The South Australian Centre for Economic Studies
Adelaide and Flinders Universtities

Review of Lifetime Health Cover Scheme

Prepared for:

Australian Government
Department of Health and Ageing

Prepared by:

The South Australian Centre for Economic Studies

December 2003

Review of Lifetime Health Cover Scheme

Prepared for:

Australian Government
Department of Health and Ageing

Prepared by:

The South Australian Centre for Economic Studies

December 2003

ISBN 0 642 82420 7

Publication Approval No. 3410 (JN 8331)

Publications Production Unit
Department of Health and Ageing

Contents

This report was prepared by:

Mr Jim Hancock, Deputy Director, SACES

Dr Penny Neal, Lecturer, Flinders University of South Australia

THE SOUTH AUSTRALIAN CENTRE FOR ECONOMIC STUDIES
PO Box 125, Rundle Mall, South Australia 5000
Phone (+61-8) 8303 5555, Fax (+61-8) 8232 5307
Fourth Floor, Ligerwood Buildings, University of Adelaide.

Executive Summary

Key findings

In this report we consider two questions:

- whether Lifetime Health Cover has succeeded in stabilising membership numbers and improving the membership profile; and
- whether the incentives provided in Lifetime Health Cover are encouraging consumers to take out private hospital cover early in life and maintain it.

In brief, our response is that Lifetime Health Cover (LHC) was successful in providing a very major boost to membership numbers and a major improvement in the membership profile. However, there are some signs of deterioration in the membership profile since September 2000, and thus while membership numbers have been stable since September 2000, there is a question as to whether this will continue. Although it is now three and a half years since the introduction of LHC, it needs to be recognised that the impact in mid 2000 was large, and the ensuing adjustments may still be taking place.

On the question of encouragement to take out cover early in life and maintain it, we conclude that the incentives contained in LHC are encouraging people to take out cover early in life and to maintain it, so long as it is understood that "early in life" means in the 30s, and not at younger ages.

Membership numbers and profile

Between the end of March 2000 and the end of September 2000, there was a very large increase in the number of hospital memberships (up 40 per cent), contributors (up 40 per cent) and persons covered (up 43 per cent). Membership numbers have been approximately flat since September 2000.

Whether this can be interpreted as "stability" depends on what one means by stability. Taken in isolation, the membership numbers have been stable. But since September 2000 the hospital pool has aged and this may impact on membership numbers in the future.

The increase in memberships through the middle of 2000 brought with it significant changes in the membership profile:

(i) There was an increase in the ratio of dependants to contributors of about 2.0 per cent. The effect of this was to boost benefits per contributor by

about 2.0 per cent.

(ii) In 2002-03 the age-specific benefit rates of people who have joined since the beginning of 2000 were about 26 per cent less than the benefit rates of people who have had cover since before 2000. The consequence was to diminish benefit rates for the hospital funds collectively by 6.7 per cent.

(iii) The difference in age-specific benefit rates was primarily due to a markedly lower age-adjusted number of hospital days per covered person among those who have joined since the beginning of 2000. They had 28 per cent less hospital days. This is suggestive of better health status among the new joiners.

(iv) Through the middle of 2000 there was a sharp rise in the proportion of hospital policies subject to front end deductibles. This suggests that the new entrants bought cheaper polices. However, in 2002-03 the proportion of fees which were met by hospital funds was only a little lower for those who had joined since the beginning of 2000 (79.5 per cent) than for those who had joined before 2000 (81.2 per cent).

(v) The new joiners were significantly younger than the pre-existing members, and between March 2000 and September 2000 the average age of persons under hospital cover was reduced from 39.7 years in March 2000 to 37.7 years in September 2000. The number of covered persons under the age of 65 rose by 49 per cent, whereas the number of covered persons aged 65 or over rose by 6.2 per cent. This shift to a younger age profile had an 11 per cent downward impact on benefits paid per contributor.

Taking these elements together, our conclusion is that through the middle of 2000 when Lifetime Health Cover was introduced there was a major improvement in the membership profile of the hospital pool.

Between September 2000 and June 2003, there was a very slight reduction in the dependency ratio, with a downward impact of 0.3 per cent on benefits per contributor. This was far outweighed by ageing of the covered pool; the number of under-65s fell by 3.1 per cent, whereas the over-65s grew by 9.9 per cent. These changes had a 5.5 per cent upward impact on the benefit rate. It is evident that there has been some deterioration in the membership profile since September 2000 when the influx of new members under the Lifetime Health Cover amnesty took place. However, the membership profile is still substantially improved from its condition in March 2000, before that influx took place.

There is a question as to the role of Lifetime Health Cover in explaining the statistical trends observed. There has been extensive discussion in the community of the consequences of various initiatives in the PHI field over recent years. But while there is disagreement about the relative importance of different initiatives, there seems to be universal acceptance that LHC has had a major influence; the disagreement centres more on whether rises in coverage have been entirely due to LHC. The changes in coverage and membership profile that are discussed here

constitute abrupt changes in the middle of 2000, coinciding with the introduction of LHC. Moreover, the membership increases are much more substantial for age groups that were directly affected by LHC incentives than for age groups that were not.

Incentives to insure

Our assessment is that incentives to take out cover were greatly enhanced during the Lifetime Health Cover amnesty period which expired on 15 July 2000. People could join at this time and, so long as they maintained their cover for a year, lock in an age at entry of 30 years, even if they were older than this. They could then cease their cover and rejoin later, subject to loadings which were potentially much smaller than if they did not lock in a 30 year entry age during this qualifying period.

There was a very large rise in membership through this period. The increases were strongest for people in the LHC-affected age groups of 30 to 65 years, and at this broad level the experience was consistent with the enhancement to incentives.

There are some puzzles in the detail. For instance, the strongest responses during this amnesty period were in the age groups 30 through 49, whereas we have estimated that incentives were most strongly enhanced for 50 to 65 year olds. However, the response to enhanced incentives depends as well on the circumstances of individuals, and it is quite possible that there are systematic differences between the future plans of different age groups. For instance, it may be the case that a relatively large proportion of people in their 50s and 60s who had not joined before the introduction of LHC were not intending ever to join – for instance because their financial circumstances did not permit it. In addition, it is quite possible that people's own assessments of incentives differed systematically from what we have estimated them to be. Several insurers suggested to us that much of the general public have only a vague understanding of health insurance, and that responses depend on perceptions as much as careful calculation. And it seems clear that the existence of a deadline had a powerful galvanizing impact, which may have affected people in ways that we have been unable to capture.

Now that LHC has been implemented, incentives to maintain cover are significantly stronger for people in the age groups 30 through to their late 60s than they were without LHC. And incentives for people who have never been insured to take out cover have been enhanced for people in their 30s and to a lesser extent in their 40s, but diminished for some people in their 50s and 60s. However, the incentives for people in their 30s through to about 65 are nowhere near as strong as we estimate them to have been during the amnesty.

These considerations lead to the conclusion that the incentives contained in LHC are encouraging people to take out cover early in life and to maintain it. And the data suggest that this has happened. Although there have been declines in coverage since the end of the amnesty period, coverage rates remain substantially above

their levels before the LHC amnesty period. We conclude, therefore, that the incentives contained in Lifetime Health Cover are encouraging consumers to take out private hospital cover early in life and to maintain it, so long as it is understood that "early in life" means in the 30s, and not at younger ages.

1. Introduction

1.1 Terms of Reference

This document presents an Independent Review of the Lifetime Health Cover scheme, as required by section 4 of the *National Health Amendment (Lifetime Health Cover) Act 1999*.

The purpose of the Review is to establish:

> "Whether the Lifetime Health Cover scheme has achieved its purpose as set out in the Explanatory Memorandum to the Act:
>
> "[to] stabilise health fund membership numbers and improve the membership profiles of health funds by providing incentives for consumers to take out private hospital cover early in life and maintain this cover throughout their lifetime."

and we were asked to consider two particular questions:

> [i] "Subject to the qualification that Lifetime Health Cover is one of several factors influencing health fund membership numbers and membership profiles, has Lifetime Health Cover succeeded in stabilising membership numbers and improving the membership profile?"
>
> [ii] "Are the incentives provided in Lifetime Health Cover encouraging consumers to take out private hospital cover early in life and maintain it?"

1.2 What is Lifetime Health Cover?

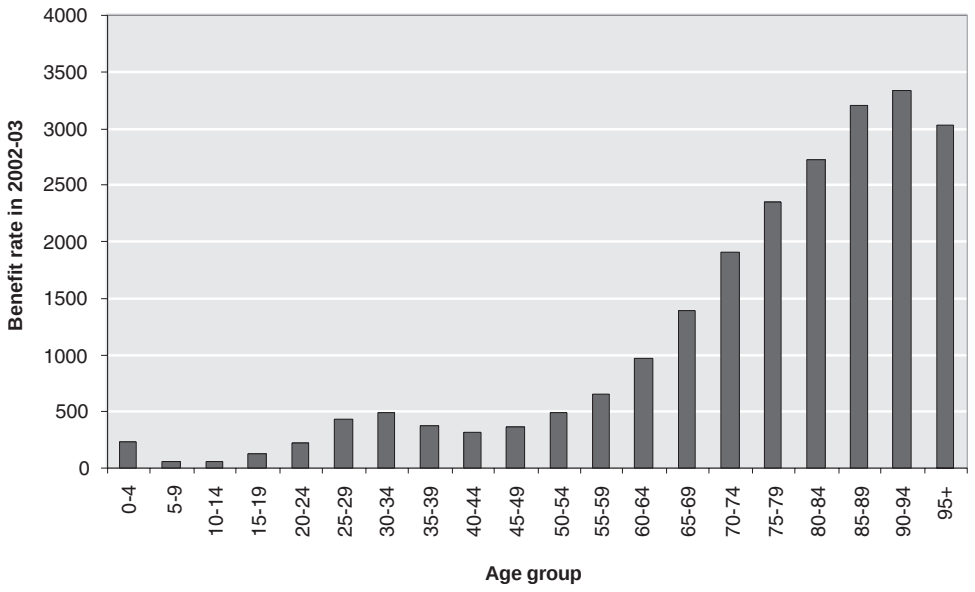
Health insurance premiums in Australia have for many years been subject to "community rating" requirements which mean that insurers are not allowed to differentiate the premiums charged to customers according to their individual risk characteristics. Under community rating arrangements, people with good health tend to pay premiums higher than they would if insurers took into account their health status and adjusted premiums accordingly, and people with poor health tend to pay premiums that are lower than they would be if adjustments were made in light of their health status.

While the community rating arrangements have wide community support on equity grounds, it is arguable that they have the unintended consequence of discouraging people with good health status from health fund membership. To the extent that good risks are discouraged from membership, there are consequently less people with low benefit rates in funds, and whole-of-fund benefit rates are therefore likely to be higher. This in turn causes higher premiums and, at the margin, induces more people to exit funds. The group of people leaving is likely to be disproportionately composed of the better risks remaining in the fund, so their exit tends to create further upward pressure on premiums. In its 1997 study the Industry Commission commented on this phenomenon:

> "community rating is not, in the long run, effective in a system in which lower risk contributors can leave (and use the free public system or self-insure). People with lower risks are increasingly exiting the funds, leaving a residual of increasingly higher risk groups. These in turn face rising premiums. This induces more departures, resulting in what Logan (1995, p. 11) has aptly termed 'diminishing pool' rating." [p315]

One personal attribute that correlates strongly with health status, and thus with risk, is age. Figure 1 shows average benefits paid per person covered by hospital tables in 2002-03. It is clear that there is a large difference between the benefits drawn by young and elderly covered persons. In the absence of extra incentives to take out cover early in life and maintain it, community rating could have the unintended consequence of discouraging membership by young people. It could promote patters of behaviour such as people staying out of insurance while they are young and healthy and then joining later in life when ageing-related deterioration in their health status becomes significant, or joining temporarily at times in life when they anticipate heightened usage of health services (so-called "hit and run" membership, an example of which is joining over a period of child bearing).

Figure 1 Benefits paid per person covered by hospital tables, 2002-03



Source: SACES calculations, primary data from PHIAC (2003b).

The Industry Commission recommended that an attempt be made to address these problems by introducing a system of lifetime community rating which would discriminate premiums according to age of entry to the private health insurance system. It said that "the intention under an unfunded lifetime community rating scheme and late entry waiting periods is to encourage early entry by imposing a penalty for late entry" [p. 319]. Lifetime Health Cover, which incorporates premium loadings for entry at older ages, is motivated by this logic.

Lifetime Health Cover was introduced with the intention of encouraging people to take out hospital cover younger in life and, once having joined, to maintain their cover.[1] To that end, Lifetime Health Cover requires insurers to put loadings on premiums for people over the age of 30 who purchase health insurance and who have been uninsured for some period while they were over the age of 30. The loading is calculated according to the following rules:

- people born before 30 June 1934 are exempt from loadings under all circumstances;
- a loading of 2 per cent on top of a member's premium will apply for each year a member is aged above 30 when they first take out hospital cover. For example, someone taking out hospital cover at the age of 30 is entitled to pay the base rate premium, provided they maintain their cover. Someone who first takes out cover at age 40 will pay an additional 20 per cent on top of the base rate premium for the rest of their life, and someone who waits until age 50 to join will pay an additional 40 per cent on top of the base rate premium;
- the maximum loading allowed is 70 per cent; and
- members are able to drop their cover for a cumulative period of up to three years minus one day without affecting their loading, but their loading will be increased by 2 per cent for each whole year in excess of two years for which they are without cover. For instance, a person with three years cumulative absence would upon rejoining be subject to an additional loading of 2 per cent (as would a person absent for three years and 364 days).

An amnesty period was allowed in which people over the age of 30 could take out health fund membership and be exempt from loadings. The initial cut-off date was set at 30 June 2000, but this was extended to 15 July 2000 when health funds received applications in such large volumes that they were unable to process them by 30 June. Persons who took out cover in the period 1 July 1999 to 30 June 2000 were required to maintain that cover until 1 July 2001 to preserve the loading-exempt status that they established in the amnesty period.

1.3 Methodology for this Review

We approached the Review with a combination of statistical analysis and consultations with interested parties.

Lifetime Health Cover applies to insurance under hospital tables, and therefore all the analysis in this report relates to hospital cover.

The parties that we spoke to and received submissions from believed, without exception, that Lifetime Health Cover has had a significant upward impact on

[1] Hospital cover relates to hospital charges, costs of medical services and costs of prostheses. There are health related items which are generally excluded from hospital cover – e.g. physiotherapy, dental services, spectacles, etc. – which can be insured with "ancillary" cover.

health fund membership and indeed an impact that exceeded expectations. Some parties were at pains to argue that other factors in particular the 30% Rebate have contributed significantly to the rise in membership.

