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Fine Tuning of Health Insurance Regulation: Unhealthy Consequences for an Individual Insurer

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Abstract

This paper sheds light on some unexpected consequences of health insurance regulation that may pose a big challenge to insurers’ risk management. Because mandated uniform contributions to health insurance trigger risk-selection efforts, risk adjustment (RA) schemes become necessary. A good deal of research into the optimal RA formula has been performed. A recent proposal in Switzerland has been to add “Hospitalization exceeding three days during the previous year” as an indicator of high risk. Applying the new formula to an individual Swiss health insurer, its payments into the RA scheme are predicted to increase substantially, reaching up to 13 percent of premium income. Its mistake had been to successfully implement Managed Care, resulting in low rates of hospitalization. The expected risk management response is to extend hospital stays beyond three days, contrary to stated policy objectives.

JEL-Classification: I18, L51, H51

Keywords: Health insurance, regulation, risk adjustment, risk management

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1 Introduction and Motivation

When premiums are mandated to be independent of risk, competitive health insurers have an incentive to select clients whose future expected health care expenditure does not exceed their contribution. This consideration has induced secondary regulation in the guise of risk adjustment (RA) schemes. Basically, RA makes insurers with an above-average share of favorable risks pay into a fund, whose proceeds are used to cross-subsidize those insurers with many unfavorable risks. The design of an optimal RA formula is a widely discussed topic (see for example Lamers, 1999, Ellis and Van de Ven, 2000, Glazer and McGuire, 2002, Lamers and Van Vliet, 2003a, Lamers and Van Vliet, 2003b, Van de Ven et al., 2004, Jack, 2006, Beck et al., 2006, Zweifel and Breuer, 2006, and Van de Ven and Schut, 2007). The RA formulas for Medicare in the United States and the Netherlands are being refined continuously (see e.g Calfo, 2009 and Douven, 2007). However, so far the consequences of this fine tuning of regulation for the risk management of insurers seem to have been neglected.

This contribution contains a case study from Switzerland, a country that relies on competitive health insurance in a way similar to the US and the Netherlands. A RA scheme was introduced in 1996, using the two criteria age and gender only. Effective 2012, the RA formula will include a third indicator of high risk, viz. "Hospitalization of more than three days or living in a nursing home during the previous year" (see Spycher, 2000). While this choice is largely dictated by service providers' refusal to pass on diagnostic information to health insurers, it does have several recommendable features in that it (1) has significant predictive power (see Beck, 2004 and Holly et al., 2003), (2) relates to a previous period so does not undermine insurers' effort at controlling health care cost, (3) avoids gaming by excluding elective short-term stays, and (4) can be measured at little administrative expense.

Refinement of the RA formula has gone much farther in other countries. In the United States, the CMS hierarchical condition categories model (CMS-HCC) has been in use
with Medicare since 2004. It comprises all encounters, regardless of whether they are inpatient or outpatient (see Pope et al., 2004). In the Netherlands diagnostic-cost groups (DCGs) and pharmacy-based cost groups (PCGs) are used as high-risk indicators.¹ Both refinements consider the severity of an inpatient case². These reforms have their costs and benefits. On the benefit side, risk-selection efforts by health insurers are reduced if the net cost of medical care falling on them is increasingly equalized across risk types. Moreover, this net cost does not depend anymore on whether the insured was hospitalized or not. On the cost side, these refinements of RA not only require more accounting effort on the part of both insurers and providers but also increase proneness to error³. Moreover, they create incentives for up-coding diagnoses (for an explicit analysis of advantages and disadvantages in the case of U.S. Medicare, see Kominski, 2007 and Pope et al., 2000).

The purpose of this paper is to point out another cost of RA refinement. Indeed, it may boost payments into the RA scheme to an extent as to jeopardize the economic survival of an otherwise viable health insurer, posing a great challenge to its risk management (RM). Now insolvency and hence market exit of an insurer who only survived thanks to cream skimming may be considered to be efficiency enhancing. However, this case study deals with an innovative health insurer, who had successfully implemented Managed Care to lower rates of hospitalization. Bankruptcy of such an insurer would have to be considered inefficient.

