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Research Paper Review: "Measuring Consumer Valuation of Limited Provider Networks"[1]

By Sarah Hoover, Brian Plaskow and J. Patrick Kinney

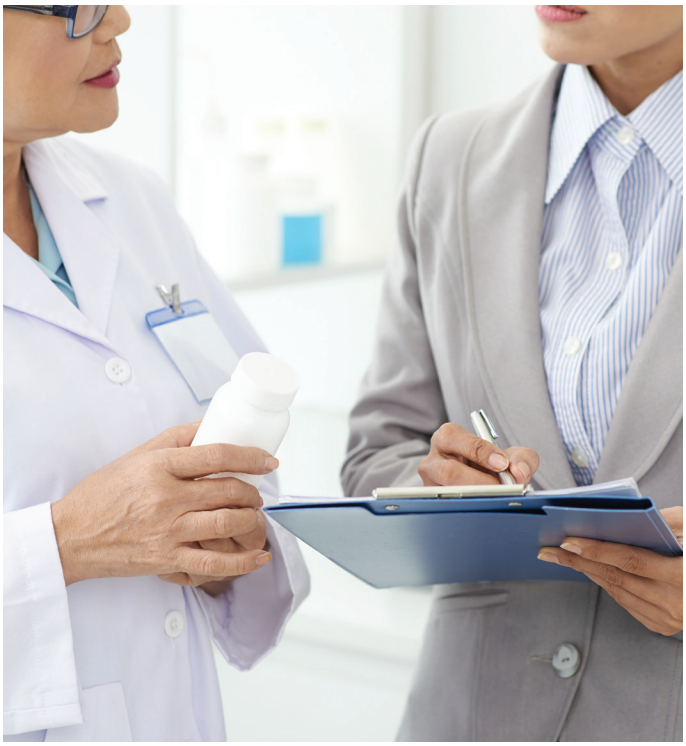
The Behavioral Finance subgroup of the Health Section will be publishing a series of literature reviews in Health Watch. *This is the first review of three in the series. Further information about the subgroup as well as links to the literature under review can be found at* https://www.soa.org/professional-interests/health/hlth-behavior-finance-sub.aspx.

One outcome of the Affordable Care Act (ACA) is the growing popularity of narrow networks among insurance plans. While the benefits of narrow networks from the plans' viewpoint are often discussed, much remains unknown from the consumer's viewpoint. "Measuring Consumer Valuation of Limited Provider Networks," by Keith Marzilli Ericson and Amanda Starc, describes an attempt to place an econometric value on consumers' preferences between broad and narrow networks.

OUTLINE OF PAPER

The authors examine data from the Massachusetts All-Payer Claims Database (APCD) and the Massachusetts Health Insurance Exchange (HIX) Commonwealth Choice program to determine the network value based on consumer selection and price data. The focus of their paper centers on available plans in the Boston area from November 2009 through February 2010. They construct network breadth measures based on several criteria, including percent of hospitals in network, percent of hospital admissions that would be covered by a network, and percentage of Academic Medical Center admissions covered by a network. The first of these is a simple measure that can be determined without access to claims data; available health plan networks during the time period studied included from 37.4 to 98.1 percent of hospitals in the state. The admissions-based statistics are highly correlated with the raw percentage of hospitals in-network, as one might expect.

The authors go on to calculate a demand-based measure of network coverage, using data for six distinct diagnosis categories, to determine an average "consumer surplus" measure for each network. This model will be less familiar to actuaries, as it relies on methods from the hospital merger literature. It also relies



heavily on detailed individual membership and claims data from the APCD.

Using each of the network breadth measures, combined with plan premium data, the authors model a utility function, varying by age, which allows them to estimate consumers' comparative "willingness-to-pay" (WTP) for various networks. The authors conclude that the network design is a predictor of consumer selection. Consumers are willing to pay substantially higher premiums for broader networks, with the older population placing even more value on broader networks. Additionally, they show that consumers seem to value inclusion of "star" brand-name hospitals (in this case, Massachusetts General Hospital) in a health plan network.

ACTUARIAL OBSERVATIONS

To health actuaries, these conclusions are hardly news; the precise analytical quantification of consumer WTP using the authors' predictive analytical techniques may be of interest. Perhaps further, such a study of actual consumer choices could inform health plans' hospital negotiation strategies in subsequent years.

Understanding the consumers' preferences, motivation and willingness to pay can assist actuaries in pricing and designing products with various network configurations, mindful of the health insurance consumer. In particular, it would be useful to study whether consumers' revealed financial preferences parallel differences in expected claim costs between broad and nar-

row networks. While the paper's analysis was driven by hospital networks, similar approaches may provide insight into physician group preferences of consumers in a given area. Another avenue for further research might include studying whether consumer preferences vary by income level. The data in this study was from a population who can afford choice; different preferences may become apparent in the subsidized individual ACA plan marketplace, even within the same geography. It would also be interesting to determine if the paper's results would be replicated in other geographies, where the practice patterns and/or degree of medical management are different than in Boston.

Although the paper's analysis is based on individual health insurance product offerings, its methods and conclusions may be useful in other markets. For instance, quantifiable understanding of which providers in a geography are most valued by employees may be applicable in plan design for large self-funded employers, such as using WTP analysis in setting employee contribution levels for various plan options.

Other actuarial questions prompted by this research paper might include:

- How does preference for network breadth interact with preferences for benefit design richness?
- Does variation in unit cost completely capture pricing variation between broad/narrow products?
- What (if any) impact does a broad network have on inducing utilization? Similarly, what (if any) impact does a narrow network have on reducing utilization?
- How does member preference and WTP for network breadth impact attribution and measurement for provider risk-sharing arrangements?

In conclusion, the article introduces actuaries to an analytical tool that demonstrates and confirms certain things that actuaries have observed empirically, and provides food for thought to stimulate further research. The specific methodology applied in this paper may not always be the right tool for the job. The key takeaway for actuaries is that we must be open to new methods to study demonstrated consumer choice behavior, in order to develop and support practical applications within health insurance markets. ■

Sarah Hoover, FSA, MAAA, is a director and actuary with Health Care Service Corporation in Richardson, Texas. She can be reached at *sarah_hoover@bcbstx.com.*

Brian Plaskow, ASA, MAAA, is a director of actuarial services with Molina Healthcare in Long Beach, California. He can be reached at *brian.plaskow@molinahealthcare.com.*

J. Patrick Kinney, FSA, MAAA, is a managing actuary with Medamerica Insurance Company in Rochester, New York. He can be reached at *patrick.kinney@medamericaltc.com.*

ENDNOTE

[1] Keith Marzilli Ericson and Amanda Starc, "Measuring Consumer Valuation of Limited Provider Networks," *American Economic Review: Papers and Proceedings,* 2015, 105(5):115–119.