

# **Risk-equalisation in health insurance markets: Models and international experience**

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# Risk-equalisation in health insurance markets:

## Models and international experience

Francesco Paolucci and Just Stoelwinder<sup>1</sup>

### Executive Summary

Risk-equalization (RE) is an essential mechanism required to support competitive health insurance markets, whether they be voluntary, as with private health insurance (PHI) in Australia, or mandatory, as in countries with comprehensive health insurance with consumer choice, such as the Netherlands. It equalizes the risk profiles of insurers to mitigate the adverse effects of risk selection as a competitive device.

This report reviews the conceptual issues involved with designing RE arrangements and illustrates these with experience of selected countries that have developed various risk equalization schemes. We consider the role of RE in the context of the range of government interventions implemented to maintain affordability of health insurance for high risk segments of the population, these being premium rate restrictions, risk compensation schemes, premium compensations schemes, and claims-equalisation schemes

Within these available options we conclude that a 'perfect' RE scheme is the best regulatory strategy for maintaining affordability while promoting competition and efficiency. Although 'perfect' RE has not (yet) been achieved, lessons from other countries point to the design features involving the expanded range variables in the RE formula; the use of prospective, rather than retrospective calculation; the frequency of funds transfers and the modality of financial flows.

The report finds that Australia operates a primitive (i.e. age-based) RE scheme with increasing risk segmentation and hence declining risk solidarity, mainly due to product

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exclusions occurring because of the lack of a standard benefit package and also disincentives for efficiency because of its retrospective claims equalization design.

There are significant gains in terms of efficiency, risk solidarity and reduction of (incentives for) selection, that can be obtained by improving the RE formula for PHI in Australia. This will also be crucial work for the introduction of a universal competitive social insurance model with consumer choice of health funds offering a standard package of basic health care services, such as Medicare Select. However, changes to RE can result in significant financial impact on premiums and the financial position of insurers and therefore requires a staged implementation pathway to allow for practical market adjustments. An illustrative pathway for reform of Australia's RE is presented.

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## 1. Introduction

Risk equalisation<sup>2</sup> is a critical tool in the operation of competitive health insurance. It is the mechanism used to equalize the risk profiles of health insurers when, through regulation, they are required to accept any applicant (open enrolment) and charge them the same premium, irrespective of their health risk profile (community rating).

In Australia the regulator, the Private Health Insurance Administration Council, administers the Risk Equalisation Trust Fund (the mechanism for operating risk equalization in private health insurance in Australia) for the stated purpose of “..ensuring that the private health insurance industry operates equitably. In particular, it is a vital part of “community rating” which ensures that private health insurance is available to any Australian citizen irrespective of, amongst other things, their age or their current health status. ”<sup>3</sup> The key to maintaining the availability of private health insurance is its affordability.

Community rating aims at achieving affordability by creating implicit cross-subsidies between customers with a lower than average risk profile, for a particular insurance product, who subsidise those with a higher than average risk profile. Society considers this ‘equitable’ as health status, insofar as it is influenced by factors such as age, gender, socio-economic status, genetics and the presence of chronic disease, is not considered the responsibility of the individual and hence the consequential financial burden is shared by all. This concept is referred to as ‘risk solidarity’. From time to time the issue is raised of whether health insurance premiums should recognise the health risks that are the responsibility of the individual, such as smoking. This question is not canvassed in this report, but it does raise the issue of what variables should be included in determining the risk profile of insurers that is to be equalised.

There are other questions, such as what risk equalisation arrangement best encourages insurers to reduce the cost of claims by improved efficiency, either by reducing their payment to providers and/or reducing inappropriate or avoidable health service utilization, while maintaining affordable health cover for high risk individuals. Finally, the role of risk equalisation is a key precondition to the implementation of an integrated managed competition model for the reform of Medicare, such as contemplated in the literature and

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<sup>2</sup>All technical terms used in this report are defined in the Glossary.

<sup>3</sup><http://www.phiac.gov.au/about-phiac/publications/corporate-plan/> (accessed 7 December 2010)

by the “Medicare Select” proposal of the National Health & Hospitals Reform Commission, which the Government has noted and “will considered further into the future.”<sup>4</sup>

These issues have highlighted the need for a review of the design principles of risk equalization to guide how the current so called ‘risk-equalisation’ arrangement could be modified to improve the efficiency and affordability of private health insurance in Australia, and how it should be developed to support the implementation of ‘Medicare Select’. In this report we review these design principles based on theoretical considerations and guided by experience from selected countries that demonstrate in their risk equalisation arrangements the principles involved.

## 1.2. Background

Over the past decades, in order to achieve affordable access to health insurance coverage and efficiency in the functioning of competitive health insurance markets, many countries have introduced regulation and subsidies in these markets. In particular, several countries with a competitive market for mandatory health insurance (MHI), such as Belgium, Germany, Israel, the Netherlands and Switzerland have introduced a risk equalisation scheme to ensure affordable access to insurance coverage, combat risk selection and to foster competition based on costs and quality of care (i.e. efficiency). Also, many countries with a competitive market for voluntary health insurance (VHI) have, or have been considering introducing risk equalisation and other regulatory instruments (e.g. community-rating, premium-related subsidies, claims equalisation schemes) for similar purposes (i.e. to guarantee risk solidarity).

Throughout this report it will become clear that some countries with a ‘risk-equalisation’ scheme actually do not have one (e.g. Australia), or as of today haven’t (yet) had risk-related transfers between funds (e.g. Ireland and South Africa). To prevent confusion around terminology we distinguish between risk equalisation and claim equalisation schemes (see Glossary). Although both aim at cross-subsidisation from low to high-risk insured (often occurring from insurers with a low risk profile of insured to insurers with a high risk profile), only under risk equalisation are insurers’ incentives for efficiency maintained. Claims

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<sup>4</sup>Commonwealth of Australia. A National Health & Hospitals Network for Australia’s Future – Delivering better health and better hospitals. 2010, p154.

equalisation schemes reduce insurers' financial responsibility as the claims costs are equalised with the risk profiles per risk group per insurer.

### 1.3. Objectives and Methods of the Study

In this report, we describe the conceptual issues involved in designing a risk equalization scheme. We illustrate these issues with examples from a range of countries that have implemented, or are considering implementing, prospective and retrospective risk equalisation schemes. The selected group of countries includes Australia, Germany, Ireland, Israel, The Netherlands, South Africa, and Switzerland. The authors together, or individually, interviewed CEOs, Chief Actuaries and other selected staff from a range of health insurance companies; health insurance regulators and academics with an interest in risk equalization in each of the above countries over the period September to October 2010.

In particular, we aim at providing insights on the essential differences (e.g. advantages and disadvantages) between different types of risk-equalisation systems and identifying the 'best practice' in risk-equalisation schemes, and their implication for improving RE in Australia, both within the current PHI scheme or within a managed competition model.

First, we describe a conceptual framework comparing the institutional settings, regulatory regimes and market structure in which risk-equalisation arrangements operate in order to discern options for risk equalisation transfers and the (potential) role that risk-equalisation schemes play.

We identify the design features of risk equalisation schemes along the following dimensions:

1. Types of risk factors/adjusters, e.g. age, gender etc.;
2. Timing: prospective versus retrospective;
4. Frequency of transfers calculation, e.g. quarterly or annually;
5. Modality of financial flows circulation.

Next, we review the funds response to the risk equalization arrangement, arguably a measure of its policy effectiveness. Does it promote desirable competition through a focus on reducing the cost of insurance by effective management of benefit outlays, or do the funds focus on the regulator, seeking to adjust the risk equalization formula to their advantage, or do they simply concentrate on competing through risk selection.

Finally, we focus on what lessons Australia can learn from other countries' experience with different risk-adjustment models, for instance by investigating to what extent improvements in the risk-adjustment formula may effectively contribute to increase risk solidarity and efficiency within current private health insurance arrangements in Australia.

