Society of Actuaries in Ireland

Research paper on inflationary pressures in the Irish Private Health Insurance market.

October 2016

Table of contents

1 Introduction

1.1 The Society of Actuaries in Ireland ("the Society") is the professional body representing the actuarial profession in Ireland. The Society seeks to make an impartial contribution to public interest matters where an actuarial perspective can add value.

1.2 On 27 June 2013, Mr Patrick McLoughlin was appointed by the Minister for Health to chair a Review Group under the auspices of the Consultative Forum on Health Insurance, to work with the insurance companies and the Department of Health to effect real cost reductions in the Private Health Insurance market. The work of the Group was conducted in two phases, with the First Phase Report published on 26 December 2013 and the Second Phase Report submitted in October 2014 ("the McLoughlin Report"[1]).

The Society responded to the McLoughlin Report and focused on aspects of the report that were most relevant to actuarial consideration. The Society also suggested that further research could be performed to better understand the demographic factors and contribute to the debate.

1.3 As part of this further research, the Healthcare Committee of the Society has prepared this discussion paper which incorporates an update of the analysis from the McLoughlin Report to include 2014 and 2015 data available from the Health Insurance Authority ("HIA"). In addition, further analysis has been prepared in relation to the potential impact of claims inflation and ageing on the private health insurance market in Ireland, and the consequent impact on premium levels, level of cover sought and take up rates.

1.4 The analysis set out in the paper relies on the data in the McLoughlin report and the additional data sourced from the HIA. The projections are based on assumptions as to future experience which the Society consider to be plausible but it is possible that future experience will differ materially from that assumed in performing the projections and hence any conclusions drawn from this paper should be considered in that light. We believe however that the analysis which has been undertaken provides valuable insights into the possible future course of health insurance premium inflation.

1.5 Whilst care has been taken to ensure the accuracy of the information in this document, the Society does not accept any responsibility or liability for any errors and/or omissions, including any errors and/or omissions in the data on which this document is based. This document does not constitute advice and should not be relied upon as such. The Society does not accept any responsibility or liability for any loss to any person or body as a result of any action taken, or any decision taken not to act, on foot of any statement, fact, figure, expression of opinion or belief contained in this document.

[1] http://health.gov.ie/blog/publications/review-of-measures-to-reduce-costs-in-the-private-health-insurance-market-2014/

2 Executive Summary

2.1 The growth in average Private Health Insurance premiums in Ireland has consistently outstripped economic growth over time. In this paper we examine inflationary pressures and conclude that we expect average premium growth to continue to be in excess of economic growth in the future. The Irish Private Health Insurance market is characterized by community rating, open enrolment and risk equalisation. In this context, this report particularly focuses on demographic factors, while also referencing other inflationary drivers. We consider average claim costs, rather than how these are shared between market participants, so risk equalisation is not a factor in our analysis. We also address recent action taken by policymakers to address the demographic impact, such as Lifetime Community Rating and Young Adult Rates.

2.2 On 27 June 2013, Mr Patrick McLoughlin was appointed by the Minister for Health to Chair a Review Group under the auspices of the Consultative Forum on Health Insurance, to work with the insurance companies and the Department of Health to effect real cost reductions in the Private Health Insurance market. The work of the Group was conducted in two phases, with the First Phase Report published on 26 December 2013 and the Second Phase Report submitted in October 2014 ("the McLoughlin Report"[2]).

2.3 The Society of Actuaries in Ireland ("Society") responded to the McLoughlin Report and focused on aspects of the report that were most relevant to actuarial consideration including:

- The changing age structure of the market is potentially significant in terms of trying to control the rate of claims inflation;
- Isolating the impact of ageing on historic claims inflation to allow a better understanding of the extent to which non demographic factors are impacting on claims inflation and the impact on inflation of measures designed to improve the age mix of the market.

We identified that further research could be performed to better understand these factors and contribute to the debate.

2.4 This report is laid out as follows:

- Section 3 provides an assessment of recent claims experience, including an analysis of the impact of ageing on claims inflation over the last decade;
- Section 4 considers the potential impact of ageing on private health insurance premiums in future, using the data underlying the CSO's population projections, and assessing any additional specific characteristics of the private health insurance market which could have an impact on the results;
- Section 5 analyses recent trends in premium inflation in the private health insurance market, and in particular contains an analysis of the potential impact on average premium levels in the market caused by consumers switching between products; and

[2] http://health.gov.ie/blog/publications/review-of-measures-to-reduce-costs-in-the-private-health-insurance-market-2014/

- Section 6 provides an analysis on medical inflation including an assessment of potential drivers and a view on the future outlook for medical inflation.

2.5 The key findings of the report in relation to the impact of ageing are:

- We estimate that the ageing of the insured population contributed approximately 2.5% p.a. to claims inflation between 2009 and 2015. This compares with an ageing impact of approximately 1.3% p.a. when the market was growing up to 2008. The total impact of 2.5% p.a. can be attributed to the ageing of the general population (c. 1.0%), increased penetration rates at older ages (c. 0.5%) and reduced market penetration rates at younger ages (c. 1.0%).

- The potential inflationary impact of projected future demographic (i.e. excluding medical cost inflation) changes on health insurance premiums from 2016 to 2046, calculated by reference to Central Statistics Office (CSO) population projections for that period, which incorporate future mortality improvements, will be relatively modest – in the region of +1.3% p.a. The strongest demographic effect (approximately 1.7% p.a.) is expected over the period 2016 to 2026 with the inflationary impact gradually weakening in the years after that. This is in contrast to the expectations with regard to pension costs, where future mortality improvements create onerous funding pressures on retirement pensions. Improving mortality would only be likely to cause appreciable problems for health insurance if people were to live longer and that additional life span was largely spent in poor health requiring significant additional medical care. These projections have been carried out on the implicit basis that disability-free life expectancy will rise in line with projected future mortality improvements.

- The introduction of lifetime community rating (LCR) has been a clear initial policy success in terms of the 105,000 rise in insured lives in open enrolment undertakings seen in 2015. It is too early to tell whether LCR will have an ongoing impact on the age profile of the health insurance market. For the purpose of our projections, we have assumed that LCR will have a neutral impact.

2.6 We have also considered recent trends in premium inflation which identified the following features:

- there is a good correlation between the penetration rate of private health insurance cover and the excess of premium inflation over growth in disposable incomes.

- between 2010 and 2015, premium increases by insurers resulted in a 65% increase in the Health Insurance Premium Index as calculated by the CSO, but the average premium paid by consumers only increased by 32% over this period, suggesting that consumers switching between products and insurers resulted in average savings of c. 50% of the price increases proposed by insurers.

- For all age groups, as prices increase, customers are choosing different plans in order to keep their premiums down.

- Younger customers are more sensitive to price and less sensitive to the actual benefits offered, which are more valuable to older lives given their higher propensity to claim.

2.7 Our analysis of medical inflation concludes that because Irish private health insurers each negotiate separately with health care providers and do not have strong purchasing power with the pharmaceutical companies, medical inflation will continue to be relatively difficult to control when compared with centralised purchasing systems such as the UK NHS. We would expect that even if the Irish economy grows only at a modest rate, the impact of general medical inflation is likely at least to match, and more probably exceed, the impact of ageing on health insurance premiums.

2.8 We note that public and private sector stakeholders in many countries have recently introduced steps to counteract the drivers of medical inflation such as:

- Shifts in treatment from in-patient to less expensive day-care and out-patient settings;
- Increasing rates of generic drug use to reduce pharmaceutical costs; and
- Increased cost-sharing ("co-payments") to slow consumer use of health services.

Ultimately, however, the rate of growth in medical costs must be constrained by the resources available to pay for them.

3 Recent Claims Experience and the Historical Impact of Ageing.

Introduction

3.1 On 27 June 2013, Mr Patrick McLoughlin was appointed by the Minister for Health to Chair a Review Group under the auspices of the Consultative Forum on Health Insurance, to work with the insurance companies and the Department of Health to effect real cost reductions in the private health insurance market. The work of the Group was conducted in two phases, with the First Phase Report published on 26 December 2013 and the Second Phase Report submitted in October 2014.

3.2 Section 2 of the McLoughlin Report includes an analysis of claims cost for the period 2009 to 2013 prepared by the HIA. This Section updates this analysis to include 2014 and 2015, using data provided by the HIA (reference). All information and analysis in this Section relating to before 2014 is sourced from the McLoughlin Report. To assist comparability with the figures in the McLoughlin report, similar text and charts have been used in our updated analysis below.

Recent Irish Claims Experience

3.3 Insurers provide details of claim payments that fall within the definition of "Prescribed Benefits" and claim payments that fall within the definition of "Returned Benefits" in information returns. Data is provided by product, age and gender.

3.4 The rules for which benefits should be included in either of these categories are set out in the Health Insurance Act 1994 (Information Returns) Regulations 2009 as amended ("the Information Returns Regulations")[3]. Not all benefits paid are included in information returns. "Returned Benefits" represent all benefits paid excluding the following:

- Benefits relating to services not involving a hospital admission; and
- Benefits relating to services excluded in the regulations such as preventative health services including check-ups or screenings, infertility or cosmetic services.

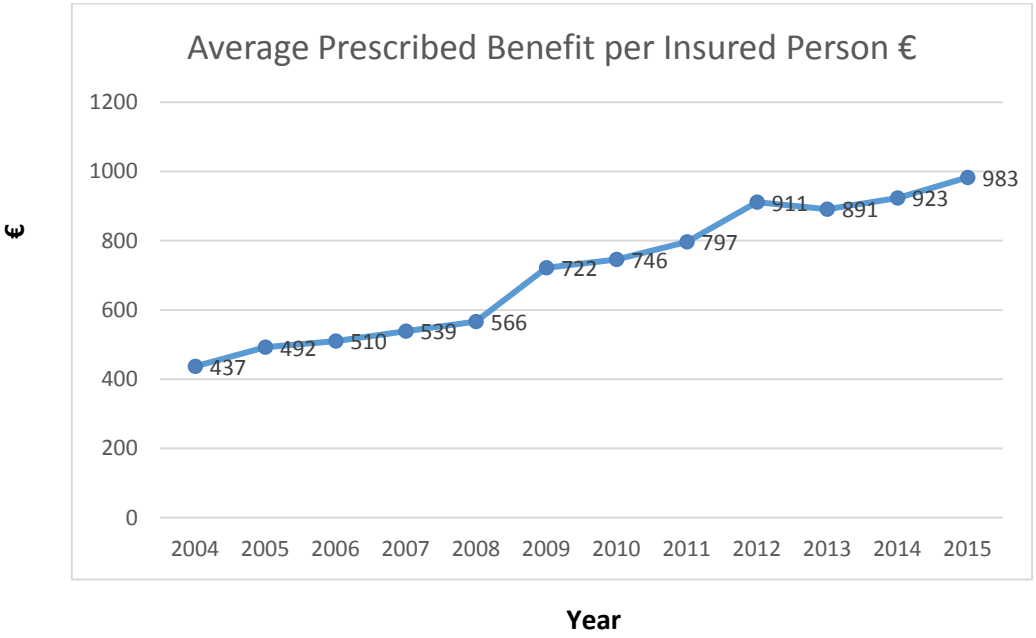
3.5 The difference between Returned Benefits and Prescribed Benefits is that Prescribed Benefits also exclude the amount of any benefit exceeding the maximum prescribed benefit levels set out in the Information Returns Regulations. As Returned Benefits do not involve monetary limits, they include a higher amount of claims costs than Prescribed Benefits.

