New Evidence about the Heterogeneity of Indiana's Healthcare Markets: Competition, Costs, and the Impacts of Market Structure

Report to the Indiana Legislative Services Agency

by

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Abstract

On April 29, 2021, Indiana enacted HB 1405, directing a study to be conducted on the market concentration in Indiana's healthcare sector. This study focuses on the health insurance, hospital, and physician industries. The healthcare sector in Indiana is a microcosm of the healthcare sector in the United States, consisting of dominant health insurers and a delivery system that has evolved into a patchwork of hospital systems that have grown in size and geographic scope via mergers and acquisitions, including vertical acquisitions of physician organizations. This study shows that the healthcare sector in Indiana is not monolithic, neither across the industries we analyzed—health insurance, hospitals, and physicians—nor across its MSAs. Therefore, policies aimed at improving healthcare competition, affordability, and quality need to account for this heterogeneity.

Executive Summary

On April 29, 2021, Indiana enacted HB 1405, directing a study to be conducted on the market concentration in Indiana's healthcare sector. This study focuses on the health insurance, hospital, and physician industries, and has three principal aims. First, using newly released data from the Office of the Actuary at the Centers for Medicare & Medicaid Services (CMS), the study compares healthcare spending in Indiana to comparison states, defined as other states in its census division (Illinois, Michigan, Ohio and Wisconsin), and to the United States as a whole (CMS Office of the Actuary 2022). Second, the study analyzes the insurer, hospital, and physician industries by estimating market concentration by MSA, reporting financial information (e.g., revenues, operating margin, and net assets) of the top firms, and measuring the cost of care by MSA. Third, it estimates the impact of hospital mergers on hospital prices, as well as the impact of the number of insurers participating in a market on health insurance premiums. When possible, the analyses were conducted at the MSA level—across all 15 MSAs in Indiana—to identify heterogeneity across the state.

In 2020, healthcare spending per capita in Indiana was $10,517, which was $380 (or 3.8%) higher than the average of the comparison states (CMS Office of the Actuary 2022). From 2011 to 2020, these expenditures increased by 48.0% in Indiana, higher than the 35.3% increase in comparison states. Indiana's relatively high healthcare expenditures per capita—both its level in 2020 and growth during the past decade—are caused by several factors, with one likely factor being that its health insurer, hospital, and physician markets are highly concentrated.

Indiana's insurance markets are dominated by national insurance firms, with Anthem Blue Cross Blue Shield of Indiana having the largest market share by enrollment in all 15 MSAs, averaging 44.9% with a range of 32.6% to 55.7%. UnitedHealth Group, McLaren, and Centene

were often the second or third largest insurer by enrollment. On average, the top 3 insurers had a combined market share of 67.7% across the 15 MSAs, ranging from 59.8% to 73.7%.

Similar to Indiana's insurance markets, its hospital markets are also dominated by large firms—specifically large hospital systems—that are either national systems (Ascension and Community Health Systems) or state systems within Indiana (IU Health, Franciscan Health, Community Health Network, and Parkview Health).[1] Of the top 3 hospitals by operating revenue in each MSA, nearly half were part of these six systems. On average, the largest hospitals (or hospital systems) had a combined market share of 91.0% across the 15 MSAs, ranging from 49.6% to 100.0%.

The physician market can be characterized as being vertically integrated with major hospital systems because they either directly employ physicians or have acquired physician organizations. Hence, of the top 3 organizations by the number of full-time equivalent physicians in each MSA, about one-third were one of the six major hospital systems in the state (see above), and at least another third were other Indiana-based hospital systems or national systems. On average, the largest three physicians organizations (or hospital owners) had a combined market share of 56.1% across the 15 MSAs, ranging from 37.2% to 72.5%.

As a result of the top 3 firms in each MSA generally having significant market shares in the three industries, the following number of MSAs in Indiana had an HHI greater than 2,500, the threshold that the U.S. Department of Justice (DOJ) and Federal Trade Commission (FTC) use to define a highly concentrated market: health insurance (15 MSAs), hospitals (14 MSAs), primary care physicians (13 MSAs), and specialist physicians (10 MSAs) (U.S. Department of Justice and Federal Trade Commission 2010).

[1] Franciscan Health has one hospital located outside of Indiana (in Illinois).

When we further scrutinized the four most populous MSAs in Indiana—Indianapolis-Carmel-Anderson (2,126,000), Fort Wayne (423,000), South Bend-Mishawaka, (272,000), and Evansville (270,000)—a key theme emerged: the Fort Wayne MSA is an outlier, not only among the four MSAs in Indiana, but among most MSAs in the country.[2] Among 186 MSAs in the country, healthcare expenditures per enrollee with employer-sponsored health insurance in 2020 in the Fort Wayne MSA was $5,904, ranking 9th highest and 21% above the national median MSA.[3] In contrast, spending in the other three MSAs in Indiana was closer to the national median: Indianapolis (5% above), Evansville (3% above), and South Bend (11% below). The high expenditures in Fort Wayne were because of high inpatient and outpatient hospital expenditures, driven by high prices and utilization. The high prices may be due to the MSA being a highly concentrated hospital market (Herfindahl-Hirschman Index = 5,111),[4] resulting from the dominance of Parkview Health's 14 general and specialty hospitals and over 200 physician group locations in the MSA and surrounding counties.[5] In Indiana's Health Insurance Marketplace, the Fort Wayne MSA has an average monthly premium of $605, the second highest among the 17 rating areas in the state and

[2] Indiana includes other MSAs that have a population of more than 250,000, but most of their residents reside outside the state (e.g., most residents of the Chicago-Naperville-Elgin, IL-IN-WI, MSA reside in Illinois). The South Bend-Mishawaka and Evansville MSAs include counties in Michigan and Kentucky, respectively, but those residents were excluded from the reported populations of these MSAs.

[3] The median MSA was calculated using all MSAs in the country, not just the 186 examined in more detail.

[4] The HHI is a common measure of market concentration and is calculated by squaring the market shares of each firm competing in a market and then summing those values across all firms, resulting in a range of 0 to 10,000. For example, if a market included two firms with 60% and 40% market shares, respectively, the HHI is 5,200 (or $60^2 + 40^2$). If a market included the following number of firms with equal market shares, the resulting HHIs would be as follows: one firm (10,000), two firms (5,000), three firms (3,333), four firms (2,500), and five firms (2,000). In the *Horizontal Merger Guidelines*, the U.S. Department of Justice and the Federal Trade Commission used the HHI to define market concentration thresholds: unconcentrated (HHI <1,500), moderately concentrated (1,500 <= HHI <= 2,500), and highly concentrated (HHI > 2,500) (U.S. Department of Justice and Federal Trade Commission 2010).

[5] The Fort Wayne MSAs comprises Allen and Whitley counties. The Parkview Health website shows that some of its hospitals are located in less populous counties that border Allen and Whitley counties, but they are micropolitan statistical areas, technically not part of the Fort Wayne MSA. The Parkview Health website lists 271 locations for Parkview Physicians Group, and most of the locations are within or near the Fort Wayne MSA. Some of the locations are outside the MSA, including in the state of Ohio.

8.3% above the mean.[6] In contrast, its healthcare labor costs are low, based on its Medicare Wage Index being 0.92, which is less than the 0.96 average among the 15 MSAs in Indiana and the 1.00 national average.

To examine the impact of market structure on hospital prices and health insurance premiums, we conducted two analyses. First, using regression modeling, we found that the 22 hospitals in Indiana that were part of merger and acquisition transactions from 2005 to 2015 had an average price increase for inpatient care that was 13.2% higher than those in the 18 hospitals that were not part of merger and acquisition transactions during that period. Second, because no major insurance companies merged in Indiana during the past decade, we used a different type of regression model and found that each additional insurer participating in the Indiana Health Insurance Marketplace was associated with a 3.3% decrease in insurance premiums. Because enrollees in the exchange are more sensitive to premium increases than the employer-sponsored market, the effects of insurance competition that we found in the exchange are likely occurring—possibly to a greater degree—in the employer-sponsored market because employers are less sensitive to premium increases.

The healthcare sector in Indiana is a microcosm of the healthcare sector in the United States, consisting of dominant health insurers and a delivery system that has evolved into a patchwork of hospital systems that have grown in size and geographic scope via mergers and acquisitions, including vertical acquisitions of physician organizations (Fulton et al. 2022; Furukawa et al. 2020). This study found that the healthcare sector in Indiana is not monolithic, neither across the industries we analyzed—health insurance, hospitals, and physicians—nor across its MSAs. Therefore, policies aimed at improving healthcare competition, affordability,

[6] The $605 premium was for Rating Area 4, which is Allen County, the primary county in the Fort Wayne MSA.

and quality need to account for this heterogeneity and be designed within the context of macroeconomic factors that affect this sector.

Like Indiana, many states are struggling with the lack of competitive healthcare and health insurance markets (Bozzi 2022; Guardado and Kane 2021; Fulton 2017). To prevent further consolidation that harms competition, some states have enacted state merger review authority laws that empower it to be notified of, review, and challenge proposed hospital and other mergers through administrative processes, thus serving as complements and substitutes for antitrust law (Fulton et al. 2021). Because healthcare and health insurance markets are already consolidated in Indiana, it is important to ensure market actors are not using anti-competitive contracting terms, such as anti-tiering/anti-steering clauses, all-or-nothing contracting, and exclusive contract provisions (The Source on Healthcare Price & Competition 2020). Finally, some states, including Massachusetts and California, have established health policy commissions that monitor market competition, set healthcare spending growth goals, and recommend policies designed to improve healthcare competition, affordability, and quality (Waugh and McCarthy 2020; Marashi 2022).

1. Introduction

On April 29, 2021, Indiana enacted HB 1405, directing that a study be conducted on the market concentration in Indiana's healthcare sector. This study focuses on the health insurance, hospital, and licensed healthcare practitioners industries, evaluating markets at the metropolitan statistical area (MSA) level.

To provide context, healthcare markets across the United States have been rapidly consolidating, resulting in large hospital systems and physician organizations (Fulton et al. 2022; Furukawa et al. 2020; Fulton 2017). An expansive body of literature has shown that hospital mergers and physician organization mergers are associated with increases in healthcare prices and premiums with negative or no impact on healthcare quality (Cohen, Maeda, and Pelech 2022; Gaynor 2021; Gaynor, Ho, and Town 2015; Beaulieu et al. 2020; Dunn and Shapiro 2014; Sun and Baker 2015; Schneider et al. 2008). While horizontal insurer mergers have been found to be associated with higher insurance premiums (Dafny, Duggan, and Ramanarayanan 2012), increased insurer concentration can act as a countervailing force to powerful hospital systems raising prices (Scheffler and Arnold 2017; Trish and Herring 2015; Barrette, Gowrisankaran, and Town 2021). In Indiana, the insurer market is dominated by Anthem Blue Cross Blue Shield of Indiana (Corlette, Keith, and Hoppe 2019; Kaiser Family Foundation 2019).[7]

Indiana's high hospital prices have been documented in a series of studies conducted by the RAND Corporation and researchers from Harvard University (White 2017; White and Whaley 2019; Whaley et al. 2020; 2022; Chernew, Hicks, and Shah 2020). The 2017 study found that about one-third of Indiana's community hospitals belong to one of six major systems operating in the state: Ascension (17 hospitals), Indiana University Health (13 hospitals),

[7] Anthem is now called Elevance Health.

Franciscan Health (10 hospitals), Community Health Systems (10 hospitals), Community Health Network (7 hospitals), and Parkview Health (7 hospitals) (White 2017). That same study found that private payers pay these hospitals almost three times what Medicare pays (White 2017), resulting in high profit margins for those systems (Seibold 2019) and Indiana having some of the highest hospital prices in the United States (White and Whaley 2019; Whaley et al. 2020). A more recent study by the Petris Center at UC Berkeley found that hospital mergers in Indiana were associated with a 10.6% increase in hospital prices, explaining some of the differences between Indiana's prices and the rest of the country (Godwin et al. 2022). Furthermore, Ascension and Community Health Systems operate outside the state with 151 and 93 hospitals, respectively (Becker's Hospital Review 2020), potentially enabling them to use cross-market leverage when negotiating with payers in Indiana (Dafny, Ho, and Lee 2019; Lewis and Pflum 2017).

This study includes the following five objectives that are designed to quantify Indiana's healthcare expenditures, assess the competitiveness of its markets, measure its cost structure, and estimate the impacts of hospital mergers and insurance market structure on hospital prices and health insurance premiums, respectively:

- Objective 1: We compare healthcare spending in Indiana to other states in Indiana's census division (Illinois, Michigan, Ohio and Wisconsin) and the United States as a whole using newly released data from the Office of the Actuary at the Centers for Medicare & Medicaid Services (CMS) (CMS Office of the Actuary 2022) (Section 2).

- Objective 2: We study the market structures of three industries in the healthcare sector—health insurance, hospitals, and physicians—focusing on Indiana's 15 metropolitan statistical areas (MSAs), where 78% of its population of 6.8 million resided in 2021 (Table A1 and Figure A1 in the appendix). For these industries, we report market share information of the largest three firms by MSA, and for these firms, we report financial information at the firm level because MSA-level financial information was not available (Section 3).

- Objective 3: We compare the cost of care across Indiana's MSAs at three levels: hospital wage costs, insurer medical costs, and enrollee health insurance premium costs (Section 4).

- Objective 4: We estimate the effect of hospital mergers on hospital prices for mergers that occurred within MSAs in Indiana, and examine whether the association between hospital merger and prices varied across MSAs (Section 5).

- Objective 5: We estimate the association between health insurance premiums in Indiana's Health Insurance Marketplace and the number of insurers that offered coverage in that market by year, which has varied from 2 to 9 insurers during the market's existence from 2014 to 2022 (Section 6).

Last, we summarize the key findings, describe the limitations of the study, and discuss state merger review authority laws and state health policy commissions, two sets of policies that are designed to improve healthcare competition, affordability, and quality (Section 7).

2. Healthcare Expenditures

Before analyzing market concentration within the insurance, hospital, and physician industries, we show how Indiana's healthcare expenditure levels and trends compare to the other states in Indiana's census division (Illinois, Michigan, Ohio, and Wisconsin—hereafter, "comparison states") and to the United States as a whole. We do this for two reasons. First, these comparisons serve as a starting point to assess Indiana's healthcare spending by industry, which depends on many factors, including market concentration. Second, the trends provide additional context to show which segments of the markets—by type of spending and by payer—are diverging from the comparison states, which may be influenced by market concentration.

The Office of the Actuary at CMS provides the official estimates of health spending in the United States. The most recent annual estimate was for 2020, when the health spending was $4.1 trillion, accounting for 19.7% of gross domestic product (GDP) (Hartman et al. 2022). Every five years, the Office of the Actuary also releases state-level estimates for personal health

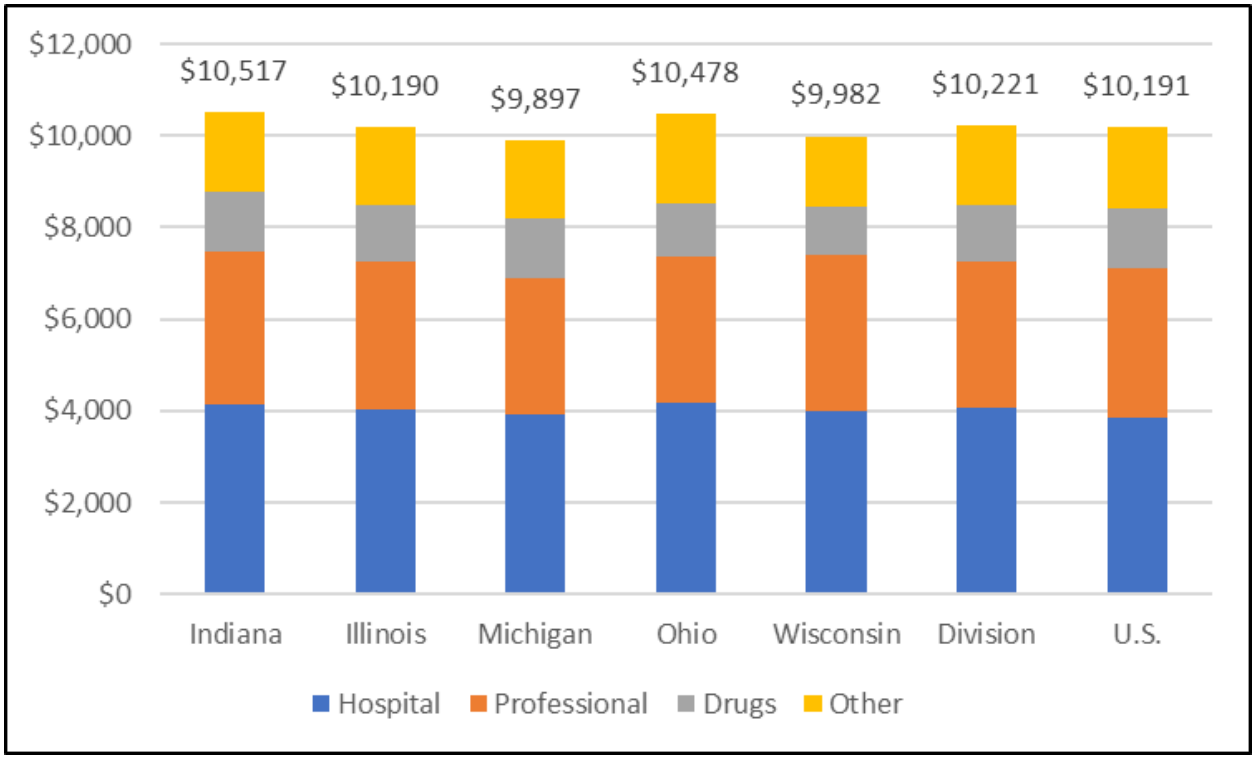
care expenditures (hereafter "healthcare expenditures"), which account for 81% of health spending at the national level.[8] The most recent estimates were released in August 2022, including the first state-level estimates for 2015 to 2020 along with prior estimates for earlier years (CMS Office of the Actuary 2022).

In this section, we compare healthcare expenditure levels and trends in Indiana to the comparison states and the United States. These comparisons are made for total healthcare expenditures, as well as by spending category—hospitals, professionals, and drugs, which align with the hospital, physician, and pharmaceutical industries, respectively—and by payer, including private insurance, Medicaid (including managed care), and Medicare (including Medicare Advantage). The key result from this comparison is that Indiana's expenditures per capita by spending category and payer were similar to the comparison states in 2020, but Indiana's spending trend during the past ten years was much higher than the comparison states across these measures.

In 2020, healthcare expenditures per capita in Indiana were $10,517, or $380 (or 3.8%) higher than the average of the comparison states because of higher spending across most of the spending categories, including drugs ($136), hospitals ($128), and professional ($108), with the remainder in other ($9) (Figure 2.1). Indiana's per capita expenditures were $326 higher than the U.S. average, principally because of higher hospital spending ($300).

[8] The remaining health expenditures are from government administration, net cost of health insurance, government public health activities, and investment (Hartman et al. 2022).

Figure 2.1: Healthcare Expenditures per Capita by Spending Category and State, 2020

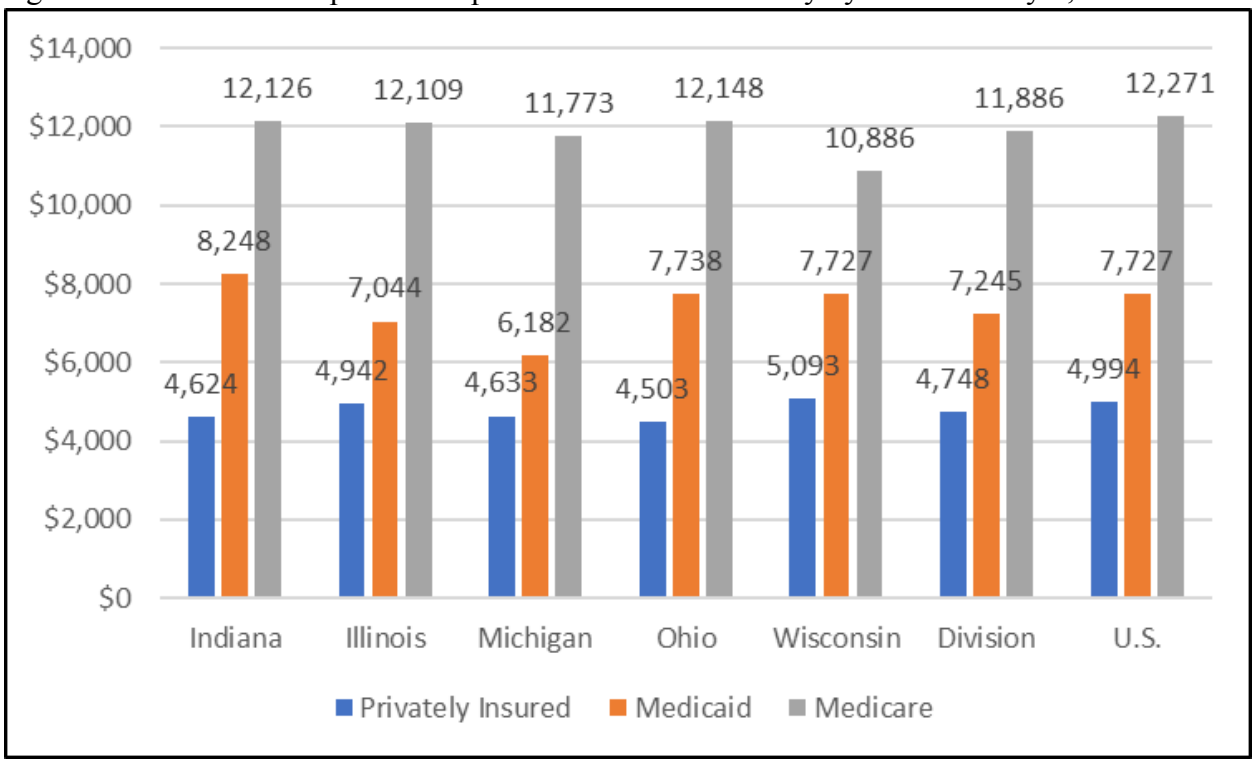


Notes: The categories of expenditures align with the national health expenditures estimates published by the Office of the Actuary (Hartman et al. 2022) with one exception: drug spending includes spending on nondurable medical products. Healthcare expenditures in this figure are technically called personal health care expenditures.
Source: CMS Office of the Actuary (2022)

The spending by payer is measured on a per enrollee basis for private insurances and a per beneficiary basis for public payers (Medicaid and Medicare). In 2020, healthcare expenditures per enrollee or beneficiary significantly varied by payer in Indiana, ranging from $4,624 for privately insured enrollees, to $8,248 for Medicaid beneficiaries, to $12,126 for Medicare beneficiaries (Figure 2.2). This large range in spending is primarily because of the age of individuals insured by the payers: most people aged 65 years or older are insured by Medicare, whereas most under 65 years old are insured privately or by Medicaid, known in Indiana as Healthy Indiana Plan, Hoosier Care Connect, and Hoosier Healthwise, depending on the person's eligibility status. Among the three payers, the largest difference between Indiana and

the comparison states was spending per Medicaid beneficiary, which was $8,248 in Indiana versus a mean of $7,173 in comparison states and $7,727 in the United States, partially because the Healthy Indiana Plan reimburses providers at the Medicare rate.

