

*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*

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Wynand PMM van de Ven¹
Professor of Health Insurance
Erasmus University Rotterdam

Frederik T Schut
Professor of Health Economics
Erasmus University Rotterdam

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directed by Ezekiel J. Emanuel and Victor R. Fuchs

¹ Contactperson: P.O. Box 1738, 3000 DR Rotterdam, the Netherlands.
Phone: 00 31 10 408 8556 / 8525, Fax: 00 31 10 408 90 94, e-mail: vandeven@bmg.eur.nl.

ABSTRACT

Consumer choice of health insurer provides the insurers with incentives for efficiency, but also with incentives for risk rating. This raises the question: How can we make individual health insurance affordable for the high risks in a competitive insurance market? A system of subsidies is a straightforward way to do so, but what is the best form of subsidies?

The goal of this paper is to analyze several forms of subsidies and the tradeoffs they involve.

We assume that there is an open enrollment requirement for a specified insurance coverage. As long as insurers are free in setting their premiums, this assumption is non-restrictive.

Our conclusion is that in general a system of risk-adjusted premium subsidies is the preferred form of subsidy. Although there are several ways to organize the subsidy payment flows, all countries applying risk-adjusted premium subsidies have chosen for the form of risk equalization among insurers. We discuss the various pros and cons of the different forms of organizing the payment flows.

To the extent that some high-risk consumers are insufficiently subsidized, the risk-adjusted premium subsidies or risk equalization payments can be complemented by one or more of the following strategies: premium-based subsidies, excess loss compensations, and implicit cross-subsidies enforced by premium rate restrictions. The choice among these additional strategies confronts policy makers with a complicated tradeoff between affordability, efficiency and the potential effects of selection, notably low quality care for the chronically ill. The better the equalization payments are adjusted for relevant risk factors, the less severe is this tradeoff. In fact, good risk equalization is the only strategy that offers an escape from the tradeoff between affordability, efficiency and selection. Therefore, to make individual health insurance affordable in a competitive health insurance market, further investments in risk equalization are essential.

As a case-study we focus on the experiences in the Netherlands, which is the first country in the world that has implemented a National Health Insurance (intended to be) based on Managed Competition in the private sector (the Enthoven-model, 1978).

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1. Introduction

In the last decades the interest in the model of Managed Competition in health care has increased worldwide. In this model individual consumers have a periodic choice among competing health insurers (or ‘health plans’) who either purchase care on behalf of their insured or deliver the care themselves (Enthoven, 1988). The Managed Competition model requires several preconditions to be fulfilled. One of these² is related to the question: *How can we make individual health insurance affordable for the high risks in a competitive insurance market?*

This question is high on the political agenda in many countries, e.g. in Australia, Belgium, Chile, Colombia, Czech Republic, Germany, Ireland, Israel, the Netherlands, Russia, South Africa, Switzerland, and the United States of America (USA). Although a consumer choice among risk-bearing insurers stimulates the insurers to be efficient and responsive to consumer preferences, it also stimulates them to ask risk-adjusted premiums. On the one hand this gives consumers an incentive for risk-reducing behavior. On the other hand it can make health insurance unaffordable for the high risk individuals, in particular for the low-income people. Society can make health insurance affordable by giving them subsidies.

The goal of this paper is to analyze several forms of subsidies and the tradeoffs they involve. As a case-study we focus on the experiences in the Netherlands, which is the first country in the world that has implemented a National Health Insurance (intended to be) based on Managed Competition in the private sector (the Enthoven-model, 1978).

This paper provides a taxonomy of the types of subsidies that can be used to make individual health insurance affordable and different modalities of organizing the cross-subsidies in a competitive insurance market. We assume there is an *open enrollment* requirement, that is, insurers are not allowed to reject applicants for a specified insurance coverage or to exclude pre-existing medical conditions. As long as the insurers are free in setting their premiums, this assumption is non-restrictive because insurers can ask any premium as an alternative for rejecting applicants. By making this assumption we can reformulate the ‘access’-problem that would occur in case of rejection as an ‘affordability’-problem to be solved by subsidies.

² Other preconditions are, for example, an effective competition policy in health care, good consumer information about the quality of the health insurers and providers, sufficient contracting freedom for the insurers and providers of care, and a sufficient number of consumers must be price-sensitive at the margin.

We focus on *individual* insurance and not on *group* insurance.³ We focus on the affordability of individual health insurance, irrespective whether this is in the context of a voluntary or mandatory health insurance. The rationale for doing so is that if health insurance is not affordable for certain groups of individuals, it does not make sense to mandate to buy it. On the other hand, *if* subsidies make health insurance affordable, the question is whether a mandate to buy health insurance is necessary and proportional. In addition we focus on competitive health insurance markets. By *competitive*, we mean markets in which individual consumers have a periodic choice of health insurer and insurers may take actions, such as designing, pricing and marketing their products, to attract or repel enrollees. To improve efficiency of health care delivery and to reduce moral hazard insurers may selectively contract with the providers of care or deliver the care themselves.

In section 2 we deal with the question *How to make individual health insurance affordable for the high risks in a competitive insurance market?* Section 3 focuses on the experiences in the Netherlands. In section 4 some critical issues are discussed, and section 5 concludes.

2. How to make individual health insurance affordable?⁴

2.1 Free market: risk-rated premiums and risk selection

In a free competitive insurance market insurers have to break even, in expectation, on each contract either by adjusting the premium to the consumer's risk (risk-adjusted premiums) or by adjusting the accepted risk to the premium (risk selection). Risk adjusted premiums are the norm, not the exception, in competitive markets. In the absence of regulation, health insurers will tend to charge premiums that differ across both observable risk factors and benefit packages designed to attract specific risk types. If insurers are free to ask risk adjusted premiums, the premium differences can easily go up to a factor 100, ranging e.g. from € 400 to € 40,000 per person per year.

If risk-rating becomes too costly or technically infeasible the pooling of people with different risks can be hindered by *risk selection*, i.e. actions⁵ by consumers and insurers to exploit unpriced risk heterogeneity and break pooling arrangements (Newhouse, 1996). Examples of *risk selection* are that low-risk individuals do not buy insurance or that insurers refuse to contract with high-risk

³ For the advantages and disadvantages of group health insurance, see e.g. Enthoven and Fuchs (2006) and Pauly et al. (1999).

⁴ This section is partly based on Van de Ven et al. (2000).

⁵ not including risk-adjusted pricing.

individuals. Alternatively the insurer may exclude from coverage the costs related to some preexisting medical conditions. Another form of selection is that insurers design their insurance policy so as to attract a favorable selection of enrollees. Risk selection may have several effects, such as instability in the insurance market, a continuous exit of insurers due to bankruptcy, a welfare loss due to the inability to buy the preferred insurance coverage, and high prices for high risk individuals (see e.g. Rothschild and Stiglitz, 1976; Wilson, 1977; Schut, 1995; Newhouse, 1996).

In an unregulated competitive market the premium for an insured consumer who develops AIDS, cancer or a heart disease will in the next contract period be raised to the expected cost level. Alternatively, the insurer may decide to exclude from coverage the costs related to medical conditions which pre-exist before the new contract period, or not to renew the contract. So in a free market health insurance can only provide protection against *unpredictable* variation of costs *in the contract period* (usually a year). There is no insurance against the financial risk of becoming a high risk in the future (see e.g. Pauly, 1992, p. 140). For automobile, burglary and fire insurance these consequences of a competitive insurance market appear to be socially acceptable. For health insurance in most societies this is not the case. Therefore, a challenging question is: *What is the best strategy in a competitive insurance market to make individual health insurance affordable and accessible for high-risk individuals?* Because in this paper we assume an open enrollment requirement, we reformulate the access-problem that would occur in case of rejection as an affordability-problem to be solved by subsidies. As potential solutions we analyze the following strategies: *explicit* premium subsidies and *implicit* cross-subsidies enforced by premium rate restrictions.

2.2. *Explicit subsidies*

Examples of *explicit* premium subsidies are vouchers⁶, tax-deductibles, tax-credits, and employers' contributions to an employee's individual health insurance. Under this strategy we assume that insurers are free to ask risk-adjusted premiums. The subsidy system can be organized by a sponsor (e.g. government) such that high-risk persons who are confronted with unaffordable premiums receive a premium subsidy from a Subsidy Fund, which is filled by mandatory contributions.⁷ High-risk persons pay their risk-adjusted premium partly with the

⁶ We prefer the term *subsidy* rather than *voucher* because vouchers, in contrast to subsidies, may be associated with an *integral* financial compensation (e.g. luncheon voucher, hotel voucher) rather than a *partial* compensation.

⁷ In this paper we do not focus on how the Subsidy Fund is filled. This is a political choice of the sponsor. We only assume that the mandatory contributions to the Subsidy Fund per se do not make health insurance unaffordable for the contributor.

subsidy and partly out of pocket. The subsidies may be earmarked for the purchase of specified insurance coverage.

The premium subsidies can depend either on the risk factors that the insurers use in a free market, such as age and health status, or on the level of the premium paid (Zweifel and Breuer, 2006; Van de Ven, 2006).⁸ The advantage of *risk-adjusted* subsidies over *premium-based* subsidies is that they do not distort competition. Premium-based subsidies are not optimal for the following three reasons. First they reduce the incentive for high-risk consumers to shop around for the lowest premium, and thereby reduce the insurers' incentive for efficiency. They reduce the competitive advantage of the most efficient insurers and reduce overall price competition. Second, they stimulate the high-risk consumers to buy more (complete) insurance than they would have done in case of no subsidy at the margin, resulting in a welfare loss due to additional moral hazard resulting from over-insurance. Third, premium-based subsidies create a misallocation of subsidies. The magnitude of the premiums is determined by many factors, not all of which society may want to use for determining the subsidies. Assume that the total set of factors that determine insurers' premiums, can be divided into two subsets: those factors for which cross-subsidies are socially desired, the S(ubsidy)-type factors; and those for which cross-subsidies are not desired, the N(on-subsidy)-type factors (Van de Ven and Ellis, 2000, p. 768-769). In most countries to a certain extent gender, health status and age will probably be considered as S-type risk factors. But society could decide that the differences in premiums that are caused by other factors should not be reflected in the subsidies. Examples of potential N-type factors are: (1) the insurer's ability to negotiate price-discounts; (2) the insurer's ability to manage the care e.g. by selective contracting and utilization management; (3) regional characteristics such as population density, distance to facilities, price level and whether there is oversupply of facilities; (4) decisions about covered services; (5) and individual consumer characteristics such as lifestyle, health behavior, preventive behavior and taste. Differences in health insurance premiums may result from differences in all these factors. Subsidizing health insurance premiums *irrespective of the cause of the premium differences*, as is the case with premium-based subsidies, most likely results in a misallocation of subsidies.⁹

An effective way to deal with these three problems is to have *risk-adjusted subsidies* rather than premium-based subsidies. The subsidies can be based on all S-type risk factors that insurers use

⁸ In addition the subsidies can depend on the individual's income.

⁹ For example, in Belgium medical supply is explicitly considered an N-type risk factor for which the subsidies should not be adjusted. Schokkaert and Van de Voorde (2003; Table 2) illustrate the nontrivial impact of this political decision on the subsidies.

in their premium setting. Consequently the consumer is fully price sensitive at the margin. This avoids the other two mentioned problems of premium-based subsidies. The sponsor has to decide about the cost level of the services, including the quality and the intensity of treatment, which it considers to be acceptable to be subsidized.

There are at least three ways to organize the subsidy payment flows (see Figure 1). According to the first method (*Modality A*) the subsidy goes directly to the consumer and the consumer pays the premium partly with the subsidy and partly out-of-pocket. As far as relevant, consumers pay their contribution to the Subsidy Fund. In practice all countries that apply *risk-adjusted* premium subsidies¹⁰ do it in a form of risk equalization among insurers. One form is that the subsidy goes directly to the insurer, and the consumer pays the premium minus the subsidy to the insurer (*Modality B*). In a transparent competitive market the insurers are forced to reduce the consumers' premium with the per capita subsidy they receive for this consumer. Another form is that the consumer pays the contribution to the Subsidy Fund *via* the insurer (*Modality C*). In that case each insurer and the Subsidy Fund clear the net difference of all the contributions to the Subsidy Fund and the subsidies of the relevant clients.¹¹

(Figure 1 about here)

Although at first glance Modality A (often referred to as the 'subsidy-model' or 'voucher-model') and Modality B and C (often referred to as the "risk-equalization-model") may seem to be quite different, it is important that all modalities primarily differ in the way the payment flows are organized. The way that the premium subsidies and the contributions to the Subsidy Fund are calculated can in principle be the same. Nevertheless, in practice there are some interesting differences between the modalities that are worth considering (see section 4.4).