3.6 Around €2.1bn was paid in claims by Irish private health insurers in 2015.

3.7 While a breakdown of this expenditure for 2015 has not yet been published, in 2014 93% of claims paid related to hospital stays coming within the definition of Returned Benefits and was paid to private hospitals (47%), public hospitals (26%) and hospital consultants (20%). The remaining 7% related mainly to outpatient benefits, or to benefits (including hospital benefits) that do not come within the definition of Returned Benefits.

[3] http://www.irishstatutebook.ie/eli/2009/si/72/made/en/print

3.8 Since 2004, open membership insurers have submitted details of Prescribed Benefits to the HIA. Prescribed Benefits include approximately 80% of the cost of claims paid by open membership insurers. The chart below shows how Prescribed Benefits have increased for open membership insurers since 2004. In calculating the averages, children are counted as 1/3rd in order to reflect the lower premium payable. Also, in respect of 2015, only the figure for Returned Benefits was published, accordingly the figure in the chart below for 2015 is estimated using the published Returned Benefits figure.



3.9 In the four years between 2004 and 2008, the average claim per insured person (measured by market Prescribed Benefit) increased by 6.7% p.a. on average. During this period, the Consumer Price Index grew by an average of 3.9% p.a.

3.10 In the four years between 2008 and 2012, the average Prescribed Benefit per insured person grew by 12.6% p.a. During this period, the Consumer Price Index fell by an average of 0.3% p.a.

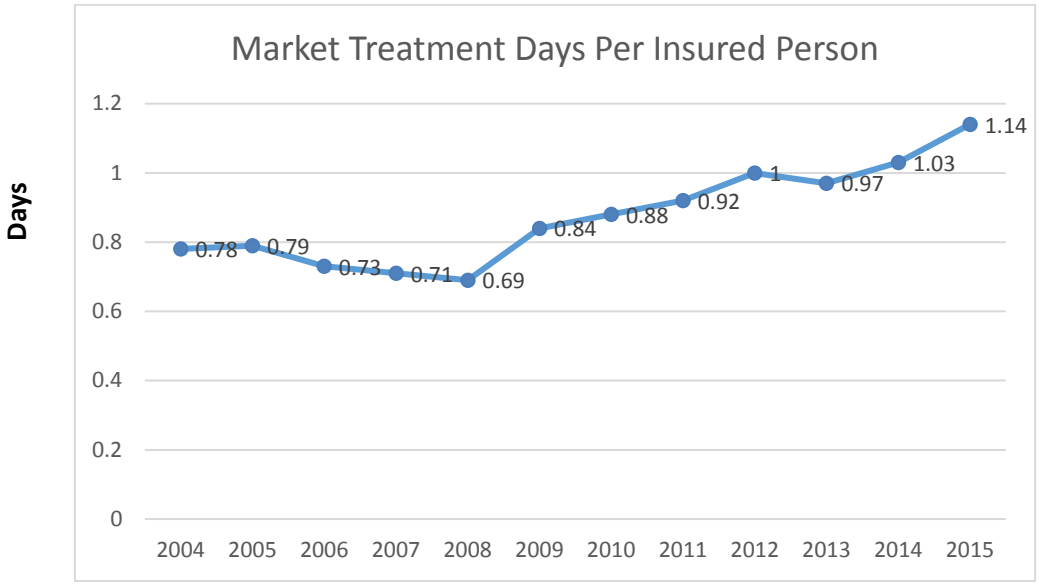
3.11 In 2013, the average Prescribed Benefit per insured person fell by 2.2%, the first time this figure decreased since the HIA started receiving this data. During this period, the Consumer Price Index rose by 0.2%.

3.12 Between 2013 and 2015, the average Prescribed Benefit per insured person increased by 3.5% p.a. During this period, the Consumer Price Index fell by less than 0.1% p.a. The increase in Prescribed Benefit per insured person over this period is likely to relate in part to the change in the rules for charging private patients in public hospitals, which took effect in January 2014.

3.13 Data has only been collected in respect of Returned Benefits since 2011 so Prescribed Benefits give longer term trends but Returned Benefits are more meaningful as limits are not included which place monetary caps on the results.

Increased Utilisation

3.14 The trend in health insurance claims can usefully be considered in terms of a number of drivers. Typically, changes in claims costs (per person insured) result from either changes in the prices payable (e.g. the unit cost for a procedure or for a night's accommodation), or from changes in the number of procedures being carried out (i.e. the level of utilisation). Analysis of the number of treatment days per insured person can give an indication of whether change in average claims experience is driven by changes in unit cost or changes in utilisation. The trend in recent years in the average number of treatment days per insured person is shown in the following chart. In calculating the averages, children are counted as 1/3rd in order to reflect the lower premium payable.

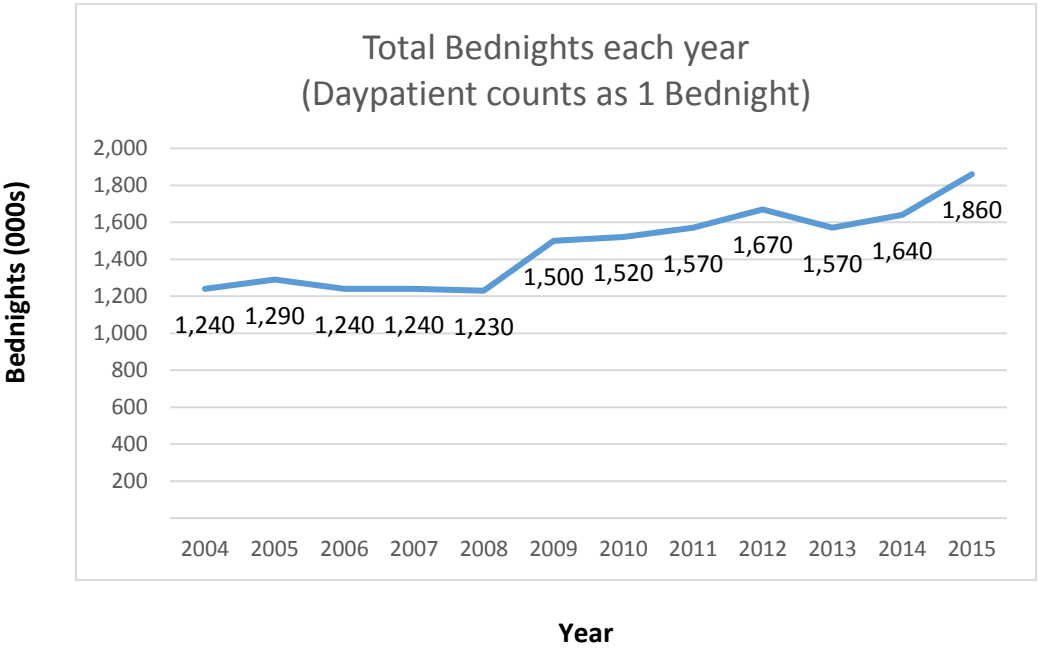


3.15 Between 2004 and 2008 the average number of treatment days per insured person fell by 12%. Between 2008 and 2012 the average number of treatment days per insured person increased by 45%. It can be seen, therefore, that the increase in average claim per member between 2008 and 2012 (61%) largely results from increased usage of hospital services, with the utilisation measure increasing by 45%. The remainder of the increase results from increased cost per utilisation (11%).

3.16 In 2013, the average number of hospital treatment days per insured person fell by 3%, indicating that the reduction in average claims cost per insured person in 2013 was driven by reduced utilisation.

3.17 Between 2013 and 2015, the average number of hospital treatment days per insured person increased by 8.4% p.a. The increase in the average number of treatment days over this period is likely to relate in part to the change in the rules for charging private patients in public hospitals, which took effect in January 2014.

3.18 The following chart shows the variation in the total number of bed nights (counting each day patient visit as 1 bed night) between 2004 and 2015.



3.19 As can be seen from the chart, the total number of bed-nights in the market was relatively unchanged between 2004 and 2008. Between 2008 and 2009, the total number of bed nights in the market grew by 274,000 in the year (or c. 750 bed-nights per day). Between 2009 and 2013 the total number of bed nights grew at a much slower rate, c. 17,500 p.a. Since 2013, the total number of bed nights is again increasing rapidly (by 140,000 per year on average between 2013 and 2015), which is likely to relate in part to the change in the rules for charging private patients in public hospitals, which took effect in January 2014.

3.20 As was noted in the McLoughlin report, increased private hospital capacity can lead to increased utilisation of private hospital accommodation by meeting previously unmet demand (including by providing services that were previously not available), meeting increasing demand (for example as a result of ageing) or through supplier led demand (a common feature of healthcare markets). A number of new private hospitals were added to private health insurance contracts between 2004 and 2009[4]:

- The Galway Clinic, covered since 2004, 146 beds;
- The Hermitage Medical Clinic, covered since 2007, 101 beds;
- The Whitfield Clinic, covered since 2007, 64 beds (inpatient and day patient);
- The Beacon Clinic, covered since 2008, "capacity for 214 beds"; and
- The Santry Sports Clinic, covered since 2008, 62 beds (inpatient and day patient)

[4] *Sources*: Insurance policy documents, www.galwayclinic.com, www.hermitageclinic.ie, www.waterfordchamber.com, www.beaconhospital.ie, www.sportssurgeryclinic.com

3.21 From 2010, the total number of private hospital beds continued to increase[5]:

- The Blackrock Clinic main extension opened in October 2010 increasing by 50 the inpatient bed capacity to 170 and providing for an expanded 30 bed day surgery unit, as well as a new A&E department;
- St Vincent's Private Hospital moved to a new building, which opened in November 2010 with 236 inpatient beds (previously 164) and additionally, an expanded day case/day surgery facility with 54 beds (previously 36); and
- Mater Private Cork opened in January 2013 with 75 beds with business from the old Shanakiel Hospital (44 beds) transferring to it.

3.22 The substantial change in the role of the National Treatment Purchase Fund has almost eliminated demand for private hospital stays from publicly funded patients and made additional capacity available for use in private hospitals by insurance funded private patients.

3.23 It can be seen that there has been a very substantial increase in private hospital capacity. For public and voluntary hospitals since January 2014, there has been a significant change in the arrangements for the charging of private patients receiving in such hospitals. Up until this date, the health insurer of private patients was not billed for periods during which the patient was treated in a non-designated private or semi-private bed within these hospitals. Since then, the insurer is billed for all stays by a private patient in these hospitals regardless of their setting (i.e. including so-called public beds). The effect of this has been to increase significantly the scope of benefits that insurers must reimburse for their members and consequently the aggregated costs for insurers. Figures from the HSE[6] suggest that the total gross private charge income received from private patients in 2015 grew to nearly €620m from a figure of approximately €470m in 2013, the year prior to the change. In addition to the change in the designation rules there appears to be some evidence that the billing patterns of hospitals have changed for day patient activity thereby increasing costs for insurers further.

Impact of Ageing

3.24 The health insurance market has been ageing since the HIA commenced receiving data on the age structure of the market in 2003. The rate of ageing increased substantially when the insured population began to decline.

3.25 The ageing of the private health insurance market is a result of the following:

- Ageing of the general population;
- Increased market penetration amongst older people; and
- Reduced uptake amongst younger people.

[5] *Sources*: www.svph.ie, www.blackrock-clinic.ie, www.materprivate.ie, www.irishexaminer.com

[6] *Source: Statistics taken from Health Service Executive Management Reports. Available at www.hse.ie*

Ageing of the General Population

3.26 The age structure of the Irish population in the last three censuses is set out in the following table, along with the age structure in the 2015 population estimate produced by the Central Statistics Office (CSO).