The evidence comes from simulating payments for a particular health insurer A into the RA scheme applying the old and the new formula. These simulations predict that A’s payments would have increased significantly, attaining between 9 and 13 percent of premium income. Extra payments of these magnitudes would have seriously endan-

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¹ They are derived from the diagnoses related to prior hospitalization and prior use of prescription drugs, see e.g. Van de Ven and Schut, 2008.
² The CMS-HCC also accounts for the severity of an outpatient case.
³ In the Netherlands, the complexity of processing the data and money flows led to errors in the calculation of the ex-ante risk-adjusted capitation payments, resulting in a loss of Euro 247mn., falling on taxpayers (see Douven, 2007).
gered insurer A’s economic survival, leading to a cumulative loss in excess of CHF 250 mn. (1 CHF = 0.83 US$ at 2010 exchange rates) over three years.

While A’s risk management response cannot be predicted, there are two main alternatives. One is to enlist unfavorable risks, as intended by the regulator. The other is to extend hospital stays from three to four days. This strategy would have decreased this insurer’s RA payments by an estimated 11 percent in 2007. The consequences would be unhealthy for taxpayers (who subsidize hospital cost), employers (who lose workdays), and patients (who lose quality of life). While not directly transferable to other countries with competitive health insurance (such as the United States, but also Germany, Israel, and the Netherlands), the findings of this contribution convey a clear message. Seemingly minor fine tuning of health insurance regulation has the potential of challenging an insurer’s risk management, with undesirable consequences for the society.

The remainder of this paper is structured as follows. Section 2 describes the method for calculating risk adjustment values in general and the data basis. In the first part of Section 3, RA values are simulated according to the new formula and applied to insurer A. The second part of Section 3 analyzes the impact of this regulatory change on insurer A’s risk management. The paper concludes with lessons learned from this case study and its implications.

2 Simulation of Risk Adjustment Values and Data Basis

2.1 Methodology

Traditionally, analysis of risk management focuses on payments between health insurers. However, this neglects the fact that payments into the RA scheme are ultimately
borne by low-risk consumers while payments from the scheme benefit high-risk consumers. Economic theory has always distinguished between payers and bearers of a cost or levy, in particular in the context of an indirect tax. To see the analogy, consider current Swiss RA with two criteria age and gender only. Define $\hat{P}$ as the community-rated premium, $\bar{L}_{a,g}$, as the average HCE in one of the age-gender cells $(a, g)$ of RA (neglecting administrative expense for simplicity), and $RA_{a,g}$ as the payment to or from the RA scheme. The premium paid by a specific individual $i$ who is a low risk compared to the cohort in the age-gender cell $(a, g)$, and whose expected cost $E(L_i)$ is thus below average for the specific cell can then be expressed as

$$P = \bar{L}_{a,g} + RA_{a,g}, \quad \text{with } RA_{a,g} > 0 \quad (1)$$

$$= E(L_i) + (\bar{L}_{a,g} - E(L_i)) + (\hat{P} - \bar{L}_{a,g}). \quad (2)$$

This particular low risk bears, on top of his or her actuarially fair premium $E(L_i)$, a cross-subsidy in favor of high risks consisting of two components. The first component is the difference between average HCE of group $(a, g)$ and the individual’s expected HCE denoted by $E(L_i)$; the second, the contribution to the RA scheme $(\hat{P} - \bar{L}_{a,g})$, to be paid by the insurer. The sum of the two will be referred to as cross-subsidization values. As to the second component, the current Swiss RA formula comprises 15 age classes, starting from age 19 to 25 and continuing in 5-year steps. Thus, there are overall 30 RA categories. Since by law risk adjustment must not lead to a cross-subsidization between the 26 cantons (i.e. member states of Switzerland), the RA values are calculated yearly for each canton by the Joint Organization KVG based on data of all Swiss health insurers (see Joint Organization KVG, 2008). Adopting the insurer’s point of view rather than the consumer’s now, the RA values are equal to

