Risk adjustment and risk selection on the sickness fund insurance market in five European countries

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Abstract

From the mid-1990s citizens in Belgium, Germany, Israel, the Netherlands and Switzerland have a guaranteed periodic choice among risk-bearing sickness funds, who are responsible for purchasing their care or providing them with medical care. The rationale of this arrangement is to stimulate the sickness funds to improve efficiency in health care production and to respond to consumers’ preferences. To achieve solidarity, all five countries have implemented a system of risk-adjusted premium subsidies (or risk equalization across risk groups), along with strict regulation of the consumers' direct premium contribution to their sickness fund. In this article we present a conceptual framework for understanding risk adjustment and comparing the systems in the five countries. We conclude that in the case of imperfect risk adjustment— as is the case in all five countries in the year 2001—the sickness funds have financial incentives for risk selection, which may threaten solidarity, efficiency, quality of care and consumer satisfaction. We expect that without substantial improvements in the risk adjustment formulae, risk selection will increase in all five countries. The issue is particularly serious in Germany and Switzerland. We strongly recommend therefore that policy makers in the five countries give top priority to the improvement of the system of risk adjustment. That would enhance solidarity, cost-control, efficiency and client satisfaction in a system of competing, risk-bearing sickness funds.
RISK ADJUSTMENT AND RISK SELECTION ON THE
SICKNESS FUND INSURANCE MARKET IN FIVE
EUROPEAN COUNTRIES

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From the mid-1990s citizens in Belgium, Germany, Israel, the Netherlands and Switzerland have a guaranteed periodic choice among risk-bearing sickness funds, who are responsible for purchasing their care or providing them with medical care. The rationale of this arrangement is to stimulate the sickness funds to improve efficiency in health care production and to respond to consumers’ preferences. To achieve solidarity, all five countries have implemented a system of risk-adjusted premium subsidies (or risk equalization across risk groups), along with strict regulation of the consumers’ direct premium contribution to their sickness fund. In this article we present a conceptual framework for understanding risk adjustment and comparing the systems in the five countries. We conclude that in the case of imperfect risk adjustment – as is the case in all five countries in the year 2001 – the sickness funds have financial incentives for risk selection, which may threaten solidarity, efficiency, quality of care and consumer satisfaction. We expect that without substantial improvements in the risk adjustment formulae, risk selection will increase in all five countries. The issue is particularly serious in Germany and Switzerland. We strongly recommend therefore that policy makers in the five countries give top priority to the improvement of the system of risk adjustment. That would enhance solidarity, cost-control, efficiency and client satisfaction in a system of competing, risk-bearing sickness funds.

KEYWORDS: RISK ADJUSTMENT, REGULATED COMPETITION, SICKNESS FUND INSURANCE MARKET, RISK SELECTION, INTERNATIONAL COMPARISON.
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1. INTRODUCTION

Health system reforms have been taking place in many countries over the past two decades. Despite the variety of systems and reforms, the objectives guiding these reforms have been rather similar. These objectives can be shortly summarised as: efficiency and client satisfaction in health care together with solidarity and the effective control of aggregate spending. In this paper we focus on the reforms in five European countries with a so-called Bismarck-style mandatory sickness fund insurance: Belgium, Germany, Israel, the Netherlands and Switzerland.

In the 1990’s the following measures have been taken in these five countries: (1) enlarging the consumer choice of sickness fund, and/or (2) increasing the financial responsibility of sickness funds. The citizens in these five countries now have a guaranteed periodic choice among risk-bearing sickness funds who are responsible for purchasing their care or providing them with medical care. The rationale of this arrangement is to stimulate the sickness funds to improve efficiency in health care production and to respond to consumers’ preferences. To achieve solidarity, all five countries have implemented a system of risk-adjusted premium subsidies (or risk equalisation across risk groups), with strict regulation of the consumers’ direct premium contribution to their sickness fund.

The recent developments in the financing and organisation of health care in these countries are described in five separate articles in this Special Issue\(^1\). At first glance one might conclude from these articles that the financing systems in these countries are very different from each other. For example, in Israel “capitation” as an allocation mechanism is strongly emphasised, while in Germany and Switzerland the term “capitation” has no meaning in this context. Another difference is that in Germany and Switzerland consumers make their total contribution directly to the sickness funds, while in Israel all mandatory contributions are paid into a single fund which then allocates payments to the sickness funds. In Belgium and the Netherlands there is a mixture of these two payment flow systems.

Despite these apparent differences a closer look provides clear similarities in the theoretical and conceptual background of the financing system in the five countries. A common element

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\(^1\) Beck et al. (2001), Buchner and Wasem (2001), Lamers et al. (2001), Shmueli et al. (2001) and Schokkerent and Van de Voorde (2001).
in all five countries is that in case of imperfect risk adjustment the sickness funds have financial incentives to select the predictably profitable consumers, i.e. clients for whom the sickness fund’s revenue (far) exceeds the actuarially predicted expenses. This selection and the resulting market segmentation may seriously threaten solidarity, efficiency and quality of care (see section 2.4).

The purpose of this article is to compare the recent developments on risk adjustment and consumer choice of sickness fund in these countries: What are the similarities and differences? Are solidarity, efficiency and quality of care threatened by selection? What can these countries learn from each other? What can other countries learn?

To help the reader to compare the financing systems in the five countries we first present a conceptual framework for understanding risk adjustment. Because of the different terminology used in the five countries this required a common terminology (see the Glossary). Although this common terminology clearly is not the first choice in each of the countries to describe their system, the conceptual framework may deepen the understanding of the system in each of the countries. In particular it may help to understand the basic problem as well as the potential solutions.

This article is organized as follows. In section 2 we present the conceptual framework for comparing risk adjustment in several countries. Section 3 compares the background and rationale of risk adjustment in Belgium, Germany, Israel, The Netherlands and Switzerland. Section 4 compares the practice of risk adjustment in these countries. In section 5 we compare the consumer mobility and risk selection in the five countries and discuss the extent to which the consumer choice of sickness fund is exploited in practice. Section 6 discusses the conclusions and some expected future developments.

2. CONCEPTUAL FRAMEWORK

2.1. How to combine solidarity and consumer choice of sickness fund?

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2 This section is partly based on Van de Ven and Ellis (2000).
A sickness fund market in which consumers may periodically choose an other risk-bearing sickness fund, creates a great challenge for policy makers: how to achieve solidarity in such a market? The **solidarity** principle, which is highly valued in Europe, implies that high-risk and low-income individuals receive a subsidy to increase their access to health insurance coverage. In this paper we will use the term solidarity in the sense of **subsidizing solidarity**, and not in the sense of **solidarity-by-chance**. The latter reflects the ex-post redistribution from those who ex-post appear to have had zero/low expenses towards those in the same actuarial risk group who ex-post appear to have had high expenses. This type of ex-post redistribution is inherent in insurance and is not the subject of this paper. We distinguish two forms of subsidizing solidarity: **risk solidarity**, that is cross-subsidies from the low-risk individuals to the high-risk individuals; and **income solidarity**, that is cross-subsidies from the high-income to the low-income individuals.

A great challenge for policy makers is: how to combine solidarity with consumer choice of sickness fund? In a free competitive sickness fund market implicit cross-subsidies in the premiums cannot be sustained because competition minimizes the predictable profits per contract. Consequently, a sickness fund has to break even, in expectation, on each contract either by adjusting the premium to the consumer’s risk (premium differentiation) or by adjusting the accepted risk to the premium (risk selection). Given the average expenses per risk group, free competition would result in risk-adjusted premiums that can easily differ a factor of ten or more for demographic risk factors such as age, and factors of 100 or more once health status is also taken into account. An effective way to achieve subsidizing solidarity without disturbing competition among the sickness funds, is to give the high-risk consumers a **premium subsidy** out of a solidarity fund which is filled with mandatory solidarity contributions from the low-risks. For practical reasons the subsidy can be given directly to the sickness fund chosen by the consumer. Because in general the premium subsidy will be lower than the premium, the consumer pays directly to his sickness fund a **premium contribution** equal to the premium minus the premium subsidy (see Figure 1).

