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Does it Matter if Your Health Insurer is For-Profit? Effects of Ownership on Premiums, Insurance Coverage, and Medical Spending

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ABSTRACT

The majority of private health insurance in the U.S. is administered or issued by for-profit insurers, but little is known about how for-profit status affects outcomes. We find that plausibly exogenous increases in local for-profit market share induced by conversions of Blue Cross and Blue Shield affiliates in 11 states (and 28 distinct geographic markets) had no significant impact on average premiums, uninsurance rates, or medical loss ratios. However, we do find significant increases in Medicaid enrollment and a reallocation of medical spending toward rivals of BCBS. Moreover, in markets where the converting BCBS affiliate had substantial market share, fully-insured premiums for employer plans increased significantly. The results suggest that the welfare effects of subsidies for new not-for-profit insurers, such as those in the Affordable Care Act, are likely to depend on entrants' eventual market share.

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I. Introduction

The Affordable Care Act (ACA) of March 2010 is projected to achieve near-universal coverage of the (legal) U.S. nonelderly population.[1] By the end of the decade, roughly 22 million individuals are expected to receive subsidies to purchase private insurance through state-specific insurance marketplaces ("exchanges"). Federal spending on these subsidies is estimated at $681 billion over the first 10 years.

The private insurance industry was widely criticized during the national debate over healthcare reform, however, with President Obama stating (in a widely-publicized speech to the American Medical Association) "what I refuse to do is simply create a system where insurance companies have more customers on Uncle Sam's dime, but still fail to meet their responsibilities."[2] The most strident criticism was often directed toward for-profit insurers, who were accused of putting "profits before patients," although there is little systematic research to support this claim. After the idea of establishing a "public option" in the new insurance exchanges failed to muster sufficient political support, the concept of providing federal seed money to form not-for-profit cooperatives was floated as an alternative. Formally introduced as the Consumer-Owned and Oriented Plan (CO-OP), Senator Kent Conrad (R-ND) asserted that co-ops "will focus on getting the best value for customers, rather than maximizing plan revenues or profits."[3] According to Conrad, "[m]any experts believe co-ops, *as non-profits*, could offer significant discounts when compared to traditional, for-profit insurance companies."[4] A total of $6 billion was included in the final bill to help establish CO-OPs by July 1, 2013, notwithstanding the lack of research on not-for-profit insurers, let alone co-ops.[5]

[1] All figures are from "Updated Estimates for the Insurance Coverage Provisions of the Affordable Care Act", *Congressional Budget Office*, 3/13/2012. Estimates reflecting the June 2012 ruling by the Supreme Court will not be available until late July 2012.
[2] http://www.usatoday.com/news/washington/2009-06-15-obama-speech-text_N.htm
[3] "FAQ about the Consumer-Owned and –Oriented Plan (CO-OP)," accessed 7/15/2010 at http://conrad.senate.gov/issues/statements/healthcare/090813_coop_QA.cfm.
[4] ibid. Emphasis added. Senator Conrad's office did not respond to a request for the names of the experts.
[5] $2.6 billion of this funding was eliminated as part of a budget deal in April 2011. Source: http://www.ama-assn.org/amednews/2011/12/26/gvse1229.htm

In this paper, we consider the role of insurance ownership, and in particular, the effect of for-profit versus not-for-profit ownership, on pricing, insurance coverage, and medical spending. While there is an extensive theoretical and empirical literature examining the impact of ownership form on outcomes in the hospital sector, there is comparatively little research of this kind focusing on the health insurance industry.[6] Theoretical models offer ambiguous predictions, underscoring the value of empirical analysis. Many models of not-for-profit (NFP) behavior in healthcare settings predict underpricing relative to for-profits (FPs), holding quality constant. These models assume that NFPs explicitly value the quality and/or quantity of care provided ("access" in the policy vernacular), whereas FPs value these attributes only as inputs into profits. Alternative, consumer-focused theories posit that FPs must underprice to compensate consumers for the more severe agency problem which arises from strict profit maximization. Of course, if ownership form is associated with productivity, pricing will reflect these differences as well. While our analysis will not explicitly distinguish among these various mechanisms, we uncover important differences in the behavior of FP and NFP insurers, differences which may prove useful to national and state policymakers and regulators who are currently implementing significant reforms to insurance markets.

Our primary data source is the Large Employer Health Insurance Data (LEHID), a national, unbalanced panel of employer-sponsored healthplans. This proprietary data, gathered by a leading benefits consultancy, includes information on the healthplans of ~10 million enrollees annually. During our study period, 1997-2009, over 950 employers – primarily multisite, publicly-traded firms – are represented in the sample. The unit of observation is the healthplan-year. A healthplan is defined as a unique combination of employer, market, insurance type, insurance carrier, and plantype (e.g., Company X's Chicago-area fully-insured Aetna HMO). The data span 139 geographic insurance markets in the U.S.; these markets, identified by the data source and consisting primarily of metropolitan areas and non-metropolitan areas within state borders, reflect the boundaries used by insurers when negotiating rates with employers. We also utilize data from the Current Population Survey and the National Association of Insurance Commissioners to evaluate the impact of local FP market share on

[6] A notable exception is Town, Feldman, and Wholey (2004), which examines conversions of NFP HMOs to FP status between 1987 and 2001. The authors find no short-term effect on premiums or profits of converting firms.

insurance coverage rates for the under-65 population and insurer medical loss ratios, respectively.

Given the dearth of information on the ownership status of health insurers, we begin by documenting important facts about FP insurance in the LEHID, including market penetration by region, by product type, by insurance type (i.e., self-insurance vs. full insurance), and over time. To explore the relationship between FP status and premiums, we develop a regression-adjusted premium index for each of the 139 geographic markets over the 13-year study period. In each market, this index captures the average year-on-year growth for the exact same healthplan (as defined above), controlling for observable changes in plan design and demographics.

We find no significant association between changes in market-level FP share and our market-level premium index, controlling for market-year covariates such as the local unemployment rate and Medicare spending (as proxies for trends in medical utilization). However, time-varying omitted characteristics may bias these estimates if they are correlated with FP share. For example, FP carriers may strategically expand where they can enjoy the highest margin growth.

In order to address this identification concern, we exploit plausibly exogenous shocks to local FP share generated by ownership conversions of 11 state-specific Blue Cross and Blue Shield (BCBS) affiliates. We also explore how the effect of conversion varies with the market share of the converting plan. BCBS affiliates offer insurance throughout the United States, and typically rank first or second in terms of local market shares.[7] As we discuss in detail below, a wave of conversions and unsuccessful attempts to convert followed the 1994 decision by the national umbrella organization to permit conversions of local BCBS plans to FP status. We compare premium growth for plans in the 11 states (with 28 distinct geographic markets) experiencing conversions with premium growth for plans in the 7 states (plus DC, yielding 19 "control" markets) whose local BCBS affiliates attempted to convert but, owing to a variety of factors such as community opposition, golden parachutes for executives, and regulatory actions,

[7] BCBS plans ranked first or second in 95 percent of 359 MSAs listed in "Competition in Health Insurance: A Comprehensive Study of U.S. Markets" (*American Medical Association 2010).*

ultimately failed in this effort. If the ability to consummate a conversion is orthogonal to other characteristics determining premiums, then local BCBS FP status can serve as an instrument for market-level FP penetration in this sample. This assumption is supported by the similar pre-conversion trends in premiums in areas with and without consummated conversions.

We find no statistically-significant impact of BCBS conversions on market-level prices, *on average*. However, markets with above-average pre-conversion BCBS share (20.2 percent in our sample)[8] experienced an increase in fully-insured premiums of roughly 13 percent, and (a marginally significant) increase in self-insured premiums of 4percent. The modest effect on self-insured premiums (or "premium equivalents," as they are often called) is consistent with more robust competition for this customer segment (Dafny 2010). Separating the sample into BCBS and non-BCBS plans reveals that post-conversion price increases in high-BCBS share markets were common to both types of plans. Thus, a simple comparison of price changes for converting and non-converting plans in the same market – a common tactic for case studies of conversions – would understate the effect of conversion.

Put together, the findings are consistent with greater exercise of market power by FP insurers. Only insurers who are sufficiently large possess market power, and the evidence suggests this power was not exercised to its maximal extent by BCBS affiliates when they were NPs (assuming no significant post-conversion quality improvements, a possibility we discuss in Section VI below). The spillover effect on rivals magnifies post-conversion price increases where they occur, and confirms earlier work suggesting prices in health insurance markets are strategic complements, consistent with a model of differentiated Bertrand competition among insurers (Dafny 2010; Dafny, Duggan and Ramanarayanan 2012).

We also exploit the BCBS conversions to study the effect of insurer ownership status on insurance coverage and medical loss ratios. As these outcomes are only available at the state-year level, our sample size is considerably smaller. However, we find statistically significant increases in Medicaid enrollment rates in states with relatively large BCBS conversions, as

[8] As we discuss in Section IV.B, our threshold shares likely correspond to higher shares in the entire commercial insurance market (i.e,. including individuals, small employers, and large but primarily single-site employers).

compared to states with smaller conversions or failed conversion attempts. Where they occur, increases in Medicaid enrollment appear to be offset by statistically-insignificant decreases in employer-sponsored and individual insurance, yielding no net effect on overall insurance coverage. Medical spending shares (called "medical loss ratios") at the state-year level did not change in response to conversions. However, we find that rivals of converting BCBS affiliates experienced significant increases in their MLRs, which were offset by (insignificant) decreases on the part of converting BCBS affiliates. This pattern of findings is consistent with a transfer of higher-risk customers from converting plans to rivals, although we lack the necessary data to confirm this mechanism.[9]

The paper proceeds in five additional sections. In Section II, we discuss the historical origins of FP insurers, summarize prior relevant research, and provide some background on the BCBS conversions that underlie our identification strategy. We describe our data sources in Section III. We present our estimates of the effect of FP ownership on premiums in Section IV. We discuss results on non-price outcomes in Section V. Section VI concludes.

II. Background

A. Origin and Evolution of FP Insurance Plans in the U.S.

The U.S. health insurance industry originated in the 1930s with the formation of prepaid insurance plans by hospitals, which were designed to cover inpatient charges. These came to be known as Blue Cross plans and incorporated several features proposed by the American Hospital Association (AHA), including being chartered as charitable organizations designed to serve the community. Blue Shield plans subsequently arose to cover physician charges; the two merged to form the Blue Cross Blue Shield Association in 1982. FP insurers entered the market toward the middle of the 20th century, when health insurance enrollment soared as employers sought alternative forms of employee compensation in the wake of WWII-era wage controls.

[9] We thank David Cutler for this observation.

Precise figures on current or historical market shares of FP insurers are difficult to obtain. According to America's Alliance for Advancing Nonprofit Health Care, approximately 52 percent of healthplan members were covered through FP insurers in 2008.[10] Using data from the National Association of Insurance Commissioners (NAIC), an organization of state regulators, we obtain a similar figure (54 percent) for 2008.[11] However, the NAIC data excludes self-insured enrollees, as only fully-insured plans are regulated by the states.[12] In the LEHID, we find FP shares of 47 percent among fully-insured members and 72 percent in the self-insured segment, also in 2008.[13] Clearly, FPs play a significant role in the U.S. health insurance industry in general, and an even bigger role in the large employer segment, the focus of this study.

B. Prior Research

The literature examining ownership status in the health insurance industry is relatively sparse. Before turning to these studies, we note that our work is informed by the rich theoretical and empirical literature on ownership status in the U.S. hospital industry. Up-to-date surveys of this literature can be found in Chang and Jacobson (2011) and Capps et al. (2010). Chang and Jacobson (2011) characterize four key models, all of which extend naturally to the insurance setting. At one end of the spectrum is the "for-profits in disguise" (FPID) model, which posits that NFPs behave no differently than FPs.[14] At the other end is "pure altruism," and in between is "output (and/or quality) maximization" and "perquisite maximization." Both altruists and output-maximizers value access to care, leading to underpricing (relative to FPIDs or FPs). However, FPs/FPIDs and NFPs can co-exist (i.e., both serve customers) for a variety of reasons, such as capacity constraints, cost differences, and product differentiation. While capacity

[10] This estimate includes enrollees in government-financed plans, as well as most enrollees in self-insured plans, but excludes healthplans with <100,000 enrollees. ("Basic Facts & Figures: Nonprofit Health Plans," The Alliance for Advancing Nonprofit Health Care.)

[11] We discuss the NAIC data in Section III. Our tabulations reflect only enrollment in comprehensive medical insurance. Total enrollment using this definition is 86 million in 2008. Both NAIC and LEHID FP shares pertain to enrollment in plans offered by stock corporations.

[12] The NAIC data also exclude plans from the state of California

[13] Self-insurance is more common in LEHID relative to the (nonelderly) insured population at large. In 2008, 80 percent of LEHID enrollees were in self-insured plans, whereas 55 percent of workers with health insurance were in self-insured plans. Source: "Fast Facts," February 11, 2009 #114, *Employee Benefit Research Institute.*

[14] This conjecture has empirical support from a number of studies including Duggan (2002), Cutler and Horwitz (2000), Silverman and Skinner (2004), Dafny (2005), and Capps et al.(2010), which find that NFP hospitals behave similarly to FPs, particularly in markets where they face greater competition from for-profit hospitals, on dimensions like pricing, profitability, "gaming" of reimbursement codes, quality of care, and service offerings.

constraints are less relevant in the insurance industry, costs may certainly vary by ownership form, and there are many sources of differentiation, including reputation/marketing, provider networks, benefit design, and customer service. In sum, flexible theoretical models allow for a variety of predictions vis-a-vis price, quantity, and quality.

