Health Care Affordability Lab at Yale

Review of Expert and Academic Literature Assessing Horizontal Mergers Among Hospitals and Providers

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June 9, 2026

This memo synthesizes the most rigorous research on how horizontal hospital mergers and physician mergers affect prices, quality of care, and the labor market. It also discusses the cost-effectiveness of antitrust enforcement in curbing downstream consequences of mergers.

Executive Summary

The U.S. health care system relies on competition among providers to set prices and drive quality. Providers negotiate prices with insurers and decide whether to accept lower rates in exchange for in-network designation, which reduces patient costs and enables providers to attract more business. Providers also compete on quality: higher-quality providers can command higher payments from insurers and, in the case of Medicare's administratively set payment rates, attract more patients. As a result, the vibrancy and productivity of the U.S. health system partly depend on how competitive these provider markets are.

However, over the last two and a half decades, there has been substantial consolidation in U.S. hospital markets and physician markets. Since 2000, more than 1,300 hospital mergers have occurred among the nation's approximately 5,000 hospitals. Today, 21 percent of all hospitals are effectively monopolies, meaning these hospitals do not have another competing hospital within a 30-minute drive from their facility. Twenty-four percent of hospitals are in markets with just one other competitor.

Physicians' markets have been similarly transformed. Since at least 2010, physicians have shifted away from small, solo private practices, with a growing share working in practices owned by entities other than physicians. As of 2024, at least 47 percent of physicians were employed by or affiliated with hospitals—up from less than 30 percent in 2012. Evidence also suggests an increase

in the proportion of physicians consolidated with health insurers and other corporate entities in recent years. When physicians integrate with hospitals, insurers, and corporate entities, there is often an increase in concentration in physician markets, since these larger owners also generally own other physician practices.

Research shows that hospitals and physicians in less competitive markets tend to have higher prices. Monopoly hospitals charge 12.5 percent higher prices than hospitals with at least four competitors. Similarly, physicians in the 90th percentile of market concentration have prices that are 14-30 percent higher than the prices of physicians in the 10th percentile of concentration. A robust body of evidence shows that when competing physician practices merge and competing hospitals merge, their prices go up without concurrent improvements in quality.

When health care prices go up, it drives up health care spending and, in turn, insurance premiums. Higher employer-sponsored insurance costs lead employers to cut workers' jobs, with the burden falling disproportionately on lower- and middle-income workers. A hospital merger that raises prices by 5 percent, for example, is estimated to produce $32 million in lost wages, 203 job losses, and $6.8 million in lost federal tax revenue from the surrounding community.

The Federal Trade Commission (FTC) has the tools to block anticompetitive transactions. Doing so is cost-effective for the federal government: the federal taxes preserved generally exceed the cost of enforcement. However, the FTC is budget-constrained and has only taken action to block a small portion of the problematic hospital and physician mergers that have occurred over the last two decades.

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Key Findings

- **Key Finding 1** – In more concentrated markets, hospital and physician prices are higher, and quality is generally lower.

- **Key Finding 2** – Mergers of hospitals that compete for patients lead to higher prices without evidence of improving quality.

- **Key Finding 3** – Mergers between hospitals in different geographic markets increase prices.

- **Key Finding 4** – Mergers of physician groups that compete for patients increase prices, but the effects can differ by payer.

- **Key Finding 5** – Hospital mergers that raise health care prices harm local labor markets.

- **Key Finding 6** – The Federal Trade Commission's merger enforcement actions are cost-effective but underused.