**Insert Figure 1**

There are several ways government can organize solidarity and the payment flows. In the case as sketched above (see Figure 1) a straightforward and practical way is to make the solidarity contributions income-related and to let risk solidarity be reflected in the risk-
adjusted premium subsidies (as is the case in e.g. Belgium, Israel and the Netherlands). Broadly speaking, this way of separating income and risk solidarity is not restrictive and sacrifices little generality.\footnote{Assume, for example, that age is the only risk adjuster, and that $E_i$ is the average expenditures in age group $i$, with $E$ the grand average. Assume that the solidarity contribution is $E - E_i$ and has to be paid only by individuals belonging to an age group $i$ with $E > E_i$; and the risk-adjusted subsidy is $E_i - E$ and is received only by individuals belonging to age group $i$ with $E < E_i$. This situation is identical to the situation that each individual pays a non-risk-adjusted solidarity contribution $E$ and receives a risk-adjusted subsidy $E_i$. Mutatis mutandis the same argument applies to income-solidarity.} By risk-adjusted premium subsidies we mean premium subsidies that are adjusted for risk factors on which actuarial premiums in an unregulated competitive market would be based (e.g. age, gender and health status). The advantage of risk-adjusted premium subsidies over premium-related subsidies is that they do not distort competition\footnote{Premium-related premium subsidies would reduce the consumer’s incentive to shop around for the lowest premium and thereby reduce the insurers’ incentive for efficiency. In addition they would stimulate consumers to buy more complete insurance, resulting in more moral hazard, than they would have done in case of no subsidy at the margin.}. From the point of view of the sickness funds the way of organizing the subsidies as sketched in Figure 1 can be seen as an external subsidy system. The subsidizing risk equalization takes place entirely outside the sickness funds. An alternative is that the consumer pays his total contribution, i.e. the sum of the premium contribution and the solidarity contribution, directly to his sickness fund, while the sickness fund and the solidarity fund clear the net difference of all the solidarity contributions and premium subsidies of the relevant enrollees (as is the case in e.g. Germany and Switzerland). This can be considered an internal subsidy system (see Figure 2), i.e. a system in which there is an internal equalization within each sickness fund, complemented with an equalization system among the sickness funds to compensate for differences in risk portfolios among the sickness funds.

Insert Figure 2

It is important that the difference between the internal and external subsidy system relates only to the organization of the payment flows. All other aspects of the conceptual framework, including e.g. the prospective or retrospective calculation of the premium subsidies (section 2.7), apply equally to each of them.

The policy relevance of risk adjustment is that, in theory, perfectly risk-adjusted premium subsidies may combine solidarity and a competitive sickness fund market. In practice, however, perfect risk adjustment is still a long way off.
2.2. Selection due to premium rate restrictions

If the sickness funds were fully free to ask risk-adjusted premium contributions while the premium subsidies are adjusted only for relatively poor predictors of future individual health care expenses – as is the case in all five countries in the year 2001! – the resulting range of individual premium contributions would conflict with the principle of risk solidarity. Therefore, government in all five countries imposes restrictions on the variation of the premium contributions. Although the intended effect of these restrictions is to create implicit cross-subsidies from low-risk to high-risk individuals, they also create predictable losses for sickness funds on their high-risk individuals. In so doing, these restrictions create incentives for selection. By selection we mean actions\(^5\) by consumers and sickness funds to exploit unpriced risk heterogeneity and break pooling arrangements (Newhouse, 1996). (Sometimes the term “selection” refers to the outcome of these actions.) Thus, by definition, selection threatens solidarity.

2.3. Open enrolment

Selection can be reduced by imposing an open enrolment requirement for a specified benefits package. An open enrolment requirement implies that consumers are allowed to change sickness fund and that each sickness fund must accept all applicants in its geographical working area, subject to usual conditions like the minimum contract period with the current sickness fund, the prior notification period and other procedural issues. Although an open enrolment requirement deprives the sickness funds of an effective tool for selection (i.e. simply refusing the predictably unprofitable applicants), it does not reduce their incentives for selection. In fact, it enlarges the sickness funds’ incentives to use the more subtle forms of selection.

2.4. Selection: threatening solidarity, efficiency and quality of care

Subtle forms of selection may seriously threaten solidarity, efficiency and quality of care. We will consider the situation in which (a) there is imperfect risk adjustment, (b) the sickness funds are – for reasons of solidarity – not allowed to differentiate the premium contributions

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\(^{5}\) Not including risk-rated pricing by sickness funds.
of their members, and (c) there is a periodic open enrolment requirement. For a similar coverage the variation in premium contribution will then reflect (a) (ideally) efficiency differences and (b) (unfortunately) uncompensated differences in the risk composition of their membership. The latter provides sickness funds with incentives for selection. Because sickness fund are not allowed to refuse applicants, they have incentives to use the more subte forms of selection, which may have the following adverse effects.

First, in the case of large predictable profits resulting from selection, the sickness funds have a disincentive to respond to the preferences of high-risk consumers. By high-risk (and low-risk) consumers we mean those consumers for whom the sickness funds expect predictable losses (respectively profits) given the risk groups for calculating the premium subsidies and given the restrictions on the variation of the premium contributions. Sickness funds may give poor service 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 a sickness fund and its contracted providers of care share financial risk, the providers share the incentive to attract profitable patients and to deter patients who generate predictable losses. As a result of selection, high-risk patients may either receive poor care and poor services or pay a very high premium – if they are able and willing to do so – for good care to a sickness fund that specializes in care for high-risk patients (if there is such a sickness fund). Especially if regulation implies a nation-wide maximum premium contribution (as e.g. in Israel, where the premium contribution must be zero for all enrollees) it is suicidal for a sickness fund to become known for providing the best care for chronically ill, because it cannot raise its premium contribution and it will be flooded by individuals who predictably generate more costs than revenues. In sum, selection may threaten good quality care for the chronically ill.⁶

Second, to the extent that some sickness funds are successful in attracting the low-risk consumers, these selection activities result in a market segmentation whereby the low-risks pay a low premium contribution and the high-risks pay a high premium contribution. That is, selection may threaten solidarity.

⁶ Although the empirical findings in the literature do not warrant final conclusions, they give rise to some concern if competing insurers are confronted with strong financial incentives to be irresponsible to the preferences of the chronically ill (see e.g. Devis and Schoen, 1998; Nelson et al., 1997; Miller, 1998; Riley et al., 1997; Ware et al., 1996).
Third, in case of large predictable profits resulting from selection, selection will be more profitable than improving efficiency in health care production. At least in the short run, when a sickness fund has limited resources available to invest in cost-reducing activities, it may prefer to invest in selection rather than in improving efficiency. Efficient sickness funds who do not select applicants, may lose market share to inefficient sickness funds who do, resulting in a welfare loss to society. So, selection may threaten efficiency.

Fourth, while an individual sickness fund can gain by selection, for society as a whole, selection produces no gains. Thus, any resources used for selection represent a welfare loss.

In sum, the restrictions on the variation of the premium contributions that are intended to increase solidarity in the case of imperfect risk adjustment, instead provide incentives for selection which may threaten solidarity, efficiency and quality of care.

2.5. Prevention of selection

Theoretically, the best strategy to reduce selection is good risk adjustment. As perfect risk adjustment is still a long way off, a second strategy to reduce selection is risk sharing between the solidarity fund (say, government) and the sickness funds, resulting in a tradeoff between selection and efficiency (see section 2.6). A third strategy is to allow sickness funds to risk rate the consumer's premium contribution within a certain range, resulting in a tradeoff between selection and solidarity (to be discussed in section 6). Fourth, government could try to prevent selection by additional measures such as:

- Preventing any direct contact between a sickness fund and applicants during the enrolment process, as e.g. in Israel, where (dis)enrolment notification must be given to the postoffice;
- Publication of the results of surveys about consumer satisfaction with their sickness fund;
- Ethical codes for insurers;
- Periodically adjusting/improving the subsidy formula (which reduces the long term profitability of certain selection activities);
- And ensuring that the pricing and selling of the basic benefits package is not tied in with other products and services.
Although some of these additional measures do not reduce the sickness funds’ incentives for selection that result from the predictable losses/profits on identifiable subgroups of consumers, they deprive the sickness funds of important tools for selection and they increase the cost of some forms of selection (e.g. the costs related to a loss of good reputation). The success of these measures depends on the benefits and the costs of the selection activities that sickness funds (still) have at their disposal.

2.6. Risk sharing

Government may effectively reduce the sickness funds' incentives for selection by implementing various forms of ex-post risk sharing between the solidarity fund and the sickness funds. Risk sharing implies that the sickness funds are retrospectively reimbursed by the solidarity fund for some of the acceptable costs (see section 2.8) of some of their enrollees. Consequently the risk-adjusted premium subsidy per risk group must be reduced by the expected retrospective reimbursement per risk group.