The small literature on ownership status of health insurers can be subdivided into two general categories defined by the outcomes considered: plan quality/enrollee satisfaction, and plan pricing/profits. Most studies of the first type find higher levels of quality and satisfaction in NFP plans. Using data on Medicare HMOs from 1998, Schneider et al. (2003) report that for-profit HMOs score lower on four audited HEDIS measures (breast cancer screening, diabetic eye examinations, administering beta blockers after heart attack, and follow-up after mental illness hospitalization).[15] Controlling for county fixed effects and socioeconomic factors (including age, gender, area income and rural residence) of plan enrollees has little impact on the estimates. Studies comparing FP and NFP healthplans also find that consumer satisfaction is higher among enrollees of NFP plans (Gillies et al 2006), especially for patients in poor health (Tu and Reschovsky 2002). Finally, NFP plans appear to perform better with respect to provision of care for less affluent populations such as Medicaid enrollees (Long 2008).

The two studies that consider financial measures (profits and premiums) find little impact of ownership on these dimensions. Both rely on data from Interstudy, a private firm that has historically provided data only on HMOs, and thus the analyses are limited to this product line. Pauly et al. (2002) use data from 1994-1997 and find no association between MSA-level HMO profits and for-profit HMO penetration. Town, Feldman and Wholey (2004) study the effects of HMO conversions to for-profit status between 1987 and 2001. They find no significant impact of these conversions on a broad range of outcomes, including prices (estimated as average revenue per enrollee), profit margins, and utilization.

Our study also relies on conversions to identify the effect of ownership status; however there are important differences in our sample, unit of observation, study design, and outcomes of

[15] HEDIS stands for "Healthcare Effectiveness Data and Information Set." As of 1998, healthplans participating in Medicare Part C (then primarily HMOs) are required to report HEDIS measures to CMS.

interest. First, we focus only on the set of markets experiencing conversions or conversion attempts; thus, our treatment and control groups are likely to be more similar than the implicit treatment and control groups in prior studies. Our data include all plan types (HMO, POS, PPO, and indemnity), as well as funding arrangements (fully insured and self-insured). The original unit of observation is the employer-market-insurance type-carrier-plan type, which enables us to include a rich set of controls for the underlying insured population and the characteristics of their healthplans when constructing our market-year premium index. We also study the effects of conversions on premiums offered by both converting and nonconverting firms. This is of particular relevance given the nature of competition among insurers. To the extent that insurance prices are strategic complements, price increases by one firm will be reinforced by its rivals, who will optimally raise price in response. Thus, research that implicitly relies on non-converting plans as a control group for converting plans (in the same market) may lead to downward-biased estimates of price effects.

Significantly, we limit our attention to prices, insurance coverage and medical loss ratios. Although price (which is tightly linked to coverage) has sparked the most public concern, largely because the growth of health insurance premiums has vastly outpaced the growth of earnings and inflation, quality is an understudied and important lever. Some view MLRs as a proxy for quality, as a high MLR implies a greater share of premiums is spent directly on patients (as opposed to management or profits). Of course, this inference assumes more spending leads to better health, and that management generates no value, assertions which are certainly disputed in the literature (Robinson 1997).

C. *Blue Cross Blue Shield Plans*

Our analysis utilizes the conversion of 11 BCBS plans to FP stock corporations as a source of plausibly exogenous variation in the local market share of FP plans. BCBS plans are often the dominant insurers in their local markets, so conversion typically leads to a sharp increase in local FP share. Robinson (2006) estimates that BCBS plans hold the largest market share in every state except Nevada and California and would together control 44 percent of the national market if they were considered as one firm.

As previously mentioned, BCBS plans were chartered as social welfare organizations, and were thus exempt from most taxes. (In research published in 1983, Adamache and Sloan found no impact of these tax benefits on premium levels. Congress revoked BCBS' federal tax exemption as part of the 1986 Tax Reform Act.[16]) In June 1994, partly prompted by the decision of Blue Cross of California to form a for-profit subsidiary (WellPoint),[17] the national BCBS association modified its bylaws to allow affiliates to convert to FP ownership. This sparked a series of conversions of BCBS plans, with plans in 14 states converting to FP stock companies by 2003. (Note we are only able to study 11 of these conversions as the first 3 occurred prior to the start of our data.)

Many BCBS plans proposing or undergoing conversion cited access to equity capital as the key driver for conversion. Uses for additional capital include infrastructure investments (for example, in information technology or disease management) and acquisitions of other plans. Larger insurers can spread fixed costs over more enrollees, thereby improving operating margins.[18] In addition, within a given market, a larger insurer will be better-positioned to negotiate for steep provider discounts. Representatives of converting plans have also cited the importance of attracting and retaining top management talent, which can more easily be accomplished when equity and stock options are included in compensation packages (Schramm 2004). Finally, by creating tradable shares, conversion facilitates acquisition by other plans.

Table 1 lists the BCBS plans that attempted to convert to FP stock corporations between 1998 and 2009, subdivided by successful and unsuccessful attempts.[19] Conversions require approval from state insurance commissioners (or their equivalents). To arrive at a determination, state agencies investigate the likely effects of the proposed conversion on outcomes such as price, access and provider reimbursement (Beaulieu 2004). They also specify

[16] As 501(m) organizations, BCBS plans are entitled to other tax benefits such as "special deductions" and state tax exemptions (in some states). Source: Coordinated Issue Paper – Blue Cross Blue Shield Health Insurance, available at <http://www.irs.gov/businesses/article/0,,id=183646,00.html>.
[17] Wellpoint was originally a network of for-profit HMO sand PPOs focusing on the non-group markets.
[18] "For-Profit Conversion and Merger Trends Among Blue Cross Blue Shield Health Plans," *Center for Studying Health System Change* Issue Brief 76 (January 2004).
[19] We thank Chris Conover for sharing his detailed notes on plan conversions. In addition to the 11 plans listed in Table 1, three additional plans converted prior to our study period (California and Georgia in 1996, and Virginia in 1997). These states are not included in our analysis sample.

the amount and form of compensation to be provided to the state or community in exchange for the transfer of assets to private stakeholders.

The identification assumption underlying our analysis is that the success of a conversion attempt is exogenous to omitted factors affecting the outcomes of interest. As Table 1 indicates, the range of reasons for unsuccessful attempts is broad and not clearly linked to premium, spending, or coverage trends. Indeed, in Section IV.B. below, we confirm that our outcomes of interest trend similarly in areas with successful and unsuccessful conversion attempts prior to the realized conversions.

As noted above, we define a conversion as having taken place if the BCBS plan becomes a stock company either on its own or through acquisition.[20] However, we observe three distinct changes in ownership form during our study period: NP → Mutual (4 states); NP → FP stock company (3 states); Mutual → FP stock company (8 states); our definition lumps the last two changes together.[21] Mutual insurers are owned by plan subscribers and hence explicitly value policyholder interests; as such, most analysts consider this hybrid ownership form closer to NFP than FP status.[22] In Section IV.E. ("Robustness Checks and Extensions"), we discuss reduced-form estimates of the impact of all three conversion types (details and timing of which are listed in **Appendix Table 1**). However, given the small number of experiments available to identify them separately, as well as the short pre and post-periods for the NP→ Mutual conversions, our preferred specification uses the broader definition (Mutual or NP → FP stock company).

Eight of the eleven conversions so defined take place in the same year (2001), when Anthem (the parent organization of these plans) demutualized and launched an IPO. While it would be ideal to have more variation in the timing of conversions, we do not rely solely on a pre-post study design: we also explore how the effect of conversion varies with the market share

[21] Note that all of the affiliates converting from NP to Mutual status subsequently converted to FP status, as they were a part of Anthem, a consolidator of BCBS plans which demutualized (and converted to a for-profit stock company) in 2001.

[22] For example, the Alliance for Advancing Nonprofit Healthcare (cited above) lumps mutuals together with nonprofits when reporting nonprofit market share, implicitly viewing investor ownership as a bright dividing line. As a matter of law, mutuals may be nonprofit or for-profit.

of the converting plan. There are 28 distinct geographic markets within the 11 states with converting BCBS affiliates, and 19 markets in the states with unsuccessful conversion attempts.

The prior literature on BCBS conversions largely takes a case-study approach. For example, Hall and Conover (2003) conduct a qualitative analysis of four conversions. Based on interviews with providers, consumer advocates and regulators, the authors conclude that there is little concern among these stakeholder groups that conversion will provoke premium increases. Several papers focus on the failed conversion attempt by CareFirst BCBS in Maryland, derailed in part by demands for post-conversion bonuses by BCBS executives (e.g., Robinson 2004, Beaulieu 2004). A notable exception to the case-study approach is Conover, Hall and Ostermann (2005), which examines changes in per-capita health spending, hospital profitability and insurance access resulting from BCBS conversions in all states between 1993 and 2003. Using state-level data on physician and hospital health spending from the Center for Medicare and Medicaid Services (CMS) and uninsurance rates from the Current Population Survey, the authors estimate specifications that include state and year fixed effects and indicators for years before, during and after BCBS conversion. They conclude that BCBS conversions have only a modest impact on health spending and insurance access in affected states. Our results largely corroborate these findings; however we also find important heterogeneity in the effects of conversion in markets with different BCBS market shares.

III. Data

A. Large Employer Health Insurance Dataset

Our main source of data is the Large Employer Health Insurance Dataset (LEHID), which contains detailed information on the healthplans offered by a sample of large employers between 1997 and 2009. This proprietary dataset is also used in Dafny (2010) and Dafny, Duggan and Ramanarayanan (2012) but is supplemented here with four additional years of data (1997 and 2007-2009).

The unit of observation in LEHID is a healthplan-year, where a healthplan is defined as a unique combination of an employer, market, insurance carrier, plan type, and insurance type. Most *employers* are large, multi-site, publicly-traded firms, such as those included on the *Fortune 1000* list. Geographic *markets* are defined by the data source using 3-digit zip codes and reflect the areas used by insurance *carriers* (such as Blue Cross and Blue Shield of Illinois, or Humana) to quote premiums. There are 139 geographic markets, and most reflect metropolitan areas or non-metropolitan areas within the same state (e.g. Chicago, Northern Illinois except Chicago, Southern Illinois). The *plan types* are Health Maintenance Organization (HMO), Point of Service (POS), Preferred Provider Organization (PPO), and Indemnity.

Insurance type refers to self-insured or fully-insured; the sample includes both. Insurance carriers do not underwrite risk for self-insured plans; typically they process claims, negotiate provider rates, and perform various additional services such as utilization review and disease management. Self-insured "premiums" are set by employers, who have the fiduciary responsibility to ensure they are accurate estimates of all costs associated with their plan. These costs include expected medical outlays, premiums for stop-loss insurance (if purchased), and charges levied by the administering carrier. Self-insured plans are regulated by the federal government, hence state-imposed benefit mandates and premium taxes do not apply. Large employers rely disproportionately on these plans, and accordingly they account for three-quarters of the observations in our data. Due to the differences in pricing and regulation of self and fully-insured plans, we perform all analyses separately by insurance type.

In any year an employer is represented in the sample, *all* plans offered by that employer in all markets are included in the data. Due to changes in the set of employers included in the sample from year to year, as well as changes in the set of options each employer offers, the median tenure of any healthplan is only two years. For this reason, rather than relying on the healthplan-year data to explore the effects of FP ownership, we develop a market-year premium index. In Section IV, we discuss the creation of this index in detail. Here we note that the index is constructed using *within-healthplan* premium growth. Premium growth in LEHID closely mirrors that reported by the Kaiser Family Foundation/ Health Research and Educational Trust,

whose estimates are based on a nationally-representative sample of employers.[23] Additional information on the representativeness of LEHID is reported in Dafny, Duggan, and Ramanarayanan (2012).

In addition to the identifying information described thus far, we make use of four key variables from LEHID. *Premium* represents the combined annual employer and employee charge, and is expressed as an average amount per enrollee (i.e., a covered employee); it therefore increases with the average family size of enrollees in a given plan. *Demographic factor* is a measure that reflects family size, age, and gender composition of enrollees in a given plan; these are important determinants of average expected costs per enrollee in a plan. *Plan design factor* captures the generosity of benefits, with an emphasis on the degree of coinsurance and the levels of copays. Both factors are calculated by the data source, and the formulae were not disclosed. Higher values for either will result in higher premiums. For 2005 onward, LEHID contains an indicator for whether a plan is designated as "consumer-directed." Consumer-directed plans (CDPs) typically have high deductibles and are accompanied by consumer-managed health spending accounts; prior research shows they are associated with lower premiums and slower premium growth, at least in the short term (Buntin et al. 2006).

The LEHID also includes the *number of enrollees* in each plan, excluding dependents, who are accounted for by the demographic factor variable described above. The total number of enrollees in all LEHID plans averages 4.7 million per year. Given an average family size of more than two, this implies over 10 million Americans are part of the sample in a typical year. We compiled information on the ownership status for each observation from annual surveys administered by our source to the insurance companies affiliated with each LEHID plan. These surveys include nearly all plans in the data but are only available from the year 2000 onward. We filled in missing ownership information through independent research (e.g., web searches, analyst reports). We use Table 1 to code BCBS ownership status by market.

