

Private Equity Rollups of Physician Practices: Evidence from Gastroenterology

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Abstract

The competitive effects of emerging “platform and add-on” consolidation strategies, which often escape regulatory scrutiny, remain understudied. We examine whether private equity (PE) rollups affect prices through changes in local market power, PE-specific mechanisms, or both, using a difference-in-differences design and novel hand-compiled data on platform and add-on acquisitions by 7 PE firms in gastroenterology. We find that both initial platform and add-on acquisitions increase prices, with add-on acquisitions generating larger effects. Within-market add-ons, which increase acquiring firms' market share by approximately 14 percentage points, raise prices by 10%. Cross-market acquisitions in geographically distinct markets, which by construction leave local market concentration unchanged, raise prices by 3%. Cross-market price increases reflect the diffusion of platform pricing strategies, whereby acquired practices rapidly converge to the negotiated rates established by their PE-backed platforms. We find no evidence of changes to patient outcomes or patient selection. Overall, our findings suggest that regulatory frameworks focused exclusively on local market concentration may understate the cumulative competitive effects of rollup acquisitions, with implications for antitrust enforcement and the ongoing policy debate over whether PE-specific regulatory treatment is warranted.

Introduction

Several studies document widespread firm consolidation across a variety of US markets, with concerning effects on job reallocation, lower productivity growth, and increased polarization between larger and smaller companies (e.g., among many others, Akcigit & Ates, 2021; D. Arnold, 2020; Berry et al., 2019; Kwon et al., 2024). One way that firms can increase their market power is by merging with a competitor. Because such transactions can lead to higher prices for consumers and affect consumer welfare, governments worldwide have adopted merger review regimes to identify and block transactions that are likely to reduce competition and potentially harm consumers. However, in most countries, only large deals must be notified to antitrust authorities. For example, in the US, under the Hart-Scott-Rodino (HSR) Act, transactions below the threshold of \$133.9 million (as of 2026) do not need to be reported to federal antitrust authorities. As merger review has generally involved large events (e.g., mergers) that are most likely to impact competition, stealth consolidation – transactions whose individual size enables them to escape regulatory scrutiny but whose cumulative effect might still be large – has emerged as a recent phenomenon to reshape markets (Wollmann, 2019).

In recent years, markets across the US economy have been consolidated through “stealth” consolidation, from car washes, dry cleaners, and in the context of this paper, physician practices (Gottfried, 2022). Additionally, the competition effects of such stealth events are often driven by their aggregate and cumulative occurrence across several repeated transactions, rather than single large-scale transactions. Recent research illustrates that stealth consolidation or mergers that fall below HSR reporting thresholds are less likely to be challenged by regulators despite the potential to increase aggregate market concentration (Wollmann, 2019). For example, Wollmann (2024) finds that stealth consolidation in the dialysis market increases consolidation that reduces the quality of care. In the pharmaceutical industry, nonreportable acquisitions of competing drugs lead to 50% or greater price increases (Feng et al., 2023), enabling incumbents to “kill” future competition (Cunningham et al., 2021).

Health care has emerged as a central arena for stealth consolidation, driven primarily by private equity (PE) investment. PE firms have invested over \$800 billion in US health care since 2015, with physician practices representing a growing target (Appelbaum & Batt, 2020; June 2021 Report to the Congress: Medicare and the Health Care Delivery System, 2021). These investments typically follow a “rollup” strategy: PE firms acquire an initial “platform” practice,

then execute serial "add-on" acquisitions of competing practices to expand market presence. Because individual physician practice acquisitions rarely exceed HSR thresholds (Capps et al., 2017), regulators lack systematic visibility into their cumulative competitive effects. This platform and add-on strategy represents a unique and growing form of stealth consolidation, which with one notable exception, has not been examined (Asil et al., 2024).²

A growing literature documents that PE acquisitions increase healthcare prices (Asil et al., 2024; Borsa et al., 2023; Liu, 2021). However, whether the piecemeal nature of serial acquisitions of physician practices by PE firms (also referred to as “rollups” or “tuck-in” acquisitions) affects prices through changes in market structure, or whether the involvement of a financial sponsor (i.e., the PE firm) offers some inherent advantages or disadvantages to affect outcomes of policy interest remains unresolved. This distinction has critical policy implications. As FTC Chairman Ferguson recently stated, there is “no reason for the Commission to single out private equity for special treatment” if rollup effects operate purely through market structure, since “the antitrust analysis would be the same if [the PE firm] were, for example, an individual or institutional investor” (Ferguson, 2025). Identifying whether PE-specific mechanisms contribute to price increases beyond market power effects is essential for designing appropriate regulatory responses.

This paper provides new evidence on this question by examining PE rollups in gastroenterology, a medical specialty with substantial PE activity since 2015. To examine this question, we hand-compiled a novel dataset identifying platform acquisitions and add-on acquisitions by seven major PE firms from 2015-2020, distinguishing between "within-market" add-ons in the same geographic market as the platform and "cross-market" acquisitions in geographically distinct markets.³ We link these acquisitions to national commercial claims data from the Health Care Cost Institute, which contains detailed medical payment and utilization data for approximately 50 million people nationwide, and employ a difference-in-differences design to estimate impacts on both price and quality dimensions.

² PE’s platform and add-on consolidation was the subject of a recent federal antitrust lawsuit filed by the Federal Trade Commission (FTC) against a PE-backed anesthesia platform alleged to have monopolized the market for anesthesia services in Texas (FTC Challenges Private Equity Firm’s Scheme to Suppress Competition in Anesthesiology Practices Across Texas, 2023).

³ Cross-market acquisitions are those that occur in a distinct geographic market relative to the initial platform acquisition by the acquiring firm. Within-market add-ons are defined as acquisitions that occur in the same geographic market relative to the initial platform acquisition by the acquiring firm.

We document striking patterns in how PE firms structured their rollup strategies in gastroenterology. Just seven PE firm-platform pairs were active over the 2015-2020 period, with activity concentrated among two dominant platforms: Gastro Health (Audax Private Equity) and GI Alliance (Waud Capital Partners), which together accounted for the large majority of the 941 gastroenterologists acquired across the study window. The geographic expansion of these two firms illustrates the breadth of the rollup strategy: Gastro Health grew from a single-state presence in Florida in 2016 to operations across seven states by 2020, while GI Alliance expanded from Texas and Louisiana to nine states over the same period. Strikingly, rather than competing for the same markets, these firms appear to have divided geographic territory: Gastro Health concentrating in the Southeast, Mid-Atlantic, and Pacific Northwest, while GI Alliance built out across Texas and the South Central and Midwest regions. This pattern of geographic partitioning is reflected in the aggregate data: cross-market acquisitions comprised 76% of all acquisitions, meaning PE expansion proceeded predominantly through entry into new markets rather than deepening concentration within existing ones.

This geographic partitioning produced a landscape in which PE market share exceeded 30% in several geographic markets by 2020. As shown in Figure 1, a plot of each market's PE-affiliated physician share against its share in the subsequent year reveals a strong positive relationship between consecutive-year market shares, indicating that initial PE entry is highly predictive of further expansion: markets with near-zero PE presence in one year exhibit wide dispersion in the next, reflecting the outsized impact of a single large acquisition, while markets already above 85% PE share exhibit near-perfect year-over-year persistence. Together, these patterns suggest that PE rollups in gastroenterology did not unfold as isolated transactions, but rather as a coordinated series of serial acquisitions.