Risk-adjusted premium subsidies make health insurance affordable *every new contract period*. If a person's health status deteriorates over time and consequently the health insurer raises the person's premium, the future subsidy value will be adjusted to the change in the individual's risk characteristics. In this sense risk-adjusted premium subsidies provide protection against the financial risk of becoming a high risk in the future.

¹⁰ Belgium, Colombia, Czech Republic, Germany, Ireland, Israel, the Netherlands, Russia, South Africa (as of 2009), Switzerland, and USA (Medicare).

¹¹ A fourth modality (not depicted in Figure 1) is that the sponsor collects both the premium and the contributions and transfers the premium and the subsidies to the insurers (*Modality D*). This alternative is applied by some employer purchasing coalitions in the USA.

Even if insurers are free to risk-rate their premiums, they may not be able to accurately adjust the premium to a consumer's risk, especially in case of high-risk consumers and new applicants. This may be either because it is too costly to collect sufficient information (too high transaction costs) or because the group of applicants is too small, so that the law of the large numbers is not applicable (e.g. in the case of high-risk applicants with a rare disease). These impediments for insurers to risk rate applicants can be reduced by a nation-wide standard rating model based on statistical information of all insurers.¹² In addition insurers could develop a system of exchanging information about an individual's risk factors in case a consumer decides to switch to an other insurer¹³. Nevertheless, if it is impossible or too costly for an insurer to risk-rate an applicant, the insurer will ask an extremely high premium (as an alternative for rejecting the applicant, which is not allowed given the open enrollment requirement that we assume). If insurers cannot calculate a risk-adjusted premium for certain groups of high-risk applicants, most likely the sponsor cannot calculate risk-adjusted premium subsidies. This could be the case e.g. for patients with a rare chronic disease (too few observations per risk group).

To solve this problem the sponsor can provide the insurers with a subsidy for high-risk subscribers in the form of *excess loss compensations*.¹⁴ For example, the insurers can be compensated by the Subsidy Fund for (a part or) all expenditures (for a specified insurance coverage) above a certain threshold for each individual insured per year. These subsidies will substantially reduce the insurers' expenditures in the long right tail of the distribution of the high risks' expenditures. This will help the insurers to calculate a risk-adjusted premium for the high-risk applicants. In case of full compensation above the threshold, the threshold amount effectively functions as the maximum premium (excluding loading fees) for all insurers. The high risks clearly benefit more from this type of subsidy than the low risks.¹⁵ The advantages of excess loss compensations have to be weighted against the disadvantage of reducing the insurers' incentive for efficiency.¹⁶

2.3. *Implicit cross-subsidies*

¹² Although a standard rating model provides the nation-wide predicted per capita health expenses per risk category, in a competitive market it is essential that *each individual insurer sets its own premium rates*. Premium agreements among insurers should remain a violation of antitrust legislation.

¹³ As for instance in the case of car insurance in the Netherlands.

¹⁴ An alternative is a voluntary reinsurance pool (see Van de Ven et al., 2000, p. 326-7)).

¹⁵ An extreme example of excess loss compensations is provided by the Act on access to private health insurance (Wet op de toegang tot ziektekostenverzekeringen, WTZ; 1986 – 2005) in the Netherlands, which guaranteed full compensation of all losses above the maximum premium set by the government.

¹⁶ For other forms of ex-post compensations to the insurers (or, equivalently, forms of 'risk sharing between the insurers and the Subsidy Fund') see e.g. Van Barneveld et al., 2001.

An alternative strategy to make health insurance affordable for the high-risks in a competitive market with open enrollment is to create *implicit* cross-subsidies enforced by premium rate restrictions. *Premium rate restrictions* can take several forms: community rating, a ban on certain rating factors (for example health status, genetic information, duration of coverage, or claim experience) or rate-banding (i.e. a minimum and maximum premium). Community rating mostly has the form of ‘community rating per insurer per product’, which implies that for each product an insurer must ask the same premium from each individual, independent of the individual’s risk characteristics.

The goal of such regulation is to create implicit cross-subsidies from the low-risks to the high-risks.¹⁷ However, pooling of people with different risks creates predictable profits and losses for certain subgroups, and thereby provides insurers with incentives for risk selection. Even if there is an open enrollment requirement, selection against the predictably unprofitable consumers (‘lemon dropping’¹⁸) can take place in several ways (see Appendix 1).

Risk selection and even the existence of incentives for selection can have several unintended adverse effects. First, selection may threaten good quality care for the chronically ill. In the case of large predictable profits resulting from selection, the insurers have a disincentive to respond to the preferences of high-risk consumers. Insurers may give poor services to the chronically ill and choose not to contract with providers who have the best reputations for treating chronic illnesses. This in turn can discourage physicians and hospitals from acquiring such a reputation. To the extent that an insurer and its contracted providers of care share financial risk, the providers share the incentive to attract profitable patients and to deter patients who generate

¹⁷ A weaker form of regulation is the so-called *guaranteed renewability*, i.e. the insurer’s obligation after each contract period to renew the insured’s contract at the ‘standard premium and standard conditions’ (see e.g. Pauly et al., 1995; Herring and Pauly, 2006). The aim of the guaranteed renewability clause is to create implicit cross-subsidies in the *future* periods towards those who over time become a high risk. However, in a competitive market this goal may not be achieved. Let’s assume that the guaranteed renewability clause starts with a pool of homogeneous risks. After some contract periods ‘new’ products will be offered (often by the same insurer!) for an actuarial fair premium to only the (then) relatively low risks, who then leave the original pool. The individuals who have become a high risk, are not accepted for the new products. The ‘guaranteed renewability’-pool will come in a upward premium spiral, and will increasingly consist of the high risks who cannot leave the pool. This is exactly what has happened in the individual private health insurance market in the Netherlands in the last decades (Schut, 1995). (All insurers voluntarily included such guaranteed renewability clause in their private health insurance contracts.) A major concern with a guaranteed renewability clause is that the high risks are ‘married with their insurer’. This ‘lock-in’ is a serious problem if the chronically ill insured are dissatisfied with the quality of care (or the benefits package) that their insurer offers. They cannot switch at an affordable premium to another insurer. In other words, guaranteed renewability cannot be combined with a periodic consumer choice of health insurer for the high risks.

¹⁸ We owe the term ‘lemon dropping’ to Victor Fuchs, who rightly argues that lemon dropping can be more effective than cream skimming (or cherry picking) because on average the per capita predictable losses on the ‘lemons’ are higher than the per capita predictable profits on the ‘cherries’.

predictable losses. As a result of selection, high-risk patients may either receive poor care and poor service or pay a very high premium – if they are able and willing to do so – for good care to an insurer who specializes in care for high-risk patients (if there is such an insurer). If the regulation implies a nation-wide maximum premium it is suicidal for an insurer to become known for providing the best care for chronically ill, because it cannot raise its premium and it will attract a disproportionate fraction of individuals who predictably generate more costs than revenues. Although ethical considerations and the loss of a good reputation may prevent the most visible forms of selection, the more subtle forms of risk selection can also be very profitable for insurers and harmful for the chronically ill.

We are not aware of any systematic literature review concerning the question whether selection results in poor care for the chronically ill. Although the incidental studies we came across do not warrant final conclusions, they give rise to some concern if insurers are confronted with strong financial incentives to be irresponsive to the preferences of the chronically ill (see Appendix 2).

Second, selection may reduce efficiency in production. In case of large predictable profits resulting from selection, selection will be a more profitable strategy for cost reduction than improving efficiency in health care production. At least in the short run, when an insurer has limited resources available to invest in cost-reducing activities, the insurer may prefer to invest in risk selection rather than in improving efficiency. In the long run, improving cost-reducing efficiency may be rewarding, independent of the level of selection. Efficient insurers who do not engage in risk selection, however, may lose market share to inefficient insurers who do, resulting in a welfare loss to society.

Third, selection may reduce the high risks' affordability of health insurance. To the extent that some insurers are successful in attracting the low-risk persons, these selection activities result in market segmentation whereby the high-risks pay a higher premium than the low-risks.

Fourth, selection may induce instability in the insurance market (see section 2).

Finally, while an individual insurer can gain by risk selection, society as a whole gains nothing. Thus, any resources used for selection represent a welfare loss.¹⁹

¹⁹ Resources used by health insurers for product innovation or for designing contracts which provide consumers an incentive to become/remain in good health, but which may also attract low-risk individuals, are not considered a welfare loss (Beck and Zweifel, 1998).

2.4. Conclusion

We have discussed the following strategies to make individual health insurance affordable for the high-risk individuals in a competitive market with open enrollment: *explicit* subsidies, such as risk-adjusted premium subsidies, premium-based subsidies and excess loss compensations; and *implicit* cross-subsidies enforced by premium rate restrictions for a specified insurance coverage. In practice all countries that apply risk-adjusted premium subsidies do so in a form of risk equalization among insurers. Table 1 summarizes the potential effectiveness and market distortions of these strategies.

(Table 1 about here)

In general a system of *risk-adjusted premium subsidies* or *risk equalization* can be effective in making health insurance affordable if the risk factors that the sponsor uses are similar to the risk factors that the insurers use for risk-adjusting their premiums. However, this type of subsidies is ineffective if it is technically not feasible for the sponsor to calculate risk-adjusted subsidies for certain risk groups. As far as we know no country in the world has a risk equalization system that sufficiently compensates the extreme high risk individuals. *Premium-based* subsidies are not optimal because (1) they reduce the incentive for high-risk consumers to shop around for the lowest premium, (2) they induce over-insurance resulting in additional moral hazard, and (3) they create a misallocation of subsidies. *Excess loss compensations* are not optimal because they reduce the insurers' incentives for efficiency. And *premium rate restrictions* are not optimal because the ensuing pooling of people with different risks creates incentives for selection which (1) may threaten good quality care for the high-risks, (2) may reduce efficiency in production, (3) may result in higher premiums for high-risks than for low-risks, and (4) may induce instability in the insurance market.

The conclusion is that (currently) none of the strategies is both fully effective **and** without any problems with respect to affordability, efficiency or selection. So policymakers have to choose the most appropriate (strategy or) blend of strategies to achieve the optimal outcome given the weights that society gives to affordability, efficiency and the potential effects of selection. To the extent that *risk-adjusted premium subsidies* or *equalization payments* insufficiently subsidize some high-risk consumers, they can be complemented by one or more of the other strategies. The choice among these complementary strategies confronts policy makers with a tradeoff between affordability, efficiency and selection. The better the equalization payments are adjusted for relevant risk factors, the less severe is this tradeoff. In case of *premium-based subsidies* and *excess loss compensations* there is a tradeoff between affordability and efficiency.

In case of implicit cross-subsidies enforced by *premium rate restrictions* the sponsor can reduce the insurers' incentives for selection by implementing a system of risk equalization among the insurers, or by making the premium rate restrictions less restrictive (which makes health insurance less affordable for the high risks) or by providing the insurers with ex-post compensations (which reduces the insurers' incentives for efficiency).²⁰ Again the sponsor is confronted with a tradeoff between affordability, efficiency and selection.

So in case of insufficient risk equalization policy makers who want to make individual health insurance affordable for the high risks in a competitive market, are confronted with questions such as:

1. How much efficiency is society willing to sacrifice for affordability?
2. How much efficiency is society willing to sacrifice for good quality care for the chronically ill patients?
3. How much affordability is society willing to sacrifice for good quality care for the chronically ill patients?
4. Which premium level for the high risks is considered (un)affordable?
5. If insurers have weak incentives for efficiently managing care for some groups of high risks, are there other ways for the sponsor to promote efficiency?
6. If insurers have incentives for risk selection, are there sufficiently effective means available to the sponsor to safeguard the quality of care for the high risks?
7. Is risk selection in practice a serious problem in case of a sophisticated but still imperfect risk equalization?