[23] The KFF/HRET survey randomly selects employers to obtain nationally-representative statistics for employer-sponsored health insurance; approximately 2000 employers respond each year. The micro data are not publicly available, nor is the sample designed to provide representative estimates for distinct geographic areas.

Appendix Table 2 presents descriptive statistics for the LEHID data, which spans the period 1997 to 2009, inclusive. The top panel pertains to the fully-insured (FI) sample while the bottom panel pertains to the self-insured (SI) sample. The table reveals several interesting trends in large-employer-sponsored insurance over time. First, there is a pronounced shift toward SI plans. In 1997, SI plans are only a slight majority (60 percent) of observations, but by 2009 they account for 83 percent of the sample. Second, FI plans are predominantly HMOs throughout the study period, while SI plans shifted away from indemnity and POS plans and toward PPOs (and to a lesser extent, HMOs) over time. Finally, consumer-directed plans (CDP) have been growing in popularity since this descriptive measure was first included in the LEHID dataset in 2005. By 2009, 23 percent of SI plans are designated as CDPs. Very few FI plans are CDPs.

In both samples, *demographic factor* exhibits a sharp dip from 2005 to 2006 and remains at a much lower level thereafter. According to our data source, this is due to a change in the methodology used to construct *demographic factor* beginning in 2006. As *demographic factor* is an important determinant of premiums and serves as a key control variable in our regression models, we construct empirical specifications to address any issues arising from recoding. We also prepare estimates using only data through 2005 as a robustness check.

Restricting the sample to states with conversion attempts reduces the number of observations (covered employees) by 63 (64) percent. **Appendix Table 3** contains descriptive statistics for this sample, separated by final conversion status. Average premiums are nearly the same in 1997 for plans located in areas with/without subsequent conversions. By 2009, the average nominal premium in markets with successful conversion attempts had risen by 163 percent (FI) and 117 percent (SI), as compared to 148 percent (FI) and 113 percent (SI) in markets with unsuccessful attempts. Of course, these figures are not regression-adjusted, nor are they weighted by plan size.

Figure 1 presents estimates of FP penetration obtained from the LEHID sample. Data are presented separately by year (in 4-year increments), BCBS affiliation of the insurer, and insurance type (FI and SI). The top panel shows that FP penetration in the FI market is sizeable (51 percent on average) but exhibits a downward trend over time. FP penetration in the SI sector

is markedly higher (averaging 72 percent), and has remained consistently high during the past decade. The share of enrollees insured by BCBS plans increased during the study period, with the majority of the growth occurring in the FP BCBS segment. This is consistent with the large number of BCBS FP conversions that take place during this time.

Figure 2 illustrates substantial variation in penetration of FP insurers across geographic markets. When we break down FP penetration by product type, we find that FP insurers are particularly dominant in the POS product line, and relatively smaller in the HMO segment, with 2009 national market shares of 91 and 56 percent, respectively.

We supplement the LEHID with time-varying measures of local economic conditions (the unemployment rate, as reported by the Bureau of Labor Statistics), and a measure of healthcare utilization (Medicare costs per capita, reported by the Center for Medicare and Medicaid services).[24] As these measures are reported at the county-year level, and LEHID markets are defined by 3-digit zipcodes, we make use of a mapping between zipcodes and counties and where necessary, use population data to calculate weighted average values for each LEHID market and year. Summary statistics for these measures are presented in **Table 2**.

B. Medical Loss Ratio Data

The medical loss ratio is the share of insurance premiums that is paid out for medical claims ("losses").[25] We construct state-year medical loss ratios using insurer-state-year data on total spending and premiums from the National Association of Insurance Commissioners (NAIC) for the years 2001-2009.[26] The data are described in **Appendix A,** and descriptive statistics are given in **Appendix Table 4.**

[24] Medicare costs per enrollee and county are available from 1998-present. We extrapolate values for 1996-7 using coefficient estimates from a regression of Medicare costs per enrollee on county fixed effects and county trends.
[25] Note this definition differs from the definition used to enforce the minimum MLR regulations in the ACA. The ACA definition includes spending for quality improvements in the numerator, and excludes taxes and fees from the denominator; it cannot be calculated using available data sources. ("Private Health Insurance: Early Experiences Implementing New Medical Loss Ratio Requirements, www.gao.gov/new.items/d11711.pdf, GAO 2011).
[26] Data for earlier years is not available.

IV. Do For-Profit Insurers Charge Higher Premiums?

Our primary equation of interest is a regression of a market-year premium index on the corresponding market share of FP insurers:

$$(1)\quad \text{premium index}_{mt} = \alpha + \phi FP\ share_{mt-1} + \psi_m + \delta_t + \Gamma X_{mt-1} + \varepsilon$$

This model includes market fixed effects (ψ_m), therefore ϕ is identified by changes in market-level FP share. We also include year dummies (δ_t) to control for national trends in premiums and FP market share, and two market-year controls: the local unemployment rate and ln(Medicare spending per capita). During recessions, insurance takeup is lower (albeit not dramatically so in the large group market), leading to greater adverse selection and higher insurance premiums. Medicare spending serves as a proxy for local medical utilization. Both of these variables are lagged owing to the fact that they affect insurers' projections of health care costs, which are necessarily incorporated into pricing with a lag. Observations are weighted by average market-level enrollment, and standard errors are clustered by market.

A priori, the sign of ϕ is ambiguous. The price points selected by FPs (relative to NFPs) depend not only on differences in their objective functions, but also on costs, market structure, and consumer preferences, among other factors. These factors also contribute to the identification challenge in equation (1). While market and year fixed effects eliminate time-invariant or nationally-trending factors (respectively) which may affect both premiums and FP share, dynamic market-specific factors may bias the coefficient estimate.

To examine whether there is a causal link between ownership status and premiums, we make use of the 11 FP conversions of BCBS plans (affecting 28 distinct geographic markets). Specifically, we instrument for $FP\ share_{mt-1}$ using an indicator for the FP status of the BCBS carrier in market *m* and year *t-1*, as well as interactions between this indicator and measures of the magnitude of the conversion. The control group consists of the 19 markets (in 7 states plus DC) in which the local BCBS carrier unsuccessfully attempted to convert. The following

subsections describe the main steps in our analysis in greater detail: constructing the market-year premium index, validating the instruments and estimating first-stage and reduced-form models, and performing IV/2SLS.

A. Constructing a Market-Year Index of Premium Growth

Before we discuss the creation of our market-year premium index, we note the rationale for this unit of observation. If instead we relied upon the original unit of observation (plan-year), we would be comparing premium growth for customers of converting BCBS plans with premium growth for customers of non-BCBS plans in the same markets. This strategy is suboptimal for three reasons. First, there are too few plans in our sample with a sufficiently long panel to permit reliable estimates. Even among employers appearing in the data for many consecutive years, there is very frequent churning in the set of plans offered.[27] Second, the estimates suffer from selection bias: only those customers remaining with their pre-conversion carriers (and plan types) would be included in the analysis, and switching is a response to conversion. Finally, given the oligopolistic nature of most insurance markets, any changes in the pricing of the local BCBS carrier should affect the pricing of competitors, so that a comparison of BCBS and non-BCBS plans in the same markets will understate the pricing effect of a conversion. By using the market-year as the unit of observation, we estimate the marketwide impact of conversions using markets without converting plans as a control group. As noted above, we allow the impact of conversions to depend on the market penetration of the converting BCBS plan.

To obtain a market-year price index, we estimate the following model:

$$(2)\quad \ln(\text{premium})_{emcjt} = \beta_0 + \beta_1 demographics_{emcjt} + \beta_2 demographics_{emcjt} * (year >= 2006)_t + \beta_3 plan\ design_{emcjt} + \beta_4 CDP_{emcjt} + \pi_{emcj} + \kappa_{jt} + \varphi_{mt} + \varepsilon$$

[27] For example, over the period 1998-2006, 47 percent of employer-market cells experienced a change in the set of plans offered between year t and year t+1 (Dafny 2010).

where *emcj* denotes "employer-market-carrier-plan type" (henceforth "plan") and *t* denotes year.[28] The variables of interest are the market-year effects, denoted by φ_{mt}. The coefficients on these terms capture average premium growth for each market and year. Because our objective is to isolate premium growth for a "standardized product," we include a rich set of controls.

First, we include all the plan-year-specific covariates we observe: *demographic factor, plan design,* and an indicator for whether a plan is consumer-directed (CDP).[29] To ensure that the change in the construction of demographic factor between 2005 and 2006 (referenced earlier in Section III) does not impact the results, we add an interaction term between demographic factor and an indicator for 2006 and beyond. Second, we include healthplan fixed effects (dummies for each plan, denoted by π_{emcj}). As a result, the coefficients on the market-year dummies will reflect average market-specific growth *for the same exact plan* from one year to the next. As previously noted, premium growth in LEHID closely matches premium growth nationwide, mitigating concerns about changes in sample composition.

Finally, we include plan type-year interactions to control for the effect of phenomena such as the "HMO backlash" against utilization review and selective provider networks. The backlash caused HMOs to curtail these hallmark features, raising the relative cost of HMOs over time (Draper et al. 2002). If the shift away from HMOs occurred more quickly in some markets, and if this is correlated with the presence and/or popularity of FPs, excluding the plantype-year fixed effects could lead to biased estimates of the coefficient of interest. We estimate equation (2) separately for FI and SI plans, weighting each observation by the mean number of enrollees for the relevant plan.

Estimating equation (2) yields 12 coefficients for each market; 1997 is the omitted year. We set the premium index equal to 100 for each market in 1997, and apply the estimated coefficients on the market-year dummies to calculate the index in all subsequent years. (For example, a market-year coefficient of 0.2 would imply an index of 100*(exp(0.2))=122.14).

[28] We omit the subscript for insurance type because we estimate equation (2) separately for SI and FI plans.
[29] Per the source, CDPs are high-deductible healthplans.

Descriptive statistics for the premium index, which is constructed separately for FI and SI plans, are presented in Table 2. Premium growth is very similar for both plan types, with the (unweighted) mean market premium index reaching ~290 in both the FI and SI samples by 2009. This increase (i.e., 190 percent) compares to a nominal increase of 140 percent in the average family premium for large firms (200+ employees), as calculated from KFF/HRET survey data during roughly the same period (1999-2010 rather than 1997-2009).[30] Given our price index holds product features such as carrier identity and plan generosity constant, we anticipate steeper growth than would be observed from a simple comparison of unadjusted premiums over time. In the face of rising insurance premiums, employers substitute toward cheaper plans, so that realized price growth is lower than predicted price growth holding plan characteristics constant.

We also estimate a version of equation (2) which permits separate estimates of the market-year coefficients for BCBS and non-BCBS plans (by interacting indicators for each with the set of market-year dummies). We exponentiate the two sets of coefficient estimates to form separate price indices for BCBS and non-BCBS plans, and use these to study the differential effects of the BCBS conversions on converting plans and their rivals. Again, we repeat this process separately for the sample of fully-insured and self-insured plans.

B. First Stage: Effect of Conversions on Local Market FP Share

As previously described, we posit that conversions of BCBS affiliates constitute a positive shock to local market FP share. **Table 3** reports the results from first-stage regressions of the following form, separately for the FI and SI samples:

$$(3)\quad FP\ share_{mt-1} = \alpha + \kappa_1 BCBS\ FP_{m,t-1} + \psi_m + \delta_t + \Gamma X_{mt-1} + \varepsilon$$

On average, conversions are followed by increases in FP market share of 14.5 % (FI) and 33.8% (SI). Next, we confirm that these increases varied systematically with the pre-conversion market share of converting affiliates, calculated as the enrollment-weighted average market share of the converting plan during the three years preceding conversion. **Figure 3** documents the significant

[30] Employer Health Benefits 2010 Annual Survey, Exhibit 1.12, downloadable at http://ehbs.kff.org/pdf/2010/8085.pdf

variation in pre-conversion share across markets, calculated using the combined FI+SI sample.[31] Pre-conversion share ranges between 6% and 35%, with an enrollment-weighted average of 20%. These shares are lower than BCBS shares reported by other sources. There are two reasons for this difference: (1) multisite firms are more likely to utilize carriers offering plans nationwide (e.g. Aetna, CIGNA), and to do this via BCBS requires coordination across many affiliates; (2) BCBS typically has larger market share in the individual and small group segments than in the large group segment, owing in part to its historical mission of ensuring broad access to medical care.

Column (2) of Table 3 reports the results obtained when adding an interaction between $BCBS\ FP_{m,t-1}$ and *pre-conversion share* to equation (3). As expected, the coefficient on this interaction is large and positive in both the FI and SI samples, but it imprecisely estimated in the former. Subdividing conversions into those with "high" versus "low" market share, using the weighted average of 20.2% as the cutoff, yields greater precision in both samples.[32] Markets with high pre-conversion share saw increases of 25% and 50% in the FI and SI samples, respectively, whereas markets with low pre-conversion share saw increases of 11% and 27%, respectively.