The Role of Competition in Health Care Markets

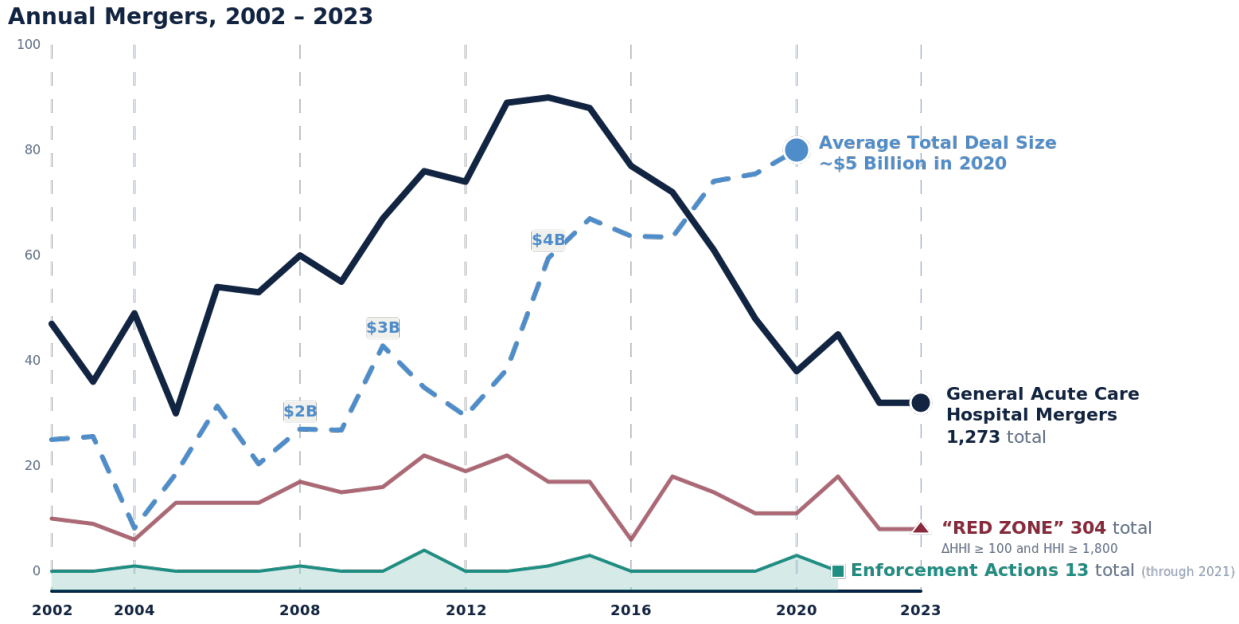
The U.S. health care system relies on competition among providers to set prices and drive quality (Gaynor and Town, 2011). Providers negotiate prices with insurers and decide whether to accept lower rates in exchange for in-network designation, which reduces patient costs and enables providers to attract more business (Gaynor et al., 2015). Providers also compete on quality: higher-quality providers can command higher payments from insurers and, in the case of Medicare's administratively set payment rates, attract more patients (Handel and Ho, 2021). As a result, the vibrancy and productivity of the U.S. health system partly depend on how competitive these provider markets are.

The Evolution of Hospital and Provider Markets

U.S. hospital markets have evolved considerably over the past two decades. Since 2000, there have been more than 1,300 hospital mergers among the approximately 5,000 hospitals nationwide (Health Care Affordability Lab at Yale, 2026).

These transactions—when one hospital buys another hospital—are known as "horizontal" mergers. While the number of hospital mergers each year has declined over the last decade, the mergers have occurred between larger health systems—meaning the total dollar value of transactions has been increasing over time (Figure 1).

Figure 1: Hospital Mergers Are Declining in Number but Increasing in Dollar Value



Source: data from Brot et al. 2024b, extended through 2023

Researchers categorize mergers based on the extent to which they shift the degree of concentration in a market. Concentration describes the extent to which markets are controlled by small numbers of providers or even a single provider. While not strictly synonymous, regions that are more concentrated tend to be less competitive.

Market concentration is generally measured using a Herfindahl-Hirschman Index (HHI). In practice, the HHI is the sum of the squares of the market shares of every firm competing in a market. So, a market with two equal-sized competitors has an HHI of 5,000 ($0.50^2 + 0.50^2$).[1]

[1] By convention, after this calculation, the sum of the squares of the market shares is multiplied by 10,000 for scaling purposes.