Figure 2.2: Healthcare Expenditures per Enrollee or Beneficiary by State and Payer, 2020



Notes: Healthcare expenditures in this figure are technically called personal health care expenditures. All values in the figure are in dollars.
Source: CMS Office of the Actuary (2022)

While Indiana's expenditures per capita by spending category and payer were similar to the comparison states in 2020, its spending trend in the past ten years was much higher across every measure, starting with total healthcare expenditures increasing by 48.0% versus 35.3% in comparison states, a relative growth rate of 1.36 (Table 2.1). Among categories of spending, the relative growth rate for drugs was highest (1.63) followed by professional fees (1.48).

Table 2.1: Increase in Healthcare Expenditures per Capita in Indiana and Comparison States, 2011-2020

Measure	Indiana (percent change)	Comparison States (percent change)	Relative Growth Rate
Total Spending	48.0%	35.3%	1.36
Category			
Hospital	47.9%	38.1%	1.26
Professional	55.1%	37.4%	1.48
Drugs	36.0%	22.1%	1.63
Other	45.4%	35.5%	1.28
Payer			
Privately insured	25.1%	16.0%	1.57
Medicaid	40.1%	22.6%	1.77
Medicare	17.5%	11.8%	1.48

Notes: Healthcare expenditures in this figure are technically called personal health care expenditures. The total spending per capita growth rates are higher than each of the growth rates by payer, which are also measured per capita—per enrollee for privately insured and per beneficiary for Medicaid and Medicare—because a higher share of individuals were Medicare and Medicaid beneficiaries in 2020 as compared to 2011, and this change is only captured at the total spending per capita level. Medicare and Medicaid spending per beneficiary is higher than privately insured spending per enrollee.
Source: CMS Office of the Actuary (2022)

3. Healthcare Sector

This section analyzes the market structure at the MSA level and financial performance of the key firms in Indiana's health insurer, hospital, and physician industries.

3.1 Health Insurers

Health insurance firms provide coverage for private payers and managed care options for public payers. In Indiana, the largest market is the employer-sponsored market—which provided coverage to 53.3% of the population in 2019—followed by the Medicaid managed care (12.9%), Medicare Advantage (4.7%), and the non-group market (4.4%), including Indiana's Health Insurance Marketplace (KFF State Health Facts, 2019). The remainder of the population had traditional Medicare or Medicaid coverage, was insured through the military, or was uninsured.

The major insurers selling coverage in Indiana include the "Big Five Health Insurers" in the United States—Elevance Health (formerly Anthem), UnitedHealth Group, CVS Health (Aetna), Cigna, and Humana (Schoen and Collins 2017)—with Anthem Blue Cross Blue Shield of Indiana being the largest by enrollment in Indiana. These major insurers collectively hold the vast majority of the market share of enrollees in the employer-sponsored insurance and Medicare Advantage markets.

Indiana's Medicaid program consists of three managed care programs, Hoosier Care Connect, Hoosier Healthwise, and Healthy Indiana Plan, as well as a fee-for-service program (Indiana Family and Social Services Administration 2022a). Members may pay a share of health care costs, copayments, or premiums depending on the program for which they qualify. Beneficiaries who qualified for Medicaid prior to the Affordable Care Act (known as traditional Medicaid) are mostly part of fee-for-service Medicaid. However, those individuals who are aged

65 years and older, blind, or disabled and who are also not eligible for Medicare receive coverage from Hoosier Care Connect. Hoosier Healthwise, under which the Children's Health Insurance Program (CHIP) falls, provides coverage for children up to age 19 at higher income limits than traditional Medicaid. The Healthy Indiana Plan (HIP) is the Medicaid expansion program (as allowed under the Affordable Care Act) that provides coverage for qualified adults and pregnant women.

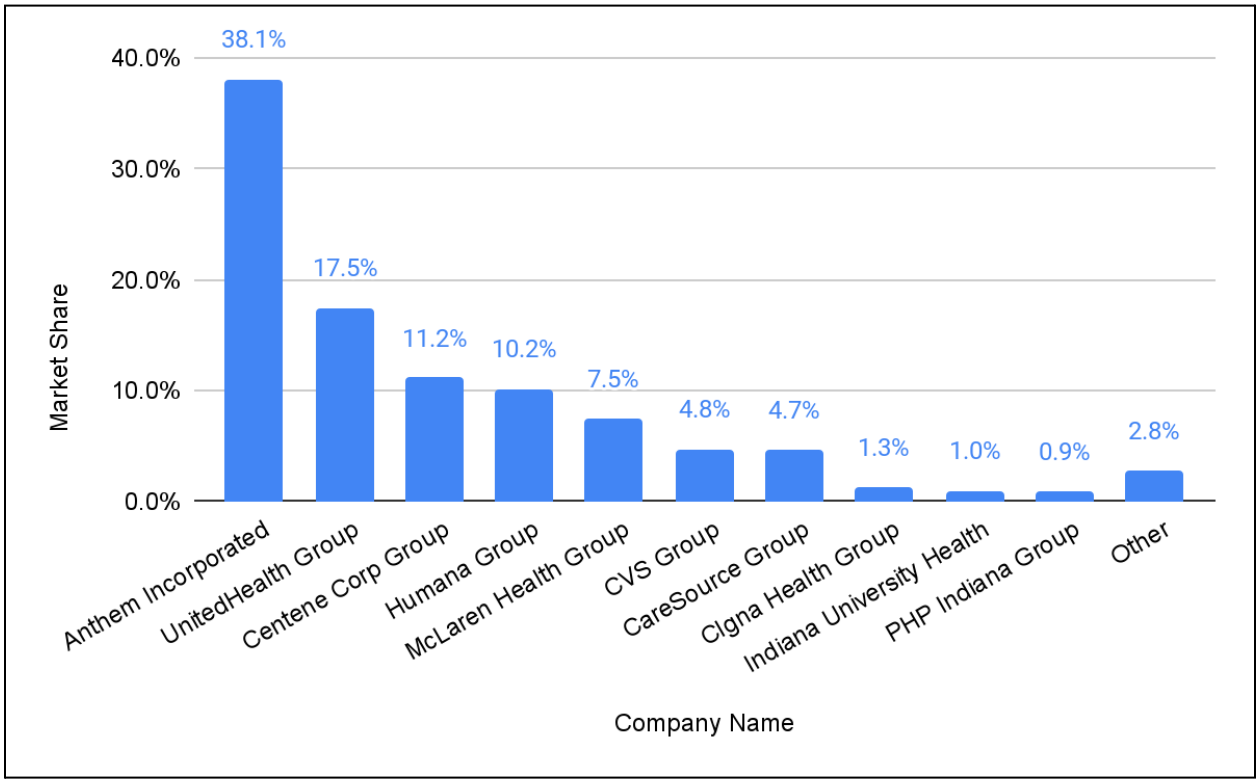
These populations are managed by two of the largest five health insurers in the country (Anthem Blue Cross Blue Shield of Indiana and UnitedHealth Group) as well as a national insurer that specializes in Medicaid managed care (Centene) and two regional insurers (McLaren and CareSource) (Indiana Family and Social Services Administration 2022b). Centene, which operates as Managed Health Services in Indiana, is the largest Medicaid managed care company by enrollment in the country (Schneider and Corcoran 2021). McLaren, a healthcare delivery system based in Grand Blanc, Michigan, acquired Indianapolis-based MDWise in 2018 and continues to offer Medicaid managed care plans under that name. CareSource, a health plan based in Dayton, Ohio, also participates in Indiana's Medicaid managed care market.

To measure the market share of these firms at the state level in Indiana, we analyzed the National Association of Insurance Commissioners' report that lists the market shares for the 125 largest insurance companies by premiums written in each state and the United States as a whole (National Association of Insurance Commissioners 2022). The latest report was published in June 2022, reporting market shares for calendar year 2021. The NAIC report indicates whether a company filed a health annual statement (H), life annual statement (L), or both. In Indiana, the top 125 companies reported a total of $23.0 billion in premiums written. Health and life insurance premiums were not separately reported for companies that filed both statements, but

the premiums from life insurance represented a small percentage of the aggregated premiums for the insurers we analyzed. To better isolate market shares for health insurance premiums, we analyzed only the 29 companies that filed a health annual statement, totalling $20.9 billion in premiums.

Figure 3.1 shows the market shares by premiums written for the 29 companies that filed a health annual statement in Indiana. It separately reports the market shares of the top 10 health insurance companies, showing that the market is dominated by a few companies. Anthem, with 38.1% market share, had over double the market share of the second ranked insurance company, UnitedHealth Group (17.5%). Centene, which mostly provides coverage in Medicaid managed care and Indiana's Healthcare Insurance Marketplace, ranked third with 11.2% market share. Humana, which mostly provides coverage in Medicare Advantage and TRICARE, ranked fourth with 10.2% market share. Finally, McLaren Health Group ranked fifth with 7.5% market share.

Figure 3.1: Market Shares by Premiums of the Top 10 Health Insurance Companies in Indiana, 2021



Company Notes: Anthem is now called Elevance Health. PHP Indiana Group is Physician Health Plan Indiana Group. Other includes the remaining 19 insurers that had health insurance premiums in Indiana.
General Notes: The market shares reported in this figure are slightly higher than reported by the NAIC because the total premiums written in Indiana in this figure do not include premiums written by companies that only filed a life annual statement. Self-insured employers do not pay health insurance premiums, but instead pay fees (not included in this figure) to these companies to be a third-party administrator to design benefits, establish a provider network, and process claims.
Source: National Association of Insurance Commissioners (2022)

Most of the large health insurance companies operating in Indiana are national in scale. Like Figure 3.1, Table 3.1 reports each company's market share of premiums written in Indiana; however, it also reports the Indiana portion of each company's total premiums written in the United States. Because most of the insurers that sell insurance in Indiana are national in scope, the share of premiums written in Indiana is small, almost always less than 10%. The share is 100% for insurance companies that sell insurance only in Indiana.

Table 3.1: Market Shares and Indiana's Share of U.S. Premiums of the Top 10 Health Insurance Companies in Indiana, 2021

Business Type[a]	Insurer	Premiums in Indiana ($millions)	Market Share in Indiana	Premiums in United States ($millions)	Indiana's Share of United States Premiums
H, L	Anthem Incorporated Group[b]	7,954	38.1%	93,812	8.5%
H, L	UnitedHealth Group	3,656	17.5%	195,263	1.9%
H, L	Centene Corp Group	2,334	11.2%	82,366	2.8%
H	Humana Group	2,131	10.2%	79,572	2.7%
H	McLaren Health Group	1,572	7.5%	2,721	57.8%
H, L	CVS Group	994	4.8%	74,155	1.3%
H	CareSource Group	976	4.7%	12,414	7.9%
H, L	Cigna Health Group	271	1.3%	33,698	0.8%
H	Indiana University Health Group	214	1.0%	214	100.0%[c]
H	PHP Indiana Group[d]	195	0.9%	195	100.0%[c]
	Other[e]	577	2.8%	N/AV	N/AV
	Total	20,874	100.0%	N/AV	N/AV

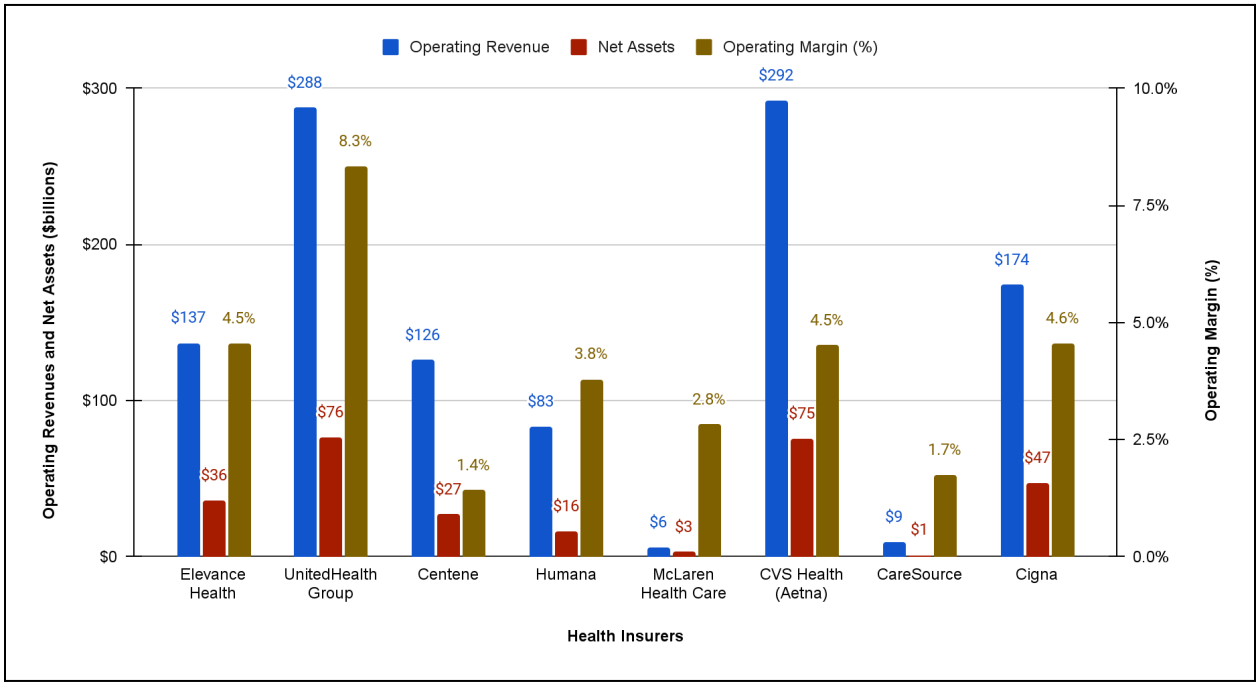
N/AV: Not available because the NAIC source only reports premiums written for the top 125 companies at the United States level.
[a]The Business Type column indicates whether a company filed a health annual statement (H), a life annual statement (L), or both.
[b]Anthem is now called Elevance Health.
[c]The NAIC report did not report premiums at the United States level for Indiana University Health Group and PHP Indiana Group because they are relatively small insurers. Based on examining their websites, we concluded they sold health insurance only in Indiana.
[d]PHP Indiana Group is Physician Health Plan Indiana Group.
[e]Other includes the remaining 19 insurers that had health insurance premiums in Indiana.
Source: National Association of Insurance Commissioners (2022)

In the figure and tables that follow, we report key financial measures from 2019 to 2021 for the top 8 insurers above: Elevance Health (Anthem), UnitedHealth Group, Cigna, CVS Health, Humana, Centene, McLaren, and CareSource. As previously mentioned, most of these health insurers are national companies, with Indiana representing a small share of their business that was not separately reported in their financial statements. Moreover, these companies operate

in industries other than health insurance. For example, CVS Health, which acquired its insurance arm, Aetna, in 2018, also owns CVS Caremark, a pharmacy benefits manager, and CVS Pharmacy. UnitedHealth Group formed Optum, which includes OptumRx, a pharmacy benefits manager, and OptumHealth, a healthcare delivery arm that has been acquiring physician organizations.

In 2021, the operating revenue was nearly $300 billion for UnitedHealth Group and CVS Health, and it was between $100 and $200 billion for Cigna, Elevance Health (Anthem), and Centene (Figure 3.2). UnitedHealth Group had the highest operating margin at 8.3%, followed by Cigna (4.6%), Elevance Health (Anthem) (4.5%), and CVS Health (4.5%).

Figure 3.2: Operating Revenue, Operating Margin, and Net Assets for Major Health Insurers Operating in Indiana, 2021



Notes: Operating revenue is for the 12-month period ending December 31, 2021, and net assets are as of December 31, 2021. Because CareSource's 2021 financial statements were not available, we reported its 2020 financial information.
Source: Petris Center analysis of Insurer Form 10-Ks and Form 990s (see sources under Table 3.2)

Table 3.2 not only includes the financial measures reported in Figure 3.2, but also includes additional financial measures, such as net income and total assets.

Table 3.2: Financial Measures of Major Health Insurers Operating in Indiana, 2021

Financial Measure[a]	Elevance Health	United-Health Group	Centene	Humana	McLaren Health Care	CVS Health (Aetna)	Cigna
Operating Revenue	136,943	287,597	125,982	83,064	6,022	292,111	174,078
Operating Expenses	130,714	263,627	124,198	79,916	5,851	278,918	166,143
Operating Income	6,229	23,970	1,784	3,148	170	13,193	7,935
Operating Margin (%)	4.5	8.3	1.4	3.8	2.8	4.5	4.6
Net Income[b]	6,104	17,285	1,347	2,933	497	7,910	5,365
Net Assets[c]	36,128	76,479	27,022	16,103	2,958	75,381	47,184
Total Assets	97,460	212,206	78,375	44,358	7,095	232,999	154,889

[a]Financial measures are reported in millions of dollars, unless indicated. Operating income is sourced from the financial statement, and its value may be different than operating revenues minus operating income in the table due to rounding. The same applies to operating margin; it was calculated with more precision than appears in the table.
[b] Net income is the same as profit; for non-profit organizations, the term is net surplus. For publicly traded companies, we report shareholders' net income.
[c]Net assets were calculated by subtracting total liabilities from total assets
Notes: The 2021 financial statement for CareSource was not available.

Sources: Petris Center analysis of the following financial statements: Anthem (now Elevance Health) Form 10-K for the year ending December 31, 2021; UnitedHealth Group Form 10-K for the year ending December 31, 2021; Centene Form 10-K for the year ending December 31, 2021; Humana Form 10-K for the year ending December 31, 2021; McLaren Health Care Consolidated Financial Statement year ending December 31, 2021; CVS Health Form 10-K for the year ending December 31, 2021; and Cigna Form 10-K for the year ending December 31, 2021.

Collectively, these insurers' revenues and net assets increased during the pandemic (Tables A2 and A3 in the appendix). From 2019 to 2021, operating revenue across the seven insurers grew more than 10% annually, from $900 billion to $1,000 billion (or 11.1%) from 2019 to 2020, then increasing to $1,106 billion (or 10.6%) in 2021. All seven insurers increased their operating revenues from 2019 to 2021, with Centene's increasing by 69% (the most) and Cigna's increasing by 13% (the least). The average operating margins across the seven insurers were relatively stable over the past three years—4.6% (2019), 5.1% (2020), and 4.3% (2021)—and the

trends were relatively stable for each insurer as well. Similar to operating revenues, their combined net assets have been increasing as well, from $228 billion to $263 billion (or 15.4%) from 2019 to 2020, then increasing to $281 billion (or 6.8%) in 2021. All seven insurers increased their net assets from 2019 to 2021, with Centene's increasing by 145% (the most) and Cigna's increasing by 4% (the least).

To estimate the market share of the top three insurers in each MSA, we examined the number of insurance enrollees as of January 1, 2021, from the Managed Market Surveyor provided by Decision Resources Group (now Clarivate), a commonly used database to study insurer markets (Guardado and Kane 2021; Fulton 2017). We combined enrollees in the employer-sponsored market, individual market (including Indiana's Health Insurance Marketplace), Medicaid managed care, and Medicare Advantage because all of these enrollees influence an insurer's market power when negotiating prices with hospitals and physician organizations. For the five MSAs in Indiana that include counties in other states, only enrollees residing in Indiana were included.

In all 15 MSAs, Anthem Blue Cross Blue Shield of Indiana had the largest market share, averaging 44.9% with a range of 32.6% to 55.7% in the Chicago-Naperville-Elgin, IL-IN-WI MSA, and Evansville MSA, respectively (Table 3.3). As compared with Anthem, the second and third largest insurers had significantly lower market shares, with a mean market share of 13.5% and 9.2%, respectively. These insurers consisted of UnitedHealth Group (12 MSAs), McLaren (7 MSAs), and Centene (6 MSAs). The sum of the market shares of the three largest insurers by MSA averaged to 67.7%, with a range of 59.8% to 73.7% in the Michigan City-La Porte MSA and Terre Haute MSA, respectively.

Table 3.3: Market Shares by Enrollment of the Top 3 Insurers by MSA, 2021

MSA	Enroll-ment	#1 Insurer	Market Share	#2 Insurer	Market Share	#3 Insurer	Market Share	Top 3 Market Share
Terre Haute, IN	111,900	Anthem	49.1	McLaren Health Care	17.0	UnitedHealth Group	7.6	73.7
Bloomington, IN	105,686	Anthem	54.0	IU Health	11.6	UnitedHealth Group	7.9	73.5
Evansville, IN-KY	183,849	Anthem	55.7	UnitedHealth Group	10.7	Centene	5.4	71.8
Louisville/Jefferson County, KY-IN	195,203	Anthem	53.2	UnitedHealth Group	10.0	Centene	7.8	71.1
Elkhart-Goshen, IN	122,567	Anthem	37.2	Centene	22.6	UnitedHealth Group	11.0	70.9
South Bend-Mishawaka, IN-MI	193,560	Anthem	44.0	Centene	14.3	UnitedHealth Group	12.4	70.7
Columbus, IN	64,479	Anthem	49.2	Southeastern Indiana Health Insurance	12.1	Centene	8.1	69.5
Indianapolis-Carmel-Anderson, IN	1,498,210	Anthem	47.4	UnitedHealth Group	13.9	McLaren Health Care	8.0	69.3
Lafayette-West Lafayette, IN	155,766	Anthem	48.5	IU Health	10.6	UnitedHealth Group	9.9	69.0
Cincinnati, OH-KY-IN	43,353	Anthem	42.1	UnitedHealth Group	14.9	McLaren Health Care	10.2	67.2
Kokomo, IN	51,562	Anthem	43.1	McLaren Health Care	12.1	Centene	10.1	65.4
Muncie, IN	72,300	Anthem	41.3	McLaren Health Care	12.1	IU Health	9.2	62.7
Fort Wayne, IN	275,602	Anthem	36.2	UnitedHealth Group	13.7	McLaren Health Care	10.8	60.7
Chicago-Naperville-Elgin, IL-IN-WI	543,721	Anthem	32.6	Health Care Service Corporation[a]	16.3	UnitedHealth Group	11.2	60.0
Michigan City-La Porte, IN	77,523	Anthem	40.6	McLaren Health Care	10.4	UnitedHealth Group	8.8	59.8
Total	3,695,281							
Mean	246,352		44.9		13.5		9.2	67.7
Minimum	43,353		32.6		10.0		5.4	59.8
25th percentile	74,912		41.0		11.1		8.0	64.0
50th percentile	122,567		44.0		12.1		9.2	69.3
75th percentile	194,382		49.2		14.6		10.5	71.0
Maximum	1,498,210		55.7		22.6		12.4	73.7

[a]In the state of Illinois, Health Care Service Corporation (HCSC) is licensed to sell insurance as BCBS of Illinois, but HCSC is not licensed to sell insurance in Indiana. However, some Indiana residents are insured by BCBS of Illinois because they work for an employer in Illinois.

