# Insurers' response to selection risk: Evidence from Medicare enrollment reforms☆

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## ABSTRACT

Evidence on insurers' behavior in environments with both risk selection and market power is largely missing. We fill this gap by providing one of the first empirical accounts of how insurers adjust plan features when faced with potential changes in selection. Our strategy exploits a 2012 reform allowing Medicare enrollees to switch to 5-star contracts at anytime. This policy increased enrollment into 5-star contracts, but without risk selection worsening. Our findings show that this is due to 5-star plans lowering both premiums and generosity, thus becoming more appealing for most beneficiaries, but less so for those in worse health conditions.

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## 1. Introduction

The behavior of insurers is a crucial component of the functioning of any insurance market. Understanding such behavior is thus key to evaluate reforms like the creation of the healthcare marketplaces under the Patient Protection and Affordable Care Act (ACA) and the growingly privatized provision of Medicare throughout the Part C and Part D programs.[1] The question of how competition works in environments with potential risk selection (either advantageous or adverse) is, however, still unsettled from a theoretical perspective and there is still much to be learned on the complex interaction between market power and selection.

More specifically, nearly all the recent literature on selection markets focuses on pricing distortions while abstracting from how selection affects the broader set of characteristics of the contracts offered. The supply-side analysis presented in this paper is, instead, about how health plans respond in terms of both premiums and benefits to additional opportunities for beneficiaries to move among plans, possibly in response to health shocks. Therefore, our contribution follows in the tradition initiated by the seminal theoretical studies of Rothschild and Stiglitz (1976) and Glazer and McGuire (2000) in which plans alter their product seeking to attract good risks. Although a handful of earlier studies have already shown evidence of insurers taking actions to attract good and deter bad health risk,[2] our contribution is to provide a particularly clean identification strategy to quantify how both premiums and benefits respond to a potential change in selection driven by a policy reform stimulating consumers' mobility between plans and to do so in a

[1] Part C, also known as Medicare Advantage, is a substitute for the traditional Medicare services (i.e., Part A covering in-hospital services and Part B covering physicians, surgeons and other outpatient hospital services. Part D is a program offering prescription drug insurance.

[2] Several of these contributions, from the early study of Ellis and McGuire (2007) to the more recent contributions of Carey (2016) and Shepard (2016), will be discussed next.

context, that of Medicare Advantage, that is characterized by the presence of market power.[3]

Reliable evidence on this type of behavior is hard to collect because it is rare to observe changes in selection risk within a market. Furthermore, even when selection risk changes for a subset of plans, it is often impossible to find a set of plans that can serve as a valid comparison group since the equilibrium in the whole market is affected. Our analysis overcomes this difficulty by exploiting the combined effects of a Medicare reform that altered the potential selection risk of the highest quality (5-star) Part C and D plans and the geographical dispersion of such plans over the US. This allows us to separately observe treated and control geographical markets both before and after this policy change, thus allowing a quantile differences-in-differences approach that we use to study distributional changes in contract features in the treated markets relative to the control ones. Our main finding is that the policy triggered a response that involved not only changing premiums, but also adjusting benefits. This made 5-star plans more appealing for most beneficiaries through lower premiums, but less so for those in worse health through higher out of pocket costs.

The starting point of our analysis is a Medicare reform changing the enrollment rules, most notably allowing enrollment outside the open enrollment period for a subset of plans. As in most insurance markets, beneficiaries select their Part C or D plan for coverage year $t$ during a window of time in the fall of year $t − 1$.[4] However, starting with the enrollment year 2012, a reform allowed enrollees to switch to 5-star Part C or D plans at any point during the year. Despite the official motivation for this reform (known as "5-star Special Enrollment Period" or "5-star SEP"), which was to foster enrollment into high quality plans, the reform exposes 5-star plans to an evident selection risk: enrollees could initially select cheap plans and then move to expensive 5-star plans with generous coverage only after being hit by health shocks. The selection risk associated with within-year plan changes is different from the typical selection problem studied in the existing Medicare literature involving choices made in the open enrollment period and is potentially more severe as people select plans after learning their health status. Limiting this type of selection is typically seen as important for the proper functioning of managed care markets and, indeed, this the logic behind the penalties for waiting beyond age 65 to join Part D and Medigap, for the individual mandate in the ACA and for insurers's resistance to expand the set of "qualifying life events" allowing plan changes.[5] Moreover, institutional remedies for selection that exist in both privatized Medicare and the ACA exchanges are currently not arranged to deal with selection originating from within-year plan changes.[6]