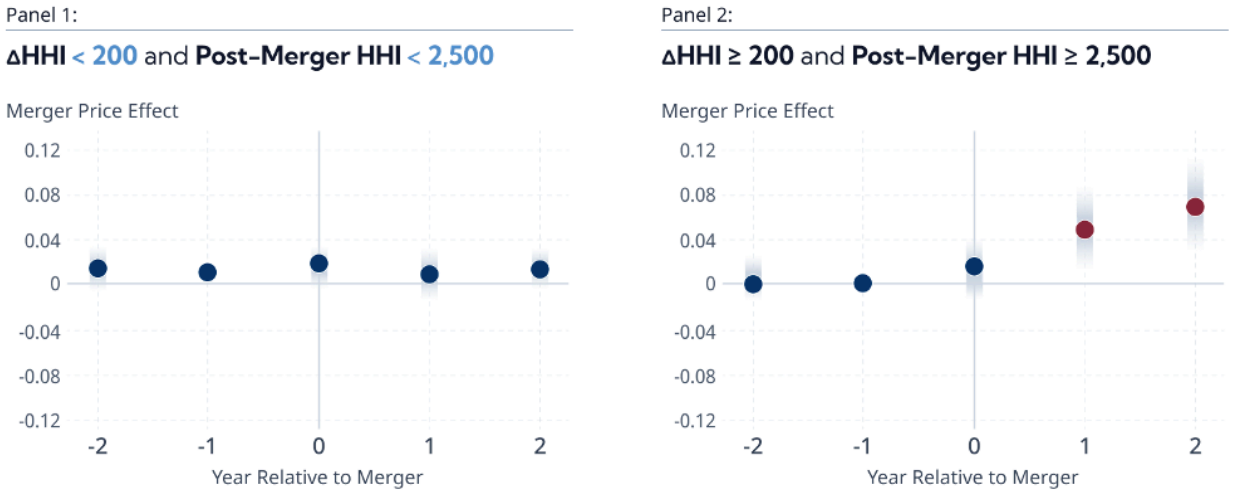
HHIs range from 0 in wholly unconcentrated markets to 10,000 in monopoly markets. Under the Department of Justice (DOJ) and Federal Trade Commission (FTC) Merger Guidelines, a merger is considered potentially anticompetitive—a so-called "red zone merger"—if it results in a post-merger HHI above 1,800 and raises the HHI by more than 100 points. According to this benchmark, nearly a third of the hospital mergers that occurred since 2000 were likely to raise prices by lessening competition (Figure 2).

Figure 2: A Third of Hospital Mergers Since 2000 Are Red Zone Mergers

Source: calculations made using a combination of data as described in Brot et al. 2024b

By contrast, mergers that do not significantly lessen competition—defined as having a post-merger HHI below 2,500 and an HHI change of less than 200 points—do not exhibit price effects (Figure 3).