In the main, we explain our analytical approach in the body of this report. However, a few summary comments are appropriate.

Firstly, there is a question as to the interpretation given to the word "stabilise". One possibility is to interpret as stable something that is not changing. An alternative is to take a systemic view, and require that the behaviours of the inter-related components of a system are such as are likely to ensure that the current condition will endure. In considering the systemic perspective, we are mindful that there are dynamic interactions between health fund participation rates, membership profiles and premium costs. While there will always be some variations in these parameters, the system can only be regarded as stable if these variations are temporary, with a tendency to return to central values. In particular, the connection between deteriorating membership profile, rising premiums and adverse selection – sometimes referred to as the "vicious circle" – is well known, and to believe that stability has been achieved one needs to be confident that this cycle has been broken.

Secondly, it follows from the importance that we attach to this perspective on stability, that we need to analyse changes in the membership profile primarily in terms of their impacts on premiums. Changes in the membership profile will affect premiums primarily via their impacts on benefits paid per contributor, and therefore we focus on the implications of changes in the membership profile for the rate of benefits paid per contributor.

Thirdly, we approach the question of the effects of incentives by first identifying the nature of incentives, both in the LHC amnesty period and since, and by comparing these incentive effects with age-specific participation trends.

1.4 Structure of this Report

This Report presents the findings of the Independent Review of Lifetime Health Cover according to the Terms of Reference.

Chapter 2 discusses trends in membership numbers and the membership profile, paying particular attention to what happened through the middle of 2000 and since. It also considers the implication of changes in the membership profile for benefits paid per contributor.

Chapter 3 considers the question of incentives and their effects. Firstly, it estimates what the incentive effects have been during the LHC amnesty period and since. Secondly, it compares behavioural responses with these incentive effects.

More detailed explanations of some of the elements of our approach are presented in Appendixes.

2. Impact on membership numbers and profile

2.1 Membership numbers

Membership, contributor and coverage numbers

Figure 2 shows the number of memberships of hospital tables for the period June 1988 to June 2003. It also shows the number of contributing single equivalent units, and the number of persons covered under those tables, and the time of implementation for key policy changes in the Australian private health insurance arena over recent years.[2]

The number of hospital memberships was essentially flat over the period from June 1988 to June 1991. It then declined by an average of 3.0 per cent per annum over the period June 1991 to June 1997.

On 1 July 1997 the Private Health Insurance Incentive Scheme (PHIIS) and the Medicare Levy were introduced. PHIIS provided means tested health insurance premium subsidies for people on lower and middle incomes, and the Medicare Levy was a tax surcharge on high income earners not in private health insurance. The decline in hospital memberships continued; they fell at a rate of 2.6 per cent per annum between June 1997 and December 1998.

On 1 January 1999 a 30 per cent rebate of private health insurance premiums was introduced for all participants in private health (PHIIS simultaneously ceased to be available). In the wake of these changes, there was an upturn in membership numbers: they increased 5.9 per cent between December 1998 and December 1999.

In the first half of 2000 the introduction of Lifetime Health Cover (LHC), and the existence of a joining amnesty until 30 June 2000, was widely publicised. There was a large increase in memberships (32 per cent) between the end of March 2000 and the end of June 2000. The amnesty date for LHC loadings was extended to 15 July 2000 after health funds were hit with applications in numbers that they were unable to process by 30 June, and there was a further rise in membership of 6.1 per cent between the end of June 2000 and the end of September 2000. The cumulative increase in membership between March 2000 and September 2000 was 40 per cent.

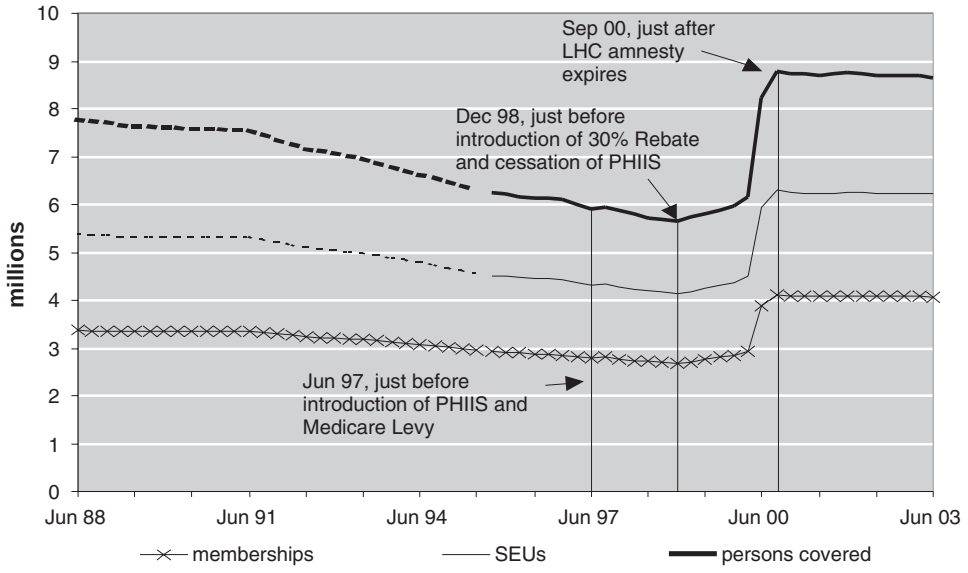
---

[2] Memberships may cover single persons, couples, single parents with children and couples with children. Premiums for couples, single parents with children and couples with children are set at twice the "singles" premium. For some purposes it is therefore useful to consider memberships in terms of the number of "single equivalent units" (SEUs) associated with them: a singles policy has one SEU associated with it and the other policies have two SEUs associated with them. The SEU concept is useful because it is a more direct indicator of the number of "contributors" to funds than the raw membership numbers.

Behind the 40 per cent rise in memberships between March 2000 and September 2000 lie increases in: single parent (up 79 per cent), family (up 49 per cent), singles (up 40 per cent) and couples (up 27 per cent). The number of contributors rose in line with memberships (up 40 per cent). The number of covered persons rose a little more, up 43 per cent.

Since 15 July 2000 LHC has been in place, involving premium loadings for people who first take out cover after the age of 30 and for people who interrupt memberships for three years or more after the age of 30. Between September 2000 and June 2003, membership numbers have declined slightly, at a rate of 0.3 per cent per annum.

Figure 2 PHI hospital memberships and coverage



Source: SACES calculations, primary data from PHIAC (2003a).. Dashed series are interpolated between June observations.

It has been pointed out to us that the September 2000 PHIAC numbers were to a small degree artificially inflated, the reason being that they include as members people who registered with funds but never actually became paying members, either because they changed their minds about insuring or because they had lodged multiple registrations. This influence can be avoided by considering movements from March 2000 to December 2000 and since, but the picture is not changed substantially, and in this report we treat movements up to September 2000 as being related to the LHC amnesty period and movements since September 2000 as being related to the environment since the expiry of the amnesty. The amnesty actually expired on 15 July 2000.

Like memberships, contributor numbers and the number of persons covered have shown essentially flat trends between September 2000 and June 2003.

Coverage rate

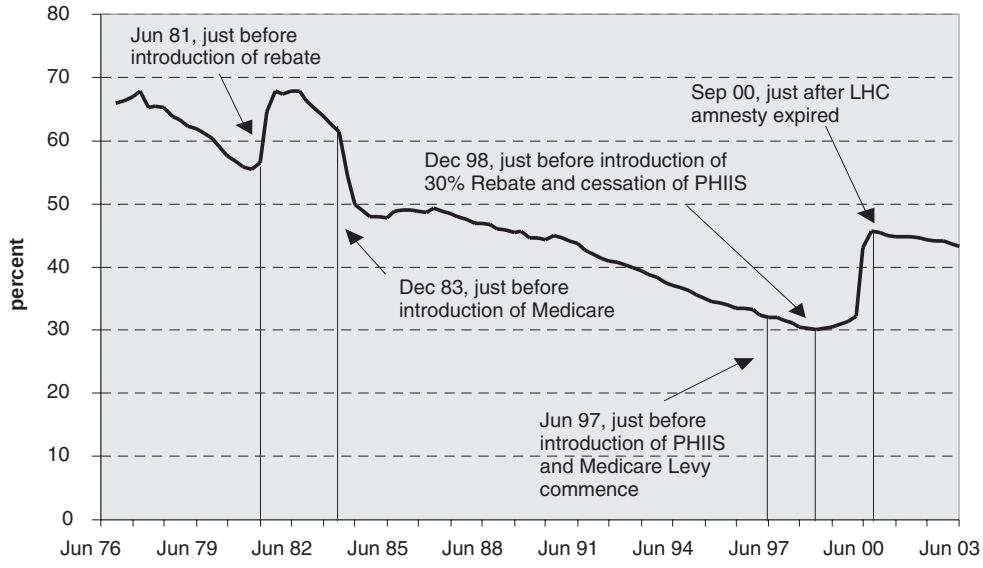
In discussion of private health insurance trends, wide attention is given to the "coverage rate", which is the ratio of covered persons to population. Figure 3 shows the coverage rate since the first half of the 1970s.

Figure 3 includes two policy changes in addition to those shown in Figure 2:

- in July 1981 an income tax rebate was introduced in respect of premiums paid for basic medical and hospital cover, leading to a rise in coverage; and
- in February 1984 Medicare came into operation, expanding eligibility for free public hospital treatment and bulk billing of medical charges from socially disadvantaged groups to all Australians, leading to a fall in PHI participation. [3]

There has been a long-term downward trend in the coverage rate. It fell from just under 70 per cent of the population in 1982 to a low of about 30 per cent in 1998. Over the eight years to December 1998, it declined by an average of about 1.75 percentage points per annum, reaching a low of 30.2 per cent. Between December 1998 and March 2000 it increased modestly to 32.2 per cent. It then jumped very sharply to reach 45.7 per cent in the September quarter 2000. Since then it has

Figure 3 Proportion of population covered by hospital tables



Source: SACES calculations, primary data from PHIAC (2003a).

[3] There were further changes in the couple of years after Medicare was introduced, including the continued phase-out of government contributions to the reinsurance pool and the discontinuation of the bed-day subsidy. At the end of 1986 the gap payment for in-hospital medical services provided to privately insured patients was increased from 15 to 25 per cent of the schedule fee. Access Economics (2002) and Biggs (2003) provide discussions of some of the key policy changes affecting participation in private health insurance since the early 1970s.

shown a moderately declining trend, falling by an average of 0.75 of a percentage point per annum, which is more gradual than the downward trend that was in place prior to Dec 1998. One health fund interpreted the moderate ongoing decline in a positive light, saying that:

> "it is very clear that the rate of decrease has been far less severe than the long term rate that applied prior to the introduction of the incentives. We are confident this is indicative of a stronger commitment to retention of cover than applied to members prior to implementation of LHC. The LHC scheme appears to have played a major part alongside the 30% rebate in slowing the rate at which people previously dropped their insurance."

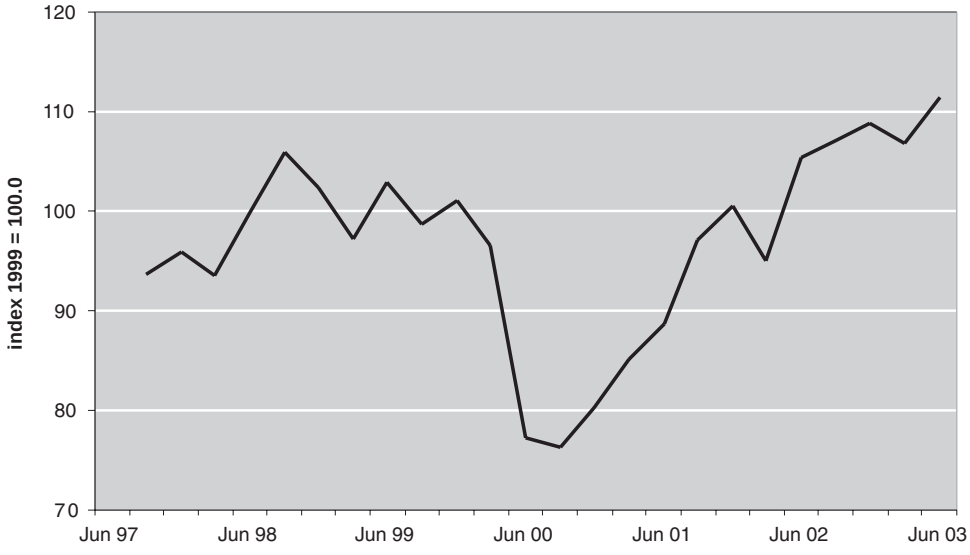
2.2 Changes in the membership profile

Assessment method

It is necessary, before proceeding through an analysis and discussion of changes in the membership profile, to clarify which aspects of the profile we want to explore. In this Review, we are particularly interested in the impacts of changes in the membership profile on the cost of hospital cover (which in many cases includes medical services, prostheses, etc). This means that we need to draw out information about those aspects of the membership profile that affect the cost of cover. The measure that we focus on is average benefits paid per contributor.

Figure 4 shows a quarterly index of average hospital benefits paid per contributor. The index is based on historic value data, meaning that the effects of inflation have not been removed. There was a sharp fall in benefits per contributor in the June quarter 2000 but the index has shown an upward trend since then. There is a

Figure 4 Index of benefits paid per contributor, current values



Source: SACES calculations, primary data from PHIAC (2003b).

range of factors affecting benefits paid, including the prices of the goods and services covered by policies, the range of items that are covered by policies (which will be affected, inter alia, by the advent of new technologies, the prevalence of exclusionary policies, etc), the extent to which policies cover fees (which depends on requirements for co-payments from patients), the risk characteristics of the insured population, and the extent to which covered persons are contributors.

In this Review, analysis of changes in the membership profile is carried out by considering the consequences of changes in the membership profile for the average benefit per contributor. Appendix A discusses the rationale for this approach in detail. Three aspects of the membership profile are considered:

- changes in the ratio of persons covered to contributors (the "dependency ratio");
- changes in members' age-specific benefit rates other than inflation ("service level"); and
- changes in the age structure of the hospital pool and their impact on the average benefit per covered person ("ageing").

This approach has similarities to that employed by Gale and Brown (2003), although the components of the decomposition herein differ.