Our difference-in-differences analysis reveals several additional findings that shed light on the effects of this acquisition strategy. First, both platform and add-on acquisitions increase negotiated prices, with add-on acquisitions generating larger price increases than platform acquisitions. We find that within-market add-ons, which cumulatively increase acquiring firms' market share by approximately 14 percentage points, increase prices by 10%, while cross-market acquisitions, which by definition do not affect local market concentration, increase prices by only 3%. The presence of economically meaningful price increases in cross-market acquisitions provides direct evidence that market power alone cannot explain observed price effects. Rather,

we find that cross-market price increases reflect the diffusion of platform pricing strategies: acquired practices adopt the higher negotiated rates established by their PE platforms, with convergence occurring immediately upon acquisition. We also find that after acquisition, the number of patient visits decreases among acquired physicians, which is consistent with price increases following the acquisitions leading to decreased insurer preference in networks (Lin et al., 2023). However, we do not find changes to the proportion of in-network claims, patient outcomes, or evidence of differential patient selection.

These findings have several implications. First, the 3% price increase in cross-market acquisitions where local market structure remains unchanged indicates that PE rollups affect prices through organizational mechanisms beyond traditional market power channels. We provide evidence that these mechanisms include portfolio-wide pricing standardization, whereby PE firms extend uniform pricing policies across geographically dispersed practices. The additional 7 percentage point increase in within-market add-on acquisitions (10% vs. 3%) demonstrates that local market power amplifies but does not fully account for PE effects. Together, these results suggest that regulatory frameworks focused exclusively on local market concentration may miss important competitive effects of PE rollups.

This paper contributes to several distinct literatures. First, this paper contributes to the broad literature on mergers and acquisitions in health care markets (Gaynor et al., 2015; Handel & Ho, 2021). Much of this literature has examined horizontal hospital mergers, focusing on how mergers affect prices through changes in market power. Recent studies by Koch & Ulrick (2021) and Zhang et al. (2021) are among the few that study consolidation in US physician markets. Our research is the first to look at serial acquisitions of physician groups by PE firms with detailed claims data and actual market prices from a sample of payors in the market. Most previous research with healthcare provider data with this level of detail has been for hospitals. Our analysis examines completed rollup acquisitions of physician groups and therefore contributes to a small but growing literature on “retrospective” merger analysis in industrial organization (Ashenfelter et al., 2013; Dafny et al., 2019).

Our study is most closely related to Asil et al (2024), which examines PE rollups in the anesthesia services market, the setting of the first rollup-based antitrust case in US history (FTC Challenges Private Equity Firm’s Scheme to Suppress Competition in Anesthesiology Practices Across Texas, 2023). We build on their work in several important respects. Like Asil et al.

(2024), we document a systematic PE rollup dynamic in which a small number of firms pursue aggressive platform and add-on acquisitions strategies within a single specialty, and we find that these acquisitions are associated with meaningful price increases following consolidation. However, our study extends this line of inquiry in two key dimensions. First, while Asil et al. (2024) focus on a hospital-based specialty (anesthesiology), our analysis encompasses seven PE firms competing in the national gastroenterology market, allowing us to assess whether the price effects documented generalize across investors and specialties. Second, we explicitly distinguish between cross-market acquisitions and within-market add-on acquisitions, revealing that PE firms affect negotiated prices through channels beyond local market concentration alone.

Our findings also tie into recent work examining stealth consolidation (Wollmann, 2020) and cross-market mergers in health care (D. R. Arnold et al., 2025; Dafny et al., 2019; Lewis & Pflum, 2017), by showing that even acquisitions without geographic overlap generate substantial price effects through pricing diffusion. Finally, our study contributes to a large and growing body of literature in health services, policy, and law focused on the “corporatization” of physician practices by PE firms (Borsa et al., 2023; Fuse Brown & Hall, 2024; Lin et al., 2023; Singh, Song, et al., 2022). We build on this body of work by examining specific mechanisms that explain how PE acquisitions achieve price increases through serial acquisitions of within- and cross-market physician practices.

The rest of the paper proceeds as follows. Section B provides institutional background on PE investment in gastroenterology. Sections C and D describe our data and empirical strategy. Section E presents main results on price effects. Section F examines mechanisms, including distinguishing market power from organizational channels. Section G discusses implications and concludes.

Background

A. Private Equity in Health Care

PE investments in health care have increased significantly over the past two decades, growing from \$5 billion in 2000 to \$100 billion by 2018 (Appelbaum & Batt, 2020). Typically, private equity firms purchase a majority ownership interest in health care providers, invest resources to drive operational efficiencies, expand market share, increase revenue (e.g., adding services), decrease costs (e.g., changing staffing composition), and then sell the practice within a few years to generate returns for the firm’s investors (Kannan et al., 2025; Liu, 2021; Singh,

Song, et al., 2022). PE firms might sell practices to another private equity firm, the public via an initial public offering, or health systems or insurance company, although most PE sales of physician practices to date have been to other PE firms (Singh, Reddy, & Zhu, 2024).

PE firms grow acquired practices in part through “platform and add-on” consolidation, that involves, first, acquiring “platform practices” that could be large, well-managed physician practices, and second, expanding market share through add-on acquisitions of smaller practices that are then merged with the larger platform practice. Importantly, PE’s pattern of “platform and add-on” consolidation confers distinct incentives to increase firm valuation using “multiple arbitrage,” or the ability to increase firm valuation by combining smaller practices that trade at lower valuation multiples into a large platform practice that can command a higher valuation due to increased size, stability, and market share. Thus, by increasing the number of affiliated practices integrated with the platform practice, PE firms can profit through differences in the asset’s valuation at the time of investment and exit.

While add-on acquisitions, or PE’s “buy and build” strategy, can confer advantages at time of exit, this strategy can also raise antitrust concerns if the cumulative impact of add-on acquisitions increases market concentration to generate higher prices or lower quality. PE’s platform and add-on strategy has been the subject of antitrust investigations in the US and Australia, including a federal antitrust lawsuit brought by the FTC against a PE-backed anesthesia platform and its PE sponsor (FTC Challenges Private Equity Firm’s Scheme to Suppress Competition in Anesthesiology Practices Across Texas, 2023).

In recent years, PE’s investment target has focused on physician practices in office-based specialties such as dermatology, gastroenterology, and ophthalmology, and more recently, primary care, behavioral health, and cardiology (Abdelhadi et al., 2024; Brown et al., 2020; Erin Fuse Brown, 2021; Singh, Reddy, & Whaley, 2024; Singh, Zhu, et al., 2022). PE acquisitions of outpatient physician practices have been shown to increase negotiated prices by 10-30% depending on the clinical area (Braun et al., 2021; La Forgia et al., 2022; Singh, Song, et al., 2022) yet the mechanisms behind price increases are less clear. Early work investigated the role of certain PE firms in surprise billing schemes (Cooper et al., 2020). PE firms might also change the composition of providers in a firm or utilization patterns for its patients (Berquist et al., 2025; Singh, Aderman, et al., 2024, 2024; Singh, Bejarano, et al., 2025; Singh, Cardenas, et al., 2025). Other work has studied the effect of PE acquisitions on hospitals (Cerullo et al., 2022; Kannan et

al., 2023; Richards & Whaley, 2024), ambulatory surgery centers (Lin et al., 2023) nursing homes (Braun et al., 2020; Gupta et al., 2021), and fertility clinics (La Forgia & Bodner, 2025).

B. Overview of gastroenterology market

We focus on gastroenterology (GI), as it is the leading specialty with PE acquisitions. GI is a specialty area with large outpatient procedure volumes and fragmented markets. In 2012, one-third of all gastroenterologists practiced in settings with fewer than 10 physicians, with nearly half of all gastroenterologists in practices with fewer than 50 physicians (Griffin et al., 2022).