C. Reduced Form Models: How Did BCBS Conversions Affect Premiums?

To assess the impact of conversions, we begin by estimating a specification including leads and lags of $BCBS\ FP_{m,t}$:

$$(4)\quad \text{premium index}_{mt} = \phi_0 + \phi_1 BCBS\ FP_{mt-3} + \phi_2 BCBS\ FP_{mt-2} + \phi_3 BCBS\ FP_{mt-1} + \phi_4 BCBS\ FP_{mt} + \phi_5 BCBS\ FP_{mt+1} + \phi_6 BCBS\ FP_{mt+2} + \phi_7 BCBS\ FP_{m,t>=t+3} + \psi_m + \delta_t + \Gamma X_{mt-1} + \varepsilon$$

The purpose of this model is twofold: first, to check whether the leads are statistically insignificant and lack a pronounced trend; second, to examine how the effect of conversions

[31] We used a combined sample to construct these shares for two reasons: (1) to reduce noise; (2) because provider reimbursements, which feed into premiums, are determined on the basis of the insurer's combined enrollment. As we report in Section IV.E, results are robust to sample-specific market shares.
[32] Note the classification of markets is the same using weighted or unweighted averages or medians.

varies over time. The coefficient estimates represent the market-level effect of a conversion in the relevant number of years before or after the conversion, relative to premiums in non-converting markets and premiums in converting markets four or more years prior to conversion (after controlling for fixed differences across markets, national year effects, and market-year covariates).[33]

The coefficient estimates for both the FI and SI samples are graphed in **Figure 4a** and presented (along with standard errors) in **Appendix Table 5.** We find no evidence of differences in premium trends for markets with/without successful conversions in the years preceding the conversions. Indeed, none of the leads is statistically significant. These results support the key identifying assumption that the success of a BCBS conversion attempt is orthogonal to omitted determinants of premiums. There is an uptick in premiums two or three years post-conversion, however results from a parsimonious reduced-form model that includes only a *post* indicator (discussed below) show no significant effect of conversions on premiums when the post period is pooled.

Next, we estimate models including a full set of leads and lags for $BCBS\ FP_{mt} * high$ and $BCBS\ FP_{mt} * low$, where, as in the first-stage models, *high (low)* is an indicator variable which takes a value of one in markets where the pre-conversion BCBS share is higher (lower) than the weighted average. Theoretically, the sign on these interaction terms during the post-conversion period could be positive or negative. All else equal, dominant BCBS carriers should have the market power to profitably raise price more than less-dominant plans because their enrollees have fewer outside options (i.e., these carriers face lower elasticities of demand).[34] On the other hand, if dominant converting plans are more successful in lowering costs, their optimal prices could fall. Note that either effect will be magnified in markets where BCBS accounts for a greater share of enrollees, both for mechanical reasons and due to competitive responses to BCBS' actions.

[33] For this specification, we utilize premium data from 1997-2009. All other specifications use premium data for 1998-2009 as we require a lagged measure of local FP share to estimate the 2SLS model.
[34] Of course, the change in price depends on the initial price level, and we have no a priori prediction regarding the relative prices of dominant versus less dominant BCBS affiliates.

The results, graphed in **Figure 4b** and listed in Appendix Table 5, again show fairly stable pre-conversion trends. However, in the year following conversion, FI premiums in *high* markets surge, while FI premiums in *low* markets continue a slow, steady decline which begins to reverse two years after conversion. SI premiums in both *high* and *low* markets exhibit slower, smaller premium increases in the post-conversion period.

Table 3 also presents the results from parsimonious reduced-form models, e.g.,

$$(5)\quad \text{premium index}_{\text{mt}} = \alpha + \phi BCBS\ FP_{mt-1} + \psi_m + \delta_t + \Gamma X_{mt-1} + \varepsilon$$

As suggested by the leads and lags specification (Figure 4a), FP conversions did not have a statistically significant effect during on either premium index, on average. Next, we add the continuous interaction between $BCBS\ FP_{m,t-1}$ and *pre-conversion share*. The results suggest that post-conversion premiums - for both FI and SI plans - increase in pre-conversion market share. Last, we report the results from a specification including interactions between the *high* and *low* pre-conversion share indicators and $BCBS\ FP_{mt-1}$. We find strong evidence of premium increases in *high* markets, but noisy and small point estimates in *low* markets. The post-conversion increase for FI plans is estimated at 18 points ($p<0.01$), which is roughly 13 percent of the FI premium index of 135 in 2001 (the modal pre-conversion year). SI premiums in *high* markets increased by 5 points ($p<0.10$), amounting to 4 percent of the SI premium index of 127 in 2001.

In sum, conversions of BCBS affiliates with high market share result in substantial premium increases for FI plans, and smaller, marginally significant increases for SI plans. As discussed in Dafny (2010), the opportunity to exercise market power is smaller in the SI segment, which is served by a larger number of competitors and inhibited by greater transparency in pricing. SI premiums consist of medical outlays, premiums for stop-loss insurance purchased by the employer (if any), and administrative fees charged by the insurance carrier. Price increases not associated with provider outlays must therefore occur in the latter category, and are easily observed.

Last, we contrast the post-conversion pricing responses of BCBS and non-BCBS plans by estimating the specifications in Table 3 using *BCBS Index* and *non-BCBS Index* as the dependent variables. The results are displayed in **Table 4**, again separately for FI plans (Panel A) and SI plans (Panel B). The point estimates suggest that both converting BCBS affiliates and their rivals increased price in *high* markets. The coefficient estimates are similar for both sets of insurers, but only statistically significant in the specifications using the non-BCBS Index, likely because the sample of underlying data used to construct the BCBS index is much smaller.

D. How Does For-Profit Market Share Affect Premiums?

Table 5 displays OLS and 2SLS estimates of equation (1), which relates the market-year premium index to (lagged) FP market share. We present estimates using three alternative sets of instruments: $\{ BCBS\ FP_{m,t-1} \}$, $\{ BCBS\ FP_{m,t-1}, BCBS\ FP_{m,t-1} * pre\text{-}conversion\ share \}$, and $\{ BCBS\ FP_{m,t-1} * high,\ BCBS\ FP_{m,t-1} * low \}$. Whereas the OLS results reveal no significant association between changes in market-level premiums and changes in the corresponding FP market penetration,[35] the 2SLS results suggest a statistically significant causal link for FI premiums. Using the estimates from our preferred specifications (columns 3 and 4, which correspond to the instrument sets incorporating *pre-conversion share*), we predict that a twenty-seven percentage-point increase in FP share (roughly a one-standard-deviation increase) would raise FI premiums by 15 points. The effect on SI premiums can only be distinguished from zero in one of these specifications, and the point estimates are much smaller (a one-standard-deviation increase in FP share would raise premiums by 2 to 2.5 points).[36] Hausman tests reject equality of the OLS and IV estimates in the fully-insured sample.

To calibrate the magnitude of the premium effect in the FI sample, consider that the mean FI index during the post-conversion years of 2002-2009 is 221. Thus, premiums in markets with FP share one standard deviation above the mean were approximately 7 percent (=15/221) higher than they otherwise would have been. Of course, price is but one measure of interest; in Section

[35] OLS models using all market-years (not just those in states with BCBS conversion attempts) yield similar results.
[36] In the SI sample, the standard deviation of FP share is 20 percent.

V. below, we explore whether these price increases resulted in higher gross margins (i.e., 1-MLR), and/or reduced insurance coverage.

E. Robustness Checks and Extensions

To explore the sensitivity of our findings, and to uncover other potentially interesting phenomena, we considered several alternative sample restrictions and specifications. First, we confirmed the robustness of our key findings to the following modifications: (1) limiting the study period to 1997-2005, as *demographic factor* (a highly significant predictor of premium levels) was redefined for 2006 onward; (2) dropping market-years with fewer than 20 sampled employers, so as to minimize the influence of noisy estimates of the premium index and market shares; (3) dropping all controls (apart from market and year fixed effects); (4) using the untransformed market-year coefficient estimates as the price index (i.e., not exponentiating them); (5) using insurance-type-specific BCBS market shares to classify markets. In all of these specifications, we confirm a large, statistically significant increase in FI premiums in *high* markets, and no significant impact in *low* markets.[37]

Next, we explored the sensitivity of the point estimates to excluding one conversion at a time (i.e., dropping all markets affected by a given conversion). The results are presented in **Appendix Table 6**. In every case, the effect of conversion on FI premiums in *high* markets is large and statistically significant, and the effect on FI premiums in *low* markets is small and imprecisely estimated. Last, we estimated models utilizing the three distinct ownership conversions discussed in Section II.C: NFP→ Mutual (4 states); NFP → FP stock company (3 states); Mutual → FP stock company (8 states).

The results, in **Appendix Table 7**, reveal that conversions from NFP to Mutual had no statistically significant impact on premiums, at least during the post-period we observe prior to the next conversion (to FP stock company). Conversions from NFP to FP were followed by a statistically insignificant *decrease* in FI premiums (-6 points, with a standard error of 6), whereas

[38] Specifically, the point estimate in *high* markets is -0.029 (with a standard error of 0.014). The mean SI share in 2001 is 0.672.

conversions from Mutual to FP stock company resulted in a significant increase in FI premiums (12 points, with a standard error of 5). Dropping the three states with FP to NFP conversions therefore strengthens the primary results; however, given our research objective (studying the effect of investor ownership on insurance-related outcomes), we retain these states in our models. In column (2), we add interactions between Mutual→FP and *pre-conversion share*. The results confirm the same pattern obtained using our broader conversion definition: FI premiums increased more in areas with higher *pre-conversion share*. Results in the SI sample were smaller and more noisily estimated, as before.

Last, we explored the effects of BCBS conversions on two other dependent variables, *plan design factor*, and the share of enrollees in SI plans. Both are measured at the market-year level (the former separately for FI and SI samples). We find no statistically or economically significant effects of conversions on *plan design*, implying that employers did not adjust this lever in the wake of post-conversion price increases in the FI market. Surprisingly, neither did they increase their reliance on SI plans. In fact, there is a slight *decrease* in the share of enrollees in SI plans in *high* markets following conversion.[38]

V. Effects of Ownership Status on Non-Price Outcomes

In this section, we evaluate the impact of ownership status on insurance coverage and medical spending (as a share of premium revenues). Both of these measures capture a broader purchasing pool than is reflected in the premium analysis, which is limited to large employers. Coupled with the results on price, these analyses provide a more complete assessment of the implications of ownership status in the health insurance industry.

A. Are Not-for-Profits Insurers of Last Resort?

Not-for-profits frequently claim to be insurers "of last resort"; indeed this phrase is commonly applied to BCBS plans, and appears in the statutes of some states (e.g. Michigan). Even if

[38] Specifically, the point estimate in *high* markets is -0.029 (with a standard error of 0.014). The mean SI share in 2001 is 0.672.

pricing for large employers is no different across the ownership forms, NFPs may serve the community by agreeing to insure higher-risk populations in the non-group market, and/or offering lower prices to these individuals.[39] To assess whether ownership affects insurance coverage, we obtained annual data on state-level rates of insurance coverage, separated by source (employer-sponsored, individual, Medicaid, and other).[40] All measures are expressed as a share of the under-65 population in the relevant state and year, and are estimated using the Current Population Survey (CPS) March Uniform Extracts compiled by the Center for Economic and Policy Research (CEPR) for data years 1999-2009.[41] Summary statistics are included in **Appendix Table 4.** The insurance categories are not mutually exclusive as some individuals report coverage through multiple sources.

We estimate specifications analogous to those presented in section IV, replacing the dependent variables with various measures of insurance coverage.[42] We aggregate the market-year controls to the state-year level, and add *simulated Medicaid eligibility,* a summary measure of state-year policies determining Medicaid eligibility for children under 18. This measure, constructed as per Currie and Gruber (1996) and Gruber and Simon (2008), controls for changes in insurance rates associated with state-specific changes in Medicaid eligibility criteria.[43] We weight each observation by the under-65 population in the corresponding state-year.

Table 6 presents results from reduced-form models analogous to the premium models in Table 3. Each panel corresponds to a different dependent variable: share of nonelderly with any insurance (Panel A), employer-sponsored insurance (Panel B), individual insurance (Panel C), and Medicaid (Panel D).[44] We divide states into *high* and *low* using the mean state-level BCBS pre-conversion market share (19.4 percent). The key result arising from these regressions is a

[39] Under the ACA, beginning in 2014 insurers of any ownership form will no longer be permitted to reject applicants, to impose pre-existing condition exclusions, or to charge premiums varying more than 3:1 by age and 1.5:1 by smoking status.
[40] Regrettably, these data are not consistently available at a finer geographic level (e.g. county).
[41] We do not include data from 1997 and 1998 because the CPS survey methodology changed in March 2000, generating discontinuous changes in insurance coverage between 1998 and 1999.
[42] Due to the short pre-conversion period, we do not estimate the full leads and lags specifications.
[43] We are grateful to Kosali Simon for providing us with estimates of simulated eligibility for the population aged 0-18, by state and year. None of the results are affected by inclusion of this control.
[44] In the interest of space we do not include results for "other public insurance." Across all states and years, the weighted average rate of "other public insurance" is 0.065. The coefficients of interest for this category are consistently small and statistically insignificant.

statistically-significant increase in Medicaid enrollment following conversion. The point estimate implies that Medicaid enrollment increased by 1.3 percentage points in states experiencing conversions, relative to an average Medicaid enrollment rate of 12%. This effect (i.e. a 10-percent increase in enrollment) appears to be stronger in *high* markets (a coefficient of 0.016 versus 0.010 for *low* markets), however we cannot reject equality of the coefficient estimates. *High* markets experience small and insignificant reductions in employer-sponsored and individual insurance, which appear to offset the Medicaid increase, yielding a net zero effect on the share of the nonelderly with any insurance. 2SLS estimates of the effect of lagged FP share on insurance coverage mirror the reduced-form results.[45]

In sum, we do not find that BCBS conversions adversely affected uninsurance rates, a finding echoed by several of the conversion case studies (e.g. Conover et al. 2005). However, conversions (which generate private premium increases) result in higher Medicaid enrollment. Thus, higher FP penetration does appear to crowd out private insurance coverage.