Figure 3: Mergers That Lessen Competition Raise Prices



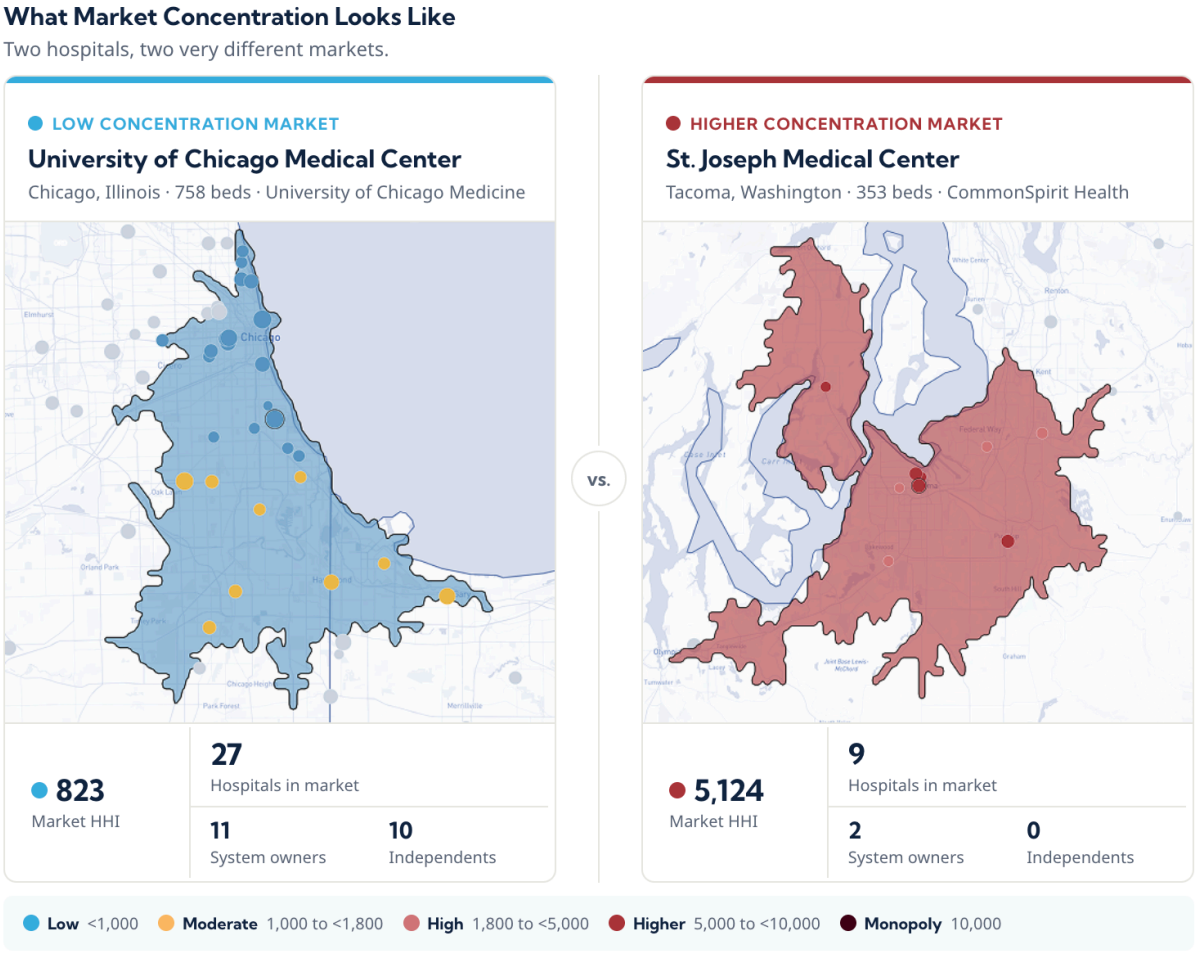
The red dots in Panel 2 indicate price effects from red zone mergers. **Source:** data from Brot et al. 2024b

Over half of U.S. hospitals are in markets that experienced significant increases in concentration between 2000 and 2025, meaning an HHI increase of over 100 points (Health Care Affordability Lab at Yale, 2026). In that time, the average hospital HHI increased 14 percent from 4,806 to 5,467 (Health Care Affordability Lab at Yale, 2026).

Figure 4 illustrates what market concentration looks like on the ground. In Chicago, Illinois, the University of Chicago Medical Center has an HHI that is low because it competes with hospitals from ten other health systems. By contrast, St. Joseph Medical Center in Tacoma, Washington has a much higher HHI of 5,124. It is in a concentrated market and only competes with one other health system. To offer a tangible proxy for market concentration, this visual defines the hospital "market"

