



The complementarity between risk adjustment and community rating: Distorting market outcomes to facilitate redistribution[☆]



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ABSTRACT

We analyze optimal risk adjustment in competitive health-insurance markets when insurers have better information on their customers' risk profiles than the sponsor of health insurance. In the optimal scheme, the sponsor uses reinsurance to screen insurers with bad and good risks, in order to lower premiums for enrollees with high expected healthcare costs. We then explore the effects of adding a community-rating requirement to complement this risk-adjustment scheme. With community rating, insurers have incentives to distort contract generosity to cherry-pick low-cost consumers. However, the reduced generosity for low-cost types makes screening through reinsurance easier, allowing the sponsor to redistribute more. When costs for reinsurance are low, or the sponsor's bias towards high-cost consumers is high, community rating dominates risk rating.

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1. Introduction

We study a competitive health-insurance market, in which a regulator ('the sponsor') intervenes, with the dual aims to reduce distortions due to adverse selection and to achieve redistribution from healthier, low-cost consumers, to poor-health, high-cost ones. Two standard policies to achieve these goals are risk adjustment – where the sponsor taxes insurers of low-cost types and subsidizes those of higher-cost types – and a community-rating requirement,

which obliges insurers to set premiums for a given contract independent of observable characteristics of the consumer buying that contract. We explore the interaction between those two policies in a setting with asymmetric information between insurers and sponsor: insurers have better information on their consumers' health status than the sponsor, and insurers can offer policies with qualities or generosity that cannot be fully contracted on by the sponsor.

Many countries use risk-adjustment schemes to reduce adverse selection and achieve redistributive goals. *Ex-ante* risk adjustment taxes or subsidizes an insurer based on observable characteristics of its insured that provide a signal of expected health costs. By equalizing expected healthcare costs, the sponsor reduces selection incentives for insurers and brings insurance premiums for consumers of different health characteristics closer together, in that way achieving the desired redistribution. Such *ex-ante* risk adjustment requires verifiable data that is relatively easy to obtain for the sponsor of health insurance.

In practice, however, the insurer usually has more information on its insured than the sponsor, and insurers can use that information

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to their advantage. For instance, [Brown et al. \(2014\)](#) show that in Medicare Advantage, insurers succeed in enrolling customers that are relatively less costly compared to the risk adjustment payments received for them, and [Geruso and Layton \(2015\)](#) demonstrate how in Medicare Advantage, insurers use upcoding to increase risk-adjustment payments.¹ When the insurer is better informed on its consumers' types, the sponsor has to elicit truthful information from the insurers on their enrollees' health costs. To do so, the sponsor can use *ex-post* risk adjustment: it compensates insurers for consumers that turn out to be costly *ex post* by repaying part of the realized costs. This is a form of risk sharing or reinsurance, with the risk adjuster playing the role of the reinsurer (see e.g. [Swartz, 2003](#); [Dow et al., 2010](#)). As this reduces the underlying cost differences, the insurance contracts vary less with risk type.

Ex-post risk adjustment leaves no scope for insurers to game the system, because realized costs are observable to the sponsor. Instead, the downside of *ex-post* risk adjustment is that insurers' incentives for cost containment are muted when the sponsor acts as a reinsurer ([Dow et al., 2010](#)).² In practice, risk-adjustment systems often include *ex-post* components (see for instance [Van de Ven et al., 2003](#), who describe how risk sharing is combined with *ex-ante* payments in various European countries). In the US, the Health Insurance Exchanges established under the Affordable Care Act combine a transitory reinsurance program, and a risk-adjustment scheme that will take current period's diagnoses as inputs ([HHS, 2012](#)). Also the Dutch risk-adjustment system contains elements of *ex-post* reinsurance, alongside *ex-ante* risk adjustment for observed characteristics, though the explicit *ex-post* component is currently being gradually phased out to stimulate insurers to contain healthcare costs.³

Since reinsurance is socially costly, in the presence of information asymmetry between insurers and sponsor, optimal risk adjustment will be incomplete and leave room for selection and premium differences between consumer types. To complement an imperfect risk-adjustment system, sponsors can impose premium restrictions on contracts that insurers may offer. In practice, one important restriction is a community-rating requirement, see [Gale \(2007\)](#) for an overview. Community rating (CR) means that insurers have to accept any customer and charge the same price to each customer for a given contract.⁴ Policy makers' motivation for CR is to enforce solidarity among high-risk and low-risk consumers on the health-insurance market. In the absence of CR, and assuming insurers and consumers have symmetric information on their types, insurers can engage in third-degree price discrimination, also known as risk rating (RR), and charge high (low) prices to high (low) risk consumers.