Age Structure of the Irish Population in the Last Three Censuses and in 2015 Estimate				
Age Group	**2002**	**2006**	**2011**	**2015 (Est)**
0-19	29.1%	27.2%	27.5%	28.3%
20-29	16.4%	16.9%	14.3%	11.3%
30-39	15.2%	15.8%	16.5%	15.9%
40-49	13.3%	13.6%	13.9%	14.5%
50-59	10.9%	11.1%	11.3%	12.0%
60-69	7.3%	7.7%	8.6%	9.3%
70-79	5.2%	5.0%	5.1%	5.6%
80+	2.6%	2.7%	2.8%	3.1%

3.27 It can be seen that the general population aged somewhat between 2002 and 2015, with the proportion of the population aged over 60 increasing from 15.1% to 18.0%. In particular, the fastest increase in the proportion of the population aged over 60 took place between 2011 and 2015 when the proportion increased from 16.4% to 18.0%. The CSO is projecting that the rate of ageing of the population will continue, with the proportion over the age of 60 exceeding 20% of the population by 2021.

3.28 Before allowing for the impact of changes in health insurance penetration among older and younger people, the ageing of the general population is likely therefore to contribute to the continued ageing of the health insurance market, i.e. as the general population ages the insured population is also going to age unless penetration rates change from current levels.

Increased Market Penetration amongst Older People

3.29 The market penetration rates of open membership insurers (i.e. the proportions of the population insured with an open membership insurer) over the age of 50 in the second half of 2003, the second half of 2013 and the second half of 2015 are set out in the following table.

Open Membership Insurer Penetration Rates			
Age Group	**2003**	**2013**	**2015**
50-59	**52%**	**49%**	**50%**
60-69	**48%**	**52%**	**52%**
70-79	**37%**	**49%**	**51%**
80+	**26%**	**36%**	**39%**

3.30 Historically, there was a lower penetration rate for older ages, reflecting the lower take-up of private health insurance prior to the 1990s. As people age they are likely to retain their health insurance so that, for example, a cohort in their 60s would be likely to retain their health insurance into their 70s. As a result, the penetration rate for those in their 70s would be expected to be at least as high as the penetration rate that applied for those in their 60s ten years earlier. This effect can be seen in the preceding table (via the coloured diagonals) and would be expected to continue for the over 80 age group, which has a market penetration rate that is much lower than the rate applying at younger ages. Consistent with this, the penetration rates for age groups over 70 increased further between 2013 and 2015.

Reduced Uptake amongst Younger People

3.31 The following table shows the number of people insured with open membership insurers by age.

Number Insured at Year end with Open Membership Insurers by Age (in Thousands)							
Age	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
17 and under	518	505	495	479	462	454	475
18 to 29	310	284	256	230	211	203	210
30 to 39	365	351	331	312	295	281	297
40 to 49	321	315	308	302	296	293	322
50 to 59	272	272	269	266	263	261	276
60 and over	337	351	361	371	383	394	412
Total	2,123	2,078	2,020	1,960	1,911	1,887	1,992

3.32 It can be seen that the insured population in younger adult age groups declined significantly between 2009 and 2014. In particular, the 18-29 age group declined 35% in five years (or 8% p.a.). The 30-39 age group also declined significantly, by 23% in five years or by 5% p.a. Following the introduction of Lifetime Community Rating and discounts for younger adults in 2015 the number of younger adults with insurance increased (by 3% for the 28-29 age group and by 6% for the 30-39 age group).

3.33 It is noted that one reason for the decline in the number insured in the 20-29 age cohort is that this age cohort has declined significantly in the population in recent years, partly due to emigration but also partly due to the ageing of those born in the "baby boom" of the late seventies / early eighties. The number of people born in Ireland in 1990 (who were aged 24 at the end of 2015) was 53,000, almost 30% lower than the 74,000 people born in 1980. Indeed, the reduction in the insured population in the 18-29 age group is slightly higher than the equivalent reduction in the general population. While the general population in the 20–29 age group declined by 27%, the insured population in the 18-29 age group declined by 32% between 2009 and 2015.

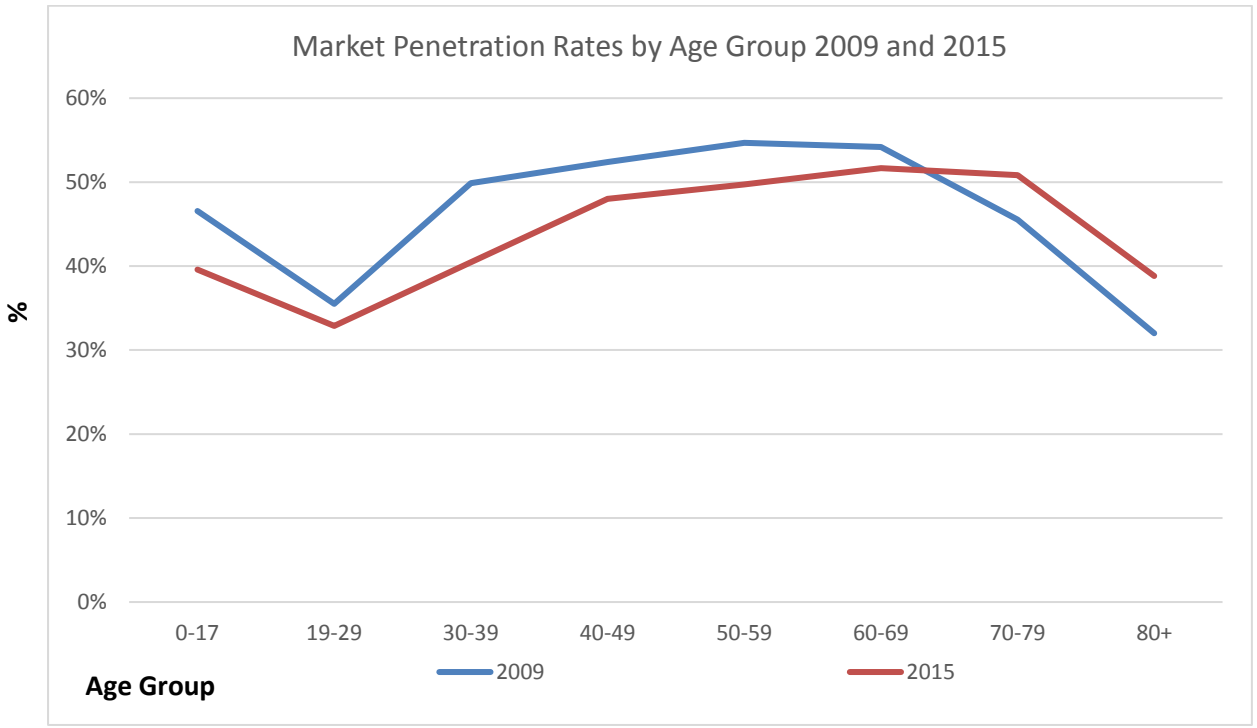
3.34 However, the reduction between 2009 and 2015 of the insured population between the ages of 30 and 39 has occurred in spite of increases in the general population in this age group over the same period.

	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
20-29	755	707.9	661.5	618.9	578.8	549.3	523.9
30-39	730.8	740.9	756.5	756.6	751.3	744.7	735.4
40-49	612.3	622.7	633.4	643.8	654.9	663	671.3
All ages	4,533.4	4,554.8	4,574.9	4,585.0	4,593.1	4609.6	4,635.4
20-29		-6.2%	-6.6%	-6.4%	-6.5%	-5.1%	-4.6%
30-39		1.4%	2.1%	0.0%	-0.7%	-0.9%	-1.2%
40-49		1.7%	1.7%	1.6%	1.7%	1.2%	1.3%

Ireland: population in younger adult age cohorts (Source: CSO)

Market Penetration by Age

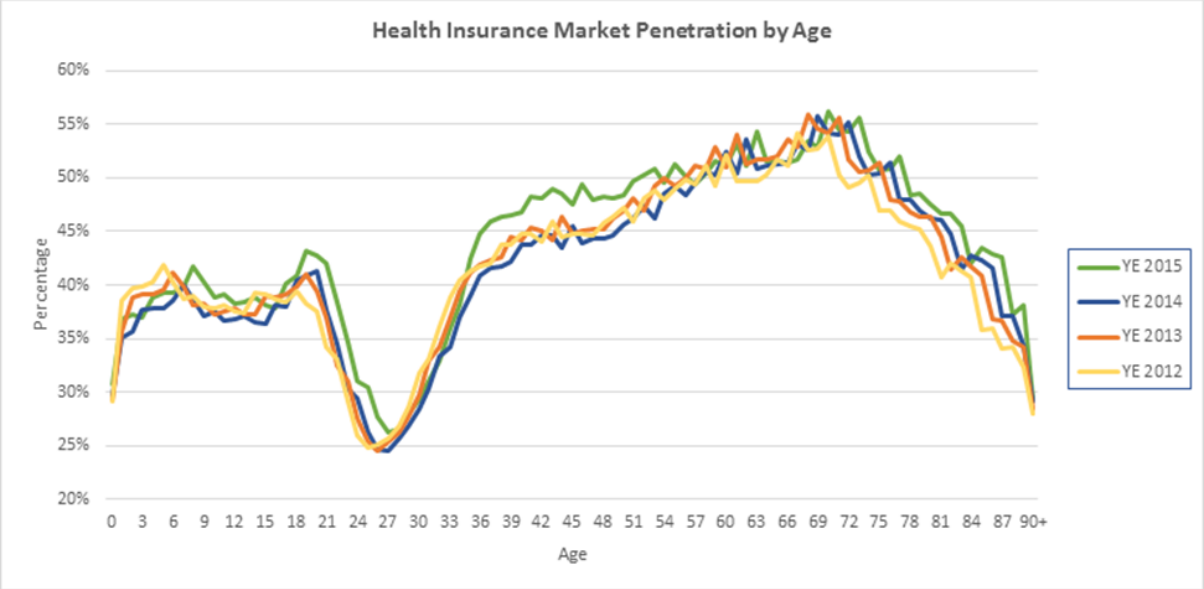
3.35 As at the end of 2015, the market penetration rate for open membership insurers is c. 43% (46% when restricted membership undertakings and those serving waiting periods are included). The following chart illustrates how market penetration rates vary by age for open membership insurers and how the rates of penetration have changed in recent years:



3.36 It can be seen that between 2009 and 2015, the penetration rate fell for all age groups up to age 70 and increased for older age groups. As discussed earlier, the increase in penetration rates at older age groups is entirely predictable and, while the penetration rate for those in their seventies is now close to the market peak, over the next 10 years the penetration rate for those over age 80 is likely to continue to increase from 37% to much closer to 50% (the penetration rate currently applying in the 70-79 age group).

3.37 Amongst the younger age groups, even though the 18-29 age group has experienced the greatest decline in insured persons, the greatest decline in penetration rates has occurred in the 30-39 age group (a decline of 12 percentage points vs. a 5 percentage point decline in the 18-29 age group).

3.38 In 2011, the Information Returns Regulations were amended to provide that insurers would submit data to the HIA by year of age, enabling analysis of penetration rates by year of age (rather than age group) from 2011 on. The CSO also publish annual population estimates by age. The following chart shows how estimated penetration rates vary by year of age for each year ending 2012 to 2015 inclusive.



3.39 There are a number of important features that can be inferred from the above chart in terms of differences between penetration rates by age at a point in time and also in terms of changes in penetration rates over time:

- At end 2015, the chart shows that, with the exception of age 19, the market penetration rate is below the market average (43%) for all ages under age 36 and is above average for all ages from 35 up to age 83. It would be expected in a voluntary community rated market for penetration rates at younger ages to be significantly lower than penetration rates at older ages and this is the case here. However, it is only for infants and between the ages of 23 and 32 (and above age 90) that the penetration rate drops below 35%.