We conclude that from the above mentioned strategies risk-adjusted premium subsidies or risk equalization is the preferred strategy. This is because the better the risk equalization is, the less complementary strategies are needed, and the less severe the resulting tradeoff will be. In the (theoretical) case of perfect risk equalization there is no need for any of the other strategies and the tradeoff no longer exists. Each of the other strategies alone inevitably confronts policymakers with a tradeoff. *Good risk equalization offers the only effective escape from the*

²⁰ The sponsor could also try to reduce selection by additional regulation such as the prevention of any direct contact between an insurer's sales representative and applicants during the enrollment process, by publication of results of consumer satisfaction surveys, by forbidding certain forms of risk-sharing between insurers and providers, by ethical codes for insurers, and by ensuring that the pricing and selling of the standard benefits package is not tied in with other products and services. The extent of the success of these measures depends on the size of the predictable profits and losses that result from the premium rate restrictions as well as on the costs of selection - including an insurer's costs of losing its good reputation - and the length of the contract period. A problem with all these measures to reduce selection is that they do not take away the *cause* of selection, i.e. the predictable losses on the high-risks.

tradeoff between affordability, efficiency and selection. This is what we propose as the FRESH way of thinking about risk equalization.

3. The Dutch healthcare system: National Health Insurance based on Managed Competition in the private sector

Since 1 January 2006 the Health Insurance Act obliges each person who legally lives or works in the Netherlands to buy individual private health insurance with a legally described benefits package (e.g. physician services, prescribed pharmaceuticals and hospital care) from a private insurance company.²¹ Before 2006 the Dutch health insurance system was segmented. Two thirds of the population had mandatory sickness fund insurance and the one third with the highest income could voluntarily buy private health insurance. The previous sickness fund insurance has been abolished.

In an international context the Netherlands' health system reform is unique: it is the first country in the world that is consistently implementing Enthoven's (1978) model of Managed Competition: a 'National Health Insurance based on Managed Competition in the Private Sector'.

Traditionally the Dutch health care system is characterized by heavy government regulation with respect to prices, capacity and infrastructure. Since the early 1990s market-oriented health care reforms have gradually been implemented in the social health insurance system. These reforms were based on the recommendations of the Dekker-Committee (1987). However, a number of complicated preconditions had to be fulfilled in order to create the appropriate incentives for consumers, providers and health insurers. First, an adequate system of risk equalization had to be developed to combine competition with open enrollment and community-rated premiums and to prevent risk selection. Next, an adequate system of product classification and medical pricing had to be developed to give providers appropriate incentives for efficiency and to prevent stinting on the delivery of services. Third, an adequate system of outcome and quality measurement was necessary to enable fully specified contracts between health insurers and health care providers and to prevent competition focusing only on price. Fourth, an adequate system of consumer information about the price and quality of health insurers and health care providers had to be developed to enable effective consumer choice. Finally, an

²¹ There are preliminary estimates that the number of uninsured among those who are obliged to purchase health insurance, is 1.1 % (see Appendix 3).

adequate governance structure including an effective competition policy had to be developed.

Since none of these preconditions were fulfilled at the time the Dekker plan was published, a ‘radical’ reform clearly was not feasible. During the 20 years following the Dekker plan, however, successive governments (both centre-right and centre-left coalitions) have consistently worked on the realisation of the preconditions for managed competition.

After decades of central price- and capacity-control by government the Dutch health care system is in transition from central planning towards managed competition. Competing private health insurers are assumed to be(come) the prudent buyer of care on behalf of their insured. Insurers are compensated by a Risk Equalization Fund (REF) for the above average expenses of the elderly and chronically ill insured. The insurers compete primarily on premium, service and supplementary health insurance (premium, benefits). Although large segments of the provider market are still heavily regulated by government (concerning e.g. prices, budgets, capacity), on some submarkets insurers and providers of care start to negotiate about prices, service and quality of care. Government sets the rules of the game to achieve public goals.

3.1. Financing

Figure 2 schematically depicts the institutions and the flows of money concerning the National Health Insurance Act, as of January 1, 2006.

According to *Health Insurance Act* all individuals have to pay an income-related contribution (6.5% of the first €30,600 of annual income) to the tax-collector, who transfers these contributions to the REF. Employers are legally obliged to compensate their employees for their income-related contributions (independent of the chosen insurer). These compensations are taxable income for the employees. In addition all adults have to pay a community-rated premium to the chosen insurer. Each insurer sets its own premium. For high risk insured the insurers receive a high risk-adjusted equalization payment from the REF. For low risk insured they have to pay an equalization payment to the REF. According to the Health Insurance Act the sum of the income-related contributions equals 50% of the total insurers’ revenues. In 2007 the average premium equals about € 1100 per person (18+) per year.

(Figure 2 about here)

About two thirds of Dutch households receive a legally-based subsidy (‘care allowance’) from the government. This care allowance is income-related and in 2007 at most € 432 per person per

year (about 40 percent of the average premium for basic health insurance). Since the level of the allowance is independent of the choice of insurer, consumers are fully price sensitive at the margin. Children under 18 year do not have to pay a premium. Government provides the REF with a compensation for the costs of children.

People are free to buy voluntary *supplementary health insurance* covering care which is not included in the mandatory basic insurance, e.g. dental care, physiotherapy, glasses, cosmetic surgery, vaccinations (for tropical diseases) and sufficient coverage abroad. For supplementary health insurance there is no open enrollment and no premium rate restrictions. So in principle insurers are free to risk-rate premiums and underwrite/refuse applicants.

In addition the *Exceptional Medical Expenses Act* (AWBZ), a second ‘national health insurance’ scheme, provides everybody with coverage for e.g. long term care, care for the mentally handicapped and hospitalization after one year.

The total annual health care expenses (2006) in the Netherlands are about 10% of GNP and around € 3000 per person.²²

3.2. Entitlement

The following types of care are covered under the Health Insurance Act: general practitioner (GP) care, specialist care, prescribed pharmaceuticals, hospitalization, maternity care, dental care for children, some paramedical care, some medical devices, and transport of patients. The coverage also includes industrial accidents and occupational diseases. The basic benefits package is described in terms of “functions of care” and not, as in the previous Sickness Fund Act, in terms of “providers of care”. For example, “rehabilitation care” rather than “care delivered by rehabilitation institutions”. This will breakdown the previous monopoly of the rehabilitation institutions and will strongly increase the competition among those who can provide rehabilitation care. The Health Insurance Act prescribes *what* entitlements must be offered (i.e. the content and the extent of care) and *when* entitlements exist (the medical indication). The insurance contract must specify *who* provides the care, *where*, and under *what procedural conditions* (e.g. requirements for obtaining permission, referrals, and prescription). Insurers must specify in the contract with their insured the precise entitlements of the insured (e.g. a list of contracted providers, a list of covered pharmaceuticals, and procedural conditions), but they have much flexibility to do so. In principle the consumers’ entitlements can be ‘in kind’, or reimbursement, or a combination. Insurers are free to selectively contract with providers and give their insured financial incentives to receive the care from the preferred

²² Health Insurance Act about 50%, Exceptional Medical Expenses Act about 43%, supplementary health insurance and uncovered expenses about 7%.

providers. Alternatively, there may be insurance contracts with full reimbursement of all providers ('free choice of provider'). There can be a huge variation in the insured's entitlements, ranging from totally unmanaged care to strictly managed care (see below). However, the precise entitlements must be specified in the contract between the insurer and their insured.

All pharmaceuticals are divided, as far as possible, into groups of medicines that are therapeutically interchangeable. The maximum reimbursement for medicines in such a group is set on the average price of the medicines in the group. An insured person who chooses a medicine that is more expensive, must pay the difference out of his own pocket. There is no reimbursement limit for covered medicines that are not interchangeable by another medicine. Insurers must specify in the insurance contract *which* medicines per group they reimburse. They are allowed to reimburse *only one* preferred medicine in each group.

3.3. Consumer choice of health insurance

For each type of insurance contract an insurer is obliged to accept each applicant ('open enrollment') for the same premium ('community rating per product') per province²³. The contract period is one year, so each year consumers are free to switch insurer. There are about 30 health insurers. A number of them work together within one holding company. This leaves about 14 'independent' insurers. The largest four of them have about 80% of the market. In the period 1996-2004 competition did not play a major role in the premium setting by the former sickness funds (Douven and Schut, 2006). In anticipation of the introduction in 2006 of the new national health insurance scheme price competition on the insurance market strongly increased. As the result of a 'premium war' the average premium in 2006 was € 60 below the level that was predicted by government. In 2007 price competition again resulted in premiums at or even below the break-even level.

The Health Insurance Act provides the option of '*group discounts*'. For mandatory basic health insurance insurers are allowed to give a premium discount of at most 10% to insured who belong to a 'group'. In 2006 about 44% of population obtained such a group discount, with an average of 6.6%. Two thirds of them had a group discount via their employer. But there are many other types of groups, e.g. patient organizations, sport clubs, banks (for their clients), and

²³ The Netherlands has 16 million inhabitants and is divided in 12 provinces. In case an insurer has less than 850,000 insured, the insurer may confine its area of activity (and consequently the open enrollment requirement) to one or more *entire* provinces.

independent entrepreneurs who organize ‘groups’. In principle the entitlements for the basic insurance, including the consumer choice of provider, are identical for those with a group discount and those without such a discount. The only difference is the premium. For supplementary insurance, however, the conditions may differ between group and individual contract. In practice many groups negotiate not only about the premium discount for the basic insurance, but also about the conditions of the supplementary insurance, which are often interrelated with the conditions of the basic insurance.²⁴

In late 2005 some insurers advertised with special supplementary group insurance policies for diabetes patients (‘We have the best care for you!’). These special policies were developed in close cooperation with the ‘national diabetes patient organization’. This new development is directly related to the extension of the risk equalization system with a risk adjuster ‘Diabetes’ since January 2006. Of course, one swallow does not make a summer. With insufficient risk equalization, as is currently the case in the Netherlands, risk selection e.g. via supplementary group insurance may become a major issue (see below).

3.4. Risk Equalization Fund

To organise cross-subsidies government has implemented a risk equalization system. This risk-equalization system is similar to that in the former sickness fund market. Until 2002 the risk equalization payments were primarily based on age, gender, and indicators of disability and socio-economic status. Because the ex-ante risk-adjusted equalization payments insufficiently compensated the insurers for the (extreme) high expenditures of high-risk insured, insurers also received some ex-post compensations based on their actual expenses. They received a compensation of 90% of all expenses above a certain threshold-amount per insured per year and they shared their financial result (profit or losses) with the REF. Due to these *outlier risk sharing* and *proportional risk sharing* the insurer’s financial risk, i.e. the proportion of efficiency gains or inefficiency losses that on average is reflected in the financial result of the insurer, in 2000 was 36% (Van de Ven et al. 2004).

Since 2002 the following risk factors have been added: Pharmacy-based Cost Group (PCGs) in 2002 and Diagnostic Cost Groups (DCGs) and being self-employed (yes/no) in 2004. The R-square of the 2004-model is 0.17, which is a substantial improvement compared with the 0.06 R-square of the 2000-model (Van de Ven et al., 2004). Together with these improvements the Dutch government increased the insurers’ financial risk from 36 % (in 2000) to 53 % (in 2006).

²⁴ Employers can make such group insurance attractive for their employees by giving a premium subsidy only if the employee chooses the group contract. Mostly this premium subsidy is relatively small (say, a few percent of the premium) and not as large as in the USA (mostly much more than 50%).

This was partly the result of an increase of the ‘outlier risk sharing’-threshold from 4,545 euro (in 2000) to 12,500 euro (in 2006).

The question is whether it is possible for insurers to identify unprofitable subgroups with a substantial predictable loss. Despite the sophisticated risk equalization model recent research (Van de Ven et al., 2005) shows that there is a long list of unprofitable subgroups (see Table 2) that insurers can easily identify, e.g. via the health questionnaire to be filled in by applicants for supplementary health insurance. The size of these groups ranges from less than 1% to more than 30%. In particular the following groups generate substantial predictable losses for the insurers: (1) persons with co-morbidity, (2) persons with a psychosis, depression or anxious neurosis, (3) persons with functional limitations in their daily activities, (4) persons who perceive their own health as poor/moderate, (5) persons with one or more hospital admissions in the last eight years, (6) persons who in the past belonged to the group with the highest expenses for more than one year, and (7) persons with an above-average use of health care facilities (specialists, GPs, physiotherapists, alternative healers, family help and district nurse).

(Table 2 about here)

3.5. Risk selection

Although risk selection has not been a major problem in the competitive sickness fund market till 2005, this may change because as a result of the Health Insurance Act (2006) the insurers now have more *incentives* and more *tools* for risk selection than the previous sickness funds had.

The insurers’ *incentives* for risk selection increased because the chronically ill consumers now have more reason to switch insurer than previously, since the insurers will more and more act as purchasers of care. This may result in a greater diversity of contracted care. Secondly, health insurance contracts are not only sold by Dutch ‘social insurers’ (such as the former sickness funds) with a long history of social solidarity, but also by commercial for-profit insurers who have much experience with risk selection, and may come from any European Union country. Their primary interest may be in high profits, which can be effectively achieved by risk selection. Thirdly, the government intends to further increase the insurers’ financial risk by reducing the level of the ex-post cost-based compensations.