Notes: The MSAs are sorted by the combined market share of the top 3 insurers. Market shares are based on the number of enrollees as of January 1, 2021 and are reported as a percent. For MSAs that include counties located outside of Indiana, enrollment and market shares are based on only enrollment in Indiana. The summary statistics at the bottom of the table are for each column, including the top 3 insurers' market shares, and are unweighted. Totals may not sum due to rounding.

Source: Petris Center analysis of Managed Market Surveyor provided by Decision Resources Group (now Clarivate)

The insurer market shares by enrollees reported in Table 3.3 are consistent with the insurer market shares by premiums reported in Table 3.1. Any differences are primarily attributable to two factors. First, enrollees covered by a plan with a self-insured employer are included in Table 3.3, but these enrollees are not incorporated into Table 3.1 because no premium is paid. Second, the premiums differ by market segment. For example, Medicare Advantage enrollees have higher premiums than Medicaid managed care and employer-sponsored-insurance enrollees.

Although the Managed Market Surveyor is commonly used to study insurer markets (Guardado and Kane 2021; Fulton 2017), the results should be interpreted based on an understanding of its strengths and limitations. Neither the U.S. government nor Indiana's government maintains a database of insurers' enrollees by market segment and geographic area, so proprietary databases (such as the Managed Market Surveyor), surveys, financial filings, insurance filings, and government and insurer websites are used to make these estimates. The core of the Managed Market Surveyor's enrollment information is based on the DRG National Medical and Pharmacy Census, whereby insurers directly report enrollment information in January and July each year (Clarivate 2021).[9] Hence, non-responses by insurers is a limitation, but DRG supplements its census with the sources listed above. Based on a comparison to the American Community Survey's Annual Social and Economic Supplement, MMS enrollment has less enrollment in the employer-sponsored market, likely missing some enrollment of those with plans from self-insured employers.

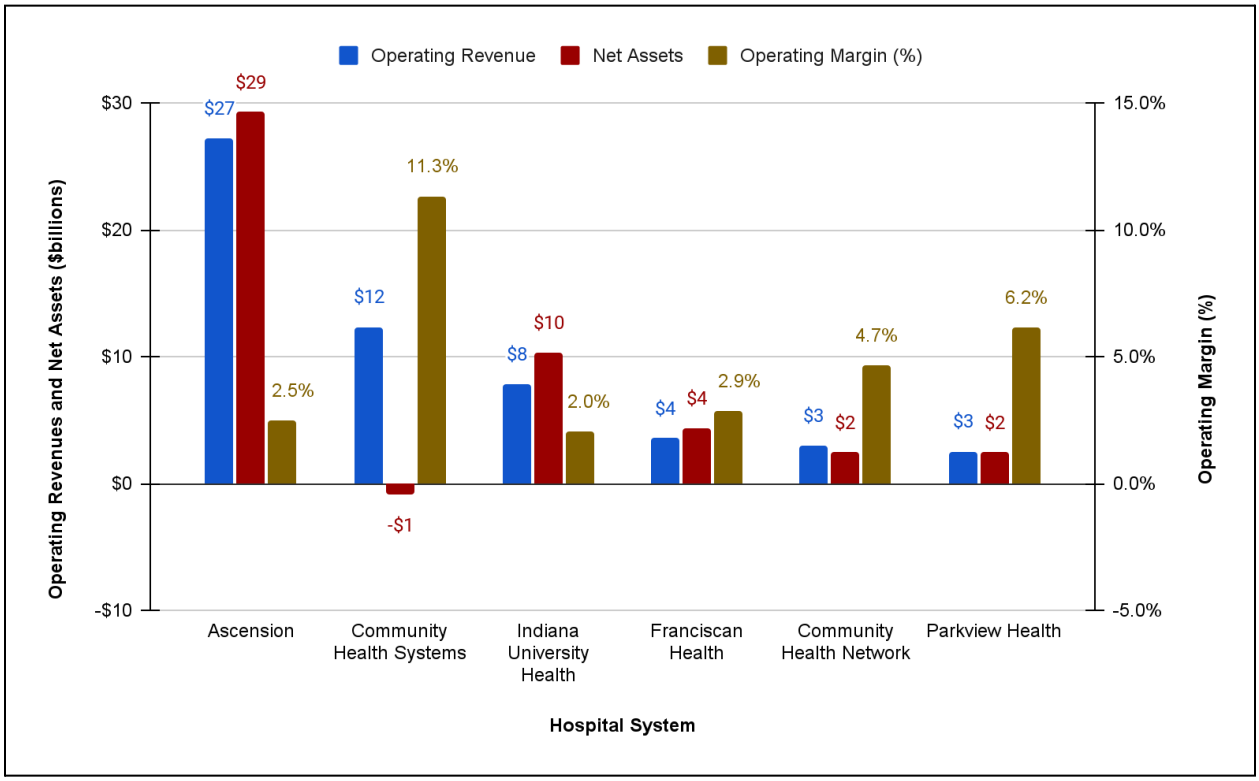
[9] Clarivate acquired Decision Resources Group in 2020.

3.2 Hospitals

This section analyzes key financial measures of major hospital systems in Indiana: Ascension, Community Health Systems, Indiana University Health, Franciscan Health, Community Health Network, and Parkview Health. Next, it reports market share measures for the top 3 hospitals by revenues in each MSA, which were part of one of the major hospital systems nearly half the time.

For the five non-profit systems, these measures were drawn from audited consolidated financial statements published on the hospital systems' websites. For the for-profit system, Community Health Systems, the source was its Form 10-K. Figure 3.3 shows the operating revenue, operating margin, and net assets for the major hospital systems, with Ascension and Community Health Systems having the highest operating revenue and net assets because they are national systems.

Figure 3.3: Operating Revenue, Operating Margin, and Net Assets for Major Hospital Systems Operating in Indiana, 2021



Notes: Operating revenue is for the 12-month period ending December 31, 2021, and net assets are as of December 31, 2021.
Source: Petris Center analysis of Insurer Form 10-Ks and Form 990s (for more detail, see Table 3.4)

For the year 2021, Table 3.4 reports the key financial measures for the six largest hospital systems in Indiana. The systems are ordered by operating revenue, starting with Ascension at $27.2 billion and ending with Parkview Health at $2.5 billion. The operating margin of all six hospital systems was greater than 2%, with Community Health Systems (11.3%) and Parkview Health (6.2%) reporting the highest operating margins. The systems with the highest net assets were Ascension ($29.3 billion) and Indiana University Health ($10.3 billion).

Table 3.4: Financial Measures of Major Hospital Systems Operating in Indiana, 2021

Financial Measure[a]	Ascension [b]	Community Health Systems [b]	Indiana University Health	Franciscan Health [b]	Community Health Network	Parkview Health
Operating Revenue	27,237	12,368	7,869	3,573	3,004	2,533
Operating Expenses	26,561	10,966	7,708	3,470	2,864	2,377
Operating Income	676	1,402	161	102	140	156
Operating Margin (%)	2.5	11.3	2.0	2.9	4.7	6.2
Net Income [c]	5,673	230	862	454	354	309
Net Assets	29,276	-810 [d]	10,300	4,389	2,464	2,465
Total Assets	48,399	15,217	13,697	6,830	4,121	4,104

[a] Financial measures are reported in millions of dollars, unless indicated. Operating income is sourced from the financial statement, and its value may be different than operating revenues minus operating income in the table due to rounding. The same applies to operating margin; it was calculated with more precision than appears in the table.

[b] Ascension, Community Health Systems, and Franciscan Health own hospitals outside of Indiana that are included in these measures because it was not possible to subset on only hospitals located in Indiana. While most of Ascension's and Community Health Systems' hospitals are located outside of Indiana, only one of Franciscan Health's hospitals is located outside of Indiana.

[c] Net income is the same as profit; for non-profit organizations, the term is net surplus. For publicly traded companies, we report shareholders' net income.

[d] Because Community Health Systems' net assets were not directly reported on the Form 10-K, its net assets were calculated by subtracting total liabilities from total assets.

Sources: Petris Center analysis of the following financial statements: Ascension Health Alliance Consolidated Financial Statement year ending June 30, 2021; Community Health Systems Form 10-K for the year ending December 31, 2021; Indiana University Health Consolidated Financial Statement year ending December 31, 2021; Franiscan Health Form 10-K for the year ending December 31, 2021; Community Health Network Form 10-K for the year ending December 31, 2021; and Parkview Health Systems Form 10-K for the year ending December 31, 2021.

In contrast to the health insurers, the hospitals systems' combined revenues and net assets decreased in 2020; while their combined revenues have fully recovered, their net assets have not (Tables A4 and A5 in the appendix). Five of the six systems had higher operating revenue in 2021 as compared with 2019, with Community Health Systems being the exception. In 2019, operating revenue across the six systems totaled $53.2 billion, decreasing to $52.3 billion in 2020, then increasing above the 2019 level to $56.6 billion in 2021. The average operating margin across the six systems were relatively stable over the past three years: 5.2% (2019), 4.6% (2020), and 4.9% (2021). However, the trends in operating margin varied by system from 2019 to 2021, with Community Health Systems' margins increasing the most, from 4.9% to 11.3%, and Indiana University Health's decreasing the most, from 10.2% to 2.0%. Net assets have not fully recovered to 2019 levels; in that year, the combined net assets of the six systems were $56.0 billion, decreasing to $45.0 billion in 2020, then increasing to $48.1 billion in 2021.

Next, we transition from analyzing financial measures at the hospital system level to analyzing these measures at the hospital level. The Centers for Medicare & Medicaid Services requires hospitals that receive Medicare payments to report hospital-level—not just Medicare—financial and operational information to the Healthcare Provider Cost Reporting Information System (HCRIS). We accessed HCRIS using the RAND Hospital Data, which is a well-organized version of this data with the latest available year being 2020 (RAND Corporation 2022). In that year, the database contained 116 hospitals in Indiana, including 75 located within the state's 15 MSAs. Of these hospitals, 41 were part of the six major hospital systems: Ascension (11), Franciscan Health (9), Community Health Systems (7), Indiana University Health (6), Community Health Network (5), and Parkview Health (3).

In Indiana's 15 MSAs, the operating revenue of hospitals per capita averaged $3,950 with an interquartile range of $3,476 to $4,185. The top 3 hospitals in operating revenue in the MSAs had a combined market share of 91.0% (on average) with a range of 49.6% to 100.0%. Of the 34 hospitals in the table, nearly half (16) were part of the six largest hospital systems in Indiana. In the four MSAs with a population of more than 250,000 (who mostly reside in Indiana), the top 3 hospitals had the following combined market shares: South Bend-Mishawaka (100.0%), Evansville (99.1%), Fort Wayne (82.1%), and Indianapolis-Carmel-Anderson (55.0%).

- In the South Bend-Mishawaka MSA, the operating revenue per capita was $3,598, and Memorial Hospital of South Bend (Beacon Health) had a 59.6% market share, followed by St. Joseph's Regional Medical Center South Bend (Trinity Health) with 37.2% and Unity Medical and Surgical Hospital with 3.2%. Memorial Hospital of South Bend also had the highest net assets among the three hospitals ($310 million).

- In the Evansville MSA, the operating revenue per capita was $7,023 (the highest among the 15 MSAs), and Deaconess Health System had a 64.7% market share from Deaconess Hospital (58.5%) and Deaconess Women's Hospital (6.2%), followed by Ascension St. Vincent Evansville (Ascension) with 34.3%. Deaconess Hospital also had the highest net assets among the three hospitals in the MSA ($1,312 million), which was the second highest level among all the top 3 hospitals in the table.

- In the Fort Wayne MSA, the operating revenue per capita was $6,397 (the second highest among the 15 MSAs), and Parkview Health had a 61.2% market share from Parkview Hospital (54.4%) and Parkview Ortho Hospital (6.8%), followed by Lutheran Hospital of Indiana (Community Health Systems) with 21.0%. Parkview Hospital also had the highest net assets among the three hospitals ($548 million).

- In the Indianapolis-Carmel-Anderson MSA, the operating revenue per capita was $5,797, and Indiana University Health (IU Health) had 34.9% market share,[10] followed by Ascension St. Vincent Hospital (Ascension) with 12.2% and Community Health Network (Community Health Network) with 7.9%.[11] Indiana University Health also had the highest net assets among the three hospitals in the MSA ($6,316 million), which was by far the highest level among all the top 3 hospitals in the table. Community Health Network had the second highest net assets ($1,154 million) among the three hospitals in the MSA and among all the top 3 hospitals in the table.

[10] In the RAND Hospital Data, the hospital named Indiana University Health was located at 1701 N. Senate Boulevard in Indianapolis, the address of IU Health Methodist Hospital.
[11] In the RAND Hospital Data, the hospital named Community Health Network was located at 1500 N. Ritter Avenue in Indianapolis, the address of Community Hospital East.

The RAND Hospital Data (i.e., the HCRIS) data is reported at the hospital level, so one limitation of the data is that assets and liabilities of a particular hospital within a hospital system could be transferred to the corporate parent hospital of the system; thus, net assets for a particular hospital may be overstated or understated, which is why we reported net assets and other financial measures at the hospital system level for the six major systems (Table 3.4). Another limitation is that some hospitals may have not been included in the RAND Hospital Data (e.g., Parkview Randallia Hospital). However, the combined operating revenue of the 75 hospitals in the RAND Hospital Data was $25,388 million, consistent with the $28,069 million estimate of hospital spending in Indiana in 2020 by CMS Office of the Actuary, the difference being attributed to CMS's estimate including spending in hospitals located outside of MSAs (CMS Office of the Actuary 2022). Hence, it may be the case that hospital systems with hospitals in close proximity may report to HCRIS as a single entity; further investigation could determine this.

Table 3.5: Revenues and Market Shares of the Top 3 Hospitals by MSA, 2020

MSA	Total Op Rev (mn)	Op Rev per Cap	#1 Hospital	Market Share	Net Assets (mn)	#2 Hospital	Market Share	Net Assets (mn)	#3 Hospital	Market Share	Net Assets (mn)	Top 3 Market Share
Cincinnati, OH-KY-IN	$79	$913	Dearborn County Hospital (Mercy Health)	100.0	$42							100.0
Columbus, IN	$326	$3,959	Columbus Regional Hospital (Columbus Regional Health)	100.0	$330							100.0
Muncie, IN	$477	$4,264	Ball Memorial Hospital (Indiana University Health)	100.0	$520							100.0
Bloomington, IN	$564	$3,494	IU Health Bloomington Hospital (Indiana University Health)	95.3	$759	Monroe Hospital (Prime Healthcare Services)	4.7	-$35				100.0
Michigan City-La Porte, IN	$389	$3,457	Franciscan Health Michigan City (Franciscan Health)	60.0	$321	La Porte Hospital (Community Health Systems)	40.0	$31				100.0
South Bend-Mishawaka, IN-MI	$979	$3,598	Memorial Hospital of South Bend (Beacon Health System)	59.6	$310	St. Joseph's Regional Medical Center South Bend (Trinity Health)	37.2	$83	Unity Medical and Surgical Hospital	3.2	-$26	100.0
Lafayette-West Lafayette, IN	$834	$3,710	IU Health Arnett Hospital (Indiana University Health)	56.4	$236	Franciscan Health Lafayette (Franciscan Health)	43.6	$359				100.0
Elkhart-Goshen, IN	$559	$2,703	Elkhart General Hospital (Beacon Health System)	53.9	$154	Goshen Hospital (Goshen Health)	46.1	$401				100.0
Kokomo, IN	$337	$4,030	Community Howard Regional Health (Community Health Network)	50.0	$226	Ascension St. Vincent Kokomo (Ascension Health)	50.0	$17				100.0
Evansville, IN-KY	$1,893	$7,023	Deaconess Hospital (Deaconess Health System)	58.5	$1,312	Ascension St. Vincent Evansville (Ascension Health)	34.3	$4	Deaconess Women's Hospital (Deaconess Health System)	6.2	$13	99.1
Terre Haute, IN	$759	$4,105	Union Hospital (Union Health)	71.3	$241	Terre Haute Regional Hospital (HCA Healthcare)	17.5	N/AV	Sullivan County Community Hospital	5.0	$30	93.7
Louisville/Jefferson County, KY-IN	$613	$2,261	Baptist Health Floyd (Baptist Healthcare System)	46.2	$162	Clark Memorial Hospital (Lifepoint Health)	29.2	$60	Harrison County Hospital (Norton Healthcare)	9.7	$32	85.2

MSA	Total Op Rev (mn)	Op Rev per Cap	#1 Hospital	Mar-ket Share	Net Assets (mn)	#2 Hospital	Mar-ket Share	Net Assets (mn)	#3 Hospital	Mar-ket Share	Net Assets (mn)	Top 3 Mar-ket Share
Fort Wayne, IN	$2,706	$6,397	Parkview Hospital (Parkview Health System)	54.4	$548	Lutheran Hospital of Indiana (Community Health Systems)	21.0	N/AV	Parkview Ortho Hospital (Parkview Health System)	6.8	$93	82.1
Indianapolis-Carmel-Anderson, IN	$12,330	$5,797	Indiana University Health (Indiana University Health)	34.9	$6,316	Ascension St. Vincent Hospital (Ascension Health)	12.2	$210	Community Health Network (Community Health Network)	7.9	$1,154	55.0
Chicago-Naperville-Elgin, IL-IN-WI	$2,542	$3,533	Community Hospital (Community Foundation of Northwest Indiana)	22.6	$172	Methodist Hospitals (The Methodist Hospitals)	14.7	$258	Porter Memorial Hospital (Community Health Systems)	12.3	N/AV	49.6
Total	$25,388											
Mean	$1,693	$3,950		64.2	$777		29.2	$139		7.3	$216	91.0
Minimum	$79	$913		22.6	$42		4.7	-$35		3.2	-$26	49.6
25th percentile	$433	$3,476		52.0	$199		16.8	$20		5.6	$17	89.5
50th percentile	$613	$3,710		58.5	$310		31.8	$71		6.8	$31	100.0
75th percentile	$1,436	$4,185		83.3	$534		40.9	$246		8.8	$78	100.0
Maximum	$12,330	$7,023		100.0	$6,316		50.0	$401		12.3	$1,154	100.0

Total Op Rev: Total Operating Revenue; Op Rev per Cap: Operating Revenue per Capita; mn: millions
[a]In the RAND Hospital Data, the hospital named Indiana University Hospital was located at 1701 N. Senate Boulevard in Indianapolis, the address of IU Health Methodist Hospital.
[b]In the RAND Hospital Data, the hospital named Community Health Network was located at 1500 N. Ritter Avenue in Indianapolis, the address of Community Hospital East.
N/AV: not available because total liabilities were negative, possibly because the hospital overpaid a debt but further inquiry is needed.
Notes: The MSAs are sorted by the combined market share of the top 3 hospitals, then by the market share of the hospital with the top market share. If a hospital was part of a system, the system's name is listed in parentheses. Market shares are based on revenues in 2020 and are reported as a percent. For MSAs that include counties located outside of Indiana, revenues and market shares are based on only revenues of hospitals in Indiana. The summary statistics at the bottom of the table are for each column, including the top 3 hospitals' market shares, and are unweighted. The mean operating revenue per capita weighted by MSA population is $4,757. Totals may not sum due to rounding.
Source: Petris Center analysis of RAND Hospital Data

3.3 Physicians

In this section, we report the market shares of the largest physician organizations by number of full-time-equivalent physicians by MSA. Physicians can practice medicine in different types of organizations, such as practicing as a solo practitioner, practicing as part of an independent medical group, practicing as part of a medical group owned by a hospital, or being directly employed by a hospital. If the physician organization is owned by a parent company, such as a hospital or health system, then that organization is listed because the number of full-time-equivalent physicians was aggregated to the parent company in each MSA.

This analysis is based on the OneKey dataset provided by IQVIA, which recently created the dataset by combining physician organization datasets, including those from SK&A, IMS Health, and Healthcare Data Solutions. The SK&A Office Based Physician Database has been used in several academic studies (Scheffler, Arnold, and Whaley 2018; Fulton 2017; Dunn and Shapiro 2014), with the OneKey dataset becoming more prominent (Fraze et al. 2022; Fisher et al. 2020).

For each MSA, Table 3.6 reports the market shares of the three largest organizations that employ physicians, in which the market share is based on the number of full-time-equivalent physicians either through direct employment or because the organization owns the physician organization that the physician is employed by. The physician market in Indiana can be characterized as being vertically integrated with major hospital systems because these systems either directly employ a large number of physicians or have acquired physician organizations. Hence, many of the top three organizations are the six major hospital systems in the state (Ascension, Community Health Systems, Indiana University Health, Franciscan Health, Community Health Network, and Parkview Health), as well as other hospital systems mainly

operating in Indiana (e.g., Beacon Health System and Union Health) and other national firms (e.g., UnitedHealth Group [Optum], HCA Healthcare, Trinity Healthcare, and LifePoint Health).

The table includes 45 firms—3 firms for each of the 15 MSAs—and the six major hospital systems in Indiana occupied about one-third (or 17 of the 45) spots, including seven of the #1 firm spots and eight of the #2 firm spots. Other Indiana-based hospital systems and national systems occupied at least one-third of the remaining spots. On average, the largest three physicians organizations (or parent owners) had a combined market share of 56.1% across the 15 MSAs, ranging from 37.2% to 72.5% in the Louisville/Jefferson County, KY-IN, and the Muncie, IN, MSAs, respectively.

