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Differing Impacts Of Market Concentration On Affordable Care Act Marketplace Premiums

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ABSTRACT Recent increases in market concentration among health plans, hospitals, and medical groups raise questions about what impact such mergers are having on costs to consumers. We examined the impact of market concentration on the growth of health insurance premiums between 2014 and 2015 in two Affordable Care Act state-based Marketplaces: Covered California and NY State of Health. We measured health plan, hospital, and medical group market concentration using the well-known Herfindahl-Hirschman Index (HHI) and used a multivariate regression model to relate these measures to premium growth. Both states exhibited a positive association between hospital concentration and premium growth and a positive (but not statistically significant) association between medical group concentration and premium growth. Our results for health plan concentration differed between the two states: It was positively associated with premium growth in New York but negatively associated with premium growth in California. The health plan concentration finding in Covered California may be the result of its selectively contracting with health plans.

In July 2015 two major health plan mergers were announced: Anthem announced a \$54 billion deal to buy Cigna, and Aetna announced a \$37 billion deal to buy Humana. If these mergers pass regulatory scrutiny, the field of large national health plans will decrease from five to three, with UnitedHealthcare being the third. Medical providers are also merging: Hospital mergers and acquisitions increased by 44 percent from 2010 to 2014.¹ What impact will all of this consolidation have on consumers? In particular, how will health insurance premiums change as a result? These timely questions motivated us to examine the relationship between health insurance premiums and both health plan and provider market power in the Affordable Care Act (ACA) Marketplaces.

Health plans take on risk and serve as intermediaries between consumers and medical pro-

viders, including hospitals and medical groups. On the one hand, consolidation could produce scale economies for health plans and give them increased leverage in negotiations with hospitals and medical groups, both of which position health plans to potentially offer lower premiums to consumers. On the other hand, higher premiums could result from plans' exercising their increased market power. The impact of health plan consolidation will likely vary among markets. For example, a health plan's negotiation leverage with a provider depends partially on the plan's ability to exclude a provider from its networks, which may not be possible in markets with few providers because of consumers' preferences or network adequacy requirements.

This study explored the impact of health plan, hospital, and medical group market power on the growth of health insurance premiums between 2014 and 2015 in Covered California

and NY State of Health, two of the ACA's state-based Marketplaces. We selected these states because they both release health plan premium and enrollment data at the rating area level and because they are large and important states with different active-purchaser Marketplace policies.² Covered California stipulates a standard benefit design and selectively contracts and directly negotiates premiums with health plans. NY State of Health serves as a market organizer that manages product choices and places limits on the number and type of products that health plans can offer but does not selectively contract with health plans. It also has a standard benefit design requirement but allows health plans to offer up to three nonstandard products per county.³

Impact Of Concentration On Premiums

In this section we review studies on provider (hospital and medical group) and health plan concentration.⁴

PROVIDER CONCENTRATION Numerous studies suggest that greater hospital concentration is associated with higher hospital prices.⁵ Hence, we expected hospital concentration to be positively associated with premium growth.

Until recently, there had been little work addressing how medical group concentration affects physician prices. In 1983, 20 percent of physicians worked in practices with eleven or more physicians, but by 2014 this percentage almost doubled to 39 percent.⁶ With more physicians joining medical groups, studies show that today's physicians have the market power to negotiate higher reimbursement prices.⁷⁻⁹

HEALTH PLAN CONCENTRATION Unlike the case of provider concentration, where higher concentration is expected to lead to higher prices, the impact of health plan concentration on premiums is theoretically ambiguous.^{10,11} As found in a number of studies, greater plan concentration can lead to higher premiums as health plans exercise market power over purchasers.^{10,12-15} Although studies have found that greater plan concentration has given health plans the necessary bargaining power to negotiate lower provider prices,^{16,17} there is little evidence that these savings are then passed through to consumers in the form of lower premiums.^{10,15}

Pass-through to consumers becomes more likely as both the competitiveness of the health insurance market and the threat of market entry by other plans increase. Pass-through may also be more likely in light of changes made by the ACA. Health insurance premiums are now heavily regulated via federal and state rate review authority and the federal medical loss ratio require-

ment.¹⁸ States' prior-approval authority over rates was found to be associated with lower health insurance premium growth from 2010 to 2013 in the individual market.¹⁹ Victor Fuchs and Peter Lee argue that savings pass-through will occur because the federal medical loss ratio requires health plans in the individual market to spend 80 percent of every premium dollar on consumer medical claims and activities that improve the quality of care.²⁰

There has been very little research on the effects of plan concentration in the post-ACA period. Early evidence from the Marketplaces suggests that increased health plan competition leads to lower premiums. Leemore Dafny and colleagues studied the impact of competition on premiums by exploiting variation in rating area-level competition induced by UnitedHealthcare's decision not to participate in any of the federally facilitated Marketplaces during the first year of open enrollment.²¹ The authors estimate that the second-lowest-price silver premium (which is linked to federal subsidies) would have decreased by 5.4 percent, on average, had UnitedHealthcare participated.