The *tools* for risk selection have increased because the insurers now have more tools for managing the care than the former sickness funds had, and in principle each tool for managing care is a tool for risk selection. Second, the insurers have much more flexibility in defining the

precise entitlements of their insured than the former sickness funds had, which again is an effective tool for risk selection. Third, insurers are allowed to sell mandatory health insurance together with any other type of non-life insurance, e.g. supplementary health insurance, sick leave insurance, and car insurance, which the former sickness funds were not allowed to do. In particular supplementary health insurance is a very effective tool for risk selection, because insurers are allowed to reject applicants. Since it can be expected that over time the benefits package of the mandatory basic insurance may be reduced, the relevance of supplementary insurance and its potential effectiveness as a tool for risk selection may increase. Fourth, insurers are free to give premium rebates to groups, which the former sickness funds were not allowed to do. A group can have any risk composition and the ‘organizer’ of the group can selectively enroll preferred members only. Although the rebate for the basic insurance is at most 10%, insurers can give these groups any rebate on other insurance products.

Below we discuss in more detail one of these new tools for risk selection: supplemental (group) insurance.

Supplementary health insurance is bought by the overwhelming majority of the population (93% in 2006). In practice the market for basic health insurance and the market for supplementary health insurance function as one market. Nearly all consumers buy both health insurance products from the same insurer. For supplementary insurance insurers are free in premium setting and underwriting practices. They are allowed to ask applicants for supplementary health insurance to fill out a health questionnaire. In 2005 there appeared to be a great overlap between the questions in these health questionnaires and the subgroups depicted in Table 2 (Van de Ven et al., 2005). Upon the information derived from the questionnaires insurers might accept only applicants who are predictably profitable for the basic insurance. Consumers who are rejected for the supplementary health insurance most likely will choose another insurer for the basic insurance. So, in principle a tie-in sale of health insurance with other insurance products, e.g. supplementary health insurance, is a powerful tool for risk selection.

Therefore the patient-organizations who are the nonpreferred risks, fear that if their members would like to switch to another insurer, the new insurer will not accept them for the supplementary insurance. And if they switch for the basic insurance, their current insurer may increase the premium for renewing the supplementary insurance. In that case they experience a blockade for switching insurer for the basic insurance. Alternatively insurers may ‘drop the lemons’ by the composition of the benefits package of the supplemental insurance, e.g. by not including specific medical aids often used by chronically ill. In the transition period of

implementing the new Health Insurance Act per 1 January 2006 ‘selection via the supplementary insurance’ was not an issue because insurers collectively agreed (under pressure of parliament and the public opinion) not to refuse applicants on the standard supplementary insurance. Under public pressure the insurers prolonged this collective agreement with one year. Research commissioned by the national patient federation (NPCF) found no evidence of ‘risk selection via *individual* supplementary insurance’ in late 2006 and early 2007 (De Bruijn and Schut, 2007).

Since late 2005, however, some selection by supplementary *group* insurance can be observed. On the one hand insurers conclude a supplementary group contract, including a premium rebate for the basic insurance, with sport club associations, employers, unions and associations of self-employed people, but they do not conclude such a contract with unfavourable groups of chronically ill people if they fear to make high losses on a group²⁵. The good news is that about fifteen patient organizations were able to conclude a supplementary group contract. Several of these organizations also receive a premium rebate for the basic insurance. As far as we know there is no other country in the world where insurers give a premium rebate to groups of chronically ill patients. The bad news is that a representative of patient organizations notified that for the vast majority (16 out of 19 organizations) he could not (yet) obtain supplementary group insurance and a premium rebate. Patient groups with whom the insurers did not want to conclude a contract (e.g. patients with migraine or hearing problems) protested in the newspapers and are lobbying for a better risk equalization system.

The Dutch government intends to further improve the risk equalization formula by adding new risk adjusters²⁶ such as indicators of mental illness and indicators of disability and functional restrictions, by multiyear DCGs rather than one-year DCGs (Lamers and Van Vliet, 1996), and by more effective forms of ex-post risk sharing (Van Barneveld et al., 2001) that in particular compensate insurers for high-risks who have a rare chronic disease with high expenses. In addition within a few years the DCGs will be based on both outpatient and inpatient diagnoses (derived from the so-called Diagnostic-Treatment-Combinations²⁷) rather than only inpatient

²⁵ See e.g. De Telegraaf 7, 9, and 10 January 2006.

²⁶ Ministry of Health, Welfare and Sport, WOR-onderzoeksprogramma 2006-2007, 25 October 2006 (WOR 238).

²⁷ The hospital budgeting system is gradually being replaced by a system of payment per so-called Diagnostic-Treatment-Combinations (DTCs). DTCs are comparable with DRGs, but the difference is that with DTCs there is a fixed payment per episode of treatment (up to one year). The episode of treatment may include outpatient care only or a combination of inpatient and outpatient care (both before and after day surgery / hospitalization). Currently there are about 35,000 DTCs.

diagnoses. However, because of the technical complexities it will take several years before substantial improvements can be implemented.²⁸

The more government succeeds in improving the risk equalization formula, the more will chronically ill be the preferred clients for efficient insurers because the potential efficiency gains per person are higher for chronically ill than for healthy persons.

Finally, the proof of the pudding is in the eating: Is risk selection really a serious problem in practice in case of sophisticated, but not-perfect risk equalization? In section 4.2 we will deal with this question.

3.6. Managed care

Since 2000 the insurers' tools for managing the care have gradually been extended. For example, since 2002 insurers are allowed to set up new pharmacies and from 2003 they are allowed to set up outpatient primary care centres. Several insurers are engaged in managed care activities. Some large insurers are experimenting with some form of bonuses and risk sharing with the general practitioners. Since 2005 prices for physiotherapy are free, and insurers and hospitals are allowed to freely negotiate prices and selectively contract for a range of products (Diagnostic-Treatment-Combinations) accounting for about 10% of the hospital turnover . Government intends to increase this proportion to 20% in 2008.

The Health Insurance Act (2006) provides the insurers with several new tools for managing care. The basic benefits package is described in terms of functions of care (see section 3.2). This implies that insurers and consumers have ample room for differentiating the concrete entitlements in the insurance conditions. Preferred provider insurance arrangements and integrated delivery systems (such as Health Maintenance Organizations) are possible. Insurers are allowed to selectively contract with all types of health care providers, including hospitals. Concerning selective contracting there seems to be a backlash in the Netherlands before managed care even started to take-off. In the parliamentary debate about the Health Insurance Bill the fear was expressed that there could come a distinction between low-priced insurance policies with a restricted choice and high-priced policies with free choice of provider, with the latter policies being unaffordable for low-income people.

²⁸ Since January 1, 2007 insured can belong to multiple PCGs rather than only 1 PCG.

Due to European regulation insurers are obliged to reimburse their insured a 'reasonable' amount in case they go to non-contracted providers. This 'reasonable' amount should not be so low that the insured is 'hindered' to go to non-contracted providers. For the concrete interpretation of this vague terminology we have to wait for court decisions. Of course, insurers object to this regulation because it seriously weakens their position in the negotiations with the providers of care.

Government intends to further reduce the current price regulation. Consequently, providers will get more freedom to set their price or to agree with insurers about the price of care provided to their insured. Insurers and providers are free to choose the tools (if any) for managing the care they apply, e.g. protocols, disease management, utilization management, referral cards or other forms of preauthorization of care, etc.

There is an interesting link between the process of further deregulation of the provider market and the process of further improving the risk equalization system. Although on average the insurers have a financial risk of 53%, this figure differs substantially for outpatient and inpatient care: 93% resp. 26% (Van de Ven et al., 2004, Exhibit 5). Because of the low financial risk for inpatient care, government hesitates to further deregulate the current hospital budgeting system, which still exists for 90% of the hospital expenses. But a precondition for a further increase of the insurers' financial risk for inpatient care (i.e. a reduction of the ex-post cost-based compensations to the insurers) is a substantial improvement of the risk equalization formula, because otherwise the predictable losses on the high risks (Table 2) would substantially increase. Patient organisations oppose a further increase of the insurers' financial risk without an improvement of the risk equalization formula. This illustrates the crucial role of a good risk equalization formula. With the current high ex-post cost-based compensations to the insurers it is, despite all the discussion and rhetoric about deregulation, in fact government who still functions as the main purchaser of hospital and specialist care, rather than the insurers.

In principle the Health Insurance Act provides insurers (if they really act as the purchaser of care) and the providers of care to a certain extent discretionary competence to decide about the cut-off point of cost-effectiveness they apply: e.g. 30,000 or 80,000 euro per QALY, as long as the quality of care fulfils the minimum standards set by government. In other words, entitlements can differ with respect to the level of medical technology: e.g. different insurers may contract different groups of providers who use different protocols based on a cost-effectiveness cut-off point of 20,000 euro per QALY versus 100,000 euro per QALY.

3.7. Consumer information

A few years ago the Dutch government took the initiative to set up a website where consumers can get information about insurers and providers of care (www.kiesbeter.nl). Consumers who visit this website can compare all insurers with respect to price, services, consumer satisfaction and supplementary insurance (premiums and benefits). In addition they can compare hospitals on different sets of performance indicators. Currently this website is still in an early stage of development. Government intends to further extend and improve it.

3.8. Supervisory authorities

By means of legislation government sets the rules of the game. Government empowered supervisory authorities to enforce the rules of the game, to protect consumers, and to secure good quality care and a good functioning of the market. The supervisory authorities are ‘semi-public’ and function at arm’s length of government. For the health care system the most relevant authorities are as follows.

The *Dutch Health Care Inspectorate* (Inspectie voor de Gezondheidszorg) supervises the quality of the care of the health care system. The Inspectorate focuses on patient safety and effective care, and concentrates mostly on problems that individual consumers are unable to assess or influence themselves. For several years the Dutch Health Care Inspectorate is developing performance indicators which are made public (see section 3.7).

A new *Dutch Health Care Authority* (Nederlandse Zorgautoriteit) has been established, who is responsible for managing the competition among health care providers / insurers. The Health Care Authority supervises markets in health care e.g. with respect to costs, prices and contract conditions. It has the power to enforce ‘socially desirable’ competition and to take action against providers and insurers with significant market power. The Dutch Health Care Authority also has to take care for an appropriate system of health care product classification and the provision of adequate consumer information. It closely cooperates with the Dutch Health Competition Authority, who is also active in the health care sector.

As an offspring of European integration, in 1998 a new stringent Competition Act was adopted. The newly established *Dutch Competition Authority* (NMa) soon made clear that it would safeguard any room for competition in health care created by the government. The task of the Dutch Competition Authority is (1) to prevent cartels, (2) to authorize or forbid mergers, and (3)

to prevent the abuse of a dominant market position. In a number of important decisions the Dutch Competition Authority forbade horizontal price-fixing and market sharing agreements, entry regulations and collective contracting practices by general practitioners, physiotherapists, pharmacists and other independent medical practitioners.

The *Dutch Central Bank* (DNB) is the authority who supervises the financial solvency of the insurers based on regulations laid down in the Insurance Supervision Act 1993.

The *Financial Markets Authority* (AFM) supervises the insurers to make sure they provide financial services properly. This supervision extends to health insurers as well as insurance agents and other distributional channels. Key questions are whether the insurer informs its insured persons properly about their options and about the premiums of the different insurance options they offer.

3.9. Conclusions

Since 1 January 2006 everybody in the Netherlands must buy individual private health insurance with a legally described benefits package. Insurers have incentives to become prudent buyers of care (in particular outpatient care) on behalf of their insured and to selectively contract with providers. In the Health Insurance Act (2006) the basic benefits package is described in terms of “functions of care” and not, as in the previous Sickness Fund Act, in terms of “providers of care”. This may increase the competition among those providers who can deliver similar types of care. The insurers must specify in the contract with their insured the precise entitlements of their insured (e.g. list of selected preferred providers, and procedural conditions), and they have much flexibility to do so.

Health insurance has been made affordable by a combination of risk equalization, ex-post cost-based compensations to the insurers, care allowances to ‘low-income’ groups (two thirds of the population), open enrollment and community rating. Although the Netherlands has one of the most sophisticated risk equalization systems in the world, it is not yet sufficiently refined. The good news is that some insurers advertise with special insurance policies for diabetes patients (‘We have the best care for you!’). As far as we know this is unique in the world. The bad news is that insurers can easily identify subgroups of unprofitable applicants (see Table 2) who generate substantial predictable losses for the insurers.