While CR may increase redistribution, a drawback is that it increases selection incentives for insurers. If contract quality is not fully contractible to the sponsor, this may lead to distortions in contracts offered in the market, reducing efficiency and potentially undoing the intended redistribution. In practice, insurers have a lot of scope to distort contract generosity in ways that are hard to regulate by the sponsor. [Shepard \(2016\)](#) demonstrates how the insurer's provider network affects selection of enrollees. [Decarolis and Guglielmo \(forthcoming\)](#) analyze changes in contract generosity

including soft measures such as customer service, or healthcare quality, in response to changing selection incentives. [Carey \(2017\)](#) documents how insurers use drug benefit design to select more profitable enrollees.⁵ As these dimensions are not easily contractible for the sponsor, the insurer has an advantage which can be used to game the system. In particular, the insurer tries to cherry-pick insured whose expected costs are low within their risk-adjustment class.

In this paper, we explore optimal risk adjustment when insurers have private information on consumers' cost types, and can use distortions in contract generosity to screen consumers. We then ask how optimal risk adjustment interacts with a premium restriction: in a second-best world, can a CR requirement be an efficient complement to a risk-adjustment scheme? To do so, we take a mechanism design approach: how can the sponsor optimally elicit the insurers' private information on their consumers' expected costs? We consider a two-tiered contracting model with perfectly competitive insurers who offer a menu of contracts to consumers in Rothschild-Stiglitz fashion. The insurers' incentives for attracting high- or low-cost consumers are in turn determined by the sponsor's risk-adjustment mechanism. We show that the sponsor can use *ex-post* risk adjustment to screen insurers on the privately observable part of expected costs.

We find that optimal risk adjustment offers the insurer a choice whether or not to buy some reinsurance for their customers. The scheme therefore involves subjective risk adjusting as in [Sappington and Lewis \(1999\)](#). Paying a tax in exchange for high *ex-post* reinsurance is attractive for an insurer who knows his customers have high expected healthcare costs. Conversely, for an insurer who faces customers with low expected healthcare costs, the costs of reinsurance are higher than the benefits. This insurer in fact prefers to contribute to the risk-adjustment fund instead, subsidizing the high types. In this way, optimal risk adjustment targets the information advantage of the insurers *vis-a-vis* the sponsor, and allows the sponsor to tax low-risk types to subsidize the high-risk types.⁶

When insurers are allowed to vary premiums for a given contract according to a consumer's observable type – a risk-rating regime, or RR – contract prices will reflect those cost differences, and insurers have the incentive to provide efficient contract generosity. By equalizing costs, risk adjustment then serves the goal of bringing prices for different consumers closer together, and in this way promotes redistribution.

The interaction of risk adjustment with CR is subtler. With a CR requirement, insurers can no longer engage in direct price discrimination. Instead, insurers have the incentive to introduce distortions in contract generosity to screen consumers: with mandatory insurance, the market will feature lower-generosity insurance plans that are cheap and attractive to low-cost consumers, as well as more generous but expensive plans that attract high-cost consumers. In this environment, risk adjustment serves two purposes: not only does it bring prices closer together, but it also reduces distortions in insurance generosity.

Conversely, CR also affects the effectiveness of risk adjustment. With CR, the reduced generosity for insurance contracts aimed at low-cost consumers decreases costs for insurers to cover this type of enrollees. In turn, this cost reduction for low-type insurance

¹ Also, the sponsor may not want to use some variables correlated with expected healthcare costs for ethical reasons, think of ethnicity or religion, or because including them would decrease insurers' incentives to reduce costs, see [Van de Ven and Ellis \(2000\)](#) and [Van de Ven and Schut \(2011, p. 384\)](#) for a discussion.

² Note that providing such incentives is often the reason for having private, competitive health insurance in the first place.

³ As [Geruso and McGuire \(2016\)](#) argue, many *ex-ante* risk-adjustments have some *ex-post* characteristics, to the extent that they include past treatment choices. Choosing for treatment today will then influence *ex-ante* risk payments next year, which influences the insurer's incentives if consumer switching rates are low.

⁴ This is also referred to as 'pure community rating'. Less restrictive forms might allow for some rate differentiation according to, for instance, age.

⁵ See also [Geruso et al. \(2016\)](#) and [Lavetti and Simon \(2016\)](#).

⁶ Van de Ven and van Vliet also suggested a risk-adjustment scheme involving subjective risk adjustment: "Let an insurer himself decide – within certain boundaries – for which patients, or for which types of care, or to what extent he wants to share the risk with the Central Fund. (...) An important advantage of such a flexible form of risk sharing would be that the additional information the insurer might have about the residual predictable risk that is not accounted for in the capitation payment, will not be employed for cream skimming, but will be reflected in the preferred form of risk sharing." ([Van de Ven and van Vliet, 1992](#), italics are in the original text).

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