' that was observed following the introduction of Medicare, where between 1984 and 1997 private health coverage across the population fell at a rate of 1.4 per cent annually. During this

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<sup>59</sup> Gans, J. S. & King, S.P. (2003) 'Problems and solutions for the Health Insurance System in Australia', *Journal of economic literature*

period, research has shown that it was predominantly younger and healthier consumers who chose to withdraw from their private health cover.<sup>60</sup>

***3.) The chain of events triggered by the proposed policy change is expected to place additional burden on the public health system***

As consumers withdraw from the private health insurance market, they enter into public healthcare systems. This will materially increase demand for public hospital services above base case growth. It is estimated that five years following the introduction of the proposed policy change, 310,000 separations will take place in public hospitals, costing \$1.4 billion in additional recurrent costs in that year. In the absence of the policy change, total public sector separations are expected to grow by 15% between 2012 and 2016. Adding on the impact of the proposed policy change, total public sector separations would be expected to grow by an additional 6% between 2012 and 2016.

Moreover, as public hospitals are already operating at above target capacity levels, this additional (above expected) increase in demand for public healthcare will likely translate into longer waiting list times and will likely require investment in new public sector capacity.

***4.) The proposed policy change will trigger a series of events that will result in deteriorating government savings and ultimately net costs to the public purse***

In the first four years following the proposed policy change, the estimated savings and additional revenue exceed the increase in costs from the proposed policy change. In the fifth year, however, the cost of servicing additional demand in the public sector is forecast to exceed the expected savings. This is because costs grow at a rate which exceeds the rate of growth in savings. For this reason, it is likely that in the years which follow the period modelled, the total savings resulting from the proposed policy change will be less than the additional costs.

In total, the analysis indicates that the impacts of the proposed policy change are likely to be more significant than has been estimated in previous analyses. The legislation will affect Australian households of all income levels, and demand for public hospitals. In the long run the policy will likely cost Australian Governments money as operational costs grow more quickly than projected savings, and the increase in demand for public sector services will likely require additional investment in public health facilities.

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<sup>60</sup> Barrett, G and Conlon, R (2002), 'Adverse selection and the decline in Private Health Insurance Cover in Australia: 1989 -1995', UNSW

# Appendix A

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# Appendix B

## Model Schematic and key data sources

This appendix provides an overview of the structure of the economic impact model and key assumptions informing the analysis.

The structure of the model can be segregated into 5 modules:

- **Base Case** – this module captures the existing population demographics and market dynamics of the private health insurance industry. It forms the basis of the 2640 private health insurance markets and uses three sources of data to estimate the characteristics of each individual market
- **Consumer Response** – this model calculates each individual private health insurance market's response to changes in prices and assesses the relative health level of consumers who remain in the market versus those who leave
- **Private Health Industry** – this module captures the private health insurance industry's response to changes in the markets for private health insurance
- **Public Sector Hospital Changes** – this module examines the effect an increasing uninsured population will have on the public health system
- **Changes to government costs and revenues** – this module calculates the changing costs and revenues that will occur given the expected consumer and industry responses to the changes in the market.

