Introducing risk adjustment and free health plan choice in employer-based health insurance: Evidence from Germany

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ABSTRACT

To equalize differences in health plan premiums due to differences in risk pools, the German legislature introduced a simple Risk Adjustment Scheme (RAS) based on age, gender and disability status in 1994. In addition, effective 1996, consumers gained the freedom to choose among hundreds of existing health plans, across employers and state-borders. This paper (a) estimates RAS pass-through rates on premiums, financial reserves and expenditures and assesses the overall RAS impact on market price dispersion. Moreover, it (b) characterizes health plan switchers and investigates their annual and cumulative switching rates over time. Our main findings are based on representative enrollee panel data linked to administrative RAS and health plan data. We show that sickness funds with bad risk pools and high pre-RAS premiums lowered their total premiums by 42 cents per additional euro allocated by the RAS. Consequently, post-RAS, health plan prices converged but not fully. Because switchers are more likely to be white collar, young and healthy, the new consumer choice resulted in more risk segregation and the amount of money redistributed by the RAS increased over time.

1. Introduction

Health insurance markets that combine health plan choice with community rating regulations also require a risk adjustment mechanism. Risk adjustment means adjusting for predictable variation in enrollees' medical expenses due to structural differences in health risk pools across insurers. Risk adjustment can ensure a stable and competitive market. Without an adjustment of health risks across insurer risk pools, and without giving insurers the option to charge higher risks higher prices (i.e., under "community rating"), insurers would compete in cherry-picking "good risks" (healthy enrollees) and reject "bad risks" rather than competing in improving health plans. In other words, without any mechanism that compensates for the higher costs that sicker enrollees natu-

rally produce, insurers in markets with free consumer health plan choice have strong incentives to cream-skim healthy enrollees. They would then engage either in active risk selection (to cherry-pick good risks and reject bad risks) or in passive risk selection (to induce self-selection by enrollees) or both (Nuscheler, 2004). Without risk adjustment, *ceteris paribus*, attracting young and healthy switchers ensures lower market prices (van Vliet, 2006; van de Ven et al., 2007). For these reasons, the question of how to effectively design and implement risk adjustment mechanisms has become one of the spotlights in the health policy debates in health insurance markets with consumer choice and community rating regulations, such as in the Netherlands, Switzerland, Germany, Israel, and the US.

The German multi-payer Statutory Health Insurance (SHI) covers 70 million individuals, or 90% of the population. Most of them are compulsorily insured under the SHI. It combines a tight regulation of benefit package and cost-sharing rules with the free choice of

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dozens of non-profit health plans (called "sickness funds").[1] Unlike in the US, however, where access to employer-sponsored health insurance is still restricted to employees of the company, German employees do not have to switch health plans when they switch employers. In principle, today, they can keep their health plan from birth (when they are covered under a family plan) to death (Medicare does not exist in Germany). The free choice of health plans was introduced in 1996. Prior to 1996, most Germans were assigned to plans based on their occupation or industry, or had a heavily restricted choice set among employer-provided plans. Restricting health plan choice to occupation or industry meant that health plan premiums differed substantially across sickness funds (for essentially the same plan and benefits). These price differences were (at least partly) due to differences in risk pools absent of any risk adjustment.

Hence, two years before free health plan choice became a legal right, in 1994, a simple Risk Adjustment Scheme (RAS) based on three factors – age, gender, and disability status – was implemented. The goal of the RAS was precisely to adjust differences in risk pools across sickness funds to level the playing field for a "fair" market competition with a focus on reducing administrative costs and improving product quality – and to eliminate incentives for insurers to cream-skim good risks.

This paper combines representative survey panel data with administrative health plan data on prices and RAS allocations to study, first, how the introduction of this RAS scheme affected insurer premiums, pass-through rates, and overall market price dispersion. Estimating pass-through rates is important for several reasons: it opens the black box of how insurers in a given country operate. Specifically, it offers insights into how much consumers benefit from additional insurer revenues through lower health plan premiums – dampening premium growth is a key objective for policymakers around the world. Estimating pass-through rates also facilitates a comparison of the consumer impacts of different regulatory tools, e.g., tax-funded consumer premium subsidies vs. insurer risk corridors or other risk adjustment schemes. Moreover, the premium pass-through rate is also a measure of the competitiveness of the market; *ceteris paribus*, we would expect higher pass-through rates in more competitive markets (c.f. Weyl and Fabinger, 2013; Cabral et al., 2014). Finally, comparing pass-through rates in markets with for-profit and non-profit insurers may offer an explanation for why premium growth is large in the US, the only country whose health care system is predominantly based on for-profit insurers who pass additional revenues also through to shareholders (Duggan et al., 2016).