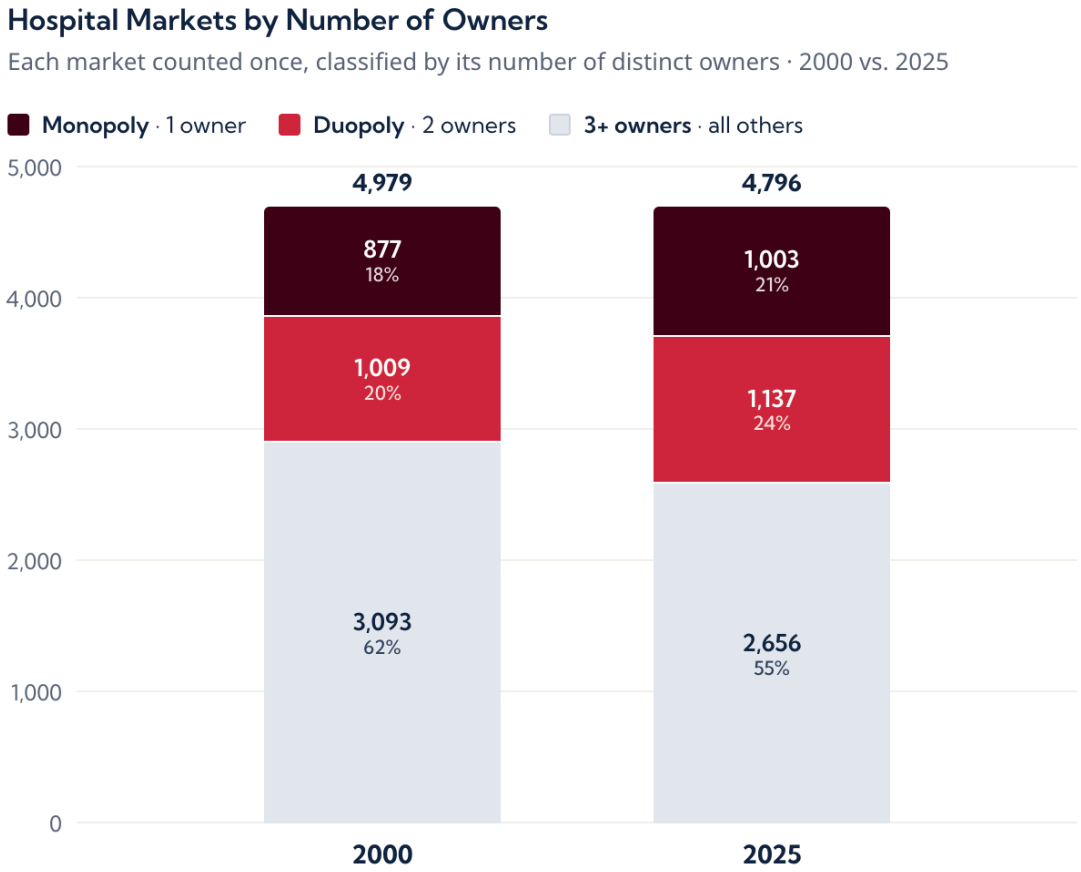
as the geography within a 30-minute drive time of that hospital. We only count hospitals from other health systems as competitors.

Figure 4: A Low Concentration vs. High Concentration Hospital Market



Today, 21 percent of all hospitals are considered monopolies, and 24 percent of hospitals are in a duopoly market with just one other competitor (Figure 5).

Figure 5: 21% of Hospitals Are Monopolies, and 24% Are in a Duopoly Market



Unit: hospital markets. "Owners" = distinct hospital owners in a market. **Source**: Health Care Affordability Lab at Yale's hospital market dataset

Physician markets have also grown more concentrated over time. Between 2010 and 2016, the average HHIs for specialist and primary care physician organizations increased by 5 percent and 29 percent, respectively (Fulton, 2017). In 2016, 65 percent of specialist physician markets and 39 percent of primary care markets were highly concentrated (Fulton, 2017). Since then, physicians are continuing to shift away from predominantly small, private practices, with a growing share working in practices owned by entities other than physicians (GAO, 2025). As of 2024, at least 47 percent of physicians were employed by or affiliated with hospitals—up from less than 30 percent in 2012 (GAO, 2025). Evidence also suggests an increase in the proportion of physicians consolidated with health insurers and other corporate entities in recent years (GAO, 2025).

In More Concentrated Markets, Hospital and Physician Prices Are Higher, and Quality Is Generally Lower.

Hospitals and physicians in more concentrated markets tend to have higher prices. Prices at monopoly hospitals, for example, are 12.5 percent higher than at hospitals in markets with at least four competitors (Cooper et al., 2019). Likewise, physicians in the 90th percentile of market

concentration have prices that are 14-30 percent higher than those in the 10th percentile (Dunn and Shapiro, 2014).