Several forms of risk sharing can be discerned e.g.:

- *Proportional* risk sharing: the solidarity fund retrospectively reimburses each sickness fund a fixed percentage of all its acceptable costs;

- *Outlier* risk sharing: the solidarity fund retrospectively reimburses each sickness fund a certain percentage of the acceptable expenses per enrollee only as far as they are above a certain annual threshold;

- Risk sharing for high risks: each sickness fund is allowed for each contract period to ex-ante designate a specified percentage of its members (for example, 1 to 4 percent) for whom the solidarity fund retrospectively reimburses all or some acceptable expenses;

- *Condition-specific* risk sharing: the solidarity fund retrospectively compensates the sickness funds some prospectively determined payment dependent on the occurrence of certain medical problems.

Because risk sharing reduces the sickness funds' incentives for selection as well as for efficiency, government is confronted with a tradeoff between selection and efficiency (see e.g. Van Barneveld et al., 2001).
In addition to the reduction of the incentives for selection, other arguments for implementing risk sharing (for certain types of care) are: 1) the reduction of the sickness funds' incentive for quality skimping (see e.g. Newhouse et al., 1997; and Van de Ven and Schut, 1994); and 2) fairness towards the individual sickness funds, in the sense that the extent of their financial responsibility is commensurate with the extent to which an individual sickness fund legally has the tools to influence (the respective types of) health care expenses ("procedural fairness").

2.7. Prospective versus retrospective models

The level of the risk-adjusted premium subsidy per risk group can be calculated prospectively or retrospectively, that is either at the beginning of the contract period using only prior information, or at the end of the period using information that becomes known during the contract period. Mixtures of these two extremes are also possible. An argument for preferring prospective models is that sickness funds ex-ante want to know the amount of premium subsidies that they receive, which can help them to accurately set the premium contribution they ask from their enrollees. Another argument in favour of prospective models is that only prospective information can be used for selection. In addition, prospective models provide sickness funds with more incentives for effective preventive care than retrospective models. As far as there is moral hazard, the preference for prospective or retrospective models may depend on whether incentives for over- or underutilization are preferred (or a mixture). Another aspect concerning moral hazard is the market share of the largest sickness fund: the larger its market share, the larger the moral hazard problem, i.e. the smaller is the incentive for efficiency for the largest sickness fund. Finally, the feasibility argument concerning a prospective versus retrospective model may differ from setting to setting.

2.8. Solidarity for which healthcare expenses?

The cost of services and intensity of treatment that government has decided to be acceptable to be subsidized, is denoted as acceptable costs. Both the risk-adjusted premium subsidies and the ex-post subsidies because of the risk sharing arrangement, in principle, should be related to the acceptable costs. The goal of risk adjustment models is to calculate the best estimate of the acceptable costs for each individual. Given an estimate of the acceptable costs the risk-adjusted premium subsidy is defined as some function of it, e.g. a certain percentage,
or the acceptable costs minus a fixed amount (as in the Netherlands). Because the "acceptable cost level" is hard to determine, in practice the subsidies are mainly based on observed expenses. However, observed expenses are determined by many factors, not all of which need to be used for calculating the subsidies. Therefore, all risks factors that determine observed expenses, can be divided into two subsets: those factors for which solidarity is desired, the S-type factors; and those for which solidarity is not desired, the N-type factors. Ideally, subsidies should only be adjusted for the S-type risk factors and not for the N-type risk factors. Currently the distinction between S-type and N-type risk factors for calculating the premium subsidies is only made in Belgium.

2.9. Criteria for risk adjusters

The application of risk adjustment in practice is hindered because ideally the risk adjusters should fulfill several criteria for assessing risk adjustments: models. Although many criteria can be listed, they can usefully be grouped into three broad criteria, which may be mutually related (Van de Ven and Ellis, 2000):

- **Appropriateness of incentives**: sickness funds should have incentives for efficiency and health-improving activities, and they should not have incentives for selection and for distorting information to be used for calculating subsidies;
- **Fairness**: the risk-adjusted premium subsidies should be consistent with the desired solidarity, i.e. the desired level and direction of the cross-subsidies, and the subsidies should not be related to N-type risk factors; in addition the subsidies should sufficiently compensate the sickness funds for their high-risk enrolees ("distributional fairness");
- **Feasibility**: the required data should be routinely available at reasonable costs; the data should be resistant to manipulation by the sickness funds; the manager of the solidarity fund should be able to control the correctness of the data; there should be no conflict with privacy; and the system should be acceptable to all parties involved.

In practice most potential risk adjusters appear not to fully fulfill these criteria, resulting in complicated tradeoffs.

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7 Schokkaert and Van de Voorde (2000) denote them as C- and R-variables.
3. THE BACKGROUND AND RATIONALE OF RISK ADJUSTMENT IN FIVE EUROPEAN COUNTRIES

In the 1990s in all five countries (Belgium, Germany, Israel, the Netherlands and Switzerland) government has implemented a system of risk adjustment in the market for mandatory sickness fund insurance and took measures to stimulate the sickness funds to contain costs. However, due to different starting situations the rationale of risk adjustment as well as the cost-containment measures were not the same in the five countries.

In the late 1980s individual sickness funds in Germany, Israel and Switzerland already had a high financial responsibility. Because consumers in these countries had some choice of sickness fund and because there were severe restrictions on the sickness funds premiums, all three countries were confronted with selection problems (see Table 1). The rationale of implementing risk adjustment in the early 1990s in these countries was to reduce the consequences of selection, and thereby increase the solidarity which was affected by selection (see Table 2). After the implementation of risk adjusted premium subsidies, all three countries increased the consumer choice of sickness fund (by implementing a periodic open enrolment requirement) in order to stimulate the sickness funds to contain costs. Consumers who are dissatisfied with the premium and/or with the health care services contracted/offered by their sickness fund could then "vote by their feet". In Israel the increase of client satisfaction was an explicit rationale of enlarging the consumer choice. In Germany and Israel another rationale of more consumer choice of sickness fund was to have more equity among consumers in having a choice of sickness fund. In Switzerland the legislator expected that the obligation for the sickness funds to accept every applicant would reduce the selection problems. The aim of the legislator was that the consumer mobility should eventually lead to a convergence of the risk portfolios of the sickness funds in such a way that (after 13 years) the risk adjustment would be no longer necessary (see section 4 for the incorrectness of this argument).

Insert Table 1 and 2
In Belgium and the Netherlands the starting situation was totally different. In the late 1980s sickness funds in these countries had no financial responsibility at all\(^8\) and consequently there was no selection problem (see Table 1). In Belgium consumers had already some choice of sickness fund (although there was/is no open enrolment requirement). In the Netherlands government introduced full consumer choice of sickness fund by implementing a periodic open enrolment in 1992. In the early/mid 1990s the following two changes took place in Belgium and the Netherlands: (1) the financial responsibility of the sickness funds was increased (from 0% to about 2%) in order to stimulate them to contain costs, and (2) a system of risk-adjusted premium subsidies was implemented to prevent selection, which otherwise might threaten solidarity.

In all countries except Switzerland another rationale of risk adjustment is distributional fairness towards the sickness funds, i.e. to provide sickness funds with an adequate compensation for high-risk enrolees.

4. THE PRACTICE OF RISK ADJUSTMENT AND RISK SHARING IN THE YEAR 2000

In all five countries risk adjustment is being applied to the mandatory sickness fund insurance. The benefits package in all five countries covers physician services, hospital care and prescription drugs. Differences in benefits package among the countries are indicated in Table 3. Total expenses covered by the mandatory sickness fund insurance in Belgium are about 65% of the total health expenses, while in the Netherlands (where the mandatory sickness fund insurance covers only 62% of the population) it is 37% (Table 4).

Insert Table 3 and 4

In all five countries relatively poor predictors of future individual health care expense are used to calculate the \textit{risk-adjusted premium subsidies} (Table 5). Age is the only risk-adjuster that is used in all five countries. The number of age-subgroups ranges from less than 10 (Belgium and Israel) to 92 (Germany). For reasons of solidarity all five countries have stringent restrictions on the variation of the consumers’ direct (premium) contributions to the

\(^8\) From 1963 to 1995 sickness funds in Belgium were legally financially responsible. However, in the political reality they were completely reimbursed (see Schokkaert and
sickness funds. In Israel government requires the premium contribution to be zero. In the other four countries the sickness funds are allowed to ask a community-rated (premium) contribution from their members (Switzerland: per region; Germany: income related), which may differ from sickness fund to sickness fund, allowing for premium competition among the sickness funds. In Israel sickness funds are allowed to propose competitive specific copayment programs to be approved by government, resulting in “copayment competition” among the sickness funds rather than premium competition.