- Looking more closely at the dip in penetration rates for young adults, it can be seen that penetration rate remains relatively high (up to 42%) up to age 20 after which it drops quickly. It reaches a low point of 26% at age 27 after which it rises (again quickly) achieving the market average penetration rate of 43% by age 36.

- As noted earlier, the lower penetration rate for people in their 20s is not a new feature of the market and the pattern of penetration rates has been reasonably consistent over time.

- There appears to be a general increase in penetration rates with time. This is particularly noticeable for ages 35 to 55 particularly in 2015 which may be a direct consequence of the introduction of LCR. Additionally, significant increases can be seen for young adults, e.g. the penetration rates for 21 year olds have increased from 34.3% in 2012 to 42.1% in 2015 which could be as a result of the introduction of young adult discounts, and for older ages whereby penetration rates appear to naturally have increased as existing customers have aged.

3.40 Australia introduced a near identical form of lifetime community from July 2000. This, combined with market reforms they introduced at the same time, led to a significant increase in the proportion of the population with private insurance going from 31.6% of the population to 45.7% at end December 1999 to end December 2000[7]. It is unclear how much of the change was related directly to lifetime community rating changes as compared to the other changes. Nonetheless at the time it was clearly a source of growth to the market. Since then the proportion of the insured population who pay a penalty loading under lifetime community rating has grown such that after 16 years of operation in June 2016 approximately 14.2% of current had paid a penalty at some time.

Financial Impact of Ageing

3.41 The ageing of the insured population contributed approximately 2.5% p.a. to claims inflation between 2009 and 2015. This compares with an ageing impact of approximately 1.3% when the market was growing up to 2008. The total impact of 2.5% p.a. can be attributed to the ageing of the general population (c. 1.0%), increased penetration rates at older ages (c. 0.5%) and reduced market penetration rates at younger ages (c. 1.0%).[8]

Summary of Analysis of Ageing

3.42 The preceding analysis shows that there are three causes for the recent ageing of the insured population:

- *The ageing of the general population:* The portion of this factor that relates to increasing longevity, reduced fertility rates and the ageing of cohorts was almost inevitable and is likely to continue. A significant factor in recent years has also been the emigration of young adults. Between 2009 and 2015, the impact on claims costs of the ageing of the general population is estimated to have been approximately 1.0% p.a.
- *An increase in penetration rates amongst older people:* This factor was almost inevitable as age groups with higher penetration rates get older. It will continue for the next ten years as the penetration rates of those aged over 80 will increase from 39% to c. 50% in line with the penetration rate currently applying in the 70-79 age group. However, the effect of this factor over the next ten years would be expected to be lower than in the last ten years because the penetration rate in the 70-79 age group is already close to the peak. Between 2009 and 2015, the impact of this factor is estimated to have been approximately 0.5% p.a.

[7] *Source: Statistics taken from http://apra.gov.au/PHI/Publications/*

[8] These impacts are estimated by keeping age specific claims rates constant (at 2015 rates) and calculating the impact of the different age structures on the population average claim rates. The calculations were also carried out using 2009 age specific claim rates as the standard in order to ensure the choice does not make a material difference.

- *Reduced penetration rates at younger adult lives:* There has been a very large reduction in the penetration rate in the 30-39 age group (of 10 percentage points) and smaller reductions in the penetration rates in the 40-49 and 18-29 age groups (of 4 and 3 percentage points respectively). Between 2009 and 2015, the impact of this factor is estimated to have been approximately 1.0 % p.a.
- We note that the introduction of LCR in 2015 meant that there was a net zero impact from ageing on claims inflation from 2015 due to the offsetting arrival of new younger members in the market.

Consideration of the expected impact of ageing on premium levels is considered in the next Section 4.

4 An assessment of the projected impact of ageing on future private health insurance premiums

Introduction

4.1 This Section addresses the potential inflationary impact of projected demographic changes on health insurance premiums from 2016 to 2046. This is assessed by modelled projected demographic changes over three main scenarios. The overall conclusion is that the inflationary impact of projected demographic changes on adult health insurance premiums will be relatively modest – in the region of +1.1% p.a.

4.2 The calculations for the demographic projection revealed a clear potential for 'age cohort' effects to further increase the rate of health insurance premium inflation in the future. These 'age cohort' effects added to projected demographic ageing could lead to a combined increase in adult premiums of 1.3% - 1.4% p.a.

4.3 Finally, it was observed that the highest level of demographic and 'age cohort' led premium inflation is projected (perhaps counter-intuitively) to occur over the next decade. Depending on the assumed scenario, this may result in adult premium inflation of as much as 2.4% p.a. from 2016 to 2026.

Demographic Inflation Projections

4.4 The CSO population projection for the period 2016 to 2046[9] that underpins this Section has six different versions (based on a combination of two fertility bases and three migration scenarios). Appendix A sets out the data and methodology used to perform the calculations.

4.5 The two fertility bases are as follows:

- a constant 2.1 children; or
- 2.1 children reducing to 1.8 by 2026.

4.6 The lower assumption has been chosen for the purposes of this exercise as it is more prudent to assume that Ireland's fertility rate will revert to more median EU levels over the next 30 years. In any case, in considering adult health premium inflation, fertility assumptions have relatively little impact over the period 2016 to 2046.

4.7 There are 3 migration scenarios: 'high' immigration of 30,000 p.a. from 2021; 'moderate' immigration of 10,000 p.a. from 2021 and 'low' emigration of 5,000 p.a. from 2021. As shown below, these migration assumptions do impact on demographic health insurance inflation projections. The 'moderate' immigration scenario has been chosen for the purposes of this exercise – this implicitly assumes Ireland's economic performance will be relatively benign and stable over the next 30 years. The 'moderate' immigration scenario has also been chosen for assessing the parallel impact of possible 'age cohort' take-up changes over the projection period.

[9] http://www.cso.ie/en/media/csoie/releasespublications/documents/population/2013/poplabfor2016_2046.pdf

4.8 The following table shows the projected annualised demographic health insurance inflation rates for 5 year periods from 2016 to 2046 together with the overall annualised rate during that period for the 3 migration scenarios:

Projection Scenario	2016-46	2016-21	2021-26	2026-31	2031-36	2036-41	2041-46
High Immigration	**0.9%**	1.1%	1.0%	0.9%	0.8%	0.8%	0.7%
Moderate Immigration	**1.1%**	1.2%	1.2%	1.1%	1.0%	1.0%	0.9%
Low Emigration	**1.3%**	1.4%	1.4%	1.3%	1.2%	1.1%	1.1%

4.9 In other words, under the moderate immigration scenario, for example, the impact of changing demographics on health insurance premiums (ignoring other factors which could affect health insurance premiums) is projected to be 1.2% per annum on average over the five year period 2016 to 2021.

4.10 Several observations arise from these projections:

- While the underlying migration assumptions are relevant, they do not materially change the demographic inflation impact out to 2046.
- Compared to the expected demographic impact on future pension costs in Ireland, these inflation rates look relatively benign. For reference, the challenges facing the future sustainability of state pensions in Ireland are extensively analysed in a recent report co-commissioned by the Society of Actuaries in Ireland[10]. The reasons for this unexpected finding are discussed below.
- Somewhat counterintuitively, the strongest demographic effect is consistently expected over the period 2016 to 2026 with the inflationary impact gradually weakening in the years after that.

Age Cohort Impact – Ages Over 60

4.11 The table below shows the rates of health insurance take-up, measured as a percentage of the Irish population, each year from 2007 to 2015 (2008 data was not available):

Age Band	2007	2009	2010	2011	2012	2013	2014	2015
60-69	51.1%	52.3%	52.4%	51.7%	51.2%	50.9%	50.2%	51.7%
70-79	41.9%	44.4%	45.8%	46.4%	46.7%	47.5%	48.0%	50.8%
80+	28.7%	31.1%	32.4%	33.4%	34.3%	35.2%	36.3%	38.8%
All Ages*	**46.6%**	**46.6%**	**45.4%**	**44.1%**	**42.7%**	**41.5%**	**40.7%**	**43.0%**

**the overall Irish population take-up of health insurance*

[10] web.actuaries.ie/sites/default/files/story/2015/12/Milliman%20-%20SAI%20State%20Pension%20Report%202015-08-20%20-%20With%20SAI%20preface%20added.pdf

4.12 The table shows that people aged 60-69 maintained a relatively constant level of take-up over the period 2007 to 2015 period, despite the sustained decline amongst the overall population during this period. However, the insurance take-up for those aged 70-79 rose rapidly over the period to just below the age 60-69 take-up level by 2015. A similar trend, but at an earlier stage of development, is also observable for people aged 80+. These clear-cut trends are, on the face of it, surprising and in contrast to the "All Ages" declining trend over the period to 2014. A plausible explanation for this is an 'age cohort' effect – i.e. insured lives aged 60-69 in 2007 on average maintained their health insurance cover over the following 8 years as they gradually moved into the 70-79 age band. See paragraphs 3.29to 3.35 for a further consideration of the historical impact of the 'age cohort' effect.

4.13 While this 'age cohort' effect is nearly complete for the 70-79 age band, it may well continue to develop for the 80+ age band over the coming years i.e. the 2015 age 80+ take-up is just 38.8% while the equivalent 60-69 and 70-79 take-up rates were 51.7% and 50.8% respectively.

4.14 This issue is interlinked with the demographic analysis discussed in the previous section i.e. it is the growth in the size of the 60+ age bands over the 2016-2046 period that is the principal driver for projected future premium inflation. However, this demographic effect would be understated if the projected rise in health insurance take-up rates for older people is not taken into account.

Age Cohort Projection – Ages Over 60

4.15 The table below shows the impact on the demographic health insurance inflation for the 'moderate' immigration scenario if the 70-79 and 80+ age band take-up rates gradually rise over the next decade to meet the current 51.7% take-up of the 60-69 age band.

Projection Scenario	2016-46	2016-21	2021-26	2026-31	2031-36	2036-41	2041-46
Moderate Immigration & Older Age Cohorts	**1.3%**	1.6%	1.7%	1.2%	1.1%	1.0%	1.0%

4.16 The inclusion of this partial 'age cohort' projection assumption change raises the average premium inflation rate by an incremental 0.2% p.a. over the period 2016 to 2046. This isn't a dramatic difference. However, the 1.7% p.a. projected increase over the period 2016 to 2026 is perhaps noteworthy. It is worth remembering that this average projected premium inflation captures the impact of projected changes in the age profile of the insured market but does not allow for other factors such as medical cost inflation. The potential drivers of medical cost inflation are considered further in Section 6 of this report.

4.17 This particular projection can be regarded as the 'baseline' scenario given the reasonableness of the 'moderate' immigration scenario and the very strong likelihood that the age 80+ take-up rate will substantially increase.

Age Cohort Impact – All Adult Ages

4.18 Similar to the previous section, the table below shows the change in health insurance take-up each year from 2007-2015 (2008 data was not available) for age bands 18-29, 30-39, 40-49 & 50-59.

Age Band	2007	2009	2010	2011	2012	2013	2014	2015
18-29	37.4%	37.6%	36.7%	35.1%	33.4%	32.0%	31.9%	32.9%
30-39	50.4%	49.2%	46.3%	43.8%	41.5%	39.7%	38.2%	40.4%
40-49	52.3%	51.5%	49.8%	47.9%	46.1%	44.6%	43.7%	48.0%
50-59	53.4%	53.7%	52.6%	51.2%	49.8%	48.3%	47.0%	49.7%

4.19 Applying an "age cohort" effect to all adult age bands (not just those over age 60) assumes that the take-up rate for individuals of a particular age cohort remains constant, on average for that group, as they grow older and move between age bands. That is, once members of a particular age cohort decide whether to buy health insurance or not, then those decisions – averaged across the whole age cohort – will remain stable in future decades as they grow older.