B. Does Ownership Status Affect Medical Loss Ratios?

Next, we examine the impact of conversions on insurer Medical Loss Ratios (MLRs), defined as the proportion of premium revenue disbursed for medical claims, as opposed to profits or administrative expenses. As noted in section III, we calculate MLRs by state and year, first for all insurers and then separately for BCBS and non-BCBS plans. The data are available from 2001 to 2009, and pertain only to FI plans. We limit the sample to state-years with non-missing MLR data for the primary BCBS affiliate; as a result, eight of the eleven conversions contribute to identifying the coefficients of interest. We estimate reduced-form specifications analogous to those above, again using the state-year as the unit of observation. We include our standard controls (unemployment rates and log of Medicare spending), aggregated to the state-year level.

The results are displayed in **Table 7**. Column 1 reveals that aggregate MLRs were unaffected by the BCBS conversions, on average. However, column 3 shows that MLRs for rivals of converting BCBS affiliates rose by 0.05 ($p<0.01$), on average, relative to a base of 0.89

[45] Results available upon request.

in 2001. This increase is partially offset by a noisily-estimated decline in BCBS MLRs (column 2). As a robustness check, we re-estimated all models dropping one converting state at a time; coefficient estimates and standard errors were very similar across these models. Unfortunately, our data include only 2 states with high pre-conversion shares, hence we cannot compare effects by high/low status.

One possible explanation for the results is that newly for-profit BCBS plans may have engaged in greater efforts to screen out individuals with high costs. Such an effort would simultaneously raise MLRs for competitors as high-cost enrollees shifted to their plans, reduce MLRs for BCBS plans, and leave aggregate (weighted) MLRs unchanged.

VI. Discussion and Conclusions

The U.S. health insurance industry has long been criticized for business practices ranging from pre-existing condition exclusions to lifetime benefit caps. Annual polls conducted by Harris Interactive, Inc. between 2003 and 2010 find that roughly seven percent of Americans believe health insurance companies are "generally honest and trustworthy." Only oil and tobacco companies rank lower on this measure.[46] These sentiments inspired multiple alternative proposals to generate new options under healthcare reform. The final bill included $6 billion in funding (eventually reduced to $3.4 billion in the FY 2012 appropriations bill) "to foster the creation of new nonprofit member-run health insurance issuers" (c.f. §1301), in spite of limited evidence on differences between existing NFP and FP insurers.

In this study, we use a large, national panel dataset on employer-provided insurance between 1997 and 2009 to study the effect of ownership status on self and fully-insured premiums. We supplement these data with state-level measures of insurance coverage and medical loss ratios. We obtain four key results. First, there is no statistically-significant association between changes in local-market FP penetration and changes in local-market

[46] Health insurance companies consistently score at 7 percent, with the exception of 2004-2005, when they achieved 9 percent. Note the percentage for "managed care companies such as HMOs" is lower (4-5 percent). For details, see <http://www.harrisinteractive.com/vault/HI-Harris-Poll-Industry-Regulation-2010-12-02.pdf>.

premiums, where the latter are adjusted for a rich set of factors to control for changes in the insured population and in product design.

Second, we find that the OLS results are misleading, as 2SLS estimates using conversions of 11 BCBS affiliates (with differing market shares across 28 markets) as instruments for local FP market share reveal a statistically-significant effect on fully-insured premiums. A 27-percentage point increase in local FP share (one standard deviation) is predicted to raise fully-insured premiums by roughly 7 percent; the effect on self-insured premiums is smaller and cannot consistently be distinguished from zero. Importantly, we do not observe different pre-conversion price trends in markets ultimately experiencing conversions relative to markets whose BCBS affiliates attempted but failed to convert.

Third, we find heterogeneous effects of conversions in markets with different degrees of BCBS activity. Specifically, we estimate that fully-insured premiums increased roughly 13 percent when converting BCBS plans had shares in excess of the mean pre-conversion BCBS share (20% in our sample), and roughly zero when pre-conversion share fell below the mean. Consistent with oligopolistic pricing behavior, price changes in markets with high pre-conversion BCBS share were similar for both BCBS and its rivals. It is possible that quality improvements "warranted" the price increases, but we find this explanation somewhat implausible given the similarity in price changes across all insurers. While converting plans underwent major overhauls during which quality improvements could have been implemented, rivals (in general) did not. One would have to believe that rivals made quality improvements of essentially the same market value as BCBS in all markets, i.e. greater improvements where BCBS was relatively more dominant and smaller improvements where BCBS was smaller. Given the challenges associated with generating and marketing changes in quality, as well as the fact that most rivals to BCBS in our sample are national firms, we conjecture that quality improvements likely did not account for all of the observed price increases following conversions.

Fourth, we find that BCBS conversions had no significant impact on state-level uninsurance rates (among the non-elderly). However, Medicaid enrollment increased an average of 10 percent in these states, suggesting crowdout of private insurance coverage. Conversions

also had no impact on state-level MLRs, but again there was a compositional effect in the response. MLRs increased for rivals of converting plans, and decreased for the converting plans themselves (although the decrease is not statistically significant). This pattern is consistent with a shift of high-risk enrollees from converting plans to rivals.

Some important caveats to our findings are in order. First, as discussed above, price increases attributable to large increases in FP market share may have been accompanied by quality improvements, such as electronic access to health claims, faster claim processing, and broader provider networks. Second, our findings related to premiums pertain to the large group insurance market, and the conclusions may not extend to the small group and individual insurance markets. Third, the results should be construed in light of the identifying variation. The change in behavior for converting BCBS plans may not reflect the average difference between new or existing NFP and FP carriers.

Notwithstanding these caveats, the findings have several implications for regulatory and competition policy vis-à-vis insurers. First, it appears that sizeable FP insurers are more likely to exercise market power via price increases than are comparable NFP insurers. Second, pricing actions by dominant insurers have a ripple effect on rivals' prices, further solidifying the evidence pointing towards oligopolistic conduct in many local insurance markets. Third, there is no evidence that NFP and FP insurers charge different prices in the large group market when both are relatively small. These findings suggest that subsidies for de novo NFP insurers (such as those included in the Affordable Care Act) are likeliest to generate value if they facilitate the creation of relatively large players.

References

Adamache, Killard W., and Frank Sloan. 1983. "Competition Between Non-Profit and For-Profit Health Insurers", *Journal of Health Economics*, 2, pp. 225-243.

Beaulieu, Nancy. 2004. "An Economic Analysis of Health Plan Conversions: Are they in the Public Interest?", *Forum for Health Economics & Policy:* Vol. 7, Article 6.

Buntin, Melinda et al. 2006. "Consumer-Directed Health Care: Early Evidence about Effects on Cost and Quality", *Health Affairs*, 25(6), pp. 516-530.

Capps, Cory, Dennis Carlton, and Guy David. 2010. "Antitrust Treatment of Nonprofits: Should Hospitals Receive Special Care?", *Working Paper.*

Chang, Tom and Mireille Jacobson. 2011. "What Do Not-for-Profit Hospitals Maximize? Evidence from California's Seismic Retrofit Mandate", *mimeo.*

Conover, Christopher, Mark Hall, and Jan Ostermann. 2005. "The Impact of Blue Cross Conversions on Health Spending and the Uninsured", *Health Affairs*, 24(2), pp. 473-482.

Currie, Janet, and Jonathan Gruber. 1996. "Health Insurance Eligibility. Utilization of Medical Care, and Child Health", *Quarterly Journal of Economics*, 111, pp. 431-66.

Cutler, David, and Jill Horwitz. 2000. "Converting Hospitals from Not-for-Profit to For-Profit Status: Why and What Effects?" The Changing Hospital Industry: Comparing Not-for-Profit and For-Profit Institutions. D. Cutler, Ed. Chicago, University of Chicago Press: pp. 45-79.

Dafny, Leemore. 2010. "Are Health Insurance Markets Competitive?" *American Economic Review* 100(4), pp. 1399-1431.

Dafny, Leemore, Mark Duggan, and Subramaniam Ramanarayanan. 2012. "Paying a Premium on your Premium? Consolidation in the U.S. Health Insurance Industry," *American Economic Review* 102(2), pp. 1161-1185.

Dafny, Leemore, David Dranove, Frank Limbrock, and Fiona Scott Morton. 2011. "Data Impediments to Empirical Work on Health Insurance Markets," *The B.E. Journal of Economic Analysis & Policy*: Vol. 11: Iss. 2 (Contributions), Article 8.

Draper, Debra, Robert Hurley, Cara Lesser, and Bradley Strunk. 2002. "The Changing Face of Managed Care", *Health Affairs*, 21(1), pp. 11-23.

Duggan, Mark. 2002. "Hospital Market Structure and the Behavior of Not-for-profit Hospitals", *Rand Journal of Economics*, 33(3), pp. 433-446.

Gillies, Robin et al. 2006. "The Impact of Health Plan Delivery System Organization on Clinical Quality and Patient Satisfaction", *Health Services Research*, 41(4), pp. 1181-91.

Gruber, Jon and Kosali Simon. 2008. "Crowd-out 10 years later: Have recent public insurance expansions crowded out private health insurance?" *Journal of Health Economics* 27(2), 201-217.

Hall, Mark and Christopher Conover. 2003. "The Impact of Blue Cross Conversions on Accessibility, Affordability, and the Public Interest", *Milbank Quarterly*, 81(4), pp. 509-542.

Hall, Mark, and Christopher Conover . 2006. "For-Profit Conversion of Blue Cross Plans: Public Benefit or Public Harm?", *Annual Review of Public Health*, 27, pp. 443-463.

Long, Sharon. 2008. "Do For-Profit Health Plans Restrict Access to Care Under Medicaid Managed Care?", *Medical Care Research and Review*, 65(5), pp. 638-648.

Pauly, Mark, Alan Hillman, Myoung Kim, and Darryl Brown. 2002. "Competitive Behavior in the HMO Marketplace", *Health Affairs*, 21(1), pp. 194-202.

Robinson, Jamie. 1997. "Use and Abuse of the Medical Loss Ratio to Measure Health Plan Performance," *Health Affairs*, 16(4), pp. 176-187.

Robinson, Jamie. 2004. "Consolidation and the Transformation of Competition in Health Insurance," *Health Affairs*, 23(6), pp. 11-24.

Robinson, Jamie. 2006. "The Commercia1 Health Insurance Industry in an Era of Eroding Employer Coverage," *Health Affairs*, 25(6), pp. 1475-1486.

Schramm, Carl. 2004. "The Diseconomies of Blue Cross Conversion", *Alliance for Advancing Nonprofit Healthcare Report*.

Schneider, Eric, Alan Zaslavsky, and Arnold Epstein. 2005. "Quality of Care in For-Profit and Not-For-Profit Health Plans Enrolling Medicare Beneficiaries", *The American Journal of Medicine*, 118, pp. 1392-1400.

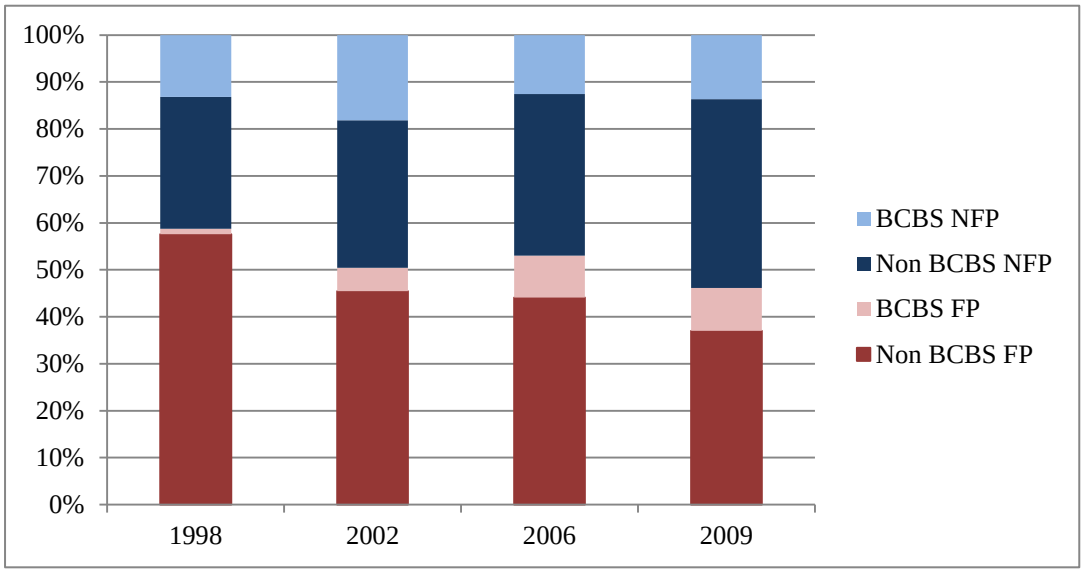
Silverman, Elaine and Jonathan Skinner. 2004. "Medicare Upcoding and Hospital Ownership," *Journal of Health Economics*, March, 23(2), pp. 369-89.