Dependency ratio

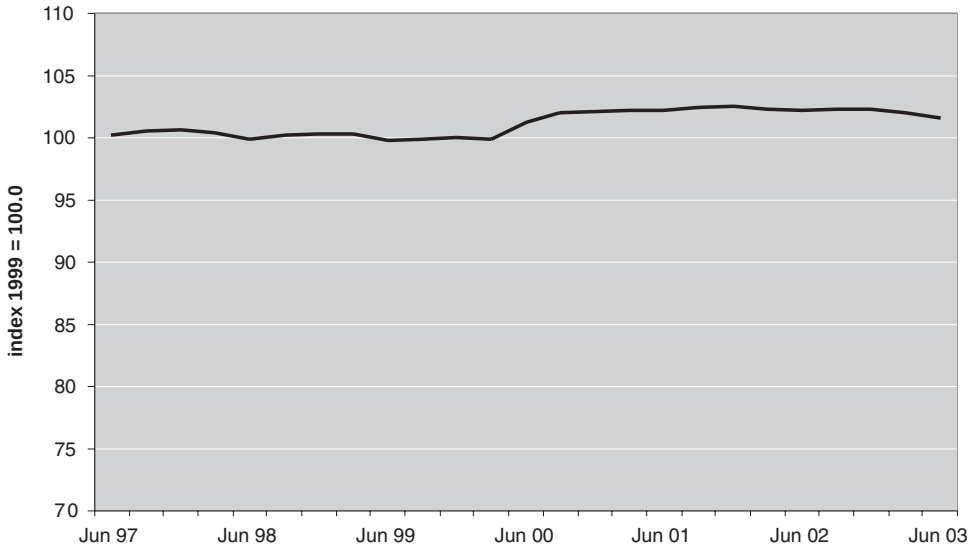
PHI memberships may be held as "singles", "couples", "single parent families" and "families". Under any particular hospital table, contribution rates for couples, single parent families and families are twice the singles rate. Health funds report to PHIAC on the number of "single equivalent units" (SEUs) associated with their memberships, with a singles membership counting as one SEU and the other types of memberships recorded as two SEUs. The number of SEUs is, therefore, a count of the number of contributors to funds.

Although contributors to any given insurance product each pay the same premium, the number of persons receiving coverage under their policies will exceed the number of contributors. We define the "dependency ratio" as the ratio of the number of persons covered to the number of contributors. It will vary over time, and because benefit payments depend more directly on the number of covered persons, fluctuations in the dependency ratio have consequences for the average benefit paid per contributor.

Figure 5 shows an index of the dependency ratio over time. A fall in the ratio means that contributors' contributions are supporting less covered people on average, which will tend to allow correspondingly lower benefit rates.

The introduction of LHC saw a rise in this index by 2.0 percentage points between March 2000 and September 2000. The rise occurred because the proportional increases in memberships over the LHC amnesty were significantly greater for single parent and family memberships (which are the two groups that have dependants) than for single persons and couple memberships (which do not include

Figure 5 Index of dependency ratio



Source: SACES calculations, primary data from PHIAC (2003a).

dependants).

Between September 2000 and June 2003 the dependency ratio fell slightly (0.3 percentage points).

Age-specific benefit rates

A second source of variations in the benefit rate is that over time age-specific benefit rates may change. This may occur because of factors other than changes in the membership profile – for instance because of inflation and increases in the scale and range of fund contributions towards hospital, medical and prostheses costs. It may also occur because of changes in the membership profile – for instance changes in the types of cover that members are buying and changes in the age-specific risk characteristics of members. In the current context we are interested in the impact that changes in the membership profile have on age-specific benefit rates.

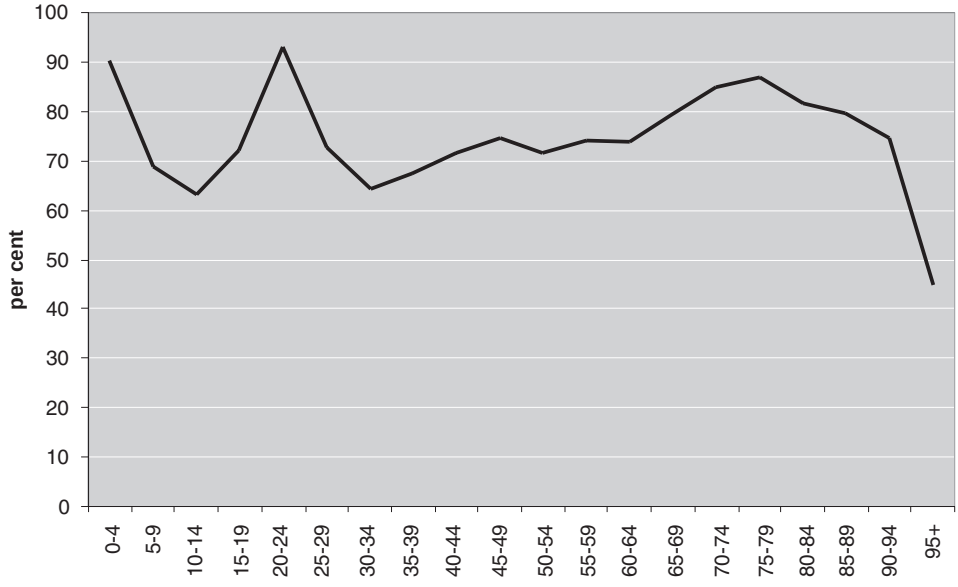
Since the September quarter 2002, health funds have provided PHIAC with data on coverage and benefits paid by age category, split into two groups: those who joined prior to 2000 and those who joined in 2000 or later. The former group is comprised mainly of people whose decision to join had nothing to do with LHC (although decisions to stay may have been affected) and herein we describe them as the "incumbent pool" (maintaining the quotation marks to highlight the particular meaning). The latter group, those who joined in 2000 or later, is made up mostly of people who joined between the beginning of January 2000 and the 15 July 2000 cut-off date, but also includes people who have joined since then, and we describe them as the "LHC-induced pool", having in mind the majority who joined before the cut-off.

Figure 6 shows the ratio of age-specific benefit rates for the "LHC-induced pool" to the "incumbent pool" in 2002-03. Age-specific benefit rates are lower for the "LHC-induced pool" across all ages, and in some case substantially lower. For instance, in the 30 to 34 year age group, the "LHC-induced pool" had benefit rates 36 per cent below the "incumbent pool".

There are three possible reasons why the "LHC-induced pool" has lower age-specific benefit rates.

First, the group that joined in 2000 and later would include some people who in 2002-03 were subject to waiting periods in respect of pre-existing conditions. Waiting periods may not exceed 12 months, and while it is possible that the group joining before 2000 might in a few instances experience waiting periods as a result of policy upgrades, waiting periods would certainly be less common for this group.

Figure 6 Age-specific benefit rates: ratio of "LHC-induced pool" to "incumbent pool" in financial year 2002-03



Source: SACES calculations, primary data from PHIAC (2003b).

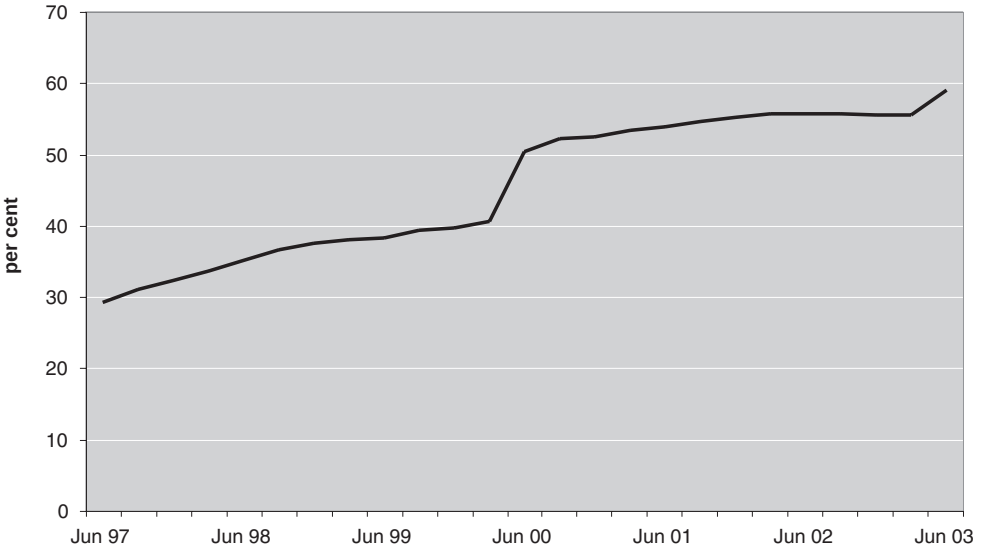
Second, the "LHC-induced pool" may have better health risk characteristics. There are good a priori reasons to expect this: people who are induced to join by an improvement in financial incentives are likely to be those with risk characteristics which meant that it was not worthwhile before the incentive.

Third, the "LHC-induced pool" may have purchased cheaper policies with less generous benefit structures, which would then translate into lower age-specific benefit rates. Figure 7 shows that there was an increase in the proportion of memberships with front end deductibles from 41 per cent in March 2000 to 52 per cent in September 2000. Front end deductible policies tend to have lower premiums and allowable benefits. One health fund commented in its submission that the cohort

joining during and post the LHC amnesty are on lower cost levels of cover than the cohort who were members before then.

Data for 2002-03 show that the "LHC-induced pool" had an age-adjusted benefit rate 26 per cent below the benefit rate for the "incumbent pool". The result was to make the benefit rate for the whole hospital pool 6.7 per cent less than it would have been if the "LHC-induced pool" had had the same age-specific benefit rates as the "incumbent pool".

Figure 7 Proportion of memberships subject to front end deductibles



Source: SACES calculations, primary data from PHIAC (2003a).

It is useful to decompose the differences in age-adjusted benefit rates. Table 1 shows a breakdown of the differential in 2002-03 age-specific benefit rates into some components. The benefit rate can be conceived of as the product of three elements: hospital days per covered person, fees charged per hospital day, and the ratio of benefits to fees. For instance, the benefit rate for the hospital pool in 2002-03 was $559 per covered person. This reflected a hospital utilisation rate of 0.75 days per covered person, fees of $921 per hospital day and an 80.9 per cent ratio of benefits to fees (i.e. the hospital pool met 80.9 per cent of fees charged).

Table 1 Benefit rates and components thereof for pre-2000 joiners and joiners in 2000 and later: 2002-03

	Hospital days per covered person	Fees per hospital day	Ratio of benefits to fees	Benefits per capita
Actual 2002-03 data:	**days**	**$**	**per cent**	**$**
Pre-2000 joiners	0.94	898	81.7	690
Joiners in 2000 and later	0.41	1,013	78.0	324
All	0.75	921	80.9	559
Hypothetical 2002-03 results if new joiners had same age-specific ratios as pre-2000 joiners:	**days**	**$**	**per cent**	**$**
Joiners in 2000 and later	0.57	958	79.5	437
All	0.81	910	81.2	599
% difference actual relative to hypothetical:	**per cent change**	**per cent change**	**per cent change**	**per cent change**
Joiners in 2000 and later	–28.2	+5.7	–1.9	–25.7
All	–7.2	+1.2	–0.4	–6.7

Source: SACES calculations, primary data from PHIAC (2003b).

The actual benefit rate of the "LHC-induced joiners" was $324, 53 per cent less than the benefit rate for the "incumbent pool". However, this is partly the result of differences in the age-sex composition of the group who joined before 2000 and the new joiners. The benefit rate and each of these three constituent elements can be calculated for specific age groups, and it is then possible to calculate the value of each of these four elements in the hypothetical case where the new joiners had hospital usage, fees per day, a benefits to fees ratio, and benefit rates which were identical to the pre-2000 joiners. The actual values can then be compared with the hypothetical values to gain an indication of how, abstracting from any differences in age composition, the new joiners differ from the pre-2000 joiners in their drawing behaviour. The conclusions are that the new joiners have age-adjusted: hospital days per person that were 28 per cent below the pre-2000 joiners, fees per hospital day that were 5.7 per cent higher than the pre-2000 joiners, and ratio of benefits to fees 1.9 per cent lower than the pre-2000 joiners. The combined result of these influences was that the new joiners had an age-adjusted benefit rate that was 26 per cent lower than the pre-2000 joiners (without age adjustment, the differential was a much larger 53 per cent).

The major element of the difference in age-adjusted benefit rates clearly is the difference in hospital days per covered person. Pre-2000 joiners had an average 0.94 hospital days per covered person whereas the new joiners, after age-adjustments, had just 0.57 hospital days per covered person. It is likely that the primary explanation for the difference lies in better health status. In addition, it is possible that differences in the insurance policies chosen play some part. Fees per day for the new joiners (age-adjusted) were actually a little higher than for the pre-2000

joiners. The ratio of benefits to fees was very similar for both groups, suggesting that the new joiners policies do not involve markedly higher co-payments – in spite of their apparent preference for policies with front end deductibles.

On the basis of these considerations, it seems likely that the lower benefit rates for the new joiners, leaving aside the impact of age differences, reflect a combination of better health status and cheaper policies than the pre-2000 joiners. The data tentatively support the view that better health status was the more important influence.

We do not have the data prior to 2002-03 to compare the age-specific benefit rates of the "LHC-induced pool" and the "incumbent pool". However, it is known that there was a sharp fall in benefit rates in 2000-01 and then a sharp rise into 2001-02. There is a widely held view that this reflects firstly the effect of having new members serving waiting periods and then later on a release of pent-up demand from these new members. For instance, PHIAC (2002) says that:

> "Fund benefits increased markedly in the 2001-02 financial year, coinciding with the expiry of 12 month waiting periods for those members joining under the LHC campaign" [p. 13]

However, these effects are ephemeral and have now passed.

Nor can we say with certainty what the future holds for the new joiners' benefit rates. But a distinction should be drawn between those who joined before the LHC cut-off date and the fairly small group who have joined since. Those who have joined since the cut-off date are required to pay loadings on premiums if they were born after the middle of 1934 and were older than 30 when they joined. This group is still quite small, accounting for just 2.7 per cent of the pool of covered adults in June 2003, but it will grow. The risk characteristics of these post-LHC joiners are probably worse than the characteristics of their counterparts of the same age who joined before the cut-off date. Some may simply be migrants or returning expatriates with "normal" risk characteristics. But there will also be a group whose self-assessed risk characteristics have deteriorated since they elected not to join in mid 2000, and indeed have deteriorated enough to induce them to join. An example would be someone who becomes aware that he has a heart condition, and then joins a fund knowing that after a one year waiting period he will be able, if he needs, to have surgery more quickly with the fund covering potentially very large costs that may include medical services, hospital services and prostheses. Members of this group can be expected to have a poor risk profile and high benefit rates. Unfortunately we do not have data regarding the benefit rate for the group that joined after 15 July 2000, but it is likely to be higher. The proportional significance of this group will grow over time, and this raises the possibility that there may be some erosion of the relatively lower benefit rate that the joiners since 2000 are seen to exhibit.

