Testimony Regarding

Anthem, Inc.'s Proposed Acquisition of Cigna Corporation

by

Brent D. Fulton, Richard M. Scheffler and Daniel R. Arnold[1]

at the

California Department of Insurance

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A. Summary

The California Department of Insurance requested the Nicholas C. Petris Center on Health Care Markets and Consumer Welfare located in School of Public Health at the University of California, Berkeley, to provide testimony on Anthem's proposed acquisition of Cigna. My name is Brent Fulton. I am the associate director of the Petris Center and am an assistant adjunct professor of health economics and policy in the School of Public Health at the University of California, Berkeley. This testimony is co-authored by two other individuals, including Richard Scheffler, who is both the director of the Petris Center and a distinguished professor of health economics and public policy in the School of Public Health and the Goldman School of Public Policy at the University of California, Berkeley; and Daniel Arnold, who is both a graduate student researcher at the Petris Center and a doctoral candidate in economics at the University of California, Santa Barbara. We are providing independent evidence and analysis concerning the impact of Anthem's proposed acquisition of Cigna on health insurer market concentration for major health insurance—primarily furnished via managed care—that is sold to employers and consumers as well as Medicare Advantage, Medi-Cal Managed Care and TRICARE beneficiaries within California. However, we are not taking a position on whether the proposed acquisition should be approved, nor the conditions thereof, by state and federal agencies with

[1] We thank the following two individuals for their comments on a draft version of this testimony: H.E. Frech III, Professor of Economics, College of Letters and Science and Professor of Technology Management, College of Engineering at the University of California, Santa Barbara; and Thomas L. Greaney, Chester A. Myers Professor of Law, Co-Director, Center for Health Law Studies, Saint Louis University School of Law. We thank the Nicholas C. Petris Center on Health Care Markets and Consumer Welfare, School of Public Health, University of California, Berkeley, and The Commonwealth Fund (Grant No. 20160413) for funding support.

that authority. Therefore, our goal is to provide independent evidence and analysis to aid those agencies with that decision authority.

The following is a summary of our testimony and main findings. [Orally state: We have submitted our full testimony, which includes this summary, to the California Department of Insurance.]

1. Anthem, Inc. is a publicly traded health benefits company headquartered in Indianapolis, Indiana, with approximately 53,000 employees and 38.6 million medical members in the United States. Its 2015 revenue was $79.2 billion with net income of $2.6 billion. Anthem's principal business is health insurance and managed care, and is an independent licensee of the Blue Cross and Blue Shield Association. Under that license tradename, it has affiliates in 14 states, including Anthem Blue Cross and related subsidiaries in California. Formerly, Anthem used the name WellPoint in some states, including California. It changed its corporate name December 3, 2014.
2. Cigna Corporation is a publicly traded health services organization headquartered in Bloomfield, Connecticut, with approximately 39,300 employees and 15.0 million medical members in the United States. Its 2015 revenue was $37.9 billion with net income of $2.1 billion. Cigna's principal business is health insurance and managed care. It operates the following subsidiaries in California: Cigna Healthcare of California, Inc., Cigna Behavioral Healthcare of California, Inc., and Cigna Dental Health of California, Inc.
3. Anthem and Cigna are two of the largest five health insurers in the United States. On July 23, 2015, Anthem, Inc. filed its intention to acquire Cigna Corporation via Anthem Merger Sub Corp, a directly wholly owned subsidiary of Anthem.
4. For this testimony, we have the following four objectives:
    a. First, we will briefly summarize the published evidence of the impact of health insurance mergers and market concentration on health insurance premiums.
    b. Second, we will describe our enrollment data and our methods to estimate market concentration.

   c. Third, we will present Anthem's and Cigna's enrollment and shares in California by line of business and product; this is only done for descriptive purposes, because the state is not a single market in an economic or antitrust sense.
   d. Fourth, we will provide empirical evidence on how the proposed Anthem-Cigna merger will affect health insurance market concentration at the county level—the geographic level at which most competition occurs—within California with respect to insurers selling health insurance as well as with respect to insurers buying healthcare services from hospitals, physician organizations and other providers.

5. Insurer consolidation may lead to scale economics and scope as well as stronger negotiating leverage with hospitals, physician organizations and other providers of health care services that may possess market power, resulting in lower costs that could be passed on to purchasers of insurance. However, we are not aware of any peer-reviewed studies that have found that higher insurer market concentration has led to lower health insurance premiums.
6. In order to estimate health insurer enrollment and concentration in California, we used enrollment data for major health insurance—primarily furnished via managed care—from the Managed Market Surveyor by HealthLeaders-InterStudy, a Decision Resources Group Company. HealthLeaders-InterStudy primarily collects enrollment by surveying health insurers, and when necessary, supplements its survey-based data with secondary sources, such as health insurer websites, state websites, and health insurer filings to the National Association of Insurance Commissioners. This data has been used in peer-reviewed studies on health insurer concentration, and is also used by the American Medical Association in its annual analysis of competition in health insurance markets.
7. In California, there were 32.6 million enrollees with major health insurance—primarily furnished via managed care—in the HealthLeaders-InterStudy data, as of July 1, 2015, with the following shares: employer-sponsored and individual market excluding Covered California (57.4%), Covered California (4.2%), Medicare Advantage (7.0%), Medi-Cal Managed Care (29.9%) and TRICARE (1.5%) (see Table 1).

8. Although the entire state is not a single market in an economic or antitrust sense, we report Anthem's and Cigna's state enrollment for descriptive purposes. Of California's 32.6 million enrollees, Anthem has 6.0 million enrollees with a share of 18.5%, which is highest for employer-sponsored and individual (excluding Covered California) preferred provider organization (PPO)/exclusive provider organization (EPO) enrollees (46.2%) and point of service (POS) enrollees (37.0%), but is lower for health maintenance organization (HMO) enrollees (6.7%). Cigna has 1.0 million enrollees with a share of 3.0%, which is also highest for employer-sponsored and individual (excluding Covered California) market PPO/EPO enrollees (10.0%) and POS enrollees (6.5%), and lower for HMO enrollees (0.5%). Therefore, most of Cigna's enrollees are in the same—mainly employer-sponsored—products in which Anthem already has a significant share in the state (see Table 1).
    a. Anthem has 362,000 enrollees in Covered California (26.3% share), 85,000 enrollees in Medicare Advantage (3.7% share), and 715,000 enrollees in Medi-Cal Managed Care (7.3% share); however, Cigna has either no or insignificant enrollment in these lines of business (see Table 1).
9. Based on the U.S. Department of Justice/Federal Trade Commission standards for reviewing a horizontal merger, we analyzed insurers as sellers of major health insurance—primarily furnished via managed care—for employer-sponsored and individual (excluding Covered California) market lines of business when the product market includes a collection of PPO/EPO, POS and HMO products. We found that 18 of California's 58 counties warrant the highest concern and scrutiny under federal horizontal merger guidelines, based on a combination of these counties' post-merger insurer Herfindahl-Hirschman Index (HHI) being greater than 2,500 and the change in HHI being greater than 200 as a result of the merger (see Table A1 in the appendix). This highest concern and scrutiny is warranted in these lines of business in 41 counties when the product market only includes PPO/EPO and POS products (see Table A2 in the appendix), and in 46 counties when the product market only includes PPO/EPO products (see Table A3 in the appendix). When analyzing insurers as buyers of healthcare services

from hospitals, physician organizations and other providers, then the product market includes all lines of business across all products. In this situation, the highest concern and scrutiny is warranted in four counties; however, the post-merger HHI for the median county is considered highly concentrated (HHI=2,732) by federal horizontal merger guidelines (see Table A4 in the appendix). The summary statistics within Tables A1 to A4 in the appendix are included in Table 2 of the testimony.

   a. Although certain counties warrant the highest concern and scrutiny for particular product definitions, the federal horizontal merger guidelines' threshold does not represent a rigid test to identify competitively benign mergers from anti-competitive mergers. Instead, they provide a way to identify mergers when it is important to examine other competitive factors that may influence the potentially harmful impact of increased concentration, such as ease of entry, significant merger-specific efficiencies, and the presence of powerful buyers.

10. In summary, our results provide an important, initial barometer that shows where additional scrutiny may be warranted to employ more sensitive models with more robust data to better understand the proposed merger's impact on competition.