## 2. Conceptual framework

### 2.1. The solidarity and equivalence principles in competitive health insurance markets

When referring to the concept of solidarity, we primarily mean affordability as achieved through 'risk solidarity', which implies that low-risk individuals cross-subsidise high-risk ones. The equivalence principle refers to the fact that, without external interventions, competitive markets for (mandatory or voluntary) health insurance tend to risk-rated premiums and risk-selection, which can make health insurance unaffordable or inaccessible for the high-risk and low income people. It might be argued that solidarity could be achieved by a system of implicit cross-subsidies, where insurers would accept predictable losses on the contracts of high-risk individuals and compensate these losses with predictable profits made on the contracts of low-risk individuals. However, implicit cross-subsidisation is not financially sustainable in a competitive insurance market. Since competition should lead to the minimisation of predictable profits per contract, insurers have to break even on each contract and therefore apply the equivalence principle, either by adjusting the premium to the consumer's risk (risk-rating) or by adjusting the accepted risks to the premiums (risk-selection). With selection we mean actions by consumers and health insurers to exploit unpriced risk heterogeneity and break pooling arrangements.<sup>5</sup> While for other types of insurance (e.g. car, fire etc.) these consequences appear to be 'socially acceptable', for health insurance this is not the case. In most countries, governments take actions to increase solidarity, resulting in a reduction of the level of competition (e.g. one extreme is a single-payer National Health Insurance scheme like Medicare in Australia, or National Health Service in the United Kingdom) and choice. Since a restriction of competition may reduce efficiency, a crucial question to address is how to combine competition, efficiency and solidarity in competitive health insurance markets.

### 2.2. Government Intervention in competitive health insurance markets

Four main regulatory instruments can be discerned that aim at guaranteeing solidarity in competitive health insurance markets:

- (a) Premium rate restrictions;
- (b) Risk-compensation schemes;

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<sup>5</sup>Joseph P. Newhouse, 1996. "Reimbursing Health Plans and Health Providers: Efficiency in Production versus Selection <<http://ideas.repec.org/a/aea/jeclit/v34y1996i3p1236-1263.html>>," Journal of Economic Literature <<http://ideas.repec.org/s/aea/jeclit.html>> , American Economic Association, vol. 34(3), pages 1236-1263, September.

(c) Premium-compensation schemes;

(d) Claims-equalisation schemes.

### 2.2.1. Premium rate restrictions

Premium rate restrictions can take several forms: community-rating per insurer, a ban on certain rating factors, or rate-banding (by class). In this report, we mainly refer to community-rating per insurer per product, which implies that an insurer quotes the same premium for everyone in the product-specific pool, independent of the individual's risk characteristics. To prevent insurers from refusing to contract (or renew a contract) with high-risk individuals, governments may complement premium rate restrictions with an open enrolment requirement.

Although these regulations aim at solidarity by realising a system of implicit cross-subsidies, they are not per se effective in guaranteeing it. Premium rate restrictions and open enrolment imply predictable profits and losses for identifiable subgroups of consumers. Despite the open enrolment requirement insurers can use many forms of risk-selection, which may have adverse effects on solidarity, quality of care, and efficiency.

Because of the adverse effects of risk-selection, premium rate restrictions and open enrolment on their own are undesirable. Illustrative empirical evidence about the effect of various interventions, in particular of community rating and open enrolment, in competitive health insurance markets can be found in Hall (2000)<sup>6</sup> for the US, in Beck et al. (2003)<sup>7</sup> for Switzerland and in Buchner et al. (2003)<sup>8</sup> for Germany.

### 2.2.2. Risk-compensation schemes

Risk-compensation schemes correspond to a system of explicit cross-subsidies, such that the high-risk individuals receive a risk-adjusted subsidy from a solidarity fund, which is filled with mandatory solidarity contributions from all individuals. In order to determine the amount of the subsidy, several relevant risk groups are discerned. The subsidy for each risk group is based on the average expenses of all insurers within the relevant risk group. In addition, the

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<sup>6</sup>Hall, M.A. (2000a), 'An evaluation of New York's reform law', *Journal of Health Politics, Policy and Law*, 25(1): 71–100

Hall, M.A. (2000b), 'An evaluation of Vermont's reform law', *Journal of Health Politics, Policy and Law*, 25(1): 101–132.

<sup>7</sup>Beck, K., S. Spycher, A. Holly and L. Gardiol (2003), 'Risk adjustment in Switzerland', *Health Policy*, 65(1): 63–74.

<sup>8</sup>Buchner, F. and J. Wasem (2003), 'Needs for further improvement: risk adjustment in the German health insurance system', *Health Policy*, 65(1): 21–36.

subsidy is earmarked for the purchase of health insurance with a specified benefits package and is not transferable. The reasons for the introduction and improvement of risk equalisation schemes and formulas vary across countries. The variables used in these models to predict health expenditure range from simple age-based models or demographic models (i.e., age/gender models) to more complex systems involving health status indicators, region, socio-economic information, disability etc. In most countries the models initially implemented use crude predictors of health costs (i.e. age-based or demographic models), and provide limited and inaccurate compensation to health funds with a high proportion of high risk individuals. Although the implementation of risk equalisation schemes is considered the key and first best regulatory instrument to achieve efficiency and affordability in competitive health insurance markets, the adoption of crude demographic models adopting solely age and gender as risk factors has shown to be insufficient to prevent selection, especially if CRP and OE are present. However, the models have become increasingly sophisticated, particularly in Germany and the Netherlands with the greater understanding by policymakers and stakeholders of the centrality of RE in guaranteeing the sustainability, efficiency and affordability within competitive health insurance markets. The availability of relevant data improved, and research into this field has grown,

Risk equalisation schemes operate fundamentally in the same way in mandatory and voluntary health insurance markets. Based on the literature and our experience in different countries, we identified the key defining features of the design of risk equalisation schemes.

First, risk-adjusted equalisation payments are based on a set of predefined risk-factors. The cost of services and intensity of treatment deemed to be acceptable to be subsidized through risk equalization, are denoted as “acceptable costs”. The goal of risk equalisation models is to calculate the best estimate of the acceptable costs for each individual. Given an estimate of the acceptable costs the risk-adjusted premium subsidy is defined as some component of it, e.g. a certain percentage, or the acceptable costs minus a fixed amount (as in the Netherlands). Because the acceptable cost level is hard to determine, in practice subsidies are mainly based on observed expenses. However, observed expenses are determined by many factors, not all of which need to be used for calculating the subsidies. Therefore, all risks factors that determine observed expenses, can be divided into two subsets: those factors for which solidarity is desired, the S-type factors and those for which

solidarity is not desired, the N-type factors<sup>9</sup>. Ideally, subsidies should only be adjusted for the S-type risk factors and not for the N-type risk factors. Currently the distinction between S- and N-type risk factors for calculating the premium subsidies is only made in Belgium.

Second, risk-adjusted equalisation payments can be calculated prospectively (i.e. based upon predicted costs in future periods using only prior information), or retrospectively (i.e. based upon information that becomes known during the period being predicted). The downside of retrospective models is the uncertainty around financial (risk-equalisation) transfers between insurers. This presents difficulties for insurers in calculating the appropriate premiums, particularly in voluntary health insurance markets where consumers use premiums not only as a signal to choose insurers, but in the first instance to choose whether or not to insure.

Third, the frequency of transfers calculation, which occurs annually in most countries or in some countries quarterly (e.g. Australia) to help funds track their financial performance in a more timely fashion.

Finally, risk equalization arrangements impose the implementation of a system of income-related and risk-related cross-subsidies, such that income-related contributions are collected by an independent agency or by the funds, which re-allocate them to consumers or the funds themselves. To organize the circulation of the financial flows there are essentially 3 modalities (see below).

Details of the design of risk equalization arrangements, as used in a range of selected countries, is described in Section 3.