Study Data And Methods

HEALTH INSURANCE PREMIUMS Health insurance premium data came from Covered California²² and NY State of Health²³ for the 2014 and 2015 plan years. In each state there are five coverage tiers with the following actuarial values (percentage of medical expenses covered by the plan for an average individual): catastrophic (less than 60 percent), bronze (60 percent), silver (70 percent), gold (80 percent), and platinum (90 percent). We focused our analyses on silver-tier premiums because the majority of plan enrollment—63 percent in California and 58 percent in New York—was in the silver tier in 2015.^{24,25}

In California we focused on premiums for forty-year-old individuals. Because premiums for other ages are proportional to premiums of forty-year-olds, our results would be similar for different age groups. In New York premiums were the same for each age group because New York does not allow age-based pricing.

An observation in our data set was the premium of a standard benefit product that was observed in both years.²⁶ Each standard product is defined by a health plan, rating area, and product type (health maintenance organization, exclusive provider organization, preferred provider organization, or point-of-service plan). In both states most health plans offered only one standard product in a rating area. In California there were ninety-one and ninety observations in 2014

and 2015, respectively, and eighty-two of these observations were in both years. In New York there were sixty-four and sixty-three observations in 2014 and 2015, respectively, and fifty-seven of these were in both years. Neither California nor New York had significant insurer entry into or exit out of its Marketplace between 2014 and 2015. California had one plan exit (Contra Costa Health Services). New York had one plan enter (WellCare of New York) and one plan exit (Today's Options of New York). Each of these one-year plans had less than 1 percent of statewide Marketplace enrollment in the year it participated.

CONCENTRATION MEASURES For each rating area, we calculated the health plan, hospital, and medical group Herfindahl-Hirschman Index (HHI).²⁷ The HHI is calculated by squaring the market shares of each firm and then summing the values across all firms.²⁸ The HHI can range from 0 to 10,000, with 10,000 corresponding to a market with one firm. The Horizontal Merger Guidelines, published by the Department of Justice and the Federal Trade Commission, classify markets by the HHI as follows: unconcentrated (below 1,500), moderately concentrated (between 1,500 and 2,500), and highly concentrated (above 2,500).²⁹ Increases in the HHI are thought to be associated with a decrease in competition and an increase of market power.

We calculated rating-area health plan HHIs in California and New York using ACA Marketplace rating-area enrollment shares for 2014.^{22,30} We calculated rating-area hospital and medical group HHIs using county-level HHIs. When a rating area included two or more counties, we weighted county-level HHIs based on the county's population to calculate rating-area HHIs. Hospital market shares were based on the number of hospital beds, using data from the American Hospital Association's 2010 Annual Hospital Survey.³¹ Medical-group market shares were based on the number of physicians in a group, using data from the 2011 IMS Health Physician Insights database.³²

HEALTH CARE COST ADJUSTMENT The Medicare hospital prospective payment system adjusts payments to hospitals based on the local market conditions facing each hospital, including wage rates. We used the fiscal year 2015 Medicare area wage index tables to control for rating-area differences in the cost of providing care.³³

STATISTICAL MODELS Our statistical models were designed to align with how health plans set premiums. Plans set 2015 premiums by starting with 2014 premiums, which we included in our model, and then made adjustments based on how health care expenditures compared to these premiums. Health care expenditures are driven

In both states, more concentrated hospital markets were associated with higher premium growth.

by health care utilization, which we could not model, and unit prices, which we modeled using plan and provider concentration measures as well as the Medicare area wage index. Finally, plans may adjust premiums based on their goals, such as wanting to gain market share with lower premiums versus short-term profits with higher premiums.

We used a multivariate regression model to estimate the association between 2014 and 2015 premium growth and market concentration. Our model was estimated separately for California and New York. We regressed 2015 premiums on the health plan HHI (in 2014), the hospital HHI, the medical group HHI, and the Medicare area wage index. Importantly, we also controlled for 2014 premiums, which gave our model the interpretation of growth in premiums.