Town, Robert, Roger Feldman, and Douglas Wholey. 2004. "The Impact of Ownership Conversions on HMO Performance", *International Journal of Health Care Finance and Economics*, 4, pp. 327-342.

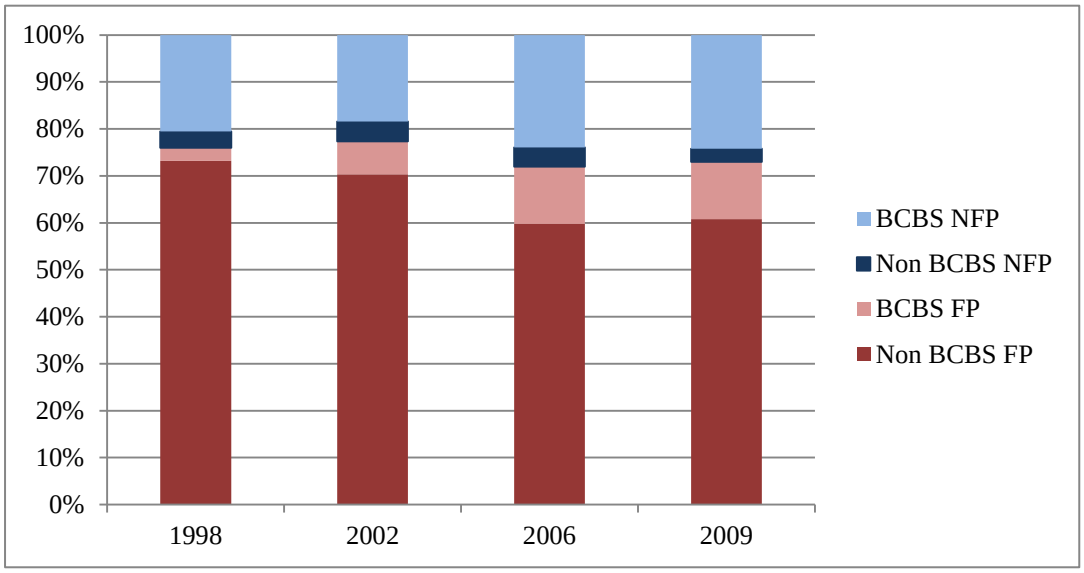
Tu, Ha, and James Reschovsky. 2002. "Assessments of Medical Care by Enrollees in For-profit and Nonprofit Health Maintenance Organizations", *New England Journal of Medicine*, 346(17), pp. 1288-1293.

Figure 1. Percent of Enrollees in For-Profit and Not-for-Profit Plans, by BCBS Affiliation

Panel A. Fully-Insured Plans

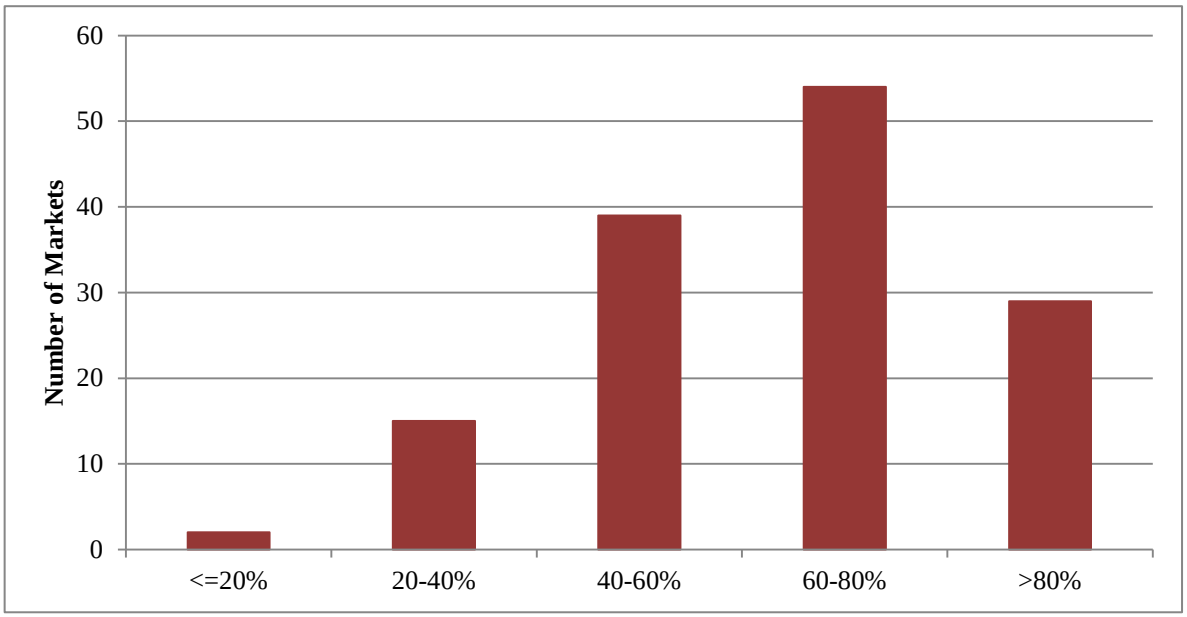


Panel B. Self-Insured Plans



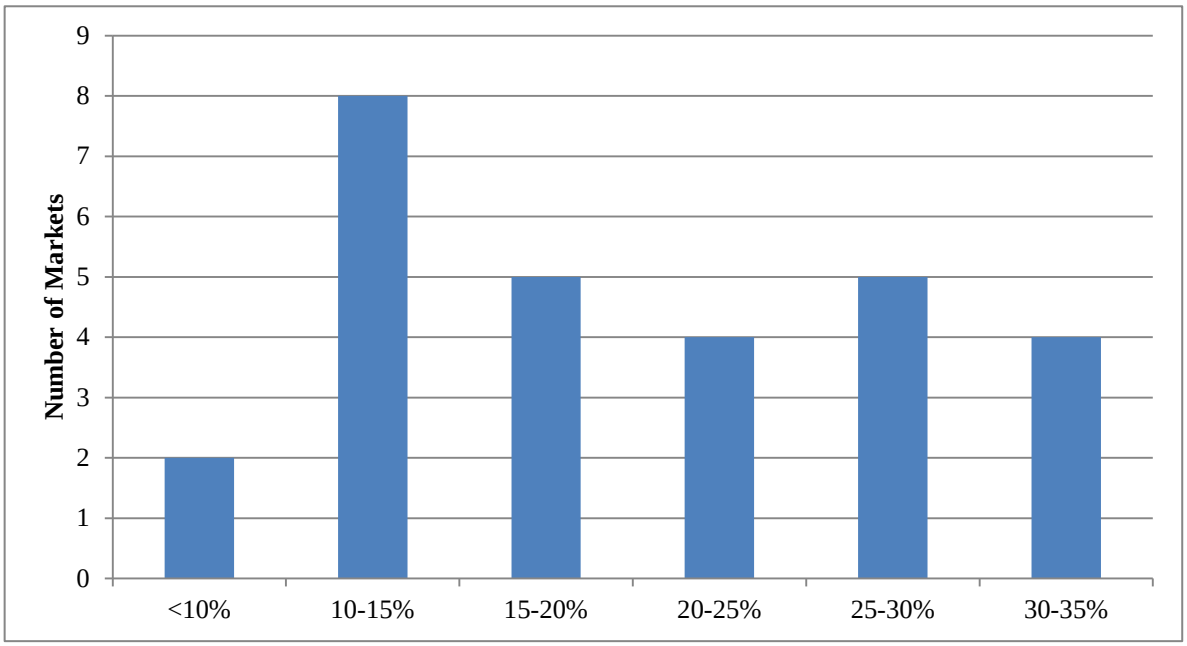
Notes: *Market shares are calculated using LEHID.*

Figure 2. Distribution of For-Profit Market Share



Notes: *Figure reflects average FP share for each market over the period 1997-2009. Sample includes fully insured and self-insured plans.*

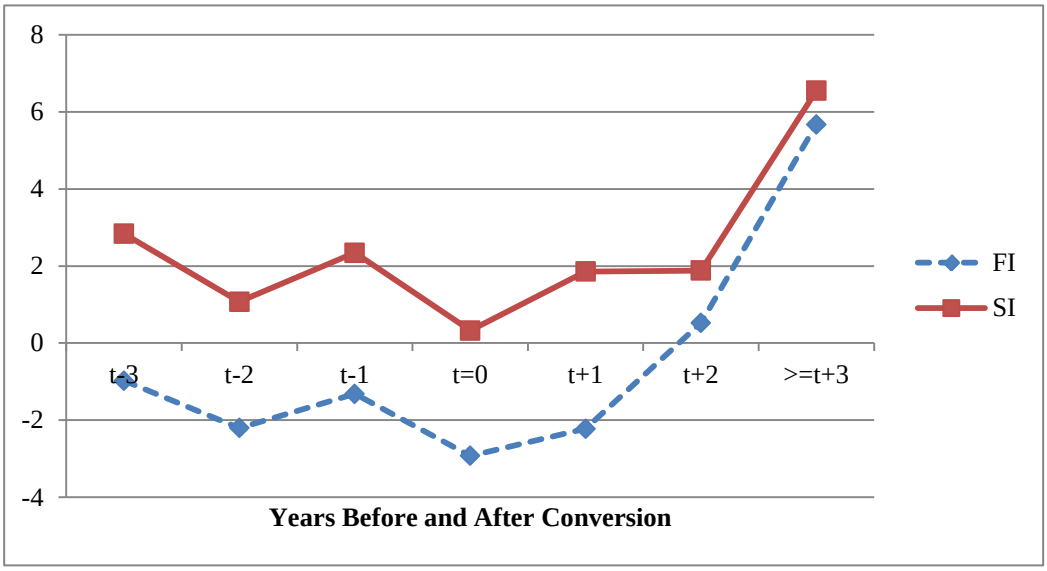
Figure 3. Distribution of Pre-Conversion BCBS Market Share



Notes: *N = 28. Pre-conversion BCBS share is computed using LEHID and refers to the enrollment-weighted average market share of the converting BCBS plan during the three years preceding conversion.*

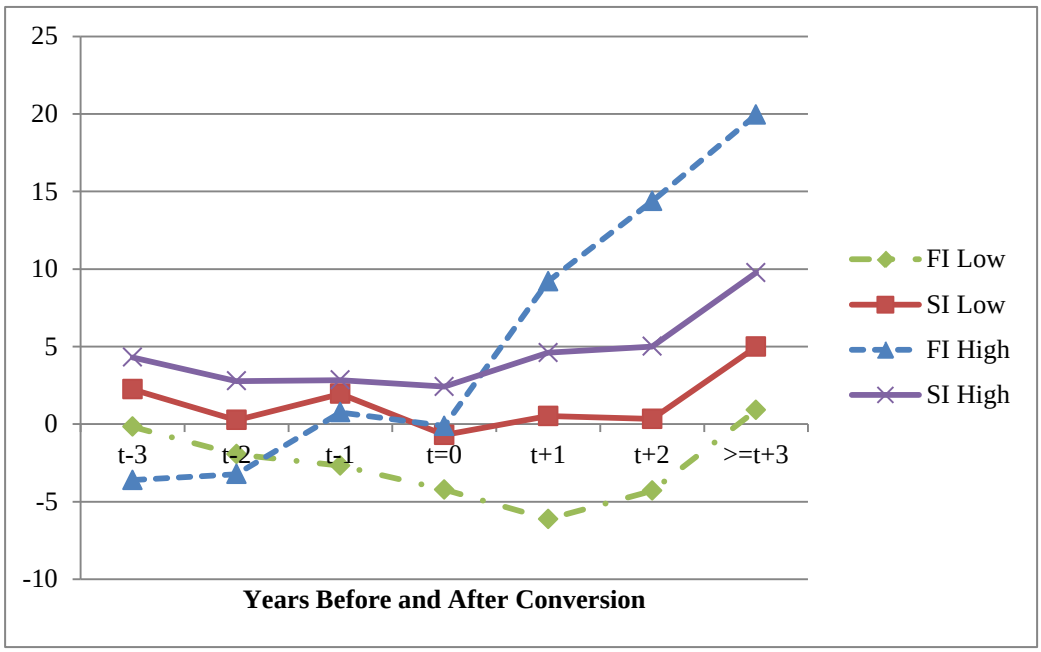
Figure 4. Effect of BCBS Conversions on Premiums
Leads and Lags Specifications

A. Coefficient estimates on leads and lags of BCBS FP indicator



Notes: *Coefficient estimates are presented in Panel A, Appendix Table 4*

B. Coefficient estimates on leads and lags of BCBS FP*low and BCBS FP*high indicators



Notes: *Coefficient estimates are presented in Panel B, Appendix Table 4*

Table 1. Blue Cross and Blue Shield Conversions to For-Profit Stock Companies, 1998-2009

Panel A. Successful Conversions

	Conversion to FP Stock Company	Year Recorded in Data
Anthem		
Colorado	November 2001	2002
Connecticut	November 2001	2002
Indiana (Accordia)	November 2001	2002
Kentucky	November 2001	2002
Maine	November 2001	2002
Missouri (RightChoice)	November 2000	2001
Nevada	November 2001	2002
New Hampshire	November 2001	2002
Ohio (CMIC)	November 2001	2002
Wisconsin (Cobalt)	March 2001	2001
WellPoint		
New York (Empire)	November 2002	2003