In recent years, GI has witnessed rapid consolidation. By 2020, over half of all gastroenterologists practiced in settings with more than 100 physicians (Griffin et al., 2022). In addition, GI has garnered substantial interest from private equity firms interested in opportunities for consolidation as well as the potential for diverse revenue-generating streams, including endoscopy centers, pathology services, anesthesia services, and specialty and retail pharmacies.

Substantive PE acquisitions in gastroenterology began around 2016 and surpassed 14% of gastroenterologists by 2021 (Abdelhadi et al., 2024). Notable PE-backed platforms in gastroenterology include United Digestive (backed by PE firm Frazier Health Care Partners), GI Alliance (PE firm Waud Capital Partners), and Gastro Health (PE firm Audax Private Equity). Each PE-acquired platform in gastroenterology has expanded its geographic footprint through add-on acquisitions. For example, at the time of initial PE funding in 2016, Gastro Health had 21 affiliated practice locations in a single state (Florida). At the time of exit, Gastro Health had expanded to 212 affiliated practice locations across six states in just 2.5 years, an increase in affiliated locations by over 900 percent (Singh, Reddy, & Zhu, 2024). Notably, PE acquisitions can take the form of acquisitions of practices in the same geographic market as the platform practice (i.e., within market) (Becker's ASC, 2015) or of smaller practices within distinct geographic markets (i.e., cross-market) (Becker's ASC, 2017a, 2017b).

In addition to a rapid increase in PE acquisition, focusing on GI has clear advantages because colonoscopy—a primary type of endoscopy for colorectal cancer screening and diagnosis—has a set of well-validated clinical quality measures that are sensitive to the physicians' skills and are linked to important patient outcomes.

Data

A. Identifying private equity rollups

We identify private equity acquisitions using transaction-level acquisition data from PitchBook, a financial database that tracks mergers and acquisitions across industries and has been used in other studies examining private equity. Using Pitchbook data, we obtained a proprietary list of leveraged buyouts financed by PE firms in the “Clinics and outpatient services” sector. These data include the effective date of the deal as well as the identity and industry of the firms involved. We classified deals as being a “platform” vs “add-on” acquisition based on whether the acquiring PE firm had any previous deals in the same market (gastroenterology services). Given that no single data source tracks the universe of PE investments, Pitchbook data may underreport PE acquisitions, particularly of smaller physician practices. To account for this, we supplemented Pitchbook data with manual searches of press releases, industry reports, and current and archived websites of physician practices and PE firms.

Following previous research, we linked acquisitions to their Tax Identification Number (TIN) by matching the name and address of the acquired practice to the Medicare Data on Provider Practice and Specialty (MD-PPAS) in the year of acquisition (Singh, Bejarano, et al., 2025; Singh, Cardenas, et al., 2025). The MD-PPAS contains all registered providers in the United States who billed Medicare at least once and are registered in the Provider, Enrollment, Chain and Ownership System; the database provides the legal business name, geographic location, TIN and provider’s NPI. Acquisitions and owner NPIs were matched to MD-PPAS by matching the year of acquisition to the same year in the MD-PPAS data for each year 2014-2022. Using the MD-PPAS data, we then identified all NPIs associated with the acquired TIN at the time of acquisition. We then followed all clinicians across multiple years.

B. HCCI commercial claims data (sample construction)

We linked physicians and their PE-acquisition status (platform vs add-on acquisition) to commercial claims from the Health Care Cost Institute data using physician NPIs. Our analytical sample includes a national sample of gastroenterologists consisting of 12,597 NPIs, making up just under 12 million claims for 10.5 million patients across 66 commonly billed CPT codes in colonoscopy, endoscopy and E&M. We identified claims using Current Procedural Terminology (CPT) codes for common gastroenterology services and procedures, including colonoscopies (CPTs 45378-45392, G0105, G0120, and G0121), endoscopies (CPTs 43234-43259), and evaluation and management visits (CPTs 99201 – 99205 and 99211 – 99215), and focused on

physician professional fees. We removed claims with missing geographic information including missing CBSAs and restricted the sample to NPIs with greater than 10 claims in a given quarter.

We aggregated the dataset to the physician-quarter level. For every physician in every market and period, we observed price, quantity, and ownership structure. We could also infer whether claims were in- or out-of-network with the insurers.

Empirical Approach

The main objective of this study is to estimate the effect of platform and add-on acquisitions in the GI market. To do this, we employ a difference-in-differences (DiD) design that accounts for staggered acquisition timing and heterogeneous effects (Goodman-Bacon, 2021). The outcome of interest is the log-transformed negotiated price relative to the quarter preceding each transaction. The treatment group consists of the acquired physicians and the control group of physicians who were never acquired during our sample period. We exclude the “always treated” physicians who were PE-acquired in all years of our study period. With this framework, we estimate our DiD as:

$$Price_{pt} = \alpha + \sum_j \beta_j \cdot D_{p,t-j} + \tau_t + \pi_p + \varepsilon_{pt} \quad (1)$$

In this expression, the set of β_j coefficients represent the differential change in outcomes relative to the quarter of acquisition, D . We include fixed effects for quarter (τ_t) and physician (π_p) to control for time-invariant provider characteristics. All regressions were weighted by the physician-level claim volume.

Due to concerns about staggered treatment timing and treatment effect heterogeneity, we estimate these event studies using a dynamic treatment effect estimator (Sun & Abraham, 2020). As with other similar analyses, the central identifying assumption of our DiD analysis is that in the absence of treatment, the outcomes would have evolved similarly in the control and treatment group (i.e., parallel trends). In our setting, this parallel trend assumption requires that prices and other outcomes would have evolved similarly in the non-acquired and acquired practices without the acquisitions. To examine price change following add-on acquisitions, we conduct a

straightforward event study. We let events correspond to add-on acquisitions. With our event study, we estimate:

$$Y_{pt} = \pi_p + \tau_t + \sum_{j=-8, j \neq -2}^7 \delta_j (Treated_p \times time = j) + \varepsilon_{pt} \quad (2)$$

While our event studies test for pre-acquisition trends in our outcomes, an important concern is the inherent endogeneity of PE acquisitions. For example, PE firms might acquire practices in geographic markets where demand is increasing or choose target practices based on some other indicators of future profitability. However, most of these characteristics vary little over time and are effectively controlled in the DiD analysis by physician-fixed effects. More importantly, we do not find any evidence that acquired physicians have different pre-acquisition trends in outcomes relative to the non-acquired physicians. Based on this result, we find it plausible to assume that without the acquisitions, the acquired physicians would have continued to evolve similarly to the non-acquired physicians.

Finally, the DiD analysis also relies on the assumption that the treatment has no effect before its implementation. Given that there can be a lag in when acquisitions are negotiated and disclosed, to support this assumption, we examined outcomes of interest with respect to two quarters prior to acquisition and found no evidence of anticipation.

In sensitivity analyses, we assess the robustness of our findings to alternative specifications. First, we augment our baseline models with state-by-year fixed effects to account for time-varying, state-level factors such as regulatory changes or regional market trends that may confound our estimates. Second, we employ a leave-one-out estimator in which we sequentially exclude each PE firm and its associated acquisitions from the estimation sample. This approach evaluates whether our findings are driven by the acquisition activity of any single PE firm, thereby assessing the generalizability of our results across the broader population of PE-backed consolidation in the gastroenterology market.

Results

A. Descriptive Characteristics of PE Acquisitions

Our observed PE acquisitions in gastroenterology began in 2015, with the first disclosed platform acquisition in 2015 (**Table 1**). Following platform acquisitions, PE firms embarked on

add-on acquisitions starting in 2017 and by 2018, the share of physicians that were part of add-on acquisitions surpassed the share of physicians in platform acquisitions. Overall, we identified 941 gastroenterologists in PE-acquired practices between 2015-2020. Of 941 identified ever-PE physicians, 367 physicians were part of the initial platform acquisition, and 574 physicians were part of subsequent (add-on) acquisitions.