$$RA_{a,g} = \bar{L}_{a,g} - \bar{L} \quad (3)$$
with $\bar{L}$ (= $\bar{P}$ in eq.(1) since administrative expense is neglected) denoting average HCE in the canton’s population as a whole (see Beck et al. [2006], ch. 4). Including the criterion “hospitalization”⁴ changes eq.(3) to

$$RA_{a,g,h} = \bar{L}_{a,g,h} - \bar{L}.$$  \hspace{1cm} (4)

The subscript $h$ is equal to 1 if a hospital stay in the previous year exceeds three days and 0 otherwise. Average HCE of the respective RA cell, $\bar{L}_{a,g,h}$, now has to be calculated for 60 instead of 30 groups, while $\bar{L}$ remains the same.

The insurer has to contribute to the RA fund for favorable risks ($\bar{L}_{a,g,h} < \bar{L}$). The RA fund uses the proceeds to cover the deficits generated by unfavorable risks ($\bar{L}_{a,g,h} > \bar{L}$).

An insurer’s total payment ($V$) into/from the RA fund depends on the composition of its insured over all 26 cantons ($c$),

$$V = 26 \sum_{c=1}^{26} \sum_{h=0}^{1} \sum_{g=0}^{1} \sum_{a=1}^{15} RA_{a,g,h,c} \cdot n_{a,g,h,c}.$$  \hspace{1cm} (5)

An insurer receives payments if $V > 0$ and contributes to risk adjustment if $V < 0$.

### 2.2 Data

For calculating the $RA_{a,g,h,c}$ values in eq.(5) for a given health insurer, the cell-specific averages $\bar{L}_{a,g,h,c}$ must be known. Since $RA_{a,g,h,c}$ is not published by the Joint Organization KVG, two different sources are used to analyze the impact of the new RA formula on an individual health insurer. The first is constructed by merging individual HCE data provided by three large health insurers in order to calculate the average $RA_{a,g,h,c}$. Ideally it should be representative of all Swiss health insurers. The second data base comes from the one individual Swiss health insurer "A". Both are limited

⁴ This is shorthand for "Hospitalization or living in a nursing home during the previous year of four days and more".
to individuals having mandatory health insurance.

**Descriptive Statistics**

Data of the three large Swiss health insurers (out of a total of 70 serving a population of 7.5 mn.) is available for the period 2001 to 2005. The sample is well balanced with respect to gender (49.5 percent of women), and average age of adult enrollees (47.4 years in 2005, compared to 47.8 years of the adult population). The market share covered is stable across age classes, amounting to 25 percent on average. With regard to choice of contract, there is a clear trend towards higher deductibles. The three highest deductibles (CHF 1,500, 2,000 and 2,500; 1 CHF=0.83 US$ at 2010 exchange rates) increased in importance from 12 to over 22 percent from 2001 to 2005, which is compared to the official figures of 13 and 23 percent very representative (Santésuisse, 2010a). There is a similar trend in favor of Managed Care contracts, reaching a share of 11 percent in 2005 (compared to the Swiss average of less than 10 percent in 2005, see Eugster et al.).

The second data source, obtained from A, covers the period 2001 to 2007. With 51.3 percent of women, the sample is almost balanced. A is one of the medium-sized health insurers in Switzerland with a market share of almost 5 percent in 2005. With 47.7 years, average age of A’s adult enrollees is slightly higher than the 47.4 years of the three insurers. The clientele of A also tends towards higher deductibles. The share of the three highest deductibles (they are CHF 1,000, CHF 1,500, and CHF 2,500) exceeds the nation-wide average of 22 percent in 2005. Managed Care (MC) contracts account for almost 35 percent (2007), double the nationwide average of 16.9 percent (Santésuisse, 2010b). This most likely explains A’s comparatively low rate of hospitalization (see Figure 3 below). On the whole A looks like an innovative insurer that encourages MC options, in conformity with stated objectives of Swiss policy makers.

