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ACA Marketplace Premiums and Competition Among Hospitals and Physician Practices

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Premiums for health insurance offered through the Affordable Care Act (ACA)'s Health Insurance Marketplaces (HIMs) vary substantially across the country.[1-4] Differences in health insurance premiums throughout geographic areas affect not only the affordability of coverage for individuals, but also the cost of ACA coverage to the government because government subsidies for relatively low-income families are linked to premiums.

Researchers have documented that premiums are lower in marketplaces with greater competition among insurers.[5-8] The effect of competition among healthcare providers on premiums for Marketplace plans, however, has received less attention. Increasing consolidation among and integration between physicians and hospitals have led to higher prices for physician and hospital services.[9-12] If insurers pass on these higher prices to consumers in the form of higher premiums, greater concentration in provider markets could lead to higher premiums in the Marketplaces. Although a recent case study of Marketplaces in New York and California provided preliminary evidence that hospital competition may be related to Marketplace premiums,[13] there is no systematic evidence on whether differences in the structure of provider markets contribute to geographic variances nationwide in the premiums for Marketplace plans. This market is an important new setting in which to examine the relationship between provider concentration and plan premiums due to the relatively widespread offering of narrow network plans.[14]

In this paper, we examined whether the concentration of local hospital and physician markets, the degree of physician–hospital integration, and the number of insurers were related to the premiums for 2015 plans sold on the Federally Facilitated Marketplaces (FFMs).

METHODS

Data on Marketplace Premiums

We used publicly available data from the Center for Consumer Information and Insurance Oversight (CCIIO) on annual premiums for each plan available in 2015 on the FFMs.[15] All plans on the Marketplaces are classified according to their metal level (Bronze, Silver, Gold, or Platinum), which corresponds to the actuarial value of the plan. We focused our analysis on the premiums of the second-lowest-cost Silver plan (SLCSP) and of the overall lowest-cost plan (LCP) of any metal level (excluding Catastrophic plans) in each rating area. Within a demographic group, insurers must charge the same premium for a given plan within a rating area. Rating areas are typically a collection of counties defined by states. We included all 411 rating areas for the FFMs in 37 states.

The premiums in our sample did not include any means-tested subsidies or tax credits.

The SLCSP, the benchmark for setting federal subsidies for insurance purchases, is likely to be a focus of many consumers. The LCP is also likely to attract many consumers; research on the choice of health insurance plans shows that individuals tend to place too much emphasis on the role of premiums relative to other plan characteristics and disproportionately enroll in the lowest-premium plans.[16] Although plans may vary premiums by enrollee age, family structure, and smoking status, we limited our analysis to 1 rate category for each plan: a 50-year-old nonsmoker buying individual, rather than family, coverage.

Measures of Provider Competition and Vertical Integration

For each rating area, we developed measures of hospital and physician competition and the degree of vertical integration between physicians and hospitals. Following previous work, we computed a Herfindahl-Hirschman Index (HHI) for hospitals and physicians.[10,11] The HHI is a standard measure used by the Federal Trade Commission (FTC) and Department of Justice (DOJ) to assess competition.[17-19] HHIs range from near 0 to 1. They are low in markets served by many providers, signaling a more competitive market, and reach the maximum of 1 in a monopoly market served by a single provider.

To develop a rating area–level measure of hospital HHI, we first calculated for each hospital an admission-weighted average of the HHIs of the patient zip codes that it serves, based on Medicare claims and enrollment data for a 100% sample of traditional Medicare beneficiaries in 2011. Using the same data, we then identified the set of hospitals used by patients in each rating area and computed an admission-weighted average of the HHIs of the hospitals serving a rating area. Our hospital competition measures did not, at any point in their construction, assume that patients residing in a given rating area use only hospitals in that rating area. We accounted for hospital system structures when constructing the HHI measure by assuming that hospitals within a system bargain jointly; in addition, we controlled for the differences in the prevalence of hospital systems across rating areas in the regression specifications.

We used an analogous approach for creating measures of physician competition.[11,20] We defined physician practices as sets of physicians reporting the same specialty who billed Medicare under the same tax ID, meaning that they are part of the same financially integrated organization.[11,20-24] For each practice–specialty combination, we calculated a Medicare payment–weighted average of the HHIs of the patient zip codes it serves based on patient flows observed in Medicare data. To derive a single physician HHI at the rating area level, we computed the Medicare payment–weighted average of the specialty-specific HHIs of all practices used by patients in each rating area.