Belgium is the only country that uses the results of a regression analysis to calculate the risk-adjusted premium subsidies. All other countries use the cell-based average expenses, with the number of cells ranging from 9 (Israel) to 780 (Switzerland). Because Switzerland calculates the risk-adjusted premium subsidies per “Kanton”, the number of observations per cell may become unacceptably low, resulting in a minimum number of observations per cell as low as 14 individuals. This may result in inappropriate incentives, lack of stability of the weights over time, and overfitting of the model (compare the birthday-zipcode formula, Van de Ven and Ellis 2000, p. 794). Of course, the seriousness of the problem is commensurate with the fraction of all observations that are in cells with unacceptably low numbers of observations.

Insert Table 5

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

Van de Vooede, 2000).
Because in Belgium, Germany, the Netherlands and Switzerland an individual sickness fund cannot influence the hospital infrastructure, the sickness funds in these countries do not bear (substantial) financial responsibility for hospitals' capital costs. The reverse of this "procedural fairness", however, is that sickness funds in some cases might have financial incentives to substitute inpatient care for less expensive outpatient care.

The three countries with an external subsidy system (Belgium, Israel, and the Netherlands) have organized income and risk solidarity in a straightforward way, as indicated in section 2.1. Switzerland has organized income solidarity outside the sickness fund insurance system by giving premium-related subsidies to low-income households. In Germany the internal subsidy system is complicated because it has to deal with both income and risk solidarity. The German system is further complicated because part of the enrolees’ benefits, i.e. sickleave allowances, are income-related, which is not reflected in the risk-adjusted premium subsidies. This distorts the competition among sickness funds.

All five countries more or less have problems with the determination of the acceptable costs, that is the cost of the set of services and intensity of treatment that government has decided to be acceptable to be subsidized. This issue is fiercely debated in Israel. In the first year of open enrolment (1995) the national average per capita expenses was used as the acceptable cost level. Because the largest sickness fund in Israel has a market share of more than 50% and therefore heavily influences the acceptable expenses, the annual update of the total sum of subsidies is done via annual adjustments for indices like the health prices index, the population growth and a technological factor index. In practice, sickness funds were confronted with huge deficits in the late 1990s. Because sickness funds in Israel are not allowed to ask any premium contribution directly from their enrolees, they lack an effective tool to balance their budget. A shortcoming of the risk adjustment models in both Germany and Israel is that the acceptable cost level is not adjusted for the exemption of low-income enrolees from copayments. This creates a natural incentive for the sickness funds to select the high-income people.

In The Netherlands there (still) is a definition of "acceptable costs" used both for risk sharing and for calculating the relative weights for determining the risk-adjusted premium subsidies. The Sickness Fund Council judges which actual expenses of a sickness fund can (not) be considered to be acceptable given the detailed benefits package as described in the Sickness
Fund Act and given the standardized national fee schedule\(^9\). However, the total sum of risk-adjusted premium subsidies – the so-called macrobudget – is determined by government, using some relevant indices. According to the sickness funds this annual macrobudget mostly is too low. However, the sickness funds balance their budgets by asking their enrollees a premium contribution which they consider to be appropriate.\(^10\)

In Belgium the definition of acceptable costs as used for the calculation of the premium subsidies differs from the definition that is used for proportional risk sharing. There is a long and very detailed list of treatments that are part of the cover. The sickness funds have to check whether a particular treatment is on that list, before they reimburse the expenditures. In Belgium government also determines an a priori fixed total sum of the risk-adjusted premium subsidies. Belgium is the only country in which the distinction between S-type and N-type risk factors is a relevant policy issue in current (i.e. year 2001) practice. Medical supply is explicitly considered a risk factor for which the premium subsidies should not be adjusted. Schokkaert and Van de Voorde (2001, Table 2) illustrate the nontrivial impact of this political decision on the sickness funds' results. However, in the proportional risk sharing scheme no distinction is made between S-type and N-type risk factors.

In Germany and Switzerland the actual expenses of all sickness funds are retrospectively used as the acceptable costs\(^11\). Because of the large number of sickness funds in these countries, no sickness fund has a dominant influence on the acceptable costs. In Switzerland the risk adjustment formula neglects all premium rebates of enrollees who voluntarily choose a high deductible. Although this is considered to be unfair\(^12\), the risk adjustment formula also does not adjust for potential adverse selection, i.e. the phenomenon that, most likely, the relatively healthy enrollees within each age group choose a voluntary high deductible and premium reduction.

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9 This procedure of determining the "acceptable costs" will become more complicated the more degrees of freedom the sickness funds have for managing the care, for negotiating different price- and quality-levels, and for defining the precise entitlements of their enrollees.

10 The Sickness Fund Act provides government with the option to set a maximum to the premium contributions. Until now (i.e. 2001) the Dutch government has not used this option.

11 In Germany the acceptable costs are based on the obligatory elements of the benefits package only. Voluntary elements (less than 5 percent), for instance the costs of spa treatment, are not included in the calculation of the expenses which are acceptable to be subsidized.

12 For details of the argumentation see Beck et al. (2001).
Finally, all five countries experience(d) severe *implementation* problems. Especially in the first years there was a serious lack of relevant data, in particular at the level of the individual enrolee. In the Netherlands, Germany and Belgium every year the subsidy formulae have been changed slightly.

In all countries the criterion “appropriate incentives” –although not unimportant!– does not appear to be a dominant criterion in choosing among different risk adjustment models. On the contrary, redistributive effects among the sickness funds, feasibility (incl. acceptability) and fears for complexity are quite dominant criteria. In addition, one should not preclude, especially in the early days of risk adjustment, an insufficient understanding of the problem. For example, the decision by the Swiss parliament in 1994 to limit the duration of the risk adjustment model to a period of thirteen years only, can be easily countered. Even if, after this period, consumer mobility has made the portfolios of all sickness funds identical, the *permanent* existence of the *incentives* for selection in the case of no risk adjustment form a *permanent* threat on solidarity, efficiency and quality of care. Although an open enrolment requirement deprives the sickness funds of a straightforward tool for selection, the sickness funds still have many other, subtle tools for selection at their disposal, while having strong financial incentives to use them. Most of the adverse effects (as discussed in section 2.4) that may result from the use of these subtle tools for selection, occur even if all sickness funds are equally successful in selection! This is a sufficient argument – which may have been overlooked by the Swiss legislator – to make an adequate risk adjustment model permanent as long as consumers have a periodic choice among risk-bearing sickness funds which are confronted with severe premium rate restrictions.

All in all the European experience indicates, in accordance with the experience in the United States of America (Gauthier et al. 1995; Bowen, 1995), that even the simplest risk adjustment mechanisms are complex and that there are many start up “surprise problems”.

5. CONSUMER MOBILITY AND RISK SELECTION

In all countries except Belgium there is a legally determined open enrolment requirement. The details of the open enrolment regulation differ from country to country (see Table 6). In
Belgium sickness funds do not have the legal duty to enrol all interested applicants\textsuperscript{13}, but regulation provides all sickness fund enrolees with a guaranteed renewability of their contract. In addition, there is a public fund as "insurer of last resort".

In all five countries sickness funds, by law, must be not-for-profit organizations. In all five countries there is some form of consumer protection if a sickness fund goes bankrupt. In all countries except Israel each individual sickness fund is obliged to have financial reserves. The minimum required reserves range from 0.25\% (Belgium) to at least 15\% (Switzerland) of annual expenditures.

Insert Table 6 and 7

The percentage of consumers in the five countries who switch sickness fund is estimated to be between 1\% and 4\% of the relevant population per year. It appears that most switchers are young and healthy. Small new sickness funds appear to be the winners and large sickness funds the losers. In Israel and Switzerland good consumer information is available, in contrast to Belgium and the Netherlands.