B. Background of Experts

B.1. Brent D. Fulton, Ph.D., MBA

Brent D. Fulton is an Assistant Adjunct Professor of Health Economics and Public Policy, and Associate Director of the Nicholas C. Petris Center on Health Care Markets and Consumer Welfare, School of Public Health, University of California, Berkeley. Professor Fulton has published over 20 articles in the areas of health insurance, healthcare services and health policy. He recently co-authored articles on how states changed their health insurance rate review authority since the passage of the Affordable Care Act (ACA) (Fulton et al., *Inquiry*, 2015) and how those changes were associated with health insurance premiums in the individual market (Karaca-Mandic et al., *Health Affairs*, 2015). Professor Fulton recently testified at the California Department of Insurance's January 22, 2016 hearing on Centene Corporation's proposed acquisition of Health Net, Inc. His doctorate is in public policy analysis from Pardee RAND Graduate School and his MBA is from the University of California, Los Angeles.

B.2. Richard M. Scheffler, Ph.D.

Richard M. Scheffler is Distinguished Professor of Health Economics and Public Policy at the School of Public Health and the Goldman School of Public Policy at the University of California, Berkeley. He also holds the Chair in Healthcare Markets & Consumer Welfare endowed by the Office of the Attorney General for the State of California. Professor Scheffler is the founding director of The Nicholas C. Petris Center on Health Care Markets and Consumer Welfare.

Professor Scheffler has published 200 papers and edited and written twelve books. He has recently completed a longitudinal study and survey of health insurance rate review regulations in all 50 states funded by the Robert Wood Johnson Foundation. Professor Scheffler has also completed a study entitled *Covered California: The Impact of Provider and Health Plan Market Power on Premiums*. He is Co-Chair of the Berkeley Forum for Improving California's Healthcare Delivery System and the lead author of the Berkeley Forum Report "A New Vision for California's Healthcare System: Integrated Care with Aligned Financial Incentives," published in the *California Journal of Politics and Policy*, 2014.

Professor Scheffler recently testified at the California Department of Insurance's January 22, 2016 hearing on Centene Corporation's proposed acquisition of Health Net, Inc. He also testified at the Federal Trade Commission and Department of Justice Meeting: Examining Healthcare Competition in Washington D.C. on February 25, 2015.[2]

C.3. Daniel R. Arnold

Daniel R. Arnold is a graduate student researcher at The Nicholas C. Petris Center on Health Care Markets and Consumer Welfare, School of Public Health, University of California, Berkeley and a doctoral candidate in economics at the University of California, Santa Barbara. He is an expert at analyzing market concentration data and is the process of writing a dissertation that analyzes various aspects of the Affordable Care Act Marketplaces. Prior to graduate school, Mr. Arnold received a bachelor's degree in economics and mathematics from Cornell University.

C. The Petris Center

On June 23, 1999, the Office of the Attorney General for California provided an endowment to Professor Scheffler for the creation of the Nicholas C. Petris Center on Health Care Markets and Consumer Welfare (http://petris.org/) in the School of Public Health at the University of California, Berkeley. The center was named after former California Senator Nicholas Petris, who advocated strongly on behalf of California consumers for affordable, accessible, and quality health care. The Center uses a collaborative strategy to work with students, staff, faculty, and outside experts to analyze health economics and policy topics in California and nationally. The broad research focuses of the Center are: consumer protection, affordability and access to health care – especially for low and middle-income individuals, the role of information in consumer choice, and regulation and competition within health care markets. Recent research topics include healthcare market concentration, the Affordable Care Act Marketplaces, Accountable Care Organizations, and health insurance rate review.

[2] https://www.ftc.gov/news-events/audio-video/video/examining-health-care-competition-workshop-day-1-part-3

D. Brief Overview of Anthem and Cigna

This section provides a brief overview of Anthem and Cigna, based on these corporations' Form 10-K filings for the year ending December 31, 2015 with the U.S. Securities and Exchange Commission.

D.1. Anthem, Inc.

Anthem, Inc. is a publicly traded health benefits company headquartered in Indianapolis, Indiana, with approximately 53,000 employees. Between 2011 and 2015, Anthem's revenues increased from $60.7 billion to $79.2 billion, with net income remaining flat at $2.6 billion. As of December 31, 2015, it had 38.6 million medical members in the United States. Anthem's principal business is health insurance and managed care, and is an independent licensee of the Blue Cross and Blue Shield Association. Under that license tradename, it has affiliates in 14 states, including Anthem Blue Cross in California. Anthem operates the following subsidiaries in California: Blue Cross of California (d/b/a Anthem Blue Cross), Anthem Blue Cross Life and Health Insurance Company, Blue Cross of California Partnership Plan, Inc. (d/b/a Anthem Blue Cross Partnership Plan), CareMore Health Plan, CareMore Health System, CareMore Medical Management Company, a California Limited Partnership, Golden West Health Plan, Inc., Park Square Holdings, Inc., Park Square I, Inc., Park Square II, Inc., The Anthem Companies of California, Inc., and WellPoint Information Technology Services, Inc. Formerly, Anthem used the name WellPoint in some states, including California. It changed its corporate name December 3, 2014.

D.2. Cigna Corporation

Cigna Corporation is a publicly traded health services organization headquartered in Bloomfield, Connecticut, with approximately 39,300 employees. Between 2011 and 2015, Cigna's revenues almost doubled from $21.9 billion to $37.9 billion, with net income increasing from $1.3 billion to $2.1 billion. As of December 31, 2015, it had 15.0 million medical members in the United States. Cigna's principal business is health insurance and managed care. It

operates the following subsidiaries in California: Cigna Healthcare of California, Inc., Cigna Behavioral Healthcare of California, Inc., and Cigna Dental Health of California, Inc.

E. Objectives

In this testimony, we have the following four objectives. First, we will briefly summarize the published evidence of the impact of health insurance mergers and market concentration on health insurance premiums. Second, we will describe our enrollment data and our methods to estimate market concentration. Third, we will present Anthem's and Cigna's enrollment and shares in California by line of business and product; this is only done for descriptive purposes, because the state is not a single market in an economic or antitrust sense. Fourth, we will provide empirical evidence on how the proposed Anthem-Cigna merger will affect health insurance market concentration at the county level—the geographic level at which most competition occurs—within California with respect to insurers selling health insurance as well as with respect to insurers buying healthcare services from hospitals, physician organizations and other providers.

F. Impact of Health Insurer Concentration

Today, the five largest insurers in the United States include UnitedHealth Care, Anthem, Cigna, Aetna, and Humana, but soon, these five insurers may merge into three (Armstrong & Kishan, 2015). In July 2015, Anthem announced its intentions to acquire Cigna for $54 billion, and Aetna announced its intentions to acquire Humana for $37 billion. Also in July 2015, Centene announced plans to acquire Health Net for $7 billion, which was recently approved in California with conditions by the California Department of Managed Health Care and the California Department of Insurance. These mergers require the approval of the U.S. Department of Justice as well as the Commissioners of Insurance in states impacted by these mergers. (In California's situation for the proposed Anthem-Cigna merger, the California Department of Managed Health Care has the approval authority, not the California Department of Insurance.)

Two recent studies found that higher health insurer concentration was associated with lower hospital prices, but they did not analyze the impact on premiums (Melnick, Shen, & Wu, 2011; Moriya, Vogt, & Gaynor, 2010). However, even if insurers are able to negotiate lower provider reimbursement rates, particularly when they possess market power, there is substantial evidence that those cost savings might not be passed on to employers and consumers in the form of lower health insurance premiums (Balto, 2015; Dafny, 2015; Gaynor, Ho, & Town, 2015). A pre-ACA study examined firms' profitability (i.e., profitability of employers buying insurance) and found that more concentrated health insurer markets led to higher premiums for more profitable firms, providing evidence of insurers exercising their market power (Dafny, 2010). A second pre-ACA study used the impact of the 1999 Aetna and Prudential Healthcare insurance merger to estimate that health insurer consolidation during 1998 to 2006 led to a 7% real increase in large group health insurance premiums (Dafny, Duggan, & Ramanarayanan, 2012).

There have been fewer studies since the passage of the ACA, particularly those that have analyzed ACA Health Insurance Marketplaces. One study estimated that the second-lowest-price silver premium in the federally facilitated Marketplaces would have been 5.4% lower had UnitedHealthcare decided to participate in these markets during the first open enrollment in 2014 (Dafny, Gruber, & Ody, 2015).

