# COMMENTS ON SELECTED ISSUES RE: THE PROPOSED MERGERS OF ANTHEM AND CIGNA AND AETNA AND HUMANA

## SUBMITTED TO THE CALIFORNIA DEPARTMENT OF INSURANCE[1]


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### I. Qualifications

I am Professor of Economics, College of Letters and Science, and Professor of Technology Management, College of Engineering, at the University of California, Santa Barbara. I am past director of the M.A. and Ph.D. programs and past Chairman of the Economics Department. I am an adjunct scholar at the American Enterprise Institute. I have been a visiting professor at Harvard, the University of Chicago and at Curtin University in Australia. I have also been an adjunct professor at the U.S. Naval Postgraduate School and at Sciences Politiques de Paris. I hold a B.S. in industrial engineering from the University of Missouri, and an M.A. and a Ph.D. in economics from the University of California, Los Angeles.

[1] I thank the American Medical Association for supporting my work in preparing this document. These comments reflect my views, not necessarily the views of the American Medical Association or of the University of California. Thanks are due to Mark Pauly, Thomas (Tim) Greaney, Richard Scheffler and Jill Herndon for helpful comments.

Much of my research has been focused on health economics and health insurance, particularly on issues involving antitrust and regulation. I have published numerous articles and written or edited several books on industrial organization, health economics and insurance, including my book, *Competition and Monopoly in Medical Care* (1996). The journals in which I have published include the *American Economic Review*, *Journal of Political Economy*, *Journal of Law and Economics*, and *Quarterly Journal of Economics*. I also have wide experience in consulting, much of which is similarly focused on antitrust and regulatory proceeding in health care and health insurance. I have testified before federal and state courts and regulatory bodies, state legislatures and the U.S. Senate.

## II. Introduction and Background

The proposed mergers of Anthem and Cigna and of Aetna and Humana would substantially increase concentration in the relevant product markets and geographic markets. At the national level (aggregating the various commercial product and geographic markets), there are two ways to look at concentration changes in this merger. First, the Blue Cross Blue Shield (BCBS) plans have generally agreed on exclusive territories and agreed not to compete in each other's territories (Greaney and Moss, 2016, p. 7).[2] Thus, for most purposes one can view them as a single entity, with a national-level share of 52 percent (aggregating all types of commercial insurance, except Medicare Advantage), far larger than any other insurer. The next three health insurers are United, Aetna and Cigna in that order. Taking this view, the Anthem-Cigna merger increases BCBS's national share from 52 percent to 58 percent. Second, if one ignores the BCBS agreements not to compete and treats separately owned BCBS plans as if they were competing, Anthem alone is the largest insurer in the country with a 15 percent national share. The merger would increase that to 21 percent (Dafny, 2015, p. 2).

[2] California is a rare exception, where Blue Cross (Anthem) and Blue Shield compete.

Turning to Medicare Advantage (MA) insurance, the set of the largest sellers is slightly different. Here, at the national level, the Aetna-Humana merger raises the share of Humana from 19 percent to 26 percent, making it the largest seller in this market (Jacobson, Damico and Neuman 2015, fig. 1).

But, any national, aggregate approach provides only a rough background. First, aggregating different kinds of products masks higher levels of concentration in particular products. Second, however one treats the BCBS system, a national-level (or even state-level) approach masks the much higher level of concentration in some local markets and for some products. For California health insurance concentration statistics by product market, at the county level, see Fulton, Scheffler and Arnold (2016). For a MA health insurance concentration analysis at the county level, see Jacobson, Damico and Neuman, (2015, fig. 2, table 2).

In these comments, I do not cover all the issues relevant to an evaluation of the proposed mergers. Instead, I concentrate more narrowly on:

1. The economic analysis of monopoly power on the selling side and monopsony power on the buying side.
2. The economic research relevant to product market definition.
3. The economic research relevant to geographic market definition.
4. The economic research on the effects of health insurer concentration on premiums paid by consumers and prices paid to providers.

## III. Summary of Conclusions

On product market definition on the seller side, one approach is to define two commercial insurance markets: (1) Preferred Provider Organizations (PPOs) and Point of Service Plans (POSs) and (2) Health Maintenance Organizations (HMOs) and Exclusive Provider Organizations (EPOs). Another approach would divide the seller-side market according to type of customer: (1) large groups, (2) small groups and (3) individuals. Medicare Advantage (MA) plans can be viewed as their own separate market. I suggest excluding fee-for-service Medicare and all Medicaid from the concentration analysis.

On product market definition on the buyer side, I would suggest a market definition of all commercial insurance. I would also suggest excluding exchange-based insurance.

On geographic market definition, one approach is to analyze geographic markets at a granular level, probably, the county or a smaller area than the county. An alternative approach would be at more aggregative level, such as the metropolitan statistical area (MSA).

In any case, I suggest robustness tests using alternative product and geographic market definitions. Finally, existing research suggests that higher insurer concentration is likely to both raise premiums paid by consumers and reduce prices paid to providers.

## IV. Insurer Market Power in Two Markets

Health insurers deal in two markets. They sell policies to consumers, often through groups. On the other side, they purchase services from health care providers.[3] The product market definitions, in particular, are quite different in the selling market than in the buying market.