We natural-logged each variable to limit the influence of outliers and to allow our coefficients to be interpreted as elasticities. Our coefficients should be interpreted as follows: For a 1 percent increase in an HHI variable, we would expect an approximate beta percentage increase in 2015 premiums (the dependent variable), where beta is the regression coefficient of the HHI variable. Because premiums were correlated at the rating-area level, we clustered standard errors by rating area.

We tested two alternative premium growth model specifications to test the sensitivity of our results. The first alternative kept the log-log model form but used the difference of logged premiums as the dependent variable. This model produced results similar to those of our primary model.³⁴ We also estimated a log-level version of the model, where the concentration variables were levels. In this version, the results were directionally the same but with some reduced statistical significance.³⁵ In the end, we selected the lagged premium log-log model because it accounted for a nonlinear impact of our concentration measures and was less sensitive to outliers.

LIMITATIONS In our regression model, we were not able to separate the impact of adjusting 2015

We see direct premium negotiation as a promising path forward for the Marketplaces.

premiums for actuarial reasons versus exercising market power. Some health plans in 2014 may have underpriced relative to the health risk of the actual enrollees—above and beyond the risk compensated by risk adjustment, reinsurance, and risk corridors—causing them to raise premiums. However, we do not think these adjustments necessarily affected our results because they likely occurred across rating areas, including rating areas with a low, moderate, or high health plan HHI.

Our health plan concentration measures were based on only Marketplace enrollment, but a plan's market power is derived from all lines of business, including the individual market outside the Marketplaces, the employer-sponsored market, Medicare Advantage, and Medicaid managed care. For the major health plans in California, Marketplace enrollment shares generally reflect the shares across the commercial insurance market. Based on this measure in 2013, the top four health plans (percentage of total commercial enrollment) were as follows: Kaiser Permanente (42 percent), Anthem (20 percent), Blue Shield of California (15 percent), and Health Net (6 percent), for a combined share of 83 percent.³⁶ These four health plans also had the largest shares of enrollment in the California ACA Marketplace; their combined share was 95 percent in 2015 (see online Appendix Exhibit A1).³⁷

In contrast, New York Marketplace enrollment shares are less closely linked to enrollment shares over the entire private insurance market, partly because Health Republic Insurance New York and Fidelis Care, the two health plans with the most Marketplace enrollment, do not offer employer-sponsored insurance. Therefore, as a sensitivity analysis, we estimated additional regression models excluding these two plans and found results similar to those derived from the model when all plans were included (the latter is shown in Appendix Exhibit A2).³⁷

Another possible limitation could have been endogeneity, in which premiums influenced

concentration measures. For example, plans may have chosen to enter rating areas where premiums were already excessive and thus influenced the health plan HHI measure. If the rating areas charging excessive premiums were correlated with health plan HHI, then health plan entry would result in reverse causation (expected premiums influencing concentration). We reduced the potential impact of this issue by lagging our concentration measures so that they were measured at points in time prior to when premiums were set.

Our provider concentration data came from 2010 for hospitals and from 2011 for medical groups. Therefore, our data did not capture the effects of numerous more recent hospital and medical group mergers, which introduces measurement error (biasing the parameter estimates toward 0) and understates our provider HHI measures (biasing the parameter estimates upward). Notably, however, this timing does capture the effects of New York State's statewide hospital restructuring between 2005 and 2008, when one-fourth of all hospitals in the state were reconfigured—that is, they closed, merged, or reduced in size.³⁸ Because of data limitations, our study did not explore the effects of vertical integration—when hospitals and medical groups or other types of providers merge, which have become increasingly common.⁶

Study Results

In California the mean premium among rating areas increased from \$335 to \$348 (or 3.9 percent) between 2014 and 2015, with the increase ranging from 1.2 percent to 6.3 percent by rating area (Exhibit 1). In New York the parallel increase was from \$423 to \$431 (or 1.9 percent), with the change ranging from -4.9 percent to 7.7 percent by rating area.