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5 In the US MC plans have achieved most of their cost savings by reducing inpatient hospital use (see Miller and Luft, 1997 and Bindman et al., 2005. See Lehmann and Zweifel, 2004 for MC cost savings in Switzerland).
Checking Simulated RA Payments

First, the data provided by the three large health insurers had to be checked for representativeness using the current RA formula. The values for $RA_{a,g}$ were calculated for all 30 cells along with their standard errors according to the methodology described in Section 2.1 and compared with the official nationwide values. The insurers on average pay for women aged 19 to 25 more than CHF 1,700 per year (see Figure 1 for the canton of Zurich, the leading canton of Switzerland both in terms of GDP and population, and Table 1 in the Appendix for all cantons). Conversely, they receive payment for over 90 year old women to the tune of some CHF 8,600. While the fit is good in general, RA contributions by the three insurers are lower than the official figures from age 61 on.

Based on the evidence, one can conclude that the three major health insurers sampled are sufficiently representative of the Swiss population to enable a simulation of the new RA formula based on their data. This conclusion is also supported by the fact that one of the three is a net recipient of payments from the RA scheme, one breaks even, and one is a net contributor to the scheme. Also note that according to Table 1 of the Appendix, the standard error and hence variance of RA payments increases with age, reflecting the fact that variance of HCE increases as well. This means that for a risk-averse health insurer, risk-selection effort has a high payoff if focused on older clients. By the same token, however, an insurer like A who counts on having to pay into the RA scheme permanently faces a liability characterized by great risk as its insured population ages.
Figure 1: Official RA values according to age and gender (canton of Zurich, 2005)

Note: 1 CHF = 0.83 US$ at 2010 exchange rates.

Figure 2: Estimated RA values with and without hospitalization across age groups (canton of Zurich, 2005)

Note: 1 CHF = 0.83 US$ at 2010 exchange rates.
3 Simulating the Impacts of the New RA Formula

In this section, estimated RA values with the new RA formula including hospitalization during the previous year are presented first. Then, the impacts of the regulatory fine-tuning on health insurer A in terms of financial burden and choice of strategy are shown.

3.1 Risk Adjustment with the New Criterion

Official RA values grouped according to the additional criterion, "Hospitalization during the previous year" are not available. They have been simulated using the individual HCE data provided by the three major health insurers (see Section 2.1). Figure 2 illustrates estimated $RA_{a,g,h,c}$ values for the canton of Zurich.

Comparing Figures 1 and 2 the new formula is seen to induce radical changes. First of all, it causes the amount of cross-subsidization between those without a hospital stay in the previous year to shrink considerably beyond age 70. Conversely, it causes persons with a hospital stay to be cross-subsidized regardless of age or gender. Second, and related to this, the usual age profile ceases to exist. For instance, hospitalized women in the 19 to 25 age group benefit more than the three next older groups, and at the high end, it is the aged 86 to 90 rather than the oldest that benefit most. Among men, the age profile becomes almost level beyond age 70. Third, the per capita amounts now are higher, pointing to a substantial increase in the volume of cross-subsidization.

Engster et al. simulate the effects of introducing the third criterion on the total volume of cross-subsidization for 2005. They find an increase of 40 percent, from CHF 4.13 bn. to CHF 5.82 bn., or some 12 percent of Swiss HCE. Whether this is excessive or not is an issue that cannot be addressed in this paper. However, a change of this magnitude is likely to present a challenge to the RM of at least some health insurers. Whether this is the case of insurer A is the topic of the two subsections below.

