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# Selection stories: Understanding movement across health plans☆

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ABSTRACT

This study assesses the factors influencing the movement of people across health plans. We distinguish three types of cost-related transitions: adverse selection, the movement of the less healthy to more generous plans; adverse retention, the tendency for people to stay where they are when they get sick; and aging in place, enrollees' inertia in plan choice, leading plans with older enrollees to increase in relative cost over time. Using data from the Group Insurance Commission in Massachusetts, we show that adverse selection and aging in place are both quantitatively important. Either can materially impact equilibrium enrollments, especially when premiums to enrollees reflect these costs.



Policies to facilitate choice across insurance plans generate widespread support in the US, and in many countries around the world. The recent health reform in the United States, for example, creates health insurance exchanges to facilitate insurance choice among individuals and employees of small groups. The idea is popular in the Netherlands and Germany as well.

As is well known, the major issue inhibiting efficient sorting is health status-based plan selection. Selection reflects the confluence of several phenomena: individuals differ dramatically in the expected costs they will incur; cost-related concerns make some individuals more likely to enroll in some plans than others; and the premiums that health plans receive are not tied to their enrollees' characteristics.[1] Together, these phenomena imply that some plans will have to serve more expensive populations, and will therefore have to charge more, even if it costs them no more, or indeed less, to serve any particular individual. The result is both inefficient and inequitable (Cutler and Zeckhauser, 2000).

Understanding the nature and magnitude of these inefficiencies and inequities is critical if we are going to implement mechanisms to reduce them. This study assesses the factors influencing the movement of people across employer-sponsored health plans.

Risk adjustment is the most common solution economists propose for selection concerns. But risk adjustment must be based on the right model of individual choice. For example, to what extent do individuals rely on past experience as opposed to projected future experience in selecting a plan? If strongly on the latter, risk adjustment may need to be based on actual future spending experience. If factors apart from expenditures, e.g., age, have a marked effect on selection, the need for experience-based risk adjustment will diminish.

We consider a theoretical and empirical situation where there are just two plans: a fee-for-service (FFS) indemnity plan and a health maintenance organization (HMO). We refer to these plans as the generous and moderate plan, where the generous plan both offers more freedom in selecting providers and costs more. The dataset used includes all medical claims for employees and their families who are employed by the state of Massachusetts and purchase health insurance through the state's Group Insurance Commission (GIC), roughly 225,000 insureds. Several previous papers, including some by some current authors, have used data from this population (Altman et al., 2003; Cutler and Zeckhauser, 1998).

Adverse selection is the common concern in such a setting (Rothschild and Stiglitz, 1976). People who expect to need a lot of

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[1] A very few groups do engage in risk adjustment, i.e., basing premiums to plans on individuals' expected costs.

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care in the future might move into plans where choice of providers is greater and/or out-of-pocket costs for care are lower. If information is both complete and contractible, equilibrium insurance contracts will be optimal for each risk class, and premiums will vary to reflect the risk of individuals in that class Such selection is efficient, though it may be considered inequitable: those with higher morbidity, already afflicted, would pay more than the healthy for access to medical services.[2] Inefficiency results when information on individuals' risk classes is incomplete or there are constraints on using such information. In this situation, the healthy will then (inefficiently) ration their care so as to separate themselves from the sick so as to obtain a lower price.

Expectations of future spending are but one factor influencing health plan choice. Transition costs may be important too. Such costs, for example, arise if insureds are concerned with maintaining continuity with their physicians, or indeed with their plan. If sicker people are more hesitant about moving across plans, the result will be adverse retention: high risks will tend to stay, and only low risks will move. Theoretically, adverse retention is more of a problem for less generous plans than is adverse selection. With no adverse retention, less generous plans lose enrollees whose expected costs rise, and gain enrollees whose expected costs fall. With adverse retention, both types of plans keep their high-cost members.

If transition costs are sufficiently high, no one would move across plans. We call this situation complete retention, or aging in place. Its effect on the levels of costs between plans will depend on the way expected health spending increases with age. Generally, it has been observed, costs go up at an increasing rate with age. This implies that the plan with older enrollees will have the costs of its retained population increase more swiftly as time passes. This process will continue for a while, but ultimately, of course, people tip off the high end, through retirement or death. Thus, we would expect the "older" plan to switch and become the "younger" plan over time, albeit the cycle may be very long, and a plan may die from high costs on the path to ultimate rejuvenation.