### A. Selling Insurance Coverage to Consumers

On the selling side, the policy issue involves monopoly or oligopoly power. Insurer market power enables an insurer to charge higher prices (premiums). An insurer with monopoly power supplies less insurance in order to raise prices. In the case of self-insured plans, market power allows an insurer, functioning as a third party administrator (TPA), to charge higher administrative fees to the self-insuring group (usually an employer). Market power on the selling side also allows an insurer to reduce the quality of the insurance (e.g. networks with less respected providers, less innovation, poorer administration and lower quality utilization management).

### B. Buying Care from Providers

On the buying side, the market power issue involves monopsony (literally, one buyer) or oligopsony (literally, few buyers). Less commonly treated in industrial organization economics and antitrust law, monopsony power is symmetric to monopoly power. On the buying side, an insurer with monopsony power purchases less provider services than a competitive insurer in

[3] Alternatively, one can view the insurers as facilitating the consumer's purchase. The insurer contracts for price and other terms and the consumer makes the actual purchase. The economics is the same from either viewpoint, though there may be differing legal implications in some situations.

order to reduce prices paid to providers. In both monopoly and monopsony, the insurer takes account of its ability to affect price. Under monopsony, the reductions in quantity may be accomplished by paying less to providers, therefore finding fewer providers who agree to join the network.[4] Further, the insurer with monopsony power is likely to provide lower quality services to providers, raising their costs, as well as reducing prices paid to providers. For example, such an insurer could offload more administrative and accounting burdens to providers, pay later and less accurately or do a less accurate or needlessly intrusive job of utilization management (which is also a quality issue on the selling side).

In theory, there are possible situations where a firm might have buyer-side monopsony power but no seller-side monopoly power. That could occur if the relevant market (either product or geographic market) was much broader on the seller side. For example, a firm might have monopsony power in the market for purchasing grain in north central Kansas, so that it can depress the buying price in that local area. On the seller side, this firm has no monopoly power in the international grain market, so that it cannot monopolistically raise its selling price.[5] This theoretical possibility applies only in a limited way to health insurance.

### C. Network Formation, Perishable Medical Services and Monopsony

The necessity to form local networks to sell insurance to local groups makes health insurance markets local and ties them to local provider markets. As Cory Capps states

> health plans assemble networks of local providers and market those networks to local employers. As a result, the geographic market in which physician services

[4] As an alternative or as a complement to reducing purchase prices by reducing quantity, a monopsonistic insurer may use a more complex all-or-nothing approach. See Herndon (2002) for more on this,

[5] See Capps (2009, pp. 388-990) for more discussion of these concepts. Capps cites a case much like the example presented above, *U. S. v. Cargill, Inc.* (1999).

> are purchased and the geographic market in which health plans are sold roughly coincide (Capps 2009, pp.388-89).[6]

This implies that market definition for health care providers is informative in defining markets for health insurers.

For a different reason, it is likely that health insurance mergers lead to more competitive concern with buying side monopsony than concentration numbers would suggest. Providers are likely to be very sensitive to the possibility of losing even a small percentage of their consumers because it is difficult and costly to replace them in a short time period. Further, the providers' services are perishable. Unlike many sellers of goods, health care providers cannot produce for inventory while they are searching for new customers. The revenue lost from a network termination during the transition is simply lost. Replacing the lost business takes time, during which revenues and profits are irretrievably lost. Further, it is difficult to rapidly reduce overhead costs to match lower volumes. As a result, the threat of losing even a small percentage of commercially-insured volume may allow an insurer to reduce prices or gain other contractual benefits. Therefore, buyer-side market power is likely to be a problem at lower concentration levels than on the seller side.[7]

In what follows, I first look at market definition primarily on the seller side. Then, I discuss the differences it makes to view the matter from the buyer side, where the insurers purchase health care from providers.

[6] See also Haas-Wilson (2004, p. 124).
[7] See Cory Capps (2009) for a detailed explanation of why insurers can exercise market power on the buying side even with surprisingly low market shares.

## V. Market Definition: Multi-Market Mergers v. Local Antitrust Matters

Market definition for consideration of these mergers involves analysis of many markets at different localities and for different products; thousands or at minimum hundreds of markets. Therefore, the detailed, fact-intensive analysis that is used in local antitrust litigation would be too slow and too costly. The analysis of concentration for these mergers necessarily requires a broad-brush, practical approach that reasonably approximates the local markets. A similar broad-brush approach is used in economic research into health care and health insurance competition, thus, the economic literature is especially relevant to these mergers.