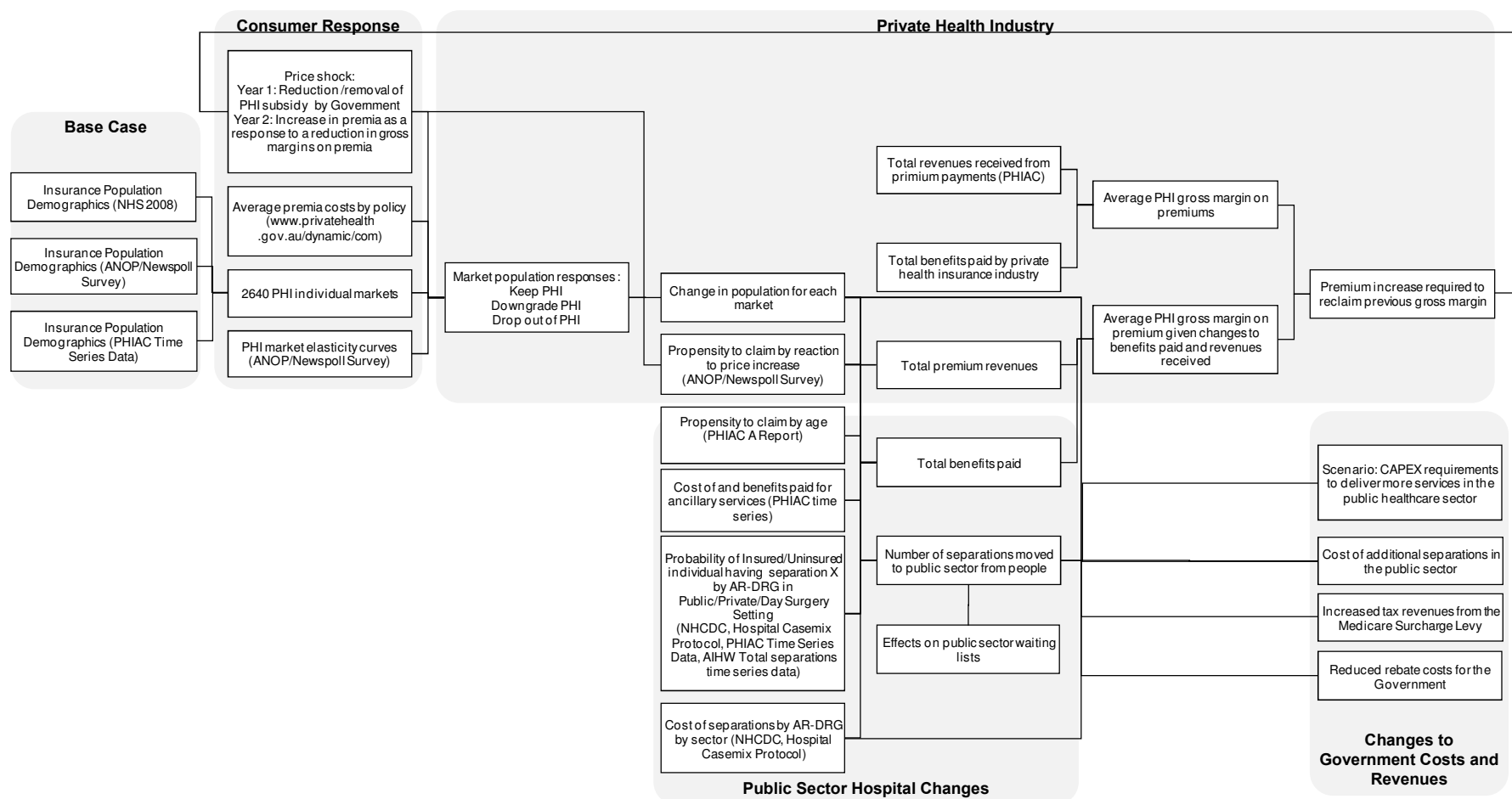
The model is dynamic, with each year's outputs used to inform assumptions in the following year. This includes changes in populations for each of the 2,640 private health insurance markets, expected premium increases and propensity to claim of the consumers remaining in the private health insurance market versus the consumers who withdraw.

The model has been built to capture the following outputs:

- Change in policies by level of cover, type of cover
- Change in insured population by demographics of population affected including income, age, tier status
- Rebate savings to government caused by the means testing of the private health insurance rebate and the reduction in the private health insurance population
- Additional revenue to government from the Medicare Levy Surcharge due to individuals exiting the market even though they will be penalised through the tax system
- Gross expenditure reduction in the healthcare system from reduced governmental subsidisation of premiums and reduction in house hold expenditure
- Increases in premiums above already expected real healthcare premiums inflation
- Increased separations in the public sector caused by the reduction in the insured population
- Increased governmental costs from additional separations caused by a reduction in the insured population.

Figure B.1 provides a schematic of the model structure. Table B.1 provides a summary of key data sources used in the model.

