

Competition in Health Insurance Exchanges

Working Paper

(do not cite)

Cameron M. Ellis* Joshua Frederick†

July 15, 2015

Abstract

The stated purpose of the health insurance marketplaces (health exchanges) set up under the Patient Protection and Affordable Care Act was to encourage competition among health insurers with the ultimate goal of lower premium prices for consumers in the individual insurance market. Health insurance premiums can be separated into two parts, medical cost and load, which insurer competition has opposing effects on. In order to fully examine the competitiveness of the health exchanges, we establish a two-sided market model of premium pricing and find that prices are determined largely between the bargaining of the hospital and insurer. We find no significant evidence that insurers are able to exercise market power over consumers.

JEL Codes: **D43, I13, I18, G22**

Keywords: **Affordable Care Act, Health Insurance, Multi-sided Markets**

*Terry College of Business, University of Georgia, cellis21@uga.edu

†Terry College of Business, University of Georgia, jdf58625@uga.edu

Introduction

The cost of the “insurance portion” of health insurance (the price above medical costs) has grown from .34% of GDP in 1980 to over 1% today. The stated, and hotly debated, purpose of the health insurance marketplaces (health exchanges) set up under the Patient Protection and Affordable Care Act was to promote competition among health insurers in order to lower premium prices for consumers. However, more competition among insurers does not necessarily lead to lower premiums. There are two distinct aspects of health insurance premiums, medical cost and load, which insurer competition has theoretically opposing effects on. Exploiting the health insurance exchanges of the Affordable Care Act as a natural laboratory, we find that premiums are determined largely between the bargaining of the hospital and insurer. We find no significant (statistical or economic) evidence that insurers are able to exercise market power over consumers.

The study of health insurance is the focus of a large portion of the health economics literature, most of which has concentrated on issues with asymmetric information (e.g. McGuire, 2000; Einav et al., 2010, 2013; Breyer et al., 2012).¹ The debate, and subsequent passage, of the Affordable Care Act (ACA) has led to a recent surge in the literature. Much of the debate surrounding the ACA centered on how best to promote insurer competition under the premise that increasing insurer competition would necessarily leads to lower premiums. However, this ignores that the market for health care is two-sided. Increasing competition between insurers should lead to a reduction in the load portion of the premium, but the subsequent reduction in bargaining power in their negotiations with health providers will lead to an increase in the medical cost portion of the premium, leaving the overall effect ambiguous. Originating with Galbraith (1970) the general idea of upstream and downstream firms negotiating is not new but, until recently, the majority of the empirical literature on the health insurance was dichotomously split between the insurer-provider side and the insurer-consumer side. It has been difficult for researchers to separate the effects on each side of the

¹See Zweifel et al. (2009) for a thorough discussion of this topic.

market since the variable of interest, insurer market structure, overlaps both equations. In the past, to address this question, the researcher would need consumer-level data with both insurance policy and health expenditure data with exceptionally local geographic identifiers. However, the health insurance exchanges created by the ACA provide a unique opportunity to examine this question. The size of the exchanges pales in comparison to employer-based insurance and thus is unlikely to affect the negotiations between insurers and hospitals. This allows us to exploit the within-market variation in insurer market power between the general market and the exchanges to isolate the effects of competition.

On the insurer-consumer side, Dafny (2010) was one of the first modern studies on competition in the health insurance market.² Dafny develops a bargaining model between insurance firms and large employers and examines the effects of shocks to the profitability of the employers. If insurers possess market power, they will be able to extract rents from the employers profit shocks. Dafny finds evidence that the effect of employer profitability on premiums moves counter to the number of insurers in the market. Dafny et al. (2012) uses the Aetna-Prudential merger as an instrument for HHI in a structure-conduct-performance style model. After accounting for the endogeneity of HHI, they find that insurers do have market power on the consumer side. Dafny et al. (2012) also recognize that insurers may have bargaining power with regard to health providers. To check for this, they examine the effect of insurer concentration on changes in earnings and employment for physicians and nursing staff. They find significant effects for a reduction in physician earnings and an increase in nursing employment. Though weak, these results are consistent with insurers having monopsony power. Dranove et al. (2003) examine competition among HMOs by