In 2014 the health plan markets in California and New York were highly concentrated, with mean HHIs of 3,763 and 2,750, respectively, and with the HHI ranging by rating area from 2,228 to 8,319 in California and from 1,171 to 3,598 in New York (Exhibit 1). For health plan-level detail, Appendix Exhibit A1 reports each health plan's statewide Marketplace enrollment share for 2014 and 2015.³⁷

The hospital and medical group HHIs also varied significantly across rating areas in each state (Exhibit 1). The hospital markets in California and New York were moderately to highly concentrated, with mean HHIs of 2,259 and 3,708, respectively. The rating area mean medical group HHIs in California and New York were 776 and 423, respectively—well below the Horizontal Merger Guidelines' moderately concentrated

EXHIBIT 1

Covered California and NY State of Health monthly premiums and market concentration, by rating area, for 2014 and 2015 plan years

Covered California

Rating-area number ^a	Rating area	Average standard silver plan premium (40-year-old)			Herfindahl-Hirschman Index (HHI)		
		2014	2015	% change in premium	Health plan	Hospital	Medical group
4	San Francisco County	\$379	\$403	6.3%	2,321	1,398	1,306
5	Contra Costa County	361	381	5.5	4,004	1,334	426
8	San Mateo County	394	412	4.6	3,029	1,881	440
3	Greater Sacramento	382	399	4.5	3,280	2,651	821
18	Orange County	292	305	4.5	2,963	485	169
9	Central Coast	382	398	4.2	4,786	5,247	1,609
1	Northern counties	328	341	4.0	8,319	5,574	669
12	Central Coast	327	340	4.0	4,336	2,606	190
2	North Bay counties	368	382	3.8	3,173	3,560	553
19	San Diego County	317	329	3.8	2,228	481	332
14	Central Valley	299	310	3.7	3,713	1,446	306
17	Inland Empire	273	283	3.7	2,433	1,020	524
6	Alameda County	350	361	3.1	3,429	965	613
13	Eastern region	376	386	2.7	4,919	7,013	4,632
7	Santa Clara County	362	371	2.5	4,244	1,164	745
15	Los Angeles County ^b	260	266	2.3	2,853	149	155
16	Los Angeles County ^b	279	285	2.2	2,284	149	155
11	Central Valley	311	316	1.6	3,941	2,437	159
10	Central Valley	334	338	1.2	5,250	3,353	947
Rating-area avg.		335	348	3.9	3,763	2,259	776

NY State of Health

Rating-area number ^a	Rating area	Average standard silver plan premium (40-year-old)			HHI		
		2014	2015	% change in premium	Health plan	Hospital	Medical group
7	Utica area	\$452	\$487	7.7%	3,091	5,984	865
1	Albany area	424	447	5.4	2,831	5,881	452
6	Syracuse area	413	428	3.6	2,850	4,797	943
3	Mid-Hudson area	461	474	2.8	2,907	3,441	421
2	Buffalo area	392	401	2.3	2,703	3,598	191
5	Rochester area	352	358	1.7	3,598	3,836	302
8	Long Island area	442	430	-2.7	2,302	994	104
4	New York City area	448	426	-4.9	1,717	1,131	102
Rating-area avg.		423	431	1.9	2,750	3,708	423

SOURCES Premium data from Covered California and NY State of Health, two Affordable Care Act state-based Marketplaces. Herfindahl-Hirschman Indices are based on authors' calculations using 2014 enrollment data from these Marketplaces, hospital data from the American Hospital Association's 2010 Annual Hospital Survey, and physician data from the 2011 IMS Health Physician Insights database. ^aRank-ordered by percent change of average premium. ^bLos Angeles County was split into two rating areas.

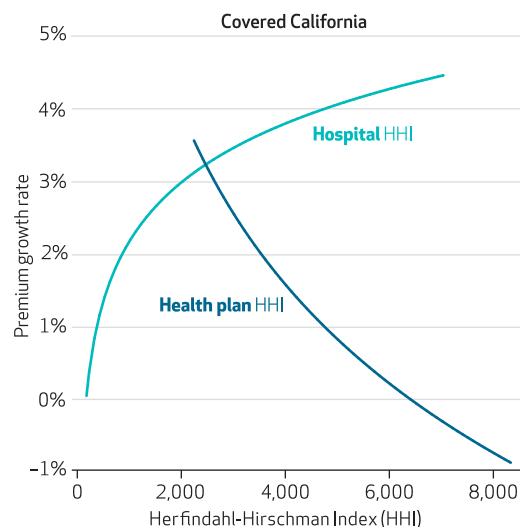
HHI threshold of 1,500.²⁹

The full results of our premium growth regression model for California and New York are shown in Appendix Exhibit A2.³⁷ In both California and New York the hospital HHI was positively

associated with 2015 premiums ($p = 0.04$ and $p < 0.01$, respectively). Because the regression model controlled for 2014 baseline premiums, these results can be interpreted as the hospital HHI being positively associated with 2014-to-