Table 3.6: Market Shares of Largest Three Physician Organizations by MSA, 2021

MSA	Number of Physicians	Number of Physicians per 1,000 Population	#1 Physician Organization	Market Share	#2 Physician Organization	Market Share	#3 Physician Organization	Market Share	Top 3 Market Share
Muncie, IN	273	2.4	Indiana University Health	57.9	UnitedHealth Group	9.3	Meridian Health Services	5.3	72.5
Lafayette-West Lafayette, IN	402	1.8	Indiana University Health	44.3	Franciscan Health	13.0	Unity Healthcare	12.0	69.2
Kokomo, IN	101	1.2	Community Health Network	35.5	Ascension Health	20.0	UnitedHealth Group	9.4	64.9
Bloomington, IN	264	1.6	Indiana University Health	58.7	Southern Indiana Physicians	3.1	Centerstone	2.2	63.9
Evansville, IN-KY	587	2.2	Deaconess Health System	34.6	Ascension Health	23.3	Veterans Health Administration	4.8	62.6
Terre Haute, IN	262	1.4	Union Health	47.3	Providence Medical Group	7.6	HCA Healthcare	5.8	60.7
Columbus, IN	108	1.3	Columbus Regional Health	53.2	Franciscan Health	3.5	Southern Indiana Orthopedics	2.4	59.0
South Bend-Mishawaka, IN-MI	649	2.4	Beacon Health System	28.5	The South Bend Clinic	15.9	Trinity Health	12.4	56.8
Cincinnati, OH-KY-IN	74	0.9	Dearborn County Hospital	49.3	Saint Elizabeth Healthcare	2.7	ENT and Allergy Specialists	2.7	54.7
Fort Wayne, IN	990	2.3	Parkview Health System	32.9	Community Health Systems	17.1	Fort Wayne Radiology	3.2	53.1
Elkhart-Goshen, IN	286	1.4	Goshen Health	23.3	Beacon Health System	18.0	Elkhart Clinic	10.4	51.6
Indianapolis-Carmel-Anderson, IN	4,830	2.3	Indiana University Health	23.1	Community Health Network	13.8	Ascension Health	10.5	47.5
Michigan City-La Porte, IN	260	2.3	Franciscan Health	27.3	Community Health Systems	12.1	Beacon Health System	7.9	47.2
Chicago-Naperville-Elgin, IL-IN-WI	1,111	1.5	Community Foundation of Northwest Indiana	17.7	Franciscan Health	17.3	Community Health Systems	5.3	40.3
Louisville/Jefferson County, KY-IN	363	1.3	Lifepoint Health	13.4	Baptist Healthcare System	12.8	Norton Healthcare	11.1	37.2
Total	10,560								
Mean	704	1.8		36.5		12.6		7.0	56.1
Minimum	74	0.9		13.4		2.7		2.2	37.2
25th percentile	261	1.4		25.3		8.4		4.0	49.5
50th percentile	286	1.6		34.6		13.0		5.8	56.8
75th percentile	618	2.3		48.3		17.2		10.4	63.3
Maximum	4,830	2.4		58.7		23.3		12.4	72.5

Notes: The MSAs are sorted by the combined market share of the top 3 physician organizations. Market shares are based on the number of full-time-equivalent physicians as of January 1, 2021 and are reported as a percent. Market shares are reported at the highest organization level that holds the market share (e.g., a hospital system). For MSAs that include counties located outside of Indiana, the number of

full-time-equivalent physicians and market shares are based on only full-time-equivalent physicians in Indiana. The summary statistics at the bottom of the table are for each column, including the top 3 physician organizations' market shares, and are unweighted. The mean number of physicians per 1,000 population weighted by MSA population is 2.0. Totals may not sum due to rounding.
Source: Petris Center analysis of OneKey Database provided by IQVIA

Physician organizations are typically privately held, so no public information exists to report revenues and net assets. However, because Indiana's six major hospital systems either directly employ physicians or own physician organizations that employ physicians, they were often one or more of the three largest firms in an MSA, and their financial performance was reported in the section above. It was not possible to report the revenues and net assets of the physician organizations directly because their financial performance is not separately reported.

Due to the complexity of collecting organizational information on all physicians in the United States, all physician-level datasets are subject to limitations (DesRoches et al. 2015). When comparing the National Provider and Plan Enumeration System (NPPES), the American Medical Association Physician Masterfile, and the SK&A Office Based Physicians Database (one predecessor dataset to OneKey), DesRoche and colleagues found that the AMA Physician Masterfile often contained inactive or retired physicians and the SK&A Database often missed hospital-based physicians (by design). Therefore, because the OneKey database partially relies on the SK&A Office Based Physicians Database, the reported share of physicians working in an organization owned by a hospital or health system likely represents a lower bound, as non-office-based physicians may be more likely to directly work for a hospital or health system.

3.4 Market Concentration in Each Industry

The market concentration of each industry is reported using the Herfindahl-Hirschman Index (HHI) at the MSA level, which was used to define the geographic market of insurers, hospitals, and specialty physicians, consistent with other studies (Bozzi 2022; Guardado and

Kane 2021; Fulton 2017). The HHI is a common measure of market concentration and is calculated by squaring the market shares of each firm competing in a market and then summing those values across all firms, resulting in a range of 0 to 10,000. For example, if a market included two firms with 60% and 40% market shares, respectively, the HHI is 5,200 (or $60^2 + 40^2$). If a market included the following number of firms with equal market shares, the resulting HHIs would be as follows: one firm (10,000), two firms (5,000), three firms (3,333), four firms (2,500), and five firms (2,000). In the *Horizontal Merger Guidelines*, the U.S. Department of Justice and the Federal Trade Commission used the HHI to define market concentration thresholds: unconcentrated (HHI <1,500), moderately concentrated (1,500 <= HHI <= 2,500), and highly concentrated (HHI > 2,500) (U.S. Department of Justice and Federal Trade Commission 2010).

The market shares of insurers, hospitals, and physicians were based on the market shares calculated in this section with the following modifications. The market shares of hospitals were calculated from the number of inpatient admissions because that measure isolates the units of a service whereas revenues incorporate prices as well. If a hospital was part of a system, then the admissions of all hospitals within a system within an MSA were combined. The number of admissions was sourced from the 2020 American Hospital Association Annual Survey Database. For more information, see Fulton (2017).

The market share of physicians was calculated for primary care physicians and specialty physicians separately (even for organizations that comprise both types of physicians) using the number of full-time-equivalent physicians. If a physician organization was owned by a hospital or hospital system, then the full-time-equivalent physicians were combined at the parent level within an MSA. Because primary care geographic markets are smaller than MSAs, the market

concentration of primary care physicians was first calculated at the primary care service area level. Those HHIs were aggregated to the MSA level by averaging the HHIs of the primary care service areas in an MSA, weighted by the number of primary care physicians in a primary care service area. Because each physician specialty offers distinct services, the market concentration of the following nine specialties were calculated separately at the MSA level: cardiology, orthopedic, oncology, radiology, dermatology, ophthalmology, gastroenterology, anesthesiology, and emergency medicine. Those nine HHIs were averaged, weighted by the number of physicians in each specialty, to obtain the HHI for specialist physicians.

Out of the 15 MSAs in Indiana, ten comprise counties only located within Indiana, whereas five also include counties in other states. For two of these MSAs, the vast majority of the population resides in Indiana: Evansville, IN-KY (85.9%) and South Bend-Mishawaka, IN-MI (84.1%). In contrast, for the other three MSAs, the vast majority of the population resides outside the state: Chicago-Naperville-Elgin, IL-IN-WI (92.4%); Cincinnati, OH-KY-IN (96.2%); and Louisville/Jefferson County, KY-IN (78.9%). For all five of these MSAs, we calculated the market concentration only using insurance enrollees, hospitals, and physicians that resided in the state because the focus of this study was on Indiana; therefore, the market concentrations of those five MSAs, particularly the latter three, are overstated assuming residents cross state lines to purchase insurance and obtain healthcare.

Table 3.7 shows the market concentration as measured by the HHI for insurers, hospital, primary physicians, and specialist physicians in each of Indiana's 15 MSAs, sorted from highest to lowest by the mean HHI across the four measures. Out of the four HHI measures, hospitals were the most concentrated with a mean HHI of 6,330, followed by insurers (4,360), primary care physicians (3,246), and specialist physicians (3,074). In the table, the mean HHI masks the

variation of market concentration across the MSAs within each industry, which is reported in the summary statistics at the bottom of the table.

As a result of the top 3 firms in each MSA generally having significant market shares in the three industries, the following number of MSAs in Indiana had an HHI greater than 2,500, the threshold that the U.S. Department of Justice (DOJ) and Federal Trade Commission (FTC) use to define a highly concentrated market: health insurance (15 MSAs), hospitals (14 MSAs), primary care physicians (13 MSAs), and specialist physicians (10 MSAs) (U.S. Department of Justice and Federal Trade Commission 2010). However, this situation is not unique to Indiana, as the median HHI for all MSAs across the United States was 3,850 for insurers, 5,362 for hospitals, 2,392 for primary care physicians, and 3,708 for specialist physicians (not shown in table).

In the table, the HHIs are negatively associated with population because the more populous MSAs likely contain more than one market, a limitation of this analysis. Therefore, next, we compare the HHIs in the four most populous MSAs in Indiana to similarly populated MSAs in the United States.

Table 3.7: Market Concentration of Insurer, Hospital, and Physician Markets by MSA, 2021

MSA	Population	Insurers	Hospitals	Primary Care Physicians	Specialist Physicians	All Industries (mean)
Muncie, IN	111,871	3,746	10,000	3,783	7,379	6,227
Columbus, IN	82,475	4,625	10,000	4,401	5,011	6,009
Bloomington, IN	161,321	4,434	8,621	5,372	4,045	5,618
Lafayette-West Lafayette, IN	224,709	4,241	10,000	3,100	3,395	5,184
Terre Haute, IN	184,910	5,632	5,119	4,142	3,336	4,557
Evansville, IN-KY	269,617	5,059	5,598	3,777	2,893	4,332
Cincinnati, OH-KY-IN	86,683	3,233	10,000	2,592	1,314	4,285
Kokomo, IN	83,687	4,452	5,010	2,564	4,943	4,242
Elkhart-Goshen, IN	206,921	4,273	5,630	2,730	3,340	3,993
Michigan City-La Porte, IN	112,390	5,091	5,157	2,890	2,784	3,980
South Bend-Mishawaka, IN-MI	272,212	3,956	5,110	3,434	2,022	3,630
Fort Wayne, IN	423,038	3,139	5,111	2,907	2,549	3,426
Louisville/Jefferson County, KY-IN	271,055	4,894	4,510	2,364	1,392	3,290
Indianapolis-Carmel-Anderson, IN	2,126,804	4,160	1,929	3,226	1,281	2,649
Chicago-Naperville-Elgin, IL-IN-WI	719,700	4,471	3,153	1,407	423	2,364
Total	5,337,393					
Mean	355,826	4,360	6,330	3,246	3,074	4,252
Minimum	82,475	3,139	1,929	1,407	423	1,725
25th percentile	112,131	4,058	5,060	2,661	1,707	3,371
50th percentile	206,921	4,434	5,157	3,100	2,893	3,896
75th percentile	271,634	4,760	9,311	3,780	3,720	5,392
Maximum	2,126,804	5,632	10,000	5,372	7,379	7,096

HHI: Herfindahl-Hirschman Index

Notes: The population is as of July 1, 2021. For insurers and physicians, the market concentration measures are effective as of January 1, 2021, and for hospitals, as of December 31, 2020. Out of Indiana's 15 MSAs, five MSAs include counties in other states. For these MSAs, we calculated the market concentration only using insurance enrollees, hospitals, and physicians that resided in the state because the focus of this study was on Indiana; therefore, the market concentrations of those five MSAs, particularly the three in which most of the population resides outside of Indiana, are overstated assuming residents cross state lines to purchase insurance and obtain healthcare. The summary statistics at the bottom of the table are for each column and are unweighted.

Sources: Petris Center's analysis of Managed Market Surveyor provided by Decision Resources Group (now Clarivate), American Hospital Association Annual Survey Database, and OneKey Database provided by IQVIA

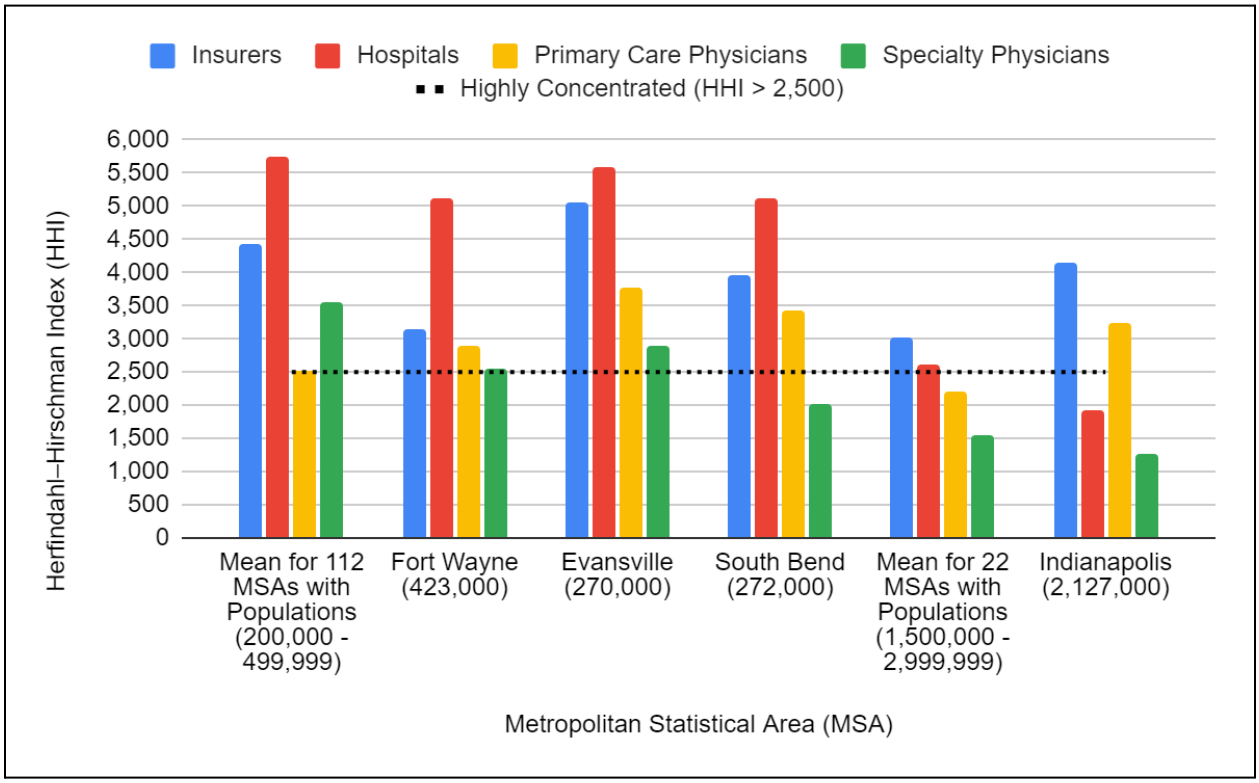
Indiana contains 15 MSAs, including four that have a population of more than 250,000: Indianapolis-Carmel-Anderson (2,126,000), Fort Wayne (423,000), South Bend-Mishawaka, (272,000), and Evansville (270,000).[12] Because MSAs vary by population, we separated these MSAs into two groups, those with a population between 200,000 and 499,999 (Group 1) and those with a population between 1,500,000 and 2,999,999 (Group 2). To compare Indiana's market concentration to the country as a whole, we classified all MSAs in the United States by their population, identifying 112 MSAs in Group 1 and 22 MSAs in Group 2.

For the 112 MSAs with a population between 200,000 and 499,999 (Group 1), the mean market concentration in 2021 was highly concentrated, defined by the HHI being greater than 2,500: insurers (4,427), hospitals (5,751), primary care physicians (2,505), and specialty physicians (3,559) (Figure 3.4). As compared with these means, the three Indiana MSAs with a similar population had (on average) moderately lower insurer market concentration (4,051 vs. 4,427), moderately lower hospital market concentration (5,273 vs. 5,751), and significantly lower specialty physician market concentration (2,488 vs. 3,559), but had significantly higher primary care physician market concentration (3,372 vs. 2,505).

As compared with the mean market concentration for the 22 MSAs with a population between 1,500,000 and 2,999,999 (Group 2), the Indianapolis-Carmel-Anderson MSA had significantly lower hospital market concentration (1,929 vs. 2,611) and moderately lower specialty physician market concentration (1,281 vs. 1,551), but had significantly higher insurer market concentration (4,160 vs. 3,011) and significantly higher primary care physician concentration (3,226 vs. 2,202).

[12] Indiana includes other MSAs that have a population of more than 250,000, but most of their residents reside outside the state (e.g., most residents of the Chicago-Naperville-Elgin, IL-IN-WI, MSA reside in Illinois). The South Bend-Mishawaka and Evansville MSAs include counties in Michigan and Kentucky, respectively, but those residents were excluded from the reported populations of these MSAs.

Figure 3.4: Market Concentration of Insurers, Hospitals and Physicians in the Four Most Populous MSAs in Indiana versus Comparison MSAs, 2021



Notes: For insurers and physicians, the market concentration measures are effective as of January 1, 2021, and for hospitals, as of December 31, 2020. A small share of the Evansville MSA's population resides in Kentucky, and a small share of the South Bend-Mishawaka resides in Michigan. For these MSAs, we calculated the market concentration only using insurance enrollees, hospitals, and physicians that resided in Indiana because the focus of this study was on Indiana; therefore, the market concentrations of those two MSAs may be slightly overstated, assuming residents cross state lines to purchase insurance and obtain healthcare. The figure uses abbreviated MSA names. The full names are Fort Wayne, IN; Evansville, IN-KY; South Bend-Mishawaka, IN-MI; and Indianapolis-Carmel-Anderson, IN.
Sources: Petris Center's analysis of Managed Market Surveyor provided by Decision Resources Group (now Clarivate), American Hospital Association Annual Survey Database, and OneKey Database provided by IQVIA

While MSAs are analytically attractive, they are not necessarily representative of, for example, hospital markets, which are more precisely defined using option demand markets (Capps, Dranove, and Satterthwaite 2003). To use that approach, however, consumer-level information is needed because it is based on consumers' willingness to pay to include a hospital within a health plan's network prior to knowing their healthcare needs. In Figures 4.4 to 4.6

below, the Health Care Cost Institute calculated the HHI in the four most populous MSAs in Indiana for the hospital market using a patient-flow methodology, which resulted in HHIs that were less than our estimates (Health Care Cost Institute 2022b). However, that approach was not applied to the other MSAs in Indiana or the physician industry, nor could it be directly applied to the health insurance industry.

4. Cost of Care

From the supply side of health care, the cost of care can be evaluated at three levels. The first level consists of healthcare provider costs for the provision of a service, which are affected by labor, capital, land, and technology costs. The second level consists of insurers; their primary costs are the healthcare expenditures of their enrollees, which are affected by provider prices and healthcare utilization. The third level consists of enrollees (and employers) whose primary costs are health insurance premiums.

While several studies and sources compare healthcare spending and costs among states (Johnson et al. 2022; Kaiser Family Foundation 2022a; Lassman et al. 2017), fewer sources are available to compare healthcare spending and costs among MSAs. To estimate the costs at the three levels described above for each MSA in Indiana, we used the following sources. For providers' costs, we used the Centers for Medicare & Medicaid Services' fiscal year 2022 Medicare Wage Index, an index used to adjust Medicare payments to hospitals by accounting for hospital labor cost differences among MSAs (Centers for Medicare & Medicaid Services 2022). For insurers' costs, healthcare expenditures were estimated using the Health Care Cost Institute's (HCCI) Healthy Marketplace Index, which reports healthcare spending for individuals with employer-sponsored insurance in 186 MSAs within 44 states and Washington, DC, including the

four most populous MSAs in Indiana that are primarily located within the state (Bozzi 2022). For enrollees' costs, we used health insurance premium data from the Robert Wood Johnson Foundation's Health Insurance Exchange (HIX) Compare Datasets, focusing on the 2022 premiums of enrollees in Indiana's Health Insurance Marketplace, which includes 17 rating areas that we mapped to the 15 MSAs.

4.1 Providers' Wage Costs

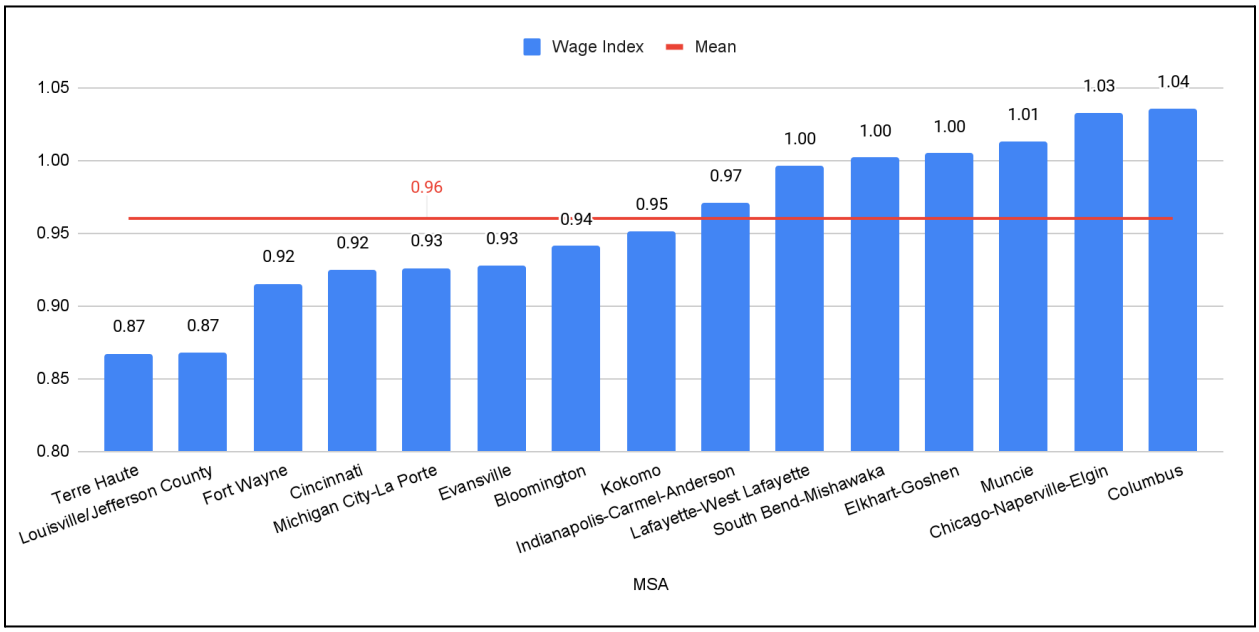
The Medicare Wage Index adjusts inpatient and outpatient prospective payment rates to hospitals to account for local differences in market wages (Villagrana 2021). Hospital labor market geographic areas are Core-Based Statistical Areas defined by the Office of Management and Budget (Office of Management and Budget 2020). The Centers for Medicare & Medicaid Services calculates the Medicare Wage Index as the hospital wage level in a geographic area divided by the national average hospital wage level (Centers for Medicare & Medicaid Services 2022). The hospital wage level in a geographic area is the ratio of the total wage costs divided by total hours worked by different types of healthcare workers (e.g., physicians, pharmacists, and housekeepers), resulting in the national wage index being 1.00. For our analysis, we used the fiscal year 2022 wage index released by CMS on October 14, 2021 (Centers for Medicare & Medicaid Services 2021).