### 2.2.3. Premium-compensation schemes

Premium-compensation schemes are premium-related subsidies. Normally, these subsidies are granted directly to consumers (e.g. a Consumer Risk Adjusted Voucher (CRAV) or via tax-deductible premiums), or to insurers (e.g. premium rebate in Australia) who then deduct the subsidy from nominal premiums. Premium-compensation schemes are effective in achieving solidarity to whatever extent society wants. On the other hand, premium-related subsidies

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<sup>9</sup>Schokkaert E & Carine Vande Voorde, 2000. Risk selection and the specification of the conventional risk adjustment formula. Centre for Economic Studies – Discussion Papers ces0011, Katholieke Universiteit Leuven, Centrum voor Economische Studiën.

diminish the consumers' incentives to shop around for the lowest premium and thereby insurers' incentives for efficiency. They would also stimulate consumers to buy more complete insurance, resulting in more moral hazard, than they would have done in case of no subsidy at the margin. In addition, premium-compensation schemes reduce the potential competitive advantage of the most efficient insurers and thereby overall price competition. This may lead to premium inflation. As there is no direct 'compensation' or incentive for insurers to contract with high-risk consumers, selection might still be strategically advantageous in a competitive setting. In summary, premium-compensation schemes might be effective in guaranteeing solidarity, but only at the expense of some efficiency. Incentives for selection are still present.

#### 2.2.4. Claims equalisation schemes

Under claims equalisation schemes, insurers with claims experience above a certain threshold (e.g. \$50,000) are compensated by insurers with claims experience lower than the threshold in the reference year, via the solidarity fund, for each individual insured (for several forms of claims equalisation schemes see Van de Ven and Ellis, 2000<sup>10</sup>). If the threshold amount is not too high, claims equalisation schemes may reduce selection activities such as the exclusion of pre-existing medical conditions and the rejection of applicants. However, because excess-loss-compensation schemes reduce the insurers' financial risks, solidarity is achieved with a disincentive for efficiency. Moreover, these schemes may cause inflation in insurance premiums, so society has to weigh the solidarity-gains with the risk of efficiency-losses caused by its adoption. An example is the current 'risk equalisation' scheme in Australia. A more extreme example of excess-loss-compensation schemes was provided by the Act on Access to Private Health Insurance (WTZ) in the Netherlands, which guaranteed full compensation of all losses above the maximum premium set by the government. In January 2006, WTZ was abolished because of the introduction of the new Health Insurance Act.

### 2.3 The 'best' regulatory strategy

Policymakers in various countries, including Australia, appear to prefer premium rate restrictions and open enrolment because of their supposed direct effects on achieving the

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<sup>10</sup>Van de Ven WPMM, Ellis RP. Risk Adjustment in Competitive Health Plan Markets. In: Culyer AJ and Newhouse JP (Eds), Handbook of Health Economics, vol.1. Elsevier Science BV: Amsterdam; 2000. p. 755–845.

goal of solidarity, however, we argue that risk-compensation schemes are in theory a preferable regulatory design. In particular, 'perfect' risk-compensation schemes are the first-best regulatory instrument to achieve an acceptable level of solidarity in competitive health insurance markets without compromising effective price competition and without endangering the financial sustainability of the scheme. However, in the presence of an imperfect risk-compensation scheme the achieved level of risk-solidarity might not be acceptable for society. In this case, in order to increase solidarity, claims equalisation and premium-compensation schemes may be implemented as complementary measures to the best available risk-compensation scheme. Premium-compensation and claims equalisation schemes are both effective in achieving solidarity, but only at the likely expense of efficiency (trade-off solidarity-efficiency). They create predictable losses (profits) for insurers on high-risk (low-risk) individuals. In the long run, this induces insurers to avoid individuals with predictable losses and to select profitable consumers, despite an open enrolment requirement. This selection can have adverse effects in terms of solidarity and fails to provide incentives for efficiency in providing care and good quality for high-risk people and those with chronic conditions.

### 3. The design of risk equalisation schemes

As outlined in section 2.2.2 risk equalisation schemes have the following design characteristics:

- The risk factors that are included in the equalisation formula
- Equalization can be prospective (ex-ante) or retrospective (ex-post)
- The equalization payment can be calculated and made in differing time-periods, typically quarterly, half-yearly or yearly.
- How the risk equalisation funds flow.

In the following section these characteristics are explored in further detail, drawing from the experience of a range of countries demonstrating different approaches to these design options.

#### 3.1 Types of Risk-factors

The risk factors to include in RE can be guided by its policy purposes. From a policy point of view RE should mitigate risk selection, encourage insurers to act at the meso level of the health system as active purchasers<sup>11</sup> and be accepted in the community as equitable. With open enrolment insurers will be limited in their capacity to risk select at the individual level, but risk selection for age, region and socio-demographic factors can be achieved through marketing and product design strategies, so these represent logical factors to include. Other factors, such as chronic disease, may be included to encourage insurers to manage associated benefit outlays.

The following factors have been used in Australia and our selected countries to calculate the risk pools subject to equalisation:

- Age

Health care utilization is known to predictably vary with age cohorts. Figure 1 demonstrates the cost of health care utilization by various age groups in the Australian population in 2004-05

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• <sup>11</sup>Foley M, Bennett C, Stoelwinder J. Making Medicare Select real: A roadmap for reform to put people at the centre of health care. pricewaterhouseCoopers. 2009. Available from: <http://www.pwc.com.au/industry/healthcare/publications/making-medicare-select-real.htm>

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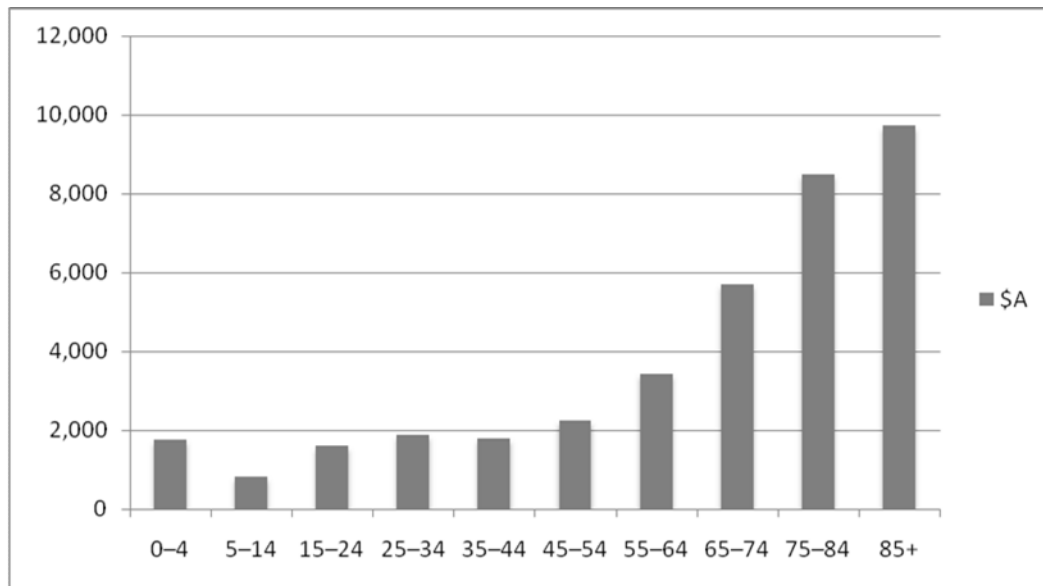


Figure 1. Health care expenditure by age. Australia 2004-05

(Source: Australian Institute of Health and Welfare 2010. Health system expenditure on disease and injury in Australia, 2004-05. Health and welfare expenditure series no. 36. Cat. no. HSE 87. Canberra: AIHW, p 14)

Age is universally used in risk equalization calculations in all the countries studied for this report: Australia, Germany, Ireland, Israel, the Netherlands, South Africa and Switzerland. In Australia risk equalisation is primarily calculated on an escalating percentage of eligible hospital benefits in 5 year age bands upwards from age 55-59 in State based pools (See Table 1). Eligible hospital benefits includes hospital treatment, hospital substitute treatment and defined chronic disease management programs.