EXHIBIT 2

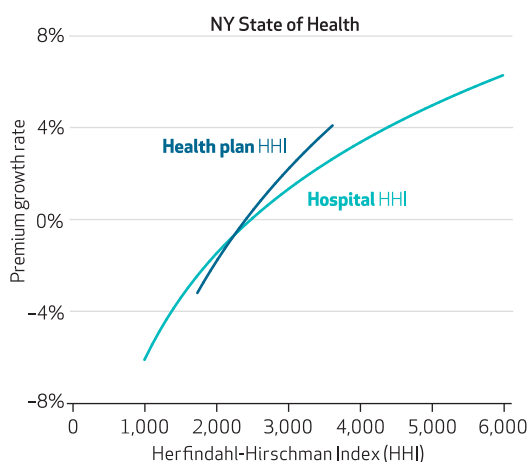
Predicted change in Covered California premiums between 2014 and 2015, by health plan and hospital market concentration



SOURCE Authors' analysis based on regression coefficient estimates in online Appendix Exhibit A2 (see Note 37 in text). **NOTES** Independent variables not plotted in the exhibit are set to their sample means. Similarly, the predicted premium growth rate is based on the growth rate from the 2014 mean product-level premium of \$324. Plotted points extend through the range of Herfindahl-Hirschman Index levels observed in the data.

EXHIBIT 3

Predicted change in NY State of Health premiums between 2014 and 2015, by health plan and hospital market concentration



SOURCE Authors' analysis based on regression coefficient estimates in online Appendix Exhibit A2 (see Note 37 in text). **NOTES** Independent variables not plotted in the exhibit are set to their sample means. Similarly, the predicted premium growth rate is based on the growth rate from the 2014 mean product-level premium of \$426. Plotted points extend through the range of Herfindahl-Hirschman Index levels observed in the data.

2015 premium growth. We found a positive, but not statistically significant, association between the medical group HHI and the 2015 premiums in both states.

For the health plan HHI, we found a differing impact on premium growth in the two states. In California the health plan HHI was statistically significant and negatively associated with 2014 to 2015 premium growth ($p = 0.06$). The regression model for California predicted a 3.3 percent growth in the mean premium (\$324 to \$334) from 2014 to 2015.³⁹ Based on the model's results, a 10 percent increase in the health plan HHI would have reduced this growth rate to 3.0 percent, and a 10 percent increase in the hospital HHI would have increased the original growth rate of 3.3 percent to 3.4 percent. The method used to compute these growth rates is outlined in the Appendix.³⁷

In New York we observed a positive and significant association between the health plan HHI and premium growth ($p < 0.01$). The regression for New York predicted a 2.1 percent growth in premiums (\$426 to \$435) from 2014 to 2015. According to our regression model's results, a 10 percent increase in the health plan HHI would have increased this growth rate to 3.0 percent, and a 10 percent increase in the hospital HHI would have increased the original 2.1 percent growth rate to 2.7 percent.

Our premium growth rate predictions for California are shown in Exhibit 2. To calculate the growth rate from our regression results, the 2015 premium that our model predicted was compared to the 2014 premium mean that we were holding fixed. The 2014 premium mean of our California product-level observations was \$324. For the health plan HHI at 2,500, our regression model predicted a 2015 monthly premium of \$334. This implied a premium growth rate of $[(334-324)/324] \times 100 = 3.1$ percent. For the health plan HHI at 5,000, our model predicted a 2015 premium of \$326. Hence, we predicted the growth rate for the health plan HHI at 5,000 to be $[(326-324)/324] \times 100 = 0.6$ percent.

The same calculations for New York are shown in Exhibit 3. The 2014 premium mean of our New York product-level observations was \$426. Hence, for the health plan HHI at 2,500, we predicted a premium growth rate of $[(428-426)/426] \times 100 = 0.5$ percent. For the health plan at 3,500, we predicted a premium growth rate of $[(442-426)/426] \times 100 = 3.8$ percent.

Discussion

In Covered California and NY State of Health, two large ACA state-based Marketplaces, we

found that hospital market concentration was associated with health plan premium growth between 2014 and 2015. In both states, more concentrated hospital markets were associated with higher premium growth. This result aligns with the broad literature on hospital concentration and premiums and prices.⁵ We also found a positive, but not statistically significant, association between medical group concentration and premium growth.