Insurers have both incentives and the tools for risk selection, which may threaten good-quality care for the unprofitable high-risks, and may reduce efficiency in production. Since late 2005 there is some evidence of risk selection via supplementary group contracts. Good risk equalization is an essential pre-condition for reaping the benefits of a competitive health insurance market. The Dutch government intends to further improve the risk equalization formula in the next years.

4. Some critical issues

4.1. Community-rated premiums: why?

In many countries with a competitive health insurance market insurers are confronted with premium rate restrictions and open enrollment requirements. Mostly the premium rate restrictions have the extreme form of community rating. As discussed in section 2.3 community rating induces large incentives for selection which may threaten good-quality care for the chronically ill.²⁹ In addition, by requiring community rating the sponsor forbids the chronically ill to pay additional premium to prevent lemon dropping and to make the insurers responsive to their preferences. Some countries, such as e.g. Australia, South Africa and the United States of America (USA), have implemented community rating *without* risk equalization.^{30 31 32} Other countries try to reduce the adverse effects of the regulation-induced selection by supplementing community rating with a system of risk equalization.

²⁹ An alternative option is that an insurer specializes in chronic diseases and offers a health insurance product attractive for certain groups of chronically ill and with a high community-rated premium for this product. In this way 'community rating per product' results in low premiums for low-risks and (unsubsidized) high premiums for high risks. This raises the question: why not directly allowing insurers to risk rate their premiums and give low-income high-risk individuals an additional subsidy?

³⁰ Connelly and Brown (2006) propose risk- and age-specific subsidies for *Australia*. Since 1 April 2007 the former reinsurance system in the Australian private health insurance market has been replaced by risk equalization based on two age groups (below and above 65) and a risk factor based on yes/no having at least 35 days of hospitalization within a year.

³¹ The *South African* government intends to implement a risk equalization scheme in 2009 or 2010 (see <http://www.medicalschemes.com/publications/publications.aspx?catid=23>).

³² Since the early 1990s the market for individual private health insurance in the *United States of America (USA)* has been heavily regulated. Many States have implemented regulation such as open enrollment for specified coverage and premium rate restrictions, often in the form of community rating, for health insurance offered to individuals (US-GAO/HEHS-97-8) and small employers (US-GAO/HEHS-95-161 FS). In the period 1991-1997 there has been a gradual trend toward tighter rating reforms in the US small-group market (Curtis et al., 1999). All these regulations have been *without* any form of risk-equalization. The effects of these regulations are a rise in the cost of coverage, an increase in the number of uninsured, in some instances a reduction in the choice of plans available, and a reduction of the supply of insurers willing to grant coverage (Astorino et al., 1996; Meier, 2005). Illustrative is the title of Meier's (2005) report: 'Destroying Insurance Markets; how guaranteed issue and community rating destroyed the individual health insurance market in eight States'.

A second drawback of community rating is that it is disproportional in the sense that (1) it provides cross-subsidies also to high-income high-risk individuals who can afford paying a high premium; and (2) it also aims at cross-subsidies for risk factors which society does not wish to subsidize (the so-called N-type risk factors; see section 2.2). In the (bylaws of the) Health Insurance Act the Dutch government has made it explicitly clear that risk equalization should *exclusively* be based on *age, gender and health*.³³ In other words, all other risk factors should not be taken into account in the equalization system. The question is what the implications are for risk factors such as region and being self-employed. For example, after controlling for the other risk factors in the equalization model the costs of self-employed are on average about 10% lower than those of employed. But is this due to ‘health’ or due to ‘behaviour’ (‘no time to go to the doctor’)? If health is sufficiently taken into account by the other risk factors, then any systematic difference in costs between employed and self-employed people can be assumed not to be health-related and should therefore not be equalised. Consequently insurers should be allowed to give a premium rebate to the self-employed. The conclusion is that community rating has some serious drawbacks.

This raises the intriguing question: *Why* is community rating so popular among policy makers? For example, in the parliamentary debate in the Netherlands the community rating (together with the open enrollment) is considered to be the *crown jewel* of the Health Insurance Act. Illustrative is also the opening sentence of a recent report of the Irish Health Insurance Authority:³⁴ “The Irish private health insurance market is community rated. The community rating system is supported by regulations concerning lifetime cover, open enrollment, minimum benefit and risk equalization. These regulations are necessary for the maintenance of a community rated market.”³⁵ Community rating seems to be a goal in itself, rather than a tool. In many countries community rating seems to be an indisputable axiom, without any debate whether there are better tools to achieve the goal ‘affordable health insurance’ without the above mentioned drawbacks and the adverse side-effects as discussed in section 2.3.³⁶

³³ Besluit Zorgverzekering, Staatsblad 2005, 389, p 23.

³⁴ Report to the Minister of Health and Children, ‘*Competition in the Irish Private Health Insurance Market*’, The Health Insurance Authority, Dublin, January 2007.

³⁵ NB: From section 2 it follows that premium rate restrictions might support insufficient risk equalization, rather than that risk equalization supports community rating!

³⁶ Community rating in combination with open enrollment and *imperfect* risk equalization may be in violation of the regulations of the European Union. According to European regulations national governments are not allowed to interfere in the insurers’ business in such a way that insurers are confronted with predictable losses without adequate compensations (see e.g. Paolucci et al., 2006).

Besides these disadvantages community rating also has some advantages. A first advantage of community rating is that it increases transparency. If insurers are free to risk rate premiums, it is more difficult for the consumer to make an optimal choice of insurer than in case of community rated premiums.³⁷ A second advantage is that community rating offers a better guarantee of making health insurance affordable than a risk equalization system that needs to be complemented with additional forms of subsidies. A third advantage of community rating is the low transaction costs. Explicit premium subsidies require high administration and transaction costs. A fourth advantage is that community rating requires no public finance, whereas explicit subsidies require a system of mandatory contributions (to the Subsidy Fund) that are often considered to be a part of public finance. And high levels of public finance are often considered to be politically undesirable.

Potential explanations for the popularity of community rating are:

1. Policymakers set a higher value on the advantages than on the disadvantages of community rating;
2. Policymakers may have a short-timehorizon: the direct effect of community rating on affordability is immediately visible, while potential effects such as poor quality care for chronically ill patients may only show up after some years (when the policymakers have other responsibilities). Alternatively, policymakers may hold the view that there are sufficient regulations in place to safeguard the quality of care (licensing, certificates, peer review, accreditation, guidelines and protocols).
3. Policymakers are unaware of the inconsistency (such as currently in the Netherlands) that on the one hand they want cross-subsidies **only** for age, gender and health; while on the other hand they consider community rating that also implies cross-subsidies for all other risk factors, to be a crown jewel of the health insurance regulation.
4. Policymakers hold the view that in practice risk selection is not a serious problem, in particular in case of a sophisticated risk equalization formula (see also section 4.2).

The conclusion of section 2 was that in general a system of risk-adjusted premium subsidies (or risk equalization) is the preferred form of subsidy. To the extent that some high-risk consumers are insufficiently subsidized, the risk-adjusted premium subsidies (or equalization payments) can be complemented by one or more of the following strategies: premium-based subsidies, excess loss compensations, or implicit cross-subsidies enforced by premium rate restrictions for

³⁷ In case of risk rating transparency can be increased if insurers agree on a nation-wide standard rating model, which includes the risk factors used in the risk equalization system.

a specified insurance coverage. If policymakers want cross-subsidies only for age, gender and health, a proportional way of premium rate restrictions would be a ban on these risk factors, but not on all other risk factors as is done by requiring community rating.

All in all, the justification of community rating, i.e. the most extreme form of premium rate restrictions, is less straightforward than its popularity in practice suggests.³⁸

4.2. Is risk selection really a serious issue in case of sophisticated, but 'not-perfect' risk equalization?

Most, if not all, selection that has been reported in the literature so far, has been observed in settings with community rating, open enrollment and either no or 'poor' risk equalization. So an interesting question is: *Is risk selection really a serious issue in case of sophisticated, but 'not-perfect' risk equalization?*

Again, let's take the Netherlands as a case study. Although the current Dutch equalization formula is one of the most sophisticated in the world, it is 'not-perfect' in the sense that, given community rating and open enrollment, insurers can identify subgroups of high risks with predictable losses (see Table 2). Of course, whether this formula is sufficient ('perfect') in case of no premium rate restrictions, depends on society's view on what is considered to be (un)affordable health insurance.

From the actual experience in practice so far in the Netherlands one could hold the view that risk selection is not (yet) a serious issue. However, several arguments explain why selection may not be a major issue in the early stage of the implementation of risk equalization in a (potentially) competitive health insurer market, and why over time selection may increasingly become a problem.³⁹ First, in many countries risk equalization has been implemented in the (mandatory) social health insurance sector. Traditionally most of the health insurers working in that sector are highly driven by social motives rather than by financial incentives. However, over time new health insurers and more competition may make the behavior of the traditional health insurers more incentive driven. As soon as one insurer starts with profitable risk selection, the others are forced to copy this strategy. Second, in the early stage many players, e.g. consumers, insurers' managers and providers of care, may be unfamiliar with the rules of

³⁸ An alternative might be a premium bandwidth. Insurers will then give signals which relevant risk factors are insufficiently equalized, and government can include relevant S-type risk factors in the risk equalization system in the next years.

³⁹ See Van de Ven and Ellis (2000).

the game. However, over time they will be better informed and can be expected to react to incentives for risk selection. Third, in the early stage the differences among health insurers with respect to entitlements, premiums and contracted providers are relatively small. In fact, even now (i.e. 2007) to a large extent it is still the Dutch government who actually functions as the purchaser of most hospital and specialist care rather than the insurers. Over time, when less stringent government regulation with respect to planning facilities and medical pricing permits insurers to diversify the conditions of the contracts with their insured, and when the insurers' financial risk will further increase, we may see more market segmentation. In principle each tool for managing the care is a tool for risk selection.

The Dutch government intends to further improve the risk equalization formula in the next years. But can we ever achieve a sufficiently refined formula? Despite the above arguments that over time risk selection may become more an issue than in the early stage, there are also arguments why we do not need a 'perfect' formula.

First, one should take into account an insurer's costs of selection. A bad reputation resulting from selection activities such as keeping patients from the highest-quality care, can be a high cost to an insurer. In addition, the information that is necessary for risk selection is not for free. The risk equalization formula should be refined to such an extent that insurers expect the costs of selection to exceed its profits. By making the risk groups in the equalization more homogeneous, the costs of selection increase while on average the profits fall.

Second, by refining the equalization formula also the standard deviation of expected profits of selection will rise. As a result, the insurer's uncertainty will increase about whether the selection of a certain number of enrollees the insurer thinks to be overpriced will indeed yield a profit. To be sure that a selection strategy yields profits, not losses, an insurer has to increase the minimum number of selected enrollees. This will increase the cost of the selection strategy, reduce its probability of success (because competitors may have the same strategy), and increase the probability of negative publicity and loss of reputation.

Third, if the equalization formula predicts a substantial amount of predictable variance of individual health expenses, one may wonder whether small insurers with, say, 25,000 or fewer enrollees, indeed could obtain accurate information on the (un)profitability of subgroups within the 'equalization subgroups'. Large insurers, who have more accurate information on risk than small insurers have, might be reluctant to use this information for selection because they are more vulnerable than small insurers to losing their reputation.

Fourth, the figures in Table 2 indicate the full predictable losses. However, when using that type of figures as an indicator of the potential selection problem, it is more realistic to ignore

the small predictable losses and profits because an insurer has to take into account the costs of selection and the (statistical) uncertainty about the net benefit of selection. Simulation results indicate that the extent to which the size of the potential selection problem is overestimated by not ignoring small predictable losses and profits, increases the better the risk equalization formula is (Van Barneveld, 2000).

So a 'perfect' risk equalization formula is not necessary. But it is an unanswered question how much 'imperfection' is acceptable. This also depends on the historical background, the institutional setting and the norms and values in society. Nevertheless, money goes where money is. Because of the large financial incentives and the great interests involved, one should not set the fox to watch the geese. Appropriate financial incentives and appropriate rules of the game should provide the ultimate safeguard against the adverse effects of selection. A permanent process of monitoring insurers' behavior and publishing relevant consumer information -e.g. on the high-risks' consumer satisfaction and on the quality of the contracted care- and simultaneously improving the risk equalization system is recommended.

