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Risk Adjustment with an Outside Option

Joseph P. Newhouse

Harvard University

The risk adjustment literature with respect to competing health plans has focused heavily on fit, meaning a measure of the variation explained by the demographic variables of age and sex as well as health conditions or diagnoses such as R^2. In judging risk adjustment methods Geruso and McGuire have pointed out that fit trades off against the power of the reimbursement system, and they also have introduced the concept of balance, or the variation in power across various medical services a health plan supplies (Geruso and McGuire 2016).

These concepts of fit, power, and balance, however, apply to appraising managed competition among health plans within a given population. In this comment I introduce the notion that the incentives of the risk adjustment scheme can affect the characteristics of the population that is choosing among plans and the stability of equilibrium in the insurance market. This is relevant when there is an outside option for the population that is choosing among plans and those individuals are not part of the risk adjustment scheme. The outside option may be to be uninsured, as in the Affordable Care Act's health insurance exchanges or marketplaces or in the Netherlands ("defaulters"). In the American Medicare Advantage (MA) program the outside option is to be in the Traditional Medicare (TM) program, and joining a spouse's plan is in principle an outside option for some American workers.[1] For the point of this comment to be of practical importance, there needs to be a non-trivial number of individuals in the outside option, which is the case in both MA and in the health insurance exchanges.

In this comment I show that the risk adjustment methods used in the American MA and exchange programs, which on the surface appear reasonably similar, in fact differ in their ability to correct for selection into the insured pool. The key difference between the two programs is how the absolute amount that a health plan is paid for a given person or group of its enrollees is determined. Whereas the relative weight applied to an enrollee in both programs is a function of the enrollee's demographic characteristics and diagnoses, the method used to convert that relative weight into an absolute dollar amount that the plan is paid differs, with implications not only for selection into the insurance pool but also the government budget.

[1]Formal risk adjustment methods, such as those considered here, are almost never used in American employment-based insurance, however.

How Plans are Paid in MA and in the Exchanges

The MA payment system is described in (Medicare Payment Advisory Commission 2016), but I provide a brief summary here. Plans submit a bid for an average or standard beneficiary. For simplicity assume plan bids are at the statutorily set benchmark or target.[2] To determine plan reimbursement the plan's bid is multiplied by a risk adjustment score that equals what a person enrolled in TM with the same observational characteristics such as age, sex, and diagnoses would cost relative to the average TM beneficiary. For notational simplicity I assume there is no variation among persons with given observational characteristics i that are part of the population to which the risk adjustment scheme is applied. In other words, all the variation is between groups or cells; there is no variation within each group.[3] Then the MA payment P_{ij} to plan j for a beneficiary with observable characteristics i is:

$$P_{ij}=Bid_j(TM\ cost_i/\sum_i(s_i * TM\ cost_i)), \quad (1)$$

where Bid_j is Plan j's bid, $TM\ cost_i$ is the average cost of TM beneficiaries with observational characteristics i, and s_i is the share of TM beneficiaries with observational characteristics i.

The important feature of the MA risk adjustment system for the purpose of this comment is that it adjusts for selection on observable characteristics for or against MA relative to the outside option TM. For example, since younger beneficiaries spend less on medical care, if younger beneficiaries disproportionately enroll in MA, other things equal, the ratio in parentheses in (1), averaged over all MA plans and weighted by each plan's enrollment share, will be less than one. Thus, if more younger beneficiaries enroll in MA than insurers in the aggregate anticipate in their bids, the risk adjustment formula will reduce the payment insurers receive such that their revenues will be more in line with their lower medical cost and conversely if more older beneficiaries enroll.[4]

In the exchanges the corresponding formula is:

$$P_{ij}=Bid_j(Average\ cost_i/\sum_i(s_i * Average\ cost_i)), \quad (2)$$

where $Average\ cost_i$ is the estimated average cost of exchange enrollees with observable characteristics i and s_i is the share of exchange enrollees with observational characteristics i.

[2] In the MA scheme if plan bids are less than the benchmark, as they almost always are, there is a rebate. Introducing a rebate that is a function of the difference between the bid and the benchmark does not affect the point of the argument here, but would complicate the exposition. The assumption that plan bids are at the benchmark is for convenience and makes the rebate zero.

[3] Introducing within-group variation would only complicate the exposition and not affect the main point.