Age structure

Variations in the age structure of the insured pool can have profound impacts on benefit rates. During our consultations there was a widely held view that LHC has improved the age profile of the hospital pool. One insurer said that:

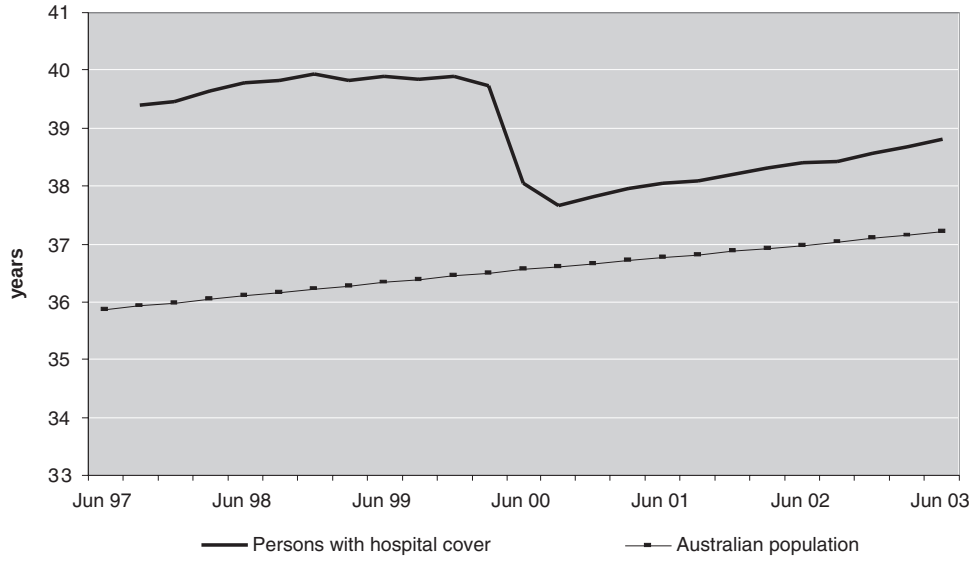
> "LHC has helped stabilise the effect of younger healthier people leaving the Fund. As younger healthier people make fewer claims, this lessens the burdens on those members who are sick and still contributing to private health insurance."

One very basic indicator of the age profile of the hospital pool is its average age. Figure 8 shows trends in the average age of persons with hospital cover. In March 2000, prior to the main part of the LHC-induced influx of hospital members, the average age of persons under hospital cover was 39.7 years, and by September it had fallen to 37.7 years. However, since then, it has steadily increased to reach 38.8 years in June 2003; in effect, about half of the reduction in average age that was seen when LHC was introduced has been offset. Reflecting on this trend another insurer commented that:

> "While there was an immediate decrease in the average age of those with hospital cover following the introduction of LHC, within the next 2 to 3 years it is expected that the average age will be back at pre-LHC levels."

Figure 8 also includes estimates of the average age of the Australian population. The Australian population is gradually ageing, and it is important to keep this in mind when considering trends in the age of the insured population. It means that we would expect the hospital pool to age.[4] But, in fact, it is apparent from the data

Figure 8 Average age of hospital pool and population at large



Source: SACES calculations, primary data from PHIAC (2003a) and ABS (2003a, 2003b).

[4] Of course the fact of a parallel ageing process in the population at large does not mitigate the pressures on PHI benefit payments, at least so long as the age-specific claim patterns are stable.

that between September 2000 and June 2003 the insured population aged more than the population as a whole. The average age of the insured population increased by 0.4 years per annum over that period, whereas the average age of the population at large increased by 0.2 years per annum.

Although there is undoubtedly a connection between the age distribution of the hospital pool and its risk profile, the average age of the pool is a very basic summary descriptor of the age distribution. And consequently changes in this measure give only a rudimentary indication of how changes in the age distribution of the pool affect its cost structure. It turns out that average age gives a good indication of directions of change, but does not give a clear indication of the financial consequences of an ageing hospital pool. Of particular importance is the presence of people in high cost age brackets, especially 65 and above. One organisation commented that:

> "In December 1998, 14.9% of the insured population were over 65. Today 11.9% are insured. The Federal Government's incentives have increased both the membership of the population under and over 65 years of age. More importantly the numbers under 65 have increased dramatically and therefore spreading the risk across a much larger base of population."

Table 2 shows movements in membership numbers for different age groups. It can be seen that the bulk of the increase in covered persons from March 2000 to September 2000 was for persons under the age of 65: their numbers increased 49 per cent, whereas over-65s rose by just 6 per cent. As a consequence, the proportion of the hospital pool who were over 65 fell from 14.1 per cent to 10.5 per cent. Since then, the number of under-65s has fallen by 3 per cent, while the number of over-65s has increased by 10 per cent, and the proportion of over-65s has risen to 11.8 per cent. However, there was at the end of June 2003 still a substantially higher number of covered persons than in March 2000 for each of the age groups shown in Table 2. The net gain of under-65s was 44 per cent, compared with a 17 per cent gain of over-65s.

A measure can be constructed which shows the impact of changing age structure on the hospital benefit rate; in this Review we call it the "index of ageing impacts". It captures the influence on benefit rates of changes over time in the age structure of the hospital pool. It is calculated by combining a fixed set of age-specific benefit rates per person covered with successive age distributions over time. Box 1 gives a simplified illustration of the calculation of the index of ageing impacts.

Table 2 Number of covered persons by age group

	Number			Per cent change		
	Mar '00	Sep '00	Jun '03	Mar '00 to Sep '00	Sep '00 to Jun '03	Mar '00 to Jun '03
Detailed age groups:						
0 to 4	341,338	511,991	475,163	50.0	–7.2	39.2
5 to 9	385,960	609,681	544,578	58.0	–10.7	41.1
10 to 14	424,792	661,777	612,248	55.8	–7.5	44.1
15 to 19	418,664	616,632	630,154	47.3	2.2	50.5
20 to 24	265,367	349,718	395,271	31.8	13.0	49.0
25 to 29	287,538	390,575	352,699	35.8	–9.7	22.7
30 to 34	383,673	659,864	603,511	72.0	–8.5	57.3
35 to 39	455,496	753,604	656,782	65.4	–12.8	44.2
40 to 44	497,058	792,557	745,247	59.4	–6.0	49.9
45 to 49	526,439	788,060	751,765	49.7	–4.6	42.8
50 to 54	541,181	764,664	745,194	41.3	–2.5	37.7
55 to 59	425,594	561,569	658,197	31.9	17.2	54.7
60 to 64	332,965	405,825	451,212	21.9	11.2	35.5
65 to 69	272,167	293,399	327,211	7.8	11.5	20.2
70 to 74	247,514	262,211	268,245	5.9	2.3	8.4
75 to 79	165,205	174,109	206,434	5.4	18.6	25.0
80 to 84	99,686	104,611	118,587	4.9	13.4	19.0
85 to 89	59,672	61,774	64,112	3.5	3.8	7.4
90 to 94	21,297	22,247	25,604	4.5	15.1	20.2
95 and over	5,126	6,405	6,313	25.0	–1.4	23.2
Total	6,156,732	8,791,273	8,638,527	42.8	–1.7	40.3
Major age groups:						
0 to 19	1,570,754	2,400,081	2,262,143	52.8	–5.7	44.0
20 to 29	552,905	740,293	747,970	33.9	1.0	35.3
30 to 39	839,169	1,413,468	1,260,293	68.4	–10.8	50.2
40 to 54	1,564,678	2,345,281	2,242,206	49.9	–4.4	43.3
55 to 64	758,559	967,394	1,109,409	27.5	14.7	46.3
Sub total:						
0 to 64	5,286,065	7,866,517	7,622,021	48.8	–3.1	44.2
65 and over	870,667	924,756	1,016,506	6.2	9.9	16.8
Total	**6,156,732**	**8,791,273**	**8,638,527**	**42.8**	**–1.7**	**40.3**
Proportion aged over 65	**14.1**	**10.5**	**11.8**			

Source: SACES calculations, primary data from PHIAC (2003a, b).

Box 1 Calculating an index of ageing impacts on the benefit rate

Suppose that in Year 1 there are two young people and one old person. Young people claim $7 of benefits per year and old people claim $10 of benefits (these are the "age-specific benefit rates"). Then total benefits paid are $24. Average benefit paid per person is $8.

In Year 2, suppose that there is one young person and two old people. Young people now claim $10 per year and old people claim $13 per year. Then the total benefit paid is $36 and the average benefit paid per person is $12.

Between Years 1 and 2, average benefits per person have risen from $8 to $12, or 50 per cent. But this outcome reflects two influences: an ageing population of covered persons and higher age-specific claim rates.

To isolate the influence of ageing, we can construct an index of ageing impacts, as follows. We know that the average benefit was $8 in Year 1. We can calculate the average benefit rate that would have been payable in Year 2 if the age-specific benefit rates had remained unchanged. It would have been $9 (one young person at $7 plus two old people at $10 is $27 in total, and the average is therefore $9).

This means that the influence of ageing on the average benefit has been to increase it from $8 to $9, or 12.5 per cent.

To set up an index, we simply set the index equal to 100.0 in the base year, Year 1. In Year 2, the index needs to be 12.5 per cent higher, which meant that it has a level of 112.5.

In a similar manner we can calculate index values for Year 2, Year 3, and so on.

The index of ageing impacts, by design, responds only to changes in the age distribution of the covered population. It is not affected by changes in the age-specific claim rates themselves. The attraction of this indicator is that it isolates the influence of changes in the age structure on benefit rates from other influences. Figure 9 presents an index of ageing impacts on the hospital benefit rate. It is compiled using 1999 as the base year.[5, 6]

The index of ageing impact shows that changes in the age structure occurring in connection with LHC had a powerful downward influence on benefit rates. Between the March quarter 2000 and the September quarter 2000, changes in the age structure alone would have enabled reductions in benefits per covered person of 11 per cent.[7]

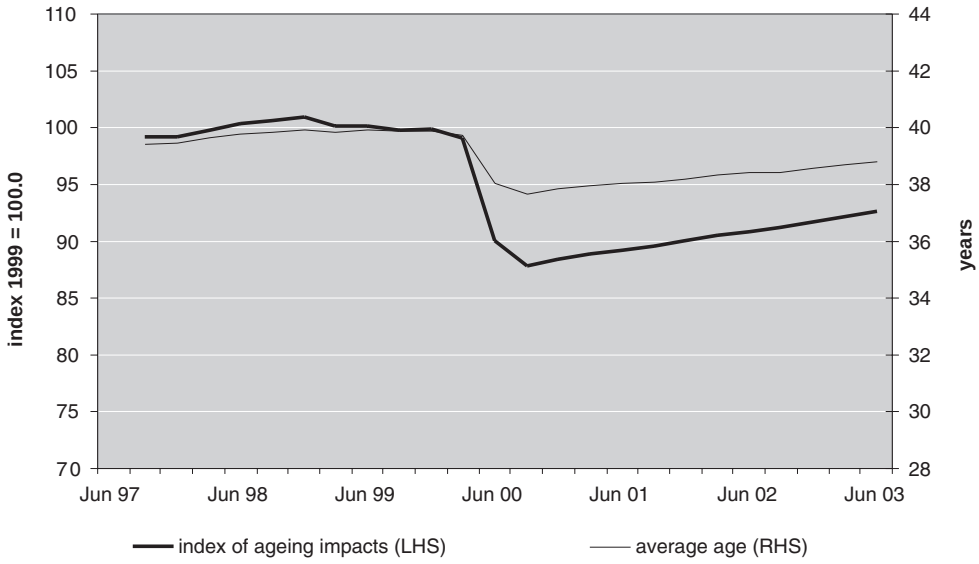
---

5 In fact the index is constructed using gender-specific data as well.

6 This period was chosen for two reasons. Firstly, it is the period immediately preceding the introduction of LHC. Secondly, it was a period of relative stability in fund composition. The influx of members through the middle of 2000 caused significant short term fluctuations in benefit rates for a couple of years, relating to the serving of waiting periods and a release of pent-up demand on the expiry of those waiting periods, and the benefit rates in 2001, 2002 may therefore deviate significantly from underlying trends.

7 The average age of covered persons fell by a much smaller 5 per cent, and this illustrates the inadequacy of proportional changes in average age as an indicator of impacts on benefit rates.

Figure 9 Index of ageing impacts and average age

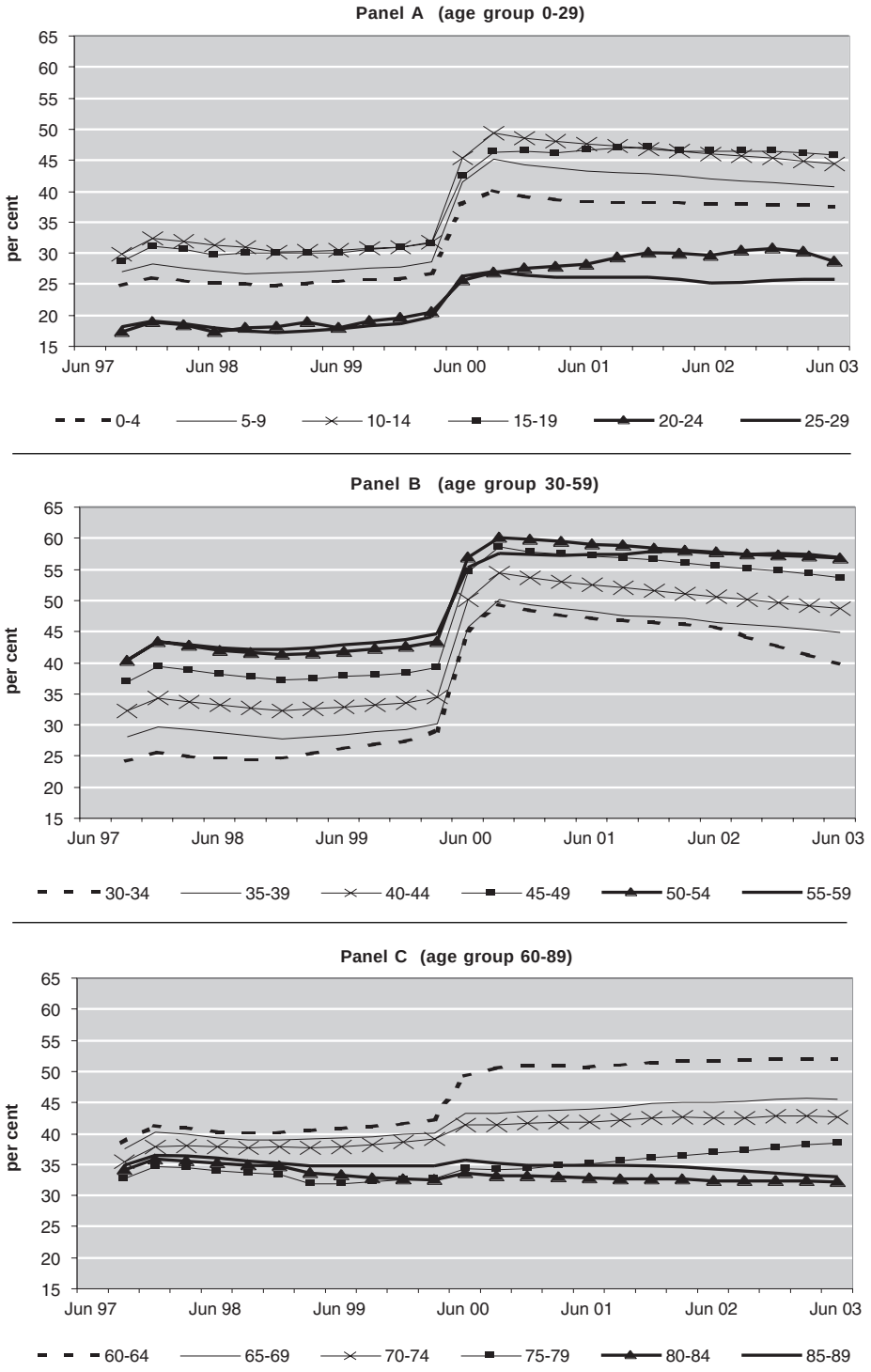


Source: SACES calculations, primary data from PHIAC (2003a, b).