We constructed a rating area–level measure of vertical integration between physicians and hospitals using data from the American Hospital Association's 2011 survey of hospitals, in which hospitals reported information about their relationships with physicians.[10] We identified hospitals that reported participating in fully integrated

physician organizations, closed physician–hospital organizations, open physician–hospital organizations, and independent practice associations. For each hospital, we constructed an admission-weighted average of the patient zip code–level market shares held by hospitals of each type using the Medicare claims and enrollment data described above. Using these same data, we then computed for each rating area an admission-weighted average of the density of each type of vertical integration facing each hospital serving the area. For analysis, we summed the shares of the 4 types of integration to construct 1 summary measure of the prevalence of vertical integration in the markets of hospitals used by patients residing in each rating area. This measure varied from 0% to 100%, increasing with the prevalence of patients using hospitals participating in vertically integrated arrangements. Greater detail on each measure is available in other studies.[10,11]

Statistical Analysis

To examine the relationship between Marketplace premiums and provider market power, we estimated cross-sectional regressions in which each observation was a plan/rating area combination. The dependent variable was the premium for either the SLCSP or the LCP as defined above. The independent variables of interest included hospital and physician HHIs, number of insurers, and degree of vertical integration between physicians and hospitals. The models included continuous measures of these variables. We found no important differences from using less parametric specifications of market structure.

The models also included controls for other characteristics of the health plans and rating areas. The health plan controls included measures of plan type, cost sharing, provider coverage, and offering of chronic condition management.[15] (The **eAppendix** [available at **ajmc.com**] includes a complete list of these variables.) We used Medicare claims and the American Hospital Association 2011 survey of hospitals to construct other rating area measures of hospital market characteristics in the same way that we constructed rating area densities of vertical integration. We used county-level Area Resource File data to calculate rating area population characteristics and controlled for variations in practice costs using the Medicare geographic practice cost index. Finally, we used the information about FFM health insurance plans released by CCIIO to calculate the number of insurance companies and issuers (see eAppendix for details of how insurance company was defined) competing in the Marketplaces in each rating area. The models also included state indicators in order to control for other characteristics of the states, such as the regulatory climate, insurance market features, and any state-specific provider and population characteristics.

We used the estimated coefficients from the multivariate models to compute the predicted changes in premiums that would result from moving from the 10th to the 90th percentile of hospital and physician HHI, the number of insurers, and the extent of vertical integration. For statistical inference, we used standard errors clustered at the plan level to allow for unobserved differences within plans across rating areas. The eAppendix reports several robustness checks, including results from models that include the average premium of all plans offered in each rating area, metropolitan and nonmetropolitan rating areas, and Marketplaces from all states, rather than only FFMs, but with fewer controls for plan characteristics. The Stanford University Review Board reviewed the study protocol and granted a waiver of consent.

RESULTS

The average annual premium (for a nonsmoking individual aged 50 years) across all 4580 plans in the dataset was $5378 (SD = $1443). The average premium was $4718 (SD = $784) for the SLCSP and $3651 (SD = $656) for the LCP.

The markets for both hospital and physician services were, on average, relatively highly concentrated in the geographic areas that we studied. The average hospital HHI across the 411 rating areas was 0.56 (SD = 0.14), and the average physician practice HHI was 0.41 (SD = 0.09). The FTC and DOJ typically consider markets with HHIs above 0.25 to exhibit a high degree of concentration. The average of our vertical integration measure was 0.56 (SD = 0.28), indicating that, on average, 56% of patients used hospitals that participated in vertically integrated arrangements.

Although relatively high on average, the extent of provider market concentration varied across rating areas (**Table**). The hospital HHI averaged 0.38 at the 10th percentile and 0.70 at the 90th percentile rating area. The physician HHI measure was slightly less variable: 0.27 and 0.50, respectively. The extent of vertical integration was highly variable across markets, ranging from 0.06 at the 10th percentile to 0.89 at the 90th percentile.

Premiums for exchange plans were higher in rating areas with more concentrated provider markets (Table). The average annual premium for the SLCSP was $4330 in the rating areas with the least concentrated hospital markets (10th percentile), $5014 in areas with the most concentrated hospital markets (90th percentile), $4461 in the rating areas with the least concentrated physician markets, and $4873 in areas with the most concentrated physician markets. The patterns were similar for the relationship between premiums for the LCP and physician and hospital concentration. These differences are highly statistically significant. In unadjusted analyses, vertical integration was not statistically significantly associated with premiums.