Age band	Percent eligible hospital benefits included in RE pool
0-54	0%
55-59	15.0%
60-64	42.5%
65-69	60.0%
70-74	70.0%
75-79	76.0%
80-84	78.0%
85+	82.0%

Table 1. Australia: Percent of eligible hospital benefits included in risk equalisation pools by age band.

Age is the most common risk factor used by countries with risk equalisation schemes.

- Gender

Health care costs vary predictably between men and women. Young adult women have higher health care costs associated with pregnancy and older men consume more health care resources than similarly aged women. Figure 2 demonstrated the health care costs of men and women by similar age groups as shown in Figure 1.

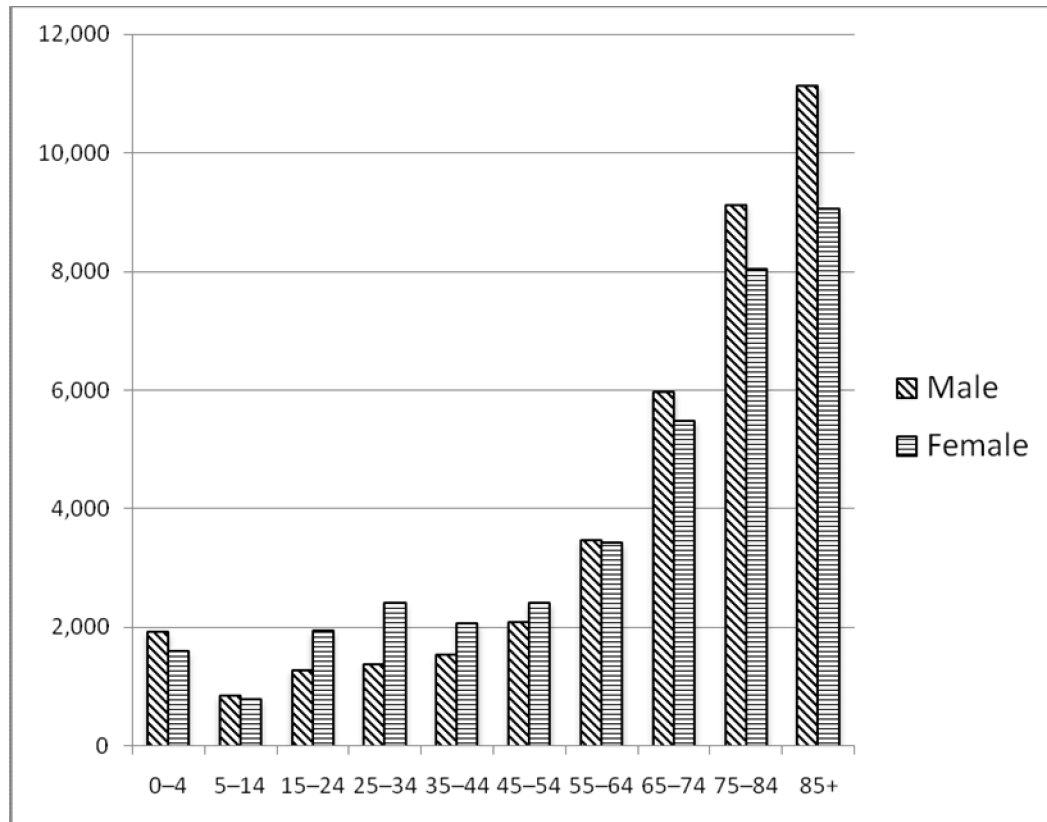


Figure 2. Health care expenditure by age and gender. Australia 2004-05.

(Source: Australian Institute of Health and Welfare 2010. Health system expenditure on disease and injury in Australia, 2004-05. Health and welfare expenditure series no. 36. Cat. no. HSE 87. Canberra: AIHW, p 14)

Gender is not used in risk equalisation in Australia, Ireland, Israel and South Africa, but is used in the other countries' risk equalization formulas.

- Presence of Chronic Disease

Persons with chronic disease, such as diabetes mellitus, cardio-vascular disease, etc. are predictably higher users of health care resources. A variety of measures have been used to equalise the risk associated with chronic disease.

The most sophisticated use of chronic disease in risk equalisation is in the Netherlands where costs associated with chronic disease are measured using two models:

- Twenty Pharmacy-based cost groups (FKGs) (shown in Table 2). These are based on mapping drugs prescribed for at least 181 days in 12 months onto a chronic disease typology. The prevalence of these groups in the Dutch population is 15.7% for males and 17.1% for females and the funds re-distributed account for about 14% of the total insurance pool.
- Thirteen Diagnosis-based cost groups (DKGs). These groups are developed from admissions with greater than 2 days stay aggregated by similar resource utilisation and described by clinical condition and treating specialty. Although high cost the prevalence is only 2.3% of the Dutch population and the pool represents about 5% of the total insurance pool.<sup>12</sup>

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FKG	Chronic Disease descriptor
1	Glaucoma
2	Thyroid disorders
3	Psychological disorders
4	High cholesterol
5	Diabetes type IIb
6	Chronic nonspecific respiratory disorders
7	Diabetes type IIa
8	Epilepsy
9	Crohn's disease/ Ulcerative colitis
10	Cardiac disorders
11	Rheumatism
12	Parkinson's disease
13	Diabetes type I
14	Transplants
15	Cystic fibrosis/ pancreatic disorders
16	Cerebral and Spinal cord disorders
17	Cancers
18	HIV/AIDS
19	Kidney disorders
20	Growth hormones

Table 2. Netherlands Pharmacy-based Cost Groups (FKGs)

Among the other countries studied chronic diseases cost groups are used, or planned to be used, as risk factors include Germany, South Africa and Switzerland. In Germany

<sup>12</sup> Stoelwinder J. Medicare Choice: Insights from Netherlands health insurance reforms. Melbourne:ACHR, 2008. (Accessed December 2010, [www.achr.com.au/pdfs/MedicareChoice.pdf](http://www.achr.com.au/pdfs/MedicareChoice.pdf))

'morbi-RSA' was introduced in 2009. It is based on the future treatment costs of 80 specific diagnoses with varying levels of severity resulting in 106 morbidity groups. Half the risk equalization pool is distributed on morbi-RSA and the remainder on age, gender and disability benefits.<sup>13</sup>

Switzerland will introduce into the risk formula a variable for chronic disease (or more accurately, recent utilization) by adjusting for admission to hospital or nursing homes with a stay of more than 3 days in the previous 12 months.

South Africa's shadow<sup>14</sup> risk equalization formula includes the 26 chronic conditions mandated in the Prescribed Minimum Benefits Schedule in 19 age bands together with a category for HIV/AIDS and modifiers for more than one chronic condition and maternity admission in the previous 12 months.

- Socio-economic status and region

Several of the sampled countries include socio-economic status in their risk equalisation formula – these include the Netherlands and Germany. In the Netherlands socio-economic factors are calculated in the risk equalisation formulae according to a complex set of variables including: postcode (reflecting degree of urbanisation, proportion of non-Western immigrants, average income, proportion of single persons, standardised death rates and proximity to health care providers); the source of income (income support, disability benefits or other state benefits); and the lowest three deciles of socio-economic status groups based on average income per household member. In Germany the risk equalisation formula includes six bands of disability benefits.