Due to concerns about a large difference between high- and low-wage index areas, for fiscal year 2011, Congress created a number of exceptions that allowed hospitals to apply for a higher index value (Villagrana 2021). These adjustments affect all hospitals because they are done in a budget-neutral manner, so that the aggregate effect on spending from upward adjustments equals the aggregate effect on spending from downward adjustments. The resulting wage index from these adjustments is called the Reclassified Medicare Wage Index. Because we

are interested in cost of care differences, we used the original Medicare Wage Index values that did not account for equity.[13]

Among Indiana's 15 MSAs in fiscal year 2022, the mean index value was 0.96, and the range was from a low of 0.87 in Terre Haute to a high of 1.04 in Columbus (Figure 4.1). The Cincinnati MSA was at the 25th percentile (0.92), Kokomo at the 50th percentile (0.95), and Elkhart-Goshen at the 75th percentile (1.00); hence, most MSAs have wage costs that are lower than the U.S. mean of 1.00.

Figure 4.1: Medicare Wage Index by MSA, 2022



Notes: The wage index values reported are the Wage Index values reported in the CMS FY2022 Table 3, Proposed Wage Index Table by CBSA. FY2022 is the federal government's fiscal year, October 1, 2021, to September 30, 2022. Wage Index values are rounded to the nearest hundredth.
Source: Centers for Medicare & Medicaid Services (2021)

[13] Based on comparing the fiscal year 2022 Reclassified Medicare Wage Index values to the Medicare Wage Index values for each of Indiana's 15 MSAs, the values were similar: the reclassified wage index values were lower in seven MSAs, averaging 0.03 lower with a range of 0.01 to 0.07; the two indices were the same in the other eight MSAs.

4.2 Insurers' Medical Costs

Healthcare expenditures are estimated using visualizations and data from the Health Care Cost Institute's (HCCI) Healthy Marketplace Index (Bozzi 2022; Health Care Cost Institute 2022c).[14] The index estimates healthcare spending for individuals with employer-sponsored insurance across all MSAs in the United States, and releases spending estimates for 186 MSAs within 44 states and Washington, DC, including the four most populous MSAs in Indiana (that are primarily located within the state): Fort Wayne, Indianapolis-Carmel-Anderson, Evansville, and South Bend-Mishawaka (hereafter "four most populous MSAs in Indiana") (Health Care Cost Institute 2022b; 2022a).[15] In June 2022, the Healthy Marketplace Index was updated to include 4.2 billion claims from more than 41 million individuals annually from 2016 to 2020. The index uses healthcare claims from the HCCI 2.0 database, which consists of claims from Blue Health Intelligence (Blue Cross Blue Shield companies, except for Anthem companies), Aetna, Humana, and Kaiser Permanente (Health Care Cost Institute 2020). The claims are for inpatient admissions, outpatient procedures and visits, and professional fees for procedures and visits; claims for drugs are excluded.

Because Indiana's two largest insurers by enrollees in the state—Blue Cross Blue Shield (BCBS) of Indiana and UnitedHealth Group—are not included in HCCI 2.0, we focus on making within-Indiana comparisons. These comparisons include enrollees from Aetna and Humana, as well as from non-Anthem BCBS plans via the national BlueCard Program, in which residents of Indiana are insured by an out-of-state BCBS plan (e.g., BCBS of Illinois and BCBS of Michigan) (Blue Cross Blue Shield of Illinois 2020). This situation occurs when an employer (e.g., based in Chicago) offers BCBS of Illinois plans to its employees, but some of its employees reside in and

[14] The figures from the Healthy Marketplace Index are for public use.
[15] The 186 MSAs are those that had at least 25,000 member-years in the HCCI data from 2016 to 2020.

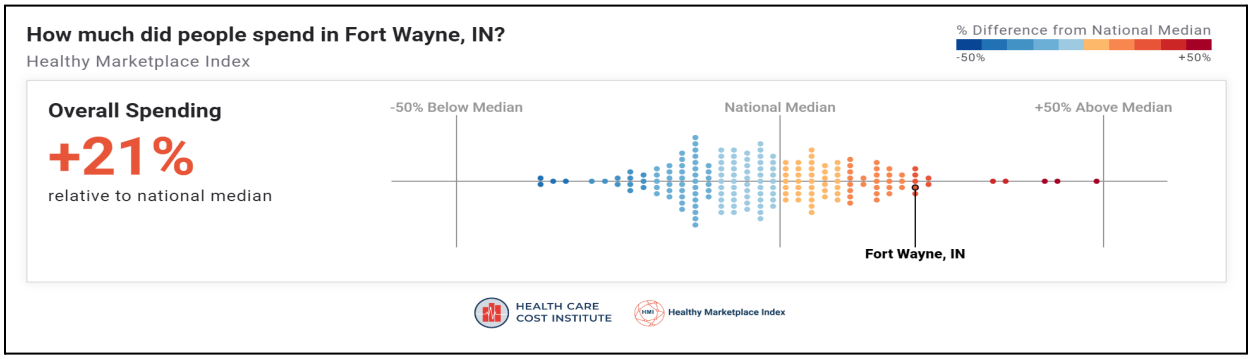
access healthcare providers in Indiana. For those employees, BCBS of Illinois is the home plan, whereas BCBS of Indiana is the host plan. Although the claim is paid by the home plan, the pricing is based on the host plan's negotiated rates with providers.

Although the focus of this analysis is within Indiana, for context, we start with showing how Indiana's four most populous MSAs fit within the distribution of MSAs included in the Healthy Marketplace Index. In 2020, total healthcare expenditures per enrollee in the median MSA was $4,879,[16] with 70% of 186 MSAs being between $4,147 and $5,611, within 15% of the median MSA. Among the 186 MSAs, the range of the distribution was $3,025 to $7,221. Fort Wayne's expenditures per enrollee was $5,904, ranking 9th highest and 21% above the national median MSA (Figure 4.2, Panel A). Two of the other three MSAs in Indiana had expenditures that were moderately above of the national median MSA—Indianapolis-Carmel-Anderson's expenditures were $5,123 (ranking 55th) at 5% above the national median MSA (Panel B), and Evansville's expenditures were $5,026 (ranking 64th) at 3% above the national median MSA (Panel C)—whereas South Bend-Mishawaka's expenditures were $4,342 (ranking 131st) at 11% below the national median MSA (Panel D).

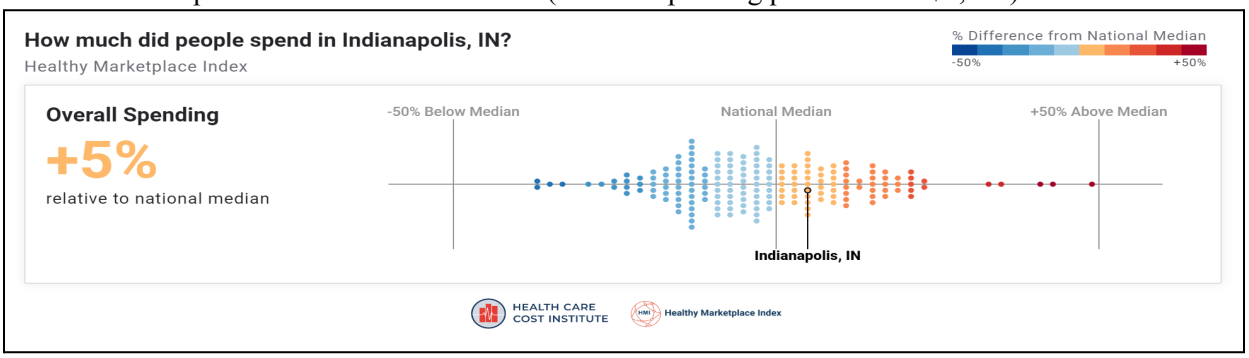
[16] The median MSA is selected from all MSAs in the United States, but spending estimates are released for only 186 MSAs, those MSAs that had at least 25,000 member-years in the HCCI data from 2016 to 2020.

Figure 4.2: Overall Healthcare Expenditures per Enrollee with Employer-Sponsored Insurance in the Four Most Populous MSAs in Indiana, 2020

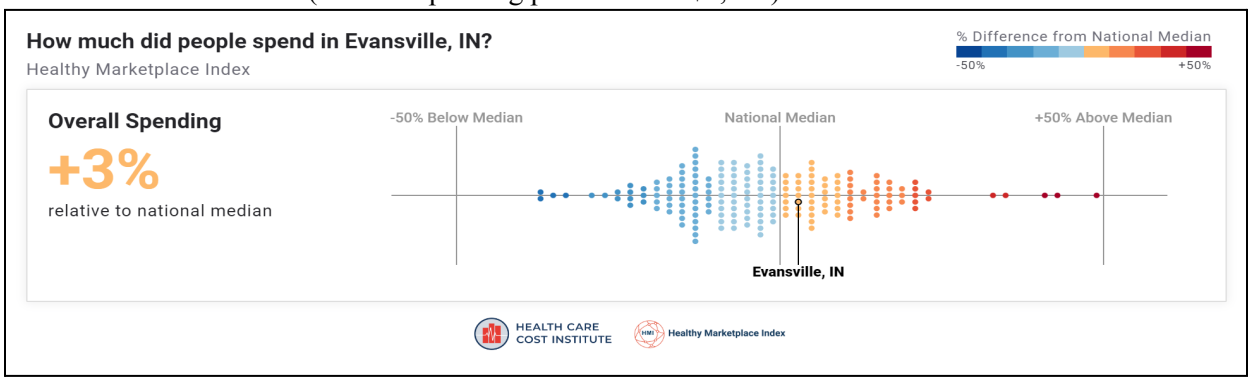
Panel A: Fort Wayne MSA (Overall Spending per Enrollee: $5,904)



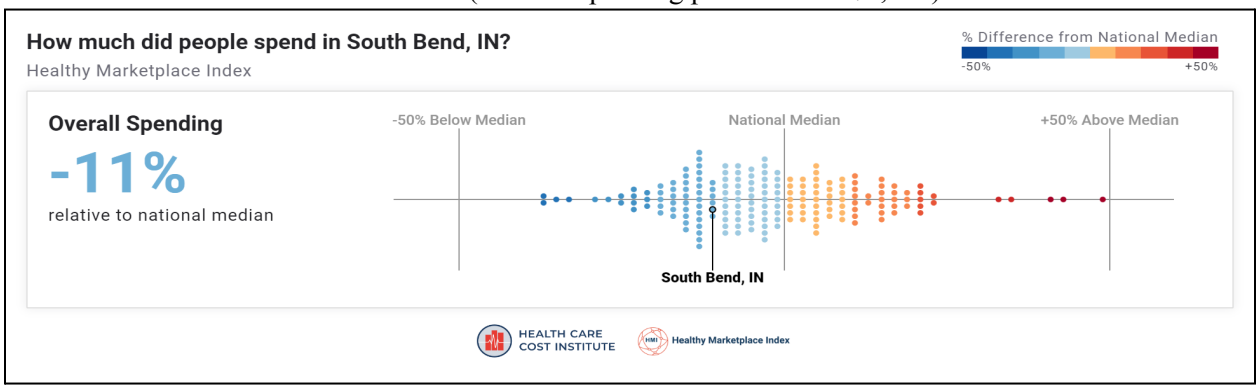
Panel B: Indianapolis-Carmel-Anderson MSA (Overall Spending per Enrollee: $5,123)



Panel C: Evansville MSA (Overall Spending per Enrollee: $5,026)



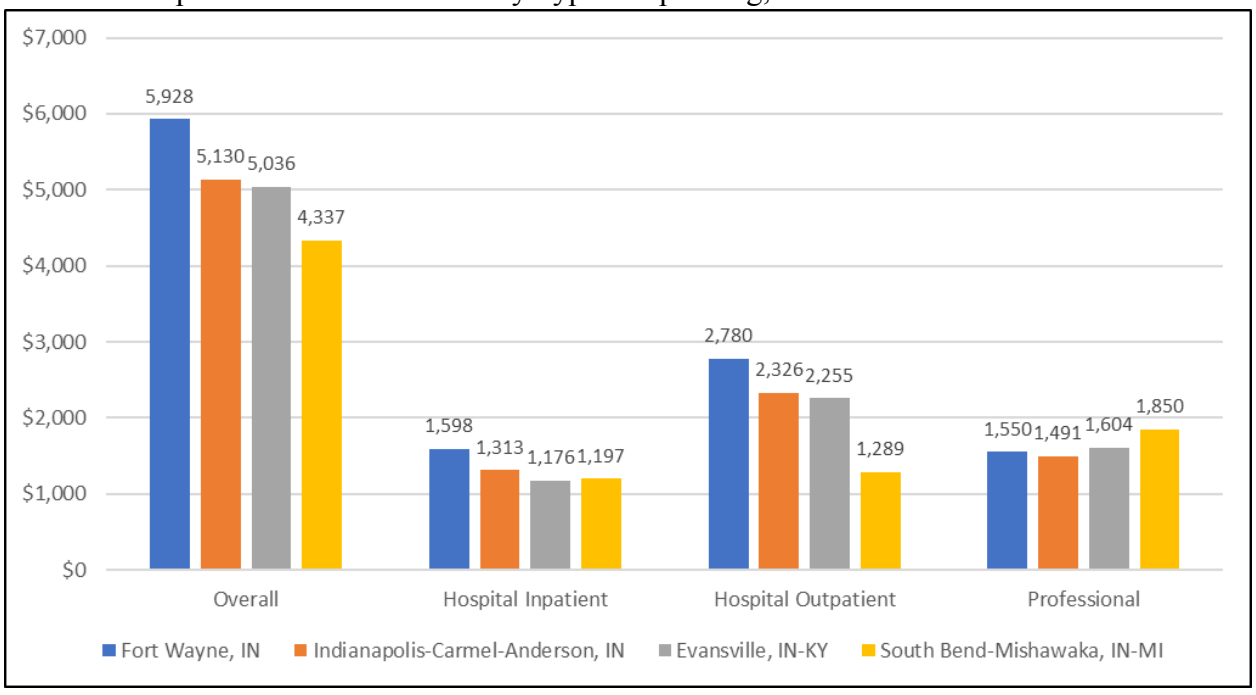
Panel D: South Bend-Mishawaka MSA (Overall Spending per Enrollee: $4,342)



Notes: HCCI Healthy Marketplace Index includes healthcare expenditures from 2016 to 2020 in 186 MSAs within 44 states and Washington, DC, including four MSAs in Indiana: Fort Wayne, Indianapolis-Carmel-Anderson, Evansville, and South Bend-Mishawaka. The results presented in the figure are based on the latest year (2020) when expenditures per enrollee in the median MSA was $4,879. Expenditures include inpatient, outpatient, and professional expenditures; drug expenditures are excluded.
Source: Health Care Cost Institute Healthy Marketplace Index (Bozzi 2022)

Overall spending consists of three types of spending: hospital inpatient, hospital outpatient, and professional spending. Spending per enrollee was generally the highest in the Fort Wayne MSA, including overall ($5,928), hospital inpatient ($1,598), and hospital outpatient ($2,780) spending (Figure 4.3). For example, overall spending per enrollee in the Fort Wayne MSA was 37% higher than in the South Bend-Mishawaka MSA.

Figure 4.3: Healthcare Expenditures per Enrollee with Employer-Sponsored Insurance in the Four Most Populous MSAs in Indiana by Type of Spending, 2020



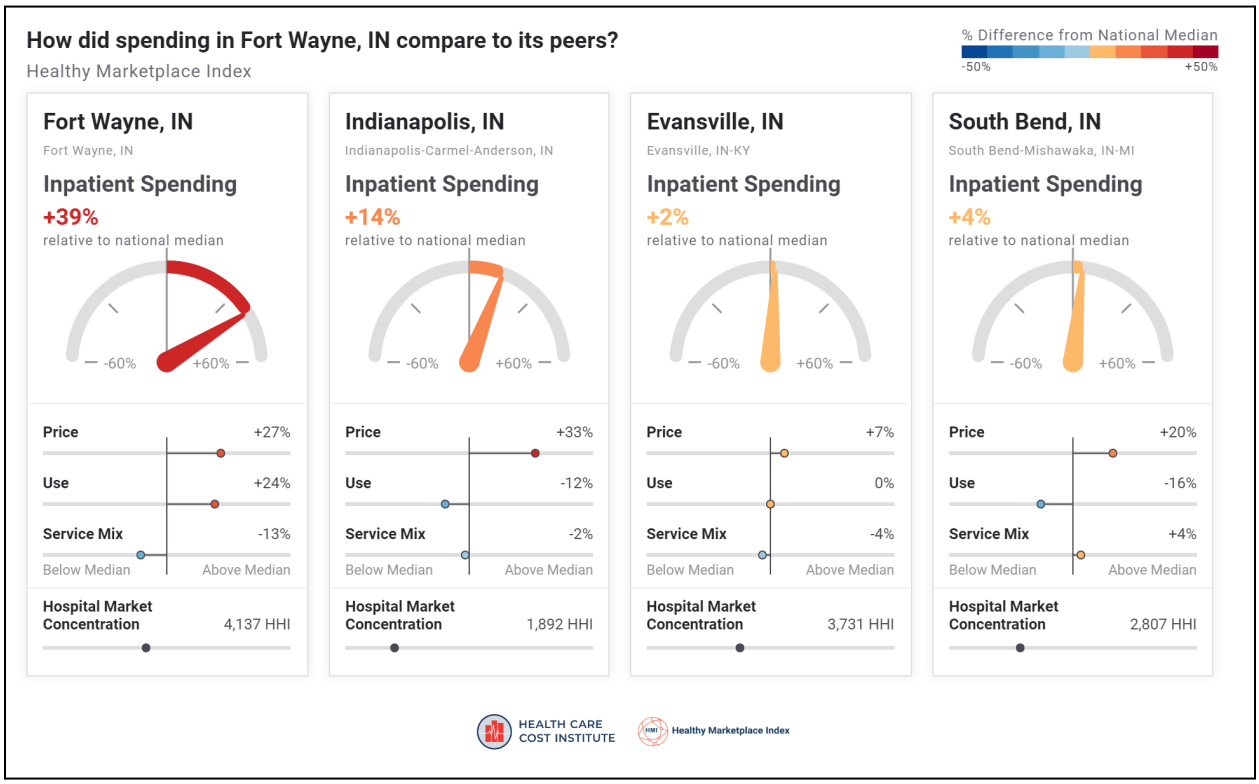
Notes: All values in the figure are in dollars.
Source: Petris Center analysis of Health Care Cost Institute Healthy Marketplace Index (Health Care Cost Institute 2022b)

The three key factors that affect each type of spending are prices, utilization, and service mix, whereby price is the allowed amount for a service, utilization is the quantity of services, and service mix is relative use of more versus less expensive services (Health Care Cost Institute 2022b). Although the next set of figures compares the Fort Wayne, Indianapolis-Carmel-Anderson, Evansville, and South Bend-Mishawaka MSAs to the median MSA in the United States, the figures can also be used to compare spending in the four MSAs within Indiana to each other. The figures show spending per enrollee in the employer-sponsored market in Indiana's MSAs compared with the national median for hospital inpatient spending (Figure 4.4), hospital outpatient spending (Figure 4.5), and professional spending (Figure 4.6).[17] Each figure also shows the three key factors that affect spending—prices, utilization, and service mix—compared with the national medians.[18]

[17] In 2020, overall spending per enrollee in the median MSA was $4,879, but the components do not sum to exactly equal $4,879 due to rounding: inpatient ($1,151) + outpatient ($1,850) + professional ($1,879) = $4,880.
[18] The Healthy Marketplace Index also produces an analogous figure for overall spending, but it is more difficult to interpret, so we did not include it. For example, Fort Wayne has the highest overall spending among the four MSAs—21% above the national median—but its overall spending figure shows this is primarily because the service mix is 20% higher than the national median. However, the service mix at the overall spending level incorporates higher inpatient and outpatient prices, which are shown in the figures we presented.

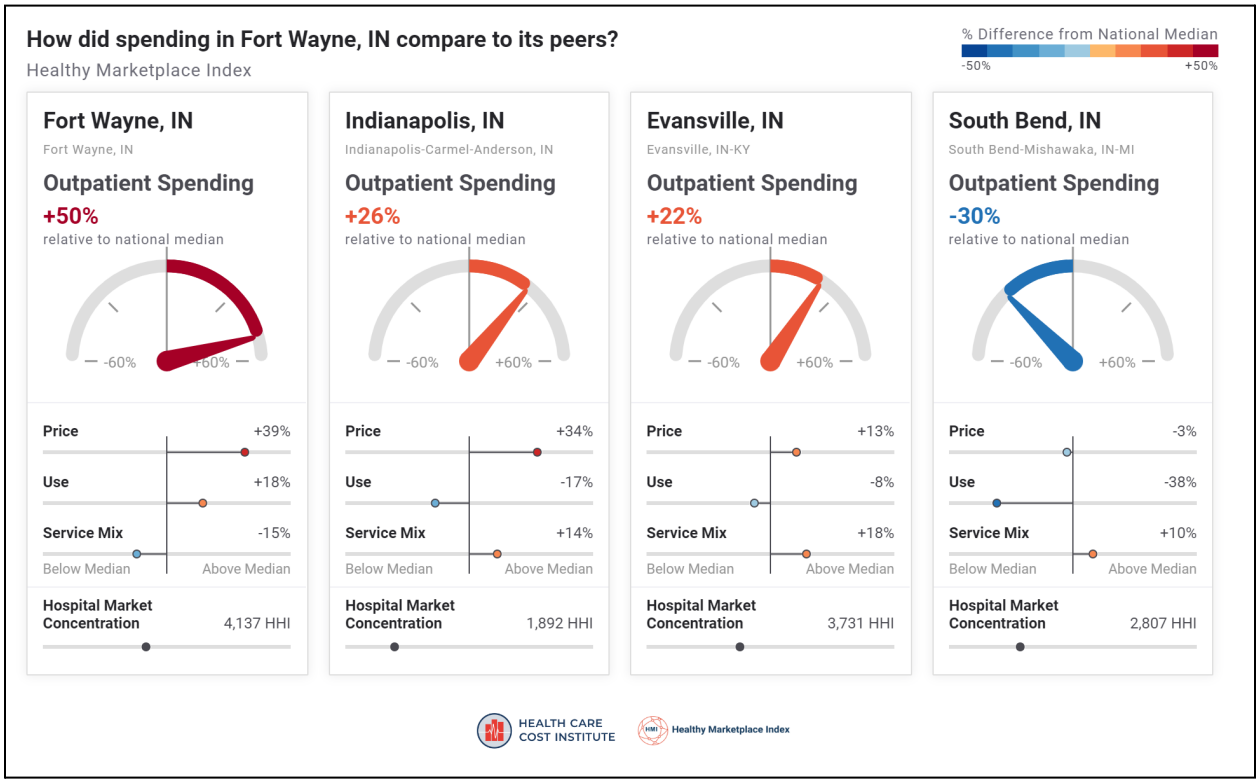
Fort Wayne's high spending per enrollee was driven by hospital inpatient spending, which was 39% above the national median (Figure 4.4), and hospital outpatient spending, which was 50% above the national median (Figure 4.5). However, its spending on professional services was 17% below the national median (Figure 4.6). The high hospital inpatient and high hospital outpatient spending were driven by high prices and utilization.