## VI. Product Market Definition

### A. The Commercial Health Insurance Sector: Types of Health Care Plans

From a very high altitude, perhaps 100,000 feet, all health insurance performs a similar function: protecting consumers from the financial risk of using costly health care when sick or injured. At a lower altitude, health insurance plans are not identical. The most important difference is the degree of restriction that the insurer places on consumers' choices. Along this dimension there is a continuum of types of plans. The continuum is bounded by traditional indemnity insurance, with little or no selection of providers into a network and no utilization control. This minimizes restrictions on consumer choice. As is discussed above, indemnity insurance once dominated, but it has become very unpopular and virtually disappeared from commercial insurance in recent years.[8] At the other end of the continuum lie the HMOs, with exclusive panels (no out-of-network benefits), very strong steering and strict utilization controls. HMOs are the most restrictive. In the middle lie the PPOs, with some benefits for out-of-

[8] Dominant until the 1980s, indemnity insurance has dwindled to a very small share, about 1/3 of 1 percent in California by 2015 (Fulton, Scheffler and Arnold, 2016, p. 15).

network care. PPOs can be thought of as a soft or liberal version of an HMO.[9] Developed originally by Los Angeles benefit consulting firms Dual-Plus and AdMar, the modern PPO concept was quickly picked up by commercial and Blue Cross/Blue Shield insurance plans (Frech 1988, p. 358).

POS plans have an identical economic structure to PPO plans. Only their differing organizational history leads to the different terminology. POS plans were founded by HMOs by loosening of the HMO constraints. In POS plans, consumers can receive some benefits if they go out of the plan, depending on the point of service (POS). Reflecting their origin in relatively strict HMOs, POS plans tend to provide lower out-of-network benefits than PPO plans and also to have smaller (sometimes called "narrower") networks than PPO plans. For my purposes, I will consider POS plans as economically equivalent to PPO plans.

Relative to HMOs, PPOs offer greater choice and a safety valve for consumers for whom the strict selection and lack of benefits for out-of-network care is a particular disadvantage. But PPOs are not superior to HMOs in every way. PPOs typically lead to higher overall health care costs than HMOs, largely because of the extra cost of covering out-of-network care and their typically larger networks

There is also a variant of HMOs called exclusive provider organizations (EPOs). These are a sort of mirror image of POS plans. They are HMOs whose organizational roots are in commercial insurance plans, not traditional HMOs. They are usually formed by taking a PPO and deleting the coverage for out-of-network care. Reflecting their origin in relatively loose PPOs, EPO plans tend to have larger networks than HMO plans. In spite of the

[9] There is a weak form of steering in some indemnity plans, such as some historic Blue Shield plans. In some of these plans, there is a distinction between allowed fees for in-network and out-of-network care. While this is formalistically a bit like a modern PPO, these plans typically tried to contract with as many providers as possible—the opposite of selective contracting. And, they typically did not set different copayments or coinsurance for in-network versus out-of-network care. See Frech, (1996, pp. 109-110).

different histories and organizational sponsorship, entities called EPOs and HMOs are economically equivalent. In surveys, they are typically included with HMOs.[10] Thus, one approach to product markets would separate commercial insurance into two relevant markets: (1) PPOs and POSs and (2) HMOs and EPOs.[11] (Medicare Advantage is discussed below.)

One can question whether HMOs and PPOs are different enough in consumers' views that they should be considered as separate markets. Since there is a continuum, some PPOs and HMOs are actually quite close in the degree of restriction of consumer choice. An HMO with a large network, perhaps with tiering, could be quite close to a PPO with a relatively small network (for a PPO) and relatively low benefits for out-of-plan care. Still existing research suggests that on average HMOs and PPOs could be considered as separate markets.

Thomas Buchmueller and Paul Feldstein study plan switching behavior among University of California faculty and staff. They find that HMO members who switch are highly likely to switch to another HMO. Of the switchers from an HMO, 94 percent switched into another HMO (1997, p. 237).

David Dranove, Anne Gron and Michael Mazzeo (2003) focus on the HMO market. They find that an increase in the number of competing HMOs in a given local market, at the county-level is associated with lower insurer profits, without considering the PPO market. Entry by a second HMO into a previously monopolized local market is estimated to cut profits by about 50 percent; additional entry also lowers profits, albeit at a decreasing rate. This shows that the broader market of PPOs does not much constrain pricing and profits of HMOs, while additional HMOs do constrain pricing and profits, suggesting that HMOs could be viewed as

[10] I suspect that sometimes EPOs are accidentally counted as PPOs, since they typically come from organizations that primarily offer PPOs.

[11] For historical and organizational reasons, it may be difficult to calculate the relevant concentration measures for these markets. For example, HealthLeaders-InterStudy data do not allow for separating EPOs from PPOs (Fulton, Scheffler and Arnold, 2015, p. 14).

constituting a separate market. Further, the authors also find a stronger competitive effect of national HMOs on other national HMOs, compared to a weaker effect of local HMOs on national HMOs.[12]

In conclusion, one useful way to analyze selling side product markets is based on the degree of restriction of consumer choice. This view would lead to defining two relevant commercial insurance markets: (1) HMO and EPO insurance, (2) PPO and POS insurance.

### B. Differences in Risk Allocation and Customer Type

Commercial health insurance can be divided in other ways, according to differences in risk allocation (fully-insured v. self-insured) and customer type (individual v. small group v. large group). But, the centrality of a good local network and, ideally, a recognized brand name holds for all these categories. First, the distinction between fully-insured and self-insured business may be a distinction without a difference in terms of competition among insurers. An insurer with a good local network and a recognized brand name can easily sell either fully-insured or self-insured business. On the other hand, there are regulatory and tax advantages to self-insurance that are available to large and medium-sized employers. Most large employers do self-insure.