4.3. Does one size fit all?

A challenging question is: Should the purchase of health insurance be mandatory? And if so, how much freedom should the consumer have in choosing his entitlements? Classic economic motives for government to make health insurance mandatory are the *prevention of free riding* and a *lack of foresight*.

If society is willing to subsidize some health services, some individuals may abuse this willingness by purposely not buying insurance coverage for these services, because they expect that others in society are willing to pay for them if they really need them. The *prevention of free rider behavior* can be a motive for government to make subsidized insurance coverage for some health services mandatory for low-income people. For high-income people this argument is less relevant because they can (and therefore will have to) pay most health services themselves.

Another motive for government to enforce mandatory coverage may be *myopic behavior*.

Young and healthy individuals may not always know what is in their best interest. They may underestimate future risks, or even think that one or another disease will not affect them. Such short-sightedness could lead people to make wrong judgments about the relative importance of a certain, direct benefit (no premium) compared to future costs, which are quite uncertain. For high-income people this paternalistic motive is less relevant than for low-income people, because on average they are better educated and can afford high health expenditures (see e.g. Paolucci et al., 2007).

It is interesting to apply the above arguments to the Dutch Health Insurance Act. According to this Act everybody must purchase private health insurance with a broad benefits package, and with the option to choose a deductible of at most € 500 per person per year. Based on the above arguments a pragmatic recommendation to the Dutch government is to make the level of the voluntary deductible *income-related*. For high-income people there is no need to forbid them to take a deductible of e.g. € 1000 or € 5000. For the lowest income groups the option of a deductible of € 500 may lead to free rider behavior. As long as the premium rebates for a deductible reflect the consumer's expected out-of-pocket payments, i.e. a low rebate for the low-risks and a high rebate for the high-risks, the cross-subsidies are not influenced by the voluntary option to choose a deductible.⁴⁰

Another question is how much freedom a consumer could have in choosing his insurance entitlements. The Managed Competition model allows the consumer to make a choice among different sets of entitlements based e.g. on price and quality. This consumer choice does not affect the cross-subsidies as long as the premium differences across insurance products reflect the differences in predicted expenses among these products. The sponsor has to decide about the cost level of the services and the quality and the intensity of treatment that it considers to be acceptable to be subsidized.

The Dutch Health Insurance Act provides a nice illustration. This Act contains a functional description of the health insurance entitlements that everybody should buy. As indicated in section 3.2 this allows for a huge variation in the insured's entitlements. In principle consumers could choose e.g. between a **Standard**-policy covering e.g.

- Diagnostic test with 99% certainty, costs 100;
- Predominantly generic drugs;
- No cholesterol-reducing tablets if stopping with smoking has the same effect;
- Good plastic hip;

and a **Golden**-policy covering e.g.

- Diagnostic test with 99.9% certainty, costs 10,000;
- All drugs;
- Excellent golden hip.

This type of consumer choice resembles Fuchs' (1969) and Pauly's (2005) proposal for competition among insurers on the basis of the rate at which new technology is introduced. By offering a choice of insurance contracts, the consumer can make -within a certain range of

⁴⁰ For the complex relation between risk equalization and voluntary deductibles, see e.g. Van Kleef et al. (2007).

limits- a choice based on his own preferences with respect to health care, style of care and price. Although it is not expected that we will soon see this type of competition with *explicit* quality differences in the Netherlands, it is more likely that the quality competition will be more *implicit*, e.g. based on the reputation of the providers or the protocols they are using.

By allowing competition on price and quality one may expect that over time the quality/price ratio of new technologies will improve, just as with computers and mobile phones, and will become affordable for everybody. If Mercedes and Volvo wouldn't have been allowed to first implement new safety technologies like ABS and airbags in their luxurious limousines, these technologies wouldn't now be available in an affordable Volkswagen. By not having blocked dynamic innovation a Volkswagen now is much safer than a Mercedes or Volvo was 30 years ago. Another advantage is that new technologies first have to stand the test of the market. The market will give signals to the industry whether or not new technologies which are technically feasible, are also economically feasible. If even the highest income groups do not consider a new medical technology to be worthwhile, there is no rationale to include it in the mandatory benefits package. Quality differences in insurance entitlements could be allowed as long the minimum quality is at an acceptable level. In the Netherlands the Inspectorate for Health monitors the quality of care and has far-reaching power (e.g. closing a hospital) if the quality of care is below minimum level.

Finally, critics may raise the question whether this type of consumer choice will result in *first-class* and *second-class* health care. The answer could be: Yes, first-class and second-class like in airplanes and trains, where all consumers more or less have the same safety, or as with cars, where consumers to a certain extent can make a tradeoff between price and safety; but not as on cruise ships like the Titanic where 60% of the first-class and 26% of the third-class passengers survived.

4.4. How to organize the payment flows of the risk-adjusted premium subsidies?

In section 2 three modalities are described for the payment flows of the premium subsidies (see Figure 1). Although the way that the premium subsidies and the contributions to the Subsidy Fund are calculated can in principle be the same in each of these modalities, some differences between the modalities are worth mentioning. Table 3 summarizes the relative advantages and disadvantages of each Modality.

(Table 3 about here)

1. Under Modality A the risk-adjusted subsidy (if any) that an individual receives can also be dependent on his (family) income. However, in practice all countries that apply risk-adjusted premium subsidies do it in a form of risk equalization among insurers (Modality B or C), such that the risk-adjusted cross subsidies are irrespective of the individual's income. That is, there are also cross-subsidies from low-income low-risk individuals to high-income high-risk individuals. In most countries income transfers across income groups are organized separately.
2. The transaction costs of providing the risk-adjusted subsidies are higher under Modality A, where the Subsidy Fund has to deal with every individual consumer (exchange of relevant information about the current value of the risk factors, and the actual subsidy payment) than under Modality B or C, where the Subsidy Fund deals only with the insurers.
3. If the sponsor wants the 'contributions to the Subsidy Fund' to be income-related, Modality A and B may be preferred to Modality C because of the high transaction costs of income-related premiums to insurers in Modality C. For this reason the German government is considering to replace the current Modality C by Modality B.⁴¹
4. The direct individual payment to the insurer under Modality B (premium minus subsidy) is considerably less than under Modality A and C. Hence, cost savings by insurers will have a much larger proportional effect on the level of direct payments under Modality B than under Modality A and C. This is likely to result in stronger consumer responses (Buchmueller and Feldstein, 1997).
5. Another advantage of the lower direct consumer payment to his insurer is that it reduces the chance that individuals, for whatever reason, do not pay their premium and become uninsured.⁴²
6. In the case of voluntary insurance Modality C may have to be supplemented with a mechanism to ensure that low-risk individuals who do not buy insurance pay a contribution to the Subsidy Fund. Under Modality A and B, in the case of voluntary health insurance the contribution to the Subsidy Fund can be made mandatory.
7. In Modality C the Subsidy Fund and the insurers clear the net difference over all individuals. So in practice in Modality C only insurers with an overrepresentation of high-risk insured

⁴¹ In Germany the premiums to the insurers are income-related, and the equalization also adjusts for the income profile of the insured per insurer. The equalization for income and for the other risk factors is done separately, that is, in the equalization formula there is no interaction between income and the other equalization risk factors.

⁴² The new Dutch government that came in office on 22 March 2007 announced to make it possible that the income-related care allowances go directly to the insurer, with the consumer paying to the insurer only the premium minus the care allowance. The reason for providing this option is that it may reduce the number of premium-defaulters and consequently the number of uninsured people. (For more information on the premium-defaulters and the uninsured, see Appendix 3).

receive a subsidy from the Subsidy Fund and only insurers with an underrepresentation of high-risk insured pay a contribution to the Subsidy Fund. Consequently, the actual amount of money passing via the Subsidy Fund under Modality C is relatively small as compared with Modality A and B. Modality C can be considered a system in which there is an internal equalization *within* each insurer, complemented with an equalization system *among* the insurers to compensate for differences in risk portfolios among the health insurers. If all insurers would have an identical risk portfolio, there would be no equalization *among* the insurers, and consequently the net payments to and from the Subsidy Fund would be zero. This argument is relevant for countries where the government is unable or unwilling to collect contributions to the Subsidy Fund e.g. because of limited taxation capacity or constraints on fiscal space.

8. Another difference is the “Winner-loser” nexus. In Modality B all insurers receive a per capita subsidy from the Solidarity Fund. It is easy to explain the fairness of the system whereby insurers receive a low payment for a low-risk consumer and a high payment for a high-risk consumer. In Modality C, however, insurers may have the perception of being “winners” or “losers”, depending on whether the net balance of their payments to the Subsidy Fund is positive or negative. This “winner-loser” image might not be beneficial for the acceptance of the risk equalization system.

In practice several systems of organizing the cross-subsidies are used. Modality A is used in countries where consumers receive tax-related subsidies. Modality A is also used in the Netherlands and Switzerland, where low-income households receive a means-tested subsidy. Modality B shows schematically how the risk equalization system is applied in Belgium, Israel, the Netherlands (till 2005), Russia, and in Medicare in the USA. Modality C is used for risk equalization in Colombia, Czech Republic, Germany, Ireland and Switzerland. Since 2006 the Dutch risk equalization system is a mixture of the Modalities B and C, where the consumers pay their contribution to the REF partly via an income-related contribution (via the tax-collector) and partly via a risk-related contribution (via the insurer).

5. Conclusion and discussion

Consumer choice of health insurer provides the insurers with incentives for efficiency, but also with incentives for risk rating. This raises the question: How can we make individual health insurance affordable for the high risks in a competitive insurance market? A system of subsidies is a straightforward way to do so, but what is the best form of subsidies? In this paper we analyzed several forms of subsidies and the tradeoffs they involve. We assume that there is an

open enrollment requirement for a specified insurance coverage. As long as insurers are free in setting their premiums, this assumption is non-restrictive.

Our conclusion is that in general a system of risk-adjusted premium subsidies is the preferred form of subsidy to make individual health insurance affordable in a competitive insurance market. Under this approach insurers are free to ask risk rated premiums. In practice all countries that apply risk-adjusted premium subsidies have opted for a form of ‘risk equalization among insurers’. To the extent that some high-risk consumers are insufficiently subsidized, the risk-adjusted premium subsidies or equalization payments can be complemented by one or more of the following strategies: premium-based subsidies, excess loss compensations, and implicit cross-subsidies enforced by premium rate restrictions for a specified insurance coverage.

Premium-based subsidies are not optimal because (1) they reduce the incentive for high-risk consumers to shop around for the lowest premium, (2) they induce over-insurance resulting in additional moral hazard, and (3) they create a misallocation of subsidies. *Excess loss compensations* are not optimal because they reduce the insurers’ incentives for efficiency. And *premium rate restrictions and open enrollment* are not optimal because such a pooling of people with different risks creates incentives for selection which (1) may threaten good quality care for the high-risks, (2) may reduce efficiency in production, (3) may result in higher premiums for high-risks than for low-risks, and (4) may induce instability in the insurance market.

The choice among these complementary strategies confronts policy makers with a complicated tradeoff between affordability, efficiency and the potential effects of selection, notably low quality care for the chronically ill. The better the premium subsidies are adjusted for relevant risk factors, the less these complementary strategies are needed, and the less severe is the tradeoff. In fact, good risk equalization is the only effective strategy to escape from the tradeoff between affordability, efficiency and selection.

As a case study we discussed the Netherlands, which is the first country in the world that is consistently implementing Enthoven’s (1978) model of Managed Competition: a ‘National Health Insurance based on Managed Competition in the Private Sector’. Health insurance has been made affordable in the Netherlands by a combination of ex-ante risk equalization, ex-post cost-based compensations to the insurers, care allowances to ‘low-income’ groups (two thirds of the population), open enrollment and community rating. The risk equalization is still insufficient in the sense that, given community rating, insurers can easily identify unprofitable applicants (see Table 2). Insurers have both incentives and the tools for risk selection. The

Dutch government intends to improve the risk equalization formula. It is important to emphasize that this paper alone cannot be used as the justification for either accepting or rejecting the ‘Dutch model’ in other countries. This would require a comparison of the advantages and disadvantages of different models of organizing, financing and structuring a health care system, taking into account the specific characteristics of a particular country. Such an analysis is outside the scope of this paper.

In the 1990s the health insurance markets in many other European countries have been made more competitive, for example in Belgium, the Czech Republic, Germany, Ireland, Israel, Russia and Switzerland. All these countries have risk-equalization among insurers, open enrollment and community rating. In most countries age and gender are used as risk-adjusters, sometimes supplemented with an indicator of disability and institutional and welfare status⁴³. Region is often a controversial risk-adjuster. With these poor risk-adjusters the health insurers have financial incentives for risk selection. In particular in Germany and Switzerland risk selection increasingly becomes a problem (Van de Ven et al. 2007).