Figure B.1 High level model schematic





**Table B.1 High level model schematic**

| Assumption                                                                                        | Source                                                                                                                  | Notes                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Population sizes of each market                                                                   | 2008 NHS, ANOP/Newspoll Survey                                                                                          |                                                                                                                                                                                                                                                                                                             |
| Demand elasticity curves - Rebate impact                                                          | ANOP/Newspoll Survey                                                                                                    | Adjusted for impact of MLS and LHC                                                                                                                                                                                                                                                                          |
| Demand elasticity curves - Premium change                                                         | ANOP/Newspoll Survey                                                                                                    | Adjusted for impact of MLS and LHC                                                                                                                                                                                                                                                                          |
| Impact of MLS                                                                                     | ANOP/Newspoll Survey                                                                                                    |                                                                                                                                                                                                                                                                                                             |
| Impact of LHC                                                                                     | ANOP/Newspoll Survey                                                                                                    | Dropout rate controlled for awareness of LHC policy                                                                                                                                                                                                                                                         |
| Claims propensity                                                                                 | Combined impact of PHIAC Age Claims data (Report A) and ANOP/Newspoll Survey                                            | Shows how 'healthy' consumers dropping out of system & drives second round premiums increases - risk profile of group increases as consumers with lower propensity to claim drop out                                                                                                                        |
| Separation projections - public and private                                                       | NHCDC (Year 2008/09), HCP (Year 2008/09), PHIAC (Years 1998-2010)                                                       | Have taken NHCDC and HCP data (for public and private separation estimates, respectively) and corrected for missing data in current year (10-15%) using PHIAC data and AIHW data. Data also analysed to determine probability of persons seeking care in public/private settings based on insurance status. |
| Service costs - public sector                                                                     | NHCDC (Year 2008/09)                                                                                                    |                                                                                                                                                                                                                                                                                                             |
| Service costs - private sector                                                                    | HCP (Year 2008/09)                                                                                                      |                                                                                                                                                                                                                                                                                                             |
| % contributions by government, household, Private Health Insurance -- by insurance status         | Australian Institute of Health and Welfare (2008-09 data), PHIAC Time Series Data                                       | This data has been modelled to split funding proportions by Insured/Uninsured groups                                                                                                                                                                                                                        |
| Industry revenues, benefits outlays, profits - PHIAC                                              | PHIAC(Years 1998-2010)                                                                                                  |                                                                                                                                                                                                                                                                                                             |
| Rate of return assumptions for Private Health Insurance industry (premiums increase calculations) | Deloitte analysis of revenue, outlay, profit data in 2008-09                                                            | Drives second round premium increase assumptions                                                                                                                                                                                                                                                            |
| Average cost of insurance products by policy and level of cover                                   | <a href="http://www.privatehealth.gov.au/dynamic/compare.aspx">http://www.privatehealth.gov.au/dynamic/compare.aspx</a> |                                                                                                                                                                                                                                                                                                             |
| Demand for public services by persons dropping out of Private Health Insurance                    | Algorithm based on DRG analysis using DRG-eSRG-SRG mapping tool (V5) to map DRGs to Elective surgery procedures         | Determines rate of demand transfer between the private and public sectors as consumers drop out of private health insurance                                                                                                                                                                                 |
| Elective surgery waiting long wait list trends                                                    | Australian Institute of Health and Welfare (Years 2002-2009)                                                            |                                                                                                                                                                                                                                                                                                             |
| Average cost per bed                                                                              | Deloitte review of new major project announcements                                                                      | Used for side calculation of what investment                                                                                                                                                                                                                                                                |
| Change in long waiting list times                                                                 |                                                                                                                         | Calculated using Poisson function based on different scenarios of expanding public sector capacity                                                                                                                                                                                                          |
| Public sector capacity                                                                            | Australian Institute of Health and Welfare (Years 2004-2008)                                                            |                                                                                                                                                                                                                                                                                                             |

## Notes on Waiting List Feedback Effects

Forecasting elective surgery waiting list times in the public hospital system presents significant challenges. This is because elective surgery waiting list times are a function of a large number of both supply and demand side factors that affect their rate of growth (or decline), including:

- The availability of beds, operating theatres, labour (including specialists, nurses, etc) and funding levels by hospital
- Public hospital productivity growth, including the impact of new models of care by hospital
- Variability in the addition of new patients to waiting lists by practitioner
- Potential variability in the measurement of waiting list times
- Policies to improve the management of waiting lists
- Contracting out to the private sector to expand capacity
- Subsidisation of private health insurance.<sup>61</sup>

In building the economic impact model, the relationship between demand for private health insurance and waiting list times was investigated. The starting hypothesis was that as waiting list times increased, demand for private health insurance would also increase, slowing the net migration out of the private health insurance market than would be expected if no feedback effect were built into the model.

A literature review was undertaken of Australian and international research into the relationship between demand for private health insurance and waiting list times.

- Internationally, the greatest amount of research had been produced in the United Kingdom, evaluating the relationship between NHS elective surgery waiting list times and demand for private health insurance. In general, there was very little empirical research available. Of empirical research available, the literature identified statistically significant, but weak, relationships between long waiting list times (as distinct from average or median waiting list times). For example, Besley (1999) estimated the elasticity of long term waiting lists to private health insurance to be 0.02 (a 100% increase in the number of consumers on the long term waiting list would result in a 2% increase in demand for private health insurance).<sup>62</sup>
- In the Australian literature identified, no research identified waiting list times as an explanatory variable for demand for private health insurance. For example, public hospital waiting list times are not included as an explanatory variable in James Butler's empirical models for private health insurance demand (1999).<sup>63</sup> More recently, in June 2010, the Centre for Health Economics Research and Evaluation (CHERE) revisited the Besley (1999) approach using Australian data but did not find long waiting lists to be a statistically significant determinant of the demand for insurance, although there is a positive relationship between the two.<sup>64</sup>

Following this initial literature review, time series data from 2003 to 2008 on hospital private health insurance coverage levels (PHIAC), the average cost of private health insurance (PHIAC), median waiting list times (AIHW elective surgery data cubes), long wait list

<sup>61</sup> See for example, Hurst, J. and Siciliani, L., 2003, *Tackling Excessive Waiting List Times for Elective Surgery: A Comparison of Policies in Twelve OECD Countries*. OECD Health Working Papers, Paris.

<sup>62</sup> Besley, T., Hall, J., and Preston I., 1999, 'The Demand for Private Health Insurance: Do Waiting Lists Matter?', *Journal of Public Economics*, 72:155-181.

<sup>63</sup> Butler, J., 1999, Estimating Elasticities of Demand for Private Health Insurance in Australia, NCEPH Working Paper Number 43, Australian National University.

<sup>64</sup> Johar, M., Jones, G., Keane, G., Savage, E., and Stavrunova, 2010, The Demand for Private Health Insurance: Do Waiting Lists or Waiting Times Matter', Working Paper 2010/8, June 2010, Centre for Health Economics Research and Evaluation.

numbers (AIHW elective surgery data cubes), income (ABS average weekly earnings) and the age profile of the population (ABS) were collected and analysed using multivariate regression analysis. In line with the CHERE analysis, the analysis found that median and long wait list times were not statistically significant determinants of demand for private health insurance but there is a weak, positive correlation between long wait list times and demand for private health insurance.

Critically, the analysis indicated that the relationship is non-linear and best modelled using a quadratic function. This matches with intuition: as long wait list times increase, the potential impact that these long wait list times may have on demand for private health insurance would also increase. It was also postulated that there would be a lag between the growth in wait list times and private health insurance demand, which is consistent with research conducted in the UK, which incorporated variables for expectations of long waiting list times into models for forecasting public sector demand and in turn waiting list times.<sup>65</sup>

With a model horizon of five years, and given the weak relationship between long wait lists and private health insurance demand observed in both the literature and our own limited empirical analysis, no feedback effect was included in the Deloitte Model.

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<sup>65</sup> Van Ackere and Smith, P.C., 1999, 'Towards a Macro Model of National Health Service Waiting Lists', *System Dynamics Review*, 15(3): 225-252.