G. Data and Methods to Estimate Market Concentration

G.1. Health Insurer Enrollment Data

In order to estimate health insurer enrollment and concentration in California, we used enrollment data for major health insurance—primarily furnished via managed care—from the Managed Market Surveyor by HealthLeaders-InterStudy, a Decision Resources Group Company.[3] HealthLeaders-InterStudy primarily collects enrollment by surveying health insurers, and when necessary, supplements its survey-based data with secondary sources, such as health insurer websites, state websites, and health insurer filings to the National Association of

[3] https://decisionresourcesgroup.com/report/?id=1730

Insurance Commissioners. It segments its data by commercial, Medicare Advantage, Medi-Cal Managed Care and TRICARE. Commercial includes the individual and employer-sponsored markets, including fully insured and self-insured enrollees. Within commercial (excluding Covered California), it reports indemnity enrollment and managed care enrollment by product type, including PPO (combined with EPO), POS, and HMO.[4]

G.2. Geographic, Product and Market Concentration Definitions

On the one hand, a health insurer sells its insurance and managed care products to employers and consumers. However, as a buyer of healthcare services from hospitals, physician organizations and other providers, the insurer's market power stems from its full book of business in the county, including the employer-sponsored market (fully and self-insured), individual market, Covered California, Medicare Advantage, Medi-Cal Managed Care, and TRICARE. Therefore, similar to (Trish & Herring, 2015), we will define insurer market concentration with respect to insurers selling insurance (via managed care products) as well as with respect to insurers buying healthcare services.

A market is defined as a collection of geographic areas and products, and the appropriate definition in a particular situation is the subject of much debate (Baker, 2007). For both types of these concentration measures—insurers as sellers and buyers—we define the geographic market area as a county, which is the geographic level at which most competition occurs (as opposed to the whole state). Other studies have used sub-state geographic areas to define markets, including counties for Medicare Advantage plans (Frakt, Pizer, & Feldman, 2013; Song, Landrum, & Chernew, 2013) and a combination of three-digit zip codes and metropolitan statistical areas for insurers selling to large employers (Dafny et al., 2012; Dafny, 2010). Because we lack enrollee-level data, it was not possible to define each insurer market using the recently developed Differentiated Bertrand Oligopoly Model and Option Demand Model that rely on employer/enrollee- and insurer-level decisions (Gaynor, Kleiner, & Vogt, 2013).

[4] POS enrollees are separately reported only for stand-alone POS products. If the POS product is linked to an HMO or EPO, then the enrollees are reported in those respective products instead.

Insurers sell their products to purchasers in multiple lines of business, from employers to individuals to Covered California, and to Medicare Advantage, Medi-Cal Managed Care and TRICARE beneficiaries. From an enrollee's perspective, these are generally distinct lines of business, because eligibility requirements (e.g., employment relationship, income, age, disability, military status) usually do not allow an enrollee to purchase insurance through another line of business. However, these lines of business have some degree of substitution, particularly people moving into and out of Medi-Cal and Covered California. We decided to focus our analysis on the employer-sponsored market, because insurers in this market are close enough substitutes to constrain each other's price and quality decisions. In addition, Anthem and Cigna significantly overlap in this market. Within this market, we also had to include individual market enrollees outside of Covered California, because we could not separately analyze that portion of the individual market for particular products. Notwithstanding, the individual market outside of Covered California is very small as compared to the employer-sponsored market.

Within the employer-sponsored market, insurers sell an array of managed care insurance products that differ along many dimensions, such as physician and hospital networks, access to specialists, and cost sharing. Grouping managed care insurance products by the restrictiveness of provider networks—from least to most restrictive—leads to the following order: preferred provider organizations (PPOs), point of service plans (POSs), exclusive provider organizations (EPOs) and health maintenance organizations (HMOs). Both PPOs and POSs do provide benefits for out-of-network care. For historical reasons, PPOs generally have larger panels of providers than POSs. Both EPOs and HMOs pay narrow benefits for out-of-network care. Again for historical reasons, HMOs generally have smaller panels of providers than EPOs. We do not have the information and the resources to perform the thought experiment to determine the appropriate product markets in an economic or antitrust sense (i.e., one that a hypothetical monopolist could profitability impose a small but significant and non-transitory increase in price over the competitive price in the county) and the HealthLeaders-InterStudy data do not allow us to separate EPO enrollees from PPO enrollees; therefore, we use the

following three product groupings that give a fair approximation of the differentiated managed care insurance products sold in the market:[5]

- PPO/EPO, POS and HMO
- PPO/EPO and POS
- PPO/EPO

For the second concentration measure, which analyzes insurers as buyers of healthcare services from hospitals, physician organizations and other providers, we include all lines of business and insurance products within our product definition, because an insurer's monopsony market power stems from its full book of business in the county.

To estimate the market concentration for each county-by-product definition, we use the Herfindahl-Hirschman Index (HHI). HHI has been used frequently as a measure of market concentration in merger cases brought by the U.S. Department of Justice (U.S. DOJ) and Federal Trade Commission (FTC). The *Horizontal Merger Guidelines*, authored by the U.S. DOJ and FTC, categorize markets by HHI as follows: unconcentrated (below 1,500), moderately concentrated (between 1,500 and 2,500), and highly concentrated (above 2,500) (U.S. Department of Justice and the Federal Trade Commission, 2010). To evaluate a proposed merger, the agencies employ the following general standards that consider both the post-merger HHI and the change in HHI resulting from the merger. These standards are used to identify the level of concern and the scrutiny needed to evaluate a proposed merger. Using their thresholds for post-merger HHI and the change in HHI resulting from the merger, we classified the levels of concern and scrutiny as highest, moderate and lowest as follows:

- **Highest Concern and Scrutiny**: "Presumed to be likely to enhance market power" (p. 19)
  - Post-merger HHI > 2,500 and change in HHI > 200
- **Moderate Concern and Scrutiny**: "Potentially raise significant competitive concerns and often warrant scrutiny" (p. 19)
  - Post-merger HHI > 2,500 and 100 ≤ change in HHI ≤ 200

[5] We chose to exclude the indemnity line of business, because we think it is a distinct product as compared to the managed care products and because it only accounts for 0.6% of the total employer-sponsored and individual (excluding Covered California) enrollees in this market.

- 1,500 ≤ post-merger HHI ≤ 2,500 and change in HHI > 100

- **Lowest Concern and Scrutiny**: "Unlikely to have adverse competitive effects and ordinarily require no further analysis" (p. 19)
    - Post-merger HHI < 1,500 irrespective of the change in HHI
    - Change in HHI < 100 irrespective of the post-merger HHI

These thresholds do not represent a rigid test to identify competitively benign mergers from anti-competitive mergers. Instead, they provide a way to identify mergers when it is important to examine other competitive factors that may influence the potentially harmful impact of increased concentration. The federal horizontal merger guidelines and legal precedent indicate that facts reducing the likelihood of coordinated or unilateral exercise of market power, including ease of entry, significant merger-specific efficiencies, and the presence of powerful buyers may under specific circumstances militate against a merger challenge.

H. Anthem and Cigna's California Shares by Line of Business

In California, there were 32.6 million enrollees with major health insurance—primarily furnished via managed care—in the HealthLeaders-InterStudy data, as of July 1, 2015, with the following shares: employer-sponsored and individual market excluding Covered California (57.4%), Covered California (4.2%), Medicare Advantage (7.0%), Medi-Cal Managed Care (29.9%) and TRICARE (1.5%) (see Table 1).

Anthem and Cigna operate across multiple lines of health insurance business in California. Table 1 also shows Anthem's and Cigna's enrollment and state shares for the lines of business. The employer-sponsored and individual market (excluding Covered California) is reported by managed care product type. Note, the state shares are only reported for descriptive purposes, because the state is not a single market in an economic or antitrust sense. Of California's 32.6 million enrollees, Anthem has 6.0 million enrollees with a share of 18.5%, which is highest for employer-sponsored and individual (excluding Covered California) PPO/EPO enrollees (46.2%) and POS enrollees (37.0%), but is lower for HMO enrollees (6.7%). Cigna has 1.0 million enrollees with a share of 3.0%, which is also highest for employer-sponsored and

individual (excluding Covered California) market PPO/EPO enrollees (10.0%) and POS enrollees (6.5%), and lower for HMO enrollees (0.5%). Therefore, most of Cigna's enrollees are in the same—mainly employer-sponsored—products in which Anthem already has a significant share in the state (see Table 1).

Anthem has 362,000 enrollees in Covered California (26.3% share), 85,000 enrollees in Medicare Advantage (3.7% share), and 715,000 enrollees in Medi-Cal Managed Care (7.3% share); however, Cigna has either no or insignificant enrollment in these lines of business.