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6 Official statistics do show RA values as "RA payments between consumers", but only according to the current RA formula (see Joint Organization KVG, 2008).
3.2 Impacts on Risk Adjustment Payments by Health Insurer A

The consequences of adding the new risk adjuster “hospitalization” for health insurer A can be simulated as follows. The volume of payments is calculated as the number of A’s customers in a RA cell\(^7\), times the estimated RA value pertaining to that RA cell, and adding up (see eq.(5), Section 2.1). These calculations are performed using the old and the new RA formula for the years 2005 to 2007. They allow to “postdict” the consequences the new RA formula would have had if already in effect. The results are striking.

- Total payments of A into the RA scheme increase substantially. Under the old formula, they amount to CHF 24.2 mn. in 2005, corresponding to 3 percent of premium income. Had the new RA formula already been in effect, they would have reached CHF 101.6 mn., amounting to no less than 13 percent of premium income. Considering that A operated at a loss of CHF 8.2 mn. in 2005, the new formula would, ceteris paribus, have caused a total loss of CHF 85.6 mn. \((= 8.2 + 101.6 - 24.2)\).

- For the years 2006 and 2007, payments according to the new RA formula are estimated to be CHF 73.5 and 82.3 mn., respectively, compared to the CHF 2.6 and 2.3 mn. under the current RA formula. In terms of premium income, the shares would have been 9 and 13 percent, respectively, resulting in losses of CHF 54.8 and 86.2 mn., ceteris paribus.

- Payments of A into the RA scheme increase in all cantons. In some, A even turns from receiver into payer, such as in the cantons of Vaud (VD) and Geneva (GE). This precludes a regional restructuring of A’s business as a possible RM response; for this reason, this alternative will not be discussed in Section 3.3 below.

Arguably, these developments would have jeopardized A’s economic survival. Starting with the underwriting result, the combined ratio (defined as loss payments plus

\(^7\)For added precision, calculations are based on months of contract life.
administrative expense plus RA values relative to premium income) was very close to 100 percent over the time period considered, viz. 102.3 (2005), 99.8 (2006), and 100.3 percent (2007). This is not fatal as long as the insurer is making enough profits from capital investment (see e.g. Zweifel and Eisen [2003], ch. 5), which was indeed the case in 2007. However, the new RA formula would have caused the combined ratio to attain 111.9 (2005), 107.5 (2006), and 110.7 percent (2007) respectively, amounts that could not have easily been compensated by profits from capital investment. According to Browne and Hoyt [1995], who analyze market predictors of insolvencies in US property-liability insurance between 1970 and 1990, a 5 point increase of the combined ratio causes the insolvency rate to increase by roughly 22 percent. Even if this result cannot be directly applied to health insurers operating in a different country, a 10 point hike in the combined ratio must substantially increase the insolvency risk of an insurer who has limited reserves. The ordinance on health insurance (Federal Council of Switzerland, 2003) requires insurers to hold reserves as a function of enrollment. With more than 150,000 insured, A currently must have reserves amounting to 10 percent of annual premiums (Santésuisse, 2009). If A would have used its reserves to make up for the predicted loss of 2005 under the new RA formula, this ratio would have fallen to around 5 percent. The predicted loss of 2006 and 2007 would have wiped out its reserves altogether.

The insolvency of an insurer could be the result of lackluster performance and hence of little importance to the economy as a whole. However, this does not seem to be true of insurer A. It did incur a loss in 2005 but was able to turn this into a surplus for the years 2006 and 2007. In addition, its high predicted payments into RA under the new RA formula are due to its low hospitalization rates (see Figure 3). For men, they are (gray bars) significantly lower than the Swiss average (black bars) across all age groups (women similar but not shown). While successful risk selection cannot be

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8 The expense ratio was 5.6 (2005), 5.9 (2006) and 5.6 percent (2007), which is average for Swiss statutory health insurers.
excluded completely as an explanation, the evidence points in a different direction.