It is important that even if the portfolio composition of all insurers (by chance) is identical, the *existence* of the incentives for risk selection in case of insufficient (or no) risk equalization forms a *permanent* threat to the efficiency and quality of care. Most of the adverse effects of risk selection occur *even if all insurers are equally successful in risk selection*. Therefore good risk equalization should be a *permanent* element and not a *temporary* element of a competitive health insurance market. This argument is in particular relevant for Switzerland, where in the early 1990s government decided to limit the duration of the risk equalization to a period of thirteen years only (1993-2005). In 2004 it was decided to prolong risk equalization for another 5 years till 2010.

At least half of the OECD countries have chosen to provide some type of tax subsidies to encourage the purchase of private health insurance (OECD, 2004, p. 138). Deductions from taxable income are the most common form of incentives offered to purchasers. These subsidies can be quite significant, such as Australia’s 30% premium tax rebate, and the tax subsidization of health insurance in the USA (Pauly, 1986, Selden and Gray, 2006).⁴⁴ However, substantial improvements in efficiency could be achieved if these premium-based subsidies would be replaced with risk-adjusted premium subsidies.

⁴³ For a review of risk-adjusters used in several countries, see Van de Ven et al. (2003, 2007) and Van de Ven and Ellis (2000).

⁴⁴ For more than two decades, the average tax subsidy per employee has been about 35 % of premiums (Pauly, 1986, p. 638; Selden and Gray, 2006).

An interesting observation is that in many countries with a competitive health insurance market government requires *community rating* to achieve affordable health insurance. However, the justification of community rating is less straightforward than its popularity in practice suggests.

Another interesting observation is that many countries have universal mandatory health insurance with a uniform benefits package for everyone. However, mandatory health insurance is not necessary to achieve affordable health insurance. As discussed above, there are other tools to do so. In addition the organization of cross-subsidies does not require everybody to have the same uniform insurance product. Government can allow consumers to make a choice among different sets of entitlements based e.g. on price and quality, and with an income-related deductible. This consumer choice does not affect the cross-subsidies as long as the premium differences across insurance products reflect the differences in predicted expenses among these products. Government has to decide about the cost level of the services and the quality and intensity of treatment that it considers to be acceptable to be subsidized.

There are several ways to organize the payment flows of the premium subsidies or risk equalization. Political, economic and pragmatic arguments may play a role in making this choice.

To make individual health insurance affordable in a competitive insurance market further investments in risk equalization are essential. New research efforts could focus on the individuals who belong to the top-1% or top-4% with the highest expenses over a series of years. On the one hand these persons are responsible for a substantial part of the total expenses, and on the other hand the predictable losses based on the risk equalization formulas that are currently used, are highest for these groups. Although risk classification is a part of the insurers' core business, insurers do not have much experience with risk rating the extreme high risks. Traditionally, private health insurers in most countries are more inclined to reject high risk applicants than asking them a high risk-adjusted premium. One reason for this is that it is easier to predict that someone will have very high expenses (say, between € 20,000 and € 200,000) than to give an accurate prediction of these expenses. Another explanation might be related to reputation. Rejecting high risk applicants is likely to cause less social resistance than asking a premium of € 60,000 per year. Fear of losing reputation may restrain insurers from

extreme forms of risk rating for unsubsidized health insurance.⁴⁵ A third reason for not risk rating the extremely high risks may simply be that there is no market for such expensive unsubsidized health insurance. However, as long as the limits of risk classification for individual health insurance are unknown, it is also unknown to what extent risk-adjusted premium subsidies and risk equalization can be effective in making health insurance affordable for the high risks.

Developing the preferred form of subsidy, i.e. risk-adjusted premium subsidies or risk equalization, appears to be complex in practice. Typical problems are a lack of reliable relevant data at the individual level, a lack of (agreement about) good health adjusters that fulfill all relevant criteria⁴⁶, opposition by insurers who have a good risk profile, and political opposition. Political opposition may be related to a lack of good understanding of ‘what risk equalization is about’ or may be influenced by lobbying insurers who have a good risk profile. Therefore, it is important that policy-analysts and decision-makers have a good understanding of risk equalization and the effects of the different regulatory regimes of a competitive individual health insurance market. They should understand the complicated tradeoffs to be made, which are interrelated with the historical background of a health insurance system, the insurers’ experiences with risk selection and the norms and values in society.

⁴⁵ This hypothesis is consistent with the findings by Herring and Pauly (2001) that premiums for individual insurance vary less than proportionately with expected expenses and vary only with certain risk characteristics.

⁴⁶ For an overview of the relevant criteria, see e.g. Van de Ven and Ellis (2000, pp 780-785).

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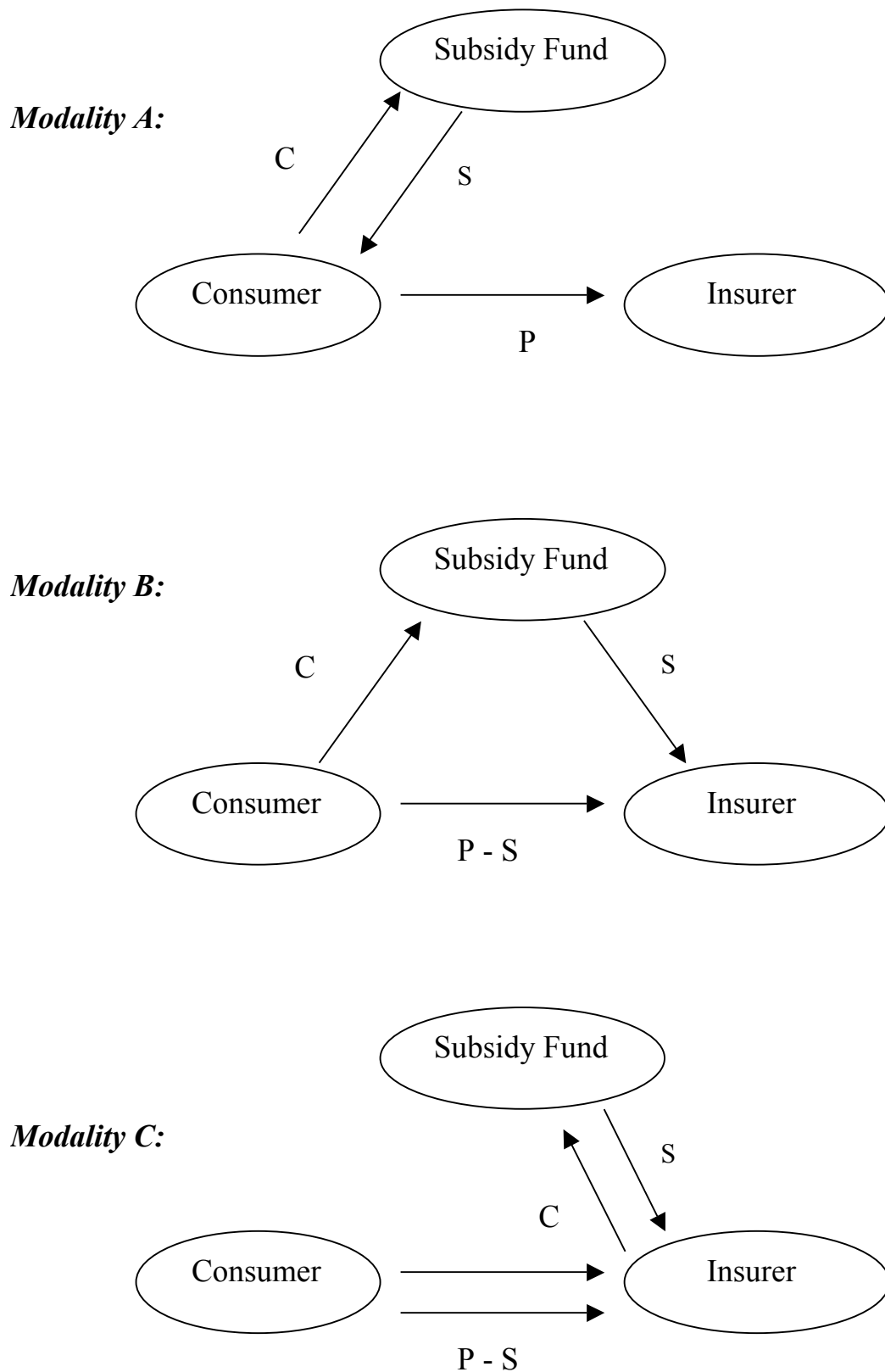


Figure 1. Three modalities of organizing the payment flows of a subsidy system.
C= contribution; S= subsidy; P= premium

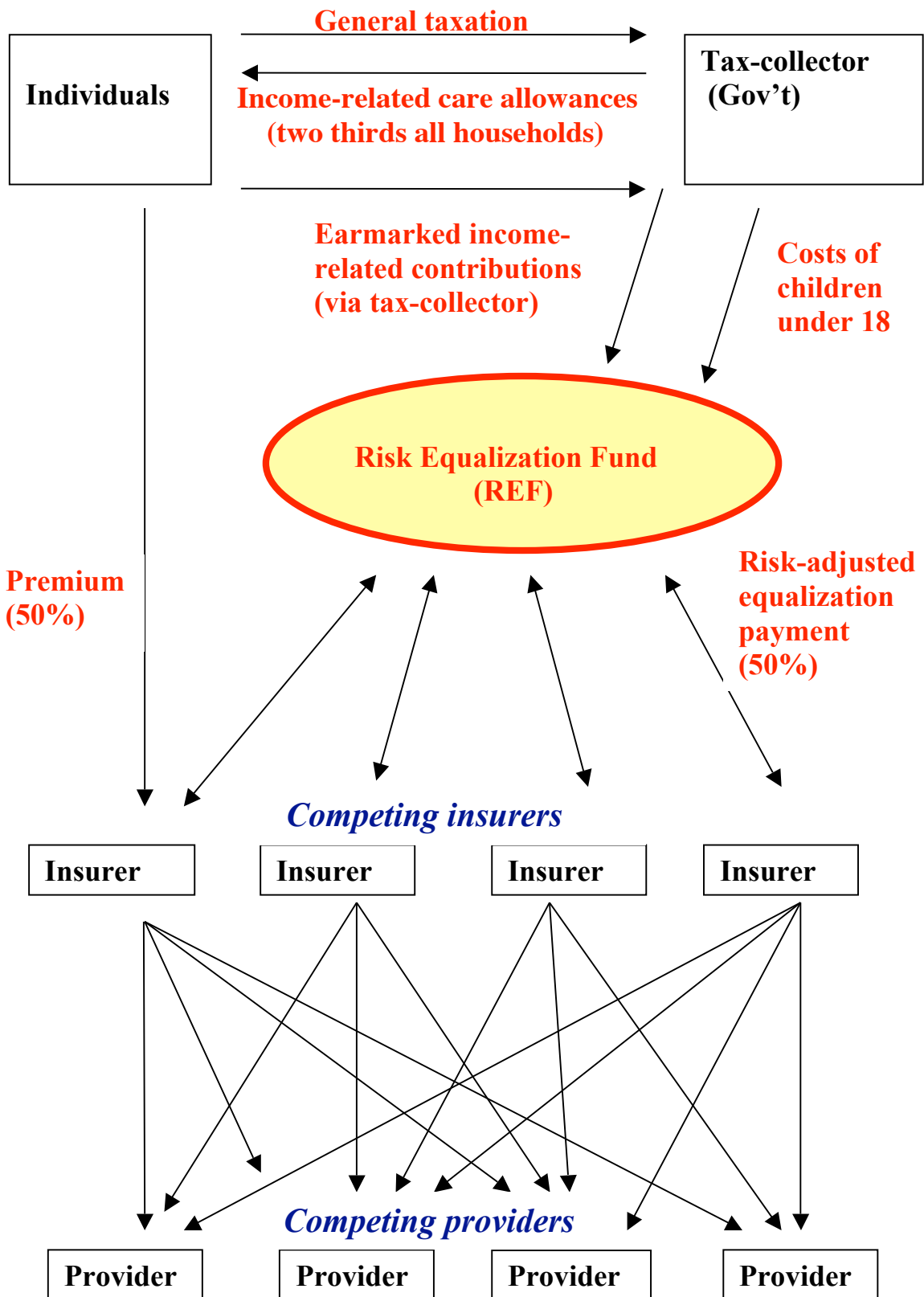


Figure 2. Flows of money in the Netherlands healthcare system, 2006 legislation

Table 1. The effectiveness and market distortions of different strategies to make individual health insurance affordable for high risks in a competitive insurance market with open enrollment.