By definition, platform acquisitions occur earlier than add-on acquisitions. The number of platform acquisitions accelerated between 2016 and 2018, after which the number of add-on acquisitions surpassed the number of platform acquisitions. Add-on practices were smaller than platform practices. In addition, a substantial share of acquisitions occurred in distinct geographic markets, i.e., “cross-market” platform acquisitions (**Table 2**).

Seven PE firm–platform pairs were active in gastroenterology over the study period (Appendix Table 1). Gastro Health, backed by Audax Private Equity, and GI Alliance, backed by Waud Capital Partners, were the dominant acquirers, together accounting for the large majority of acquired locations. Gastro Health was active throughout the study window, beginning with 9 locations in Florida in 2016 and expanding to 37 locations across seven states (Florida, Alabama, Washington, Virginia, Pennsylvania, Ohio, and Tennessee) by 2020. GI Alliance entered later but expanded aggressively, acquiring 51 locations in 2019 alone and growing from an initial presence in Texas and Louisiana to nine states by 2020, including Arizona, Illinois, Indiana, Arkansas, and Oklahoma. The remaining five platforms – Covenant Physician Partners (KKR), Gastro Care Partners (Varsity Healthcare Partners), PE GI Solutions (Pamlico Capital), United Digestive (Frazier Healthcare Partners), and US Digestive Health (Amulet Capital Partners) – were considerably smaller, each remaining within one or two states across the full study period. This concentration of multi-state expansion activity among two dominant platforms means that aggregate trends in PE penetration across gastroenterology markets are substantially driven by the geographic rollup strategies of Gastro Health and GI Alliance.

By 2020, PE market share, defined as the share of physicians affiliated with PE-acquired gastroenterology practices, exceeded 30% in several geographic markets (**Figure 2**). **Figure 1** provides additional context. Figure 1 plots each market's PE-affiliated physician share in a base year against its share in the subsequent year at the county level. Observing between-year positive correlation points to subsequent “add-on” activity. We find a strong positive relationship between consecutive-year market shares, indicating that PE penetration, once established, is largely

self-sustaining. Notably, markets in the upper tail of distribution exhibit near-perfect year-over-year persistence, with PE shares exceeding 85% remaining stable across periods. By contrast, the considerable vertical dispersion observed among markets with near-zero base-year PE share reflects the episodic nature of initial PE entry: a single large acquisition can substantially alter a market's ownership structure within a single year.

B. Effects on Market Share, Price, and Service Volume

The event study results in **Figure 3** shows the effect of acquisitions on the share of physicians affiliated with the acquiring firm, separately for platform and add-on acquisitions. Following platform acquisitions, the share of physicians affiliated with the acquiring firm increases from 0 to 11 percent (Panel A). PE market penetration is further increased through add-on acquisitions, which increases the share of the acquiring firm by 14 percentage points (Panel B). In both sets of results, we find minimal pre-acquisition changes in market share, which could be driven by changes in practice composition.

Figure 4 shows the effects of PE acquisitions on average negotiated price per claim at PE-acquired platform and add-on practices, respectively. We find that platform practices experience a price increase of 4.7% following acquisition whereas add-on practices increase prices by 5.1% following acquisition. The price effects for platform acquisitions are somewhat noisy, but then fully materialize in the two years following acquisition. As discussed below, this pattern is consistent with platform acquisitions adopting the platform's price. In contrast, the price effects following add-on acquisitions steadily increase in each subsequent quarter, before stabilizing. Price increases following add-on acquisitions are consistent across service categories and largely driven by colonoscopies and endoscopies (**Table 3**). For both services, we find an approximately 5% increase in physician professional fees.

Consistent with price increases following acquisition, we see a statistically significant decrease in claim volume by 11.7% (**Figure 5**), concentrated among services that experience the largest price increases (**Appendix Table 2**). The decrease in overall claim volume is driven by decreases in both in-network and out-of-network claims (**Appendix Figure 1**). There is no change in the share of in-network claims. This pattern is consistent with insurers responding to higher prices by restricting network coverage of acquired practices. Similar patterns are observed following PE acquisition of ambulatory surgical centers (Lin et al., 2023).

Appendix Table 3 presents results from models augmented with CBSA-by-year fixed effects, which non-parametrically account for time-varying local market conditions (e.g., changes in insurance coverage, clinical needs, income, etc.). Across outcomes, the inclusion of CBSA-by-year fixed effects yields estimates that are consistent with the main specification, providing reassuring evidence that our findings are not driven by unobserved local demand shocks or market-level trends. The platform price effect increases modestly from 5.4 to 5.9 log points, and the add-on price effect increases similarly, from 5.2 to 5.7 log points. The cross-market price effect likewise increases marginally from 3.4 to 4.0 log points. The within-market price effect attenuates slightly from 10.4 to 9.3 log points when CBSA-by-year fixed effects are included, which is consistent with local market concentration being a partial mechanism underlying within-market price effects. Once local market trends are absorbed, the estimated effect is modestly reduced but remains large in magnitude and highly statistically significant. Taken together, the stability of estimates across specifications suggests that our main results are robust to the inclusion of flexible controls for time-varying local market conditions.

Appendix Table 4 presents results from the leave-one-out sensitivity analysis, in which each of the seven PE firms is sequentially excluded from the estimation sample. Across both platform and add-on acquisitions, the pooled post-acquisition coefficients are consistent, with all estimates statistically significant at the 1 percent level. The overall consistency of estimates across the leave-one-out samples provides reassuring evidence that our main findings are not driven by the acquisition activity of any single PE firm and are broadly generalizable across the PE-backed consolidation activity observed in the GI market during our study period.

C. Quality Outcomes

To evaluate the possibility that higher prices reflect higher quality, we next examine the likelihood of adverse events occurring within 30 days after colonoscopy as a quality measure. There are no corresponding changes to quality or access outcomes (**Figure 6 and appendix Figure 2**). Further, we rule out the possibility that results above are potentially driven by differential patient selection following acquisition. There are no changes to observed patient risk following acquisition as measured by patient age, gender, or distance traveled (**Figure 7**).

Mechanisms

A. Local Market Concentration

One concern with PE’s “platform and add-on” model is that acquisitions may increase local market concentration, enabling acquired practices to exercise greater bargaining power with insurers. To assess whether our estimated price increases operate through this market power channel, we exploit geographic variation in add-on acquisitions. We partition acquired add-on practices into two groups based on whether the acquisition plausibly affected local market structure: (1) within-market add-ons, defined as practices located in the same county as the PE platform, where the acquisition directly increases local market concentration; and (2) cross-market platform acquisitions, defined as practices located in counties where the PE firm had no prior presence during our study period, such that the acquisition leaves local market structure unchanged.

If price increases result primarily from enhanced local market power, we should observe differential effects across these groups. Specifically, within-market acquisitions should exhibit substantial price increases due to increased concentration, while cross-market acquisitions, which do not alter the competitive landscape, should show no significant price effects.

Figure 8 presents our findings. Within-market add-ons experience substantial price increases, with negotiated prices rising by 10.3% within two years of acquisition. This finding is consistent with increased bargaining power from consolidation. However, price increases following cross-market acquisitions tend to be more modest, averaging approximately 3.4% over the entire study period. The Wald test coefficient is 10.8992 and p-value < 0.001 . This difference in price effects is consistent with studies of within vs. cross-market hospital mergers (D. R. Arnold et al., 2025; Dafny et al., 2019).