In Germany and Switzerland risk selection is a real problem. Although in all five countries the risk-adjusters are relatively poor predictors of future individual health expenses and although in all five countries there are severe restrictions on the direct consumer (premium)contribution to the sickness funds, it is not surprising that especially in Germany and Switzerland risk selection is a real problem. These are the only two countries without any form of mandatory risk sharing (so sickness funds bear 100\% financial responsibility) and with a real competitive sickness fund market. Both countries have a large number of sickness funds, with the market share of the largest four sickness funds being 69\%\textsuperscript{14} resp. 47\%. In Belgium there are only 6 sickness funds, who bear a relatively low financial responsibility. In Israel there are only four sickness funds who behave as a cartel.\textsuperscript{15} The Netherlands is in between: 24 sickness funds with the market share of the four largest sickness funds 42\%\textsuperscript{16}, and with a strongly increasing financial responsibility for the sickness funds over the last 5

\begin{footnotesize}
\begin{enumerate}
\item[13] Although in Belgium there is no legal open enrolment, a sickness fund that would openly follow a discriminatory policy of refusing high-risk applicants, would be subject to heavy social and political pressure, and reputation effects would most probably be disastrous.
\item[14] In Germany the regional funds (AOK) by law cannot compete with each other because they are restricted to the region of their state. Therefore, we counted all of these 17 funds here together as "one fund". If we would count each regional AOK as a single fund, the market share of the largest four sickness funds would be 38\%.
\item[15] NB: Four (competition) are few; six are many! (Selten,1973)
\item[16] Some of the 24 sickness funds are only "soft" competitors for each other because (although they have different brand names) they belong to the same holding-company.
\end{enumerate}
\end{footnotesize}
years. We expect that without substantial improvement in the risk adjustment formula, risk selection in the next years may increase in all five countries.

The following anecdotical evidence of selection activities in practice, especially in Germany and Switzerland, has been reported:

- Selective advertising;
- Virtual (internet) sickness fund;
- Offering sickness fund insurance via life insurers who make specific selections based on health inquiries;
- Selectively terminating business in unprofitable regions, e.g. by closing offices in high-cost areas;
- Employer-related (group) sickness fund;
- Via limited provider plans such as health maintenance organizations (HMO) and preferred provider organizations (PPOs);
- Offering high rebates in case of a deductible;
- Information to unprofitable enrollee that they have the right to change sickness fund;
- Software programs allowing sickness funds to distinguish between profitable and unprofitable insureds who are calling them by telephone;
- Turning away applicants on the telephone and ignoring inquiries and phone calls;
- Special bonuses for agents who are successful in getting rid of the most expensive cases by shunting them off to competitors;
- Via supplementary health insurance.

Below we will discuss the last mentioned tool for risk selection, because from the country-articles it becomes clear that voluntary supplementary health insurance can be an obvious tool for risk selection.

In Belgium the market for supplementary health insurance is dominated by the sickness funds. More than 90% of the sickness fund enrollees have bought a supplementary health insurance. In fact the Belgian law provides the sickness funds with an effective tool for risk selection. The law requires that if the consumer buys the supplementary insurance from a sickness fund (which the majority does), both the supplementary insurance and the mandatory sickness fund insurance must be bought from the same sickness fund. In this way
the law provides the sickness funds with the opportunity to attract the preferred risks with respect to the mandatory sickness fund insurance by attuning the benefits of their supplementary insurance to the preferences of these preferred risks. Most sickness funds extend this tie-in-sale by compelling their enrolees to subscribe to some “voluntary” supplementary insurance. The supplementary health insurance is the most important tool for risk selection, and in recent years the competition on this market has become stronger.

In Germany supplementary health insurance is not an effective tool for risk selection with respect to the mandatory sickness fund insurance. Sickness funds are not allowed to sell any supplementary insurance. Some 10% of the sickness fund enrolees have bought supplementary health insurance from a private insurer to cover e.g. a single room in case of a hospitalization. Although sickness funds are not allowed to sell supplementary insurance, they may differentiate their benefits package of the mandatory sickness fund insurance to some “supplementary services”, in particular Spa treatment.

In Israel about 50% of the population has bought supplementary insurance from their sickness fund. Because these policies are bought in particular by those who are relatively good risks for the mandatory sickness funds insurance (i.e. the rich and the well educated), offering an attractive supplementary insurance is a major tool for risk selection with respect to the mandatory sickness fund insurance.

In the Netherlands sickness funds are not allowed to sell any supplementary insurance. More than 90% of the sickness fund enrolees have bought some form of supplementary insurance. The benefits package of the supplementary insurance ranges from only some minor things to an extensive package covering dental care and physiotherapy. Although this type of supplementary insurance is sold only by private insurers, it is a very effective tool for risk selection with respect to the mandatory sickness fund insurance (which may not be sold by private insurers). Most sickness funds have a very close relation with a private insurer because they both are part of one holding company. Both undertakings use the same brand name, work in the same office, combine their administration, have common advertisements and present themselves to the consumers in all aspects as just one firm. In practice, hardly any consumer realizes that she buys the two different insurance products from two different undertakings. Because most consumers prefer to buy both insurance products from one (holding) company and because private insurers are allowed to ask new applicants to fill out a
health questionnaire and – if applicable – to refuse them, private (supplementary) insurance is a very effective tool for risk selection with respect to the mandatory sickness fund insurance.

In Switzerland about 70% of the population buys supplementary health insurance with often a quite substantial coverage. Sickness funds are allowed to sell these supplementary insurances and most consumers prefer to buy the mandatory sickness fund insurance and the voluntary supplementary insurance from the same sickness fund. Because sickness funds are allowed to refuse new applicants for supplementary insurance, the voluntary supplementary insurance is a very effective tool for risk selection with respect to the mandatory sickness fund insurance.

In sum, in all countries, except Germany, voluntary supplementary health insurance is an effective tool for risk selection with respect to the mandatory sickness fund insurance. It is unknown whether and how effectively this tool for risk selection is used in practice.

6. CONCLUSION AND DISCUSSION

6.1. Rationale of consumer choice of sickness fund

From the mid-1990s the consumers in all five countries have a guaranteed periodic choice among risk-bearing sickness funds. In the literature this consumer choice of sickness fund is associated with the model of regulated competition in health care. That is, allocation and prices are in principle determined by the market, but government regulation offers guarantees for solidarity and sets side-conditions for efficiency. Government regulation may relate to e.g. adequate risk adjustment, consumer protection against quackery and other poor quality of care, furthering of adequate consumer information, and guaranteeing competition by adequate competition policy. In theory, regulated competition is a consistent model in which the competing sickness funds act as cost-conscious third-party purchasers of health care on

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17 For the US-oriented readers of this paragraph it may be helpful to point at the US-equivalent of some European terminology:

<table>
<thead>
<tr>
<th>European</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer choice of sickness fund</td>
<td>Consumer choice of health plan</td>
</tr>
<tr>
<td></td>
<td>(see e.g. Enthoven, 1978)</td>
</tr>
<tr>
<td>Regulated competition</td>
<td>Managed competition</td>
</tr>
<tr>
<td>Government regulation</td>
<td>Sponsor’s management</td>
</tr>
<tr>
<td></td>
<td>(see e.g. Enthoven, 1988)</td>
</tr>
<tr>
<td>Competition policy</td>
<td>Antitrust policy</td>
</tr>
</tbody>
</table>
behalf of their enrolees. The model implies competition on the market for sickness fund insurance as well as on the market for health care provision. Alternatively, sickness funds and health care providers may integrate, resulting in a periodic consumer choice of "integrated health care financing/delivery organizations" (such as the health maintenance organizations in the USA). The model of regulated competition implies that government allows the individual sickness fund to be a prudent buyer of care, or to "manage the care". That is, government should not deprive the individual sickness funds of the tools such as selectively contracting with health care providers, utilization management, and negotiating with individual providers about the price, quality, waiting time, opening hours and other services. Individual sickness funds, rather than government or the collective of all sickness funds, should act as the third-party purchasers of care. This raises the question: to what extent are the conditions of "regulated competition" fulfilled in each of the five countries? (See Table 8)

Insert Table 8

In Belgium individual sickness funds have almost no tools to control the costs. In all negotiations with the providers sickness funds act as a cartel. Further, the sickness fund market is completely closed for new entrants. There is no open debate on the pros and cons of regulated competition.

Although in Germany during the last years individual sickness funds were given a little more freedom in contracting with providers, the present framework still is far away from what would look like regulated competition. Sickness funds form cartels in contracting with hospitals and have to contract with all hospitals listed in a government plan. In the traditional fee-for-service system the contracts are collectively negotiated between the doctors’ association and competing sickness funds’ associations in a region. Nevertheless, there are first and very modest steps towards managed care. Currently there is no active competition policy with respect to health care.

Israel provides a mixed picture. Individual sickness funds do have tools for managed care and have the options to form integrated financing/delivery organizations. However, there is limited competition among sickness funds. The situation is more akin to a cartel. There is no active competition policy regarding the sickness funds. The sickness funds only compete on copayment and quality.
The Netherlands also provides a mixed picture. With respect to outpatient care a huge progress has been made during the last decade in transforming government regulated cartels into regulated competition. Since the very late 1990s there is an active competition policy. The Dutch Competition Authority is very active now in the market for sickness fund insurance and in the market for outpatient care (e.g. general practitioners, physiotherapists, pharmacies). It is the intention of the Dutch government to gradually extend the model of regulated competition to (parts of) inpatient care.