4.20 This is now a material point as health insurance take-up has fallen significantly in younger age bands during the course of the recent recession (perhaps driven by the combined impact of the recession and increases in health insurance premiums). 2015 did see an across the board rise in take-up levels. A significant part of this rise may well be the initial impact from the introduction of LCR. However, it is too early to assess the long-term impact LCR will have on take-up levels and the age profile of the health insurance market. The analysis and scenarios that follow consider the amount of premium inflation that would be caused by a resumption of falls in take up rates for younger lives. Paragraph 4.30 gives a summary of the expected effects (average 1.0% p.a. premium inflation assuming an initial 1% p.a. fall in take-up rates for younger lives). We have assumed the long term effects of LCR are neutral for the purposes of our projections.

4.21 If the reduced take-up rates shown above do persist into future decades, then it will materially reduce the base of relatively younger health insurance customers that help offset the demographic impact of premium inflation due to rising numbers of older age cohorts. This is commented on further in paragraphs 4.22 to 4.24 below.

Age Cohort Projection – All Adult Ages

4.22 The following table shows the impact if all the 2015 age cohort take-up levels consistently persist into the future over the 2016 to 2046 projection period as these '2015' cohorts gradually grow older. For reference, the mathematical treatment of the 70-79 and 80+ cohorts under this approach varies somewhat from that shown in the 'Age Cohort Projection – Ages Over 60' section. However, the demographic health insurance inflation produced by both mathematical approaches is virtually identical. Separately, it is assumed each 'new' age 18-29 cohort over the 2016 to 2046 projection period has the same 32.9% take-up as the '2015' age 18-29 cohort.

Projection Scenario	2016-46	2016-21	2021-26	2026-31	2031-36	2036-41	2041-46
Moderate Immigration & All Adult Age Cohorts	**1.5%**	2.0%	2.0%	1.5%	1.3%	1.2%	1.0%

4.23 The inclusion of this full age cohort change raises the average premium inflation rate (versus the 'baseline' scenario discussed in the previous section) by an incremental 0.2% p.a. over the period 2016 to 2046. Again, this isn't a dramatic change. However, the 2.0% p.a. projected increase over the period 2016 to 2026 is certainly noteworthy and is approaching a level that could cause the industry material problems with customers being able to afford some form of health insurance cover and/or 'downgrading' (i.e. customers changing their product when renewing their cover for lower premiums and/or lower benefit levels). Whether or not this is the case would depend on a number of factors such as level of growth in disposable income relative to premium inflation and also the level of premiums relative to disposable income levels. For the purposes of this analysis we have not considered potential tipping points in terms of overall affordability.

4.24 It should be noted that this is a more speculative scenario as:

- It does not take account of potentially changed consumer behaviour following the introduction of LCR in May 2015;
- A person's lifetime views on purchasing health insurance may only become fully formed in their late 30's and 40's rather than their 20's and early 30's; and
- A full recovery from the recent economic depression should cause at least a partial reversal of recent reductions in take-up rates – as perhaps demonstrated during 2015 - notwithstanding the high levels of premium increases in recent years.

Age Cohort Projection – All Adult Ages & Feedback Loops

4.25 A key underlying assumption of this projection exercise is that demographic-led premium inflation does not create feedback loops, e.g. additional reductions in health insurance take-up rates or policy 'downgrading' do not occur in response to ongoing health insurance premium inflation being caused by demographic change. This assumption greatly simplifies the projection process but is probably not realistic, given significant reductions in take-up rates and policy 'downgrading' seen in recent years due to double digit premium inflation rates. It is important therefore to note the potential for feedback loops of this nature to have a material impact on the projections.

4.26 It is beyond the scope of this analysis to develop a projection model for such feedback loops, particularly as the experience of recent years is hugely complicated by the parallel economic depression and ongoing recovery. However, to give this feedback loop some context, we have chosen two hypothetical scenarios to illustrate the possible impact on premium inflation rates:

Scenario 1:

4.27 Take-up rates in the 20-24 & 25-29 age bands fall by 0.5% p.a. from current levels over the 2016-2046 projection period. The rest of the scenario is identical to that used in the above 'Age Cohort Projection – All Adult Ages' section. To be clear, as per the previous section, the 20-24 & 25-29 age bands are assumed to retain these 'formative' take-up levels throughout their lives e.g. the take-up of 2026 age 30-34 lives is assumed to be the same as 2021 age 25-29 lives.

Scenario 2:

4.28 Similar to Scenario 1 except take-up rates in the 20-24 & 25-29 age bands fall by 1.0% p.a. from current levels during 2016-2026, following which take-up rates reduce by 0.5% p.a. during the period 2026 to 2046. This more stringent scenario assumes the negative impact from sharp premium increases in recent years and still historically elevated unemployment levels from the economic depression (particularly affecting younger lives) creates lingering additional downward pressure on take-up and 'downgrading' over the coming decade.

4.29 The following table of projected additional premium inflation highlights the impact of the above two hypothetical scenarios:

	2016-46	**2016-21**	**2021-26**	**2026-31**	**2031-36**	**2036-41**	**2041-46**
Scenario 1	1.9**%**	2.2%	2.2%	1.8%	1.8%	1.7%	1.6%
Scenario 2	2.1%	2.3%	2.5%	2.0%	2.0%	2.0%	1.8%

4.30 As you can see, while there is additional premium inflation projected over the period 2016 to 2046 period under both scenarios (0.4% and 0.6% p.a. respectively versus that projected in the 'Age Cohort Projection – All Adult Ages' section above) it is not appreciably material. In addition, as you can see from the table below showing the additional premium inflation arising from the scenario impact, the impact is much more pronounced in the latter years of the projection period as the cumulative take-up reductions and 'ageing cohort' impacts become more evident.

	2016-46	**2016-21**	**2021-26**	**2026-31**	**2031-36**	**2036-41**	**2041-46**
Scenario 1	**0.4%**	0.2%	0.2%	0.3%	0.5%	0.5%	0.6%
Scenario 2	**0.6%**	0.3%	0.5%	0.5%	0.7%	0.8%	0.8%

4.31 However, these feedback loop scenarios were constructed solely with the premium inflation from projected demographic and age cohort changes in mind. Clearly, additional feedback loops, which may be significantly more prominent, could arise if general medical inflation turns out to be relatively high over the same projection period.

Understanding Relatively Benign Demographic Led Inflation Rates

4.32 The following table shows the changes in adult population age bands in the 2016 to 2046 CSO population projection (moderate immigration scenario) that underpins this whole exercise. All population numbers are in thousands of lives.

Age Band	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**	**50-54**	**55-59**	**60-64**	**65-69**	**70-74**	**75-79**	**80-84**	**85+**
2016	238	281	343	376	353	325	301	268	235	206	158	112	79	70
2046	286	349	401	389	345	315	263	281	331	355	319	269	214	263
% Change	**20%**	**24%**	**17%**	**4%**	**-2%**	**-3%**	**-13%**	**5%**	**41%**	**72%**	**102%**	**140%**	**172%**	**276%**

4.33 The above table does indeed show dramatic population increases from age 60 onwards. However, it also shows noticeable population increases across ages 20-35. Ages 40-60, as a whole, show moderate decreases, which reflect high emigration amongst younger lives in the recent depression. Overall, this table does intuitively support the idea that demographic-led change should be leading to larger premium increases than indicated in the scenarios shown above.

4.34 However, the following table shows the same data but this time expressed as percentages of the relevant overall Irish adult population projected for 2016 and 2046 respectively.

Age Band	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**	**50-54**	**55-59**	**60-64**	**65-69**	**70-74**	**75-79**	**80-84**	**85+**
2016	7%	8%	10%	11%	11%	10%	9%	8%	7%	6%	5%	3%	2%	2%
2046	7%	8%	9%	9%	8%	7%	6%	6%	8%	8%	7%	6%	5%	6%
Change	**0%**	**0%**	**-1%**	**-2%**	**-3%**	**-3%**	**-3%**	**-2%**	**1%**	**2%**	**2%**	**3%**	**3%**	**4%**

4.35 This table puts a very different complexion on matters:

- The percentage of the adult population aged 20-40 reduces by only 3% from 2016 to 2046. This is a modest decrease for the population segment that most supports stable health insurance premiums under community rating systems;
- On the other hand, the percentage of the adult population aged 45-60 reduces by 8%. This age category is neutral to negative in terms of stabilising premiums under community rating;
- More broadly, this suggests that the increase in the proportion from age 60 onwards is matched primarily by a reduction in the proportion of middle-aged rather than younger adults. This is therefore much less damaging in terms of the knock-on impact on community rated premiums. This is also very different to the pensions context where, for instance, a 25 year old's and a 55 year old's tax contributions to funding retirement pensions have identical supporting value; and
- Finally, and most importantly, the first table shows the age 70+ groups with dramatic increases, of 100% and more, in their size by 2046. However, the equivalent percentage population increases are much less dramatic and this reflects the relatively modest base position of these age groups in 2016.

4.36 A separate point is that the CSO projection allows for mortality improvements over the period 2016 to 2046. Mortality improvements create onerous funding pressures on retirement pensions. However, this same improving mortality trend, all other things being equal, only creates moderate increases in the size of older age cohort groups. Improving mortality would only be likely to cause appreciable problems for health insurance if it were accompanied by a parallel lack of improvement in disability-free life expectancy, i.e. if people were to live longer and that additional life span was largely spent in poor health requiring significant additional medical care. These projections have been carried out on the implicit basis that disability-free life expectancy will rise in tandem with projected future mortality improvements.

4.37 Overall, this explains why the various scenarios are not indicating larger inflationary increases on premiums.

Understanding Gradually Subsiding Demographic-Led Inflation Rates

4.38 All the above projections indicate that the highest level of demographic-led health insurance inflation should occur in the period 2016 to 2026 and will then gradually subside thereafter. This seems an unexpected outcome and warrants an explanation.

4.39 The key issue to understanding this is the make-up of the high levels of recent emigration since the recent economic depression. The following table, based on CSO data, compares the Irish population between 2008 and 2015 for five year age bands from age 20 onwards. All population numbers are in thousands.

Age Band	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**	**50-54**	**55-59**	**60-64**	**65-69**	**70-74**	**75-79**	**80-84**	**85+**
2008	374	408	370	349	314	289	258	233	200	150	122	95	66	52
2015	234	290	364	372	352	320	296	260	231	203	149	111	77	66
% Change	**-37%**	**-29%**	**-2%**	**7%**	**12%**	**11%**	**15%**	**12%**	**16%**	**35%**	**22%**	**17%**	**17%**	**27%**

4.40 As can be seen, there has been a stark reduction of 29%-37% in the population in their 20's during this seven year period. A much smaller negative impact can also be seen for people in their early 30's and it is not until age 35 onwards that this reducing trend fully disappears. For the avoidance of any doubt, there was only a 5% reduction in the population aged 15-19 during this same period. Accordingly, this stark population reduction from 2008 to 2015 was almost entirely due to substantial and sustained emigration of young adults during this time. It should be noted the reported CSO population data for 2012-2015 is subject to revision based on the results of the recently conducted 2016 census.

4.41 The CSO population projection takes account of this recent period of high emigration of young adults. The following table shows the projected percentage change in the population in 2026, 2036 and 2046 versus the projection's starting year of 2016. For reference, the 'moderate immigration scenario' is used here. Negative percentage changes are highlighted in bold.