The presence of price increases in cross-market acquisitions where local market concentration is unaffected indicates that changes in local market structure cannot fully account for the observed post-acquisition price effects. The differential magnitude of effects (10% within-market vs. 3% cross-market) nevertheless suggests that local market power remains an important channel.

B. Diffusion of pricing strategies across geographic markets

Beyond local market concentration, PE rollups may increase prices through the diffusion of portfolio-wide pricing strategies. If PE platforms maintain standardized pricing policies across affiliated practices, they may extend these pricing norms to newly acquired practices regardless

of geographic location. This mechanism is distinct from market concentration as it is likely to operate through organizational integration and centralized pricing rather than changes to the underlying competitive structure of geographic markets.

To explore this mechanism, we examine whether cross-market acquisitions (which by definition do not alter local market concentration) exhibit price convergence toward their PE platform's pricing levels following acquisition. We restrict our sample to cross-market acquisitions (practices acquired in counties where the acquiring firm had no prior presence) and platform practices within the same acquiring firm, excluding both never-acquired practices and within-market add-ons. This design tests whether acquired practices adopt platform pricing strategies even when local market conditions remain unchanged.

Figure 9 presents our results separately for each of the six PE platforms in our sample.⁴ The vertical axis measures the price difference between acquired cross-market acquisitions and platform practices; the vertical line marks the acquisition quarter for the cross-market practice. The event studies demonstrate some heterogeneity in pricing integration strategies across PE firms. For example, Firms 1, 5, and 6 exhibit evidence that acquired practices raise prices toward platform levels following acquisition. Firm 1 shows an immediate increase of approximately 20-30% in the post-acquisition period, representing upward convergence from pre-acquisition levels (**Appendix Figure 3**). Firm 5 demonstrates the most substantial price integration, with acquired practices increasing prices by ~30% relative to platform practices post-acquisition. Firm 6 shows moderate upward convergence of ~5%. In contrast, Firms 2 and 4 maintain parallel pricing between cross-market acquired practices and platform practices throughout the study period. The point estimates remain near zero both before and after acquisition, with overlapping confidence intervals across all quarters. This pattern suggests a strategy to preserve existing price levels across the portfolio.

This analysis suggests that acquired practices raise prices to match higher platform levels. In addition, the price increases are observable within the first post-acquisition quarter, indicating rapid organizational integration rather than gradual contract renegotiation cycles. Because these effects appear in cross-market acquisitions where local market structure is unchanged, they cannot be attributed to increased concentration. Instead, they provide suggestive evidence that

⁴ Due to our data use agreement, we are not able to report differences by identifiable firms.

PE acquisitions increase prices through the diffusion of pricing strategies, independent of changes in market structure.

Conclusion

Effective competition is a key driver of economic welfare, yet traditional merger control frameworks face mounting challenges from stealth consolidation: serial acquisitions that individually escape regulatory thresholds but cumulatively reshape markets. This paper examines a prominent form of stealth consolidation: private equity rollups of physician practices through platform-and-add-on acquisition strategies.

Using hand-compiled data on PE acquisitions in gastroenterology linked to national commercial medical claims data, we find that add-on acquisitions increase negotiated prices by approximately 5%. However, this aggregate effect masks important heterogeneity in mechanisms. Within-market add-ons, which increase local market concentration, raise prices by 13%, while cross-market acquisitions, which leave local market structure unchanged, raise prices by 3%. The presence of economically significant price increases in cross-market acquisitions provides direct evidence that market power through local concentration cannot fully explain PE rollup effects.

Our mechanism analysis reveals that cross-market price increases operate through organizational channels for some firms: acquired practices adopt the pricing strategies of their PE platforms, with convergence occurring immediately upon acquisition. Event study evidence shows substantial heterogeneity across PE firms, with some exhibiting rapid upward price convergence exceeding 30%, while others maintain pricing autonomy. This diffusion of pricing strategies represents a distinct channel through which PE ownership affects healthcare costs, independent of changes in competitive market structure.

Several limitations warrant mention. First, our analysis focuses on gastroenterology, and effects may differ in specialties with different market structures, procedure complexity, or PE penetration. Second, while we observe negotiated prices, we do not observe the details of contracting negotiations, limiting our ability to identify the precise mechanisms through which pricing diffusion occurs (e.g., all-or-nothing contracting, threat of network exclusion, or voluntary adoption of "best practices"). Third, our acquisition sample ends in 2020, and PE strategies may have evolved. Fourth, while we find modest effects on patient volumes and no

detectable effects on clinical outcomes or patient selection, longer-term effects on quality and access remain uncertain.

The rise of stealth consolidation presents a fundamental challenge to merger control regimes designed for an era of large, discrete transactions. Our findings suggest that PE rollups affect healthcare prices through both traditional market power channels and organizational mechanisms unique to financial sponsor involvement. Regulatory frameworks focused exclusively on local market concentration will miss meaningful competitive effects of PE rollups. In particular, merger guidelines designed to identify transactions that increase local concentration may be insufficient for evaluating serial acquisitions that affect prices through portfolio-wide pricing. The stakes are particularly high in healthcare, where competition affects not only prices but also access to care and ultimately population health.

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TABLES AND FIGURES

Table 1. Number of physicians in platform and add-on acquisitions, 2015-2020

	Physicians in platform acquisitions	Physicians in add-on acquisitions	Total number of physicians
2015	7	0	7
2016	130	0	130
2017	0	35	35
2018	111	48	159
2019	62	327	389
2020	57	164	221
Total	367	574	941

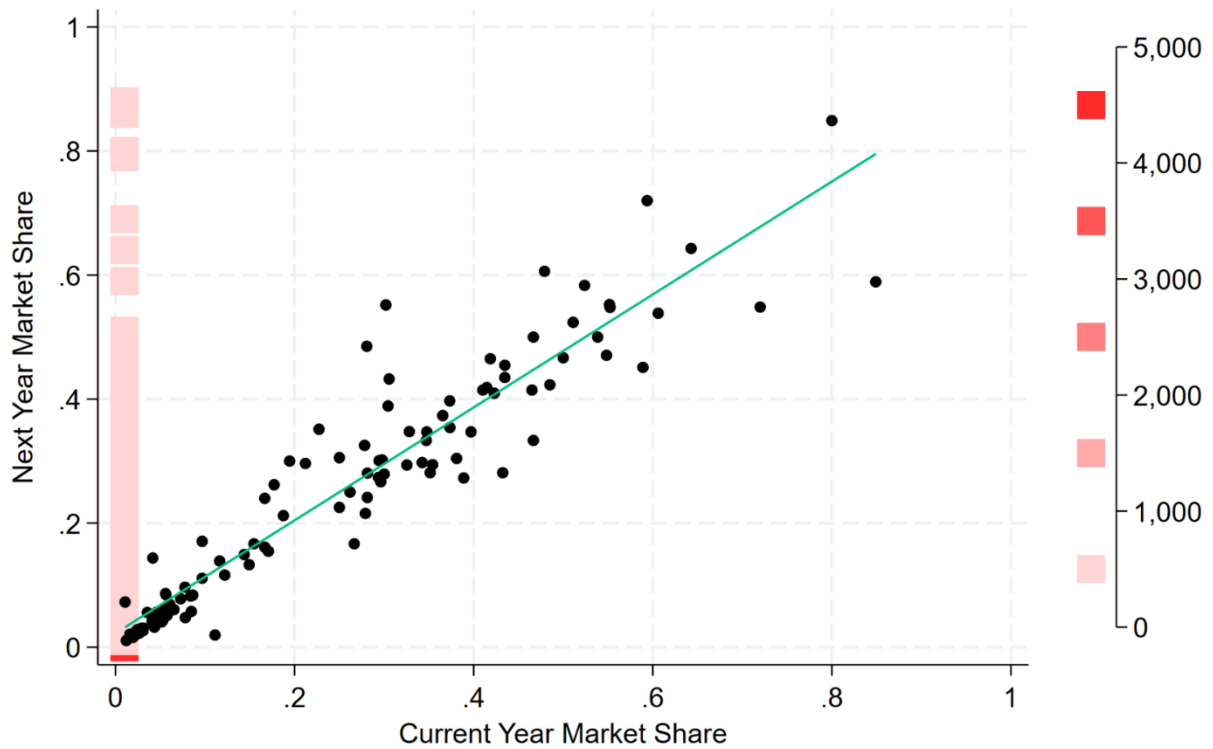
Notes/Sources: Authors' analysis of PitchBook and MD-PPAS data. Add-on acquisitions are defined as acquisitions of physician practices by a PE firm that previously made a platform acquisition in any geographic market. Cross-market add-ons are acquisitions that happen in a distinct CBSA relative to platform acquisition. Within-market add-ons are acquisitions that happen in the same CBSA relative to platform acquisition.