Figure 4.4: Factors Affecting Hospital Inpatient Spending in the Four Most Populous MSAs in Indiana, 2020



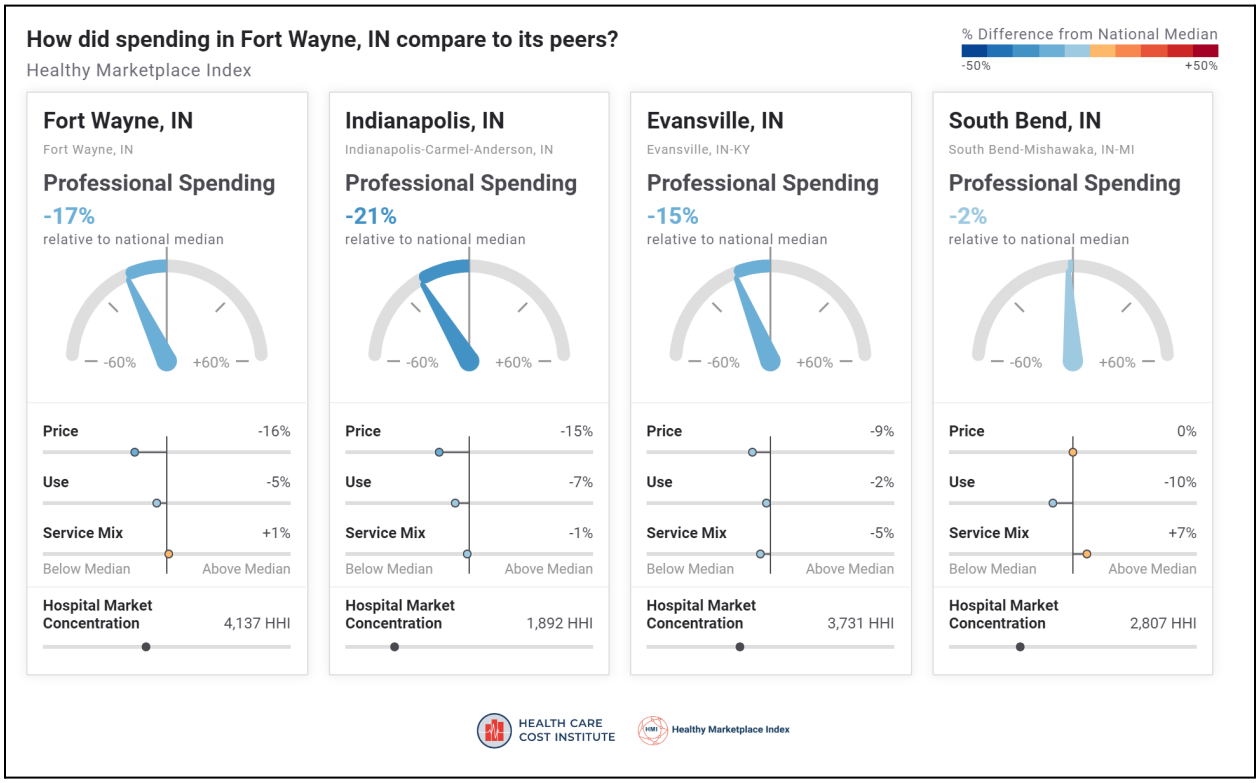
Notes: HCCI Healthy Marketplace Index includes healthcare spending from 2016 to 2020 in 186 MSAs within 44 states and Washington, DC, including four MSAs in Indiana: Fort Wayne, Indianapolis-Carmel-Anderson, Evansville, and South Bend-Mishawaka. The results presented in the figure are based on the latest year (2020) when inpatient spending in the median MSA—among all MSAs in the United States—was $1,151.
Source: Health Care Cost Institute Healthy Marketplace Index (Bozzi 2022)

Figure 4.5: Factors Affecting Hospital Outpatient Spending in the Four Most Populous MSAs in Indiana, 2020



Notes: HCCI Healthy Marketplace Index includes healthcare spending from 2016 to 2020 in 186 MSAs within 44 states and Washington, DC, including four MSAs in Indiana: Fort Wayne, Indianapolis-Carmel-Anderson, Evansville, and South Bend-Mishawaka. The results presented in the figure are based on the latest year (2020) when outpatient spending in the median MSA—among all MSAs in the United States—was $1,850.
Source: Health Care Cost Institute Healthy Marketplace Index (Bozzi 2022)

Figure 4.6: Factors Affecting Professional Spending in the Four Most Populous MSAs in Indiana, 2020



Notes: HCCI Healthy Marketplace Index includes healthcare spending from 2016 to 2020 in 186 MSAs within 44 states and Washington, DC, including four MSAs in Indiana: Fort Wayne, Indianapolis-Carmel-Anderson, Evansville and South Bend-Mishawaka. The results presented in the figure are based on the latest year (2020) when professional spending in the median MSA—among all MSAs in the United States—was $1,879.
Source: Health Care Cost Institute Healthy Marketplace Index (Bozzi 2022)

4.3 Enrollees' Insurance Premium Costs

For enrollees' costs, we used health insurance premium data from the Robert Wood Johnson Foundation's Health Insurance Exchange (HIX) Compare Datasets. The Indiana Health Insurance Marketplace comprises 17 rating areas, which we linked to Indiana's MSAs based on location and population. Table 4.1 shows the monthly premium for the second-lowest-cost silver plan (benchmark plan) for a 50-year-old non-smoker, sorted by the 2022 premium. The premium had a range of $490 to $608 for the Louisville/Jefferson County and Terre Haute MSAs, respectively. Across all rating areas, the average premium increased from $467 to $558 (or 19.6%) from 2014 to 2022; however, the increase varied from 4.3% to 39.0%, with the 4.3% increase occurring in Rating Area 15 (located in a micropolitan statistical area) and the 39.0% increase occurring in both the Fort Wayne and Elkhart-Goshen MSAs.

Table 4.1: Health Insurance Premiums in Indiana's Health Insurance Marketplace by Rating Area, 2014 and 2022

Rating Area	MSA in Rating Area*	Monthly Premium (2014)	Monthly Premium (2022)	Change (%)
9	Terre Haute, IN	$476	$608	27.9%
4	Fort Wayne, IN	$435	$605	39.0%
2	Elkhart-Goshen, IN	$430	$598	39.0%
10	Indianapolis-Carmel-Anderson, IN	$476	$583	22.5%
3	South Bend-Mishawaka, IN-MI	$466	$574	23.1%
1	Chicago-Naperville-Elgin, IL-IN-WI	$453	$565	24.7%
13	Indianapolis-Carmel-Anderson, IN	$501	$564	12.6%
17	Evansville, IN-KY	$522	$562	7.6%
11	Indianapolis-Carmel-Anderson, IN	$476	$560	17.6%
12	Columbus, IN	$489	$559	14.4%
8	Muncie, IN	$476	$545	14.6%
14	Cincinnati, OH-KY-IN	$461	$545	18.2%
5	Chicago-Naperville-Elgin, IL-IN-WI	$443	$542	22.4%
6	N/A	$453	$539	19.0%
7	Lafayette-West Lafayette, IN	$476	$531	11.7%
15	N/A (micropolitan only)	$501	$522	4.3%
16	Louisville/Jefferson County, KY-IN	$404	$490	21.1%
	Mean	$467	$558	19.6%

N/A: not applicable because rating area only included a micropolitan statistical area
*The counties that compose rating areas are sometimes different from the counties that compose MSAs. Therefore, we list the MSA that constitutes the majority of the rating area. If a rating area included only a small county within an MSA, the MSA was not listed. If a rating area included counties within two or more MSAs, then the county with the largest population in a rating area was used to determine the MSA.
Notes: Premiums are for an age 50, non-smoker, individual with the second-lowest-cost silver plan (benchmark plan).
Source: Petris Center analysis of Robert Wood Johnson Foundation's Health Insurance Exchange (HIX) Compare Datasets

5. Impact of Hospital Mergers on Prices

In this section, we estimate the relationship between hospital market structure and health insurance premiums in Indiana.[19] The most common way to measure this relationship is to identify hospital mergers, followed by using an instrumental variable or difference-in-differences econometric model to compare changes in hospital prices of the merged entities to changes in prices of a comparison group of hospitals that did not merge. Using these approaches, mergers between hospitals have been associated with higher prices, but have not been associated with a commensurate increase in quality (Gaynor 2021; Beaulieu et al. 2020; Gaynor, Ho, and Town 2015).

We use the same approach to study how hospital mergers and acquisitions that occurred in MSAs located within Indiana affected hospital prices, and to examine whether the price effect varied across the 15 MSAs in Indiana. Our hospital pricing data came from the CMS Healthcare Cost Report Information System (HCRIS) via RAND Hospital Data (described in Section 3.2). HCRIS has been used as a measure of hospital prices in several studies (Schmitt 2018; 2017; Dafny 2009). One key advantage of this price measure is that it accounts for reimbursement from Anthem Blue Cross Blue Shield of Indiana, unlike the medical cost measure estimated using HCCI claims.

Utilizing the Irving Levin Associates Healthcare M&A Database we identified 36 hospitals involved in mergers and acquisitions in Indiana MSAs between 2005 and 2015. The 36 hospitals consisted of both the hospital targets and the hospital acquirers. If a merging hospital was part of a system, then all of the hospitals in the system were considered to be part of the

[19] In Section A.4 of the appendix, we explain why we did not estimate the relationship between hospital market concentration and hospital prices.

merger. Table 5.1 shows how these 36 hospitals were distributed across Indiana's 15 MSAs, and the majority of them (24) were located in the following three MSAs: Indianapolis-Carmel-Anderson (11), Chicago-Naperville-Elgin (5), and Fort Wayne (8).[20]

Table 5.1: Number of Hospitals that Merged in Indiana by MSA, 2005-2015

MSA	Number of Hospitals that Merged
Bloomington, IN	1
Chicago-Naperville-Elgin, IL-IN-WI	5
Elkhart-Goshen, IN	1
Evansville, IN-KY	1
Fort Wayne, IN	8
Indianapolis-Carmel-Anderson, IN	11
Kokomo, IN	2
Lafayette-West Lafayette, IN	2
Louisville/Jefferson County, KY-IN	1
Michigan City-La Porte, IN	2
Muncie, IN	1
South Bend-Mishawaka, IN-MI	1
Total	36

Notes: The four MSAs in Indiana not shown in the table did not have any merging hospitals between 2005 and 2015.
Source: Petris Center analysis of the Irving Levin Associates Healthcare M&A Database

We employed a difference-in-differences research design to estimate the impact of hospital mergers on target and acquiring hospitals in Indiana. Our difference-in-differences

[20] We only analyzed the impact of hospital mergers on the prices of acquired hospitals in the Indiana portion of each MSA. For instance, the 4 hospital merger targets we report for the Chicago-Naperville-Elgin MSA are all located in Indiana.

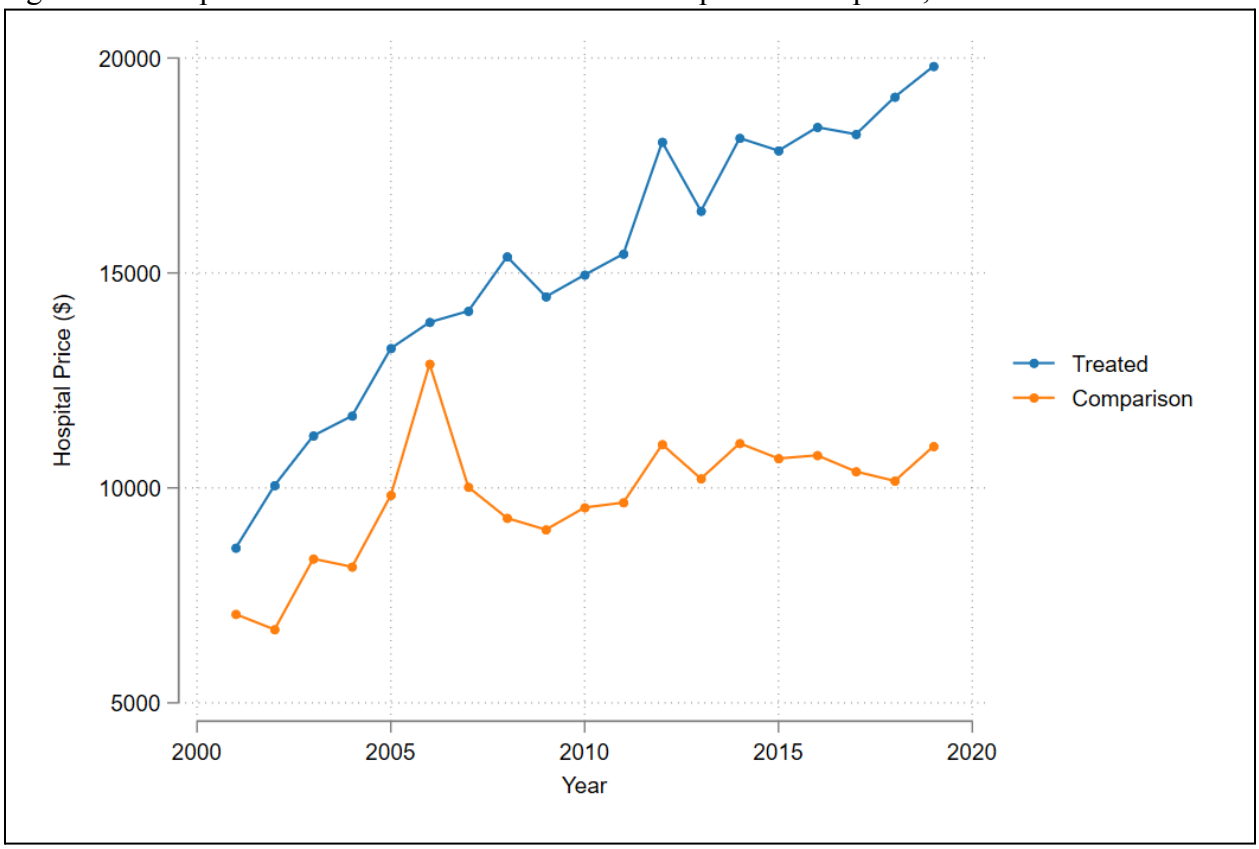
model estimates the effect of hospital mergers on prices by comparing the difference in prices between treated and control hospitals before and after the merger. Our price model is a hospital-level model where the "treated" hospitals were hospitals in Indiana that merged between 2005-2015. Our set of "comparison" hospitals are hospitals in Indiana that were not part of any merger and acquisition activity from 2005-2015. We excluded hospitals in Indiana with missing price data in any year from 2001-2019, ensuring we had a balanced panel of hospitals and providing us with at least 4 years of pre- and post-acquisition price data for the treated hospitals in our sample. Our balanced panel had price measures for 22 treated hospitals and 18 comparison hospitals (760 observations = 40 hospitals x 19 years). All tables and figures for the remainder of this section show results for this balanced panel.

A key assumption of our difference-in-differences model is that pre-treatment price trends between treated and comparison hospitals are parallel. If they are not parallel, then absent the treatment, the non-parallel trends may have persisted into the treatment period, biasing the results. Following prior work, we compared trends in prices of treated and comparison groups to determine whether there was evidence that this assumption may not hold. We used two model specifications of a fully dynamic "event study" analysis to test for differences in pre-treatment outcome trends. These analyses (not shown) showed no evidence of differences in the price trends of treated and comparison hospitals prior to treatment.

Figure 5.1 presents the raw price trends of treated and comparison hospitals over the study period. Following previous studies (Dafny 2009; Schmitt 2017; 2018), hospital price was calculated by dividing non-Medicare inpatient hospital revenue by non-Medicare inpatient hospital discharges. Prior to the treatment window of 2005-2015, the price trends of treated and comparison hospitals were similar. From 2001-2005, the discharge-weighted average price

growth was 53% for treated hospitals and 39% for comparison hospitals. From 2005-2015, the price trends diverged as the discharge-weighted average price growth was 50% for treated hospitals versus 11% for comparison hospitals.

Figure 5.1: Hospital Price Trends for Treated and Comparison Hospitals, 2001-2019



Notes: Panel includes 40 hospitals located in Indiana MSAs with price data from 2001-2019 (40 hospitals x 19 years = 760 observations). Twenty-two of these hospitals were part of a merger between 2005 and 2015, while the remaining 18 hospitals were not a part of any hospital merger (as a target or acquirer) from 2001-2019.
Source: Petris Center analysis of RAND Hospital Data

The larger price growth for treated hospitals shown in Figure 5.1 suggests hospital mergers might increase prices; however, these unadjusted price trends do not account for other changes occurring at the same time that could explain the price growth differences. Accounting for these changes is what our differences-in-differences model attempts to do. In our model, the natural log of hospital price was the dependent variable. Our independent variable of interest was

an interaction term ("*M&A x Post*" in Table 5.3), in which *M&A* means the hospital was part of one or more merger and acquisition (M&A) transactions during the study period, and *Post* means the year is after the transaction occurred (including the year of the transaction). Hence, the interaction term equaled 1 in the years after the hospital merged, and it equaled 0 in the years leading up to the merger. It also equaled 0 for comparison hospitals.

We included the following time-varying control variables in the model: natural log of a hospital's case mix index, natural log of the hospital's number of beds, the hospital's ownership status (i.e., for-profit vs. non-profit), and the hospital's Medicaid discharge share. These variables have been used in other studies that analyzed the effect of hospital mergers on prices (see e.g., Dafny, Ho, and Lee 2019). Our model also included hospital and year fixed effects to control for time-invariant price differences among hospitals and to control for secular trends that affect all hospitals. Table 5.2 presents descriptive statistics of the variables included in our model.

Table 5.2: Descriptive Statistics of Hospital Prices and Control Variables, 2001-2019

Measure	Mean (SD)
Hospital Price ($)	11,528 (9,954)
Case-mix	1.51 (0.24)
Beds	236 (221)
For-profit	0.17 (0.37)
Medicaid Inpatient Discharge Share	0.13 (0.10)
N	760

Notes: Panel includes 40 hospitals located in Indiana MSAs with price data from 2001-2019 (40 hospitals x 19 years =760 observations). Twenty-two of these hospitals were part of a merger between 2005 and 2015, whereas the remaining 18 hospitals were not a part of any hospital merger activity (as a target or acquirer) from 2001-2019.
Source: Petris Center analysis of RAND Hospital Data

Table 5.3 presents the results of our regression analyses. When all MSAs are included, the price increase associated with a merger or acquisition was 13.2% (95% CI: 2.9% to 24.6%) (model 1).[21] Model 2 shows the results that only include the 14 treated hospitals and 9 control hospitals in the 3 most populous MSAs in Indiana (Indianapolis-Carmel-Anderson, Chicago-Naperville-Elgin, and Fort Wayne), whereas model 3 shows the results that only include the 8 treated hospitals and 9 control hospitals in the remaining 12 MSAs. This split determines whether there were differences in the price effect in more- versus less-populated MSAs. While the estimated *M&A x Post* coefficient is larger for Model 3 vs. Model 2 (0.169 vs. 0.105), the two coefficients were not statistically different (p=0.892).

[21] The outcome is the natural log of hospital price, so the coefficient estimate represents the following difference-in-differences percent change in price: 100 * (exp(B) - 1) in which B is the coefficient estimate. For example, for model A, the coefficient was 0.124, so the percent change is 13.2%, which equals 100*(exp(.124) - 1).

Table 5.3: Hospital Price Regression Estimates from Hospital Mergers and Acquisitions in Indiana

Measure	(1) All 15 MSAs ln(Price)	(2) 3 Most Populous MSAs ln(Price)	(3) Remaining 12 MSAs ln(Price)
M&A x Post[a]	0.124** (0.047)	0.105 (0.065)	0.169** (0.078)
ln(Case-mix)	1.336*** (0.331)	.799** (0.340)	1.658** (0.594)
ln(Beds)	0.015 (0.131)	0.086 (0.168)	-0.007 (0.198)
For-profit	0.129** (0.052)	0.152*** (0.052)	omitted[b]
Medicaid Inpatient Discharge Share	-0.292** (0.136)	-0.525*** (0.157)	-0.138 (0.275)
Fixed Effects	Hospital, Year	Hospital, Year	Hospital, Year
N	760	437	323
R-squared	0.84	0.88	0.74

*** p<0.01 ** p<0.05 * p<0.1

[a]The outcome is the natural log of hospital price, so the coefficient estimate represents the following difference-in-differences percent change in price: 100 * (exp(*B*) - 1) in which *B* is the coefficient estimate. For example, for model A, the coefficient was 0.124, so the percent change is 13.2%, which equals 100*(exp(.124) - 1).

[b]In model C, the for-profit parameter could not be estimated because no hospitals in this sample changed their for- vs non-profit status.

Dep. Var. is dependent variable. ln is natural log. *M&A x Post* is the interaction between the *M&A* variable, which indicates the hospital merged during the study period, and the *Post* variable, which indicates the year is after the merger occurred (including the year of the merger).

Notes: Coefficients and standard errors (in parentheses) are presented. All regressions were weighted by the number of inpatient discharges. Standard errors were estimated by clustering at the hospital level. Panel includes 40 hospitals located in Indiana MSAs with price data from 2001-2019 (40 hospitals x 19 years = 760 observations). Twenty-two of these hospitals were “treated” because they were part of a merger between 2005 and 2015, while the remaining 18 hospitals were “comparisons” because they were not a part of any hospital merger activity (as a target or acquirer) from 2001-2019.