In Switzerland the option of managed care and integrated financing/delivery organizations exists since 1996, but is not widely used. Standard remuneration is fee-for-service, and the fee-for-service contracts for ambulatory care and hospitals are still collectively negotiated as in a bilateral monopoly. Individual sickness funds have been reserved to set up HMOs and PPOs. A potential explanation is that, given the imperfect risk adjustment model, risk selection is more profitable than managed care because selection activities require less investments and yield higher potential returns than improving the efficiency of care. In addition, risk averse practitioners prefer fee-for-service remuneration.

In sum, the conditions for "regulated competition" by far are not (yet) fulfilled. Mostly government or a cartel of sickness funds functions as the third-party purchaser of care, rather than the individual sickness funds.

It is important that politicians make an explicit choice about who is the third-party purchaser of care. Two options are: (1) government, with central legislation as a tool for managing the care, or a cartel of sickness funds; (2) competing risk-bearing sickness funds, who selectively contract with providers. In the first option it is hard to think of any rational argument for giving consumers a periodic choice among risk-bearing sickness funds. In that case it is more efficient to have one national sickness fund. In the second option politicians in the five countries are confronted with the dilemma that the tools for managing the care are also very effective tools for risk selection. Tools for managed care are e.g. the option to selectively contract with providers, to freely negotiate with the providers about conditions like price, quality and risk sharing, as well as some discretion to define the precise entitlements of their

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enrolees. All these tools can also be used for risk selection. This underlines that the prevention of (the adverse effects of) selection should be a top priority in health policy.

6.2. Prevention of selection: the great challenge!

The most efficient strategy to avoid risk selection is good risk adjustment. The five country-articles all agree on the necessity to improve the risk adjustment model; in particular they recommend health-based risk adjustment. In the literature several adjusters have been proposed, e.g. prior year expenditures, prior utilization (in particular: (1) in combination with diagnostic information and (2) prior prescription drugs), self-reported health information and mortality (for an overview see Van de Ven and Ellis, 2000). A break-through in the practical application of health-based adjustment was the introduction of Diagnostic Cost Groups (DCGs) on 1 January 2000 in the monthly payments from Medicare to HMOs in the US (Pope et al., 2000; Greenwald, 2000). DCG is a health-based adjuster based on the diagnosis of prior hospitalization, as developed by Ash, Ellis and colleagues (Ash et al., 1989; Ellis and Ash, 1995; see also Lamers and Van Vliet, 1996). A second break-through in the practical application of health-based adjustment is the introduction of Pharmacy Costs Groups (PCGs) in the Dutch sickness fund system on 1 January 2002 (for PCGs see Lamers, 1999; Van Vlieten Lamers, 2000). The implementation of these health-based adjusters will substantially reduce the net profits of risk selection. Whether these health-based adjusters sufficiently eliminate the financial incentives for sickness funds to be irresponsible to the preferences of the chronically ill, remains an empirical question.

A second strategy to reduce (the incentives for) risk selection is risk sharing between the Solidarity Fund and the sickness funds (see e.g. Van Barneveld et al., 2001; Van Vliet, 2000). Although risk sharing causes a tradeoff between risk selection and efficiency, it seems a promising short-term solution to reduce the selection problems in Germany and Switzerland. Belgium and in particular the Netherlands have reduced risk sharing during the last years and intend to continue to do so. This seems justified only if simultaneously the risk adjustment model is improved (as is the intention of the Dutch government).

A third strategy to reduce risk selection is to allow sickness funds to risk rate the consumer’s premium contribution. This strategy, which was suggested by Van de Ven and Van Vliet (1992), has not been applied in any of the five countries. Nevertheless, policy makers might
give it some thought. It seems straightforward to avoid selection by allowing sickness funds to differentiate the premium contribution for the N-type risk factors, i.e. the risk factors for which solidarity is not desired. Although the Belgium government explicitly considers medical supply to be an N-type risk factor, it is surprising that nevertheless sickness funds are not allowed to differentiate their premium contribution to this risk factor. This issue may also become relevant in the Netherlands, where the Social Economic Council explicitly advised government to adjust the premium subsidies only for age and health status. It would be good to have a discussion in all five countries about the pros and cons of regionally differentiated premium contributions (which now only exist in Switzerland). But even with respect to clear S-type risk factors, the question is whether society wants maximum solidarity\(^\text{19}\). If sickness funds were allowed to differentiate the consumer's premium contribution, any information surplus the sickness funds might have would be focused on premium differences rather than on selection. If the sickness funds are required to identify any risk factors they use for differentiation of the premium contribution, government could try to include these risk factors in the subsidy formula in subsequent years. In this way the reduction of solidarity that results from the sickness funds freedom to differentiate premium contributions, may well be a short-term sacrifice to a long-term solution. Low-income high-risk consumers could be given a temporary premium-related subsidy.

6.3. Consumer (im)mobility: what do we know?

Finally, an other necessary condition of the model of “regulated competition” is that a sufficient fraction of the consumers who are dissatisfied, do indeed use the option to switch sickness fund. An important finding of our comparative analysis is that in none of the five countries it is known whether this key assumption of "voting by feet" is sufficiently fulfilled. In all five countries there is a lack of knowledge about the determinants and the effectiveness of "consumer choice of sickness fund". In none of the countries a clear answer can be given to questions such as:

- Do consumers know that they may change sickness fund? Do they know the precise conditions? (e.g. the conditions mentioned in Table 6)
- Do consumers have sufficient information about the alternatives to choose among?

\(^{19}\) For example, is it really undesirable if young adults who have to invest in housing and children, ceteris paribus contribute less to health care than the elderly?
♦ What are the most relevant determinants of consumer choice? What is the price-
elasticity?
♦ What are the consumer’s transaction costs to change sickness fund?
♦ What role does the supplementary health insurance play: are there tie-in sales? Are there
different contract periods? Is the medical underwriting for voluntary supplementary
health insurance used as a selection strategy with respect to the mandatory sickness fund
insurance?

If, for whatever reason, “voting by feet” does not work, a necessary condition of the model of
regulated competition is not fulfilled. Systematic research in this area therefore deserves a
high priority.

6.4. Conclusion

In this article we compared the risk adjustment mechanisms in five European countries with a
so-called Bismarck-style mandatory sickness fund insurance: Belgium, Germany, Israel, the
Netherlands and Switzerland. In all these countries citizens now have a periodic choice
among risk-bearing sickness funds, who are responsible to purchase their care or provide
them with medical care. Because in all five countries there is strict regulation of the
consumers’ direct premium contribution to their sickness fund and because all five countries
have imperfect risk adjustment formulae, sickness funds have financial incentives for risk
selection, which may threaten solidarity, efficiency and quality of care. We expect that
without substantial improvements in the risk adjustment formulae, risk selection will increase
in all five countries. The issue is particularly serious in Germany and Switzerland. We
strongly recommend therefore that policy makers in the five countries give top priority to the
improvement of the system of risk-adjustment. This can best be done by the inclusion of
health-based adjusters. This conclusion is also relevant for other countries with a competitive
market for sickness fund insurance or health insurance, such as Argentina, Australia, Chile,
the Czech Republic, Colombia, Ireland, Poland, Russia, Slovenia and the US. Good health-
based risk adjustment is the only effective strategy to avoid risk selection without reducing
solidarity and without disturbing competition among risk-bearing sickness funds.
<table>
<thead>
<tr>
<th>Financial responsibility of an individual sickness fund</th>
<th>Belgium</th>
<th>Germany</th>
<th>Israel</th>
<th>Netherlands</th>
<th>Switzerland</th>
</tr>
</thead>
<tbody>
<tr>
<td>zero&lt;sup&gt;20&lt;/sup&gt;</td>
<td>high (but zero for the pensioners)</td>
<td>high</td>
<td>zero</td>
<td>high</td>
<td></td>
</tr>
<tr>
<td>Did sickness fund enrollees, in principle, have any free choice of sickness fund?</td>
<td>yes</td>
<td>some limited choice for 60% of the enrollees</td>
<td>yes (but no open enrolment)</td>
<td>no/hardly</td>
<td>yes&lt;sup&gt;21&lt;/sup&gt;</td>
</tr>
<tr>
<td>Were there any legal restrictions on the consumer’s contribution(s) for sickness fund insurance? (See Figure 1 and 2)</td>
<td>income-related solidarity contribution with a uniform percentage for all sickness funds; Premium contribution=0</td>
<td>income-related contribution (=premium) with a uniform percentage for pensioners; and a percentage set by the individual sickness fund for all others</td>
<td>income-related solidarity contribution with a fixed percentage set by each individual sickness fund; Premium contribution=0</td>
<td>income-related solidarity contribution with a uniform percentage for all sickness funds; Premium contribution=0</td>
<td>risk- and income-independent contribution (=premium)</td>
</tr>
<tr>
<td>Was selection a problem?</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
</tr>
</tbody>
</table>

<sup>20</sup> Legally, the sickness funds in Belgium were responsible for their financial result since 1963. However, the practice did not follow the law and the sickness funds got basically all their expenditures reimbursed (see Schockaert and Van de Voorde, 2000).