To study the impact of this reform, we exploit the heterogenous presence of 5-star plans across geographical markets. Due to regulatory reasons, the US is segmented into geographically separated markets both for Part C – where insurers offer plans at the county level – and for Part D – where insurers offer plans at regional level. Since not all geographical markets have 5-star plans, some markets were affected by the reform while others were not. Our empirical strategy exploits this difference, together with the robustness to manipulations of the star rating in the first two years after the policy change, to identify the causal effect of the policy on various features of the plans supplied. In particular, the methodology that we use is a quantile-based difference-in-differences analysis (Chetverikov et al., 2015) that we use to estimate distributional changes in the treated markets (those with at least one 5-star plan) and compare them to control markets (those with at least one 4 or 4.5-star plan, but no 5-star plans). Since, during our sample period, we observe 160 treated counties for Part C, but only 2 treated regions for Part D, we focus our analysis on the plans active in Part C, most of which also bundle together Part D benefits. These plans are usually referred to as MA-PD plans.[7]

We analyze how the distribution of both premiums and generosity changes in response to the 5-star SEP treatment and find a tendency for premiums to increase in the medium-low end of the premium distribution and to decrease in the medium-high end of the distribution, where 5-star plans are located. To measure the effects on plan generosity, we look at three measures of the out of pocket cost which have the benefit of aggregating all non-premium and non-customer service benefits into expected cost measures. The first is the Part C maximum out of pocket (MOOP). We find that the MOOP remains unchanged for plans in the high end of the MOOP distribution, but tends to worsen for plans at the low and medium end of the distribution. Since 5-star plans are among those with a low MOOP before the reform, this result implies a worsening of their generosity. We find the same result when looking at our second proxy for benefits, the Part C plan simulated out of pocket cost (OOPC) of enrollees in poor health. For the third measure, the simulated OOPC of enrollees in excellent health, instead, we find that the 5-star SEP did does not cause changes in the OOPC distribution.

Among the additional coverage generosity measures that we observe, an interesting one for which we observe the opposite pattern relative to what described above (i.e., 5-star plans becoming more generous) is the Part D deductible. Given the importance of the deductible for beneficiaries switching to 5-star plans during the year, we argue that this is consistent with a strategic response by insurers. We also use the same empirical strategy to study several "soft" quality measures behind the star rating and show that 5-star plans do not worsen on those. We conclude that the insurers' response entailed making 5-star plans more appealing than competing plans for most consumers (by lowering premiums and deductibles), but less so for the less healthy enrollees (by worsening generosity for enrollees in poor health).

Finally, to better understand the interaction between competition and the effects of the 5-star SEP, we repeat the analysis separately for markets where there is a monopolist insurer for 5-star plans and for markets where there is competition (duopoly) in the supply of 5-star plans. The most interesting result is that competition among 5-star insurers seems to exacerbate the extent to which these insures try to cream skim the market by worsening their plan generosity. Consumers in duopoly markets are more likely to be negatively affected by the 5-star SEP: while the premium changes in the two cases are similar, the increase in the OOPC for poor health enrollees is about twice in duopoly relative to monopoly markets.

A simultaneous reform that, starting in 2012, bolstered plan payments in proportion to their star rating requires particular care on how the earlier results should be interpreted. Indeed, the evidence

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[3] Using Part C data for 2006–2011, Curto et al. (2014) estimate that plan margins are on the order of 16% above their (variable) costs of coverage. Similar estimates are found by Guglielmo (2016) with a shorter dataset (2008–2011): by looking separately at plan types, he finds that HMOs and LPPOs generate the most profit per enrollee, amounting to a markup of 12%, while PFFS plans' markup is approximately 9.5%. These estimates are also broadly consistent with the average markup of 13% reported the MedPAC annual report 2010.

[4] While the open enrollment period length can very from 2 months to 2 weeks in employer sponsored health insurance, the open enrollment period in Medicare is fixed. Specifically in Medicare, as well as in the ACA exchanges, the open enrollment period is from October 15th to December 7th. This open enrollment period only applies to those who are already Medicare beneficiaries and not to individuals turning 65 who become eligible for Medicare.

[5] In the ACA exchanges, for instance, these events include marriage, release from prison, and childbirth.

[6] For instance, the enrollees' risk score is recalculated only on a yearly basis.

[7] We do not analyze, instead, the market for Prescription Drug Plans (PDP) active exclusively in Part D.