²A significant reason behind the lack of researchers attention to such an important topic is the lack of adequate data. The Medical Expenditure Panel Survey contains detailed, household-level data, but are derived from surveys of about 4,000 households. As such, there is no reliable way to observe the prices and details of the insurance options not chosen or to reliably estimate the market shares of the insurance firms. State-level market shares are obtainable from the regulatory filings of the National Association of Insurance Commissioners (NAIC), but these are firm specific and not at the plan level. MSA level market shares are available through the AMA. Additionally, since most insurance policies restrict the insured to a mostly local network of providers and price based on geographic underwriting, the market for health insurance is typically smaller than a state. See Dafny et al. (2011) for a more comprehensive look at the issues with the current health insurance industry data.

adapting the methods developed by Bresnahan and Reiss (1991). Similar to Dafny (2010) and Dafny et al. (2012), they find evidence of imperfect competition.³

The literature is more robust on the insurer-provider side, largely due to the Federal Trade Commission’s interest in the effects of hospital mergers. Town and Vistnes (2001) explicitly model the bargaining between HMO networks and hospitals finding that hospital market power is an important determinant of price however, they do not address any competition on the insurer side.

However, the passage of the Affordable Care Act in March 2010 dramatically altered the health insurance market landscape, creating a large gap in the literature. Dafny et al. (2014) exploits the, admittedly, outdated data from Dafny (2010) and United Healthcare’s decision to not participate in any of the federally run exchanges to instrument for market structure in the first year of the health insurance exchanges. Dafny et al. find evidence that a larger number of insurers in a given market tends to lower premiums. Kowalski (2014) uses the quarterly NAIC data to examine state-level market decisions and estimates the welfare effects of various market-creation decisions and executions over the first half of 2014, finding that individuals in the “direct enforcement” states are suffering a welfare loss of approximately \$245 per participant.

The paper proceeds as follows: The next section discusses some institutional mechanics of the Affordable Care Act, the 3rd section presents the Model, the 4th section describes the data and details our results, the final section offers conclusions.

Institutional Mechanics

The Patient Protection and Affordable Care Act (ACA), passed in March 2010, was a dramatic reform to the health insurance industry: health insurance firms are no longer allowed to price based preexisting conditions, variations in premiums over time are limited,

³See chapter nine of Pauly et al. (2012) for a more detailed overview of research in the pre-ACA health insurance markets.

coverage is mandatory, and online marketplaces were established in every state, in addition to numerous other more minor reforms. The marketplaces play a key role in the goal of expanding coverage. Federal subsidies are only available to those who purchase policies from the Health Insurance Exchange (HIX). The purpose of the HIXs is to promote competition between health insurance companies in the individual and small-group market.

States had three separate paths to the development of their HIXs: design and manage their own, let the federal government design and manage it, or some hybrid approach.⁴ Regardless of the path chosen, all of the HIXs run in the same general manner. There are five possible tiers of plans. Catastrophic, high-deductible, plans are the lowest rung, with the other 4 tiers based on the expected share of healthcare spending the plan covers and identified by different metals: bronze (60%), silver (70%), gold (80%), and platinum (90%).

Outside of the additional standardization of covering “essential health benefits” and a maximum out-of-pocket expenditure (\$6,350 for individuals, \$12,700 for families), insurers are able to tailor their policies in nearly any way, so long as they are within 2% of the targeted actuarial-value and the mandated benefits are covered. Premiums are required to be community-rated and can vary only across ratings areas, age, tobacco use, and family composition. Aside from these restrictions, Insurers are free to set their own initial premiums, but there exists regulation on increasing rates; any rise in premiums greater than 10% must be subject to approval. There also exists a minimum, plan-level, medical loss ratio; all medical loss ratios must exceed 80% for individual and small-group markets and 85% for large-groups else refunds are issued.⁵

Model

Let premium $Prem_{pmf}$ be defined as:

⁴16 states and DC selected the first option, 27 selected the second, and 7 pursued the third.

⁵See Abraham and Karaca-Mandic (2011) for an in-depth discussion of focusing regulation on the medical loss ratio.

$$\begin{aligned}
Prrice_{pmf} &= \mathcal{B}(MSPE_m, H - HHI_m, I - HHI, i - HHI) + \mathcal{L}(Num_Firms_m, X_{pmf}) + \epsilon_{fpm} \\
\mathcal{B}(\cdot) &= \alpha_0 + \alpha_1 MSPE_m + \alpha_2 H - HHI_m + \alpha_3 I - HHI + \alpha_4 I - HHI * i - HHI \\
\mathcal{L}(\cdot) &= \beta Num_Firms_m + \gamma X_{pmf}
\end{aligned}$$

Where $Price_{pmf}$ is the premium for plan p , firm f , in market m ; $MSPE_m$ is the medicare spending per enrollee in market m , $H - HHI_m$ is the Herfindahl-Hirschman index for hospitals in market m , $I - HHI$ is the interaction of the Herfindahl-Hirschman index for market m and insurer f 's share in the same market. Num_Firms is the number of firms participating in the exchange in market m ; X_{pmf} is a vector of plan, market, and firm controls; ϵ_{fpm} is the statistical residual.