Source: Petris Center analysis of RAND Hospital Data

As a sensitivity analysis, we re-estimated model 1 using the unbalanced panel, which increased the number of treated and comparison hospitals to 36 and 35, respectively, resulting in 1,447 observations. As compared to the result in using the balanced panel, the *M&A x Post* coefficient was lower at 0.088 but still statistically significant at the 0.05 level (p=0.047).

Our main results are similar to a study that also examined hospital mergers from 2005 to 2015 in Indiana—but for the whole state, not just those occurring in MSAs—which found that they were associated with a 10.6% (95% confidence interval: 1.5% to 20.7%) price increase (Godwin et al. 2022).

6. Impact of the Number of Insurer Market Participants on Insurance Premiums

In this section, we estimated the relationship between insurance market structure and health insurance premiums in Indiana.[22] Analogous to what we stated above for hospital market structure, the most common way to measure this relationship is to identify health insurer mergers, followed by using an instrumental variable or difference-in-differences econometric model to compare changes in premiums of the merged entities to changes in premiums of a comparison group of insurers that did not merge (Dafny, Duggan, and Ramanarayanan 2012). However, during the past 10 years in Indiana, no major insurer mergers occurred. The only major acquisition involved a healthcare delivery system based in Michigan (McLaren) purchasing the Indianapolis-based insurer MDWise in 2018; hence, this research strategy was not possible.

However, in Indiana's Health Insurance Marketplace, the number of participating insurers has significantly varied since the marketplace opened in 2014. This variation allowed us to

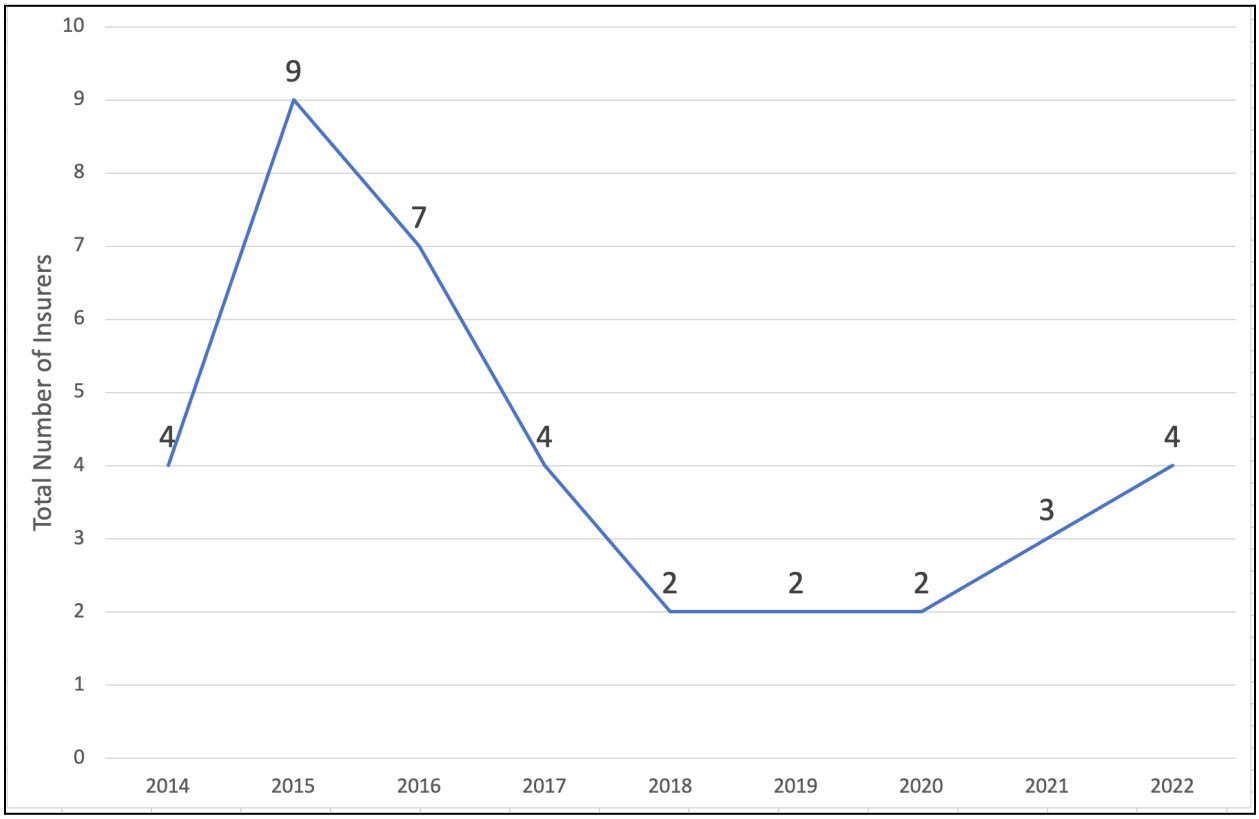
[22] In Section A.4 of the appendix, we explain why we did not estimate the relationship between insurance market concentration and insurance premiums.

estimate the association between the number insurers participating and health insurance premiums. Although the number of enrollees in Indiana's Health Insurance Marketplace pales in comparison to the number of enrollees in Indiana's employer-sponsored market, the estimates we obtain are useful for two reasons. First, although Indiana's Health Insurance Market has just over 150,000 enrollees in 2022 (Kaiser Family Foundation 2022b), the enrollees often transition across markets, either coming from or exiting to Medicaid, the employer-sponsored market, or being uninsured. Therefore, the Health Insurance Marketplace is an important market for reducing the number of uninsured. Moreover, the Health Insurance Marketplace is more sensitive to premium increases than the employer-sponsored market, so if we find insurance market structure affects premiums in the Health Insurance Marketplace, the same effect–likely to a greater degree–is occurring in the employer-sponsored market because employers are less sensitive to premium increases.

As stated above, the number of insurers participating in Indiana's Health Insurance Marketplace has significantly varied, starting with four insurers in 2014, increasing to nine in 2015, then decreasing to two in 2018-2020, before reaching four again in 2022 (Figure 6.1). Additionally, not all insurers offered plans in each of the state's 17 rating areas. For instance, while the figure shows there were 4 insurers in 2022, some rating areas had fewer than 4 insurers to choose from: 4 rating areas had 2 insurers, 4 rating areas had 3 insurers, and the remaining 9 rating areas had 4 insurers. Consequently, our empirical model used variation in the number of insurers across rating areas over time to estimate the association between the number of insurers in Indiana's Health Insurance Marketplace and health insurance premiums. The premiums are for a 50-year-old Benchmark Silver Plan, which is the plan with the second-lowest-silver premium

in each rating area. Because federal subsidies are tied to the level of the benchmark plan's premium, this premium is typically used in most studies (Dafny, Gruber, and Ody 2015).

Figure 6.1: Number of Insurers Participating in the Indiana's Health Insurance Marketplace, 2014-2022



Notes: Data reflect issuers participating in the individual market only, and do not include SHOP or stand-alone dental plan issuers. Insurers are grouped by parent company or group affiliation, which were obtained from HHS Medical Loss Ratio public use files and supplemented with additional research.
Source: Petris Center analysis of Robert Wood Johnson Foundation's Health Insurance Exchange (HIX) Compare Datasets

We estimated a fixed effects regression model that controls for time-invariant premium differences among Indiana's 17 rating areas and controls for secular trends in insurance premiums from 2014 to 2022. The dependent variable is the natural log of the monthly premium of the benchmark premium (second-lowest-silver premium), and the key independent variable is the number of insurers in each rating area. Although the rating area and year fixed effects control for time-invariant differences in premiums among rating areas and for secular trends that affect

all rating areas, we also included the following control variables that vary within rating areas over time: ln(per capita income), hospital HHI, uninsured rate, percent black, and percent Hispanic. These variables were selected based on the control variables used in a similar study and data availability (Dafny, Gruber, and Ody 2015). In addition, we test whether the results are sensitive to different plan types (i.e., Gold and Bronze Plans). The health insurance premium data is from the Robert Wood Johnson Foundation's Health Insurance Exchange (HIX) Compare Datasets. These publicly available datasets span from 2014 to 2022 and include information on nearly every plan in the ACA individual market, including insurance premiums.

Table 6.1 shows the descriptive statistics of the variables included in our model, beginning with second-lowest-silver premiums by year and followed by the control variables. From 2014 to 2016, the premiums decreased from $467 to $390, then increased to $612 by 2021, before decreasing to $558 in 2022. The premiums of the Gold and Bronze plans (not shown) followed a similar pattern.

Table 6.1: Descriptive Statistics of Health Insurance Premiums and Control Variables, 2014-2022

Measure	Mean (SD)
Benchmark Monthly Premium ($)	
2014	467 (29.0)
2015	453 (42.4)
2016	390 (22.8)
2017	405 (31.9)
2018	485 (45.1)
2019	498 (37.7)
2020	547 (42.3)
2021	612 (49.5)
2022	558 (30.5)
All Years	491 (77.8)
Number of Insurers	3.4 (1.8)
Per Capita Income (1,000$)	42.4 (4.9)
Hospital HHI (0 to 1)	0.43 (0.14)
Uninsured Rate (%)	10.3 (1.2)
Percent Black (%)	5.9 (5.4)
Percent Hispanic (%)	5.5 (3.5)
N	153

SD: standard deviation; HHI: Herfindahl-Hirschman Index

Notes: N = 153 because there are 17 ratings areas times 9 years of premiums for each. Benchmark monthly premium is the second-lowest-cost silver plan for a 50-year-old individual. We calculated per capita income, uninsured rate, percent black, and percent hispanic from the 2020-2021 Area Health Resource File (AHRF). The most recent data for these variables in the AHRF was 2019, so we set the 2020-2022 values of these variables to their 2019 values in this table and in the regression models. Hospital HHI was calculated from the 2013 to 2020 American Hospital Association's Annual Survey Database. Because the HHI is based on admissions the prior year, we coded the HHI as of January 1 each year (2014 to 2021). Because the 2021 survey has not been released yet, we set the HHI's 2022 value to its 2021 value in this table and in the regression models.

Source: Petris Center analysis of Robert Wood Johnson Foundation's Health Insurance Exchange (HIX) Compare Datasets, Area Resource Health Resource Files, and the American Hospital Association's Annual Survey Database

The results of our initial regression model show that each additional insurer offering insurance in a rating area was associated with a 3.3% (CI: 1.5% to 5.1%) decrease in insurance premiums (Table 6.2, Column 1).[23] When the control variables are included, the results did not significantly change, whereby each additional insurer offering insurance in a rating area was associated with a 3.3% (CI: 1.8% to 5.0%) decrease in insurance premiums (Table 5.2, Column 2). As a sensitivity test, we estimated the same regression model (with the control variables) using the mean premium for a 50-year-old Gold plan and then did the same using the mean premium for a 50-year-old Bronze plan. Each additional insurer offering insurance in a rating area was associated with a 1.9% (CI: 0.1% to 3.7%) decrease in Gold premiums and a 1.6% (CI: -0.1% to 3.4%) decrease in Bronze premiums, which was significant at only the 0.10 level (p = 0.069). In summary, we find that the number of insurers participating in this market are associated with lower health insurance premiums.

[23] The outcome is the natural log of insurance premiums, so the coefficient estimate represents the following difference-in-differences percent change in price: 100 * (exp(B) - 1) in which B is the coefficient estimate. For example, for model 1, the coefficient was -0.034, so the percent change is 3.3%, which equals 100*(exp(-0.034) - 1). CI is the 95% confidence interval.

Table 6.2: Health Insurance Premium Regression Results, 2014-2022

Measure	(1) ln(Benchmark Monthly Premium)	(2) ln(Benchmark Monthly Premium)
Number of Insurers	-0.034*** (0.009)	-0.034*** (0.008)
Per Capita Income (1,000$)		-0.011 (0.012)
Hospital HHI (0 to 1)		0.023 (0.110)
Uninsured Rate (%)		-0.022 (0.016)
Percent Black (%)		-0.042 (0.060)
Percent Hispanic (%)		-0.030 (0.043)
Fixed Effects	Rating Area, Year	Rating Area, Year
N	153	153
R-squared	0.91	0.92

ln: natural log; HHI: Herfindahl-Hirschman Index
Notes: Standard errors clustered by rating area in parentheses. N = 153 because there were 17 ratings areas times 9 years of premiums for each. Benchmark monthly premium is the second-lowest-cost silver plan for a 50-year-old individual. For additional notes, see notes under Table 6.1.
Source: Petris Center analysis of Robert Wood Johnson Foundation's Health Insurance Exchange (HIX) Compare Datasets, Area Resource Health Resource Files, and the American Hospital Association's Annual Survey Database

Our results are about three-fifths of the effect estimated by a similar study that analyzed the impact of UnitedHealth Group's lack of participation in any of the Affordable Care Act's Health Insurance Marketplaces in 2014 (Dafny, Gruber, and Ody 2015). Based on analyzing premiums from the federally facilitated marketplaces, the study estimated that the second-lowest-price silver premium would have decreased by 5.4% on average if UnitedHealth Group had participated.

7. Conclusion

On April 29, 2021, Indiana enacted HB 1405, directing a study to be conducted on the market concentration in Indiana's healthcare sector. This study focused on the health insurance, hospital, and physician industries, evaluating markets at the metropolitan statistical area (MSA) level when possible. In this section, we summarize the key findings, describe the limitations of the study, and discuss two policies designed to improve healthcare competition, affordability, and quality: (1) state merger review authority laws that empower states to be notified of, review, and challenge proposed hospital mergers through administrative processes, thus serving as complements and substitutes for antitrust law; and (2) health policy commissions that a few states have established to monitor and set healthcare spending growth goals, and to recommend policies designed to improve healthcare competition, affordability, and quality.

7.1 Summary of Key Findings

In 2020, healthcare spending per capita in Indiana was $10,517, which was $380 (or 3.8%) higher than the average of the comparison states, defined as other states in its census division (Illinois, Michigan, Ohio and Wisconsin). From 2011 to 2020, these expenditures increased by 48.0% in Indiana, higher than the 35.3% increase in comparison states. Indiana's relatively high healthcare expenditures per capita—both its level in 2020 and growth during the past decade—are caused by several factors, with one likely factor being that its health insurer, hospital, and physician markets are highly concentrated.

Indiana's insurance markets are dominated by national insurance firms, with Anthem Blue Cross Blue Shield of Indiana having the largest market share by enrollment in all 15 MSAs, averaging 44.9% with a range of 32.6% to 55.7%. UnitedHealth Group, McLaren, and Centene

were often the second or third largest insurer by enrollment. On average, the top 3 insurers had a combined market share of 67.7% across the 15 MSAs, ranging from 59.8% to 73.7%.

Similar to Indiana's insurance markets, its hospital markets are also dominated by large firms—specifically large hospital systems—that are either national systems (Ascension and Community Health Systems) or state systems within Indiana (IU Health, Franciscan Health, Community Health Network, and Parkview Health).[24] Of the top 3 hospitals by operating revenue in each MSA, nearly half were part of these six systems. On average, the largest hospitals (or hospital systems) had a combined market share of 91.0% across the 15 MSAs, ranging from 49.6% to 100.0%.

The physician market can be characterized as being vertically integrated with major hospital systems because they either directly employ physicians or have acquired physician organizations. Hence, of the top 3 organizations by the number of full-time equivalent physicians in each MSA, about one-third were one of the six major hospital systems in the state (see above), and at least another third were other Indiana-based hospital systems or national systems. On average, the largest three physicians organizations (or hospital owners) had a combined market share of 56.1% across the 15 MSAs, ranging from 37.2% to 72.5%.

As a result of the top 3 firms in each MSA generally having significant market shares in the three industries, the following number of MSAs in Indiana had an HHI greater than 2,500, the threshold that the U.S. Department of Justice (DOJ) and Federal Trade Commission (FTC) use to define a highly concentrated market: health insurance (15 MSAs), hospitals (14 MSAs), primary care physicians (13 MSAs), and specialist physicians (10 MSAs) (U.S. Department of Justice and Federal Trade Commission 2010). However, this situation is not unique to Indiana, as

[24] Franciscan Health has one hospital located outside of Indiana (in Illinois).

the median HHI for all MSAs across the United States was 3,850 for insurers, 5,362 for hospitals, 2,392 for primary care physicians, and 3,708 for specialist physicians.

Hence, it is important to understand the specific factors within each market that may be causing high healthcare expenditures (which we also discuss in the Limitations Section). We took a closer look at the Fort Wayne, Indianapolis-Carmel-Anderson, Evansville, and South Bend-Mishawaka MSAs because they are the most populous MSAs in the state in which the population mostly resides in Indiana.[25] We found significant differences in healthcare spending per capita in the employer-sponsored insurance market in 2020, so we turned our attention to the Fort Wayne and South Bend-Mishawaka MSAs because they had the highest and lowest spending per capita, respectively. The other two MSAs had spending that was moderately above the national median: Indianapolis-Carmel-Anderson's spending was $5,123 (ranking 55th out of 186 MSAs) and 5% above the national median, and Evansville's spending was $5,026 (ranking 64th out of 186 MSAs) and 3% above the national median.

Based on our analysis of these four MSAs, a key theme emerged: the Fort Wayne MSA is an outlier, not only among the four MSAs in Indiana, but among most MSAs in the country. Among 186 MSAs in the country, healthcare expenditures per enrollee with employer-sponsored health insurance in 2020 in the Fort Wayne MSA was $5,904, ranking 9th highest and 21% above the national median MSA.[26] In contrast, spending in the other three MSAs in Indiana was closer to the national median: Indianapolis (5% above), Evansville (3% above), and South Bend (11% below). The high expenditures in Fort Wayne were because of high inpatient and outpatient hospital expenditures, driven by high prices and utilization.

[25] Indiana includes three other highly populated MSAs, but most of their populations reside outside of Indiana. These MSAs are Chicago-Naperville-Elgin, IL-IN-WI; Cincinnati, OH-KY-IN; and Louisville/Jefferson County, KY-IN.

[26] The median MSA was calculated using all MSAs in the country, not just the 186 examined in more detail.

The high prices may be due to the MSA being a highly concentrated hospital market (Herfindahl-Hirschman Index = 5,111), resulting from the dominance of Parkview Health's 14 general and specialty hospitals and over 200 physician group locations in the MSA and surrounding counties.[27] Hence, Parkview Health is the dominant system in the MSA by revenues, with 61.2% market share from Parkview Hospital (54.4%) and Parkview Ortho Hospital (6.8%). This dominance has enabled the system to accumulate 331 days of cash on hand, above the 75th percentile for the industry (298 days) (Godwin et al. 2022). Furthermore, these results are consistent with a study conducted by the RAND Corporation that analyzed hospital prices by hospital system in Indiana using a broader set of healthcare claims data from the Indiana Employer's Forum. The study found that Parkview Health had the highest hospital prices relative to Medicare by all accounts: inpatient (269%), outpatient (496%), and overall (370%) (White 2017). In Indiana's Health Insurance Marketplace, the Fort Wayne MSA has an average monthly premium of $605, the second highest among the 17 rating areas in the state and 8.3% above the mean.[28] In contrast, its healthcare labor costs are low, based on its Medicare Wage Index being 0.92, which is less than the 0.96 average among the 15 MSAs in Indiana and the 1.00 national average.

Conversely, healthcare spending in the South Bend-Mishawaka MSA was $4,342 (ranking 131 out of 186 MSAs) at 11% below the national median, consistent with its healthcare labor costs being low, as measured by the Medicare Wage Index (0.94 versus the U.S. average of 1.00). However, the MSA has a highly concentrated hospital market with Memorial Hospital of

[27] The Fort Wayne MSAs comprises Allen and Whitley counties. The Parkview Health website shows that some of its hospitals are located in less populous counties that border Allen and Whitley counties, but they are micropolitan statistical areas, technically not part of the Fort Wayne MSA. The Parkview Health website lists 271 locations for Parkview Physicians Group, and most of the locations are within or near the Fort Wayne MSA. Some of the locations are outside the MSA, including in the state of Ohio.

[28] The $605 premium was for Rating Area 4, which is Allen County, the primary county in the Fort Wayne MSA.

South Bend (Beacon Health) having 59.6% market share by revenues, followed by St. Joseph's Regional Medical Center South Bend (Trinity Health) with 37.2%, contributing to the MSA's inpatient prices being 20% above the national median in 2020.[29] However, inpatient utilization is 16% below the national median, resulting in the MSA's inpatient spending being just 4% above the national median. Hence, further examination of this market—and each MSA in Indiana—is needed to better understand healthcare spending, price, and utilization differences (see Limitations Section).

In our examination on the impact of market structure on hospital prices and health insurance premiums, we found that hospitals in Indiana that were part of merger and acquisition transactions from 2005 to 2015 had an average price increase for inpatient care that was 13.2% higher than those in hospitals that were not part of merger and acquisition transactions during that period. We also found that each additional insurer participating in the Indiana Health Insurance Marketplace was associated with a 3.3% decrease in insurance premiums. Because enrollees in the exchange are more sensitive to premium increases than the employer-sponsored market, the effects of insurance competition that we found in the exchange are likely occurring—possibly to a greater degree—in the employer-sponsored market because employers are less sensitive to premium increases.

7.2 Limitations

This study paints only part of the story about healthcare expenditures and markets in Indiana, as several important factors that affect healthcare spending, which should be

[29] In contrast, the RAND study found that Beacon Health had some of the lowest prices in the state relative to Medicare—inpatient (201%), outpatient (263%) and overall (220%)—but its prices may have increased since the period that was analyzed, July 2013 to June 2016 (White 2017).

investigated in future research, were outside its scope. Healthcare spending is affected by the underlying health of the population, especially the prevalence of chronic diseases. Managing these conditions is a major driver of healthcare utilization, particularly if the conditions are not well managed. Patient populations with multiple, severe chronic conditions account for a significant portion of healthcare spending, with several studies finding that the top 5% of the population by spending accounts for approximately half of all healthcare expenditures each year. The most recent study showed that the top 5% of the population by spending accounted for 52% of all healthcare expenditures and 81% of hospital expenditures (Pashchenko and Porapakkarm 2016). Hence, it is important to understand and better manage the healthcare utilization of the highest spenders each year.

7.3 Policy Discussion

This study demonstrated that the healthcare sector in Indiana is not monolithic, neither across the industries we analyzed—health insurance, hospitals, and physicians—nor across its MSAs. Therefore, policies aimed at improving healthcare competition, affordability, and quality need to account for this heterogeneity and be designed within the context of macroeconomic factors that affect this sector, which we turn to before discussing state merger review authority laws and health policy commissions.