Table 1: California Enrollment and Shares* of Anthem and Cigna by Line of Business, 2015

	All Insurers	Anthem		Cigna		Anthem and Cigna Total	
Line of Business	**State Enrollment**	**State Enrollment**	**State Share**	**State Enrollment**	**State Share**	**State Enrollment**	**State Share**
Employer and Individual Markets	**20,112,029**	**5,224,717**	**26.0%**	**976,206**	**4.9%**	**6,200,923**	**30.8%**
PPO/EPO	7,556,018	3,490,795	46.2%	759,095	10.0%	4,249,890	56.2%
POS	2,072,791	767,256	37.0%	135,434	6.5%	902,690	43.5%
HMO	9,005,373	604,406	6.7%	46,614	0.5%	651,020	7.2%
Indemnity	105,331	0	0.0%	35,063	33.3%	35,063	33.3%
Covered California	1,372,516	362,260	26.4%	0	0.0%	362,260	26.4%
Medicare Advantage	**2,285,280**	**85,098**	**3.7%**	**59**	**0.0%**	**85,157**	**3.7%**
Medi-Cal Managed Care	**9,742,931**	**714,574**	**7.3%**	**0**	**0.0%**	**714,574**	**7.3%**
TRICARE	**489,901**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
Totals	**32,630,141**	**6,024,389**	**18.5%**	**976,265**	**3.0%**	**7,000,654**	**21.5%**

*The state shares are only reported for descriptive purposes, because the state is not a single market in an economic or antitrust sense.
PPO: preferred provider organization; EPO: exclusive provider organization; POS: point of service; HMO: health maintenance organization
Source: Authors' analysis of enrollment data from HealthLeaders-InterStudy Managed Market Surveyor, as of July 1, 2015

I. Impact of Anthem-Cigna Merger on Market Concentration

Tables A1 to A4 show Anthem's and Cigna's market shares and pre- and post-merger HHI at the county level (see Section M: Appendix Tables A1 to A4). The tables vary by the lines of business and managed care products included. The first three tables focus on insurer market concentration with respect to purchasers of health insurance (i.e., insurers are sellers), and the

fourth table focuses on insurer market concentration with respect to hospitals, physician organizations and other providers of health care services (i.e., insurers are buyers).

To analyze the impact of the Anthem-Cigna merger when insurers act as sellers of insurance, Table A1 includes employer-sponsored market and individual market (excluding Covered California) enrollees with PPO/EPO, POS and HMO products, but excludes indemnity and Covered California enrollment as well as Medicare Advantage, Medi-Cal Managed Care and TRICARE, because we think those lines of business generally do not represent close substitutes to the included lines of business. Furthermore, Anthem and Cigna do not overlap in the excluded lines of business. Table A2 only includes the PPO/EPO and POS enrollees from Table A1, because the HMO product could be considered to be in a separate market and because of the significant overlap of Anthem and Cigna enrollees in these included products. Table A3 only includes the PPO/EPO enrollees from Table 1, because the POS product could be considered to be in a separate market and because of the significant overlap of Anthem and Cigna enrollees in these included products. Finally, to analyze the impact of the Anthem-Cigna merger when insurers act as buyers of healthcare services, Table A4 includes enrollees from all lines of business, because insurer market concentration with respect to hospitals, physician organizations and other providers of health care services stems from the full book of business. For all four tables, we separated counties into the federal horizontal merger guidelines' evaluation standards of highest, moderate and lowest concern and scrutiny.

Table 2 summarizes the results of Tables A1 to A4 by presenting the number of counties that fall into each merger-evaluation standard and showing pre- versus post-merger HHI statistics at the mean and for the 25th percentile, median and 75th percentile counties. For the employer-sponsored and individual market (excluding Covered California) for the collection of PPO/EPO, POS and HMO products, 18 of California's 58 counties warrant the highest concern and scrutiny under federal horizontal merger guideline standards, based on a combination of these counties' post-merger insurer HHIs being greater than 2,500 and the change in HHI being greater than 200 as a result of the merger. Relative to the more populous counties in the state, these 18 counties generally have smaller populations, all with fewer than 500,000 except for

Ventura County with 848,000. As a result of the merger, the median county's HHI is estimated to increase by 257 points from 2,096 to 3,163 (or 8.8%) (see Table A1 for county-level details).

For the employer-sponsored and individual market (excluding Covered California) for the collection of PPO/EPO and POS products, 41 of California's 58 counties warrant the highest concern and scrutiny under federal horizontal merger guideline standards, based on a combination of these counties' post-merger insurer HHIs being greater than 2,500 and the change in HHI being greater than 200 as a result of the merger. These 41 counties in include the most populous counties in the state. As a result of the merger, the median county's HHI is estimated to increase by 311 points from 3,128 to 3,439 (or 9.9%) (see Table A2 for county-level details).

For the employer-sponsored and individual market (excluding Covered California) for PPO/EPO products, there is a similar result: 46 of California's 58 counties warrant the highest concern and scrutiny under federal horizontal merger guideline standards, based on a combination of these counties' post-merger insurer HHIs being greater than 2,500 and the change in HHI being greater than 200 as a result of the merger. These 46 counties in include the most populous counties in the state. As a result of the merger, the median county's HHI is estimated to increase by 421 points from 3,424 to 3,845 (or 12.3%) (see Table A3 for county-level details).

Now turning to analyzing insurers as buyers of healthcare services from hospitals, physician organizations and other providers, we include all lines of business across all products. In this case, only four of California's 58 counties warrant the highest concern and scrutiny under federal horizontal merger guideline standards, based on a combination of these counties' post-merger insurer HHIs being greater than 2,500 and the change in HHI being greater than 200 as a result of the merger. All four of these counties have fewer than 60,000 in population. There are fewer counties that warrant this scrutiny, primarily because product market definition is broader to reflect insurers' market concentration with respect to hospitals, physician organizations and other providers of health care services. However, the post-merger HHI for the median county is considered highly concentrated (HHI=2,732) by federal horizontal merger

guidelines. As a result of the merger, the median county's HHI is estimated to increase by 97 points from 2,635 to 2,732 (or 3.7%) (see Table A4 for county-level details).

Table 2: Summary Results of County-Level Analysis by Line of Business and Product from an Anthem-Cigna Merger in California

HHI Statistics and U.S. DOJ/FTC Merger Evaluation Standards	PPO/EPO, POS and HMO (1)	PPO/EPO and POS (1)	PPO/EPO (1)	All Lines of Business and Products
Insurers' Role	Seller of Insurance	Seller of Insurance	Seller of Insurance	Buyer of Healthcare Services
U.S. DOJ/FTC Concern and Scrutiny (number of counties)				
Highest	18	41	46	4
Moderate	31	14	7	23
Lowest	9	3	5	31
HHI Measure				
Weighted Mean of All Counties (2)				
Pre-Merger HHI	2,347	2,753	3,047	1,893
Post-Merger HHI	2,602	3,534	3,930	1,998
Difference	255	780	883	105
Difference (%)	10.8%	28.3%	29.0%	5.6%
25th Percentile County				
Pre-Merger HHI	2,393	2,652	2,917	2,124
Post-Merger HHI	2,637	3,185	3,521	2,234
Difference	244	533	604	110
Difference (%)	10.2%	20.1%	20.7%	5.2%
Median County				
Pre-Merger HHI	2,906	3,128	3,424	2,635
Post-Merger HHI	3,163	3,439	3,845	2,732
Difference	257	311	421	97
Difference (%)	8.8%	9.9%	12.3%	3.7%
75th Percentile County				
Pre-Merger HHI	3,476	3,589	3,851	3,213
Post-Merger HHI	3,729	3,993	4,233	3,304
Difference	254	404	382	90
Difference (%)	7.3%	11.3%	9.9%	2.8%
Appendix table source	Table A1	Table A2	Table A3	Table A4

(1) Enrollees include those from the employer-sponsored market (both fully and self-insured) and the individual market outside of Covered California. For these enrollees, the column headings in the table specify the included products.
(2) Weighted mean of all counties' pre- and post-merger HHI is weighted based on county enrollment.
PPO: preferred provider organization; EPO: exclusive provider organization; POS: point of service plan; HMO: health maintenance organization; DOJ: Department of Justice; FTC: Federal Trade Commission; HHI: Herfindahl-Hirschman Index
Source: Authors' analysis of enrollment data from HealthLeaders-InterStudy Managed Market Surveyor, as of July 1, 2015

J. Limitations

J.1. Health Insurer Enrollment Data Limitations

We selected the HealthLeaders-InterStudy data because it is available at the county level for a recent point in time (July 1, 2015), and it has been used in peer-reviewed studies to estimate health insurer market concentration (Melnick et al., 2011; Trish & Herring, 2015) and is used by the American Medical Association in its annual analysis of competition in health insurance markets (American Medical Association, 2015). Notwithstanding, this dataset as well as other datasets have limitations in estimating the number of enrollees by health insurer and market (Dafny, Dranove, Limbrock, & Morton, 2011). Therefore, we compared the estimates from HealthLeaders-InterStudy's data to estimates from the California HealthCare Foundation (CHCF), which are available as of December 2014, but only at the state level (California HealthCare Foundation, 2016). CHCF obtained its estimates from health care service plan filings to the California Department of Managed Health Care and health insurer filings to the California Department of Insurance.[6] Our estimates using the HealthLeaders-InterStudy data were consistent with CHCF estimates at the state level, 32.6 million and 32.3 million enrollees, respectively, and were consistent for Anthem, 6.0 million and 6.1 million enrollees, respectively. However, for Cigna, we estimated 1.0 million enrollees using HealthLeaders-InterStudy data, while CHCF estimated 2.1 million enrollees. The difference primarily stems from CHCF reporting a higher number of self-insured, administrative-services-only enrollees. The number of these enrollees is difficult to capture and can result in double counting or comparability issues; for example, one carrier may be only providing administrative services for carve outs or ancillary insurance (e.g., pharmacy benefits, dental, etc.), while another carrier is actually providing administrative services for the major health insurance. Because of this discrepancy, we contacted HealthLeaders-InterStudy, which reviewed and confirmed its Cigna estimate.