First, as stated in Section 2.2, the younger age classes and men are only slightly over-represented. A systematic risk selector would have significantly higher market shares in this age segment. Second, Managed Care contracts (designed to prevent or shorten hospital stays) attain a share of 35 percent in 2007, way above the Swiss average of 16.9 percent. At the same time, insurer A’s distribution of MC contracts across age classes does not systematically differ from that of the representative three insurers. Third, total HCE per enrollee and its age profile are quite similar between insurer A and the three others, speaking against cross across-the-board risk-selection effort on the part of the insurer A. By way of contrast, Figure 4 reveals a marked difference with regard to the cost of inpatient and outpatient care. Starting with the age group 51 to 55 but especially beyond age 81, insurer A is markedly below the simulated nationwide benchmark (panel a). Now this could still be due to risk-selection efforts cleverly targeted at the healthy elderly. In that case, however, one would also expect insurer A’s cost for outpatient care to be comparatively low in the higher age groups. Yet panel (b) of Figure 3: Hospitalization rate, insurer A vs. simulated nationwide values, men (2005)
Figure 4 shows that insurer A’s cost of inpatient care per enrollee is higher than that of the three representative insurers, and particularly so in the high age groups.

These findings lend credibility to insurer A’s claim to have implemented MC in general and home care instead of hospital care specifically for the elderly. This has positive effects not only for the individual patient whose quality of life is higher, but also for the economy as a whole. Indeed, the cost of outpatient care evidenced in Figure 4 is only one-half of the true value since the cantons finance roughly 50 percent of hospitals’ operating cost. Implementation of MC concepts thus provides relief to taxpayers. Hence, rather than acting as a “cherry-picker”, insurer A seems to be among the foremost in conforming with stated objectives of Swiss health policy, i.e. to achieve savings through Managed Care. Insolvency of such an insurer caused by a change in the RA formula can be justifiably qualified as regulatory failure.

### 3.3 Impact on Risk Management

It is unlikely that an insurer confronted with the changes described in the preceding sections can continue with its risk management (RM) strategy unchanged. The two main alternatives revolve around the two principal activities of an insurer, viz. un-
derwriting and capital investment. Starting with the latter, the insurer could seek offsetting returns on capital investments. However, in the present state of the economy this is very difficult. In addition, capital market theory predicts that higher expected returns can only be achieved in return for more risk once the efficient frontier has been reached, a consequence that is not easily accepted by a regulator of social health insurance. The second possibility is to increase margins from underwriting either by increasing net premiums or reducing claims. Swiss statutory health insurers have to pay by law for all services included in the official list of benefits, with most prices regulated. Therefore, it is not possible to decrease insurance claims significantly. Liabilities arising from underwriting can be reduced by purchasing reinsurance; however, up to present reinsurers have not been providing coverage against RA liabilities. This leaves an increase of premiums net of RA payments as the likely RM response. Since premiums are fixed by community rating regulation, lowering payments into the RA scheme becomes the preferred alternative.

One way to achieve this objective is to enroll more unfavorable risks, in particular persons who were hospitalized during the previous year. This is the adjustment the new RA formula was designed to bring about. The challenge to the insurer’s RM now becomes to achieve more hospitalizations without incurring much additional cost. Recall that a hospitalization counts as soon as it exceeds three days. When segmenting A’s HCE function according to length of stay in the hospital during the previous year, it turns out that patients with four days do not cost significantly more than those with three. Therefore, A has to weigh the once-and-for-all extra cost of a hospital day against the extra contribution from the RA scheme, which may amount to several thousand CHF (see Table 1 of the Appendix).

The possible reduction of RA payments can be estimated as follows. While it may not be possible to collude with the public hospitals (who obtain a per diem roughly twice
the amount paid by the insurer because one-half of their extra operating cost is covered by the canton) to extend all hospital stays from three to four days, this should be possible in 50 percent of all cases. The effect of such a RM response can be estimated with sufficient precision for the three cantons where A has the highest market share [viz. Zurich (ZH), Berne (BE), and Vaud (VD)]. There, it would have reduced RA payments by CHF 5 mn. in 2007. Extrapolating to A’s entire book of business, one obtains CHF 9 mn., or 11.2 percent of the estimated CHF 82.3 mn. Savings of this magnitude would have been important enough to induce a change in RM.