$\mathcal{B}(\cdot)$ represents the expected price of medical care that is determined through a bargaining problem between the insurer and the hospitals based on the expected cost of medical care and the relative market power of each side. $\mathcal{L}(\cdot)$ represents the price above expected cost the insurer charges to the consumer (often referred to as the “load”). This is determined through the insurer’s market power on the exchanges as well as local characteristics that might influence demand. This is the true “price” of insurance and what needs to be examined to determine the level of competition.

Data and Results

The data for this paper are drawn from a number of sources. The policy details come from Healthcare.gov and the covariates include the metal level of the policy and the policy type (HMO, PPO, POS, EPO). The market covariates are pulled from the CBSA-level statistics from the Dartmouth Health Atlas and include average Medicare spending per enrollee (to proxy for underlying healthcare cost variation), population, and level of “urban-

ness”. CBSA-level hospital market share (based on total revenues) data is derived from Medicare cost reports. State-level health insurer market shares (based on premiums written) are drawn from the 2013 NAIC regulatory filings. These data contain detailed financial data for all health insurers including: revenues, expenses and income, and managed care information that is state-level and line-level.⁶ Descriptive statistics can be found in Table 1.

The regression results are presented in Table 2. The hospital - insurer bargaining covariates load as expected and are, generally, statistically significant. The estimates are economically significant as well. Our model predicts that a move from a monopoly insurer to a competitive insurer (in the general market, not the exchanges) would lower premiums by around \$24 per month. A similar counter-factual on the hospital side would increase premiums by around \$30 per month. Counter to prior work on the level of competition in the exchanges, we find no evidence of firms being able to exercise market power over consumers.

Conclusions

The stated purpose of the health insurance marketplaces (health exchanges) set up under the Patient Protection and Affordable Care Act was to encourage competition among health insurers with the ultimate goal of lower premium prices for consumers in the individual insurance market. However, more insurers does not necessarily lead to lower premiums. Health insurance premiums consist of two distinct parts, medical cost and load, which insurer competition has opposing effects on. In order to fully examine the competitiveness of the health exchanges, we establish a two-sided market model of premium pricing and find that prices are determined largely between the bargaining of the hospital and insurer. We find no significant evidence that insurers are able to exercise market power over consumers.

There are two main shortcomings of this work. The first is that market structure, both in the exchanges and the general market, is surely endogenous. While we do have a number

⁶All of the market-level covariates are from 2013 instead of 2014 since the prices were determined prior to the open enrollment period in 2014.

of market level controls, there are undoubtedly variables that remain omitted. The three typical methods of addressing this concern (Instruments, Structural Modeling, and Panel methods) do not readily apply themselves to this specific market structure.⁷

The second shortcoming is the reliance on state-level measures of insurer market share. As Dafny (2010) points out, the market for a given health insurer is smaller than the state so we are introducing some measurement error by using the state-level shares as a proxy for the CBSA-level shares. The remedy to this would be more localized data.

⁷Panel methods, such as first-differencing between the 2014 and 2015 markets, sound tempting but are logically unsound. Despite being named the same across years, the policies are not directly comparable; policy details often change without reporting that is observable to the econometrician.

