Paying a Premium on your Premium?
Consolidation in the U.S. Health Insurance Industry

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Abstract

We examine whether and to what extent consolidation in the U.S. health insurance industry is leading to higher employer-sponsored insurance premiums. We make use of a proprietary, panel dataset of employer-sponsored healthplans enrolling over 10 million Americans annually between 1998 and 2006 to explore the relationship between premium growth and changes in market concentration. We exploit the differential impact of a large national merger of two insurance firms across local markets to estimate the causal effect of concentration on market-level premiums. We estimate real premiums increased by approximately 7 percentage points (in a typical market) due to the rise in concentration during our study period. We also find evidence that consolidation facilitates the exercise of monopsonistic power vis a vis physicians, whose absolute employment and relative earnings decline in its wake.

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Although the majority of all healthcare expenditures in the U.S. are funneled through the private health insurance industry, few researchers have examined whether the industry itself is contributing to rising health insurance premiums. This possibility has become ever more salient as consolidations continue in this highly-concentrated sector. In 2001, the American Medical Association (AMA) reported nearly half of the 40 largest Metropolitan Statistical Areas (MSAs) were "highly concentrated," as defined by the *Horizontal Merger Guidelines* issued by the U.S. Department of Justice and the Federal Trade Commission (1992). By 2008, the AMA expanded its annual report to include 314 geographic areas (mainly MSAs), 94 percent of which were found to be highly concentrated.[1] During this seven-year period, the average, inflation-adjusted premium for employer-sponsored family coverage rose 48 percent (to $12,680 in 2008),[2] while real median household income *declined* by 2 percent to $50,303 (Census Bureau, 2009).

This study examines whether there is a causal link between changes in market concentration and the recent growth in health insurance premiums. From a theoretical standpoint, both the sign and the magnitude of the effect of concentration on insurance premiums are ambiguous. On the one hand, increases in market concentration may allow health insurers to raise their markups, leading to higher premiums. On the other hand, increases in market share may strengthen insurers' bargaining positions vis a vis healthcare providers, leading to reduced outlays and lower premiums. In addition, there are many potential sources of efficiency gains from consolidation, including economies of scale in IT investing and disease management programs, which would also reduce costs and optimal premiums.[3] The net effect on insurance premiums is thus ultimately an empirical question.

The key challenges to empirically estimating such a link are adequate data and exogenous variation in market concentration. Comprehensive data on a large sample of healthplans are extremely difficult to obtain because contracts are customized for each buyer across many

[1] "Competition in Health Insurance: A Comprehensive Study of U.S. Markets," American Medical Association, 2001 and 2008. These figures are based on the reported levels of the Herfindahl-Hirschman Index for HMOs and PPOs combined. Estimates are not strictly comparable over time due to changes in methodology and sample selection. For example, self-insured HMOs are generally included in 2001 but excluded in 2008. The *Horizontal Merger Guidelines* define markets with HHI > 1,800 as "highly concentrated."

[2] The corresponding increase for single coverage was 44 percent. Premiums include both employer and employee contributions, and are adjusted to 2008 dollars by the authors using the CPI-U. Nominal monthly figures are reported in *Employer Health Benefits 2009 Annual Survey*, Kaiser Family Foundation/Health Research and Educational Trust Survey, http://ehbs.kff.org/.

[3] Rent transfers from providers to insurers are not efficiency gains, although they may reduce premiums.

different dimensions, renegotiated annually, and considered highly confidential. In addition, premiums vary based on the demographics, health risks, and expenditure history (or "experience") of the insured population. Thus, it is difficult to calculate a standardized premium to enable comparisons across employers and/or markets.

To address these issues, we utilize detailed longitudinal data for the healthplans offered by a sample of more than 800 employers in 139 distinct geographic markets in the U.S. Our data spans the nine years between 1998 and 2006 with more than 10 million Americans represented in the sample each year. Our analysis focuses on the effect of concentration on the *growth rate* in average health insurance premiums for the same employer in a specific geographic market over time. This alleviates concerns about time-invariant unobservable differences in the risk profiles of employee groups and the characteristics of plans they utilize. We also utilize data on time-varying measures such as employee demographics, the types of plans offered (HMO, POS, etc.), and the generosity of benefit design.