Table 2. Number of physicians in within vs. cross-market add-ons

	Number of physicians	Proportion of physicians
Cross-market add-ons	439	76%
Within-market add-ons	133	24%
Total	572	100

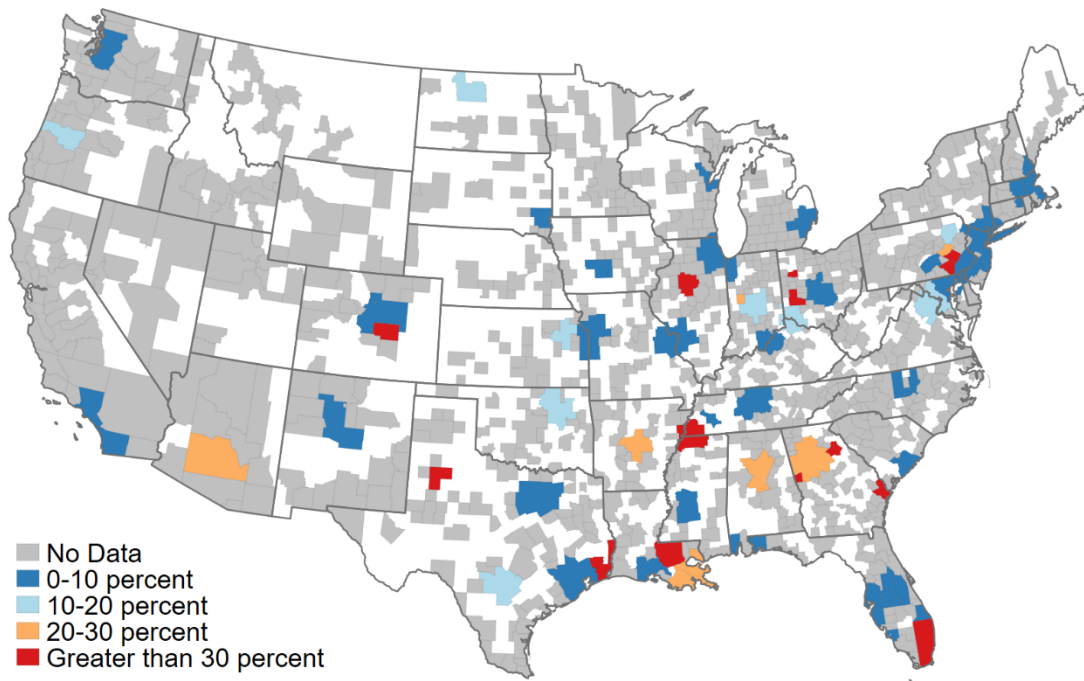
Notes/Sources: Authors' analysis of PitchBook and MD-PPAS data. Add-on acquisitions are defined as acquisitions of physician practices by a PE firm that previously made a platform acquisition in any geographic market. Cross-market add-ons are acquisitions that happen in a distinct CBSA relative to platform acquisition. Within-market add-ons are acquisitions that happen in the same CBSA relative to platform acquisition.

Figure 1. Share of PE-acquired physicians in Year vs Year+1



Notes: Each dot represents the market share of PE-affiliated gastroenterology practices in a year (t) and subsequent year (t+1) at the county level. The shaded region represents the density of market share in year t+1 when market share in year=t is zero.

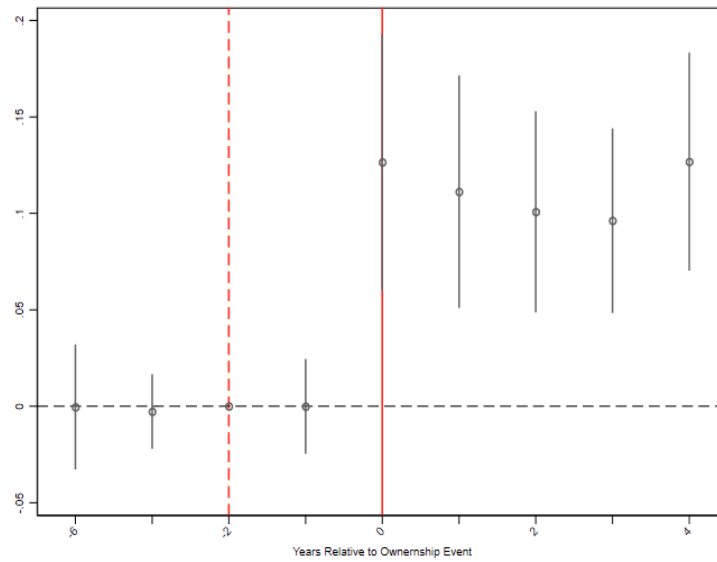
Figure 2. Market share of PE-acquired gastroenterology practices, 2020



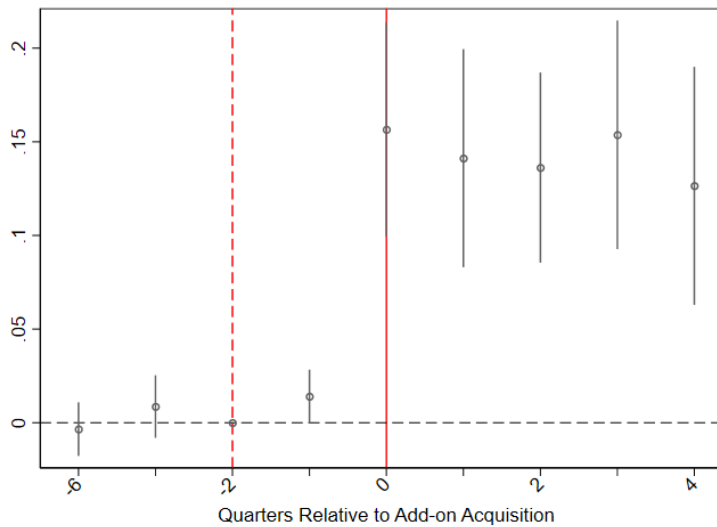
Notes/Sources: Authors' analysis of PitchBook and MD-PPAS data. Market share is defined as the share of physicians affiliated with PE-acquired gastroenterology practices as of 2020.