### 3.2 Retrospective or prospective risk equalisation

In developing or implementing risk equalisation payments may be calculated prospectively, at the beginning of the prediction period using only prior information, or, as a second alternative payments may be calculated retrospectively, at the end of the period (i.e. after

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<sup>13</sup>Schang L. Morbidity-based risk structure compensation. Health Policy Monitor, 2009. (Accessed December 2010, [http://www.hpm.org/en/Surveys/Bertelsmann\\_Stiftung\\_-\\_Germany/13/Morbidity-based\\_risk\\_structure\\_compensation.html](http://www.hpm.org/en/Surveys/Bertelsmann_Stiftung_-_Germany/13/Morbidity-based_risk_structure_compensation.html))

<sup>14</sup>South Africa has a fully developed risk equalization scheme that has been in operation in "shadow" form since 2005. Funds provide the data to the regulator, the Council for Medical Schemes, that calculates the risk equalization, but funds do not change hands due to the lack of final enabling legislation.

the event). As Ellis and McGuire (1986)<sup>15</sup> and Newhouse (1996)<sup>16</sup> have highlighted, these two extremes are not the only ones possible: one can also make payments that are a mixture of the two. Retrospective framework may not be preferable in practice. The incentive and fairness properties of retrospective adjusters are not inherently superior. Dunn et al. (1996)<sup>17</sup> compared the predictive accuracy of prospective and retrospective frameworks on groups of enrollees and found surprisingly small differences in predictive power for groups when the samples were reasonably large. Ash and Bryne-Logan (1998)<sup>18</sup> likewise find that prospective models do nearly as well as retrospective models when non-random groups of individuals are formed using only prior-year information. Chapman (1997)<sup>19</sup> finds a greater advantage of retrospective models over prospective models in his plan level analysis, but he focuses primarily on group level predictions rather than individual level predictions.

An argument for preferring prospective models is that insurers may prefer to know the amount of premium subsidies that they will receive; so as to help them accurately set the premium contribution they ask from their enrollees. Another argument for preferring the use of prospective information for risk adjustment is that only prospective information is potentially known to health plans and individuals at the time that they are making enrolment decisions, and hence used for risk selection. Prospective models attach relatively more weight to information related to chronic conditions that persist over time, while retrospective models attach more weight to information that signals the presence of acute problems. Thus prospective models provide insurers with more incentives for effective preventive care than retrospective models. In an environment where there is arguably too little prevention and too much treatment, paying prospectively rather than retrospectively will create superior incentives to avoid and not over-diagnose clinical conditions. This moral hazard problem is potentially quite important for the many health conditions for which

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<sup>15</sup>Ellis, R.P. and McGuire, T.G. (1986) 'Providers behavior under prospective reimbursement: cost sharing and supply', *Journal of Health Economics*, 5:129-151.

<sup>16</sup>Joseph P. Newhouse, 1996. "Reimbursing Health Plans and Health Providers: Efficiency in Production versus Selection <<http://ideas.repec.org/a/aea/jeclit/v34y1996i3p1236-1263.html>> , " *Journal of Economic Literature* <<http://ideas.repec.org/s/aea/jeclit.html>> , American Economic Association, vol. 34(3), pages 1236-1263, September.

<sup>17</sup>Dunn, D. L., Rosenblatt, A., Tiara, D. A. et al. (1996) A comparative analysis of methods of health risk assessment. Final report to the Society of Actuaries.

<sup>18</sup>Ash, A. S. and Byrne-Logan, S. (1998) 'How well do models work? Predicting health care costs', in *Proceedings of the Section on Statistics in Epidemiology*, American Statistical Association, 42-49.

<sup>19</sup>Chapman, J. D. (1997) 'Biased enrollment and risk adjustment for health plans', unpublished doctoral dissertation, Harvard University.

treatment or prevention activities are discretionary. However, it must be recognised that a retrospective framework protects health plans against adverse selection by individuals with a diagnosis that yields high costs in the period (e.g., a year) in which the diagnosis is set and from which moment it can be used as a risk adjuster.

As far as there is moral hazard, the preference for prospective or retrospective models may depend on whether incentives for over- or under-utilization are preferred (or a mixture). Another aspect concerning moral hazard is the market share of the largest insurer: the larger its market share, the larger the moral hazard problem, i.e. the smaller is the incentive for efficiency for the largest insurer. As a practical consideration, prospective frameworks have the advantage that the information is available sooner, and health plans have more predictable revenues at the beginning of each prediction period. This predictability is attractive both for plans and for sponsors.

Finally, the feasibility argument concerning a prospective versus retrospective model may differ from setting to setting. The risk adjustment model in Germany and Switzerland is significantly different from that in the other countries: both countries have a retrospective (rather than a prospective) risk adjustment models. In addition, Germany and Switzerland are the only two countries without any form of mandatory risk sharing (i.e. claims equalisation), which may be quite surprising given the relatively poor risk-adjusters being used and the stringent restrictions on the direct consumer contributions to the insurers. Consequently, the incentives for selection in Germany and Switzerland are high. In order to reduce the incentives for selection, Israel has implemented a form of condition-specific risk sharing for five severe diseases. Not surprisingly, given the incentives created by this condition-specific risk sharing, the total number of reported cases with these severe diseases grew by 40% from 1995 to 1998 when introduced, while total population grew only by 9%.

Although the arguments are not all unambiguously in favour of a prospective setting, we weigh the arguments in favour of a prospective framework as relatively more important.

### 3.3 Frequency of risk equalisation

The frequency of transfer calculation is annual in most countries but occurs quarterly in Australia. Although in most countries the frequency and period of transfers is legally

prescribed, issues of lags between the period in which the relevant data becomes available and the transfers occur are quite common and often severe (e.g. The Netherlands has a 3 year lag). Lags may affect the various stakeholders operating in the health insurance market e.g. insurers, the regulator, providers and consumers. For instance, they reinforce uncertainty around the timing and quantum of transfers, which complicates premium setting, product design, contracting strategies, reimbursement schedules etc., potentially hindering efficiency and performance

### 3.4 Funds flow in risk equalization

There are several ways government can organize solidarity and the payment flows (see Figure 3):

1. Consumer-Risk-Adjusted Voucher (CRAV);
2. Insurer-Risk-Adjusted Subsidy (IRAS);
3. Risk-Equalisation (RE).

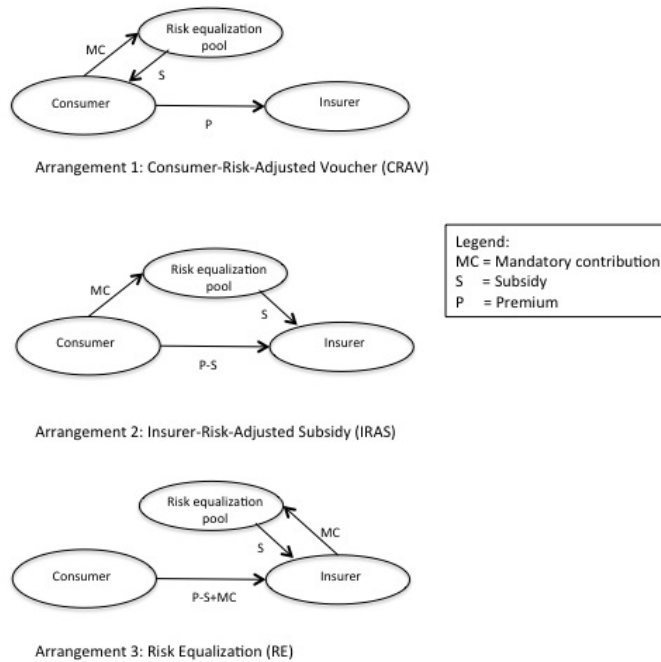


Figure 3. Three ways of organising cross-subsidies

With a CRAV equalisation occurs among consumers. The low-risk consumers pay a mandatory solidarity contribution to the solidarity fund and the high-risk consumers receive

a risk-adjusted premium subsidy from the solidarity fund. Under CRAV equalisation payments are provided independently of the industry through, for example, the tax authorities. The second alternative is that the subsidy goes to the insurer, and the consumer pays the premium minus the subsidy to the insurer (IRAS), as is the case in Israel and the Netherlands. The subsidizing risk equalization takes place entirely outside the insurance market. The third alternative is that the consumer pays the “premium minus subsidy plus solidarity contribution” to the insurer, while the insurer and the solidarity fund clear the net difference of all the solidarity contributions and subsidies of the relevant clients (RE), as is the case in e.g. Germany, Ireland and Switzerland.