<sup>21</sup> But sickness funds were allowed to charge higher premiums for newly enrolled elderly people, and to exclude pre-existing medical conditions from coverage for at most five years.
<table>
<thead>
<tr>
<th>Has the consumer choice of sickness fund been enlarged in the period 1990-2000?</th>
<th>Belgium</th>
<th>Germany</th>
<th>Israel</th>
<th>Netherlands</th>
<th>Switzerland</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>yes, open enrolment for 95% of the sickness fund insured since 1996</td>
<td>yes, open enrolment since 1995</td>
<td>yes, open enrolment since 1992</td>
<td>yes, open enrolment since 1996</td>
<td></td>
</tr>
</tbody>
</table>

| Rationale of more consumer choice of sickness fund | - | ♦ to stimulate sickness funds to contain cost ♦ more equity among consumers in having a choice of sickness fund ♦ political climate: deregulation and more competition | ♦ to stimulate sickness funds to become more efficient and to contain costs ♦ more equity among consumers in having a choice of sickness fund ♦ to increase consumer satisfaction with quality and services | to stimulate sickness funds to be consumer-oriented purchasers of care | ♦ reduction of selection ♦ to stimulate sickness funds to contain costs ♦ more fairness towards consumers in case of bankruptcy of their sickness fund |

| Has the financial responsibility of sickness funds been enlarged in the period 1990-2000? | yes, a gradual increase from 1995 | yes, but only for the pensioners | no (was already high)²³ | yes, a gradual increase from 1993 | no (was already high) |

| Rationale of increasing the sickness funds' financial responsibility? | to stimulate sickness funds to improve efficiency and to contain costs | to stimulate sickness funds to improve efficiency and to contain costs | - | to stimulate sickness funds to improve efficiency and to contain costs | - |


| Rationale of risk adjustment | ♦ prevention of selection ♦ distributional fairness towards the sickness funds | ♦ reduction of selection ♦ distributional fairness towards the sickness funds | ♦ reduction of selection ♦ distributional fairness towards the sickness funds | ♦ prevention of selection ♦ distributional fairness towards the sickness funds | ♦ reduction of selection and thereby enforcing solidarity |

²² Based on the authors' interpretation (and as far as there is a clear rationale)
²³ But the financial discipline has increased.
### TABLE 3. COVERAGE OF THE BENEFITS PACKAGE OF THE MANDATORY SICKNESS FUND INSURANCE (YEAR 2000)

<table>
<thead>
<tr>
<th></th>
<th>Belgium</th>
<th>Germany</th>
<th>Israel</th>
<th>Netherlands</th>
<th>Switzerland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians services</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Hospital care</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Prescription drugs</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Physiotherapy</td>
<td>restricted</td>
<td>yes</td>
<td>restricted</td>
<td>restricted</td>
<td>yes</td>
</tr>
<tr>
<td>Dental care</td>
<td>restricted</td>
<td>yes</td>
<td>restricted</td>
<td>restricted</td>
<td>no</td>
</tr>
<tr>
<td>Home health care</td>
<td>yes</td>
<td>restricted</td>
<td>restricted</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Nursing home care</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Psychiatric care</td>
<td>yes (but large copayments)</td>
<td>yes</td>
<td>restricted</td>
<td>no</td>
<td>restricted</td>
</tr>
<tr>
<td>Sickleave payments</td>
<td>yes$^{24}$</td>
<td>yes$^{25}$</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
</tbody>
</table>

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$^{24}$ Sickleave payments are handled by a separate administration and are NOT included in the risk adjustment scheme.

$^{25}$ About 7% of total expenditures of the mandatory sickness fund insurance.
<table>
<thead>
<tr>
<th>Entitlements: “in kind” or “reimbursement”?</th>
<th>Belgium</th>
<th>Germany</th>
<th>Israel</th>
<th>Netherlands</th>
<th>Switzerland</th>
</tr>
</thead>
<tbody>
<tr>
<td>reimbursement for physician services; “in kind” for hospitals</td>
<td>mostly in kind</td>
<td>in kind</td>
<td>in kind</td>
<td>both</td>
<td></td>
</tr>
<tr>
<td>Premium reduction in case of voluntary cost-sharing (e.g. deductible)?</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Total number of people with a mandatory sickness fund insurance (and as percentage of total population)</td>
<td>10.2 million (100% of population)²⁶</td>
<td>70.9 million (86% of population)</td>
<td>6.1 million (100% of population)</td>
<td>9.9 million (62% of population)</td>
<td>7 million (100% of population)</td>
</tr>
<tr>
<td>Total expenses covered by the mandatory sickness fund insurance (not including user charges) as percentage of total health expenses</td>
<td>about 65%</td>
<td>56% (only benefits in kind); 46% (also income/cash benefits)²⁷</td>
<td>about 50%</td>
<td>about 37%</td>
<td>about 50%</td>
</tr>
</tbody>
</table>

²⁶ For 10% of the population (mainly the self-employed) the mandatory sickness fund insurance is restricted to the major risks (i.e. hospitalisation and special technical services) only. They can buy voluntary health insurance for the minor risks (i.e. ambulatory care, dental care, medicines).

²⁷ When cash benefits are taken into account, there are also health related cash benefits by other agents taken into account, for instance by employers, pension funds, etc. So then both the nominator and the denominator change.
<table>
<thead>
<tr>
<th>Risk-adjusters</th>
<th>Belgium</th>
<th>Germany</th>
<th>Israel</th>
<th>Netherlands</th>
<th>Switzerland</th>
</tr>
</thead>
<tbody>
<tr>
<td>age/gender, urbanization, disability, income, employment status, mortality</td>
<td>age/gender, disability, entitlement for sickleave payments, income</td>
<td>age</td>
<td>age/gender, urbanization, entitlement for sickness fund membership (e.g. disability), &quot;historical costs&quot;</td>
<td>age/gender, region</td>
<td></td>
</tr>
<tr>
<td>Prospective or retrospective model?</td>
<td>prospective</td>
<td>retrospective</td>
<td>prospective</td>
<td>prospective</td>
<td>retrospective</td>
</tr>
<tr>
<td>Internal or external subsidy system (see Figure 1 and 2)?</td>
<td>external</td>
<td>internal</td>
<td>external</td>
<td>external</td>
<td>internal</td>
</tr>
<tr>
<td>Restrictions on direct consumers' (premium) contribution to sickness fund?</td>
<td>community rating per sickness fund</td>
<td>income-related contribution with the same percentage (set by each individual sickness fund) for all enrollees of one sickness fund</td>
<td>zero premium contribution</td>
<td>community rating per sickness fund</td>
<td>community rating per sickness fund per region</td>
</tr>
<tr>
<td>Do sickness funds bear financial responsibility for hospitals' capital costs?</td>
<td>no</td>
<td>no</td>
<td>yes (included in the per diem rate)</td>
<td>yes, but only for 5%</td>
<td>no</td>
</tr>
<tr>
<td>Mandatory risk-sharing?</td>
<td>proportional risk-sharing, and special arrangements in the case that the total actual expenses exceed the macro-budget by more than 2 percent.</td>
<td>no, but opportunity for self-organized voluntary risk sharing</td>
<td>condition-specific risk-sharing with prospectively determined fixed payments for five severe diseases (6 percent of expenses); and a &quot;safety-net&quot; to finance deficits</td>
<td>outlier risk-sharing &amp; proportional risk-sharing</td>
<td>no</td>
</tr>
</tbody>
</table>