Turning to differences in customer type, a firm that has a good network and brand name recognition in a local area can easily change marketing and actuarial focus to appeal to individuals, small groups or large groups. If one views the marketing and actuarial differences as leading to separate market definitions, it is clear that the most likely possible entrants into one of the narrow customer-type-defined markets is a firm already in another narrow customer-type-defined market in the same locality. E.g., a firm with a strong local network, primarily selling to

[12] The national HMOs were defined as the 16 (out of 150) available to at least 10 percent of the U.S. population.

large groups would be a likely possible entrant into selling to small groups in the same local area. In the realm of individual and small groups, the Affordable Care Act (ACA) and the related exchanges add both some complexity and some differences between large groups (fully-insured or self-insured) versus small groups and individuals. So, an alternative approach would be to examine concentration separately for the types of consumers.

### C. Medicare Advantage Plans

Another health insurance market is the market for commercial MA plans. Medicare beneficiaries can choose regular fee-for-service Medicare or MA plans. In MA plans, Medicare pays most or all of the premiums to a private insurer. Most MA plans are HMOs. According to 2015 data, HMOs enroll 64 percent and PPOs enroll 31 percent of MA enrollees. In return for reduced choice of providers and utilization review, the Medicare beneficiary obtains more complete coverage. MA plans have waxed and waned over time, primarily because of policy changes, but over the long term, they are slowly increasing in share, attracting 31 percent of Medicare beneficiaries in 2015 (Jacobson, Damico, Neuman and Gold, 2015, fig. 2; Newhouse and McGuire, 2014). A Medicare beneficiary who wants to join an HMO (or a PPO) has no other practical choice. Traditional fee-for-service Medicare is a very different type of plan than MA plans.[13] It has no panels and no serious utilization review. Indeed, fee-for-service Medicare is the only surviving large-scale example of traditional indemnity insurance.

Traditional Medicare provides unrestricted choice of provider, but its benefit design exposes the beneficiary to risk of high out-of-pocket responsibilities. In 2013-14, 16 percent of Medicare beneficiaries faced out-of-pocket responsibilities that exceeded 20 percent of their

[13] See Anna D. Sinaiko and Richard Zeckhauser (2015). They find that there are distinct consumer preferences for the package of benefits and managed care format of MA plans.

annual income (Schoen, *et. al*. 2016, p. 14). Purchase of a private Medicare supplement can reduce the risk of high out-of-pocket responsibilities, but at fairly high cost. MA insurance, on the other hand, leads to less risk of high out-of-pocket responsibilities. MA plans cover more services than traditional Medicare and they are required to have an out-of-pocket maximum that limits the risk exposure of beneficiaries. In MA plans, the average out-of-pocket maximum was $5,014 per year per beneficiary in 2015 (Jacobson, Damico, Neuman and Gold, 2015, fig. 9).

Research is consistent with the idea that beneficiaries treat MA plans as quite different from traditional fee-for-service Medicare. Analysis of MA enrollees who were terminated because their plan left the market overwhelmingly (95 percent) actively sought another MA plan (Seniko and Zeckhauser, 2015, p. 12). Further, MA utilization control for hospitals appears to be quite strict, lending force to the idea that MA and fee-for-service Medicare are functionally different products. In a recent study, Mark Duggan, Jonathan Gruber and Boris Vabson (2015) found that when MA beneficiaries had to switch to fee-for-service Medicare, their hospital utilization and costs rose substantially.

Over time, MA plans have slowly grown at the expense of traditional fee-for-service Medicare. But, that does not imply that they are in the same market. The MA growth represents a slow shift to a new organizational form and incentive system that is favored by a (slowly) growing number of Medicare beneficiaries. For a historical analogue, consider the slow grow of automobile sales at the expense of horse-drawn carriages in the early 20$^{th}$ Century. That did not imply that carriages and automobiles were in the same market.

Another approach to market definition is to see if pricing and other behavior among MA plans responds to concentration among MA plans only. Recent research indicates that this is the case: where there are fewer MA insurers, premiums are higher, showing that neither traditional

Medicare nor commercial insurance is a serious constraint on MA pricing, regardless of the number or concentration of other insurers, in that market.

Zuri Song, Mary Beth Landrum and Michael Chernew (2013) examine competition in the MA market at the county level. They find evidence of market power, stemming from market concentration of MA plans only. MA plans are able to and do charge higher premiums where there is higher concentration among MA plans.[14] Austin Frakt, Steven Pizer and Roger Feldman (2013) analyze vertical integration of MA and hospitals at the county level and find that more integrated plans charged higher quality-adjusted premiums. In a related study of MA competition, Vilsa Curto, Liran Einav, Jonathan Levin and Jay Bhattacharya (2014) conclude that

> even when MA plan costs are cheaper, the plans often enjoy considerable market power. This allows them to mark up their bids and capture much of the cost savings as profits rather than reduced taxpayer spending (2014, pp. 29-30).