[6] In California, the Department of Managed Health Care regulates health care service plans, in which the vast majority of enrollees reside, and the California Department of Insurance regulates health insurance policies. In this testimony, we refer to both sets of enrollees as health insurer enrollees. Furthermore, health care service plans are not required to file with the National Association of Insurance Commissioners.

J.2. Geographic, Product and Market Concentration Definition Limitations

When estimating market concentration, the definition of the geographic and product market is critical. We defined the geographic market at the county level; however, if we had better data, it would be interesting to compare our results using the recently developed Differentiated Bertrand Oligopoly Model and Option Demand Model that rely on employer/enrollee- and insurer-level decisions (Gaynor et al., 2013). For the product market, we did not have information and the resources to determine the substitutability of the key products (PPO, POS, EPO and HMO) to determine the appropriate product markets in an economic or antitrust sense (i.e., one that a hypothetical monopolist could profitability impose a small but significant and non-transitory increase in price over the competitive price in the county), which is why we used three product groupings that give a fair approximation of the differentiated insurance products sold in the market, in order to provide a range of results. Additional product groupings could be investigated, such as those that separate fully insured and self-insured enrollees.

K. Discussion

Based on the U.S. Department of Justice/Federal Trade Commission standards for reviewing a horizontal merger, we analyzed insurers as sellers of major health insurance—primarily furnished via managed care—for employer-sponsored and individual (excluding Covered California) market lines of business when the product market includes a collection of PPO/EPO, POS and HMO products. We found that 18 of California's 58 counties warrant the highest concern and scrutiny under federal horizontal merger guidelines, based on a combination of these counties' post-merger insurer HHI being greater than 2,500 and the change in HHI being greater than 200 as a result of the merger. This highest concern and scrutiny is warranted in these lines of business in 41 counties when the product market only includes PPO/EPO and POS products, and in 46 counties when the product market only includes PPO/EPO products. When analyzing insurers as buyers of healthcare services from hospitals, physician organizations and other providers, then the product market includes all lines of business across all products. In this situation, the highest concern and scrutiny is warranted in four counties; however, the

post-merger HHI for the median county is considered highly concentrated (HHI=2,732) by federal horizontal merger guidelines.

Although certain counties warrant the highest concern and scrutiny for particular product definitions, the federal horizontal merger guidelines’ threshold does not represent a rigid test to identify competitively benign mergers from anti-competitive mergers. Instead, they provide a way to identify mergers when it is important to examine other competitive factors that may influence the potentially harmful impact of increased concentration, such as ease of entry, significant merger-specific efficiencies, and the presence of powerful buyers.

In summary, our results provide an important, initial barometer that shows where additional scrutiny may be warranted to employ more sensitive models with more robust data to better understand the proposed merger’s impact on competition.

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M. Appendix

Table A1: Change in the Herfindahl-Hirschman Index (HHI) by County in California for Insurers as Sellers of Employer-Sponsored and Individual Market Preferred Provider Organization/Exclusive Provider Organization, Point of Service and Health Maintenance Organization Managed Care Products from an Anthem-Cigna Merger

	County	Population	Enrollment	Anthem Market Share	Cigna Market Share	Pre-Merger HHI	Post-Merger HHI	Point Change in HHI	Percentage Change in HHI
Panel A: Highest Concern and Scrutiny - Presumed to be likely to enhance market power (18 counties)									
1	Santa Barbara	437,643	201,398	47.5%	5.9%	2,896	3,459	564	19.5%
2	Mono	14,695	2,467	54.5%	5.1%	3,469	4,021	552	15.9%
3	San Benito	58,344	26,359	41.2%	5.2%	2,464	2,891	427	17.3%
4	Santa Cruz	271,646	131,506	43.6%	4.8%	2,567	2,985	418	16.3%
5	Plumas	19,560	5,946	30.1%	6.6%	3,052	3,447	395	12.9%
6	Tulare	462,189	164,194	53.1%	3.5%	3,626	4,000	374	10.3%
7	Ventura	848,073	464,099	41.8%	4.2%	2,370	2,717	348	14.7%
8	Monterey	425,413	196,378	56.6%	2.9%	4,022	4,350	328	8.1%
9	Colusa	21,715	6,154	30.8%	4.7%	2,911	3,199	288	9.9%
10	Sutter	95,948	31,907	46.4%	2.9%	2,859	3,130	271	9.5%
11	Tehama	64,323	12,819	38.1%	3.5%	3,149	3,419	269	8.5%
12	San Luis Obispo	274,293	136,196	57.9%	2.2%	4,015	4,269	254	6.3%
13	Yuba	74,076	30,080	54.1%	2.2%	3,466	3,705	239	6.9%
14	Merced	266,134	98,917	47.5%	2.4%	3,187	3,417	230	7.2%
15	Nevada	98,193	33,146	33.4%	3.4%	2,483	2,711	228	9.2%
16	Lake	64,918	13,987	39.1%	2.8%	2,532	2,753	221	8.7%
17	Madera	155,878	87,643	65.1%	1.5%	4,573	4,774	201	4.4%
18	Calaveras	45,668	14,413	34.7%	2.9%	2,302	2,502	201	8.7%
Panel B: Moderate Concern and Scrutiny - Potentially raise significant competitive concerns and often warrant scrutiny (31 counties)									
1	Orange	3,147,655	1,628,401	28.9%	8.3%	1,798	2,276	478	26.6%
2	Los Angeles	10,136,559	4,332,555	30.2%	5.2%	2,163	2,474	311	14.4%

3	Santa Clara	1,889,638	1,234,790	18.9%	7.8%	2,073	2,367	294	14.2%
4	San Francisco	845,602	497,162	19.2%	6.3%	1,948	2,191	243	12.5%
5	San Diego	3,227,496	1,593,119	20.1%	6.0%	1,548	1,788	240	15.5%
6	San Mateo	753,123	482,961	18.2%	6.6%	2,022	2,262	240	11.9%
7	Marin	258,972	161,681	17.7%	5.8%	1,968	2,173	205	10.4%
8	Riverside	2,308,441	955,481	23.6%	4.3%	2,164	2,366	202	9.3%
9	El Dorado	184,917	100,746	15.7%	6.4%	1,735	1,937	201	11.6%
10	Kings	149,721	45,520	31.5%	3.1%	2,919	3,116	196	6.7%
11	Shasta	178,673	89,133	54.2%	1.8%	4,051	4,242	191	4.7%
12	San Bernardino	2,104,291	908,991	18.8%	4.7%	2,231	2,409	178	8.0%
13	Fresno	972,297	410,619	42.1%	2.1%	2,651	2,827	176	6.6%
14	Alameda	1,594,569	987,721	17.0%	5.1%	2,801	2,973	172	6.1%
15	Butte	224,323	92,251	54.2%	1.5%	4,016	4,180	163	4.1%
16	Imperial	183,429	49,677	14.5%	5.6%	3,593	3,756	163	4.5%
17	Stanislaus	532,297	227,146	25.9%	3.2%	2,365	2,528	163	6.9%
18	Kern	874,264	384,098	39.3%	2.1%	2,501	2,663	162	6.5%
19	Siskiyou	45,119	12,266	25.9%	2.9%	3,110	3,261	151	4.8%
20	Amador	36,312	12,867	31.1%	2.4%	2,482	2,629	147	5.9%
21	Contra Costa	1,102,871	673,016	15.5%	4.5%	2,901	3,040	138	4.8%
22	Humboldt	134,398	34,253	26.1%	2.6%	3,687	3,825	138	3.7%
23	Alpine	1,121	255	18.8%	3.5%	3,954	4,087	133	3.4%
24	Tuolumne	54,337	16,137	34.2%	1.9%	3,152	3,279	127	4.0%
25	Napa	140,362	77,444	23.2%	2.7%	3,473	3,599	126	3.6%
26	Sierra	3,105	968	20.1%	3.1%	4,364	4,489	125	2.9%
27	Mariposa	17,791	6,798	23.1%	2.7%	2,623	2,746	123	4.7%
28	Glenn	28,728	8,045	27.1%	2.2%	3,477	3,595	118	3.4%
29	San Joaquin	719,511	340,460	23.7%	2.4%	2,752	2,866	114	4.1%
30	Trinity	13,571	2,673	37.5%	1.4%	3,240	3,347	107	3.3%
31	Del Norte	28,031	5,043	38.0%	1.3%	3,162	3,264	102	3.2%
Panel C: Lowest Concern and Scrutiny - Unlikely to have adverse competitive effects and ordinarily require no further analysis (9 counties)									
1	Mendocino	88,863	24,724	29.4%	1.6%	3,735	3,830	95	2.5%