The cost of this change would fall on taxpayers (who cover one half of the increased operating costs of public hospital through cantonal subsidies), employers (who bear the workdays lost), and patients (who presumably enjoy a higher quality of life outside the hospital). For this reason, reducing the length of hospital stays has been a stated goal of Swiss health policy, notably justifying the introduction of hospital payment through Diagnosis Related Groups by 2012 (DRGs, see SwissDRG, 2009). Thus, the fine tuning of regulation through an improvement of the RA formula risks to burden the economy with sizable inefficiencies.

4 Conclusion

Regulation may pose unintended challenges to the risk management (RM) of a company. This contribution analyzes the case of health insurance, where the imposition of community rating creates an incentive to select favorable risks. Risk adjustment (RA) schemes have been implemented in several countries such as Germany, Israel, the Netherlands, and the United States to counteract this incentive. They make insurers with an above-average share of favorable risks (indicated by age, gender, and other adjusters) to pay into the scheme, which supports insurers with an above-average share of unfavorable risks. Since its current RA formula fails to neutralize the incentive for risk selection, Switzerland will complement it in 2012 with the adjuster, "Hospitaliza-
tion of more than three days or living in a nursing home during the previous year”. This seemingly minor fine tuning of regulation is shown to have a potentially fatal effect on a particular health insurer A whose payments into the RA scheme would have increased substantially between 2005 and 2007 if the new RA formula had been in effect. The reason is a low rate of hospitalization thanks to a commitment to Managed Care. Therefore, A’s most likely RM response would have been to increase recognized hospitalizations by increasing length of stay from three to four days, triggering extra payments from the RA scheme at a limited once-and-for-all cost of an extra hospital day. The cost of this change of RM strategy would have been borne by taxpayers (through increased subsidies of hospitals’ operating expense), employers (through lost workdays), and patients (through lower quality of life).

There are lessons to be learned for other countries who impose community rating on competitive health insurers. First, it is practically impossible to fully neutralize insurers’ risk selection incentive through an RA scheme, and be it only due to their different rates of discount in estimating the present value of the benefits and costs associated with risk selection. Second, perfecting the RA formula can have unintended side effects at the level of an individual insurer that go as far as jeopardizing its economic survival in spite of innovative effort. In the case studied here, the insurer is even punished for its innovative commitment to Managed Care. Finally, the threat of survival may well trigger adjustments in RM strategy that cause an efficiency loss to the economy as a whole.

There is an alternative that avoids the regulatory spiral described here. Health insurers could be simply permitted to charge premiums according to estimated risk. With sufficient pressure of competition, this would boil down to “price equal to expected marginal cost” since expected future health care expenditure importantly reflects the insurer’s cost of enrolling an additional customer. Wealthy individuals can pay a high

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There is the perception that for all its refinement, the all-encounter RA CMS-HCC model overpays Medicare Advantage Programs (representing MCOs). We owe this interesting point to the anonymous referee.
risk-based premium out of their own means. The same is true of low-income individuals
who are favorable risks. The problematic group are low-income individuals who are
unfavorable risks. They can be entitled to an earmarked subsidy that kicks in as soon
as their premium exceeds a certain percentage of their income (see Zweifel and Breuer
[2006]). In fact, the new law on health insurance of 2004 introduced such a targeted
subsidy in Switzerland - without however lifting the premium regulation introduced in
1911. The consequence is an avoidable fine tuning of health insurance regulation with
its unhealthy impacts not only on an individual insurer but the economy as a whole.

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of Zurich, Switzerland), Frank Lichtenberg (Columbia University, New York, NY
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insurers and health insurer A that provided data for this study.
## Appendix

Table 1: Simulated and official RA payments per capita according to age and gender (CHF, 2005)

<table>
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<th>Std.</th>
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<th>Max</th>
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<td>−3,006</td>
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1 CHF = 0.83 US$ at 2010 exchange rates

* Average over all 26 Swiss cantons
References


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