Figure 3. Effect of Platform and Add-on Acquisition on market share

A. Platform only



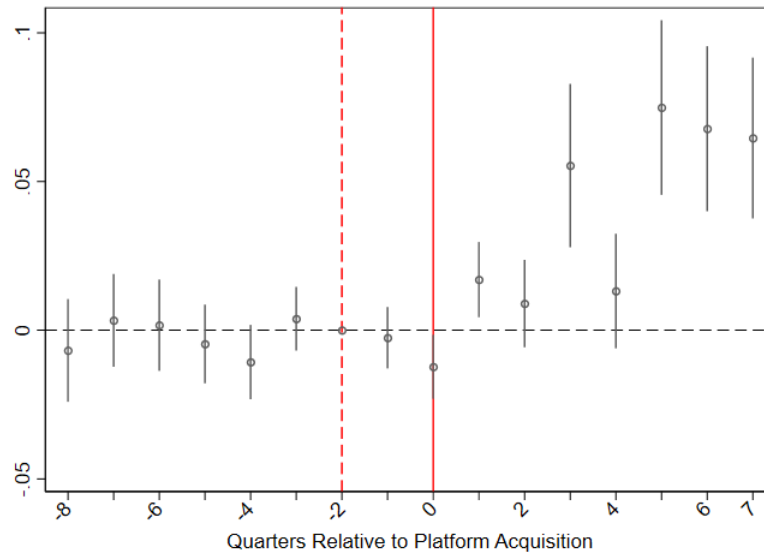
B. Add-ons only



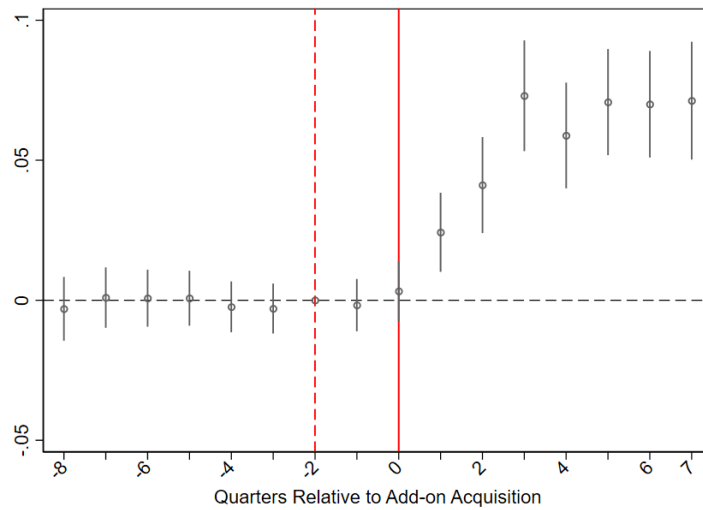
Notes/Sources: Authors' analysis of PitchBook, MD-PPAS, and HCCI data. Market share is defined as the share of physicians affiliated with the acquiring firm. The DiD estimate for the regression examining platform acquisition market share (Panel A) is 0.1102862 and 95% confidence interval is [0.0584943, 0.1620782] ($p < 0.01$). The pre-period mean share prior to platform acquisition is 0.000 (by definition, zero). The DiD estimate for the regression examining add-on acquisition market share Panel B) is 0.1428447 and 95% confidence interval is [0.0911598, 0.1945296] ($p < 0.001$). The pre-period mean share prior to add-on acquisition is 0.0028.

Figure 4. Effect of platform acquisition on log-price

A. Platform only



B. Add-ons only



Notes/Sources: Authors' analysis of PitchBook, MD-PPAS, and HCCI data. Platform acquisition is defined as the earliest identified physician practice acquired by a given PE firm. Add-on acquisitions are defined as acquisitions by a PE firm that previously made a platform acquisition in any geographic market. The DiD estimate for the regression examining platform acquisition price (Panel A) is 0.0470482 and 95% confidence interval [0.0288059, 0.0652905] ($p < 0.01$). The pre-period mean price prior to platform acquisition is 5.37 (SD=0.70). The DiD estimate for the regression examining add-on acquisition price (Panel B) is 0.051569 and 95% confidence interval is [0.036914, 0.066224] ($p < 0.001$).

Table 3: Effect of add-on acquisition on log price

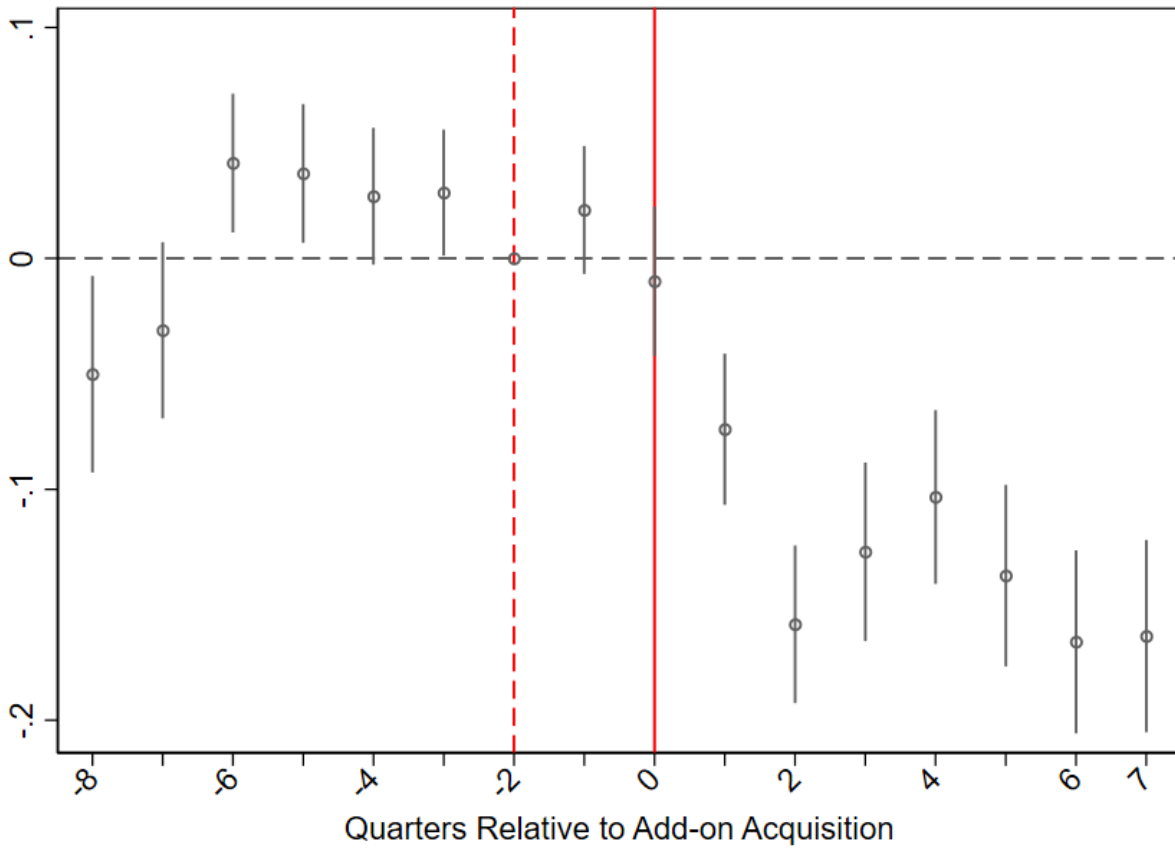
	(1) Colonoscopy	(2) E&M	(3) Endoscopy
Post	-0.013*** (0.004)	0.109*** (0.005)	-0.045*** (0.006)
PE treatment x post	0.053*** (0.010)	-0.006 (0.008)	0.050*** (0.012)
Constant	6.026*** (0.003)	4.730*** (0.003)	5.486*** (0.003)
Observations	93,980	95,509	88,660
R-squared	0.861	0.736	0.809
Year-Qtr FE	Yes	Yes	Yes
NPI FE	Yes	Yes	Yes

Robust standard errors in parentheses

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

Notes/Sources: Authors' analysis of PitchBook, MD-PPAS, and HCCI data. Add-on acquisitions are defined as acquisitions of physician practices by a PE firm that previously made a platform acquisition in any geographic market. Price represents log-transformed physician professional fees for physician services only. The pre-acquisition mean log-transformed price is 6.02 for colonoscopy services, 4.75 for evaluation and management services, and 5.47 for endoscopy services.