In our empirical work, we examine the contribution of each of these three phenomena – adverse selection, adverse retention, and aging in place – to movement or lack thereof across plans, and the resulting cost implications. We estimate determinants of switching behavior and then incorporate these estimates into a simulation model to investigate long-term equilibrium outcomes. We find evidence that traditional adverse selection is a significant phenomenon, more important quantitatively than adverse retention. Adverse selection develops partly on the basis of expected medical spending, and partly on the basis of demographics. Older and sicker individuals move into more generous plans.

However, when premiums are heavily subsidized, adverse selection does not have a major impact on the long-term equilibrium distribution of insureds between plans. When levels of employee cost sharing are low, people do not significantly move across plans on the basis of medical spending, and the equilibrium without selection would look reasonably close to the one that comes with selection. In contrast, increases in premium cost sharing would have an enormous effect on the equilibrium. Raising the employee's share of the premium to the full additional amount of the high-cost plan, i.e., 100% of the cost differential would reduce enrollment in the high-cost plan by two-thirds.

This paper proceeds as follows. We begin with a theoretical discussion of the factors that influence movement between plans. Next we discuss the data used. In Section 3, we present estimated transition equations for movements between the two plans. In Section 4, we simulate the long-run impact of different factors influencing plan choice, examine how these selection factors interact with firm policies, and compute the equilibria that result. We distill the lessons in our conclusion.

## 1. Theory

The traditional story of insurance selection looks at two factors: price and expected spending.[3] The price includes both the premium the individual pays to enroll in the plan, and the cost of using services. Some group health insurance programs heavily subsidize the least expensive plan and then charge 100% of the premium differential to choose a more generous plan. Other groups subsidize more expensive plans more heavily. The cost of using services may also differ across plans, and an individual may choose to switch plans if an alternative plan offers lower out-of-pocket costs for the services she uses.

Expected spending is also important in determining the value of a plan. An individual who expects to incur significant costs in the next period purchases the more generous of two plans; a low-cost individual selects the moderate plan.[4] With people self-selecting in this way, the standard result is that the difference in average costs in the two plans will exceed the cost differential of serving the marginal person in the higher cost plan (Cutler and Zeckhauser, 2000). This produces the inefficiency that flows from adverse selection.

To facilitate exposition, we clarify some of the assumptions behind this result. We assume that all individuals have the same utility function, which includes both their tolerance for risk, and the direct utility benefits of the generous plan, e.g., its greater flexibility in choosing a doctor. We also assume the benefits of the generous plan are increasing in one's risk, and that individuals know their risk *ex ante*.[5] Thus, higher risk individuals will disproportionately value the generous plan. However, the insured's premium for either plan is the same for all.

Consequently, there will be a cutoff point for risk: all individuals above a certain risk level (or level of expected expenditure) will select the generous plan, while people below the cutoff will choose the moderate plan. This is the single (continuous) index model (Cutler and Reber, 1998).[6] Because people who have a higher probability of being sick opt into the generous plan, that plan will cost more for the marginal person than its generosity alone would dictate. As a result, too few people enroll in the generous plan. It is even possible that the generous plan will empty completely, in what is termed an adverse selection "death spiral."[7]

We will use the single index model as our benchmark, but some caveats should be stated. We have already left the world of first-

[2] That is, it is efficient given risk types. It is inefficient in that people cannot insure their risk type.

[3] Other factors that may affect plan choice might not affect efficiency, depending on the importance of those factors relative to price. For example, if personal preferences drive plan choice much more than does price, e.g., some individuals merely prefer a more generous plan, and low mobility reflects happiness with one's current plan, mispricing of the two plans need not generate inefficiency. We focus on factors that do affect efficiency.

[4] Some models only have probabilistic separation, i.e., people expecting higher costs are relatively more likely to choose the high-cost plan. Results are less stark with this assumption, but still in the same direction.

[5] Having individuals differ only in the probability of getting sick simplifies the exposition. The analysis works in much the same way if differential costs once sick drive the adverse selection.

[6] As Bundorf et al. (2008) point out, this assumes that the value of more generous coverage increases with risk more than the cost of more generous coverage, and that only risk matters for choice.

[7] Pauly et al. (2007) argue that movement out of the fee-for-service plan may reflect consumers learning that the product is worse for them, not just adverse selection.