2	Sacramento	1,470,912	752,102	12.7%	2.9%	2,766	2,840	74	2.7%
3	Yolo	209,393	108,504	15.6%	2.3%	1,873	1,943	70	3.8%
4	Sonoma	496,253	261,525	18.5%	1.8%	3,338	3,405	67	2.0%
5	Placer	369,454	211,055	8.1%	3.7%	2,348	2,409	60	2.6%
6	Modoc	9,399	2,253	19.2%	1.4%	4,097	4,152	55	1.3%
7	Lassen	32,092	10,649	31.6%	0.7%	3,694	3,738	43	1.2%
8	Inyo	18,574	4,326	31.6%	0.6%	3,156	3,195	39	1.2%
9	Solano	429,552	229,158	6.7%	2.5%	4,485	4,518	33	0.7%
	Total or mean	38,714,725	18,634,182	26.1%	5.1%	2,347	2,602	255	10.8%
	25th Percentile		13,147	19.2%	2.2%	2,393	2,637	125	3.7%
	Median		90,692	30.1%	2.9%	2,906	3,163	184	6.6%
	75th Percentile		320,726	40.7%	4.8%	3,476	3,729	251	10.2%

Notes: Enrollment is from the employer-sponsored (fully- and self-insured) market and the individual (excluding Covered California) market. The mean Anthem and Cigna market shares as well as the mean pre- and post-merger Herfindahl-Hirschman Index (HHI) measures are weighted by county enrollment. The mean pre- and post-merger HHI point change and percent change are based on the difference between the weighted HHI means. The distributional statistics (i.e., percentiles) are based on the 58 county measures within each column; therefore, the point and percentage change in HHI differ from those statistics reported in Table 2, which are based on the simple point and percentage change in HHI of the 25th percentile, median or 75th percentile county.

Sources: Authors' analysis of enrollment data from HealthLeaders-InterStudy Managed Market Surveyor, as of July 1, 2015. Population estimates are from the California Department of Finance, as of January 1, 2015.

Table A2: Change in the Herfindahl-Hirschman Index (HHI) by County in California for Insurers as Sellers of Employer-Sponsored and Individual Market Preferred Provider Organization/Exclusive Provider Organization Managed Care Products from an Anthem-Cigna Merger

	County	Population	Enrollment	Anthem Market Share	Cigna Market Share	Pre-Merger HHI	Post-Merger HHI	Point Change in HHI	Percentage Change in HHI
Panel A: Highest Concern and Scrutiny - Presumed to be likely to enhance market power (41 counties)									
1	Orange	3,147,655	933,241	44.1%	12.8%	2,508	3,636	1,128	45.0%
2	Los Angeles	10,136,559	2,213,343	51.7%	9.6%	3,069	4,062	993	32.4%
3	San Bernardino	2,104,291	360,062	41.4%	11.3%	2,255	3,191	936	41.5%
4	El Dorado	184,917	45,176	30.9%	14.2%	2,040	2,920	880	43.1%
5	Santa Clara	1,889,638	675,994	30.2%	14.1%	1,913	2,763	850	44.5%
6	San Diego	3,227,496	755,789	37.1%	11.3%	2,120	2,961	841	39.7%
7	Riverside	2,308,441	424,114	46.5%	8.7%	2,622	3,436	814	31.0%
8	Alameda	1,594,569	422,857	34.7%	11.7%	2,069	2,880	811	39.2%
9	Contra Costa	1,102,871	265,192	34.3%	11.2%	2,049	2,821	772	37.7%
10	San Francisco	845,602	260,078	32.1%	12.0%	1,989	2,758	769	38.6%
11	Napa	140,362	29,629	53.4%	7.1%	3,375	4,132	757	22.4%
12	San Mateo	753,123	257,191	29.8%	12.2%	1,958	2,687	729	37.2%
13	San Benito	58,344	19,123	50.0%	7.2%	3,091	3,806	716	23.2%
14	Sacramento	1,470,912	225,781	36.9%	9.7%	2,163	2,876	712	32.9%
15	Santa Barbara	437,643	161,239	51.9%	6.8%	3,233	3,939	706	21.8%
16	Marin	258,972	82,072	30.7%	11.3%	1,980	2,676	696	35.1%
17	Santa Cruz	271,646	96,276	52.1%	6.5%	3,198	3,872	674	21.1%
18	Ventura	848,073	308,936	54.9%	6.1%	3,381	4,050	668	19.8%
19	Mono	14,695	2,269	52.3%	5.5%	3,300	3,876	576	17.5%
20	San Joaquin	719,511	147,313	47.9%	5.5%	2,914	3,439	524	18.0%
21	Tulare	462,189	131,866	57.8%	4.4%	3,972	4,475	504	12.7%
22	Stanislaus	532,297	120,542	42.7%	5.9%	2,860	3,362	501	17.5%
23	Sonoma	496,253	94,622	44.6%	5.0%	2,741	3,185	443	16.2%
24	Plumas	19,560	5,638	28.0%	6.9%	3,106	3,493	387	12.5%
25	Yuba	74,076	22,293	64.4%	3.0%	4,506	4,891	385	8.5%

26	Kern	874,264	235,508	56.0%	3.3%	3,603	3,977	374	10.4%
27	San Luis Obispo	274,293	104,400	66.1%	2.8%	4,622	4,991	369	8.0%
28	Colusa	21,715	5,170	32.4%	5.6%	3,078	3,439	361	11.7%
29	Sutter	95,948	26,054	50.1%	3.6%	3,336	3,694	359	10.8%
30	Nevada	98,193	25,095	38.9%	4.5%	2,780	3,130	350	12.6%
31	Monterey	425,413	179,036	54.3%	3.2%	3,913	4,258	345	8.8%
32	Amador	36,312	7,931	44.4%	3.8%	3,091	3,432	341	11.0%
33	Kings	149,721	32,426	39.0%	4.4%	2,943	3,282	339	11.5%
34	Fresno	972,297	278,660	54.3%	3.1%	3,666	3,998	333	9.1%
35	Calaveras	45,668	10,725	41.1%	3.9%	2,866	3,185	319	11.1%
36	Madera	155,878	67,481	77.1%	2.0%	6,101	6,409	308	5.0%
37	Merced	266,134	80,488	51.1%	3.0%	3,629	3,933	304	8.4%
38	Lake	64,918	11,259	42.8%	3.5%	3,023	3,323	300	9.9%
39	Tehama	64,323	11,976	36.0%	3.8%	3,121	3,393	272	8.7%
40	Imperial	183,429	37,823	16.8%	7.4%	3,547	3,795	248	7.0%
41	Butte	224,323	76,666	57.0%	1.8%	4,072	4,278	206	5.1%
Panel B: Moderate Concern and Scrutiny - Potentially raise significant competitive concerns and often warrant scrutiny (14 counties)									
1	Solano	429,552	53,137	25.4%	10.6%	1,798	2,339	540	30.0%
2	Placer	369,454	73,715	20.4%	10.5%	1,781	2,211	430	24.1%
3	Yolo	209,393	53,035	28.2%	4.6%	2,192	2,450	258	11.8%
4	Shasta	178,673	82,643	51.1%	1.9%	3,904	4,098	194	5.0%
5	Mariposa	17,791	5,385	25.7%	3.3%	2,847	3,018	172	6.0%
6	Humboldt	134,398	29,156	27.0%	3.1%	3,339	3,507	168	5.0%
7	Glenn	28,728	6,818	28.2%	2.6%	3,163	3,309	145	4.6%
8	Siskiyou	45,119	11,809	23.8%	3.0%	3,183	3,326	143	4.5%
9	Tuolumne	54,337	14,613	33.3%	2.1%	3,396	3,533	137	4.0%
10	Sierra	3,105	874	19.8%	3.4%	4,418	4,554	136	3.1%
11	Alpine	1,121	243	17.7%	3.7%	4,122	4,253	131	3.2%
12	Trinity	13,571	2,506	35.4%	1.5%	3,279	3,386	107	3.3%
13	Mendocino	88,863	22,278	28.8%	1.8%	3,908	4,012	103	2.6%
14	Del Norte	28,031	4,787	35.3%	1.4%	3,135	3,235	100	3.2%

