

**PROJECT TITLE:****WHO DO PATIENTS LISTEN TO?****The Case of Report Cards and HMO Advertising****PROJECT DESCRIPTION:**

**ABSTRACT:** Consumers of healthcare insurance make decisions in the context of limited information from unbiased government report cards and biased health plan advertising. To understand these decisions under uncertainty, I will explore two 'natural experiments'. First, the distribution of government-mandated HMO report cards from the National Medicare Education Program (NMEP) to 40 million Medicare enrollees in 1999 and 2000 provides a natural setting to study the role and influence of information. Second, the introduction of health plan report cards in Pennsylvania in 2000 (using data from 1998) will allow me to explore how HMOs respond to this information shock by adjusting their own behavior. I plan to study the response of "high" and "low" quality-rated HMOs to these report cards, both in terms of strategic investments to improve HMO quality (and improve ratings) as well as changes in advertising behavior across geographically- and competitively-varied healthcare markets. On the demand side, I want to model how Medicare enrollees integrate information under uncertainty and make decisions to switch between HMOs based on health plan advertising and report cards.

**LITERATURE REVIEW:** Nelson (1974)<sup>1</sup> promotes that a firm's advertising expenditures are a signal of their unobserved quality. Formalized in Kihlstrom and Riordan (1984)<sup>2</sup> and Milgrom and Roberts (1986)<sup>3</sup> is the idea that in equilibrium, low-quality firms will not advertise extensively (since inducing a trial of their low-quality product would limit future consumption), whereas high quality firms will. Empirical verifications of these advertising models are limited<sup>4</sup>, especially in the healthcare insurance context. In contrast, much has been written about the role of report cards in signaling quality, specifically about health plans<sup>5,6,7,8,9,10,11,12,13,14</sup>.

<sup>1</sup> Nelson, P., 1974. Advertising as information. *Journal of Political Economy* 82, 729-754.

<sup>2</sup> Kihlstrom, R., Riordan, M., 1984. Advertising as a signal. *Journal of Political Economy* 92, 427-450.

<sup>3</sup> Milgrom, P., Roberts, J., 1986. Price and advertising signals of product quality. *Journal of Political Economy* 94, 796-821.

<sup>4</sup> Horstmann, Ignatius & MacDonald, Glenn, 2003. "Is advertising a signal of product quality? Evidence from the compact disc player market, 1983-1992," *International Journal of Industrial Organization*, Elsevier, vol. 21(3), pages 317-345, March.

<sup>5</sup> Dowd, B., Moscovice, I., et al. (1994), "Health Plan Choices in the Twin Cities Medicare Market," *Medical Care*, 32(10) 1019-1039.

<sup>6</sup> Feldman, R., Christianson, J., Schultz, J. (2000), "Do Consumers Use Information to Choose A Health Care Provider System?" *Millbank Memorial Quarterly*, 78(1): 47-77.

<sup>7</sup> Beaulieu, N. D. (2002), "Quality Information and Consumer Health Plan Choices," *Journal of Health Economics*, 21:43-63.

<sup>8</sup> Schneider, E.C., Zaslavsky, A.M., Landon, B.E., Lied, T.R., Sheingold, S., and P.D. Cleary, (2001), "National Quality Monitoring of Medicare Health Plans: The Relationship Between Enrollees' Reports and the Quality of Clinical Care," *Medical Care*, 29(12): 1313-1325.

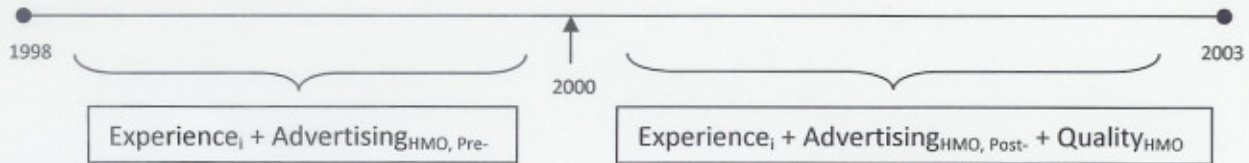
<sup>9</sup> Chermew, M., Gowrisankaran, et al. (2004), "Quality and Employers' Choice of Health Plans," *Journal of Health Economics*, 23: 471-492.

<sup>10</sup> Scanlon, D., Chermew, et al. (2002), "The Impact of Health Plan Report Cards on Managed Care Enrollment," *J of Health Econ*, 21:19-41.



However, little to none has been written about the interactions of firm advertising and report cards, specifically in the health plan context.