Age Band	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**	**50-54**	**55-59**	**60-64**	**65-69**	**70-74**	**75-79**	**80-84**	**85+**
2026 % Change	33%	10%	**-24%**	**-25%**	**-4%**	15%	17%	20%	24%	23%	34%	53%	46%	49%
2036 % Change	56%	37%	1%	**-16%**	**-26%**	**-13%**	13%	38%	46%	48%	69%	94%	108%	154%
2046 % Change	20%	24%	17%	4%	**-2%**	**-3%**	**-13%**	5%	41%	72%	102%	140%	172%	276%

4.42 As can be seen by the negative changes highlighted in bold, the long-term negative effects of this high period of recent emigration linger on throughout the 2016 to 2046 projection period. As would be expected, the negative effects (to varying degrees) are seen at gradually older age groups each decade into the projection period.

4.43 As discussed in the previous section, in community-rated health insurance markets like Ireland's, younger age groups are very beneficial in keeping health insurance premiums down. In the decade from 2016 to 2026, there is a projected one quarter fall in the population in their thirties. This, on top of a substantive rise in the population of older people, means all the main projected demographic changes occurring during that decade are causing inflation of health insurance premiums.

4.44 However, a relatively more benign picture emerges by 2046. By that time, the population in their thirties is projected to be 4% - 17% higher than in 2016. In addition, the lingering impact of substantive emigration of young adults during the period 2008 to 2015 mainly centres on those aged 50 – 54, with this age group projected to be 13% smaller than in 2016. People in that age group have a roughly neutral impact on health insurance premiums in community-rated systems. Having said that, by 2046 there are now much larger projected increases versus 2016 in older age groups than were projected for the year 2026. Accordingly, the overall net impact of projected demographic changes is still causing inflation of health insurance premiums in 2046. However, the more benign projected demographic position for younger lives in 2046 means the scale of this inflationary pressure is less pronounced than that projected for 2026.

Impact of LCR

4.45 The introduction of LCR has been a clear initial policy success in terms of the 105,000 rise in insured lives in open enrolment undertakings seen in 2015. This resulted in higher health insurance take-up levels across all age groups. However, there is not enough experience yet to assess the medium and long-term impact of LCR – both in terms of take-up and the age profile of the market. It has been assumed, for the purposes of the paper, that LCR will not materially offset projected inflationary pressures over the 2016-2046 period. We believe it would be useful for the HIA to publish market take-up statistics on an ongoing basis on a year of age basis rather than the current practice of publishing for 10 year age bands as this would facilitate a clearer understanding of LCR's ongoing impact (as financial penalties under LCR rules begin at age 35).

5 Premium inflation – an analysis of recent trends

The economic context – premium inflation and disposable income

5.1 The following table shows how the impact of premium inflation in recent years looks quite different once account is taken of parallel changes in average disposable income from 2006 to 2014 (the most recently available year):

Year	Average Gross Premium (€)*	(A) Average Gross Premium (% Change)	Health Insurance Take-Up Rate**	Average Disposable Income (€)***	(B) Average Disposable Income (% Change)	(A) minus (B)
2006	607		46.2%	20,038		
2007	667	+10.0%	46.6%	21,148	+5.5%	+4.4%
2008	724	+8.4%	47.6%	22,565	+6.7%	+1.7%
2009	822	+13.6%	46.6%	21,123	-6.4%	+20.0%
2010	890	+8.3%	45.4%	19,487	-7.7%	+16.0%
2011	926	+4.0%	44.1%	18,935	-2.8%	+6.8%
2012	1,048	+13.2%	42.7%	18,964	+0.2%	+13.0%
2013	1,150	+9.7%	41.5%	18,707	-1.4%	+11.1%
2014	1,200	+4.3%	40.7%	19,309	+3.2%	+1.1%

** The 'Average Gross Premium' is the average gross health insurance premium (i.e. before the impact of tax relief) for both adults and children from 2006-2009 on open-enrolment policies derived from HIA published data ("Market Statistics") - http://www.hia.ie/publication/market-statistics. 2010-2014 are based on direct average premiums quoted from HIA quarterly newsletters - http://www.hia.ie/news/newsletters.*

*** 'Health Insurance Take-Up Rate' is derived from published data from the HIA of year-end insured lives with open enrolment undertakings -http://www.hia.ie/publication/market-statistics. 2006 and 2008 are estimates based on the respective 2006/2007 and 2008/2009 changes in insured lives with inpatient cover (also from the same HIA source).*

**** 'Average Disposable Income' is a per capita measure extracted from a database maintained by the CSO - www.cso.ie/px/pxeirestat/statire/SelectVarVal/Define.asp?MainTable=CIA01&TabStrip=Select&PLanguage=0&FF=1. It includes all employment income, benefits in kind, rent received, bank interest, share dividends, social welfare benefits, state pensions and other government transfers. Taxes on income and loan interest are then deducted to arrive at total disposable income for the whole Irish population before converting that to a per capita outcome. It implicitly takes account of increases in unemployment, salary/bonus cuts and increases in income taxation seen from 2009 onwards.*

5.2 Increases in average premiums were very high between 2006 and 2013 (averaging 9.6% p.a.) before reducing to 4.3% in 2014. As a result, it may have been expected that the take-up rate should have fallen throughout the period 2006 to 2013. That was certainly the case from 2009 to 2013 where consistent year-on-year reductions in take-up rate occurred. However, as can be seen above, the take-up rate actually increased in both 2007 and 2008.

5.3 An explanation for this can be seen in the progression of average disposable income during the same period. It rose significantly in 2007 and 2008 and then suffered material falls in 2009 and 2010 with more moderate decreases thereafter until finally bottoming out in 2013. To more easily appreciate the interactions of these two parallel trends, consider the final column above '(A) minus (B)'. This is an approximation of the ability of consumers to financially absorb the impact of health insurance premium inflation from their disposable income. This column fits in much better with the observed changes in the take-up rate – i.e. moderate single digit increases in '(A) minus (B)' were seen in 2007 and 2008 (so making rising health insurance financially manageable for many people) while the period 2009 to 2013 showed mainly significant double-digit increases (so making health insurance unaffordable for a rising segment of the population, regardless of their desire to maintain cover).

5.4 The year 2011 is worthy of particular attention. An average premium increase of 4.0% is not particularly high, but take-up still fell by 1.3% during that year (i.e. from 45.4% in 2010 to 44.1% in 2011). However, in 2011 average disposable income fell by 2.8%. This makes the observed fall in take-up easier to understand.

5.5 At first glance, 2014 does not follow the logic of previous years. In particular, premium increases moderated to 4.3%, while average disposable income showed its first substantive increase (at +3.2%) since 2008. However, the premium data tracks increases in gross health insurance premiums. In October 2013, the government substantially reduced tax relief on health insurance premiums. This reduction in tax relief may have equated to an increase of approximately 5% in net premium levels, based on a reported €127m saving to the government quoted at the time of its announcement[11]. Accordingly, the fall in membership seen in 2014 isn't inconsistent with the outcomes for increases in gross premiums and disposable incomes.

5.6 It is to be hoped that the rebound in average disposable income seen in 2014 is sustained for the foreseeable future and the significant reductions in take-up rates since 2009 are at least partially recovered (as was the case in 2015). The ongoing, sustained increases in employment levels since 2014 give some cause for optimism on this score.

5.7 This analysis demonstrates a reasonable correlation between take-up levels and a comparison between premium increase and disposable incomes. However, this correlation has only been analysed over a relatively short period, so should only be considered as indicative of an underlying, economic causative impact of changes to disposable income on health insurance take-up rates. Several more years of analysis will be required to gain greater confidence with this proposed approach.

The impact of consumer switching on premium levels

5.8 Over the past few years a trend in consumers choosing cheaper plans in the private health insurance market appears to have emerged. However, consumers shopping around for the best price is not necessarily the same as downgrading cover.

5.9 Part of the decrease in average premium paid may be due to the insurers' pricing strategies. There has been an increase in the range of products on offer with some newer products being priced more competitively to address market exits arising from affordability challenges given the economic backdrop. Alternatively, it could be linked to the price sensitivity of customers and their ability to afford increasing premiums in the current economic environment. These premium increases are driven by effects such as ageing of the market and the exit of healthier lives leading to higher average claims for the remaining cohort.

5.10 The following sections show that switching experience was quite high in 2014 given the price increases arising from public bed re-designation (as outlined in the Health (Amendment) Act 2013) and that 2015 switching experience is better. This improvement in 2015 could be the result of legislative changes such as LCR, changes to waiting periods, reduced claims inflation leading to lower level of price increases, or indeed an improved economic outlook.

5.11 The remainder of this section explores the issue of switching by considering the following:

- Changes in level of cover;
- The average premium paid by customers;
- Whether rate increases result in higher premiums paid; and
- Consumer behaviour at different age cohorts.

Data Used

5.12 The calculations in the remainder of this section are based on price and customer information that has been provided by the HIA to assist the Healthcare Committee perform its analysis. Unless otherwise stated all data has been sourced from the HIA for the purposes of performing the premium analysis and is not in the public domain. Inforce membership data as of 30 June for the years 2013, 2014 and 2015 was used in respect of customers. The price information was based on the corresponding prices available for July of the relevant years. In some instances price information was not always available, e.g. where a product was no longer being marketed but the policy was still inforce. In these instances the price available from the previous year was used.

[11] http://www.independent.ie/business/budget/families-hit-by-360-hikes-for-health-insurance-29667343.html

5.13 It is worth noting that price (or rate) increases applied to products occur throughout the year and thus the prices used are indicative only and may not fully reflect the prices actually paid by customers in any particular period. This can be seen by comparing the price increases against the average premiums paid by customers which shows much lower premium rises. Indeed the average premiums paid will reflect a combination of price increases and changes in underlying product mix. However they do give an indication of the trend in prices over the 3 year period.

Indices Used

5.14 In this section, two different indices for health insurance premium inflation will be considered:

- CSO Health Insurance Premium Index (the "CSO Index")
- Index based on the average premium paid in a 12 month period (the "Average Premium Paid")

5.15 The principal difference between the CSO Index and the Average Premium Paid is that the CSO index ignores the impact of consumers switching products. An illustration of this is given in the example in Appendix 2.

Growth in Indices 2010 to 2015:

5.16 It can be seen that between 2010 and 2015, premium increases put through by insurers resulted in a 65% increase in the health insurance price index as calculated by the CSO, but that the average premium paid by consumers only increased by 32% over this period, i.e. consumers switching resulted in only c. 50% of the price increase being paid.

	2010	2011	2012	2013	2014	2015	Total 2010 - 2015	Total 2011 – 2015
Average Premium Paid in Calendar Year	€890	€926	€1048	€1150	€1,200	€1,173		
% Growth in Ave Premium		4%	13%	10%	4%	-2%	32%	27%
% Growth in CSO Index to end June*		21%	15%	12%	9%	-3%	65%	36%

** Relative annual growth in consumer price index for sub-basket 12.5.3 ("Insurance connected with health")*

5.17 It is worth noting that the difference between the growth in the CSO Index and the growth in the average premium paid is highest in the 2010 to 2011 period. This coincides with the proliferation of products with restricted orthopaedic benefits. Over this period, there were very large increases in the premiums of longstanding products. At the same time, newer products were introduced, which were similar to the longstanding products except that they were lower cost and that orthopaedic benefits were restricted to 80% cover. A large number of consumers switched from the longstanding products to these and other products, with the result that only a minority paid the large increases on the longstanding products.

5.18 Between 2011 and 2015, the difference between the growth in the average premium paid and the growth in the CSO index is much lower, averaging c. 2% p.a.

Impact of switching

5.19 It is clear that consumers switching products has had a large impact on the average premium being paid in the health insurance market between 2010 and 2015 (i.e. average cost increased by 32%, while the price index increased by 65%). It is less clear, however, the extent to which the switching involved significant changes in the amount of cover being provided.