Strategy	Effectiveness	Market distortions
Risk-adjusted premium subsidies (or risk equalization)	<ul style="list-style-type: none"> • Effective if the risk factors that the sponsor uses for calculating the risk-adjusted subsidies are similar to the risk factors that the insurers use for risk-adjusting the premiums. • Ineffective to the extent that it is technically not feasible for the sponsor to calculate the risk-adjusted subsidies, e.g. for high-risks with a rare chronic disease (too few individuals per risk group). 	In general: no ⁴⁷
Premium-based subsidies	Yes, to any desired extent.	<ol style="list-style-type: none"> 1. Reduction of the consumers' incentive to shop around for the lowest premium; 2. Overinsurance resulting in additional moral hazard; 3. Misallocation of subsidies (also subsidy for N-type factors)
Excess Loss Compensation	Yes, to any desired extent.	Reduction of the insurers' incentive for efficiency
Implicit cross-subsidies enforced by premium rate restrictions	If selection is successful, high-risks pay a higher premium than low-risks.	Risk selection which <ol style="list-style-type: none"> 1. may threaten good-quality care for the high-risks; 2. may reduce efficiency in production; 3. may induce instability in the insurance market.

⁴⁷ Dependent on the risk factors that insurers use, there might be some reduction of the incentive for efficiency, e.g. if insurers use 'prior costs' as a risk factor (see Van de Ven et al. 2000, p. 323-325).

Table 2. Predictable losses for subgroups of consumers given the Dutch risk equalization formula (2005), community rating and open enrollment ⁴⁸

Subgroup	Estimated size of the group	Indication predictable losses per person per year
<i>General Health Indicators (last year)</i>		
Perceived health status: poor/moderate	20,1 %	€ 540
Limitations in physical functioning	8.5 %	€ 870
Limitations in daily activities	3.1 %	€ 1590
Expect specialist consultation in next year	29.3 %	€ 390
More than five health problems	29.7 %	€ 300
Three or more diseases	7.0 %	€ 890
Stomach problems	2.7 %	€ 3290
Anxiety neurosis	3.5 %	€ 1100
Depression	2.3 %	€ 1080
Diabetic-2	2.1 %	€ 570
Artrosis (knee, hip, hand)	6.2 %	€ 530
Chronic skin disease	5.0 %	€ 400
Hypertension	4.3 %	€ 400
Migraine	6.8 %	€320
Psychosis	0.7 %	€ 1130
High cholesterol	1.5 %	€ 1300
Use of painkillers or febrifuge	10.8 %	€ 460
Use of medicine against cough or flu	8.4 %	€ 340
Use of sleeping tablets or tranquillizer	7.4 %	€ 500
Use of splash medicine	5.1 %	€ 700
Use of restoratives	3.7 %	€ 770
Use of at least five medicines in 14 days	3.3 %	€ 1650
<i>Utilization and care expenses last year</i>		
At least four consultations with GP in two months	4.1 %	€ 930
Highest expenses last year	10.0 %	€ 2000
<i>2 year ago</i>		
Consultation of specialist	37.0 %	€ 300
Consultation of physiotherapist	17.5 %	€ 400
Hospital admission	9.6 %	€ 760
Consultation 'alternative healer'	7.6 %	€ 460
Use of family help	3.0 %	€ 1300
Use of district nurse	2.3 %	€ 1470
<i>Previous years</i>		
25% highest expenses in each of the three preceding years	10.6 %	€ 1500
Highest expenses four years ago	5.5 %	€ 1300
Hospital admission four years ago	6.8 %	€ 960
Perceived health status five year ago: poor/moderate	17.9 %	€ 490
At least three diseases in last five years	17.7 %	€ 770
4-8 years ago: hospital admission in at least 2 years	8.9 %	€ 2100
Highest expenses eight years ago	4.9 %	€ 1000

⁴⁸ Without the ex-post compensations, which on average reduce the losses by 50%. Source: Van de Ven et al. (2005)

Table 3. Criteria to compare three Modalities (see Figure 1) of organizing the payment flows of risk-adjusted premium subsidies.

For each criterion the preferred Modalities are indicated by *.

Criterion	Modality A	Modality B	Modality C
1. Can the subsidies be restricted to low-income people only?	*		
2. Low transaction costs of organizing the subsidies		*	*
3. Option to have the contribution to the Subsidy Fund income-related	*	*	
4. High premium responsiveness of consumer		*	
5. Low chance of default of premium payment		*	
6. Option to have <i>mandatory</i> contributions to the Subsidy Fund in case of <i>voluntary</i> insurance	*	*	
7. Low amount of money that is actually passing through the Subsidy Fund			*
8. 'Fairness to the insurers': elimination of the perception of being 'winner' or 'loser'	*	*	

Appendix 1. Forms of regulation-induced selection⁴⁹

The form of the regulation-induced selection (caused by premium rate restrictions and open enrollment for a specified insurance coverage) may depend on the additional information that insurers have. We distinguish three situations.

First, if insurers only know that there are high- and low-risk individuals within the allowed premium-risk-groups, but they cannot ex-ante identify who are the high-risk individuals and they also don't know what the relevant omitted risk factors are, they may structure their coverage so that the insurer is unattractive for the high-risk individuals (Newhouse, 1996). For example, insurers may exclude prescription drugs from coverage, they may offer a policy with a high deductible, or they may contract with a selected panel of providers who work according to strict protocols. Such an insurer is more attractive for the low-risk individuals than for the high-risk individuals within each premium-risk-group. In this way the insurers use adverse risk selection as a tool for preferred risk selection. They stimulate the different risk groups to reveal their risk. Insurers may also share financial risk with the contracted providers in a way that encourages providers to 'drop the lemons'. As Newhouse (1982) highlighted in an example of a "mother with an asthmatic child", providers of care have subtle tools to encourage high cost patients to seek care elsewhere, such as keeping the patient in uncertainty about the correct diagnosis, making the patient wait for an appointment, making the patient wait in the office, being discourteous to the patient, or advising chronically ill patients to consult another physician who is "more specialized in treating their disease".

Second, if insurers know that some omitted risk factors are relevant (e.g. AIDS, disability, prior utilization or hypochondria), but they cannot ex-ante identify the individuals with these characteristics, they may deter the high-risk consumers by selectively not contracting with physicians who have the best reputation of treating patients with such problems.⁵⁰ Insurers also could contract with providers whose facilities have no disabled access. They may also select by the design of their supplementary health insurance (no coverage for mental health care, prescription drugs and reconstructive breast surgery).

Third, if insurers can ex-ante identify predictably unprofitable individuals based on certain risk characteristics, they can focus their selection strategy directly on those identifiable individuals, e.g. by providing the high risks with poor quality care or poor services (such as delayed payments of reimbursement and delayed answers to letters); by not coordinating the care for people with multiple needs; by selective advertising and direct mailing; by providing the insurance broker with incentives to advise relatively unhealthy persons to buy health insurance from another company; or by a golden handshake for unhealthy members at disenrollment, such as offering an AIDS patient a large sum of money to choose a different insurer during the next open enrollment period.

⁴⁹ Based on Van de Ven and Ellis (2000)

⁵⁰ This in turn can discourage physicians and hospitals from acquiring such a reputation.

Appendix 2. Poor care for the chronically ill?

An important question is whether health insurers who are confronted with (large) financial incentives to be irresponsible to the preferences of the chronically ill, indeed do give them poor care and poor services. Ethical considerations and the loss of a good reputation also play an important role. Consumer organizations may carefully monitor insurers' behavior and may give ample publicity to undesired developments. Nevertheless, also the more subtle forms of risk selection can be very profitable for insurers and disadvantageous for the chronically ill. The only country where there are empirical findings, is the United State of America (USA). In the USA all elderly (65+) are entitled for Medicare insurance. Medicare insured may choose: either they receive their care from self chosen physicians and hospitals who are paid on a fee-for-service basis, or they become a member of a health maintenance organization (HMO). In the latter case they receive all their care from/via the HMO, which receives a risk-adjusted monthly payment (premium subsidy) for them. On top of that the HMOs may ask a community-rated premium contribution. Choosing an HMO generally means for the consumer less free choice of provider, but a broader benefits package (in particular prescription drugs) and less user charges. Until 2000 the payment that the HMO receives from Medicare is adjusted for age, gender, region and institutional status, but not for health status. Also for non-Medicare insured the HMOs receive a monthly payment that before 2000 was not adjusted for health status. The next findings give rise to some concern about the care provided by HMOs to chronically ill:

1. Nelson et al., (1997) conducted a survey of a random sample of 3,080 Medicare beneficiaries who were enrolled in a Medicare HMO. They asked them whether they would recommend their HMO to family/friends. Generally 91% of the respondents said yes. However, if it were an advice to someone with serious/chronic health problems, only 74% would advise positively. One in four would then not recommend their HMO.
2. Riley et al., (1997) analyzed the health status of Medicare insured who disenrolled from an HMO. They found that those who disenrolled to the fee-for-service sector were less healthy than disenrollees to other HMOs. This finding may be an indication that HMOs have a poor reputation for treating chronically ill and less healthy people.
3. Ware et al., (1996) found that chronically ill patients who were elderly (65+) and poor were more than twice as likely to decline in health over a four-year period in an HMO than in an FFS plan (68% declined in physical health in a HMO versus 27% for FFS; $P < 0.001$).
4. Davis and Schoen (1998) report findings indicating that working families with a member in fair or poor health, with a serious illness in the past year, or with a chronic condition are particularly likely to rate their HMOs as fair or poor in providing access to specialists.
5. Miller (1998) summarized evidence from peer-reviewed literature on access to care for vulnerable HMO enrollee populations. Although his findings are mixed, he concludes that there are enough negative results to raise some concerns about access to care for HMO enrollees with chronic conditions and diseases.

Although the above findings do not warrant final conclusions, they give rise to some concern if insurers are confronted with strong financial incentives to be irresponsible to the preferences of the chronically ill.

Appendix 3: Default of premium payment and the uninsured in the Dutch health insurance system.

Each person who is legally living or working in the Netherlands is obliged to buy health insurance. How to enforce this mandate? And what happens if someone does not pay the premium?

If someone does not purchase insurance, this person is liable to a penalty of 130% of the premium over the period of not being insured, with a maximum of 5 years. The penalty has to be paid to the new insurer, who has to transfer this money to government.

If an uninsured person makes use of health care facilities, the person is liable for his medical bills. Alternatively the person can, before getting the treatment, enroll with an insurer (e.g. by telephone or website) who is not allowed to refuse because of the open enrollment requirement.

If someone does not pay the premium, the insurer is legally allowed to cancel the contract after having sent a dunning letter with the announcement that in case of no payment within a reasonable period of time the contract will be cancelled.

A problem for the insurers is the open enrollment requirement. The insurer who has cancelled the contract, is not obliged to accept this person in the next 5 years, but all other insurers are not allowed to reject the expelled person. If the person enrolls with another insurer and again does not pay the premium, also the second insurer may cancel the contract after some time. And the person might go to a third insurer, etc. So the insurers fear a ‘merry-go-round’ of defaulters. The insurers and government are thinking about potential solutions to prevent such a ‘merry-go-round’. For the time being the insurers agreed not to cancel the insurance contract of defaulters during a period of 18 months. They are negotiating with government who should bear the loss of foregone premiums.

The Health Insurance Act was enacted on 1 January 2006, so the first 18-month period will end on 1 July 2007.

In general the above issues appear to be politically very sensitive.

Preliminary estimates:

- Number of uninsured among those who are obliged to purchase insurance: 1.1 %; ⁵¹
- Number of persons who illegally stay in the Netherlands (and most likely are uninsured): between 0.5 and 1.1 %; ⁵²
- Number of defaulters (“no premium paid for at least 6 months”): around 2 %. ⁵³

⁵¹ Source: Central Bureau of Statistics, “Het aantal onverzekerden tegen ziektekosten 2004-2006”, Den Haag, 5 July 2006.
<http://www.cbs.nl/nl-NL/menu/themas/gezondheid-welzijn/publicaties/artikelen/archief/2006/default.htm>
(Click 5 July 2006)

⁵² Source: NOS Journaal, 28 February 2007
http://www.nos.nl/nosjournaal/artikelen/2007/2/28/280207_zorgpremie.html

⁵³ Source: NOS Journaal, 28 February 2007
http://www.nos.nl/nosjournaal/artikelen/2007/2/28/280207_zorgpremie.html