Panel C: Lowest Concern and Scrutiny - Unlikely to have adverse competitive effects and ordinarily require no further analysis (3 counties)									
1	Modoc	9,399	2,183	17.5%	1.5%	4,270	4,321	51	1.2%
2	Lassen	32,092	10,188	29.1%	0.7%	3,779	3,820	42	1.1%
3	Inyo	18,574	4,105	29.4%	0.7%	3,249	3,287	39	1.2%
	Total or mean	38,714,725	9,628,809	44.2%	9.3%	2,753	3,534	780	28.3%
	25th percentile			29.5%	3.0%	2,652	3,185	217	5.3%
	Median			38.0%	4.4%	3,128	3,439	365	11.6%
	75th percentile			51.1%	8.4%	3,589	3,993	703	23.9%

Notes: Enrollment is from the employer-sponsored (fully- and self-insured) market and the individual (excluding Covered California) market. The mean Anthem and Cigna market shares as well as the mean pre- and post-merger Herfindahl-Hirschman Index (HHI) measures are weighted by county enrollment. The mean pre- and post-merger HHI point change and percent change are based on the difference between the weighted HHI means. The distributional statistics (i.e., percentiles) are based on the 58 county measures within each column; therefore, the point and percentage change in HHI differ from those statistics reported in Table 2, which are based on the simple point and percentage change in HHI of the 25th percentile, median or 75th percentile county.

Sources: Authors' analysis of enrollment data from HealthLeaders-InterStudy Managed Market Surveyor, as of July 1, 2015. Population estimates are from the California Department of Finance, as of January 1, 2015.

Table A3: Change in the Herfindahl-Hirschman Index by County in California for Insurers as Sellers of Employer-Sponsored and Individual Market Preferred Provider Organization/Exclusive Provider Organization Managed Care Products from an Anthem-Cigna Merger

	County	Population	Enrollment	Anthem Market Share	Cigna Market Share	Pre-Merger HHI	Post-Merger HHI	Point Change in HHI	Percentage Change in HHI
Panel A: Highest Concern and Scrutiny - Presumed to be likely to enhance market power (46 counties)									
1	Santa Clara	1,889,638	500,530	33.5%	18.5%	2,227	3,465	1,238	55.6%
2	San Diego	3,227,496	570,406	40.4%	13.4%	2,432	3,515	1,083	44.5%
3	Los Angeles	10,136,559	1,740,205	54.0%	9.9%	3,367	4,437	1,070	31.8%
4	Orange	3,147,655	711,056	47.6%	11.1%	2,864	3,926	1,062	37.1%
5	Contra Costa	1,102,871	197,958	37.8%	13.9%	2,333	3,383	1,050	45.0%
6	Alameda	1,594,569	325,610	37.0%	14.1%	2,374	3,421	1,047	44.1%
7	San Bernardino	2,104,291	257,815	47.6%	11.0%	2,793	3,837	1,043	37.4%
8	El Dorado	184,917	36,767	30.2%	16.4%	2,303	3,294	991	43.1%
9	San Francisco	845,602	199,831	34.3%	14.3%	2,299	3,278	979	42.6%
10	Napa	140,362	23,281	54.0%	8.9%	3,571	4,528	957	26.8%
11	San Mateo	753,123	193,204	32.6%	14.4%	2,310	3,253	943	40.8%
12	San Benito	58,344	15,197	50.0%	9.0%	3,262	4,157	896	27.5%
13	Sacramento	1,470,912	177,147	38.7%	11.5%	2,436	3,324	887	36.4%
14	Marin	258,972	64,186	31.5%	13.6%	2,268	3,127	860	37.9%
15	Riverside	2,308,441	332,102	48.9%	8.7%	2,898	3,751	853	29.4%
16	Santa Cruz	271,646	77,751	53.1%	7.8%	3,412	4,236	824	24.1%
17	Ventura	848,073	250,832	55.6%	6.8%	3,533	4,286	753	21.3%
18	Solano	429,552	41,202	26.0%	12.8%	2,103	2,771	667	31.7%
19	Mono	14,695	1,928	48.8%	6.5%	3,128	3,761	633	20.2%
20	San Joaquin	719,511	120,251	48.3%	6.4%	3,114	3,732	618	19.8%
21	Santa Barbara	437,643	134,752	51.1%	5.8%	3,310	3,903	593	17.9%
22	Placer	369,454	55,593	22.1%	13.0%	2,109	2,685	576	27.3%
23	Tulare	462,189	110,488	56.7%	5.1%	4,066	4,642	576	14.2%
24	Stanislaus	532,297	103,472	40.9%	6.7%	3,023	3,570	547	18.1%
25	Sonoma	496,253	74,827	46.4%	5.9%	3,080	3,625	545	17.7%

26	Yuba	74,076	18,055	63.0%	3.7%	4,470	4,931	461	10.3%
27	Kern	874,264	192,199	56.4%	4.0%	3,776	4,225	450	11.9%
28	Sutter	95,948	21,045	49.3%	4.4%	3,564	3,994	430	12.1%
29	San Luis Obispo	274,293	86,776	65.4%	3.2%	4,599	5,017	418	9.1%
30	Kings	149,721	26,400	38.0%	5.2%	3,425	3,823	398	11.6%
31	Plumas	19,560	5,025	25.0%	7.7%	3,496	3,883	387	11.1%
32	Madera	155,878	51,164	74.0%	2.6%	5,734	6,121	387	6.7%
33	Nevada	98,193	21,191	36.7%	5.2%	3,017	3,399	383	12.7%
34	Monterey	425,413	154,980	51.6%	3.6%	3,926	4,302	376	9.6%
35	Amador	36,312	6,673	41.9%	4.5%	3,244	3,619	375	11.6%
36	Colusa	21,715	4,542	29.3%	6.3%	3,448	3,820	372	10.8%
37	Fresno	972,297	234,844	53.0%	3.5%	3,762	4,132	370	9.8%
38	Lake	64,918	9,051	42.3%	4.2%	3,424	3,776	352	10.3%
39	Calaveras	45,668	9,211	38.0%	4.5%	2,974	3,318	344	11.6%
40	Merced	266,134	69,192	48.9%	3.4%	3,728	4,061	332	8.9%
41	Yolo	209,393	43,243	27.4%	5.1%	2,624	2,905	280	10.7%
42	Tehama	64,323	10,613	32.3%	4.2%	3,339	3,613	274	8.2%
43	Mariposa	17,791	4,052	27.0%	4.4%	3,890	4,130	240	6.2%
44	Imperial	183,429	34,363	14.7%	8.1%	4,130	4,368	238	5.8%
45	Butte	224,323	65,165	55.2%	2.0%	4,140	4,358	218	5.3%
46	Shasta	178,673	72,522	47.9%	2.2%	3,954	4,161	207	5.2%
Panel B: Moderate Concern and Scrutiny - Potentially raise significant competitive concerns and often warrant scrutiny (7 counties)									
1	Humboldt	134,398	26,841	23.3%	3.4%	3,613	3,770	157	4.3%
2	Siskiyou	45,119	10,457	21.3%	3.4%	3,707	3,853	145	3.9%
3	Glenn	28,728	6,188	24.7%	2.8%	3,467	3,608	140	4.0%
4	Tuolumne	54,337	12,922	29.9%	2.3%	3,780	3,919	139	3.7%
5	Alpine	1,121	217	16.1%	4.1%	4,960	5,094	134	2.7%
6	Sierra	3,105	816	17.2%	3.7%	4,895	5,021	126	2.6%
7	Trinity	13,571	2,266	31.1%	1.7%	3,435	3,540	104	3.0%
Panel C: Lowest Concern and Scrutiny - Unlikely to have adverse competitive effects and ordinarily require no further analysis (5 counties)									
1	Mendocino	88,863	20,274	25.1%	2.0%	4,335	4,435	99	2.3%

2	Del Norte	28,031	4,369	30.7%	1.6%	3,207	3,303	96	3.0%
3	Modoc	9,399	2,059	14.8%	1.5%	4,666	4,709	43	0.9%
4	Inyo	18,574	3,515	27.2%	0.8%	3,875	3,917	42	1.1%
5	Lassen	32,092	9,397	25.1%	0.8%	4,070	4,109	39	1.0%
	Total or mean	38,714,725	7,556,018	46.2%	10.0%	3,047	3,930	883	29.0%
	25th Percentile			27.9%	3.4%	2,917	3,521	239	5.9%
	Median			38.0%	5.2%	3,424	3,845	408	11.6%
	75th Percentile			49.2%	8.9%	3,851	4,233	845	27.4%

Notes: Enrollment is from the employer-sponsored (fully- and self-insured) market and the individual (excluding Covered California) market. The mean Anthem and Cigna market shares as well as the mean pre- and post-merger Herfindahl-Hirschman Index (HHI) measures are weighted by county enrollment. The mean pre- and post-merger HHI point change and percent change are based on the difference between the weighted HHI means. The distributional statistics (i.e., percentiles) are based on the 58 county measures within each column; therefore, the point and percentage change in HHI differ from those statistics reported in Table 2, which are based on the simple point and percentage change in HHI of the 25th percentile, median or 75th percentile county.