Changes in the age composition of the covered pool since September 2000 have been in the reverse direction, with a 5.5 per cent upward impact on benefits per covered person. Such a pattern is partly attributable to ageing of the Australian population at large. However, it also reflects the tendency since September 2000 for coverage rates in the 30 to 59 years age groups to decline, while coverage rates in age groups above 60 have generally been stable (Figure 10 and Table 3).

The causes of the decline in coverage rates in the 30 to 59 age range are somewhat uncertain, and the data are not available to decompose movements into gross entries and gross exits at the systemic level. However, we have sighted confidential fund information on age-specific joining and exit rates, which is suggestive of both diminished joining rates and higher exit rates in the 30 to 64 age groups (with joining rates in the 50 to 64 years age brackets most sharply reduced). These figures include inter-fund transfers which would ideally, for our purpose, be excluded.

Figure 10 Age-specific participation rates for hospital cover



Source: SACES calculations, primary data from PHIAC (2003a, b).

Table 3 Coverage rates by age group

	Coverage rate			Percentage point change		
	Mar '00	Sep '00	Jun '03	Mar '00 to Sep '00	Sep '00 to Jun '03	Mar '00 to Jun '03
Detailed age groups:						
0 to 4	26.7	40.0	37.6	13.3	–2.4	10.9
5 to 9	28.6	45.2	40.7	16.5	–4.5	12.1
10 to 14	31.8	49.3	44.4	17.5	–4.9	12.6
15 to 19	31.7	46.2	45.9	14.5	–0.4	14.2
20 to 24	20.5	27.0	28.7	6.5	1.6	8.2
25 to 29	19.8	27.1	25.8	7.4	–1.3	6.1
30 to 34	28.8	49.4	39.7	20.5	–9.7	10.9
35 to 39	30.2	50.2	44.9	19.9	–5.3	14.7
40 to 44	34.5	54.4	48.7	19.9	–5.7	14.2
45 to 49	39.4	58.6	53.7	19.2	–4.9	14.4
50 to 54	43.4	60.3	56.9	16.9	–3.4	13.4
55 to 59	44.6	57.6	57.0	13.0	–0.6	12.4
60 to 64	42.1	50.5	51.9	8.4	1.4	9.8
65 to 69	40.2	43.2	45.5	3.1	2.2	5.3
70 to 74	39.2	41.3	42.6	2.2	1.3	3.5
75 to 79	32.8	34.1	38.4	1.3	4.3	5.6
80 to 84	32.6	33.3	32.2	0.7	–1.1	–0.4
85 to 89	34.8	35.3	33.1	0.5	–2.1	–1.7
90 to 94	34.9	35.2	34.3	0.3	–0.9	–0.6
95 and over	30.8	37.0	29.3	6.2	–7.6	–1.5
Total	**32.4**	**46.0**	**43.4**	**13.6**	**–2.6**	**11.0**
Major age groups:						
0 to 19	29.7	45.2	42.2	15.5	–3.0	12.5
20 to 29	20.1	27.1	27.3	7.0	0.2	7.1
30 to 39	29.6	49.8	42.3	20.2	–7.5	12.7
40 to 54	38.9	57.6	52.9	18.8	–4.8	14.0
55 to 64	43.5	54.4	54.8	10.9	0.4	11.3
Sub total:						
0 to 64	31.8	47.0	43.9	15.3	–3.1	12.2
65 and over	36.8	38.6	39.9	1.9	1.3	3.2
Total	**32.4**	**46.0**	**43.4**	**13.6**	**–2.6**	**11.0**

Source: SACES calculations, primary data from PHIAC (2003a, b).

2.3 Conclusions regarding membership numbers and profile

We were asked whether Lifetime Health Cover has succeeded in stabilising membership numbers and improving the membership profile.

Between the end of March 2000 and the end of September 2000, there was a very large increase in the number of hospital memberships (up 40 per cent), contributors (up 40 per cent) and persons covered (up 43 per cent). Membership numbers have been approximately flat since September 2000.

Whether this can be interpreted as "stability" depends on what one means by stability. Taken in isolation, the membership numbers have been stable. But since September 2000 the hospital pool has aged and this may impact on membership numbers in the future.

The increase in memberships through the middle of 2000 brought with it significant changes in the membership profile:

(i) There was an increase in the ratio of dependants to contributors of about 2.0 per cent. The effect of this was to boost benefits per contributor by about 2.0 per cent.

(ii) In 2002-03 the age-specific benefit rates of people who have joined since the beginning of 2000 were about 26 per cent less than the benefit rates of people who have had cover since before 2000. The consequence was to diminish benefit rates for the hospital funds collectively by 6.7 per cent.

(iii) The difference in age-specific benefit rates was primarily due to a markedly lower age-adjusted number of hospital days per covered person among those who have joined since the beginning of 2000. They had 28 per cent less hospital days. This is suggestive of better health status among the new joiners.

(iv) Through the middle of 2000 there was a sharp rise in the proportion of hospital policies subject to front end deductibles. This suggests that the new entrants bought cheaper polices. However, in 2002-03 the proportion of fees which were met by hospital funds was only a little lower for those who had joined since the beginning of 2000 (79.5 per cent) than for those who had joined before 2000 (81.2 per cent).

(v) The new joiners were significantly younger than the pre-existing members, and between March 2000 and September 2000 the average age of persons under hospital cover was reduced from 39.7 years in March 2000 to 37.7 years in September 2000. The number of covered persons under the age of 65 rose by 49 per cent, whereas the number of covered persons aged 65 or over rose by 6.2 per cent. This shift to a younger age profile had an 11 per cent downward impact on benefits paid per contributor.

Taking these elements together, our conclusion is that through the middle of 2000 when Lifetime Health Cover was introduced there was a major improvement in the membership profile of the hospital pool.

Between September 2000 and June 2003, there was a very slight reduction in the dependency ratio, with a downward impact of 0.3 per cent on benefits per contributor. This was far outweighed by ageing of the covered pool; the number of under-65s fell by 3.1 per cent, whereas the over-65s grew by 9.9 per cent. These changes had a 5.5 per cent upward impact on the benefit rate. It is evident that there has been some deterioration in the membership profile since September 2000 when the influx of new members under the LHC amnesty took place. However, the membership profile is still substantially improved from its condition in March 2000, before that influx took place.

There is a question as to the role of Lifetime Health Cover in explaining the statistical trends observed. There has been extensive discussion in the community of the consequences of various initiatives in the PHI field over recent years. But while there is disagreement about the relative importance of different initiatives, there seems to be universal acceptance that Lifetime Health Cover has had a major influence; the disagreement centres more on whether rises in coverage have been entirely due to LHC. The changes in coverage and membership profile that are discussed here constitute significant trend breaks in the middle of 2000, coinciding with the introduction of LHC.

In our view the data show that Lifetime Health Cover was successful in providing a very major boost to membership numbers and a major improvement in the membership profile. However, there are some signs of deterioration in the membership profile since September 2000. Thus while membership numbers have been stable since September 2000, there is a question as to whether this will continue. Although it is now three and a half years since the introduction of LHC, it needs to be recognised that the impact in mid 2000 was large, and the ensuing adjustments may still be taking place.

3. Incentives in LHC and encouragement to take cover

3.1 Understanding the incentives

In the context of this Review the essential features of the incentives contained in Lifetime Health Cover are:

- people born on or before 30 June 1934 may take out hospital cover at any time without any loading on the premium;
- people who took out hospital cover prior to 15 July 2000 are free of any premium loading so long as they do not cease their hospital membership for more than three years less one day (in total, across all periods of lapse);
- if people do cease their cover for longer than three years minus one day, they are subject to a loading of 2 per cent for each whole year in excess of 2 years for which they are without cover; and
- people who took out cover after 15 July 2000 are subject to a 2 per cent premium loading for each year of age over 30 years, at the time of joining, up to a maximum of 70 per cent.[8]

Prior to the introduction of Lifetime Health Cover, the incentives to take out hospital insurance related to a short period two years at most. In deciding whether to take out cover in any particular year, an individual needed to consider on the one hand her own self-assessed risk status and degree of risk aversion, and on the other the premium payable after making allowance for the Medicare Levy and the 30% Rebate. The only way in which future years came into the decision, if at all, was via waiting periods: she might take cover this year to serve a waiting period and be able to claim for a procedure next year.[9]

With the introduction of Lifetime Health Cover, an interdependency was introduced between current membership decisions and premiums over the long term. At present a man who is 30 years old and delays joining until 31 faces a 2 per cent premium loading for as long as he remains under cover. A woman who was 50 years old on 30 June 2000 but delayed taking out cover to 30 June 2001 faced a 42 per cent loading on her premiums for as long as she maintained cover. And a man who is aged 40 who took out cover prior to the cut-off date is not subject to a loading, but

[8] There are special provisions for migrants and Australians returning from overseas, but these are ignored in our analysis of the incentive effects of LHC.

[9] Waiting periods are not allowed to exceed one year.

will be subject to a 2 per cent loading for every whole year without cover in excess of two years.

Because Lifetime Health Cover has introduced interdependency across years in insurance choices, it is no longer adequate (and indeed it will be wrong) to equate the cost of a single year of cover with the premium payable for that year. To illustrate, consider the case of a 30 year old shortly before the amnesty period. Suppose that, in the absence of LHC, she could insure for the next year at a cash cost of $1,000. With LHC in prospect, she could join, but the cash cost would still be $1,000. A simple comparison of one year cash costs under the two regimes would suggest that the incentives to join were identical under each. But this is wrong, because there is an extra dimension to the incentives: by joining before the amnesty, she does not incur loadings on premiums if she insures in future periods.

It is necessary therefore to identify a comprehensive measure of the costs of joining for a year (or any other period) which can allow for interdependency of premiums and insurance history. Such a measure can be calculated according to the following rule: the cost of insuring for a period (which might be a single year) is equal to the whole of life costs if a person insures for the period minus the whole of life costs if she does not. Box 2 illustrates the method with a simplistic example.

The difference in whole of life costs for the "insure this year" and "do not insure this year" options are in fact dependent on future patterns of insurance coverage. The cost this year depends on what one plans to do in the future. To illustrate: For a person who intends never to insure in future, the prospect of LHC loadings does not matter, and the current period cost is equal to the current period premium. But for a person who does intend to insure, the cost of insuring this year is equal to the current period premium minus what he saves on future premiums by avoiding loadings in the future.

This means that if we want to determine the costs of insuring for a given period, we need to specify the intended pattern of insurance arrangements after the period. Having done that, we can then calculate the costs of insuring for the period under different policy regimes. In the analysis that follows, we use the costs that would arise in the "without LHC" scenario as a benchmark. We can identify the incentive effects of the LHC amnesty period by calculating the costs of joining in the LHC amnesty period and comparing them to the without-LHC benchmark. If the effective costs are less in the LHC amnesty period, then there is a saving, which can be expressed as a proportion of the without-LHC cost. And the size of this proportional saving is a measure of how much the incentives to join have been enhanced. Box 2 includes an illustration of such a calculation. In a similar fashion, the proportional enhancement to incentives can be calculated for the case of people deciding to maintain cover after the introduction of LHC, and for people without cover deciding whether to join after the introduction of LHC.

It must be emphasised that the result of any of these calculations is contingent on planned future insurance behaviour. There is no universally applicable incentive impact. It is easy to see that this is so by remembering that for two individuals who

are of the same age, an individual who has no intention of being insured in the future has nothing to gain by joining this year and avoiding future premium loadings, whereas an individual who does intend to be insured later in life does have something to gain.

This dependency on future patterns of insurance behaviour means that we need to form some view about future insurance intentions to understand the costs of insuring in the current year. Once there are more than a few years, there is a vast number of permutations of future insurance behaviour.[10]

Box 2 Influence of a simple LHC scheme on incentives

Consider a case in which an individual, call her Jean, knows that she will be alive in three periods, Years 1, 2 and 3. Assume as well that there is just one insurance product on offer in each year. Then there are eight permutations that Jean's insurance arrangements may take:

- do not insure in Years 1, 2 or 3 (denote this "NNN")
- insure in Year 1 but not Years 2 or 3 (YNN)
- insure in Year 2 but not Years 1 or 3 (NYN)
- insure in Years 1 and 2 but not Year 3 (YYN)
- insure in Year 3 but not Years 1 and 2 (NNY)
- insure in Years 1 and 3 but not Year 2 (YNY)
- insure in Years 2 and 3 but not Year 1 (NYY)
- insure in Years 1, 2 and 3 (YYY)

We want to compare the financial incentives to insure under different premium-loading arrangements. One arrangement is community rating without lifetime health cover, in which case the costs of insurance are $1,000 per annum. The alternative is lifetime rating, under which system Jean will face a $200 loading in Year 2 if she was not a member in Year 1, and a $200 loading in Year 3 for each of the previous two years in which she was not a member. It is assumed that there is no "absence period" allowed.

If we assume that Jean's discount rate is zero, then we can calculate the whole of life costs of each of the eight possible permutations of insurance coverage by adding up the premiums that are payable this year and next. The results are:

	without LHC	with LHC
NNN	$0	$0
YNN	$1,000	$1,000
NYN	$1,000	$1,200
YYN	$2,000	$2,000
NNY	$1,000	$1,400
YNY	$2,000	$2,200
NYY	$2,000	$2,400
YYY	$3,000	$3,000

[10] The number of permutations is equal to 2^n, where n is the number of future years, and even more if the frequency considered was shorter than a year. Some of the possible permutations are not particularly plausible – e.g. a sequence of alternating join, do not join, join, do not join, join, etc. seems unlikely. But there is still a large number of behaviours that are quite plausible and likely to be observed for some consumers.