28 "Historical costs" are defined as the average per capita costs of the sickness fund in question in the years t-2, t-3 and t-4, adjusted for changes in the composition of the portfolio between these years and year t as far as the other risk adjusters are concerned.
29 See Figure 1 and 2; not includinguser charges.
30 For insured non-pensioners without entitlement to sickleave payments, the percentage is reduced.
31 The acceptable costs on which proportional risk-sharing is based, are not "cleaned" for supply-side effects.
<table>
<thead>
<tr>
<th></th>
<th>Belgium</th>
<th>Germany</th>
<th>Israel</th>
<th>Netherlands</th>
<th>Switzerland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there a legally determined &quot;open enrolment&quot;?</td>
<td>no, but there is a guaranteed renewability of contract; further there is a public fund as &quot;insurer of last resort&quot;</td>
<td>yes, in general (95%); not for the “closed” company based sickness funds</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Minimum contract period</td>
<td>determined by the individual sickness fund, but at most one year</td>
<td>18 months</td>
<td>year</td>
<td>year</td>
<td>half year</td>
</tr>
</tbody>
</table>
| Possible termination dates of the contracts (i.e. at 00.00 hour of this date) | 1 January  
1 April  
1 July  
1 October | first day of each month | 1 January  
1 July | 1 January  
1 July | 1 January  
1 July |
| Do enrollees have the right to switch sickness funds immediately after their sickness fund has increased its premium? | no | yes | not relevant (premium contribution =0) | yes, during the following 2 months | yes, at least during one month |
| Are sickness funds free to determine their geographical working area? | yes | no | no | yes | yes |
| Required period of prior-notification of switching sickness fund | 1 month | 2 months | 3 months | determined by individual sickness fund, but at most 2 months | 3 months |
| Notification of switching: direct contact with sickness funds or via intermediary? | direct contact with sickness funds | direct contact with sickness funds | via intermediary (= Post Authority) | direct contact with sickness funds | direct contact with sickness funds |

32 Open enrolment = In principle consumers are allowed to change sickness fund and each sickness fund must accept all applicants in its geographical working area, subject to usual conditions like the minimum contract period with the current sickness fund, the prior notification period and other procedural issues.
33 In practice, there is no well documented case of a sickness fund refusing a high-risk applicant.
34 In case of a premium increase, which has to be announced at least two months in advance, the period of notice is one month.
<table>
<thead>
<tr>
<th></th>
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<th>Netherlands</th>
<th>Switzerland</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of risk-bearing sickness funds</strong></td>
<td>6</td>
<td></td>
<td>4</td>
<td>24</td>
<td>98</td>
</tr>
<tr>
<td><strong>Market share largest sickness fund (at the national level)</strong></td>
<td>45%</td>
<td>39%</td>
<td>58%</td>
<td>12%</td>
<td>16%</td>
</tr>
<tr>
<td><strong>Market share of the four largest sickness funds (at the national level)</strong></td>
<td>94%</td>
<td>69%</td>
<td>100%</td>
<td>42%</td>
<td>47%</td>
</tr>
<tr>
<td><strong>Open entry for new sickness funds?</strong></td>
<td>no</td>
<td>no, in general. yes, only for company based sickness funds</td>
<td>yes, in theory</td>
<td>yes, about 7 new sickness funds have been set up in the 1990s.</td>
<td>yes</td>
</tr>
<tr>
<td><strong>Are the individual sickness funds actively supervised by the National Competition Authority in order to prevent anti-competitive behaviour?</strong></td>
<td>no</td>
<td>no</td>
<td>not yet</td>
<td>yes, since 1998</td>
<td>yes</td>
</tr>
<tr>
<td><strong>Is an individual sickness fund, as legal entity, allowed to sell other types of insurance?</strong></td>
<td>only supplementary insurance and with a separate financial administration</td>
<td>no</td>
<td>only supplementary insurance and with a separate financial administration</td>
<td>no&lt;sup&gt;36&lt;/sup&gt;</td>
<td>only supplementary insurance and with a separate financial administration</td>
</tr>
<tr>
<td><strong>Is an individual sickness fund obliged to have financial reserves? Which percentage of annual expenditures?</strong></td>
<td>yes, at least 0.25%</td>
<td>yes, at least 2% and at most 8.5%</td>
<td>no</td>
<td>yes, at least 5%</td>
<td>yes, at least between 15% and 182%, depending on the number of enrollees</td>
</tr>
<tr>
<td><strong>Is selection a problem?</strong></td>
<td>No, selection is not really an issue&lt;sup&gt;37&lt;/sup&gt;</td>
<td>yes</td>
<td>selection is not an issue</td>
<td>not yet, but it may become a real issue</td>
<td>yes</td>
</tr>
</tbody>
</table>

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<sup>35</sup> Although regional market shares may be (more) relevant, it is hard to calculate these figures (e.g.: what is the relevant geographical market?)

<sup>36</sup> Formally sickness funds were allowed to sell supplementary insurance until 1 January 2001, but in practice no sickness fund did in 2000.

<sup>37</sup> But there is increasing competition on the supplementary insurance market.
<table>
<thead>
<tr>
<th>Tool</th>
<th>Belgium</th>
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<th>Netherlands</th>
<th>Switzerland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is an individual sickness fund legally allowed to selectively contract with:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- individual providers</td>
<td>no</td>
<td>only in the special case of &quot;integrated care&quot;</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>- individual hospitals</td>
<td>no</td>
<td>see above</td>
<td>yes (needs approval)</td>
<td>no (not yet)</td>
<td>yes</td>
</tr>
<tr>
<td>Legal restrictions on prices to be negotiated between an individual sickness fund and:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- individual providers</td>
<td>yes</td>
<td>yes, except in the special case of &quot;integrated care&quot;</td>
<td>no</td>
<td>yes: maximum prices, until 1 January 2003.</td>
<td>no</td>
</tr>
<tr>
<td>- individual hospitals</td>
<td>yes</td>
<td>see above</td>
<td>yes</td>
<td></td>
<td>no</td>
</tr>
<tr>
<td>Can an individual sickness fund influence a hospital’s infrastructure?</td>
<td>no</td>
<td>in principle, yes; in practice, no</td>
<td>yes</td>
<td>no</td>
<td>in principle, yes; in practice, no</td>
</tr>
<tr>
<td>Is an individual sickness fund allowed to provide care (like HMOs)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Outpatient care</td>
<td>only pharmacies&lt;sup&gt;38&lt;/sup&gt;</td>
<td>no</td>
<td>yes</td>
<td>only pharmacies&lt;sup&gt;39&lt;/sup&gt;</td>
<td>yes</td>
</tr>
<tr>
<td>- Inpatient care</td>
<td>no&lt;sup&gt;38&lt;/sup&gt;</td>
<td>no</td>
<td>yes</td>
<td></td>
<td>yes</td>
</tr>
<tr>
<td>Does an individual sickness fund have the discretionary competence to deny payment of a certain treatment?</td>
<td>some</td>
<td>no</td>
<td>some</td>
<td>some</td>
<td>some</td>
</tr>
</tbody>
</table>

<sup>38</sup> For more details, see Schokkaert and Van de Voorde (2001).

<sup>39</sup> The Dutch government intends to allow individual sickness funds to provide outpatient care.
FIGURE 1. EXTERNAL SUBSIDY SYSTEM
(as in Belgium, Israel and the Netherlands)
FIGURE 2. INTERNAL SUBSIDY SYSTEM
(as in Germany and Switzerland)

Solidarity Fund

Solidarity contribution

Premium subsidy

Consumer

Sickness Fund

Contribution*

*contribution = solidarity contribution plus premium contribution
GLOSSARY

- **Acceptable expenses**: the costs of services and intensity of treatment that government has decided to be acceptable to be subsidized.

- **Consumer choice of sickness fund**: the extent to which consumers have the guaranteed option to periodically choose an other sickness fund.

- **Financial responsibility of a sickness fund**: the extent to which an additional euro spent by an individual sickness fund is reflected in its own financial result.

- **Income solidarity**: cross-subsidies from the high-income to the low-income individuals.

- **N-type risk factors**: risk factors for which solidarity is not desired.

- **Periodic open enrolment**: consumers are allowed to change sickness fund and each sickness fund must accept all applicants subject to some usual conditions.

- **Risk adjustment**: the use of information to calculate the expected annual health care expenditures of individual consumers and set premium subsidies to consumers or sickness funds to improve efficiency and solidarity.

- **Risk sharing**: sickness funds are retrospectively reimbursed by the solidarity fund for some of the acceptable costs of some of their enrolees.

- **Risk solidarity**: cross-subsidies from the low-risk individuals to the high-risk individuals.

- **Selection**: actions by consumers and sickness funds to exploit unpriced risk heterogeneity and break pooling arrangements.

- **Solidarity**: two forms of subsidizing solidarity: risk solidarity and income solidarity.

- **S-type risk factors**: risk factors for which solidarity is desired.
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