Bibliography

- Abraham, Jean M and Pinar Karaca-Mandic**, “Regulating the medical loss ratio: implications for the individual market,” *Am J Manag Care*, 2011, 17 (3), 211–218.
- Bresnahan, Timothy F and Peter C Reiss**, “Empirical models of discrete games,” *Journal of Econometrics*, 1991, 48 (1), 57–81.
- Breyer, Friedrich, M Kate Bundorf, and Mark V Pauly**, “Health care spending risk, health insurance, and payment to health plans,” *Handbook of Health Economics*, 2012, 2, 691–762.
- Dafny, Leemore, David Dranove, Frank Limbrock, and Fiona Scott Morton**, “Data Impediments to Empirical Work on Health Insurance Markets,” *The BE Journal of Economic Analysis & Policy*, 2011, 11 (2).
- , **Jonathan Gruber, and Christopher Ody**, “More Insurers Lower Premiums: Evidence from Initial Pricing in the Health Insurance Marketplaces,” *Working Paper*, 2014.
- , **Mark Duggan, and Subramaniam Ramanarayanan**, “Paying a Premium on Your Premium? Consolidation in the US Health Insurance Industry,” *The American Economic Review*, 2012, 102 (2), 1161–1185.
- Dafny, Leemore S**, “Are Health Insurance Markets Competitive?,” *The American Economic Review*, 2010, pp. 1399–1431.
- Dranove, David, Anne Gron, and Michael J Mazzeo**, “Differentiation and competition in HMO markets,” *The Journal of Industrial Economics*, 2003, 51 (4), 433–454.
- Einav, Liran, Amy Finkelstein, and Mark R Cullen**, “ESTIMATING WELFARE IN INSURANCE MARKETS USING VARIATION IN PRICES,” *The quarterly journal of economics*, 2010, 125 (3), 877.

– , – , and **Stephen P Ryan**, “Selection on Moral Hazard in Health Insurance,” *American Economic Review*, 2013, *103* (1), 178–219.

Galbraith, John Kenneth, *American capitalism: The concept of countervailing power*, Vol. 619, Transaction Publishers, 1970.

Kowalski, Amanda E, “The Early Impact of the Affordable Care Act State-By-State,” *Working Paper*, 2014.

McGuire, Thomas G, “Physician agency,” *Handbook of health economics*, 2000, *1*, 461–536.

Pauly, Mark V, Thomas G McGuire, and Pedro Pita Barros, *Handbook of Health Economics*, Vol. 2, Elsevier, 2012.

Town, Robert and Gregory Vistnes, “Hospital competition in HMO networks,” *Journal of health economics*, 2001, *20* (5), 733–753.

Zweifel, Peter, Friedrich Breyer, and Mathias Kifmann, *Health economics*, Springer, 2009.

Tables

Table 1

Descriptive Statistics		
Variable	Mean	Std. Dev.
State/CBSA Level		
<i>Insurer HHI</i>	0.2701	0.1165
<i>Insurer Share</i>	0.0823	0.1404
<i>Hospital HHI</i>	0.2169	0.2306
<i># Firms</i>	3.6595	2.0288
<i>Population (logged)</i>	11.3700	1.5119
<i>Urban</i>	3.0690	2.2878
<i>Med. Per Enrollee (logged)</i>	9.1319	0.1186
N = 163		
Policy Level		
<i>Premium * Platinum</i>	310.7351	40.1630
<i>Premium * Gold</i>	286.6117	44.0931
<i>Premium * Silver</i>	243.9484	44.2113
<i>Premium * Bronze</i>	207.1418	37.9654
<i>Premium * Catastrophic</i>	171.5896	31.9404
<i>Platinum</i>	0.0838	.
<i>Gold</i>	0.2583	.
<i>Silver</i>	0.3516	.
<i>Bronze</i>	0.2468	.
<i>Catastrophic</i>	0.0596	.
<i>HMO</i>	0.2677	.
<i>PPO</i>	0.4486	.
<i>POS</i>	0.0719	.
<i>EPO</i>	0.2118	.
N = 10,792		

Table 2

Regression Analysis		
Variable	Coefficient	P-Value
<i>Dependent Variable: Price</i>		
Variables of Interest		
<i>Insurer HHI</i>	-04.9196	0.0965*
<i>Insurer Share</i>	-02.0415	0.4504
<i>Ins. HHI * Share</i>	-19.0289	0.0411**
<i>Hospital HHI</i>	29.8396	0.0016**
<i>Num. Firms</i>	0.1156	0.9306
Controls		
<i>Med. Per Enrollee (logged)</i>	-1.4291	0.9428
<i>Population (logged)</i>	-2.5004	0.2041
<i>Urban</i>	-0.5329	0.6368
<i>Platinum</i>	118.9165	0.0000***
<i>Gold</i>	85.0919	0.0000***
<i>Silver</i>	42.8952	0.0000***
<i>Catastrophic</i>	-28.6245	0.0008***
<i>HMO</i>	-6.1398	0.4436
<i>PPO</i>	34.4978	0.0060***
<i>POS</i>	18.11712	0.1757
Firm Effects: Yes		
State Effects: Yes		
Adjusted R-Squared	0.4764	
F-statistic	156.9 (10,728 DF)	0.000***

Note: This table presents the regression results with *Price* as the dependent variable. P-Values calculated from heteroskedasticity-robust standard errors are shown.