Premiums for exchange plans and provider market concentration were positively correlated even after adjusting for an extensive set of plan- and market-level control variables. **Figure 1** and **Figure 2** present the predicted change in premiums from moving from the 10th to the 90th percentile of the respective market power measures, based on the coefficient estimates from the regression. A change from the 10th to the 90th percentile in the physician HHI was associated with a $393 increase in the annual premium for the SLCSP and a $386 increase in the annual premium for the LCP (P <.001). These changes were also economically significant, corresponding to about an 8% increase relative to the average premium for the SLCSP and a 10% increase relative to the average premium for the LCP. Hospital market power had a similar association with premiums, although the magnitude was approximately half as large. We did not find a statistically or economically significant relationship between premiums and the extent of vertical integration.

To provide context for the estimated premium changes associated with provider concentration, Figures 1 and 2 also report the adjusted association between the number of insurers participating in the rating area and premiums.

Our point estimates were quite close to the estimates of insurer effects that have been reported in the previous literature.[5-7] A change from the 10th to 90th percentile in the number of insurers participating in the rating area was associated with a $421 decrease in the annual premium for the SLCSP (P <.01) and a $449 decrease in the annual premium for the LCP (P <.001). These associations for insurers were comparable to the associations we observed for provider concentration. The association we observed for physician market concentration, in particular, is nearly as large as that for the number of insurers participating in the market.

DISCUSSION

Our study findings demonstrate that premiums for health plans in the ACA HIMs are higher in rating areas with less competition among physicians, hospitals, and insurers. These findings are consistent with research demonstrating that prices for hospital and physician services are higher in more concentrated markets. The findings suggest that insurers pass on these higher prices for healthcare services to consumers in the form of higher premiums for coverage.

Our results provide 1 potential explanation for the prevalence of narrow network plans on the insurance Marketplaces: the use of selective contracting to limit the impact of provider concentration on premiums by avoiding providers with the most market power. Our results suggest, however, that even if narrow networks were set up to limit the impact of provider market power, they were not sufficient to eliminate the association between provider market structure and premiums. Regulatory requirements to cover certain types of providers and services may have limited insurers' ability to avoid costly providers. At the same time, beneficiaries' muted price sensitivity due to the subsidization of Marketplace premiums may have limited insurers' incentive to avoid costly providers. It is also possible that the development of narrow networks was more effective in negotiating lower prices for hospital than for physician services in concentrated markets, explaining the difference we observed in the effect of market concentration in the 2 sectors.

Although other studies have found that prices for hospital services are higher in markets with greater levels of physician–hospital integration, we did not find evidence that health plan premiums were higher in more integrated markets. We speculate that narrow networks may have been reasonably effective at avoiding or negotiating with vertically integrated providers and would provide 1 reason for why we do not find a strong association between premiums and vertical integration.

Limitations

Our study has several limitations. Our analyses are cross-sectional, and our estimates could be biased if unobserved characteristics of plans or rating areas correlated with both market competitiveness and premiums. For example, our controls did not include detailed measures of provider network breadth due to data limitations. In rating areas with higher provider concentration, insurers may be more likely to offer narrow networks, which would induce a downward pressure on premiums, biasing our estimates toward 0. Our models included an extensive set of control variables, including state fixed effects, but the possibility of bias due to omitted variables

remains.

In addition, our measures of provider market structure were derived from 2011 Medicare claims data. The premiums we studied were largely set by summer 2014, leaving a lag of more than a year between the HHIs and the premiums and creating the possibility that our measures inaccurately characterized the market conditions in place when the premiums were set. Although market conditions evolve slowly, perhaps to the point that any bias from this lag would be small, we cannot rule out that measurement error from this source would cause us to underestimate the relationship between market characteristics and premiums. In particular, it is conceivable that the measurement error from the lag was more important for the vertical integration measure, which could be another reason for why our estimates of the effect of vertical integration were small and statistically insignificant.

The HHIs and vertical integration measures we used rely on patient flows observed in Medicare data. Medicare is one of the few sources of sufficiently detailed data to construct these types of measures, but these data may not represent the patient flows relevant to the non-Medicare market. We do expect that Medicare data will represent the majority of hospitals serving the under-65 market. Medicare claims also reflect care delivered by a very large share of active physicians, and the set of physicians who billed traditional Medicare should substantially overlap with the set of physicians providing services to privately insured patients. Nonetheless, this may also be a source of measurement error that could have caused us to understate the strength of the association between market characteristics and premiums.

CONCLUSIONS

Premiums for insurance offered in the FFMs were higher in markets with greater concentrations of hospitals and physicians and smaller numbers of insurers. Health insurance is less affordable for people purchasing unsubsidized coverage in these areas and is costlier to the government through subsidies in the form of Marketplace premium tax credits. To the extent that policy initiatives to promote coordinated care encourage the consolidation of providers or insurers, they may also have the unintended effects of making health insurance less affordable for consumers.

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