In general, hospitals facing more competition have lower death rates. Kessler and McClellan (2000), for example, find that death rates for Medicare beneficiaries experiencing heart attacks are markedly lower at hospitals facing more competition. Likewise, research by Cooper et al. (2011) and Gaynor et al. (2013) finds that death rates dropped at hospitals in England that were exposed to competition via government reforms that gave patients a choice of where they received care. Moreover, according to Chandra et al. (2016), higher-quality hospitals—measured via death rates, readmissions, and adherence to clinical practice guidelines—also tend to command greater market share and grow more over time.

Quality also tends to be higher among physicians facing more competition. For example, quality is markedly higher among cardiologists in less concentrated markets (Koch et al., 2018). Being in a less concentrated market relative to being in a highly concentrated market is associated with 5 to 7 percent lower risk-adjusted mortality among hypertension, chronic cardiac, and acute cardiac patients (Koch et al., 2018). Likewise, Brunt et al. (2020) find that primary care physicians in more concentrated markets provide lower quality care and are less likely to provide screenings and follow-up care for high blood pressure, high body weight, and tobacco use. However, Dunn and Shapiro (2018) find that physicians in higher concentration markets have fewer readmissions in the commercial market.

Mergers of Hospitals That Compete for Patients Lead to Higher Prices Without Evidence of Improving Quality.

Evidence on the Effect of Mergers on Prices

A substantial body of evidence finds that hospital mergers tend to lead to price increases when the merging parties were previously competing for the same patients. Both Brot et al. (2024b) and Brand et al. (2023) look at hundreds of hospital mergers in the U.S. in the 2010s and find that prices go up by 5 percent or more after mergers of hospitals that were previously competitors. Cooper et al. (2019) also find that mergers of geographically close hospitals tend to generate larger price increases.

These results are consistent with a large number of individual retrospective merger analyses, many of which were performed by FTC staff, where researchers looked at the impact of individual transactions. For example, after Evanston Northwestern's acquisition of Highland Park Hospital in the Chicago suburbs, four of five commercial insurers raised their prices by at least 10 percent (Haas-Wilson and Garmon, 2011). Thompson (2011) similarly finds price increases of about 57 and 65 percent among two insurers after the New Hanover-Cape Fear merger in North Carolina. A third

insurer saw similar price changes as the control group, and a fourth saw a price decrease (Thompson, 2011). Another paper finds price increases of 29 to 72 percent after the Sutter-Summit merger in the Bay Area (Tenn, 2011).

Evidence on Cost Savings

Merging parties typically argue that consolidation produces efficiency gains, such as bulk supply purchasing savings, that offset incentives to raise prices after a merger. The research does not find strong support for these claims.

Schmitt (2017) looks at hospital mergers and finds resulting cost savings of 4-7 percent at acquired hospitals. However, the cost savings are only significant in mergers where the target hospital is in a separate market from the acquiring hospital. It is unclear what drives these savings, whether a merger is necessary to achieve them, or whether savings are passed on to patients. Acquiring hospitals show no significant savings, though the dataset may not represent all merger activity during the period studied (Schmitt, 2017).

Craig et al. (2021) focus on prices for medical and surgical supplies and find that acquired hospitals save 3.4 percent after renegotiating with suppliers. Acquiring hospitals, however, see a roughly 1.7 percent increase in the cost of cardiac and orthopedic implants. Across both merging parties, the authors rule out average savings above 3.1 percent—which is roughly 7 percent of what merging parties typically claim based on pre-merger price differences across hospitals. The authors conclude that merger effects on supply costs are small, and claims of purchasing efficiencies cannot strongly justify horizontal hospital mergers.

Evidence on Quality

Research over the past two decades finds no reliable evidence that hospital mergers improve patient outcomes. The most rigorous recent study, Beaulieu et al. (2020), studies 246 hospitals acquired between 2009 and 2013 and tracks four outcome measures: a clinical process composite, a patient experience composite, 30-day mortality, and 30-day readmission rates. Acquired hospitals experience modest but statistically significant declines in patient experience scores—equivalent to a fall from the 50th to the 41st percentile. The authors find no significant changes in mortality or readmission rates. Apparent improvements in clinical process measures cannot be attributed to the mergers, as these improvements were already underway before the acquisitions happened.