Although at first glance these modalities may seem to be quite different, they primarily differ in the way that payment flows are organised (refer to van de Ven and Schut 2007, for a discussion of the implications of different flow mechanisms<sup>20</sup>). Since the solidarity contributions and the subsidies can be calculated in the same way, the effects on incentives are also equal. Hereafter we will refer mainly to risk equalisation schemes, as they are the most commonly used modality to organise financial flows.

It is important that the difference between the internal and external subsidy system relates only to the organization of the payment flows. All other aspects of the conceptual framework, including e.g. the prospective or retrospective calculation of the premium subsidies, apply equally to each of them.

We now turn to a more detailed examination of insurers’ response to risk equalization regulation in a competitive market. An effective regulatory regime would see insurers actively managing benefit outlays to reduce costs and compete for clients with all levels of risk as opposed to concentrating on strategies of risk selection.

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<sup>20</sup>Wynand PMM van de Ven and Frederik T. Schut (2007), ‘Risk Equalization in an Individual Health Insurance Market: The Only Escape from the Tradeoff Between Affordability, Efficiency And Selection: The Netherlands as a Case Study’.

#### 4. Insurers' response to risk equalisation

Assuming that insurers respond to the regulatory framework rationally, the less 'perfect' the risk equalization arrangement the stronger the incentive for insurers to risk select will be and the less incentive to seek to manage benefit outlay costs. Of course, they can also seek to invest in influencing the regulator to develop the regulatory framework to their perceived advantage. The extent to which insurers focus on positive strategies to improve efficiency by reducing benefit outlays can be considered a crude measure of the effectiveness of the risk equalisation arrangement.

##### 4.1. Managing benefit outlays

Insurers can be incentivised to compete on price by the downward management of benefit outlays if the risk equalization arrangement rewards the effort. They can do this through a number of strategies, including:

- Negotiating competitive prices from providers
- Packaging volume/price incentives and restricting provider access
- Bundling provider payments to transfer risks to providers
- Vertically integrating with primary care to enhance gatekeeping into secondary care and as part of chronic disease management.
- Pre-admission control, such as authorisation, and concurrent utilization review.
- Alternative care models, such as Disease Management and Case Management
- Vertically integrating with secondary providers to steer volume and directly manage unit costs efficiencies
- Carve out certain high cost diseases and transfer risk to specialised organizations (e.g. diabetes mellitus)

The selected countries studied in this report have made limited progress in explicit strategies to contain benefit outlays and thus be in a position to promote competition between funds based on price.

While all countries engage in contract price negotiations with providers some, such as the Netherlands for Segment A DBCs (Diagnosis Treatment Combinations<sup>21</sup>) still have significant

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<sup>21</sup>Detailed description of the Netherlands DBCs can be found in Stoelwinder J. Medicare Choice: Insights from Netherlands health insurance reforms. Melbourne:ACHR, 2008.  
[www.achr.com.au/pdfs/MedicareChoice.pdf](http://www.achr.com.au/pdfs/MedicareChoice.pdf) Pp32-33

levels of price setting by regulation. Segment B DBCs are subject to competitive price setting and this component is increasing as a proportion of total hospital admissions. Others, such as Germany and Switzerland, have collective price negotiations between either the insurance association (Switzerland) or funds with majority market share (Germany) and provider associations (medical and hospital) to set tariffs that all funds then follow (although in Switzerland funds can negotiate volume discounts with providers outside of this cartel and some have, mainly in regard to rehabilitation services).

Switzerland has made the most explicit use of restricting access to providers through its “managed care” insurance option. Under this model access to providers is limited and funds are allowed to include significant front-end deductibles to avoid adverse selection by consumers. This combination allows for significant premium reductions (in the order of 20%). This “managed care” initiative has not led to significant transfer of financial risk to providers as less than 30% of managed care options involve capitation payments to providers. The result of this design seems not to be a primary focus on managing benefit outlays, but a tool for risk selection as consumers with self-assessed low risk, and hence willingness to accept a large deductible, trade off a reduction in choice of access for significant savings on premiums.

The Netherlands regulated hospital payment scheme, DBCs, bundles specialist and hospital payments together to cover the period from transfer from general practice and back again. Hospitals then pay specialists, although medical pay rates are regulated.

Insurers in the selected countries have eschewed vertical integration and American style pre-admission authorisation and concurrent review. In Israel insurers and providers are vertically integrated, and we are aware of only one insurer in the Netherlands that has vertically integrated into primary care organisations – an experiment that is being monitored by the other larger funds.

Disease management programs are ubiquitous amongst the selected countries and to date seems to have become a norm amongst health insurers as an effort to reduce long-term costs.

## 4.2. Risk Selection

In competitive markets for both mandatory and voluntary health insurance a major issue is risk-selection and its adverse effects on: quality of care, solidarity and efficiency. First, in the case of excessive predictable profits resulting from risk-selection, insurers may provide poor services to the chronically ill and choose not to contract with providers who have the best reputation for treating chronic illnesses. Therefore, risk-selection may threaten good quality care for the chronically ill. Second, to the extent that some insurers are successful in attracting the low-risk persons, these selection activities result in market segmentation, such that good quality care for high-risk individuals is not cross-subsidised. All in all, risk-selection may threaten solidarity in terms of the coverage of good quality care for high-risk people. Finally, selection may be more profitable than improving efficiency in health care production; particularly in the short run, when insurers have limited resources available to invest in cost-reducing activities. Efficient insurers may lose market shares to inefficient insurers that prefer to invest in selection rather than in efficiency, resulting in a welfare loss for society as a whole. Therefore, risk-selection may threaten efficiency. In summary, unregulated competitive health insurance markets result in incentives for selection that may threaten solidarity, efficiency, and quality of care.

A crucial difference between mandatory and voluntary health insurance markets is the additional problem of adverse selection by consumers in voluntary markets.<sup>22</sup> Adverse selection is potentially reflected in the relatively limited take-up of insurance by those with low risks, increasing the average cost and hence premiums of the remaining insurance pool and thus hindering access to insurance coverage by high risk individuals.

### 4.2.1. Tools for selection

There are a number of tools insurers can use to risk-select, the most common being supplementary insurance, excesses or deductibles, product design (premium differentiation - via product differentiation), selective advertising, strategic purchasing and/or selection contracting etc. Often, the regulatory framework creates tools for risk selection

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<sup>22</sup>Adverse selection in mandatory health insurance markets is mitigated by the presence of a universal mandate to purchase coverage. On the other hand, adverse selection may still occur between insurers if consumers can choose across different health insurers. This raises the question of whether mandatory coverage is effective and efficient (i.e. necessary and proportionate) to prevent adverse selection in competitive insurance markets or whether other regulatory instruments can be superior (e.g. risk-adjusted subsidies) (Paolucci, 2010).

unintentionally. A tool for risk selection, for instance, is created when in voluntary health insurance markets community rating per insurer is applied at a per product level, as insurers may design products to segment the market for preferred risk groups, thereby undermining affordability. Insurers can target preferred risks by providing (or not) benefits for certain risk profiles (e.g. exclusions). For example, an insurer may enhance the benefits for certain conditions (e.g. maternity benefits) for some favourable relatively low risk groups or reduce benefits for certain treatments (e.g. hip replacements) for some high risk groups. In voluntary health insurance markets regulated by community rating regulations per insurer per product, competition based upon product design is widespread as evidence suggests.<sup>23</sup> This form of risk selection can be limited by adopting a standardised (basic) benefits package<sup>24</sup> as in most countries with a universal mandatory health insurance scheme.

Furthermore, insurers may use deductibles as a tool for risk selection. For example, they may give a premium reduction higher than the actuarially fair saving arising from the application of the deduction. This practice has been increasing in both mandatory and voluntary health insurance markets due to the introduction of fixed deductibles (vs. risk-rated).<sup>25</sup> There are other mechanisms that are less explicit but equally effective in targeting preferred risk groups, such as:

- Selective advertising;
- Virtual (internet) insurers;
- Offering insurance via life insurers who make specific selections based on health inquiries;

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<sup>23</sup>Armstrong J, Paolucci F, McLeod H and van de Ven WPPM, "Risk Equalisation in Voluntary Health Insurance Markets in Three Countries", *Health Policy*, Vol.98 No.1, November 2010, pp.39-49; Paolucci F, Butler JRG and van de Ven WPPM, "Subsidising private health insurance in Australia: Why, how, and how to proceed?", Australian Centre for Economic Research on Health, Working Paper No.2, October 2008.