Panel B. Unsuccessful Conversion Attempts

	Review Period	Reason for Failure
New Jersey (Horizon)	2001-2005	Regulators unconvinced by claims that Horizon needed additional capital; strong provider opposition due to Horizon's high market share and low reimbursement rates
North Carolina	2002-July 2003	Regulators demanded 100% of stock be placed in a foundation; BCBS regulations permitted a maximum of 5% ownership stake by foundations
Kansas	2001-August 2003	Concern that conversion would result in large price increases due to high market share (in non-HMO market)
CareFirst		
Delaware	2002-September 2003	Public outrage about intended executive bonuses
District of Columbia	2002-September 2003	Public outrage about intended executive bonuses
Maryland	2002-September 2003	Public outrage about intended executive bonuses
Premera		
Alaska	2002-March 2007	Abandoned because of failure in Washington
Washington	2002-March 2007	Concerns about acquisition by out-of-state insurer and disagreements about how to put stock into a foundation

Notes: *Parent companies are listed in bold. Year recorded in data refers to the first post-conversion year as coded in our dataset. For unsuccessful conversion attempts, the review period begins with the year in which a conversion attempt was announced and ends when it was officially blocked by regulators or withdrawn from consideration.*

Table 2. Descriptive Statistics, Market-Year Data

Market-year Controls

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Lagged Medicare Costs per capita	4574.1	4708.71	4843.30	4977.90	5112.50	5603.25	6061.54	6372.18	6836.88	7288.65	7591.73	7898.36	8297.57
	912.57	*875.76*	*853.28*	*846.29*	*855.17*	*924.35*	*992.71*	*993.30*	*989.65*	*1095.12*	*1096.89*	*1123.36*	*1198.25*
Lagged Unemployment Rate	5.4%	4.9%	4.5%	4.2%	4.0%	4.7%	5.6%	5.8%	5.4%	5.1%	4.6%	4.6%	5.8%
	0.02	*0.02*	*0.02*	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	*0.02*
Number of Markets	139	139	139	139	139	139	139	139	139	139	139	139	139

Premium Index

Panel A. Fully-Insured Plans

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Premium Index	100.00	102.64	112.45	123.75	135.06	154.25	178.20	196.51	214.37	239.89	254.97	271.65	288.63
	0.00	*10.23*	*12.07*	*14.68*	*17.16*	*20.39*	*23.91*	*29.45*	*30.39*	*33.52*	*37.64*	*41.39*	*38.07*
Number of Markets	139	139	139	139	139	139	137	138	138	138	138	138	139

Panel B. Self-Insured Plans

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Premium Index	100.00	99.84	103.89	111.48	127.08	142.89	168.54	192.00	210.74	242.25	260.78	275.86	290.18
	0.00	*5.63*	*7.51*	*8.87*	*9.99*	*10.29*	*12.24*	*14.56*	*16.02*	*19.72*	*21.53*	*20.31*	*23.60*
Number of Markets	139	139	139	139	139	139	139	139	139	139	139	139	139

Notes: *All statistics are unweighted. The unit of observation is a market-year combination, for each insurance type. Premium index is constructed using the coefficients on market-year fixed effects from a regression of plan-year premiums on various controls (including market-year fixed effects). Details provided in the text. Standard deviations are in italics.*

Table 3. Effect of BCBS Conversions on For-Profit Share and Premiums

Panel A. Fully-Insured Plans

	First Stage			Reduced Form		
Dependent Variable:	Lagged FP Share, mean = 0.61			Premium Index, mean = 179.91		
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged BCBS FP	0.145	0.049		4.25	-13.1	
	*(0.044)***	*(0.081)*		*(4.83)*	*(8.71)*	
Lagged BCBS FP * Pre-conversion share		0.578			104.49	
		(.348)			*(32.82)***	
Lagged BCBS FP *						
Low Pre-conversion share			0.113			-0.044
			*(0.045)**			*(5.45)*
High Pre-conversion share			0.246			17.71
			*(0.056)***			*(4.74)***
Number of Observations	552	552	552	552	552	552

Panel B. Self-Insured Plans

	First Stage			Reduced Form		
Dependent Variable:	Lagged FP Share, mean = 0.77			Premium Index, mean = 181.03		
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged BCBS FP	0.338	0.033		3.15	-3.66	
	*(0.038)***	*(0.032)*		*(3.05)*	*(5.48)*	
Lagged BCBS FP * Pre-conversion share		1.722			38.48	
		*(0.154)***			*(20.71)**	
Lagged BCBS FP *						
Low Pre-conversion share			0.265			2.12
			*(0.028)***			*(3.47)*
High Pre-conversion share			0.501			5.32
			*(0.043)***			*(3.09)**
Number of Observations	564	564	564	564	564	564

Notes: *The unit of observation is the market-year. All models include fixed effects for each market and year as well as lagged market-year controls (ln(Medicare costs per capita) and the unemployment rate), and are estimated by weighted least squares using the average number of enrollees in each market as weights. Standard errors are clustered by market.*

** denotes p<0.10, ** denotes p<0.05, *** denotes p<.01*

Table 4. Effect of BCBS Conversions on Premiums: BCBS vs. Non-BCBS Plans

Panel A. Fully-Insured Plans

Dependent Variable:	Premium Index (BCBS) Mean = 183.9			Premium Index (Non-BCBS) Mean = 189.7		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Lagged BCBS FP	4.01	-23.89		0.25	-18.96	
	(7.51)	*(16.76)*		*(4.69)*	*(8.53)***	
Lagged BCBS FP * Pre-conversion share		166.02			115.7	
		*(88.89)***			*(37.71)****	
Lagged BCBS FP *						
Low Pre-conversion share			-0.89			-4.45
			(8.63)			*(5.15)*
High Pre-conversion share			18.72			14.98
			(11.93)			*(5.53)****
Number of Observations	527	527	527	538	538	538

Panel B. Self-Insured Plans

Dependent Variable:	Premium Index (BCBS) Mean = 179.3			Premium Index (Non-BCBS) Mean = 187.2		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Lagged BCBS FP	1.33	-9.05		4.55	-7.36	
	(4.96)	*(9.15)*		*(3.19)*	*(6.16)*	
Lagged BCBS FP * Pre-conversion share		58.64			67.25	
		*(34.68)**			*(31.59)***	
Lagged BCBS FP *						
Low Pre-conversion share			-1.12			2.09
			(5.60)			*(3.25)*
High Pre-conversion share			6.84			9.89
			(5.02)			*(4.64)***
Number of Observations	557	557	557	564	564	564

Notes: *The unit of observation is the market-year. All models include fixed effects for each market and year as well as lagged market-year controls (ln(Medicare costs per capita) and the unemployment rate) and are estimated by weighted least squares using the average number of enrollees in each market as weights. Standard errors are clustered by market.*

** denotes p<0.10, ** denotes p<0.05, *** denotes p<.01*

Table 5. Does For-Profit Penetration Raise Premiums? 2SLS Estimates

Panel A. Fully-Insured Plans

	(1) OLS	(2) IV = Lagged BCBS FP	(3) IV = {Lagged BCBS FP, Lagged BCBS FP * pre-conv BCBS Share}	(4) IV = {Lagged BCBS FP * *high*, Lagged BCBS FP * *low*}
Lagged FP Penetration	0.361	29.27	54.52	56.29
	(7.92)	*(33.47)*	*(27.26)***	*(24.16)***
Number of Observations	552	552	552	552

Panel B. Self-Insured Plans

	(1) OLS	(2) IV = Lagged BCBS FP	(3) IV = {Lagged BCBS FP, Lagged BCBS FP * pre-conv BCBS Share}	(4) IV = {Lagged BCBS FP * *high*, Lagged BCBS FP * *low*}
Lagged FP Penetration	6.39	9.33	12.53	9.99
	(4.46)	*(8.54)*	*(5.89)***	*(6.54)*
Number of Observations	564	564	564	564

Notes: *The unit of observation is the market-year. Lagged FP penetration is scaled between 0 and 1. All models include fixed effects for each market and year as well as lagged market-year controls (ln(Medicare costs per capita) and the unemployment rate) and are estimated by weighted OLS or 2SLS using the average number of enrollees in each market as weights. Standard errors are clustered by market.*

** denotes p<0.10, ** denotes p<0.05, *** denotes p<.01*

Table 6. Impact of For-Profit Penetration on Insurance Coverage

	Panel A: Dep Var = Share Insured Mean = 0.86			Panel B: Dep Var = Share with Employer-Sponsored Insurance Mean = 0.68		
Lagged BCBS FP	0.004	0.025		-0.002	0.025	
	(0.007)	*(0.020)*		*(0.008)*	*(0.018)*	
Lagged BCBS FP * Pre-conversion Share		-0.112			-0.14	
		(0.088)			*(0.087)*	
Lagged BCBS FP *						
Low Pre-conversion share			0.006			0.003
			(0.010)			*(0.009)*
High Pre-conversion share			0.001			-0.008
			(0.008)			*(0.012)*
Number of Observations	209	209	209	209	209	209

	Panel C: Dep Var = Share Individually Insured Mean = 0.09			Panel D: Dep Var = Share on Medicaid Mean = 0.12		
Lagged BCBS FP	-0.001	0.012		0.013	0.001	
	(0.003)	*(0.008)*		*(.006)***	*(.014)*	
Lagged BCBS FP * Pre-conversion Share		-0.064			0.061	
		(0.041)			*(.062)*	
Lagged BCBS FP *						
Low Pre-conversion share			0.001			0.010
			(0.004)			*(.007)*
High Pre-conversion share			-0.002			0.016
			(0.004)			*(.008)**
Number of Observations	209	209	209	209	209	209

***Notes**: The unit of observation is the state-year. The study period is 1999-2009. Insurance rates and pre-conversion share are scaled from 0 to 1. All specifications include state and year fixed effects, simulated Medicaid eligibility rate for children under 18, lagged ln(Medicare costs per capita), and the lagged unemployment rate. Each observation is weighted by the average under-65 population in the state. Standard errors are clustered by state.*

** denotes p<0.10, ** denotes p<0.05, *** denotes p<.01*

Table 7. Impact of For-Profit Penetration on Medical Loss Ratios

	Dependent Variable = MLR		
	All Insurers Mean = 0.85	**BCBS Mean = 0.84**	**Non-BCBS Mean = 0.85**
Lagged BCBS FP	0.020	-0.011	0.052
	(0.013)	*(0.016)*	*(0.017)****
Number of Observations	162	162	155

Notes: *The unit of observation is the state-year. The study period is 2001-2009. MLRs are constructed using censored insurer-state-year data. All specifications include state and year fixed effects, the lagged unemployment rate, and lagged ln(Medicare costs per capita). Each observation is weighted by the average number of LEHID enrollees in the state. Standard errors are clustered by state. Alaska does not report data for non-BCBS plans until 2008, hence the discrepancy between the number of BCBS and non-BCBS observations.*

APPENDIX A: The National Association of Insurance Commissioners' (NAIC) Dataset

The NAIC is an umbrella organization of state-level insurance regulators.[1] Because states regulate fully-insured products, NAIC data represents only the FI component of the health insurance market. Insurers report data by product line and state; Washington, DC is included in the data but California is not. We construct a single MLR for each insurer-state-year, including only spending and premiums associated with comprehensive commercial medical insurance, and omitting observations with negative values for either variable.[2] We drop observations in the 5 percent tails of the annual distribution of insurer-state year MLRs and aggregate the remaining data to construct state-year MLRs. Finally, we exclude 9 state-year observations in which the principal BCBS affiliate does not report data to NAIC.[3] The final estimation sample includes 162 observations, out of a hypothetical maximum of 171 (19 states*9 years). For additional details on the NAIC data, as well as other sources of insurance data, see Dafny, Dranove, Limbrock, and Scott Morton (2011)

[1] For all key lines of insurance (including health), NAIC provides uniform reporting forms called "insurance blanks." Insurers complete the blanks separately by state and file them with the respective state authorities, who pass the data on to NAIC.
[2] These categories are excluded: Medicare and Medicaid plans, Medicare supplemental plans, dental plans, vision-only plans, long-term care, disability income, stop-loss, and other.
[3] These are: Nevada in 2001, Ohio in 2001-2003 and Indiana in 2001-2005.