The second main objective of this paper is to investigate how the introduction of consumer choice was associated with actual switching behavior and risk segregation in Germany. Assessing whether free consumer choice leads to more or less risk segregation and adverse selection is important for economic welfare analyses. To the extent that it induces *more* risk segregation, it also provides empirical support for a risk-adjustment mechanism to level the playing field for a competitive market.

The empirical identification strategies for these two objectives differ slightly. First, when estimating the impact of RAS allocations on pass-through rates, we discuss why conditional changes in annual RAS allocations – which were calculated retrospectively by an independent federal agency – likely represent quasi-exogenous variation. Second, when assessing the relationship between health plan choice and switching behavior, we do not rely on a classical causal reduced-form framework. Rather, we present several pieces of empirical evidence which strongly suggest that risk segregation has increased as a result of more consumer choice.

As a starting point, the paper shows that before the introduction of free health plan choice and the RAS, insurer risk pools differed by socio-demographics because coverage was tied directly to occupation or industry. Sickness funds with worse risk pools (had to) charge higher prices. A common price spread of two percentage points of the contribution rate would translate into total premium differences of more than €1000 per year, which were predominately paid by older and poorer employees and their employers.

Second, market price dispersion decreased in the post-RAS era, but prices did not converge fully. We show that the main reason for this incomplete convergence is an incomplete pass-through of RAS payments to premiums. As described in more detail in the next section, the RAS was carried out by an independent regulatory agency which calculated standardized health care expenditures by age-gender-disability cells. Depending on the exact standardized expenditures for year $t-1$ and the number of insured enrollee days in each age-gender-disability cell, sickness funds had to pay money into the RAS or obtained money out of the RAS in year t. We exploit variation in changes in RAS allocations across sickness fund types and over time to estimate that total premiums decreased by at least 42 cents when sickness funds with bad risk pools received one euro more per enrollee out of the RAS fund. We also find that the non-profit sickness funds increased their reserves (by 5.5 cents), assets (by 13 cents) and health care spending (by 22 cents, imprecisely estimated) for every additional euro per enrollee.

Third, after a strong increase in the first two years of the free consumer choice era, the annual switching rate first stabilized at around six percent but then continued to increase further. Eight years after switching became a legal right, almost a quarter of all enrollees had actively switched health plans. Despite the reduction in market price dispersion due to the RAS, we find a relatively stable savings rate for health plan switchers. Because switchers tend to be younger, white collar, and healthier, the sorting of good risks into the switching decision has increased risk segregation across risk pools under free health plan choice. As a consequence, the volume of money redistributed by the RAS has also increased over time.

This paper contributes to a growing empirical economic literature on risk adjustment in health care markets (see van de Ven and Ellis, 2000; Ellis, 2008 for overviews). Several European countries such as the Netherlands, Belgium, Switzerland, Germany as well as Israel have implemented risk adjustment schemes (Chernichovsky and van de Ven, 2003; van de Ven et al., 2007; Shmueli, 2015). In the US, the risk adjustment in Medicare Part C – the privatized version of the public health insurance program for the elderly and disabled – has already been a talking point for two decades (Newhouse et al., 1997; Glazer and McGuire, 2000; McGuire, 2007; McGuire et al., 2014; Brown et al., 2014; Cabral et al., 2014; Duggan et al., 2016). In a paper that is similar in spirit to ours, Cabral et al. (2014) study the effect of increases in capitated payments to insurers in Medicare Part C. They find that insurers reduce premiums by 45 cents for every additional dollar they receive (in addition to an increase in the actuarial value by 8 cents). In another closely related paper, Duggan et al. (2016) find a lower Medicare Part C pass-through rate of one-eighths in addition to higher insurer profits and advertising expenditures.

Recent US papers discuss risk adjustment on the newly created state-level "Exchanges" (marketplaces for private insurance) of the Affordable Care Act (ACA) (Cunningham, 2012; Rose et al., 2015; Cox et al., 2016; Layton et al., 2016) or in Medicare Part D (supplemental drug insurance for the elderly) (Carey, 2017). Another set of papers studies how different regulator objectives, such as reducing adverse selection, would theoretically translate into differently designed risk adjustment schemes (Glazer and McGuire, 2002; Breyer et al., 2011; McGuire et al., 2013; Layton et al., 2016),

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[1] Henceforth, we will use the terms "health plan", "sickness fund", "insurer" and "insurance" interchangeably.