<sup>24</sup>In countries with universal mandatory health insurance for basic services, risk selection via product design may occur to the extent that insurers are allowed to differentiate the concrete entitlements of their insured members. In addition, risk selection via product design may occur in (unregulated) supplementary health insurance markets, which might be used as a tool for risk-selection in mandatory insurance if insurers are allowed to operate in both markets (Paolucci F, Schut FT, Beck K, Van de Voorden C, Gress S and Zmora I, "Supplementary health insurance as a tool for risk selection in mandatory basic health insurance markets", *Health Economics, Policy and Law* , Vol.2 No.2, April 2007, pp.173-92).

<sup>25</sup>Armstrong J, Paolucci F, McLeod H and van de Ven WPPM, "Risk Equalisation in Voluntary Health Insurance Markets in Three Countries", *Health Policy*, Vol.98 No.1, November 2010, pp.39-49; van Kleef RC, van de Ven WP, van Vliet RC,, "Shifted deductibles for high risks: more effective in reducing moral hazard than traditional deductibles", *Journal of Health Economics*, 2009 January, 28(1):198-209.

- Selectively terminating business in unprofitable regions, e.g. by closing offices in high-cost areas;
- Employer-related (group) insurers;
- Via limited provider plans such as health maintenance organizations (HMO) and preferred provider organizations (PPOs);
- Offering high rebates in case of a deductible;
- Information to unprofitable enrollees that they have the right to change sickness fund;
- Software programs allowing insurers to distinguish between profitable and unprofitable insured who are called by telephone;
- Turning away applicants on the telephone and ignoring inquiries and phone calls;
- Special bonuses for agents who are successful in getting rid of the most expensive cases by shunting them off to competitors;
- Via supplementary health insurance.<sup>26</sup>

The latter is particularly frequent in mandatory health insurance countries in which supplementary health insurance is typically risk rated.<sup>27</sup>

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<sup>26</sup>Van de Ven, W, K. Beck, F. Buchner, D. Chernichovsky, L. Gardiol and A. Holly et al., Risk adjustments and risk selection on the sickness fund insurance market in five European countries, *Health Policy* 65 (2003), pp. 75-98.

<sup>27</sup>Paolucci F, Schut FT, Beck K, Van de Voorden C, Gress S and Zmora I, "Supplementary health insurance as a tool for risk selection in mandatory basic health insurance markets", *Health Economics, Policy and Law*, Vol.2 No.2, April 2007, pp.173-92.

## 5. Conclusion and implications for Australia

### 5.1. Policy relevance

The policy relevance of an adequate risk adjustment mechanism has increased during the past two decades as many countries make their individual health insurance market more competitive or reform their already competitive markets in order to increase access to coverage for high-risk individuals. Many countries have chosen to use prospective payment arrangements for health insurance markets as a means for creating incentives for insurers to be cost conscious, preserving quality, innovation and responsiveness to consumer preferences. Risk adjustment is a key strategy for attenuating problems (e.g. risk selection) that threaten affordability and efficiency, such objectives would be hard, if not impossible, to achieve in competitive health insurance markets.

Despite its increasing relevance and the substantial improvements, the practical implementation of risk equalisation is still at early stages in many countries. For instance, many countries do not use risk adjustment as a means to create a level playing field between competing insurers in the context of both basic and supplementary health insurance markets.<sup>28</sup> Instead, they regulate competitive markets forcing insurers to pool consumers into a relatively small number of rate categories and regulate the characteristics of contracts offered to each of these categories.

Whereas a system of risk-adjusted subsidies attempts to provide explicit subsidies to high-risk individuals, the effect of regulation on product design and on premium setting (e.g. community-rating) is to create implicit cross-subsidies from low-risk to high-risk individuals. Although this risk pooling may foster the solidarity principle, it creates predictable losses for health plans on their high-risk individuals. In so doing, it creates incentives for health plans to avoid individuals with predictable losses and to select predictably profitable insured. This selection and the resulting risk segmentation can adversely affect access to care, quality of care and efficiency.<sup>29</sup>

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<sup>28</sup>Paolucci F, Health Care Financing and Insurance: Options for Design, Developments in Health Economics and Public Policy No.10, Springer, The Netherlands, 2010. (ISBN-13: 978-3-642-10793-1).

<sup>29</sup> Van de Ven WPMM, Ellis RP. Risk Adjustment in Competitive Health Plan Markets. In: Culyer AJ and Newhouse JP (Eds), Handbook of Health Economics, vol.1. Elsevier Science BV: Amsterdam; 2000. p. 755–845.

The conclusion is that in competitive health insurance markets - given that risk-adjusted subsidies will always be imperfect – there will always be selection incentives. Because the effects of selection have consequences for both efficiency and fairness, we are confronted with a complicated trade-off between efficiency, affordability and selection. The relevance of an adequate risk adjustment mechanism is that the better the explicit subsidies are adjusted for relevant risk factors the less is the need for complementary strategies (e.g. risk sharing mechanisms, cross-subsidies, regulatory tools etc.) to ‘achieve’ risk solidarity.

## 5.2 Recommendations for RE in Australia

### Problems of the current RE in the Australian PHI market

First, the current RE scheme in Australia is highly imperfect. If one of the main policy objectives of the current RE is to achieve equitable treatment of competing insurers with different coverage of risk groups, the use of age as the sole risk factor is insufficient. This is the current arrangement in the Australian voluntary health insurance market in which age in 8 age bands is the only risk factor. As a result of this imperfect adjustment, funds will be disadvantaged if they have more: females vs. males; females of child bearing age vs. other females; people aged in the early 50s compared to younger people; and/or high-risk groups than funds in a particular state.

Second, in the presence of community-rating regulation based on product selection is a threat to the stability of the health insurance market, manifesting itself by means of premium discrimination via product differentiation (e.g. hospital cover premiums for high-risk policies are up to 6 times higher than for low risk policies).

Third, the current RE scheme is de facto an ex-post (retrospective) claims-equalisation scheme that equalises the financial differences between insurers that arise from differences in actual claims. Such claims equalization, although theoretically reducing premiums, in particular for high risks (i.e. it increases affordability), limits price-competition (i.e. it decreases efficiency) as insurers share financial risk in the pool.

## Potential developments

As argued throughout this report, risk-adjusted subsidies, or risk equalization, is the preferred strategy to achieve efficiency and affordability objectives in competitive health insurance markets. In the case of perfect risk equalisation there is no need for any other strategy to achieve these objectives, as each of the other strategies (i.e. community-rating, premium-compensation schemes, claims-compensation schemes) inevitably confront policymakers with a tradeoff. Therefore, risk equalisation should be developed to be the primary regulatory tool to achieve affordability and solidarity while seeking to escape from the tradeoffs between affordability, efficiency and selection. To achieve this implies the following changes to the current regulatory framework in the Australian PHI market.

First, we strongly recommend the introduction of a prospective ex-ante risk-equalisation scheme. A starting point could be the reconsideration of the 2003 'Risk-Based Capitation' proposal, which included the introduction of 8 to 10 age/gender bands with 100% of health expenditures per individual equalized.<sup>30</sup>

Secondly, a careful and rigorous analysis of additional potential risk-adjusters should be conducted to inform and establish which variables should be introduced to improve the performance of the formula. As previously argued selection problems in the Australian PHI market are exacerbated by the voluntary nature of enrolment and by the freedom insurers have to design and differentiate insurance products. In this context, the additional crucial questions that need to be addressed are:

- What variables are most effective in addressing selection and premium differentiation via product design?
- To what extent is a minimum standard benefit package, to which RE would apply, necessary?