**DATA:** (1) Medicare HMO enrollment data from Medicare Managed Care Quarterly State/County/Plan Data files, 1996-2003; (2) plan-level quality information from *Medicare & You 2000 and 2001* (from Medicare HEDIS files & COMPARE databases); (3) HMO advertising by markets from VMS; (4) annual NACQ-HMO reports to Pennsylvania/New York/New Jersey; (5) plan ratings from US News & World Reports from 1997 and 1998; (6) InterStudy® data on health plans; (7) Report cards from Pennsylvania, New York, and New Jersey.



**IDENTIFICATION:** 40 million Medicare enrollees received HMO plan ratings via mail in 1999 and 2000, providing a natural experiment setup to study supply-side and demand-side information effects. Data from two years prior to the intervention will allow me to control for trends in plan switching, differences in baseline HMO quality and advertising levels, and HMO non-advertising expenditures. Fixed-effects panel data analysis would be employed. While report card release will be similar across different markets, the amount of advertising by individual HMOs will allow quantification of the role of advertising in generating and shifting demand. Comparing “new” (65-66 year olds) and “old” Medicare enrollees will help identify the role of experience in choice of health plan.

For the introduction of report cards in Pennsylvania in 2000 (using 1998 data), I will use a difference-in-difference analysis to study how the experience of Pennsylvania differed from states that still did not have report cards and states that already did. I will model the first stage as the HMO’s decision to participate in providing data for report cards or not. The second stage would be the decision of how much to invest in quality and/or advertising. I will then incorporate this into an analysis of how consumers can make optimal decisions about health plan choice under different scenarios of quality/advertising intensities.

<sup>11</sup> Chernew, M., Gowrisankaran, G., and D. Scanlon (2006), “Learning and the Value of Information: Evidence from Health Plan Report Cards,” NBER Working Paper 8589.

<sup>12</sup> Abraham, J.M, Feldman, R., Carlin, C. and J. Christianson (2006), “The Effect of Quality Information on Consumer Health Plan Switching: Evidence from the Buyers Health Care Action Group,” *Journal of Health Economics*, 25(4): 599-802.

<sup>13</sup> Jin, Ginger Z. and Alan Sorensen (2006), “Information and Consumer Choice: The Value of Publicized Health Plan Ratings,” *Journal of Health Economics*, 25(2): 248-275.

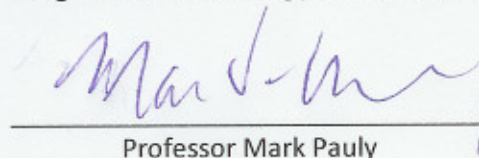
<sup>14</sup> Dafny, L., Dranove, D. “Do Report Cards Tell Consumers Anything They Don't Already Know? The Case of Medicare HMOs,” *NBER WP 11420, revised and resubmitted to RAND Journal of Economics (June 2007)*



**QUESTIONS:** (1) I want to test different models of consumer decision-making, particularly looking at the issue of how consumers judge the quality of firms that decide not to participate in report cards. A sophisticated consumer might appreciate the multi-stage game played by the firms and act accordingly, while the unsophisticated consumer might just assume that the lack of quality information implies that the firm is of average quality. The arguably exogenous introduction of report cards will allow us to test these different models of consumer decision-making under uncertainty. (2) In the decision of choosing a health plan, how do consumers respond to government-mandated report cards mixed with advertising? (3) How do "low" and "high" quality firms react differently to the widespread release of report cards, in terms of advertising expenditures and investments in quality? Or more simply, do firms of high quality use signaling to relay underlying quality? (4) Does increased HMO competition yield better information for consumers?

**CONCLUSION:** Consumers in the health plan market experience many levels of uncertainty: How (un)reliable is advertising? Even with a health plan report card, why are certain plans not choosing to participate? And for health plans that are reported, how well do report card measures indeed estimate true quality? While answering these questions will be beyond the scope of a single study, this empirical work will be a first step in disentangling the role of report cards and advertising in consumers making decisions about health plans under uncertainty. The goal will also be to understand how health plans make decisions that influence that uncertainty, by advertising or reporting on their quality measures in report cards. This work will also be a novel empirical test of the economic models, such as the one by Kihlstrom and Riordan (1984), where advertising serves as strategy to signal quality.

**Primary Faculty Advisor:**



Professor Mark Pauly

**Budget:**

Purchase of historical health plan data from InterStudy®:	\$2000
Purchase of historical DMA maps from Nielson Media Research	\$500

**Additional Support:**

NRSA Fellowship in Health Economics: Tuition/Stipend support