After documenting trends in the level and growth of concentration (as measured by the sum of squared market shares, or HHI) in 139 distinct geographic markets, we estimate OLS models of the relationship between premium growth and concentration levels. We do not find evidence that premiums are rising more quickly in markets that are becoming more concentrated. Although these estimates are useful for descriptive purposes, they are unlikely to provide causal estimates of the impact of market structure on premiums. Differences in HHI across markets – or even changes in HHI within markets - are likely to be driven by many factors that are not exogenous to premium growth. These include differences (or changes) in consumer preferences, product offerings and pricing strategies, and the market conduct of hospitals, physicians, and other health care providers. For example, consider a market with a struggling local economy. In such a market, consumers may flock to low-priced carriers, bringing about an increase in local market concentration and a simultaneous reduction in average premium growth. This pattern does not imply consolidations in such a market would reduce premium growth, *ceteris paribus.*

To obtain a credible estimate of the causal impact of concentration on premium growth, we exploit sharp and heterogeneous increases in local market concentration generated by the 1999 merger of two industry giants, Aetna and Prudential Healthcare. Both were national firms, active in most local insurance markets, and thus the merger had widespread impact. However,

the pre-merger market shares of the two firms varied significantly across local markets, resulting in very different shocks to post-merger concentration. For example, in our sample the pre-merger market shares of Aetna and Prudential in Jacksonville, Florida were 19 and 24 percent, respectively, versus just 11 and 1 percent, respectively, in Las Vegas, Nevada. Holding all else constant, this implies an increase in post-merger HHI of 892 points in Jacksonville, but only 21 in Las Vegas. Focusing on the years immediately surrounding this merger, we examine the relationship between premium growth and HHI changes using these predicted changes as instruments for actual changes, and controlling as well as possible for changes in the characteristics of healthplans (such as copayment levels).

The point estimates indicate that rising concentration in local health insurance markets accounts for a small share of premium growth in recent years. Specifically, our instrumental variables estimates imply that the mean increase in local market HHI during 1998-2006 raised premiums by roughly 7 percent from their 1998 baseline, all else equal. Given private health insurance expenditures of $490 billion in 1998, *if* this result is generalizeable then the "premium on premiums" by 2007 is on the order of $34 billion per year, or about $200 per person[4] with employer-sponsored health insurance.[5]

Although our focus is on the exercise of market power by insurers in the *output* market, consolidation may also have important effects on *input* prices. Using data on earnings and employment of healthcare personnel, we exploit the differential impact across geographic markets of the Aetna-Prudential merger to examine whether there is a causal link between concentration and these outcomes. Our analysis indicates that the growth in insurer bargaining power following this consolidation resulted in lower earnings and employment growth for physicians, and higher earnings and employment growth for nurses. This suggests that insurers used their increased bargaining power with health care providers to substitute nurses for physicians.

[4] This compares to an average annual premium of $4,479 for workers with single coverage (Source: 2007 Employer Health Benefits Survey conducted by the Kaiser Family Foundation)

[5] Source: National Health Expenditure Data provided by the Center for Medicare and Medicaid Services; available online at http://www.cms.hhs.gov/NationalHealthExpendData/. The vast majority of this spending is by employer-sponsored plans; just 9 percent of the non-elderly privately insured have policies that are not employment-based (Census Bureau, 2009). Additionally, this figure understates the size of the private health insurance industry as it excludes expenditures by Medicaid and Medicare managed care plans.

The paper is organized as follows. Section I discusses prior related research. Section II describes the data in detail. We examine the association between local market concentration and premium growth in Section III. In Section IV we investigate whether a causal relationship exists between these two variables using the variation across geographic markets in the merger-induced increase in insurer concentration. Section V extends the analysis in Section IV, examining the impact of the merger-induced changes in concentration on other outcomes of interest such as the percent of enrollees in HMOs. Section VI describes our analyses of the relationship between changes in concentration and healthcare employment and earnings. Section VII concludes.

I. Related Research

Our study builds on research from two distinct streams of literature: studies of the relationship between market concentration and competitive outcomes in the empirical industrial organization literature, and studies of the health insurance industry, mainly from the health services literature. In this section, we summarize the key insights of each, and identify our contributions at the end.

A. Price-Concentration Studies in Industrial Organization

The structure-conduct-performance paradigm in industrial organization triggered a wave of empirical studies of the relationship between market concentration and profitability.[6] Using cross-sectional data for a large number of industries, many of these studies documented a positive relationship between profits and concentration.[7] This approach was famously critiqued by Harold Demsetz (1973), who argued that the observed relationship could also be explained by differences in efficiency across firms.[8] Subsequent studies focus on price, an outcome less subject to this "efficiency critique."

[6] Although our discussion focuses on studies of horizontal consolidation, researchers have also investigated the impact of vertical consolidation on price (as well as other outcomes). Recent examples of such studies include Cuellar and Gertler (2005) on physician-hospital integration and Hortacsu and Syverson (2007) on integration in the cement and ready-mixed concrete industries.

[7] See Weiss (1989) for a summary of these early studies.

[8] This approach was also criticized on other fronts, particularly the failure to control for differences in economic factors across industries, and on the use of accounting measures of profitability.