Thus, one approach is to view MA plans as competing for consumers in a separate relevant market.[15]

### D. The Exchanges and Commercial Medicaid (Medi-Cal) Managed Care

There are two other categories of highly-regulated private health insurance that bear some resemblance to MA: insurance through the exchanges and commercial managed care Medicaid. The premiums of many consumers using insurance from the exchanges are subsidized by the federal government. For these consumers, unsubsidized insurance bought off the exchanges is a poor substitute for subsidized insurance bought on an exchange. Recent research supports the

[14] See also, (Spiro, Calsyn and O'Toole, 2016). They conclude that when Humana offers a MA plan in the same county as Aetna, Aetna's premium is lower than in counties where Humana does not offer a plan.
[15] It is possible that future research and experience would support separate markets for MA HMOs versus MA PPOs.

idea that health insurance on the exchange can be viewed as a separate market. Leemore Dafny, Jonathan Gruber and Christopher Ody, find premiums to be sensitive to the number of insurers on the exchanges (2015). This indicates that potential competition from other local insurers that are not on the exchanges does not strongly constrain pricing on the exchanges.

Turning to commercial managed care Medicaid plans, a similar situation exists. Typically, consumers' premiums are paid entirely by Medicaid, so a commercial plan outside of Medicaid is not a close substitute. The premium for Medicaid is zero, so the concept of a small price increase to consumers as a cause for substitution does not make sense. In some cases, a Medicaid consumer could switch to fee-for-service Medicaid, possibly in response to deterioration in quality. However, in most states, fee-for-service Medicaid pays providers very poorly so that access to them is poor. One might consider a market involving insurers competing to be selected by a state to participate in managed care Medicaid, but the insurer-state relationships are complex, varied and opaque. As of this time, I have not investigated them. Therefore, one reasonable approach is to consider these two categories as sufficiently different from the usual commercial plans or MA plans that they could be excluded from those markets, if data permits.

## VII. Geographic Market Definition

As is discussed above, geographic markets for health care and health insurance are tightly bound. This occurs because of the centrality of local networks to both sides of the insurer activities: selling insurance policies and purchasing health care. Therefore, examining geographic markets for health care is informative concerning geographic markets for both the

buying and selling side for health insurers. As Cory Capps (2009) states, we expect these markets to "roughly coincide."[16] Thus, this section begins with analysis of health care markets.

There is broad agreement among most economists and antitrust scholars that geographic markets for health care are localized. In contrast, I find the arguments that have been put forth for very large geographic markets to be unpersuasive. Below, I review the economic research relevant to these issues.

### A. Geographic Markets for Hospital Services

Geographic market definition is informed by research on the distance that individuals are willing and able to travel to receive inpatient care. My coauthor Lee Mobley and I analyzed patient discharge data from hospitals in 14 interior California counties spanning 1984-1993.[17] We found that the average distance travelled for inpatient care was only 7.1 miles, with a median distance of approximately about 5.0 miles. In addition, we found that increased penetration of managed care plans had not increased average distance travelled (Mobley and Frech, 2000).

Economists have also investigated geographic market definition by analyzing the extent to which increases in hospital concentration within a given geographic region leads to higher hospital prices. Dafny (2009) analyzed hospitals' pricing responses to mergers involving rival hospitals located within a short distance (seven miles or less). Dafny found that hospital pricing increased by roughly 40 percent following the merger of nearby rivals. The estimated price effects were even greater when the market radius was constrained to five miles, yet became

[16] This "rough coincidence" is fairly recent. When indemnity plans dominated, networks were rare and unimportant. Without networks, health care and health insurance were substantially decoupled.
[17] This definition excludes counties in the Bay Area, Los Angeles area and San Diego, where travel distances would be even shorter.

statistically indistinguishable from zero when the market radius was expanded to ten miles. Dafny concludes that

> the analysis reveals that most geographic definitions of hospital markets are too large for urban areas. Fixed-radius definitions of 5–7 miles appear to be more appropriate than the commonly used 15–20 miles (and, by extension, counties or MSAs) (Dafny 2009, p. 544).

Using California data, my co-authors and I analyzed the relationship between local market concentration and hospital prices. We found a robust statistical relationship between concentration and hospital prices in small local areas known as Health Facility Planning Areas (HFPAs), defined by the State of California (Mobley, Frech and Anselin 2009). HFPAs are significantly smaller than counties: On average, each California county has four HFPAs; highly urbanized counties have many more. For example, 22 HFPAs are either entirely or partly contained in Los Angeles County (Mobley, 2015).

We implemented a conservative version of the hypothetical monopolist test, in which we estimated the price effects associated with a movement from average concentration to a monopoly in the HFPAs.[18] Such a hypothetical merger would lead to a 13 percent increase in hospital prices (Mobley, Frech and Anselin, 2009, p. 15). This price increase significantly exceeds the standard (5 percent) price increase contemplated by the *DOJ/FTC Merger Guidelines* (2010, pp. 8-11). We concluded that, on average, actual markets were smaller than HFPAs and a *fortiori* smaller than counties.