5.20 Since 2012, the HIA annual reports have included a market breakdown by "Level of Cover[12]". The Levels of Cover are defined as follows:

- Level 1 products provide cover mainly in public hospitals;
- Level 2 products provide substantial cover in private hospitals but this cover is mainly provided for semi-private accommodation; and
- Higher levels of cover relate to products that provide cover for private accommodation in private hospitals.

5.21 Non-Advanced contracts are contracts which provide health insurance cover for not more than 66 per cent of the full cost of hospital charges in a private hospital, or not more than the prescribed minimum payments within the meaning as defined by the Health Insurance Act 1994 (Minimum Benefit) Regulations 1996 (S.I. No. 83 of 1996), whichever is the greater. Everything else is considered advanced. A contract considered to be "Level 1" may or may not fall within the legal definition of a non-advanced contract. Level 2 contracts and Higher contracts are all "Advanced".

5.22 The following tables show how the level of cover chosen by customers has changed between 2012 and 2015.

	Level 1 Products	Level 2 Products	Higher Cover Products
1 July 2012	16%	76%	9%
1 July 2013	15%	78%	7%
1 July 2014	14%	78%	7%
1 July 2015	12%	77%	11%

5.23 The above table shows that there has been little change in the distribution of consumers between the three broad levels between 2012 and 2015 and what change there has been involves a movement to higher levels of cover. That is not to say that there have not been reductions in cover within these broad categorisations. Increased excesses or restrictions on orthopaedic cover in private hospitals are examples of reductions in cover that would not involve movement between the broad categorisations. However, it is clear that consumers have (on average) avoided much of the increases in health insurance premiums in recent years by shopping around and finding lower cost products with broadly the same level of cover.

[12] http://www.hia.ie/sites/default/files/HIA%202015%20Annual%20Report%20English.pdf

	Non-Advanced	Advanced
1 July 2013	6%	94%
1 July 2014	6%	94%
1 July 2015	8%	92%

5.24 The above table shows that there has been a recent growth in the proportion of consumers with Non-Advanced health insurance products coincident with the introduction of LCR. This is likely to relate to some consumers wishing to purchase the lowest cost product available in order to avoid LCR charges. A significant number of those who entered the market as a result of LCR would have been serving waiting periods at 30 June 2016 and would not have been included in the data underlying this table. Accordingly the proportion with Non-Advanced plans would be expected to grow further by end 2015.

Analysis of premiums paid by age

5.25 We have also given consideration to the impact of switching on average premium by age over the period 2013 to 2015. The table below (shown graphically below) sets out how premiums (based on 2015 prices) have varied by age and the impact of product mix changes over time. That is, it shows the average premium by age based on the product mix in each year at 2015 prices:

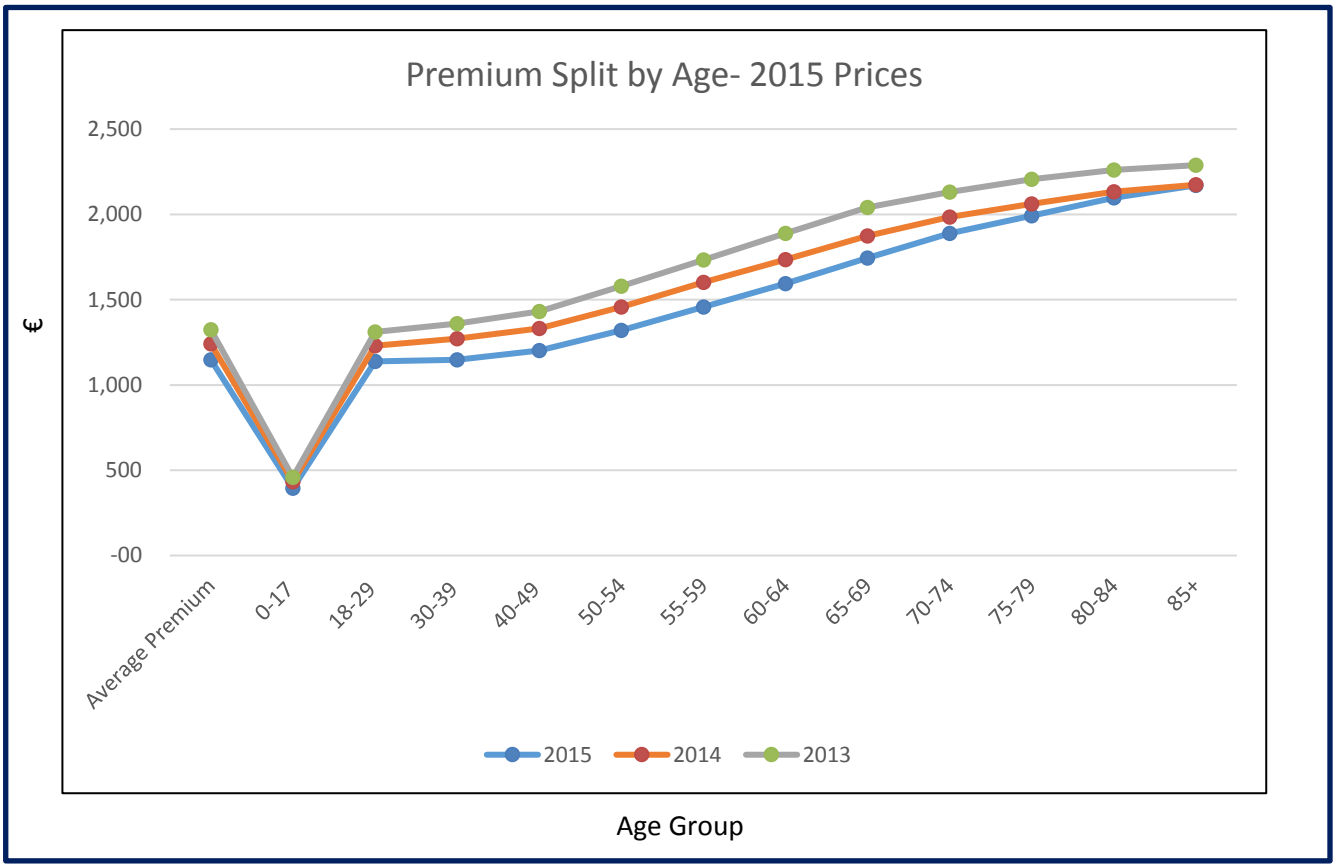
Year	Average Premium	18-29	30-39	40-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
2015	1,147	1,139	1,148	1,202	1,320	1,458	1,595	1,744	1,888	1,993	2,098	2,170
2014*	1,242	1,231	1,272	1,332	1,457	1,601	1,735	1,874	1,984	2,062	2,133	2,173
2013**	1,324	1,310	1,359	1,431	1,578	1,734	1,890	2,041	2,131	2,206	2,260	2,289

** Prices based on July 2015 prices and July 2014 product mix.*

*** Prices based on July 2015 prices and July 2013 product mix.*

5.26 It is clear from this table that premiums increase with age highlighting a significant segmentation effect in terms of older customers seeking plans with higher levels of cover (and hence premiums) to meet their needs.

5.27 It is also evident from this table that premiums paid by customers do not mirror the rate increases imposed by the insurers for all ages. What appears to be happening is that as prices increase customers are choosing different plans in order to keep their premiums down. This is happening at all ages and has happened for at least the last two years although the effects are less pronounced at older ages, as is highlighted in the graph below.



5.28 The data suggests that customer premiums rose at all ages between 2013 and 2014 and that those increases were absorbed somewhat by customers. However, the above graph suggests that premiums fell in real terms. Combining these effects suggests that in aggregate average premiums increased but that the premium increases do not reflect the real price increases imposed by insurers. This suggests a certain level of shopping around by customers in terms of switching activity or looking for more competitively priced plans.

5.29 If we look at the real price movements in the table below (analysis based on data presented in table in paragraph 5.25) we can see that while prices have increased premiums paid have fallen at all ages although the impacts are far greater at younger ages. This suggests that younger customers are more sensitive to price (which may be influenced somewhat by the level of premiums employers are willing to pay in respect of corporate plans) and less sensitive to the actual benefits offered, which are more valuable to older lives given their higher propensity to claim. The inability for older lives to find alternative cover at a lower price for benefits they perceive to be valuable restricts their ability to reduce their premiums. The analysis could also suggest that younger lives are being targeted by insurers to take out more suitable products for their needs in order to avoid losing them to competitors or allowing them to lapse.

Year	% Change	18-29	30-39	40-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
Change in premiums												
2015*	-8%	-7%	-10%	-10%	-9%	-9%	-8%	-7%	-5%	-3%	-2%	0%
2014**	-6%	-6%	-6%	-7%	-8%	-8%	-8%	-8%	-7%	-7%	-6%	-5%

** Percentage change in 2015 average premium relative to 2014 average premium based on July 2015 prices.*

*** Percentage change in 2014 average premium relative to 2013 average premium based on July 2015 prices.*

5.30 It is apparent from the table in paragraph 5.16 that there were significant premium increases between 2013 and 2014, possibly as a result of bed re-designation with insurers being charged for public beds at economic cost. The above table suggests that customers sought cheaper alternatives. This practice appears to have continued through to 2015 with falling premiums paid, particularly at younger ages. It is unclear whether this practice is likely to continue or whether this is a short term effect with customers wanting to revert back to premium levels from a few years ago.

Conclusion

5.31 The analysis highlights the market's reaction to increasing premium levels, showing that the consumer reaction resulted in the average premium paid increasing by half of the increase in the CSO health insurance premium index and that this was achieved with relatively low (compared to the premium savings) changes in cover.

5.32 The analysis suggests downward pressure on prices at all ages although the effects are less for older lives. There appears to be a difference in the age profile of those who shop around compared to those who don't. The age analysis is however relatively narrow and thus it is difficult to draw any meaningful and concrete conclusions from the data used. In order to do a more meaningful analysis one would need to look at premium levels on a contract by contract basis and then look at how the premium paid by the customer changed at renewal time. This would give an indication of the extent of downward shifting on prices that was happening, i.e. price paid relative to what could have been paid if the customer stayed with the same plan.

5.33 A wider analysis period (extending past two years), or indeed shorter analysis intervals (e.g. quarterly) would also probably yield more meaningful results. Additionally, it is too soon to know what the long term impacts of LCR and changes to waiting periods are (both introduced in May 2015), or whether they distort the results due to the influx of younger lives on cheaper plans. A continued analysis over an extended period may enable firmer conclusions to be drawn on the long term effects of switching.

6 Medical Inflation

Introduction

6.1 The previous Sections of this report focused primarily on demographic drivers of health care costs and considered the impact of ageing and consumer behaviour on historic and projected premium levels. However, health care costs are likely to increase even if there is no demographic change in the insured population. If costs are increasing for demographic reasons, medical inflation will exacerbate the problem. In this Section, we briefly review:

- The history of medical inflation;
- Key drivers;
- Factors influencing the more recent trends, and
- The medium to long term outlook.

History of Medical Inflation

6.2 Historically, "medical inflation" has been significantly higher than general inflation. In fact, it has generally exceeded economic growth.

6.3 Medical inflation, in real terms, began to surge in developed countries in the second half of the 20th century, but has slowed somewhat in recent years. Notably, in the USA, spending grew much more rapidly than in other developed countries in the early years of the 21st century, but growth rates then fell below those experienced in other developed countries.

6.4 In the OECD, health spending grew between 1995 and 2009 in real terms (i.e. adjusted for overall inflation) by an average of 4.3% p.a., according to a 2013 OECD study[13]. Of this total growth in expenditure, the authors attributed 0.5% p.a. to demographic developments and 1.7% p.a. to income effects (increased expenditure attributable to growth in income levels). This left residual growth of 2% p.a. over the 15 year period.