Note that there are just four permutations for Years 2 and 3: NN, YN, NY and YY. We can calculate the cost of cover in Year 1 by comparing Jean's whole of life costs with and without Year 1 cover for each of these four permutations. The results are shown in the first two columns and the third column shows the saving in effective costs with LHC as a proportion of costs without LHC:

	Year 1 effective cost with LHC	Year 1 effective cost with LHC	Savings on effective costs with LHC relative to without
NN	$1,000	$1,000	0%
YN	$1,000	$800	20%
NY	$1,000	$800	20%
YY	$1,000	$600	40%

The whole of life cost consequences of insuring in Year 1 are invariant to Jean's plans for the future without LHC, but this is certainly not true with LHC. If Jean does not intend to insure in Year 2 or 3, then under LHC the whole of life cost impact of insuring in Year 1 is $1,000. However, if she intends to insure in Years 2 and 3, then the whole of life cost consequence of insuring in Year 1 is just $600 – or 60 per cent of the cost without LHC.

So does LHC give an incentive to Jean to take out cover earlier in life? The answer is that it depends on what her plans for the future were. If she intended never to insure, then the answer is "no". If she intended to insure in just one of Years 2 or 3, then LHC has diminished the cost of insuring in Year 1 by 20 per cent. And if she was intending to insure in Years 2 and 3, the cost of insuring in Year 1 is reduced 40 per cent.

One approach would be to calculate probability-weighted averages of alternative future insurance behaviours, but this would be difficult with the available data. Instead, in this study we take a simple approach: we model the costs for some scenarios which approximate common behavioural patterns, considering individuals across a range of ages and across a range of future insurance intentions.

To calculate current period costs for whatever future insurance arrangement is chosen, it is necessary to calculate whole of life costs if a person does have cover in the current period and if she does not. This involves calculating discounted expected present values, which in turn means making assumptions (in addition to the assumption about future insurance arrangements) about future period premiums, life expectancies and discount rates. The algebra is presented in Appendix B. While it may appear complex, the calculation that it is used to support is straightforward: current period costs are calculated as whole of life costs with insurance in the current period minus whole of life costs without insurance in the current period.

In this Review three different changes in incentives are considered:

- the change in incentive for non-members to take out cover prior to the end of the amnesty from LHC loadings, i.e. 15 July 2000;

- after the introduction of LHC, the change in incentive for persons who have cover to maintain their cover; and
- after the introduction of LHC, the change in incentive for persons without cover to take out cover.

In each case the benchmark employed is the set of incentives that would have applied without Lifetime Health Cover. This analysis then tells us whether the incentives associated with LHC are more encouraging of membership than the without-LHC incentives, and how much so.

Incentives to take out cover during the amnesty period

The key incentive effects in operation during the amnesty period which expired on 15 July 2000 were:

- there was to be no change in the terms on which people born on or before 30 June 1934 could take out hospital cover;
- people born after 30 June 1934 who did not take out cover prior to 15 July 2000 but decided to do so later on would be subject to a premium loading of 2 per cent for every whole year of age in excess of 30 years at the time of their joining, subject to a maximum of 70 per cent; and
- so long as people who joined prior to the cut-off date maintained their cover for at least a year, they could then cease their membership for up to three years minus one day without penalty, and would be subject to a 2 per cent loading for every whole year without membership in excess of 3 years minus one day (i.e. if they had 3 years without membership they would face a 2 per cent loading, if they had 4 years the loading would be 4 per cent, etc).

The key decision facing an individual in the LHC amnesty period was whether to take out cover for a period of one year, and thus to establish a LHC "entry age" of 30, or not (call this a "qualifying" membership). The decision to take out a qualifying membership had an up-front cash cost, equal to the 1 year premium.[11] But it also had consequences for future premium payments, with these consequences being highly dependent on the individual's intended future membership patterns. And there was an ex ante benefit, in the form of the expected benefit payments and risk reduction during the year of qualifying membership, although this might be diminished by benefit limitations in "waiting periods".

The individual was not required to make a decision about whether or not to be a member in future years, although his expectations about his future membership patterns certainly could be expected to influence his decision whether to "qualify" or not. This is because the whole of life cost consequences of qualifying depend to a major extent on the individual's age and expected future insurance behaviour. The prospect of premium loadings is irrelevant in the extreme case where the

[11] We used a 1 year premium of $1,000, but all of the results presented are proportionate and thus invariant to this initial amount.

individual is absolutely confident he will never insure. On the other hand, avoiding premium loadings will have cost consequences if he intends to insure fairly soon.

This means that we can consider the change in incentives associated with the LHC amnesty period by considering the following three questions:

- How much would it have cost to join for one year without the LHC incentive effects?
- How much would it cost to join for one year given the existence of the LHC incentive effects?
- What is the proportional cost saving when the incentive effects of the LHC amnesty are present?

The answer will depend on the individual's intended future insurance behaviour.

Figure 11 illustrates, for a person contemplating joining "permanently" (i.e. for the rest of his or her life) in X years time, and subject to the LHC amnesty incentives, the proportional saving in the effective cost of a one year membership. The savings are shown for people of different ages, and for people with different views as to how many years they intend to wait before taking up cover and maintaining it for the rest of their life. Table 4 gives a sample of the observations in Figure 11.

The savings are all zero or positive. Positive amounts mean that the effective cost of the 1 year membership is lower in the amnesty period than it would be without LHC. In fact, in many cases the effective costs are lower by more than 100 per cent of the up-front premium, which means that by joining the individual actually saves more than the actual one-year premium. A higher ratio always means more cost savings, and therefore the higher is the ratio the greater is the enhancement to the incentive to take out cover.

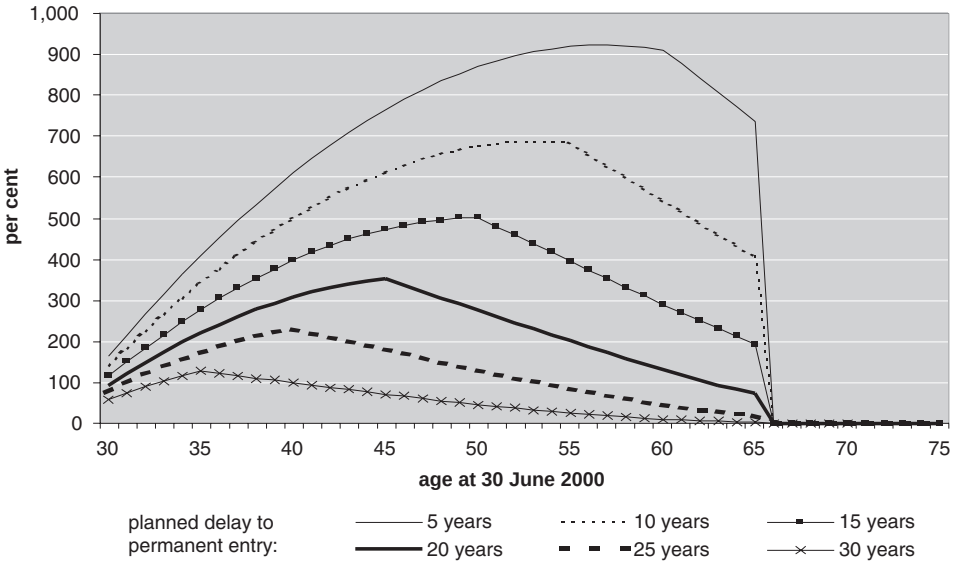
The interpretation of these savings can be illustrated with a specific case. For instance, for a 55 year old who was contemplating joining in 5 years time, the proportional saving is shown as 918 per cent. The scenario considered is one in which the 55 year old takes cover for 1 year in the amnesty period, ceases that cover for 4 years, and then rejoins according to his original intention of joining in 5 years time. Suppose that the 1 year premium is $1,000. In the without-LHC case the cost of joining for the qualifying year is simply the one year premium – $1,000. However under the incentives introduced by the LHC amnesty, the effective cost of joining for one year is actually a negative amount 8.18 times as large as the 1 year premium – i.e. $8,180 – and thus the saving with LHC is $9,180 – 9.18 times as large as the 1 year premium.

It can be seen in Figure 11 that the savings are generally higher, and therefore that the enhancement to incentives to take out cover is greater, the closer is the contemplated date of commencing permanent membership. The saving for a 55 year old contemplating joining in 5 years time is 918 per cent, but the saving for a 55 year old contemplating joining in 15 years time is a smaller 395 per cent. The savings are larger where the intended "permanent" joining date is close for a variety

of reasons: when the joining date is closer there are more years of life over which to gain the benefit of smaller premium loadings; because the "permanent" joining date is sooner the avoided loadings are discounted less than when it is further away in the future; and, for more distant dates, the avoided premium loadings can actually shrink as the delay pushes the eventual loading up towards the 70 per cent ceiling.

For people intending to join in a few years time, the incentives were generally smaller for people at younger ages in the 30 to 65 age range, but still very substantial. For instance, a 35 year old who intended to take cover permanently in 5 years time (at age 40), would save 409 per cent of the cost of the 1 year without-LHC premium by joining for 1 year, which is much less than the 918 per cent saving for the 55 year old.

Figure 11 Savings on effective cost of 1 year membership introduced by LHC amnesty incentives



Source: SACES calculations.

Table 4 Savings on effective cost of 1 year membership introduced by LHC amnesty incentives

	Age at introduction of Lifetime Health Cover								
Number of years until "permanent" join occurs:	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**
5	164	409	611	766	870	918	911	737	0
10	138	339	498	611	674	684	544	407	0
15	115	277	398	474	502	395	291	193	0
20	94	221	308	353	276	201	132	73	0
25	75	171	229	179	130	84	46	19	0
30	58	127	99	72	46	25	10	3	0
35	43	34	24	16	8	3	1	0	n.a
40	0	0	0	0	0	0	0	n.a	n.a

Source: SACES calculations.

These estimates depend on assumptions about future membership behaviour, discount rates, real premiums growth, and life expectancy. It is important to consider the implications of plausible variations in these.

i) The modelling herein is based on people joining "permanently" (i.e. for the rest of their lives) when they reach a certain age. But opportunistic temporary joining behaviour – in the sense of joining to cover costs associated with a known condition and then dropping membership after treatment – is a known phenomenon in the health insurance industry, and is an inevitable consequence of people's attempts to manage health costs from limited incomes. For individuals contemplating acting in this way the advantages of taking out cover in the amnesty period would be smaller.

ii) The impact of temporary joining behaviour on whole of life costs is sensitive to discount rates, and the discount rate employed here is 4 per cent real. The discount rate is simply a parameter that encapsulates differences in the value to an individual of $1 in the hand today versus $1 in the hand in a year's time, and discount rates may vary from person to person. It is intrinsic to the concept of a discount rate that people with high discount rates will place less value on savings in future outlays than people with low discount rates. Discount rates can be expected to vary from one individual to another for a range of reasons, which include psychological factors and their financial circumstances. Other things equal, a higher discount rate means that the present value of avoided future premiums is smaller, because the present values of avoided future premiums are smaller. To test the importance of the discount rate choice, calculations were carried out using a real discount rate of 7 per cent (Table 5 shows the results). In this case the savings are smaller, but most people intending to join within 10 years still have savings of more than 100 per cent.

iii) Real premiums are assumed to grow at 2 per cent per annum. If an individual expects them to grow faster than this, then it is more likely to be advantageous to follow the "qualifying" strategy. This is because the individual avoids premium loadings on larger future premium amounts.

iv) It is assumed in the modelling that each individual's life expectancy at any particular age is equal to the population average. But it is in fact likely that entry decisions to take out cover are correlated with deteriorations in individual life expectancies. To the extent that this is so, it would mean that the savings associated with "qualifying" are overstated. This is because the period of avoided premium loadings is likely to be shorter than if the population-average life expectancy applied.

The conclusion that we draw from this analysis is that, in the period leading up to 15 July 2000, for individuals in the age range 30 to 65 the incentives to insure were universally enhanced. The enhancement to incentives was stronger for people who envisaged entering into permanent cover sooner rather than later. The scenario developed here suggests that any person in the age range 30 years to 65 years who anticipated taking out cover in the next 15 years, and who faced a discount rate of

4 per cent real, would have reduced their whole of life premium costs by taking out a qualifying membership. For people with higher discount rates, the enhancements to incentives were smaller.

Table 5 Savings on effective cost of 1 year membership introduced by LHC amnesty incentives: Case of a high discount rate

	Age at introduction of Lifetime Health Cover								
Number of years until "permanent" join occurs:	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**
5	87	225	348	454	536	589	609	513	0
10	66	168	256	327	375	396	329	256	0
15	49	123	184	229	252	207	158	109	0
20	36	89	129	154	126	95	65	37	0
25	26	62	87	71	53	36	20	9	0
30	18	42	34	26	17	10	4	1	0
35	12	10	7	5	3	1	0	0	n.a
40	0	0	0	0	0	0	0	n.a	n.a

Source: SACES calculations.

Incentives to maintain cover in mid 2003

One of the aims of Lifetime Health Cover was to enhance the incentives to maintain cover. "Hit and run" memberships are a known phenomenon in private health insurance with adverse consequences for premium costs, and therefore LHC sought to discourage this behaviour.

This section identifies the incentives to retain cover for a person who took out cover during the amnesty period and held it for long enough to qualify for a deemed entry age of 30. The incentive pattern is modelled for 30 June 2003; it changes a little with each successive year in that the age of the exempt elderly (those born before 30 June 1934) becomes a year older.

With LHC now in place, any person with cover can cease that cover and rejoin later (subject to having maintained membership for a 1 year qualifying period before quitting).[12] However, the loadings that apply to the person may be affected. The person's loading will increase by 2 per cent for every whole year in excess of 2 that he has been without cover after the age of 30 and after the introduction of LHC. For instance, if a person who is 38 years old today, and who has had cover continuously from mid 2000 until now, spends the next 4 years without cover, he will be able to rejoin subject to a 4 per cent premium loading.