Appendix Table 1. Ownership Conversions of BCBS Affiliates, 1997-2009

	Conversion from NFP to Mutual	Conversion from Mutual to FP	Conversion from NFP to FP
Colorado	1999	2002	
Connecticut		2002	
Indiana (Accordia)		2002	
Kentucky		2002	
Maine	2000	2002	
Nevada	1999	2002	
New Hampshire	2000	2002	
Ohio (CMIC)		2002	
New York (Empire)			2003
Wisconsin			2001
Missouri			2001

Notes: *Entries refer to the first post-conversion year as coded in our dataset.*

Appendix Table 2. Descriptive Statistics, Plan-Year Data

Panel A. Fully-Insured Plans

	1997-2009	1997	2009
Premium ($)	5499.95	3555.47	9196.51
	2401.11	*823.66*	*2913.91*
Number of Enrollees	184.88	173.72	184.45
	537.61	*457.59*	*617.54*
Demographic Factor	2.19	2.23	1.90
	0.43	*0.41*	*0.44*
Plan Design	1.09	1.12	1.03
	0.06	*0.04*	*0.06*
Plan Type			
HMO	88.9%	91.8%	77.0%
Indemnity	0.9%	0.1%	2.6%
POS	4.8%	6.5%	2.7%
PPO	5.4%	1.6%	17.7%
Consumer-Directed Plan	0.5%	*N/A*	3.6%
For-profit insurer	56.4%	57.1%	49.4%
Number of Employers	793	189	168
Number of Observations	99,040	8,241	4,299

Panel B. Self-Insured Plans

	1997-2009	1997	2009
Premium ($)	6591.01	4164.31	8897.68
	2371.42	*1369.04*	*2284.09*
Number of Enrollees	173.40	195.18	167.16
	634.69	*730.78*	*663.03*
Demographic Factor	2.15	2.39	1.88
	0.49	*0.52*	*0.39*
Plan Design	0.99	0.99	0.97
	0.08	*0.07*	*0.07*
Plan Type			
HMO	14.5%	1.8%	18.6%
Indemnity	13.4%	40.3%	3.5%
POS	20.1%	25.9%	14.5%
PPO	51.2%	31.9%	63.4%
Consumer-Directed Plan	8.1%	*N/A*	22.6%
For-profit insurer	79.7%	81.1%	76.6%
Number of Employers	922	199	218
Number of Observations	241,810	12,574	21,434

Notes: *All statistics are unweighted. The unit of observation is an employer-carrier-market-plantype-year combination, unless noted otherwise. Demographic factor reflects age, gender, and family size of enrollees. Plan design measures the generosity of benefits. Both are constructed by the data source and exact formulae are not available. Premiums are in nominal dollars. Standard deviations are in italics.*

Appendix Table 3. Descriptive Statistics, Plan-Year Data
Sample Limited to Markets with Conversion Attempts

Panel A: Fully-Insured Plans

	Markets with Successful Attempts			Markets with Unsuccessful Attempts		
	1997-2009	**1997**	**2009**	**1997-2009**	**1997**	**2009**
Premium ($)	5730.7	3697.29	9719.30	5432.7	3687.43	9171.78
	2488.9	*826.9*	*2875.20*	*2326.8*	*886.9*	*3051.80*
Number of Enrollees	165.65	169.19	116.84	136.4	123.12	92.34
	418.8	*367.6*	*255.80*	*333.8*	*254.9*	*177.90*
Demographic Factor	2.21	2.24	1.93	2.14	2.20	1.83
	0.43	*0.41*	*0.43*	*0.43*	*0.41*	*0.46*
Plan Design	1.1	1.12	1.03	1.11	1.12	1.03
	0.06	*0.04*	*0.06*	*0.06*	*0.04*	*0.06*
Plan Type						
HMO	89.6%	92.7%	76.8%	87.3%	89.1%	70.7%
Indemnity	0.8%	0.1%	2.2%	1.1%	0.2%	4.0%
POS	4.9%	5.9%	2.6%	6.4%	8.9%	3.2%
PPO	4.7%	1.3%	18.4%	5.3%	1.8%	22.1%
Consumer-Directed Plan	0.4%	*N/A*	3.4%	0.60%	*N/A*	5.1%
For-profit insurer	59.8%	53.3%	62%	61.2%	56.3%	47.6%
Number of Employers	628	159	119	514	138	83
Number of Observations	22,529	2,033	832	13,227	1,255	498

Notes: *All statistics are unweighted. The unit of observation is an employer-carrier-market-plantype-year combination, unless noted otherwise. Demographic factor reflects age, gender, and family size of enrollees. Plan design measures the generosity of benefits. Both are constructed by the data source and exact formulae are not available. Premiums are in nominal dollars. Standard deviations are in italics.*

Appendix Table 3. Descriptive Statistics, Plan-Year Data
Sample Limited to Markets with Conversion Attempts

Panel B: Self-Insured Plans

	Markets with Successful Attempts			Markets with Unsuccessful Attempts		
	1997-2009	**1997**	**2009**	**1997-2009**	**1997**	**2009**
Premium ($)	6618.8	4135.5	8958.20	6493.4	4129.9	8795.50
	2402.5	*1432.4*	*2352.90*	*2334.2*	*1317.6*	*2247.40*
Number of Enrollees	173.9	216.6	161.80	162.7	162.2	142.20
	600.6	*783.4*	*610.70*	*561.6*	*471.3*	*442.80*
Demographic Factor	2.15	2.37	1.89	2.11	2.32	1.86
	0.49	*0.52*	*0.40*	*0.47*	*0.49*	*0.39*
Plan Design	0.99	0.99	0.97	0.99	0.99	0.97
	0.08	*0.07*	*0.07*	*0.08*	*0.07*	*0.07*
Plan Type						
HMO	14.9%	1.6%	19.2%	16.7%	1.8%	20.4%
Indemnity	13.2%	40.6%	3.3%	11.9%	37.6%	3.3%
POS	21.3%	26.7%	15.2%	22.0%	30.9%	15.8%
PPO	50.6%	31.2%	62.2%	49.4%	29.7%	60.5%
Consumer-Directed Plan	7.9%	*N/A*	22%	7.8%	*N/A*	22%
For-profit insurer	91.6%	77%	96%	75.6%	84%	68%
Number of Employers	841	179	225	792	175	196
Number of Observations	54,325	2,922	4,861	34,895	1,796	3,106

Notes: *All statistics are unweighted. The unit of observation is an employer-carrier-market-plantype-year combination, unless noted otherwise. Demographic factor reflects age, gender, and family size of enrollees. Plan design measures the generosity of benefits. Both are constructed by the data source and exact formulae are not available. Premiums are in nominal dollars. Standard deviations are in italics.*

Appendix Table 4. Descriptive Statistics: Medical Loss Ratios and Insurance Coverage

	States with Successful Attempts			States with Unsuccessful Attempts		
	2001-2009	**2001**	**2009**	**2001-2009**	**2001**	**2009**
MLR	0.848	0.868	0.873	0.851	0.880	0.864
	0.029	*0.033*	*0.022*	*0.038*	*0.038*	*0.027*
MLR (BCBS Plans)	0.845	0.867	0.868	0.843	0.842	0.854
	0.039	*0.045*	*0.028*	*0.051*	*0.043*	*0.073*
MLR (Non-BCBS Plans)	0.850	0.873	0.882	0.844	0.917	0.832
	0.038	*0.037*	*0.027*	*0.059*	*0.055*	*0.074*
% Insured	0.861	0.874	0.842	0.851	0.858	0.836
	0.033	*0.040*	*0.035*	*0.026*	*0.027*	*0.023*
% Enrolled in Employer-Sponsored Insurance	0.691	0.727	0.633	0.668	0.697	0.625
	0.055	*0.050*	*0.052*	*0.059*	*0.060*	*0.047*
% with Individual Private Insurance	0.092	0.100	0.089	0.092	0.105	0.088
	0.015	*0.017*	*0.013*	*0.020*	*0.017*	*0.021*
% Enrolled in Medicaid	0.119	0.091	0.158	0.123	0.105	0.149
	0.044	*0.027*	*0.051*	*0.042*	*0.047*	*0.045*

Notes *: The unit of observation is the state-year. The number of observations for the MLRs varies between 15 and 19 per year, while the insurance rates have 19 observations in all years.*

Appendix Table 5.
Effect of BCBS Conversions on Premiums, Leads and Lags

Panel A: Model 1 (Dependent Var = Premium Index)

	(1)	**(2)**
	Fully-Insured Plans	***Self-Insured Plans***
(BCBS FP) $_{t-3}$	-0.977	2.837
	(1.253)	*(1.820)*
(BCBS FP) $_{t-2}$	-2.203	1.072
	(1.882)	*(2.023)*
(BCBS FP) $_{t-1}$	-1.316	2.342
	(3.047)	*(2.743)*
(BCBS FP) $_{t=0}$	-2.926	0.326
	(5.623)	*(3.833)*
(BCBS FP) $_{t+1}$	-2.222	1.858
	(6.200)	*(3.790)*
(BCBS FP) $_{t+2}$	0.523	1.882
	(6.150)	*(3.744)*
(BCBS FP) $_{>=(t+3)}$	5.671	6.545
	(6.954)	*(4.893)*
Number of Observations	599	611

Notes : *The unit of observation is the market-year. Model includes fixed effects for each market and year as well as lagged market-year controls (ln(Medicare costs per capita) and the unemployment rate), and are estimated by weighted least squares using the average number of enrollees in each market as weights. Standard errors are clustered by market. Includes data from 1997-2009.*

** denotes p<0.10, ** denotes p<0.05, *** denotes p<.01*

Appendix Table 5.
Effect of BCBS Conversions on Premiums, Leads and Lags

Panel B: Model 2 (Dependent Var = Premium Index)

	(1)	(2)
	Fully-Insured Plans	***Self-Insured Plans***
(BCBS FP) t-3*low	-0.174	2.236
	(1.221)	*(2.286)*
(BCBS FP) t-2*low	-1.953	0.261
	(1.925)	*(2.392)*
(BCBS FP) t-1*low	-2.686	1.95
	(2.809)	*(3.122)*
(BCBS FP) t=0*low	-4.225	-0.703
	(5.545)	*(4.327)*
(BCBS FP) t+1*low	-6.13	0.519
	(6.190)	*(4.361)*
(BCBS FP) t+2*low	-4.306	0.326
	(6.553)	*(4.234)*
(BCBS FP) >=(t+3)*low	0.895	4.981
	(7.766)	*(5.463)*
(BCBS FP) $_{t-3}$*high	-3.612	4.302
	*(1.839)**	*(1.879)***
(BCBS FP) $_{t-2}$*high	-3.229	2.778
	(2.694)	*(2.749)*
(BCBS FP) $_{t-1}$*high	0.757	2.837
	(3.996)	*(3.945)*
(BCBS FP) $_{t=0}$*high	-0.128	2.414
	(4.792)	*(4.808)*
(BCBS FP) $_{t+1}$*high	9.199	4.601
	*(4.493)***	*(4.901)*
(BCBS FP) $_{t+2}$*high	14.377	5.008
	*(4.844)****	*(4.146)*
(BCBS FP) $_{>=(t+3)}$*high	19.939	9.762
	*(7.769)***	*(5.621)**
Number of Observations	599	611

Notes : *The unit of observation is the market-year. Model includes fixed effects for each market and year as well as lagged market-year controls (ln(Medicare costs per capita) and the unemployment rate), and are estimated by weighted least squares using the average number of enrollees in each market as weights. Standard errors are clustered by market. Includes data from 1997-2009.*

** denotes p<0.10, ** denotes p<0.05, *** denotes p<.01*

Appendix Table 6. Effect of BCBS Conversions on Premiums, Dropping One State at a Time

	Dependent Variable = Fully-Insured Premium Index										
	CO	**CT**	**IN**	**KY**	**ME**	**MO**	**NH**	**NV**	**NY**	**OH**	**WI**
Lagged BCBS FP*											
Low Pre-conversion share	-2.75	0.29	-0.09	-0.05	-0.05	-0.24	-1.15	1.04	6.67	-2.27	0.91
	(5.02)	*(6.02)*	*(5.35)*	*(5.46)*	*(5.46)*	*(5.76)*	*(5.39)*	*(5.56)*	*(6.32)*	*(5.72)*	*(5.85)*
High Pre-conversion share	17.24	17.56	20.07	18.13	18.22	17.33	17.88	17.48	19.48	18.32	15.41
	*(4.82)****	*(4.75)****	*(4.69)****	*(5.31)****	*(4.85)****	*(4.77)****	*(4.74)****	*(4.74)****	*(4.93)****	*(6.47)****	*(4.69)****
Number of Observations	528	528	516	528	540	528	540	524	528	468	516

Notes : *The unit of observation is the market-year. Each column represents results from a sample excluding observations from the state marked at the top of the column. All models include market-year controls and fixed effects for each market and year, and are estimated by weighted least squares using the average number of enrollees in each market as weights. Standard errors are clustered by market.*

** denotes p<0.10, ** denotes p<0.05, * denotes p<.01*

Appendix Table 7. Effect of Different Types of BCBS Ownership Conversions on Premiums

Panel A. Fully-Insured Plans

	Dependent Var = Premium Index Mean = 179.9	
	(1)	**(2)**
Lagged BCBS NFP to Mutual	1.37	3.85
	(7.2)	*(6.54)*
Lagged BCBS NFP to FP	-6.19	-6.2
	(5.58)	*(5.63)*
Lagged BCBS Mutual to FP	12.01	0.09
	*(4.92)***	*(9.67)*
Lagged BCBS Mutual to FP * Pre-conversion share		59.82
		*(34.27)**
Number of Observations	599	599

Panel B. Self-Insured Plans

	Dependent Var = Premium Index Mean = 181.1	
	(1)	**(2)**
Lagged BCBS NFP to Mutual	0.52	1.38
	(3.49)	*(3.45)*
Lagged BCBS NFP to FP	2.18	2.19
	(4.92)	*(4.93)*
Lagged BCBS Mutual to FP	4.65	0.23
	(2.93)	*(5.63)*
Lagged BCBS Mutual to FP * Pre-conversion share		21.49
		(21.97)
Number of Observations	611	611

Notes: *The unit of observation is the market-year. All models include fixed effects for each market and year as well as lagged market-year controls (ln(Medicare costs per capita) and the unemployment rate) and are estimated by weighted least squares using the average number of enrollees in each market as weights. Standard errors are clustered by market.*

** denotes p<0.10, ** denotes p<0.05, *** denotes p<.01*