Sources: Authors' analysis of enrollment data from HealthLeaders-InterStudy Managed Market Surveyor, as of July 1, 2015. Population estimates are from the California Department of Finance, as of January 1, 2015.

Table A4: Change in the Herfindahl-Hirschman Index by County in California for Insurers as Buyers of Healthcare Services from an Anthem-Cigna Merger

	County	Population	Enrollment	Anthem Market Share	Cigna Market Share	Pre-Merger HHI	Post-Merger HHI	Point Change in HHI	Percentage Change in HHI
Panel A: Highest Concern and Scrutiny - Presumed to be likely to enhance market power (4 counties)									
1	San Benito	58,344	36,249	52.7%	3.8%	3,282	3,683	400	12.2%
2	Plumas	19,560	11,587	40.3%	3.4%	2,579	2,855	276	10.7%
3	Mono	14,695	6,285	54.1%	2.2%	3,432	3,667	234	6.8%
4	Colusa	21,715	13,845	50.4%	2.1%	3,219	3,430	210	6.5%
Panel B: Moderate Concern and Scrutiny - Potentially raise significant competitive concerns and often warrant scrutiny (23 counties)									
1	Santa Clara	1,889,638	1,728,417	19.5%	5.8%	1,792	2,020	228	12.7%
2	Santa Barbara	437,643	348,384	30.4%	3.5%	2,273	2,487	214	9.4%
3	Orange	3,147,655	2,760,981	18.5%	4.9%	1,625	1,805	181	11.1%
4	El Dorado	184,917	151,577	18.9%	4.5%	1,615	1,786	171	10.6%
5	Nevada	98,193	62,780	44.3%	1.9%	2,646	2,813	167	6.3%
6	Santa Cruz	271,646	218,144	28.0%	3.0%	2,118	2,284	166	7.8%
7	Tulare	462,189	369,021	49.6%	1.6%	3,402	3,559	157	4.6%
8	Sutter	95,948	68,135	55.3%	1.4%	3,511	3,665	154	4.4%
9	San Francisco	845,602	740,357	16.7%	4.5%	1,619	1,770	151	9.4%
10	Ventura	848,073	744,291	28.2%	2.6%	1,870	2,018	148	7.9%
11	San Mateo	753,123	676,645	13.5%	5.1%	1,789	1,926	137	7.6%
12	Mariposa	17,791	11,706	40.6%	1.6%	2,547	2,680	134	5.3%
13	Sierra	3,105	1,677	37.3%	1.8%	2,924	3,058	133	4.6%
14	Alpine	1,121	596	43.3%	1.5%	2,975	3,105	131	4.4%
15	Marin	258,972	234,408	13.7%	4.7%	1,874	2,004	130	6.9%
16	Amador	36,312	22,876	43.3%	1.5%	2,717	2,844	128	4.7%
17	Alameda	1,594,569	1,465,519	16.4%	3.7%	2,264	2,386	121	5.4%
18	Tehama	64,323	35,180	45.6%	1.3%	3,167	3,286	119	3.8%
19	San Luis Obispo	274,293	211,486	40.1%	1.5%	2,670	2,788	117	4.4%
20	Yuba	74,076	61,479	51.9%	1.1%	3,195	3,310	114	3.6%

21	Calaveras	45,668	27,598	35.1%	1.6%	2,139	2,251	112	5.2%
22	Monterey	425,413	368,013	33.9%	1.6%	2,950	3,056	106	3.6%
23	Placer	369,454	312,352	16.2%	3.1%	2,152	2,253	101	4.7%
Panel C: Lowest Concern and Scrutiny - Unlikely to have adverse competitive effects and ordinarily require no further analysis (31 counties)									
1	Kings	149,721	99,063	34.2%	1.4%	2,326	2,425	99	4.2%
2	Los Angeles	10,136,559	8,140,426	17.2%	2.8%	1,583	1,678	95	6.0%
3	Madera	155,878	152,530	51.1%	0.9%	3,282	3,376	94	2.9%
4	Contra Costa	1,102,871	998,192	13.4%	3.5%	2,378	2,471	93	3.9%
5	Butte	224,323	164,486	51.8%	0.9%	3,458	3,548	90	2.6%
6	San Diego	3,227,496	2,702,573	12.6%	3.5%	1,204	1,293	89	7.4%
7	Tuolumne	54,337	30,615	40.0%	1.0%	2,624	2,706	82	3.1%
8	Fresno	972,297	843,530	33.8%	1.1%	2,414	2,491	76	3.2%
9	Glenn	28,728	18,093	38.9%	1.0%	2,817	2,893	76	2.7%
10	Sacramento	1,470,912	1,331,498	19.8%	1.9%	2,232	2,307	75	3.4%
11	Shasta	178,673	162,747	33.6%	1.0%	2,913	2,979	66	2.3%
12	Napa	140,362	121,893	15.7%	2.1%	2,694	2,758	65	2.4%
13	Riverside	2,308,441	1,878,504	12.7%	2.2%	1,670	1,726	56	3.3%
14	Stanislaus	532,297	465,843	15.8%	1.6%	1,649	1,701	52	3.1%
15	San Bernardino	2,104,291	1,776,272	10.2%	2.4%	1,815	1,865	50	2.7%
16	Kern	874,264	735,495	21.9%	1.1%	1,822	1,870	48	2.6%
17	Merced	266,134	236,935	23.1%	1.0%	3,391	3,438	47	1.4%
18	San Joaquin	719,511	639,833	14.7%	1.5%	2,185	2,228	43	2.0%
19	Yolo	209,393	178,519	10.7%	1.9%	1,750	1,790	40	2.3%
20	Imperial	183,429	127,651	8.8%	2.2%	2,616	2,654	39	1.5%
21	Siskiyou	45,119	31,540	14.6%	1.2%	3,246	3,281	34	1.1%
22	Sonoma	496,253	440,244	12.0%	1.4%	2,594	2,627	33	1.3%
23	Humboldt	134,398	90,006	15.8%	1.0%	3,498	3,530	32	0.9%
24	Lake	64,918	45,830	16.1%	0.9%	4,157	4,185	29	0.7%
25	Inyo	18,574	9,190	39.7%	0.3%	2,688	2,713	25	0.9%
26	Mendocino	88,863	67,375	16.5%	0.6%	3,571	3,591	20	0.6%
27	Trinity	13,571	8,234	18.2%	0.5%	3,725	3,743	18	0.5%

28	Lassen	32,092	18,712	20.1%	0.4%	2,735	2,751	16	0.6%
29	Solano	429,552	401,648	4.4%	1.6%	2,972	2,986	14	0.5%
30	Modoc	9,399	5,728	12.1%	0.6%	3,364	3,377	14	0.4%
31	Del Norte	28,031	17,348	14.3%	0.4%	4,330	4,342	12	0.3%
	Total or mean	38,714,725	32,630,141	18.5%	3.0%	1,893	1,998	105	5.6%
	25th Percentile			15.7%	1.1%	2,124	2,234	47	2.3%
	Median			21.0%	1.6%	2,635	2,732	95	3.7%
	75th Percentile			40.1%	2.7%	3,213	3,304	136	6.2%

Notes: Enrollment is from all lines of business and products included Table 1. The mean Anthem and Cigna market shares as well as the mean pre- and post-merger Herfindahl-Hirschman Index (HHI) measures are weighted by county enrollment. The mean pre- and post-merger HHI point change and percent change are based on the difference between the weighted HHI means. The distributional statistics (i.e., percentiles) are based on the 58 county measures within each column; therefore, the point and percentage change in HHI differ from those statistics reported in Table 2, which are based on the simple point and percentage change in HHI of the 25th percentile, median or 75th percentile county.
Sources: Authors' analysis of enrollment data from HealthLeaders-InterStudy Managed Market Surveyor, as of July 1, 2015. Population estimates are from the California Department of Finance, as of January 1, 2015.