The cost of cover from now to X years in the future can be calculated by comparing differences in whole of life costs. As noted previously, this depends to a significant degree on behaviours in Year X and afterwards. The scenario considered here is

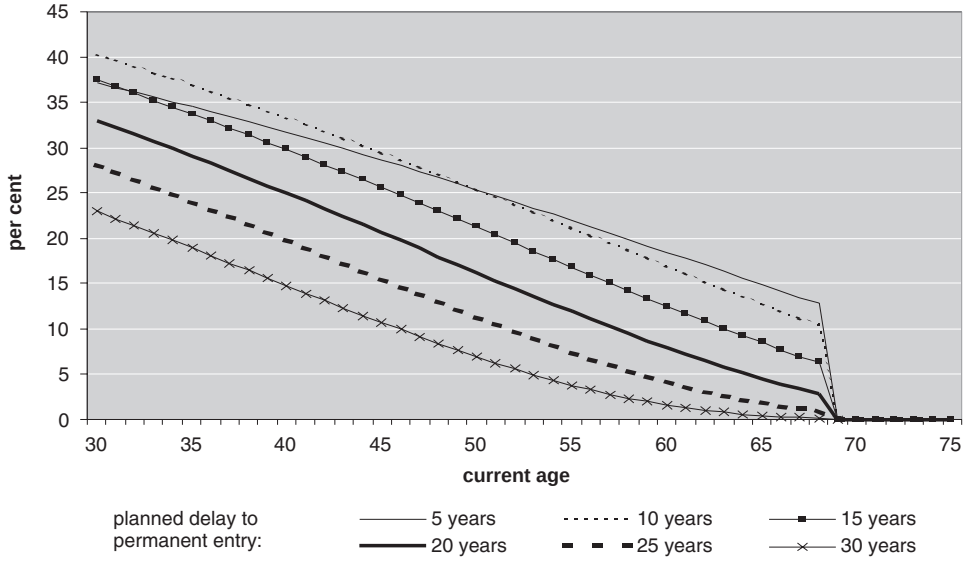
[12] The qualifying period was specifically applied to those who joined between 1 July 1999 and 15 July 2000. However, those who had joined prior to 1 July 1999 and maintained their cover through to the introduction of LHC did, by virtue of that behaviour, complete at least a full year's membership as well.

one in which the individual intends to have cover for the rest of his life in Year X and thereafter.

By comparing the cost of cover from now to Year X for a person under the existing LHC arrangements with the cost of cover that would exist without LHC, we can identify how incentives to maintain cover have changed for this group.

Figure 12 shows the savings in effective costs of maintaining cover for this group (and Table 6 provides selected observations). For a 40 year old with cover who was considering the alternative of ceasing cover and then re-joining in 10 years, the effective cost of maintaining cover for those 10 years with the LHC provisions in place is 33 per cent less than it would be if there were no LHC. The reason for the savings is of course the avoided future premium loadings.

Figure 12 Savings on effective cost of maintaining cover for X years: Existing member with rated age-at-entry of 30



Source: SACES calculations.

Over the scenarios considered, the savings for this group range from zero (no saving) to 40 per cent. The size of the savings depends both upon one's age and the number of years that the cover is being maintained for (which depends on the number of years in the counterfactual where cover is dropped for a period). For any given length of maintained cover, the savings are greatest for people of age 30 and they diminish as one moves through successively higher age groups until the age of 69 is reached (individuals born before 30 June 1934 are exempt from loadings). And at any given age, the size of the reduction is generally greater the shorter is the period over which the choice of whether to maintain cover or not is considered. For every combination of circumstances, the incentives for people with a rated age at entry of 30 to maintain cover are at least as encouraging with LHC as they were without it.

Table 6 Savings on effective cost of maintaining cover for X years: Existing member with rated age-at-entry of 30

	Age at introduction of Lifetime Health Cover								
Number of years until "permanent" join occurs:	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**
5	37	35	32	29	25	22	18	15	0
10	40	37	33	29	25	21	17	13	0
15	37	34	30	26	21	17	13	8	0
20	33	29	25	21	16	12	8	5	0
25	28	24	20	16	11	7	4	2	0
30	23	19	15	11	7	4	2	0	n.a
35	18	14	10	7	4	1	0	n.a	n.a
40	12	9	5	3	1	0	n.a	n.a	n.a

Source: SACES calculations.

Incentives for persons without cover to take out cover

This section identifies the incentives for a person who has never had cover to take out cover in the existing environment. The incentive pattern is modelled for 30 June 2003; it changes a little with each successive year in that the age of the exempt elderly (those born before 30 June 1934) becomes a year older.

With LHC now in place, any person who did not qualify during the amnesty period in 2000 can still join, subject to age-related premium loadings. Persons up to the age of 30 have no loading applied. A premium loading of 2 per cent applies for every whole year of age over 30 at the time the person joins, up to a maximum of 70 per cent. Thus a person joining at the age of 40 would be subject to a loading of 20 per cent. Persons born on or before 30 June 1934 are exempt from loadings.[13]

The cost of cover from now to X years in the future can be calculated by comparing differences in whole of life costs. As noted previously, this depends to a significant degree on behaviours in Year X and afterwards. The scenario considered here is one in which the individual intends to have cover for the rest of his life in Year X and thereafter.

By comparing the cost of taking out cover from now to Year X for a person under the existing LHC arrangements with the cost that would exist without LHC, we can identify how incentives to take out cover have changed for this group.

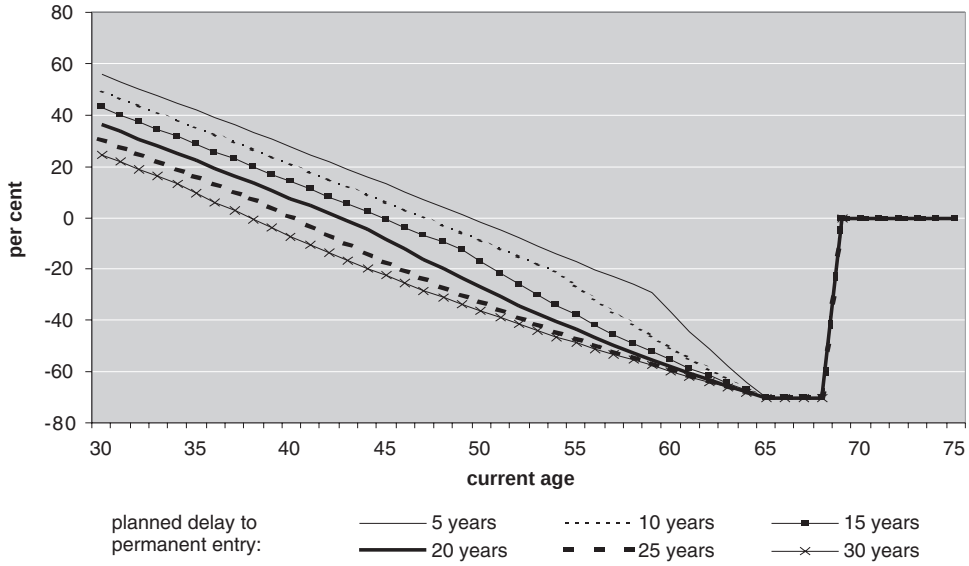
Figure 13 shows the savings in effective costs of taking out cover for this group (and Table 7 provides selected observations). For a 40 year old who was considering the cost of joining permanently now instead of delaying joining for 10 years, the effective

[13] This description is a simplification. There are provisions which allow migrants and Australians returning from overseas to join up without incurring age-related loadings. And the measurement of the joining age is to be changed from a date of birth based concept to a "horses' birthday" approach, so that marketing efforts can be concentrated just before the annual "birthday".

cost of joining now is 21 per cent less than it would be if there were no LHC. The reason for the savings is the avoided future premium loadings.

It is notable that for some people the savings are negative. For instance, for a 55 year old who is contemplating whether to join now or in 5 years time, the saving is –17 per cent. This means that it actually costs 17 per cent more to join up for those 5 years than it would have without LHC. The reason is that the 55 year old faces substantial premium loadings even if he does join now. He would incur a loading of 50 per cent, compared to no loading if there were no LHC.

Figure 13 Savings on effective cost of maintaining cover for X years: Person who has not established an entry age



Source: SACES calculations.

Table 7 Savings on effective cost of maintaining cover for X years: Person who has not established an entry age

	Age at introduction of Lifetime Health Cover								
Number of years until "permanent" join occurs:	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**
5	56	42	28	13	–2	–17	–37	–70	0
10	49	35	21	6	–9	–26	–51	–70	0
15	43	29	14	–1	–17	–38	–56	–70	0
20	36	22	8	–8	–27	–44	–58	–70	0
25	30	16	1	–17	–33	–47	–59	–70	0
30	25	10	–7	–23	–36	–49	–60	–70	n.a
35	19	2	–13	–26	–38	–50	–60	n.a	n.a
40	12	–3	–16	–28	–39	–50	n.a	n.a	n.a

Source:SACES calculations.

The size of the savings depends both upon one's age and the number of years by which the joining decision is to be brought forward. For any given length of bring-forward, the savings are greatest for people of age 30 and they diminish as one moves through successively higher age groups until the age of 69 is reached (individuals born before 30 June 1934 are exempt from loadings). And at any given age, the size of the saving is generally greater the shorter is the bring-forward.

It should be noted as well that LHC has had no direct effect on the cost of cover for people under the age of 30; their incentives are unchanged. Some insurers canvassed the enhancement of incentives to take out cover for people younger than 30.

Comparing the three different sets of incentives

Figure 14 brings together these three different incentive effects in one Figure. It takes the case of a person who is contemplating joining permanently in 10 years time, and compares the incentives that LHC presented or presents (selected observations are reported in Tables 4, 6 and 7):

- to join for 1 year as a qualifying measure, letting cover lapse, and then joining permanently in 10 years according to original plan;
- (for an existing member) to maintain cover instead of dropping cover and then resuming it permanently in 10 years time; and
- (for a non-member) to take out permanent cover now instead of waiting for 10 years.

The interpretation of Figure 14 can be illustrated with an example. During the LHC amnesty, a 40 year old who was intending to join in 10 years time could take out qualifying cover for 1 year, then drop it for 9 years and then rejoin. With this course of action in mind, the incentives in the LHC amnesty period delivered a 498 per cent saving on the costs that would have arisen without LHC. Clearly there was a very large enhancement to the incentive to join for 1 year.

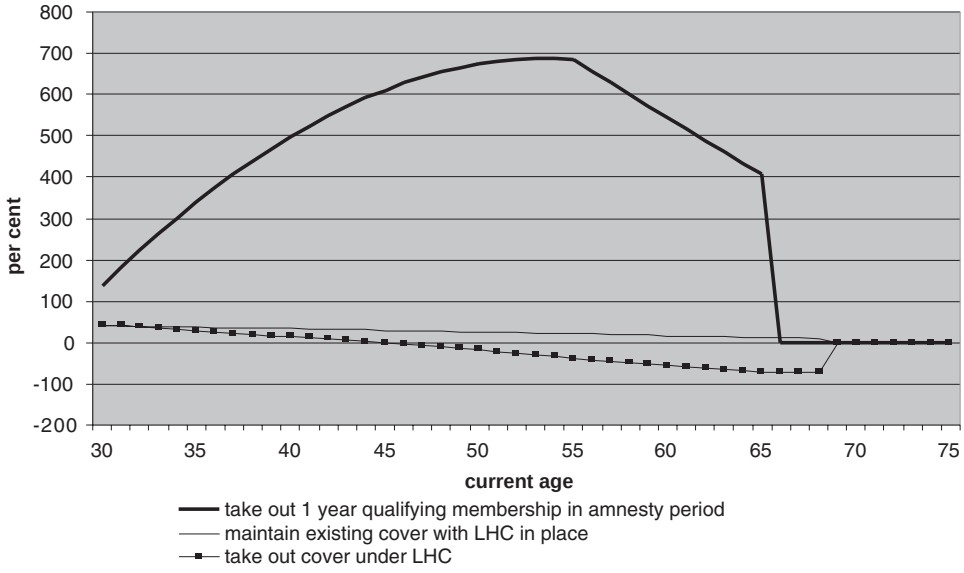
Now consider the case of an individual aged 40 but with a rated age at entry of 30 with LHC already in force. This individual could cease cover for 10 years and then rejoin. If, instead, he maintains cover for 10 years there will be costs associated with this. Under the LHC arrangements, the effective cost of maintaining cover for those 10 years is 33 per cent less than it would have been in the absence of LHC. Clearly the existence of LHC has enhanced the incentive for an individual with these circumstances to maintain his cover. However, the enhancement is not nearly as large as the 498 per cent saving on a 1 year qualifying membership during the amnesty period.

Now consider the case of a 40 year old who has not established an age-at-entry. He could join now and establish an age at entry of 40, or wait 10 years and establish an age at entry of 50, with associated premium loadings. Under the LHC arrangements, the additional whole of life costs cost associated with joining now instead of in 10 years time are 21 per cent less than they would have been in the

absence of LHC. While LHC has enhanced the incentives for such an individual to take out cover, the enhancement is much smaller than the enhancement that was given during the amnesty period.

Similar conclusions exist across all the combinations of age and intended delay to permanent entry: the enhancement to incentives to take out qualifying cover during the amnesty period was generally much stronger in the amnesty period than the enhancement to incentives that exists now, both in respect of people maintaining cover and people taking it out for the first time.

Figure 14 Costs of insuring earlier: Comparison of relative savings under different incentive situations, males



Source: SACES calculations.

We have been asked to consider whether incentives in Lifetime Health Cover are encouraging consumers to take out private hospital cover early in life and maintain it. The absolute answer is unambiguously "yes". However, the key message coming out of the chart is that there was a very large enhancement to incentives in the LHC amnesty period leading up to 15 July 2000, and that while incentives to take out cover early are now still stronger than they were before the amnesty period, they are nowhere near as strong as they were during it. This pattern of incentives would suggest that memberships would surge in the amnesty period and remain high over the ensuing 12 month qualifying period, and then fall.

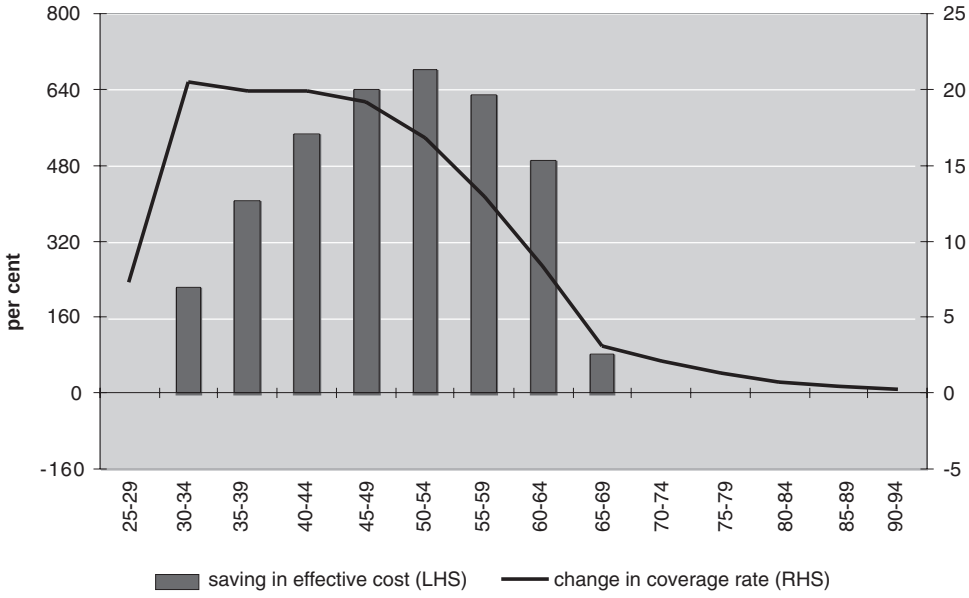
3.2 Comparison of incentives and behaviour

Data from PHIAC allow us to calculate age-specific coverage rates for hospital cover, and then to consider how those coverage rates responded to the incentives which were introduced with the transition to LHC and the incentives which exist now that it has been introduced.