6.5 A study by Thomas Getzen (2014)[14] provides a very detailed analysis of trends. He estimates that the "excess medical cost growth rate" - i.e. growth in excess of GDP growth – was 3.5% p.a. in the late 1960s, moderating to 1.5% p.a. by 2014. He concludes that the most significant factor influencing health care expenditure is economic growth. He also notes that spending responds slowly and with a lag to major macroeconomic shifts.

6.6 AON Hewitt conducts an annual survey of medical trend rates globally for medical plans that are managed by employers. Employer plans are likely to experience higher trend rates than overall health spending, given a higher weighting to private healthcare. Nevertheless, the figures below, which are extracted from the 2015 and 2016 reports, provide an interesting view of regional variations in recent years (note that 2016 rates are estimates).

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[13] *De La Maisonneuve C. and Martins J, "Public Spending on Health and Long-Term Care: A New Set of Projections", OECD, 2013*

[14] *Getzen T., "Measuring and Forecasting Global Health Expenditures, Temple University, 2014*

	Gross medical trend			Net of general inflation		
	2014	**2015**	**2016**	**2014**	**2015**	**2016**
Global	**10.3%**	**8.7%**	**9.1%**	**6.1%**	**5.5%**	**5.5%**
Europe	5.9%	5.7%	5.9%	4.2%	4.1%	4.2%
North America	8.5%	5.3%	5.8%	6.7%	3.6%	4.3%
Asia Pacific	10.1%	10.4%	9.4%	5.5%	6.2%	6.3%
Middle East / Africa	12.3%	13.3%	11.6%	7.0%	6.7%	5.3%
Latin America & Caribbean	14.4%	16.7%	20.0%	8.5%	9.8%	9.0%

- Gross medical trend rates are lower in Europe and North America than globally (5.7% and 5.3% vs 8.7% for 2015).
- This is also the case for net medical trends. Medical inflation is 1.6% higher than general inflation in Europe and North America, compared with 3.2% globally.

Key drivers

6.7 The key drivers of medical inflation fall into two main categories:

- Health care price increases above inflation:
  - New medical technology;
  - Lack of provider competition; and
  - Cost shifting (to private payers)
- Increasing utilisation:
  - New medical technology;
  - Demographic change (the main topic of this report);
  - Lifestyles; and
  - Overuse of care:
    - Provider perspective: defensive medicine/more intensive diagnostic testing; and
    - Patient perspective: increased demand/consumer point of view.

6.8 It is beyond the scope of this report to go into each of these factors in detail. However, in the paragraphs below, we consider one of the key factors: new medical technology.

6.9 New technology contributes both to higher prices and higher utilisation. Generally, if it replaces existing treatment options, new technology is more expensive; it may also expand the range of treatment options.

6.10 Below are some examples of recently introduced technologies:

- Biologic medication (i.e. using substances made naturally by the body or that change chemical processes in cancer cells) such as Pembrolizumab for cancer or Infliximab for inflammatory bowel/rheumatoid disease, immunoglobulin for neurological disease
- Blood products such as immunoglobulin used to treat neurological disease
- A new Hepatitis C anti-viral drug costing around €20,000 per month, used to treat liver disease.
- Intense Modulated Radiotherapy, a new style of radiotherapy that provides the same exposure in less time
- Robotic surgery.

Factors Influencing Recent Trends

6.11 In recent years, strenuous efforts have been made by both public and private sector stakeholders in many countries to counteract the drivers of medical inflation.

6.12 The reducing trend evident in the international data reflects many of the measures that have been taken. These include:

- Shifts in treatment from in-patient to less expensive day-care and out-patient settings have reduced the cost of hospital treatment. The introduction of activity based hospital payment systems has also encouraged the more efficient use of hospital resources.
- Increasing rates of generic drug use have reduced pharmaceutical costs. In several countries, these and other measures to contain drug costs were introduced and/or intensified in the aftermath of the financial crisis.
- Increased cost-sharing has slowed consumer use of health services. For example, in the USA, employers offering high-deductible health plans has grown almost 300% since 2009[15]. Likewise, in Ireland, an increasing proportion of the insured population is covered under policies that have an "excess" for private hospital treatment; high-excess plans have also become a feature of the Irish market in recent years.
- In the USA, price control measures on plans and providers by Medicare and Medicaid were also key contributors to the slowdown in health-care expenditure growth.

6.13 The impact of recession on recent years' trends should not be under-estimated. In a study published in The Lancet[16], L. Lorenzoni notes that there was unprecedented zero growth in health-care expenditure in the OECD area in 2010 - 2011. This reflected cuts in health-care budgets, the application of strict cost-control measures, freezing of salaries and drug prices and increased co-payments.

6.14 Likewise, he highlights the risk that a sustained economic recovery, and the probable general price increases that would come with it, might offset the successes of recent years.

[15] *PWC, "Medical Cost Trend: Behind the Numbers 2016", 2015*

[16] *Lorenzoni L, "Heath-care expenditure and health policy in the USA versus other high-spending OECD countries", The Lancet, 2014*

Medium to Long Term Outlook

6.15 Notwithstanding that medical inflation has slowed in recent years, it continues to be a major concern.

6.16 Further scope exists to drive efficiency, and therefore cost savings, in health care delivery. New technology also presents opportunities: for example, virtual primary care consultations and improved data analytics.

6.17 On the other hand, technology will also continue to be a driver of additional cost, as will the introduction of new speciality drugs. Lifestyles are also an important driver of health care costs. On the one hand, many chronic conditions are preventable and could be managed through behaviour modification; on the other hand, recent trends are in a contrary direction. Increased cost-sharing may mean that consumers will think more about what services to use, but this trend may also inhibit early intervention and result in more costly chronic care management in the longer run.

6.18 The 2013 OECD study bases its projections on a benchmark residual expenditure growth rate of 1.7% p.a., reflecting non-demographic, non-income pressures on public health care spending. Getzen (2014) states that various projections for the US are consistent in forecasting long-run future excess growth (i.e. growth in excess of GDP growth) of 0.5% - 1.5% p.a.

6.19 Eventually, however, the rate of growth in medical costs must be constrained by the resources available to pay for them. Therefore, most spending forecasts include a convergence condition, whereby medical inflation is expected eventually to match GDP growth. In the OECD study, this is assumed to occur in 2060, whereas in the Getzen model, 2075 is the baseline assumption. Implicitly, this represents an assumption that governments and insurers will ultimately be more effective in future than in the past in controlling expenditure growth.

6.20 In the medium term, however, there appears to be an expert consensus that medical inflation will continue to exceed not only general inflation but also economic growth.

6.21 In the context of private health insurance in Ireland, medical inflation will continue to be relatively difficult to control. Measures to control the drivers of medical inflation are easier to implement in centralised purchasing systems (the classic example being the UK NHS), whereas private health insurers in Ireland each negotiate separately with health care providers. Irish private health insurers do not have strong purchasing power with the pharmaceutical companies. And, since the private health insurance market is voluntary and supplementary to the public health system, it is difficult for Irish health insurers to impose constraints on care provision in order to control costs.

6.22 In the current environment, there is a great deal of uncertainty in relation to future economic growth. However, even if the Irish economy grows only at a modest rate, the impact of general medical inflation is likely at least to match, and more probably exceed, the impact of ageing on health insurance premiums.

Appendix A: Projection Data and Methodology

The data underlying the projections in Section 4 were as follows:

- Total adult insured lives split, by 10 year age bands, at end 2015. This allowed population level health insurance take-up percentages – also by 10 year age bands – to be calculated. This data was derived from the HIA website17.
- Total average health insurance claims per insured adult life for 2015 (again split by 10 year age bands). This data was also derived from the same HIA website source.
- CSO Irish population projection for 2016 to 2046 with data shown (this time in 5 year age bands) every 5 years during the projection period. This CSO projection was published in April 201318. There are 6 projection scenarios covered (2 fertility scenarios times 3 migration scenarios).

The demographic inflation projection method was straightforward:

- Relevant 2015 health insurance population take-up rates were applied to the CSO projected adult populations for every 5 year calendar period from 2016 to 2046 to derive projected insured lives at 5 year calendar intervals.
- Projected insured adult lives were then multiplied by 2015 claims per insured adult lives to derive total projected claims (in 2015 money terms) for insured adult lives at each 5 year calendar interval.
- For reference, the 10 year age band adult claims data was graphed and equivalent 5 year age band claim data derived to integrate more accurately with the 5 year age band CSO population projection data.
- These total projected adult claims (i.e. summed across all the projected 5 year age bands) were then divided by the total relevant projected insured adult population to derive an average claim amount for the entire Irish population for each 5 year calendar interval from 2016 to 2046.
- This then allowed demographic-led adult premium inflation for 2016 to 2046 to be estimated.

Some noteworthy comments:

- It is assumed health insurance claim amounts are a constant percentage of health insurance premiums over the period 2016 to 2046 i.e. that claims data are a straight proxy for premiums. This approach was necessary as HIA age-banded data is only publicly available for claims, not premiums.

[17] http://www.hia.ie/sites/default/files/Market%20Statistics%20for%20Website%2014072015.pdf

[18] http://www.cso.ie/en/statistics/population/populationandlabourforceprojections2016-2046/

- It is assumed that demographic-led premium inflation does not create feedback loops – e.g. it does not fuel more-generalised medical inflation as the projected increasing cohorts of older lives requires the Irish economy to allocate more of its resources to meet their medical needs. However, two sample scenarios are included to illustrate the possible impact of such feedback loops on projected premium inflation.
- Holding take-up levels constant throughout the period 2016 to 2046 is not realistic but is necessary to isolate purely demographic-led premium inflation.
- The CSO projection makes allowance for mortality improvements over the period 2016 to 2046. It is assumed this rising longevity is accompanied by an equivalent improvement in disability-free life expectancy over the period 2016 to 2046. If this is not the case, then premium inflation will be more impacted by the growing size of elderly age cohorts.
- This whole projection exercise is focussed solely on assumed demographic changes. It does not consider 'general' medical inflation e.g. increases in the cost of medical care arising from new expensive medical technology or new drugs. It is possible future 'general' medical inflation may apply at varying rates to different age groups; for instance, perhaps future medical technology innovations will be disproportionately focussed on older age groups. If so, the impact of 'general' medical inflation could overlap and cause feedback loops with projected demographic changes. It is beyond the scope of this exercise to consider such issues.

Appendix B: Impact of consumers switching products on inflation indices

- As noted in paragraph 5.14, this report considers two different indices for health insurance premium inflation:
    - CSO Health Insurance Premium Index (the "CSO Index")
    - Index based on the average premium paid in a 12 month period (the "Average Premium Paid")

- To illustrate the differences between the two indices, consider two identical products each with 100 customers all paying monthly. One product has a current cost of €1000 and the other has a cost of €800. Neither product had a premium increase in the previous 13 months. Assume the following:

    - The premium of each product increases by 10%
    - 50 customers switch from the more expensive to the less expensive product
    - There are no further increases for the next 13 months.

- The CSO index would show an inflation rate of 10%, taking no account of the fact that 25% of customers are now paying less for their insurance (by virtue of switching).

- Over the next 12 months the average premium paid in the market would grow by 3.9%, i.e.

    50% * €800 + 50% * €1000 = €900

    To

    75% * €880 + 25% * €1100 = €935

- The average premium paid would reach an inflation rate equal to 3.9% after 12 months premium had been received, but initially it would only show an inflation rate of 1/12th of 3.9% (or 0.3%), as 11/12ths of the premiums received in the previous 12 months would have been based on the pre price increase premiums. Because of this, there is a time lag of 6 months in the calculation of this index and this should be borne in mind when making comparisons.

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