Past research similarly finds that mergers do not reliably improve quality across measures of inpatient outcomes, mortality, readmissions, and patient safety—and in some instances produce measurable harm, particularly in more concentrated hospital markets (Ho and Hamilton, 2000; Capps, 2005; Romano and Balan, 2011). A study of a merger in Albany, Georgia, for example, finds significantly lower inpatient hospital quality across measures of mortality, readmissions, and

patient satisfaction after the transaction (Garmon and Kmitch, 2018). Based on the timing of these declines, the authors attribute them to disruptions caused by the merger itself. Ho and Hamilton (2000) find higher 90-day readmission rates for heart attack patients and early discharge for newborns in certain kinds of mergers, based on California data from 1991 to 1996. Notably, the early discharge effects are substantially larger in more concentrated hospital markets. Capps (2005) finds a one-year post-merger increase in death rates among congestive heart failure and heart attack patients at some of the 25 merging New York state hospitals he studied, but the effect depends on how the control group is selected.

Mergers Between Hospitals in Different Geographic Markets Increase Prices.

Cross-market mergers are mergers among organizations serving different markets, which could be patient segments (e.g., children's hospitals and adult hospitals) or geographic areas (e.g., Houston and Dallas). Over half of the hospital mergers that took place between 2000 and 2012 did not involve hospitals in the same geographic market (Dafny et al., 2019). Traditionally, antitrust regulators did not view cross-market mergers as likely to raise prices by lessening competition. However, new theory argues that cross-market mergers can still harm competition because hospital markets compete to be included in insurers' networks, which span wider areas than hospital markets.

Dafny et al. (2019) build off Vistnes and Sarafidis (2013) and argue that when an insurer is serving employers that span multiple hospital markets, the merger of hospitals across those markets can lead to price increases. Dafny et al. (2019) and Lewis and Pflum (2017) both find that mergers of hospitals that are not within-market competitors can lead to price increases. Per Dafny et al. (2019), cross-market mergers within state boundaries lead to 7 to 9 percent price increases among acquiring hospitals. The authors interpret this as evidence of the "common customer" effect: in-state mergers are more likely to involve hospitals that share common insurers and serve employers with workers in both areas. Brand et al. (2023) similarly find stronger price effects from in-state mergers. While their point estimates suggest meaningful price effects even from out-of-state merging hospitals, the difference between in-state and out-of-state effects is not statistically significant.

Mergers of Physician Groups That Compete for Patients Increase Prices, but the Effects Can Differ by Payer.

The literature on physician mergers' effects on prices is less well-developed than the literature on hospital mergers. Koch and Ulrick (2021) is the first landmark study to examine the effects of a physician merger on prices using detailed, transaction-level claims data, as opposed to prior cross-sectional studies on physician market concentration (Dunn and Shapiro, 2014; Koch et al., 2018).

The authors examine a 2011 merger of six orthopedic physician groups in Berks County, PA. The merger increased prices by 10-20 percent for two of three private payers in the region. The third payer's prices were not affected by the merger. The lack of a uniform effect highlights the importance of looking holistically across payers to understand the full effect of a given merger.

Hospital Mergers That Raise Health Care Prices Harm Local Labor Markets.

When prices and spending on employer-sponsored health insurance (ESI) rise, local workers outside the health care sector ultimately bear the cost. Higher ESI spending prompts higher ESI premiums. Those premium increases are passed on to employees via payroll cuts. Rather than cutting wages, employers respond primarily by laying off workers. Fewer jobs lead to more unemployment spending by the government and less tax revenue. Brot et al. (2024a) trace this chain by studying hospital mergers: a merger that raises prices by 5 percent leads to $32 million in lost wages, 203 job losses, and a $6.8 million reduction in federal tax revenue. The unemployment effects fall disproportionately on lower- and middle-income workers.

Hospital mergers can also suppress wages in the health care sector itself. Mergers that significantly increase hospital market concentration slow annual wage growth by 1.7 percentage points among nurses and pharmacy workers (Prager and Schmitt, 2021). Skilled non-medical workers, like administrative staff, see a 1 percentage point slower annual wage growth. The wage effects are concentrated in mergers that lead to the largest increases in employer concentration. The authors do not find a wage effect among workers in roles transferable to other sectors, like cafeteria staff.