The U.S. economy continues to face challenges after emerging from the sharp decline in economic activity in April 2020 because of the COVID-19 pandemic. In the first two quarters of 2022, GDP also declined, but labor markets are still tight, with an unemployment rate of only 3.7% in August. Tight labor markets, federal stimulus spending, global supply chain issues, and

the war in Ukraine have contributed to the U.S. experiencing its highest inflation since the early 1980s, reaching 9.1% in June 2022 (as compared with prices in June 2021).

These economic challenges affect the healthcare sector, including within Indiana. The COVID-19 pandemic, with its effects on both physical and mental health, has severely strained the healthcare system, resulting in unpredictable utilization and simultaneous staffing shortages and surpluses. Surges in COVID-19 infections exacerbate staffing shortages, resulting in health worker burnout. At the same time, staffing surpluses have occurred during the pandemic because of mandated delays for elective care to free up hospital beds and staff, resulting in staff layoffs when different skills were needed to treat patients with COVID-19 versus patients seeking elective care. However, at the moment, healthcare labor markets are tight, impairing healthcare providers' ability to hire needed workers.

Although some major health systems are performing well, bringing in over $1 billion in profits in 2021, other health systems and independent hospitals are struggling without CARES Act funding, coupled with workforce shortages and reduced utilization (Paavola 2022; Swanson 2022). However, the major health systems based in Indiana are performing relatively well financially, with the following net surpluses in 2021: IU Health ($862 million), Franciscan Health ($454 million), Community Health Network ($354 million), and Parkview Health ($309 million).

Like most states, the insurance sector in Indiana is dominated by large national insurers, which recorded some of their highest profits in 2021. UnitedHealth Group had its most profitable year, earning $17.3 billion, followed by CVS Health (Aetna) ($7.9 billion), Elevance Health (Anthem) ($6.1 billion), Cigna ($5.4 billion), Humana ($2.9 billion), and Centene ($1.3 billion)

(Minemyer 2022).[30] These insurers are diversified, earning a significant share of their profits from their pharmacy benefit manager organizations. Although the U.S. Department of Justice (DOJ) blocked the proposed Anthem-Cigna and Aetna-Humana mergers in 2017, health insurance markets are still highly concentrated, including within Indiana. Of the national insurers above, Anthem Blue Cross Blue Shield of Indiana is the dominant insurer in the state, followed by UnitedHealth Group, Centene, Humana, and CVS Health (Aetna) (Table 3.1).

The healthcare sector in Indiana is a microcosm of the healthcare sector in the United States, consisting of dominant health insurers and a delivery system that has evolved into a patchwork of hospital systems that have grown in size and geographic scope via mergers and acquisitions, including vertical acquisitions of physician organizations (Fulton et al. 2022; Furukawa et al. 2020). Although hospital consolidation has been occasionally associated with moderate cost savings (Neprash and McWilliams 2019), it has been consistently associated with higher prices with either the same or lower quality of care (Gaynor 2021; Dranove and Burns 2021; Beaulieu et al. 2020).

To address consolidation in the healthcare sector, many states are assessing their authority to review proposed hospital and other healthcare mergers. A recent study examined state merger review authority laws—principally charitable trust, nonprofit corporation, health and safety, and certificate-of-need laws—that empower states to be notified of, review, and challenge proposed hospital mergers through administrative processes, thus serving as complements and substitutes for antitrust law (Fulton et al. 2021). It found that the eight states with the most robust merger review authority were more likely to challenge proposed mergers. To address consolidation across all sectors of the economy, including the healthcare sector, the DOJ and Federal Trade

[30] These profits are at the firm level. Profits at state level are not reported by the firms.

Commission (FTC) are updating their merger guidelines, which include both the *Horizontal Merger Guidelines* (last updated in 2010) and the *Vertical Merger Guidelines* (last updated in June 2020 but withdrawn in September 2021). Because healthcare and health insurance markets are already consolidated in Indiana, it is important to ensure market actors are not using anti-competitive contracting terms, such as anti-tiering/anti-steering clauses, all-or-nothing contracting, and exclusive contract provisions (The Source on Healthcare Price & Competition 2020).

Lastly, a few states have established commissions to oversee and set goals for healthcare spending growth in their states, and to conduct analyses that inform policy recommendations designed to improve healthcare competition, affordability, and quality. The most well known commission, the Massachusetts Health Policy Commission, was established in 2012 as an independent state agency that monitors healthcare spending growth and provides policy recommendations regarding healthcare delivery and payment system reforms. From 2013 through 2017, annual growth in healthcare expenditures was below the benchmark of 3.6% for three years, but exceeded it for two years, resulting in a five-year annual average growth rate of 3.4% (Waugh and McCarthy 2020). In 2018, the annual growth benchmark was lowered to 3.1%, which the state met. Similarly, California is in the process of establishing its Office of Health Care Affordability, which will collect data to analyze healthcare markets to identify cost drivers and trends for developing policies and enforceable spending growth targets (Marashi 2022). Hence, Indiana is not alone with its ambition to improve healthcare competition, affordability, and quality in the state.

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Appendix

This appendix begins by reporting Indiana's population by metropolitan statistical area (MSA), then presents supplemental financial information of major insurers and hospital systems operating in Indiana, and ends by discussing a methodological point, emphasizing the lack of an economic relationship between market concentration and prices.

A.1 Population by Metropolitan Statistical Area

As of July 1, 2021, Indiana had a population of 6,805,985 across 92 counties, with 45 counties being classified as part of an MSA, 27 counties being classified as part of a micropolitan statistical area, and the remaining 20 counties being unclassified (Table A1). Almost 80% of the population resided in a metropolitan statistical area (MSA), which the Office of Management and Budget defines as areas linking an urban core of at least 50,000 people to surrounding communities based on economic and social factors (Office of Management and Budget 2020). The remainder of the population resided in rural areas, either in a micropolitan statistical area, defined as counties linked to an urban cluster with a population between 10,000 and 49,999, or in an unclassified county.

From 2010 to 2021, Indiana's total population grew 5.0%, with the growth concentrated in MSAs, which increased by 6.7%. The MSA with the largest population, Indianapolis-Carmel-Anderson, experienced the greatest population growth during this period, increasing by 12.6%. The Columbus, Fort Wayne, Lafayette-West Lafayette, and Louisville/Jefferson County (Indiana portion) MSAs also experienced high population growth, between about 7% and 9%. Only the Muncie and Terre Haute MSAs experienced a population

decrease. Similarly, the population of Indiana's micropolitan counties decreased by 0.4% and the population in unclassified counties decreased by 2.2%.

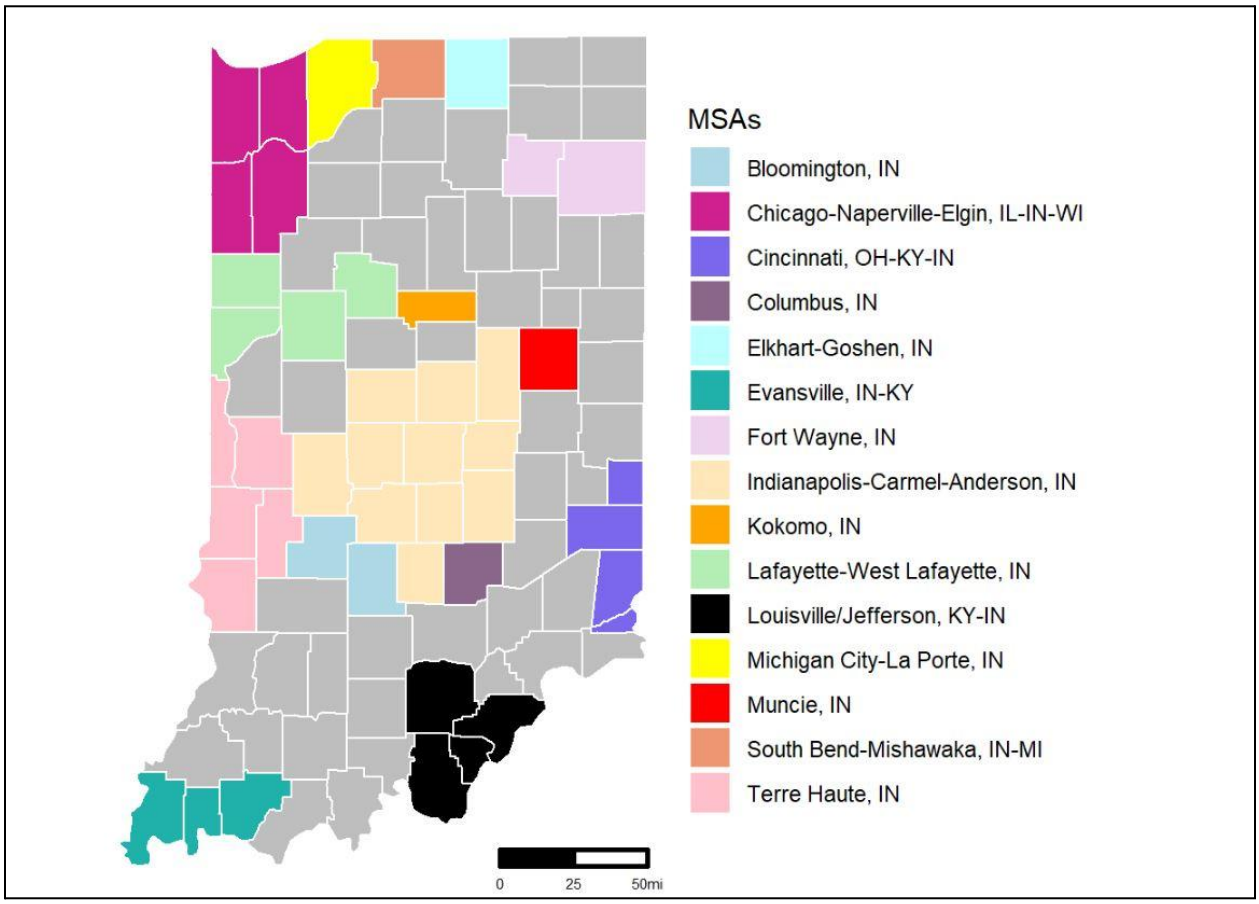
Table A1: Population of Metropolitan Statistical Areas and Other Areas in Indiana, 2010 and 2021

Geographic Area	Population (April 1, 2010)	Population (July 1, 2021)	Population Change
15 MSAs (45 counties)			
Bloomington, IN	159,530	161,321	1.1%
Chicago-Naperville-Elgin, IL-IN-WI	708,210	719,700	1.6%
Cincinnati, OH-KY-IN	86,513	86,683	0.2%
Columbus, IN	76,782	82,475	7.4%
Elkhart-Goshen, IN	197,569	206,921	4.7%
Evansville, IN-KY	265,302	269,617	1.6%
Fort Wayne, IN	388,626	423,038	8.9%
Indianapolis-Carmel-Anderson, IN	1,888,078	2,126,804	12.6%
Kokomo, IN	82,748	83,687	1.1%
Lafayette-West Lafayette, IN	210,308	224,709	6.8%
Louisville/Jefferson County, KY-IN	252,419	271,055	7.4%
Michigan City-La Porte, IN	111,466	112,390	0.8%
Muncie, IN	117,674	111,871	-4.9%
South Bend-Mishawaka, IN-MI	266,914	272,212	2.0%
Terre Haute, IN	189,778	184,910	-2.6%
Subtotal (MSAs)	5,001,917	5,337,393	6.7%
Micropolitan Counties (27 counties)	1,064,465	1,060,304	-0.4%
Unclassified Counties (20 counties)	417,536	408,288	-2.2%
Total Population	6,483,918	6,805,985	5.0%

MSA: metropolitan statistical area
Note: MSAs are based on the Office of Management and Budget's most recent delineations of MSAs, as of March 6, 2020 (Office of Management and Budget 2020). For the MSAs that include counties in states bordering Indiana, the reported population includes only the population of counties within Indiana. Unclassified counties are those that are neither within a metropolitan statistical area nor a micropolitan statistical area.
Sources: Petris Center analysis of the U.S. Census Bureau population estimates (U.S. Census Bureau 2021a; 2021b; 2022a; 2022b)

Figure A1 shows the location of each of the 15 MSAs in Indiana using a county-level map.

Figure A1: Map of Indiana's Metropolitan Statistical Areas, 2020



Note: This county-level map of Indiana is based on the Office of Management and Budget's most recent delineations of MSAs, as of March 6, 2020 (Office of Management and Budget 2020). Each MSA is represented by a different color. For example, the Indianapolis-Carmel-Anderson MSA, located in the middle of the state, is light orange. Counties located outside of MSAs are gray.
Source: Petris Center analysis of Office of Management and Budget (2020)

A.2 Supplemental Financial Information of Insurers

Tables A2 and A3 show key financial measures of the major insurers operating in Indiana for years 2020 and 2019, respectively. This information was used to compare financial performance of these systems across years; the comparison did not include CareSource because its 2021 financial statements were not available (see Section 3.1 of the main report).

Table A2: Financial Measures of Major Health Insurers Operating in Indiana, 2020

Financial Measure[a]	Elevance Health	United-Health Group	Centene	Humana	McLaren Health Care	CVS Health (Aetna)	Care-Source	Cigna
Operating Revenue	120,808	257,141	111,115	77,155	5,078	268,706	9,272	160,041
Operating Expenses	115,629	234,736	108,033	72,169	4,930	254,795	9,110	152,248
Operating Income	5,179	22,405	3,082	4,986	148	13,911	162	8,153
Operating Margin (%)	4.3	8.7	2.8	6.5	2.9	5.2	1.7	5.1
Net Income[b]	4,572	15,403	1,808	3,367	239	7,197	162	8,458
Net Assets[c]	33,199	70,539	25,962	10,758	2,262	69,701	1,083	50,386
Total Assets	86,615	197,289	68,719	34,969	6,294	230,715	2,518	155,451

[a]Financial measures are reported in millions of dollars, unless indicated. Operating income is sourced from the financial statement, and its value may be different than operating revenues minus operating income in the table due to rounding. The same applies to operating margin; it was calculated with more precision than appears in the table.
[b]Net income is the same as profit; for non-profit organizations, the term is net surplus. For publicly traded companies, we report shareholders' net income.
[c]Net assets were calculated by subtracting total liabilities from total assets.

Sources: Petris Center analysis of the following financial statements: Anthem (now Elevance Health) Form 10-K for the year ending December 31, 2020; UnitedHealth Group Form 10-K for the year ending December 31, 2019; Centene Form 10-K for the year ending December 31, 2020; Humana Form 10-K for the year ending December 31, 2020; McLaren Health Care Consolidated Financial Statement year ending December 31, 2020; CVS Health Form 10-K for the year ending December 31, 2020 and 2019; CareSource Form 990 for the year ending December 31, 2020; and Cigna Form 10-K for the year ending December 31, 2020 and 2019.

Table A3: Financial Measures of Major Health Insurers Operating in Indiana, 2019

Financial Measure[a]	Elevance Health	United-Health Group	Centene	Humana	McLaren Health Care	CVS Health (Aetna)	Care-Source	Cigna
Operating Revenue	103,141	242,155	74,639	64,888	5,125	256,776	8,150	153,566
Operating Expenses	98,228	222,470	70,364	61,696	5,013	244,789	8,095	145,489
Operating Income	4,913	19,685	1,781	3,192	112	11,987	55	8,077
Operating Margin (%)	4.8	8.1	2.4	4.9	2.2	4.7	0.7	5.3
Net Income[b]	4,807	13,839	1,321	2,707	92	6,634	55	5,104
Net Assets[c]	31,728	61,162	11,023	12,037	2,029	64,170	855	45,379
Total Assets	77,453	172,289	30,901	29,074	5,243	222,449	1,807	155,774

[a]Financial measures are reported in millions of dollars, unless indicated. Operating income is sourced from the financial statement, and its value may be different than operating revenues minus operating income in the table due to rounding. The same applies to operating margin; it was calculated with more precision than appears in the table.
[b]Net income is the same as profit; for non-profit organizations, the term is net surplus. For publicly traded companies, we report shareholders' net income.
[c]Net assets were calculated by subtracting total liabilities from total assets.

Sources: Petris Center analysis of the following financial statements: Anthem (now Elevance Health) Form 10-K for the year ending December 31, 2019; UnitedHealth Group Form 10-K for the year ending December 31, 2019; Centene Form 10-K for the year ending December 31, 2019; Humana Form 10-K for the year ending December 31, 2019; McLaren Health Care Consolidated Financial Statement year ending December 31, 2019; CVS Health Form 10-K for the year ending December 31, 2020 and 2019; CareSource Form 990 for the year ending December 31, 2019; and Cigna Form 10-K for the year ending December 31, 2020 and 2019.

A.3 Supplemental Financial Information of Major Hospital Systems

Tables A4 and A5 show key financial measures of the major hospital systems operating in Indiana for years 2020 and 2019, respectively. This information was used to compare financial performance of these systems across years (see Section 3.2 of the main report).

Table A4: Financial Measures of Major Hospital Systems Operating in Indiana, 2020

Financial Measure [a]	Ascension [b]	Community Health Systems [b]	Indiana University Health	Franciscan Health [b]	Community Health Network	Parkview Health
Operating Revenue	25,262	11,789	7,045	3,310	2,684	2,213
Operating Expenses	25,901	10,663	6,389	3,213	2,603	2,091
Operating Income	-639 [c]	1,126	656	96	81	122
Operating Margin (%)	-2.5	9.6	9.3	2.9	3.0	5.5
Net Income [e]	-1,040	511	1,112	307	176	202
Net Assets	29,276	-1,054 [d]	9,033	3,816	1,940	1,952
Total Assets	41,888	16,006	12,565	6,566	3,812	3,930

[a] Financial measures are reported in millions of dollars, unless indicated. Operating income is sourced from the financial statement, and its value may be different than operating revenues minus operating income in the table due to rounding. The same applies to operating margin; it was calculated with more precision than appears in the table.
[b] Ascension, Community Health Systems, and Franciscan Health own hospitals outside of Indiana that are included in these measures because it was not possible to subset on only hospitals located in Indiana. While most of Ascension's and Community Health Systems' hospitals are located outside of Indiana, only one of Franciscan Health's hospitals is located outside of Indiana.
[c] Net income is the same as profit; for non-profit organizations, the term is net surplus. For publicly traded companies, we report shareholders' net income.
[d] Because Community Health Systems' net assets were not directly reported on the Form 10-K, its net assets were calculated by subtracting total liabilities from total assets.

Sources: Petris Center analysis of the following financial statements: Ascension Health Alliance Consolidated Financial Statement year ending June 30, 2020; Community Health Systems Form 10-K for the year ending December 31, 2020; Indiana University Health Consolidated Financial Statement year ending December 31, 2020; Franiscan Health Form 10-K for the year ending December 31, 2020; Community Health Network Form 10-K for the year ending December 31, 2020; and Parkview Health Systems Form 10-K for the year ending December 31, 2020.

Table A5: Financial Measures of Major Hospital Systems Operating in Indiana, 2019

Financial Measure[a]	Ascension [b]	Community Health Systems [b]	Indiana University Health	Franciscan Health [b]	Community Health Network	Parkview Health
Operating Revenue	25,323	13,210	6,708	3,303	2,643	2,044
Operating Expenses	25,192	12,560	6,029	3,158	2,507	1,918
Operating Income	131	650	679	145	136	126
Operating Margin (%)	0.5	4.9	10.1	4.4	5.2	6.2
Net Income [c]	1,227	-675	1,098	409	320	250
Net Assets	39,718	-1,639 [d]	9,892	3,816	2,118	2,139
Total Assets	39,718	15,609	11,413	5,857	3,382	3,363

[a] Financial measures are reported in millions of dollars, unless indicated. Operating income is sourced from the financial statement, and its value may be different than operating revenues minus operating income in the table due to rounding. The same applies to operating margin; it was calculated with more precision than appears in the table.
[b] Ascension, Community Health Systems, and Franciscan Health own hospitals outside of Indiana that are included in these measures because it was not possible to subset on only hospitals located in Indiana. While most of Ascension's and Community Health Systems' hospitals are located outside of Indiana, only one of Franciscan Health's hospitals is located outside of Indiana.
[c] Net income is the same as profit; for non-profit organizations, the term is net surplus. For publicly traded companies, we report shareholders' net income.
[d] Because Community Health Systems' net assets were not directly reported on the Form 10-K, its net assets were calculated by subtracting total liabilities from total assets.

Sources: Petris Center analysis of the following financial statements: Ascension Health Alliance Consolidated Financial Statement year ending June 30, 2019; Community Health Systems Form 10-K for the year ending December 31, 2019; Indiana University Health Consolidated Financial Statement year ending December 31, 2019; Franiscan Health Form 10-K for the year ending December 31, 2019; Community Health Network Form 10-K for the year ending December 31, 2019; and Parkview Health Systems Form 10-K for the year ending December 31, 2019.

A.4 Methodological Note About Market Concentration and Prices

In this subsection, we explain why we did not estimate the relationship between market concentration and hospital prices (hereafter "prices") or the relationship between market concentration and health insurance premiums (hereafter "prices"). In short, there is no economic relationship between market concentration and prices, as explained in a recent study (Miller et al. 2022), which also highlighted long-held concerns of the lack of an economic relationship (Bresnahan 1989). Specifically, a particular market concentration level may arise from different mergers and acquisition scenarios, each leading to different prices, including some being lower; hence, there is not a one-to-one mapping (i.e., functional relationship) between market concentration and prices (O'Brien 2017).

Therefore, a regression of prices on hospital market concentration (e.g., using the Herfindahl–Hirschman Index) across Indiana's 15 MSAs would be ambiguous because of the lack of a functional relationship and because both hospital price and the HHI are jointly determined by the same factors that affect demand and supply of hospital services.[31] For example, assume two markets A and B. In market A, a large, low-cost hospital that gains market share from smaller competitors will lead to an increase in market concentration, yet lower prices under oligopoly pricing models. In contrast, in market B, a small, low-cost hospital that gains market share from larger competitors will lead to an decrease in market concentration and lower prices under oligopoly pricing models. In the hospital markets, costs vary significantly.[32]

[31] We use hospital markets as an example, but the same applies to insurer markets.
[32] In the insurer markets, costs also vary significantly because of insurance benefit designs, such as the breadth of provider networks in the Affordable Care Act Health Insurance Marketplace plans.

To be clear, the magnitude of the change in market concentration from a merger is positively related to the predicted price increase, known as unilateral effects, but that is a different matter (Miller and Sheu 2021).