Cory Capps, David Dranove and Mark Satterthwaite (2003) analyzed the predicted price effects of mergers involving hospitals serving small suburban cities within the San Diego metropolitan area. The authors estimate patients' willingness to pay (WTP) for different

[18] The test was conservative because we simulated a different thought experiment than that of the *Guidelines*. We started with the average level of concentration of an HFPA, which corresponds to less competitive situation than the competitive benchmark.

hospitals based on the characteristics of the hospital and the fraction of patients it receives. The authors then simulate the effects of hypothetical hospital mergers by estimating the additional profits that two or more merging hospitals would be able to earn through increases in their post-merger WTP and therefore prices. The analysis shows that the San Diego suburban cities of Chula Vista and La Jolla are relevant geographic markets (Capps, Dranove and Satterthwaite 2003, p. 758-750). Both Chula Vista and La Jolla are located within San Diego County and, of course, both are far smaller than the county. These results imply that the relevant geographic market is significantly smaller than San Diego County.

In the past, market definition techniques such as the Elzinga-Hogarty (E-H) test and a particular form of critical loss analysis have been used to define implausibly large geographic markets for hospitals (Elzinga and Swisher, 2011; Frech, Langenfeld and McCluer 2004). The E-H market is based on patient flows. The analyst calculates two statistics. The first, sometimes referred to as the Little In From Outside (LIFO) statistic, is the percentage of patients served by all hospitals in the candidate area who reside in the candidate area.

The second statistic, sometimes referred to as Little Out From Inside (LOFI), gives the percentage of residents in the candidate service area who obtain their care from hospitals within the area. A high LOFI statistic indicates that relatively few patients travel from residences within the candidate area to obtain hospital services outside the candidate area. An E-H geographic market is established when the two percentages exceed some (arbitrary) threshold level, typically 75 to 90 percent.

Analyzing patient flows provides some useful information. But insisting on a 75 or 90 percent bright line for LIFO and LOFI, as in the E-H test, is not sensible. To assess this idea, my co-authors and I use data from California, focused on the Oakland area of the Summit

Medical Center--Alta Bates Medical Center merger. We constructed E-H "markets" using several reasonable and defensible methods. We found flawed, unbelievably large, and wildly differing definitions of the relevant geographic market (Frech, Langenfeld and McCluer, 2004). Kenneth Elzinga himself states that the E-H test is inappropriate for hospital markets (Elzinga and Swisher 2011). Taking a similar view, the U.S. Department of Justice and the Federal Trade Commission state that:

> the Agencies experience and research indicate that the Elzinga-Hogarty test is not valid or reliable in defining geographic markets in hospital merger cases (DOJ/FTC, 2004, ch. 4, p. 21).

Another approach that, as typically used, leads to implausibly large geographic markets is the critical sales loss analysis as developed by Barry Harris and Joseph Simons (1989). The test, as it has often been applied, often yields implausibly large geographic markets. The biggest problem with how critical loss analysis has been used is a failure to note that a low critical loss itself is strongly related to existing market power and to a low expected loss (FTC/DOJ 2004, ch.4, pp. 10-14; Danger and Frech, 2001; Katz and Shapiro, 2003).

### B. Geographic Markets for Physician Services

Geographic markets for physician services are also highly localized. Martin Gaynor and Robert Town state that the relevant geographic markets "are almost certainly smaller than an entire metropolitan area (2012, p. 610)." Abe Dunn and Adam Hale Shapiro (2014) analyze the physician market and conclude

> that the physician market may be considerably smaller than a county or MSA, which is consistent with results in papers analyzing competition in hospital markets (Dunn and Shapiro 2012, pp. 180-181).

### C. Geographic Markets for Health Insurance

As is discussed above, the research on geographic markets for health care is relevant for the geographic markets for health insurance because of the necessity to form local networks of providers to serve local consumers or groups and the necessity to have local consumers (or a reasonable prospect of having local consumers) to construct networks of providers.

Research directly on health insurance local markets has historically been limited because little data had been available at a fine geographic level. Thus, the older research and descriptive statistics have been restricted to larger-than-ideal geographic areas. The recent availability of data at the county level for Medicare Advantage has led to more recent research using smaller geographic market definitions. Song, Landrum and Chernew (2013) examine competition in the Medicare Advantage market at the county level. They find evidence of market power, related to market concentration, at the county level. Frakt, Pizer and Feldman (2013) analyze vertical integration of Medicare Advantage plans and hospitals at the county level and find that more integrated plans charged higher quality-adjusted premiums. Thus, the more recent research using more granular data suggests that, health insurance markets are local, "roughly" coinciding with hospital and physician markets, as Cory Capps (2009) suggested.

The recent advent of data on commercial health insurance at the county level (and even smaller areas) from HealthLeaders-InterStudy should allow future research on health insurance competition defining smaller, more economically relevant markets

## VIII. Market Definition on the Buying Side

### A. Product Market Definition

The main difference in market definition on the buying side versus the selling side involves product markets. The fundamental question is: [w]hich buyers (insurers) constrain the purchase price and nonprice dimensions for the purchase of care? For most purposes, product markets are broader on the buying side. From the provider's viewpoint, all commercial insurance is somewhat similar. The distinctions for consumers that are addressed above at length are less important for providers. Thus, one would likely include all commercial insurance on the buying side.