The Federal Trade Commission's Merger Enforcement Actions Are Cost-Effective but Underused.

The FTC and DOJ are the two federal agencies charged with enforcing antitrust law in the U.S. Both play essential roles in challenging anticompetitive practices that could harm consumers. The FTC is primarily responsible for reviewing hospital and other health care provider mergers whereas the DOJ has historically focused on mergers of managed care organizations.

The FTC and DOJ's track record on hospital merger enforcement has shifted considerably over the past three decades (Capps et al., 2019). In the 1990s, the agencies lost six hospital merger cases in a row, as the courts rejected their approach to defining geographic markets. The agencies subsequently stepped back from hospital merger enforcement for almost a decade.

In the 2000s, academic economists developed new tools that laid the foundation for future enforcement. Specifically, researchers created a method for measuring hospitals' bargaining

leverage with insurers and demonstrated how hospitals with greater leverage have higher prices (Town and Vistnes, 2001; Capps et al., 2003). The FTC also launched its own retrospective merger study in 2002, which uncovered evidence of substantial post-merger price increases in the case of the Evanston merger. The merged system's bargaining leverage was a central point in the FTC's administrative complaint against the merger in 2004—a challenge ultimately decided in the FTC's favor in 2007. This paved the way for the FTC's return to active merger enforcement in 2008 (Capps et al., 2019).

Since 2008, the FTC has taken action to block a larger share of mergers than it did in the early 2000s. However, dozens of problematic hospital mergers have still gone unchallenged. Between 2010 and 2023, there have been approximately 875 mergers, 326 of which, based on the changes in HHI they generated, were likely to raise prices by lessening competition (Health Care Affordability Lab at Yale, 2026). From 2010 to 2021, the FTC took enforcement actions against approximately 11 deals (Brot et al., 2024b).

The average HHI change in hospital mergers where the FTC took action was over 3,000 (Brot et al., 2024b). By contrast, the average merger from 2010 to 2015 generated an HHI change of approximately 1,800. Thus, while the FTC did appear to take action against the most anticompetitive mergers, there were a number of mergers that clearly lessened competition but were left unchallenged.

Brot et al. (2024b) assert that underenforcement at the FTC likely stems from the agency's limited antitrust enforcement budget. This is consistent with prior work noting that U.S. inflation-adjusted antitrust enforcement resources fell by 18 percent from 2010 to 2019, despite merger filings increasing by about 80 percent over the same period (Kades, 2021; Cooper and Gaynor, 2021).

However, as Brot et al. (2024b) note, hospital antitrust enforcement actions by the FTC are likely to be cost-effective for the federal government. That is because, in the presence of ESI, each merger leaves workers unemployed and therefore lowers the amount of tax revenue collected by the federal government. The authors show, for example, that the average merger that raises prices by approximately 5 percent would lead to a reduction of $6.8 million in federal income tax revenue. By contrast, a recent report from the FTC's Office of Inspector General (OIG) highlights that an individual merger enforcement action likely costs the agency approximately $5.38 million (FTC OIG, 2019).[2]

[2] See Appendix D of the cited FTC OIG 2019 report, which includes a breakdown of total costs of matters included in the audit. The average total cost of these nine matters is roughly $5.4 million.

Conclusion

Mergers of competing hospitals or physician practices tend to raise prices without commensurate improvements in quality or efficiency. The harms extend beyond health care spending. Higher employer-sponsored insurance costs lead employers to cut jobs rather than wages, with the burden falling disproportionately on lower- and middle-income workers. A hospital merger that raises prices by 5 percent would lead to $32 million in lost wages, 203 job losses, and $6.8 million in lost federal tax revenue. The FTC has the tools to stop the most harmful transactions, and doing so is cost-effective at preventing downstream harms to health care affordability and to labor markets. However, while the FTC has won a number of cases, evidence suggests they are only intervening in a minority of problematic transactions, and there are still dozens of mergers that raise prices by lessening competition which go through each year.

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