Interestingly, we found that more concentrated health plan markets were associated with lower premium growth in California but higher premium growth in New York. The differences in California and New York may be due to differences in health plan goals as well as regulatory authority and enforcement in these states. In New York we found higher health plan concentration being associated with higher premium growth. This finding is consistent with the empirical evidence that increased health plan market power will lead to higher premiums.^{10,12–15} Our finding in New York is consistent with the findings of Jon Gabel and colleagues, who—in a national study of the ACA Marketplaces—found that the addition of a health plan in a rating area was associated with an average decline in premiums of about 2 percent from 2014 to 2015.⁴⁰ However, premium increases in New York could have been larger. Although NY State of Health does not directly negotiate premiums, the state has prior-approval authority over health insurance rates, which may have reduced some of the premium growth.¹⁹

In contrast, for California we found that higher health plan concentration was associated with lower premium growth. One possibility is that health plans in rating areas with higher market concentration may have focused on maintaining or growing market share versus profits in the short run, leading to lower premium growth.

Another possibility stems from Covered California's authority to selectively contract and directly negotiate with plans. Although the two insurance regulators in the state—the California Department of Managed Health Care and the California Department of Insurance—do not have prior-approval authority over rates, one could argue that Covered California's negotiations with plans has the force of such authority. Health plan profits may have been higher in markets that were more concentrated because of their stronger negotiating position with providers. Covered California may have been able to use its regulatory authority to obtain a larger reduction in profits in these markets, leading to lower premiums. Both possibilities are consistent with the positive correlation between health plan concentration and premium growth.

The ACA Marketplaces provide a natural laboratory for studying the effects of competition and market power.

Policy Implications

Our results have a number of policy implications regarding providers and health plans. According to a recent report, hospital mergers and acquisitions increased by 44 percent from 2010 to 2014.¹ On the one hand, provider consolidation has the potential to reduce costs through economies of scale. However, there is very little evidence that horizontal mergers between hospitals generate efficiency or quality.⁵ Hence, it is important for regulators to monitor hospital consolidation trends and to prevent mergers that harm competition.

With respect to health plan concentration, our differing results in California and New York make a one-size-fits-all policy recommendation more nuanced, but we see promise in two policy tools: selective contracting and direct premium negotiation with health plans, and prior-approval authority for health insurance rates. Besides California, only Massachusetts, Rhode Island, and Vermont operate Marketplaces that selectively contract with health plans.² Our results from California lend support to the idea that selective contracting and direct premium negotiation lead to lower growth in premiums. Covered California officials directly negotiated premiums with health plans and were selective in which health plans they allowed to enter the Marketplace. The threat of being excluded from the Marketplace was a significant source of leverage for Covered California during health plan negotiations. We see direct premium negotiation as a promising path forward for the Marketplaces, especially in states that lack prior-approval authority over rates.

More than half of the states (including New York, but excluding California) have prior-approval authority over health insurance rates.¹⁹ For example, in 2015 health plans in New York requested a 13 percent average increase in individual market premiums, but prior-approval au-

thority enabled New York officials to reduce the average increase to 6 percent.⁴¹ However, our results suggest that health plans may have still been able to exercise market power, but prior-approval authority may have partially mitigated their ability. State officials could not be overly stringent with rate reductions in the early years of the New York Marketplace because it could have hindered health plan Marketplace entry and continuity. A recent federal bill introduced by Sen. Dianne Feinstein (D-CA) and Rep. Jan Schakowsky (D-IL) seeks to give the secretary of health and human services the power to block premium increases determined to be unreasonable in the states that lack prior-approval authority.⁴²

Ultimately, there may be a “tipping point” to health plan consolidation. Such consolidation might enable insurers to reduce costs through economies of scale and serve as a counterweight to provider market power. However, there is like-

ly a point at which further increasing an insurer’s size leads to no meaningful efficiency gains and gives the insurer a level of market power that translates to higher-price, lower-quality products for consumers. The insurer size that begins to tip this scale is an important empirical question that deserves further study.

Conclusion

The ACA Marketplaces provide a natural laboratory for studying the effects of competition and market power. The Marketplaces’ structured competition among health plans, product standardization, and data transparency are valuable in enabling this research effort. We foresee that further research of the Marketplaces will provide important insights into whether competition is operating effectively in the market for health insurance. ■

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NOTES

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 - 27 As a sensitivity analysis, we substituted the number of plans in a rating area for health plan Herfindahl-Hirschman Index (HHI). Our results were directionally the same. We think significant health plan enrollment differences make our HHI measure more appropriate.
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