I suggest excluding Medicare and Medicaid for two reasons. First, there are finite pools of consumers available in these two programs. Consumers are likely to already have established relationships with their physicians, especially in Medicare. Thus, if a commercial insurer of a substantial size were to set low prices in an area, it would be difficult for providers to peel Medicare and Medicaid patients away from their established physicians in a reasonable time period at a reasonable cost. The problem would be compounded if many providers tried to do this at once. The analysis would be similar for hospitals, though established patterns are likely less sticky for hospitals than for physicians. Second, the payments from these programs are substantially lower than from commercial insurers. Medicare typically pays physicians about 80 percent of commercial rates (Luhby 2014). On average Medicaid pays about 66 percent of Medicare, thus about 53 percent of commercial rates. This percentage masks a large variation by state ranging from a low of 38 percent (New Jersey) to a high of 141 percent (North Dakota). [19] California Medi-Cal pays on the low side, only 52 percent of Medicare, thus about 42 percent of

[19] Only North Dakota and Alaska pay more for Medicaid than Medicare. This suggests that sparse rural population is related to a necessity to paying physicians more to gain access. Further, it is difficult to organize managed care systems in sparsely populated areas.

commercial rates (Kaiser 2016). Therefore, even if providers could fill their missing volume with Medicare and Medicaid consumers, at a one-time cost in delay and marketing, their ongoing profits would be greatly reduced. And, it is profits, not revenues that matter. While it may be of interest to also calculate concentration including fee-for-service Medicare and Medicaid, I suggest that the main line of analysis focus on measures that exclude them.

As discussed above, providers are likely to be very sensitive to the possibility of losing even a small percentage of their consumers because it is difficult and costly to replace them. So, buying side market power is likely to be a problem at lower concentration levels than on the selling side.[20]

### B. Geographic Market Definition

For geographic market definition, the buyer side is quite closely tied to the seller side. As is discussed above, central to both sides is the necessity of forming local networks. An insurer can't effectively sell insurance policies unless it has a good local network to offer. On the buyer side, the insurer can't offer a significant boost in volume to providers unless it has local consumers (or a prospect of having local consumers) who can be steered to the providers. This is a chicken-and-egg problem, and both the chicken and the egg are local. Further, it is probable that the market on the buyer side is slightly more local than on the seller side. An employer group considering buying a policy might have members in several local areas and want to avoid multiple plans. Further, an insurer can plug holes in its network by renting networks (at a higher cost) from such non-insurer PPO networks as First Health or MultiPlan. This can be an option, especially where there are not many consumers living in the areas where networks must be

[20] See Cory Capps (2009) for a detailed explanation of why insurers can exercise market power on the buying side even with surprisingly low market shares.

rented. As discussed above, providers are likely to be highly sensitive to the loss of even a small percentage of their customers, so insurers as buyers may have monopsony power even at fairly low concentration and market share.

The influence of commercial insurer concentration on provider behavior in small areas can be seen in research on the entry of accountable care organizations (ACOs). My coauthors and I use county-level insurance data for all commercial insurance. We find that insurer concentration at the county level has a strong negative effect on entry by public ACOs (Frech *et. al*. 2015, pp. 189-190).

## IX. Suggestions for Quantitative Analysis of Concentration and Market Share

### A. Approaches to Market Definition

As discussed above, one approach to product market definition on the selling side would have three product markets: (1) HMOs and EPOs, (2) PPOs and POSs and (3) MA plans. Another approach would split the commercial market according to type of buyer: large groups, small groups and individuals. On the buying side, one approach would include all the commercial products above. One approach to geographic market definition would be quite local, using counties, or possibly even parts of counties. Another approach would define larger markets at the MSA level. There are good reasons for calculating and taking account of measures for different market definitions, partly as a robustness test.

### B. Other Considerations: Data Availability and Long-Term Comparisons

On the product side, data are often not available for some of the product markets that I suggest. For historical and regulatory reasons, data sometimes separates fully-insured from self-

insured plans. Sometimes PPO and EPO plans are aggregated, as in the HealthLeaders-InterStudy data. Sometimes HMO and POS plans are aggregated.

Many reasonable definitions do not exactly correspond to what can be measured in the data. Also, different researchers and experts do not perfectly agree. Therefore, I suggest as a robustness test, examining more than one of the imperfect alternatives. A good example of this robustness analysis is provided by the work of Brent Fulton, Richard Scheffler and Daniel Arnold, where they examine concentration separately for combined PPO, EPO, HMO and POS insurance, separately for PPO, EPO and POS and then again, separately for PPO and EPO insurance (2016, tables A1, A2, A3). The HealthLeaders-InterStudy data did not allow separating EPO from PPO enrollment.