Panels A, B and C of Figure 10 show age-specific coverage rates over the last several years, and Table 3 shows the percentage point change in coverage rates between March 2000 and September 2000, and the change between September 2000 and June 2003 (Table 2 shows actual numbers of covered persons).

Figure 15 shows the effective savings in the costs of taking out 1 year cover during the LHC amnesty, and the change in coverage rates between March 2000 and September 2000. (The savings estimates employed here relate to the case of individuals who were contemplating permanent cover in 10 years time.)

Figure 15 Proportional savings in cost and changes in coverage rates in the transition to LHC by age group



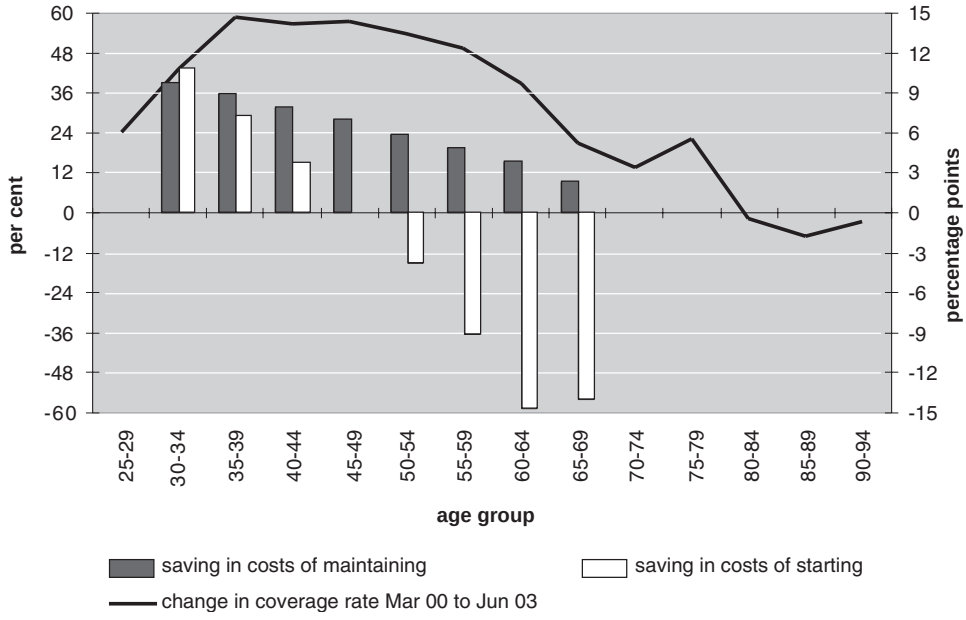
Source: SACES calculations, primary data from PHIAC (2003a, b).. Cost savings are for a person considering joining permanently in 10 years time.

The results in the period spanning the introduction of Lifetime Health Cover are broadly as one would expect. There were substantial increases in coverage rates in the age ranges 30 through 64, and changes in coverage rates were smaller outside this age band. This is quite consistent with the fact that incentives were enhanced most for people aged between 30 and 65.

However, there are a couple of anomalies. Firstly, the increases in coverage rates were most pronounced for people in their 30s and 40s, even though the enhancement to incentives was apparently strongest for people in their 40s and 50s. A possible explanation is that people did not perceive the incentives in the way that we have estimated them, and that people in their 30s systematically overestimated the enhancement to incentives and/or people in their 50s and 60s systematically underestimated the impact on incentives. Another possible explanation is that there are systematic differences across age groups in future insurance plans. For instance it may be that a higher proportion of 30 year olds who are not members think that they will join in future than do 60 year olds. The LHC loadings have no effect on the behaviour of a person who intends never to join, and this would explain a smaller response rate from 60 year olds. Another possibility is that different age groups have different responses to a given change in incentives – i.e. their average price elasticities of demand for health cover vary.

Secondly, the increase in the coverage rate for 25-29 year olds is not readily explained by the incentive effects of Lifetime Health Cover. It is possible that joining behaviour by spouses over the age of 30 and misperceptions of the nature of Lifetime Health Cover played a part. It is also possible that incentive effects unrelated to LHC had some influence. Changes in coverage rates were smallest for the age groups 65-69 and over, although a response was apparent.

Figure 16 Proportional savings in cost and changes in coverage rates with LHC in place (June 2003), males by age group



Source: SACES calculations, primary data from PHIAC (2003a, b).

Figure 16 shows the effective savings in the costs of having cover now, both for people maintaining it and people contemplating taking it out for the first time, and the change in coverage rates between March 2000 and June 2003. The increases in coverage in the 30 to 59 age groups are less than were the case immediately after the introduction of LHC, reflecting falls that have taken place since then. Comparing the incentives in place now with the no-LHC counterfactual, the incentives have been enhanced most for people in the 30 to 34 age group, and decline with rising age. There is a quite a good degree of consistency between these incentives and the observed changes in coverage (and this is especially so if one concentrates on the incentives for people maintaining cover): people in their 30s and 40s have had the greatest increases in cover and under the existing set of incentives have seen the strongest improvement in incentives to maintain cover.

3.3 Conclusions regarding incentives

We were asked whether the incentives contained in Lifetime Health Cover are encouraging consumers to take out private hospital cover early in life and maintain it.

Our assessment is that incentives to take out cover were greatly enhanced during the Lifetime Health Cover amnesty period which expired on 15 July 2000. People could join at this time and, so long as they maintained their cover for a year, lock in an age at entry of 30 years, even if they were older than this. They could then cease their cover and rejoin later, subject to loadings which were potentially much smaller than if they did not lock in a 30 year entry age during this qualifying period.

There was a very large rise in membership through this period. The increases were strongest for people in the LHC-affected age groups of 30 to 65 years, and at this broad level the experience was consistent with the enhancement to incentives.

There are some puzzles in the detail. For instance, the strongest responses during this amnesty period were in the age groups 30 through 49, whereas we have estimated that incentives were most strongly enhanced for 50 to 65 year olds. However, the response to enhanced incentives depends as well on the circumstances of individuals, and it is quite possible that there are systematic differences between the future plans of different age groups. For instance, it may be the case that a relatively large proportion of people in their 50s and 60s who had not joined before the introduction of LHC were not intending ever to join – for instance because their financial circumstances did not permit it. In addition, it is quite possible that people's own assessments of incentives differed systematically from what we have estimated them to be. Several insurers suggested to us that much of the general public have only a vague understanding of health insurance, and that responses depend on perceptions as much as careful calculation. And it seems clear that the existence of a deadline had a powerful galvanizing impact, which may have affected people in ways that we have been unable to capture.

Now that LHC has been implemented, incentives to maintain cover are significantly stronger for people in the age groups 30 through to their late 60s than they were

without LHC. And incentives for people who have never been insured to take out cover have been enhanced for people in their 30s and to a lesser extent in their 40s, but diminished for some people in their 50s and 60s. However, the incentives for people in their 30s through to about 65 are nowhere near as strong as we estimate them to have been during the amnesty.

These considerations lead to the conclusion that the incentives contained in LHC are encouraging people to take out cover early in life and to maintain it. And the data suggest that this has happened. Although there have been declines in coverage since the end of the amnesty period, coverage rates remain substantially above their levels before the LHC amnesty period. We conclude, therefore, that the incentives contained in Lifetime Health Cover are encouraging consumers to take out private hospital cover early in life and to maintain it, so long as it is understood that "early in life" means in the 30s, and not at younger ages.

References

Australian Bureau of Statistics,
(2002), *Deaths, 2001,* Cat. No. 3302.0.
(2003a), *Population by Age and Sex, Australian States and Territories, Jun 1997 to Jun 2002,* Cat. No. 3201.0.
(2003b), *Population Projections, Australia, 2002 to 2101,* Cat. No. 3220.0.

Access Economics, (2002), *Striking a balance: choice, access and affordability in Australian health care.* Report prepared for Australian Private Hospitals Association.

Barrett, Garry F. and Robert Conlon, (2003), "Adverse selection and the decline in private health insurance coverage in Australia: 1989-95", *Economic Record*, Vol. 79 No. 46 (September), pp.279-296.

Biggs, Amanda E., (2003), *Medicare – Background Brief.* E-Brief, Department of the Parliamentary Library.

Gale, Andrew P and Alan Brown (2003), *Health after Lifetime Health Cover: recent health insurance experience.* Paper presented to the Institute of Actuaries of Australia Biennial Convention May 2003.

Industry Commission (1997), *Private Health Insurance,* AGPS, Canberra.

Private Health Insurance Administration Council (PHIAC),
(2002), *Operations of the Registered Health Benefits Organisations: Annual Report, 2001-02.*
(2003a), membershipand coverageall.xls, http://www.phiac.gov.au/.
(2003b), hospitalancillary benefitsall.xls, http://www.phiac.gov.au/.

Appendix A
Decomposing trends in benefits paid per contributor

To understand the impact of changes in the membership profile, it is useful to think about trends in benefits per contributor. Under cost reflective premium setting, the cost of benefits per contributor must be passed on to contributors. Investment income and management expenses must also be passed on, but in general these will be invariant to the membership profile. This means that we can analyse changes in the membership profile in terms of their effects on benefits per contributor and thus gain a good indication of their cost implications.

Let $B_{i,t}$ be the total benefits paid out to persons in age group i in period t. Then we can calculate the average benefits paid per person of age i who is covered, $b_{i,t}$, by dividing $B_{i,t}$ by the number of people in age group i who have coverage ($N_{i,t}$):

$$b_{i,t} = \frac{B_{i,t}}{N_{i,t}} \qquad (1)$$

And correspondingly b_t represents the average level of benefits across all persons covered by the fund. We can rearrange this as follows:

$$b_t = \sum_i b_{i,t} n_{i,t} \qquad (2)$$

where $n_{i,t}$ is the proportion of the covered pool in age group i in period t.

Benefits will relate to a range of goods and services, and we can conceive of an average per member basket of goods and services at any time equal to the number of units of each good and service covered by the fund, divided by the number of covered persons. For instance, if the fund had 10 members and paid for 2 nights' hospital accommodation and one pacemaker device, then the average basket would contain 0.2 hospital nights and 0.1 pacemaker device. Then we can define P_t as the cost at time t of the average basket of goods and services at time 0. And we can define $q_{i,t}$, an index of the quantity of benefits provided to individuals of age i at time t:

$$q_{i,t} = \frac{b_{i,t}}{P_t} \qquad (3)$$

Which allows us to represent $b_{i,t}$ as follows:

$$b_{i,t} = P_t q_{i,t} \qquad (4)$$

And substituting (4) into (2) gives:

$$b_t = P_t \sum_i q_{i,t} n_{i,t} \qquad (5)$$

If we denote the number of contributors of premiums at time t by M_t, then we can calculate the average benefits paid per contributor, k_t:

$$k_t = \frac{B_t}{M_t} \qquad (6)$$

And because $B_{i,t} = b_{i,t} \times N_{i,t}$:

$$k_t = \frac{b_t N_t}{M_t} \qquad (7)$$

So we can substitute (5) into (7) to get:

$$k_t = \frac{N_t}{M_t} P_t \sum_i q_{i,t} n_{i,t} \qquad (8)$$
$$= c_t P_t \sum_i q_{i,t} n_{i,t}$$

where $c_t = N_t / M_t$ is the ratio of covered persons to contributors.

We can then decompose changes in benefits paid per contributor (k) between periods 0 and period t by taking the ratio of k_t to k_0:

$$\frac{k_t}{k_0} = \frac{c_t P_t \sum_i q_{i,t} n_{i,t}}{c_0 P_0 \sum_i q_{i,0} n_{i,0}} \qquad (9)$$

$$= \frac{c_t}{c_0} \times \frac{P_t}{P_0} \times \frac{\sum_i q_{i,t} n_{i,t}}{\sum_i q_{i,0} n_{i,0}}$$

$$= \frac{c_t}{c_0} \times \frac{P_t}{P_0} \times \frac{\sum_i q_{i,t} n_{i,t}}{\sum_i q_{i,0} n_{i,t}} \times \frac{\sum_i q_{i,0} n_{i,t}}{\sum_i q_{i,0} n_{i,0}}$$

Which we can rewrite as:

$$k_t^* = c_t^* \times P_t^* \times q_t^* \times n_t^* \qquad (10)$$

k_t^* is the ratio of benefits paid out per contributor in period t to period 0. Equation (9) allows us to explain movements in in terms of component influences:

- c_t^* is a measure of the impact of changes in the ratio of covered persons to contributors (the "dependency ratio");
- P_t^* is a measure of the impact of pure price changes in relevant goods and services on benefit payments ("inflation");
- q_t^* is a measure of the impact of changes in the quantity of goods and services provided to specific age groups ("service level"); and
- n_t^* is a measure of the impact of changing age structure on benefit payments ("ageing").

Changes in the membership profile influence c_t^*, q_t^*, and n_t^*, but do not directly affect P_t^*.

Appendix B

Calculating the discounted present value of expected future premiums

A discounted present value of expected future premiums for any future insurance arrangement can be calculated taking into account an individual's survival probabilities, real discount rate over time, and the size of future premium payments. Equation (1) below illustrates the simplified case where an individual aged x years today takes out private health cover in i years time and then remains covered for the rest of his life.

$$PV_{xi} = \sum_{t=i}^{100-x} \frac{l_{x+t}}{l_x} P\left(\frac{1+g}{1+r}\right)^t$$

where

PV_{xi} = discounted present value of expected future premiums at age x with coverage commencing in i years time

l_x = survival rate from birth to age x

P = current period premium

g = real terms inflation factor for premium

r = real discount rate

The cost C_{xi} for an individual aged x of insuring over a period of duration i can then be calculated as:

$$C_{xi} = PV_{x0} - PV_{xi}$$

In the modelling it is assumed that the premium will rise by 2 per cent per annum in real terms, that the individual has a real discount rate of 4 per cent, and that the individual's life expectancy at any particular age is equal to that implied by the amalgamated survival rates calculated by combining male and female survival rates from the Australian Life Tables for 2001 published by the ABS (2002).