[4] This adjustment for selection in MA is even clearer before 2006 when the MA reimbursement was a take-it-or-leave it function of average TM spending for a given group. If, for example, MA enrollees were on average younger, the risk adjustment formula would lower reimbursement to MA plans below average TM reimbursement.

Unlike risk adjustment in MA, the formula in (2) is zero sum among plans participating in the exchanges, since the ratio in parentheses weighted by the plan's enrollment share and averaged over all plans equals one. As a result, in the exchange market there can be unstable equilibria. Suppose, for example, enrollment in the exchanges is adversely selected in ways that insurers did not price for, as was arguably the case in 2014 and 2015.[5] In other words, insurers anticipated that more better risks would enroll than in fact did enroll. Then the result can be a death spiral similar to that described by Feldman and Dowd and Cutler and Reber (Feldman and Dowd 1982; Cutler and Reber 1998); insurers in the next year will increase premiums (or exit the market) and those insureds on the margin of deciding to purchase initially may drop insurance. Because most individuals participating in the exchanges are subsidized and because subsidies increase dollar for dollar with the premium for the second cheapest silver plan, however, in the exchange example any such death spiral would be mainly confined to the unsubsidized population.

Coding Effects

The potential greater stability from the MA risk adjustment scheme's ability to adjust for selection on observable variables, however, comes at a price. In both the MA and the exchange schemes, it is to the insurer's advantage to code diagnoses maximally. In MA such "upcoding," which has been appreciable, increases public outlays and the deadweight loss to finance them (Geruso and Layton 2015). Because the exchange risk adjustment system is zero sum, however, there is no direct effect of upcoding on public outlays – if one insurer codes more aggressively than another it gains at the expense of the other.[6]

Setting aside fraud, coding effects should asymptote, as they did when the DRG system was introduced in the 1980's and again when the MS-DRG system was introduced in 2007 (Carter, et al. 1990; Medicare Payment Advisory Commission 2012). In principle, such coding effects can be adjusted for, and indeed between 2010 and 2016 the base MA payment rate was reduced a cumulative 26 percent from coding adjustments. Upcoding may, however, be differential by diagnosis, in which case relative weights need to be adjusted in a non-uniform judgmental fashion. CMS has, in fact, implemented such non-uniform adjustments to MA weights by phasing in a new risk adjustment model starting in 2014 that lowers weights for HCC's suspected of being more aggressively coded in MA.

Closing Remarks

Historically MA experienced favorable selection, although the full implementation of the CMS-HCC risk adjustment system in 2007 appears to have markedly reduced selection and it may now be below a policy relevant level (McGuire, et al. 2011; Newhouse and McGuire 2014; Newhouse, et al. 2015). Whether that is the case or not, there is no obvious sign of an unstable equilibrium in MA. In fact, the MA share of total beneficiaries rose from 25 to 31

[5]Insurers, for example, had submitted binding bids when the Obama Administration in 2013 permitted state insurance commissioners to allow individuals with policies that were not in compliance with the ACA to keep them rather than purchasing a plan in the exchange. These individuals were better risks (Hsu 2016), and insurers presumably assumed they would be in the pool when submitting their bid.

[6]There could be an indirect effect on subsidies, however, if the premiums for the subsidized population change.

percent between 2011 and 2016 despite cuts in the generosity of MA reimbursement relative to TM.

By contrast, as is well known, enrollment in exchanges was well below that originally predicted by the Congressional Budget Office, and the exchanges appear to have been adversely selected against as mentioned above. Some insurers suffered losses and withdrew from some markets. A variety of factors have been mentioned as possible causes, not all related to an unexpectedly greater proportion of bad risks: overly aggressive pricing by some insurers, the inability of CMS to fully pay risk corridor payments, insufficient marketing efforts including the initial failures of healthcare.gov, beneficiary friendly regulations for Special Enrollment Periods and 90-day grace periods for premium payment, small (relative to subsequent years) initial penalties for non-compliance with the individual mandate, and a decision by many states to allow persons with non-compliant insurance contracts to keep them ("keep-what-you-have") (Hsu 2016; Reinhardt 2016). I do not propose here to determine the relative importance of these factors, but the insurer exits and large premium increases in some states are certainly consistent with death spiral like behavior in some of the exchanges.

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