Often research using more aggregate data shows that high concentration or mergers raise prices even using these larger product market definitions. And, often the results are not very sensitive to product market definitions. For example, José Guardado, David Emmons and Carol Kane found that the United-Sierra merger in Nevada caused large premium increases using a broad product market of commercial HMO and PPO plans and also using a more narrow definition of only PPO plans (2013, pp. 6,7). This makes sense for both statistical and economic reasons. Statistically, market shares for HMO and PPO plans combined and PPOs only are likely to be correlated. After all, a firm's share of a combined HMO and PPO market is a weighted average of its shares in the two more narrowly defined markets: HMOs only and PPOs only. In terms of the economics, there are three reasons for this. First, in some places, PPOs and HMOs may constrain consumer choice to similar degrees. Second, on the demand side, there is some competition across product lines. Third, on the supply side, there is supply-side substitution (or potential entry). For example, in any local area, an insurer prominent in PPO

products will have a local network. Using its existing network, or perhaps a subset, the PPO would be well poised to start selling HMO products or to expand its HMO sales.

For comparison of data over long time periods, it may be necessary to use larger product markets for some analyses. This occurs because of shifting definitions and data collection categories. Thus, it may be necessary to use a more encompassing definition to construct a time series of comparable measurements.

The situation is similar for geographic markets. Often research on the competitive effects of concentration or mergers is generally robust to differing local geographic market definitions. For example, in the United-Sierra merger study cited above, the geographic unit of analysis was the MSA, and in Dafny et al. (2012) which also found that premiums rose in the wake of the Aetna-Prudential merger, many of the geographic markets were also MSAs. This makes sense for the similar statistical and economic reasons as the robustness of results to differing product market definitions. Concentration and shares are correlated at different levels of geographic granularity. Further, there is some competition across geographic markets and an insurer is well poised to enter or expand in neighboring local areas. Further, looking at concentration at the MSA level is conservative from an antitrust or regulatory perspective. If the MSA-level concentration suggests competitive concerns, a *fortiori*, there will be concerns at the county or lower level.

Also, many MSAs are single counties. Nationally, 38 percent of MSAs are comprised of only a single county (U.S. Department of Commerce, Bureau of Economic Analysis, undated). In California, the situation is more striking, with 80 percent of MSAs comprised of only a single county (State of California, Employment Development Department, undated). For example, my

home MSA, the Santa Maria-Santa Barbara MSA, includes only Santa Barbara County. For long-term comparisons, MSAs may be as granular as is possible.

## X. Research Results on Concentration in Health Insurance and Prices

Economists have shown that the extent of competition varies across local markets, allowing health insurance companies to wield market power where the local market is concentrated. The weight of the research indicates that more competing firms or less concentrated local markets lead to lower premiums.

As discussed above in the context of product markets, Dranove, Gron and Mazzeo find that an increase in the number of competing HMOs in a county-level local market leads to lower insurer profits resulting from lower prices (2003). Dafny analyzes data on the plans purchased and premiums paid by more than 700 large employers across the United States between 1998 and 2005 (2010). She finds that health insurers are able to extract higher premiums for the same health insurance plans from employers whose profits have recently increased. This form of price discrimination is more prevalent in local markets with fewer competing insurance companies—indicating that insurance providers enjoy more market power in highly concentrated local markets.

There are two papers that are particularly relevant to the proposed mergers. In the first, Leemore Dafny, Mark Duggan and Subramaniam Ramanarayanan used a merger of two large national health insurance carriers to measure the effect of changes in local market concentration on employer health insurance premiums (2012). The authors found an increase in local concentration to be statistically associated with a significant increase in employer insurance

premiums; they also found that the health insurance merger placed downward pressure on physician compensation, thus indicating market power on both sides of the market.

In the second paper, also briefly discussed above, José Guardado, David Emmons and Carol Kane analyze the price effects of the merger of United Health Group and Sierra Health Services in Nevada. Using a difference-in-difference approach, they find a substantial increase in prices (2013) that is robust to alternative product market definition.

## XI. Conclusions

These comments do not cover all the issues involved in evaluating the proposed merger. Instead, I have focused on the research relevant to market definition and to the effect of higher concentration in health insurance markets.

On product market definition on the seller side, one approach is to analyze the relevant product commercial markets as two, related to how much the plan restricts consumer choice. One market includes the less restrictive plans: Preferred Provider Organizations (PPOs) and Point of Service Plans (POSs). The second includes the more restrictive plans: Health Maintenance Organizations (HMOs) and Exclusive Provider Organizations (EPOs). Another approach would divide the seller-side market according to type of customer. One market would include large groups, another would include small groups and another would include individuals. MA plans can be viewed as their own separate market. For several reasons, I suggest excluding Medicare and Medicaid from concentration analysis.

On product market definition on the buyer side, I would suggest a market definition of all commercial insurance. As discussed above, managed care Medicaid is complex, changing, quite different from ordinary commercial insurance and not well understood. Future research and

experience may allow for a different treatment. Insurance sold through the ACA exchanges also appears to be a separate market, but it is in flux and not so well understood. If the data permit, I would suggest excluding it from concentration calculations. Like managed care Medicaid, more research and experience may allow for a different treatment.

On geographic market definition, markets are local. One approach is to analyze geographic markets at a granular level, probably, the county or a smaller area than the county.. An alternative approach would be at more aggregative level, such as the MSA.

In any case, I suggest robustness tests calculating and taking account of concentration measures using alternative product and geographic market definitions. Finally, existing research suggest that higher insurer concentration is likely to both raise premiums paid by consumers and reduce prices paid to providers.

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