As far as the choice of variables is concerned, experience in other countries provides a promising basis for the refinement of the RE formula in Australia, particularly when it comes to the introduction of health status proxies such as DCGs and PCGs as in the Netherlands. Other risk-adjusters might also be considered and evaluated in the Australian context (e.g. region; socio-economic status; income-levels; employment-status; disability etc.).

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<sup>30</sup>Department of Health and Ageing Private Health Insurance Branch (2003). Risk Based Capitation (RBC) Risk Equalisation for Private Health Insurance – Information Paper. Department of Health and Ageing.

We recommend that a standard benefit package be mandated through regulation to which risk equalization would apply.

Thirdly, the experience in other countries, and in Australia, highlight that changes to risk equalization arrangements can have significant financial impact on individual funds. The current premiums of PHI products have had to accommodate the extent that current risk equalization does not compensate funds with higher average risks in variables not included in the formula and vice versa for funds with lower average risk. To avoid sharp disparities in premium increases and gross impacts on the financial position of funds it is important to develop incremental implementation strategies that allow fund to adapt over time without major disruption to the PHI market.

With the above in mind we recommend a careful and comprehensive review of existing regulatory framework operating in the Australian PHI market. A staged implementation path will be required. We propose the following as an illustration:

- PHASE 1:
  - o Introduction of prospective demographic (age and gender) risk-adjusted subsidy to substitute the current premium-rebate;
  - o Introduction of a 'positively-defined' standard minimum benefit package with community-rating and open enrolment regulations. The ex-ante RE scheme to be applied only to the acceptable costs defined within the minimum package. This implies that insurers may offer coverage for supplementary (i.e. excluded from the basic minimum package) services with no restrictions on premium rating and no additional subsidies.
  - o To the extent that the level of risk-solidarity achieved by risk-equalisation is not acceptable for society, we recommend the adoption of complementary risk-sharing arrangements in the form of pure claims compensation schemes, We therefore propose the transformation of the current High Claims Costs Pool into a pure ex-post claims-equalisation scheme for high risk claimants. The design of such schemes foresees the definition of a loss threshold above which insurers are compensated ex-post for health care expenditures, in excess of the threshold level, per single individuals per year. As ex-post claims equalization confronts policymakers with a trade-off between

efficiency and selection (as they reduce insurers' final risk), we propose it is progressively 'softened' and ultimately removed as the risk-equalisation scheme is gradually improved and ultimately considered sufficient to achieve society's objective of acceptable risk-solidarity. To determine whether the nature of such scheme should be market-based (i.e. voluntary reinsurance scheme) or externally supported by the regulator requires careful evaluation of the costs and benefits these two options entail..

- PHASE 2 (after several years from the start):
  - o Improvement of the ex-ante RE formula with the introduction of socio-economic and other demographic variables (e.g. region);
  - o Relaxation of community rating regulation into risk-bands with the purpose of limiting (subtle forms of) risk-selection and foster price-competition;
  - o Retain the claims equalization scheme and progressively increase the annual threshold to the extent that the 'quality' of the risk-equalisation scheme is increased as a result of the additional risk-factors . Re-evaluation of the necessity and proportionality of external government subsidies.
- PHASE 3:
  - o Improvement of the ex-ante RE formula with the introduction of health status proxies. The starting point might be to introduce a refined version of DRGs, followed by the Australian version of Dutch DCGs and PCGs, and disability-related adjusters.
  - o Evaluation of the effectiveness and efficiency of risk-bands and economic assessment of the suitability of allowing risk rating in both the basic and supplementary insurance markets.
  - o Potential removal or further increase of the threshold level of the claims equalization scheme, after comprehensive evaluation of the performance of the improved risk-equalisation formula.

## 6. Glossary

### Acceptable costs

The costs of services and intensity of treatment that government has decided to be acceptable to be subsidised.

### Adverse Selection

Actions by consumers to exploit heterogeneity in their actual risk profile from that used by insurers. For example, consumers select an insurer or an insurance policy that charges a premium lower than the cost of healthcare the individual consumer expects to pay. Adverse selection results in high risk individuals purchasing (higher than average levels of) insurance coverage, while low risk people opt out.

### Ancillary Care

This comprises services such as dental, physiotherapy, occupational therapy, and optical.

### Claim equalisation

Claim equalisation is a mechanism to equalise claims costs among insurers by paying to or from them cost-adjusted equalisation payments, with the objective that the ex-post costs per person of each insurer become more similar.

### Copayments

Copayments or gaps are out of pocket expenses individual consumers face at the point of delivery if their public or private insurance doesn't provide full reimbursement for the costs of healthcare.

### Community Rating

A method of setting premiums under which the premium paid for each consumer is identical for all consumers regardless of the risk profile of each individual, and a common form of legal rate restrictions on premiums setting. The most common form of community rating regulations impose that the premium for the coverage of the costs of a predefined set of services is the same for all members enrolled in that specific product (i.e. community rated premium per insurer per product = average expected costs per product per insurer).

### Demographic Risk Factors

These risk factors include individuals' characteristics associated with expected health care costs such as age, gender and region.

### Diagnostic Cost Group (DCG)

These are based on inpatient hospitalisation data to classify members into risk groups. DCGs might be used as risk factors for the purposes of risk equalisation and/or resources allocation between health insurers and/or regional health authorities.

Diagnostic Related Groups (DRG)

This is a classification system which is based on medical diagnoses.

Financial responsibility of an insurer

The extent to which an additional dollar spent by an individual insurer is reflected in its own financial result.

Health Status Risk Factors

These variables are used to predict health care costs on the basis of specific health related data, e.g. based on prior use of inpatient hospital services, outpatient prescription drugs, medical devices etc.

Income solidarity

Cross-subsidies from high income to low income individuals.

Inpatient

This refers to a patient who is admitted to hospital (or other such facility) for one or more nights.

Insurers

Entities who provide insurance coverage to consumers. They have been variously referred to as sickness funds, insurance undertakings, health funds or medical schemes in different countries. Such entities may or may not retain the risk in full or in part.

Inter-generational solidarity

Term used to express the objective of having risk solidarity in health insurance markets. At a given point in time, different generations support each other through age-based cross-subsidies. Furthermore, successive generations subsidised themselves across time.

Lifetime community rating

By law or regulation Community Rated Premiums (CRP) are set according to the age of entry in the insurance market (i.e. when the first policy is purchased), but are otherwise CRP.

Market instability

Instability in the market arising directly from the risk selection actions of consumers or insurers.

Open Enrolment

By law or regulation insurers must accept all applicants to insurance coverage.

Outpatient

This refers to a patient who receives treatment within or outside the hospital without occupying a ward bed.

#### Reinsurance

Traditionally used in insurance to refer to the passing of a defined level of risk by an insurer to a third party to meet some business objective (e.g. loss sharing, capital management). In this context, it refers to the historic term used in Australia for claim equalisation.

#### Risk Equalisation

This is a mechanism to equalise the risk profiles of the insurers by paying to or from them a risk-adjusted equalisation payment per insured member, derived from an individual's predicted health expenses based on his/her risk factors.

#### Risk Rating

This is a pricing method used to calculate premium in unregulated competitive health insurance markets according to which individual applicants are charged on the basis of the insurers expected or perceived risk.

#### Risk Selection

Actions (except premium differentiations) by insurers and consumers to exploit heterogeneity in risk profiles between consumers and therefore maximise their profits. Such actions result in market segmentation with the purpose of attracting (dropping) individuals whose expected costs are lower (higher) than the average population expected costs. Where imperfect premium differentiation or imperfect equalisation is in place the incentive to engage in risk selection and break pooling arrangements is great.

#### Solidarity

Solidarity refers to cross-subsidies between individuals. Two types of solidarity exist—risk solidarity from low-risk to high-risk groups and/or income solidarity from high to low income groups. Throughout this report we will use also the terms affordability or cross-subsidisation to refer to solidarity.