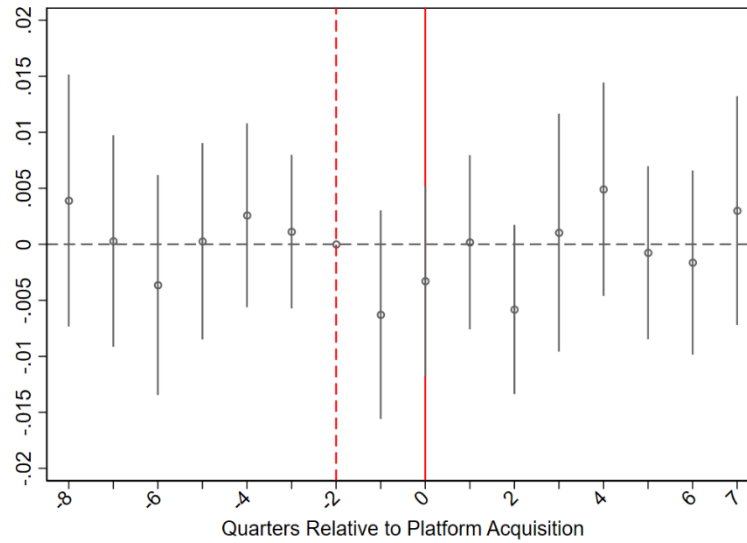
Figure 5. Effect of add-on acquisitions on claim volume (log)



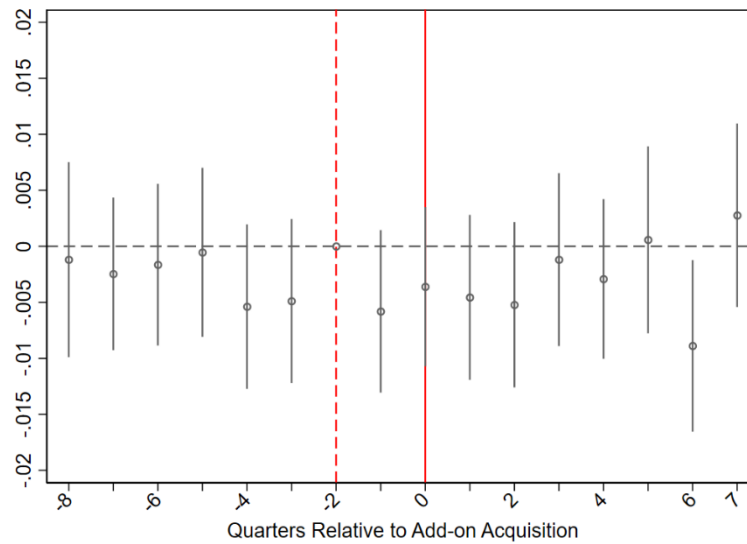
Notes/Sources: Authors' analysis of PitchBook, MD-PPAS, and HCCI data. Add-on acquisitions are defined as acquisitions of physician practices by a PE firm that previously made a platform acquisition in any geographic market. The DiD estimate for the regression examining add-on acquisition claim volume is -0.1171526 and 95% confidence interval [-0.1466411, -0.087664] ($p < 0.01$). The pre-period is 3.34 (SD=0.70).

Figure 6: Effect of Acquisition on Share of Patients with Adverse Outcomes (unweighted)

A. Platform Acquisition



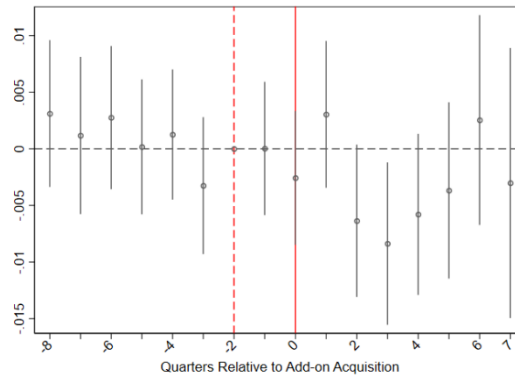
B. Add-on Acquisitions



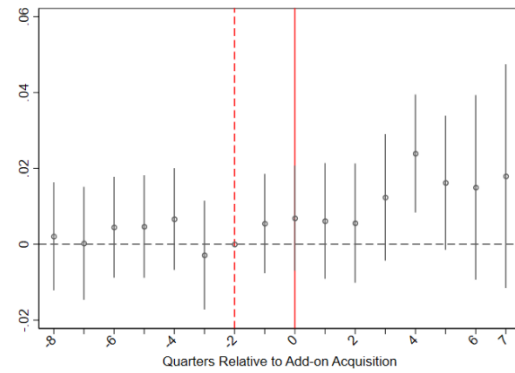
Notes/Sources: Authors' analysis of PitchBook, MD-PPAS, and HCCI data. Add-on acquisitions are defined as acquisitions of physician practices by a PE firm that previously made a platform acquisition in any geographic market.

Figure 7: Effect of Add-on Acquisition on Patient Composition

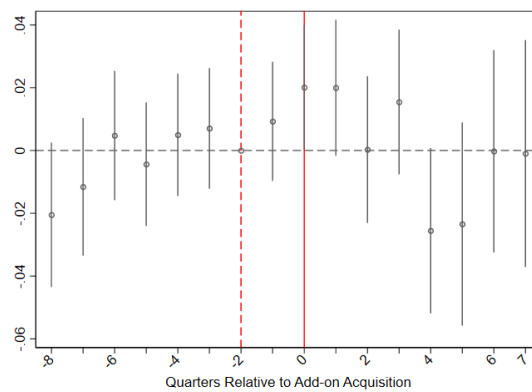
A. Age



B. % Female



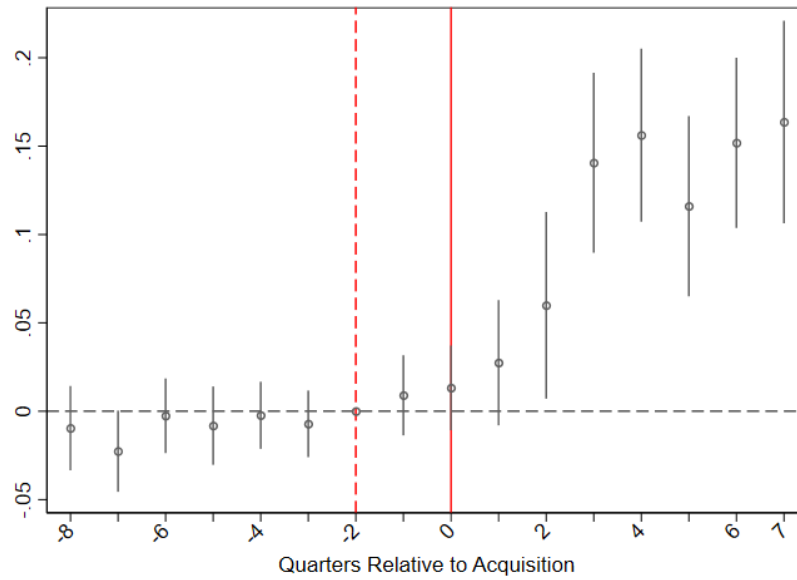
C. Distance Traveled



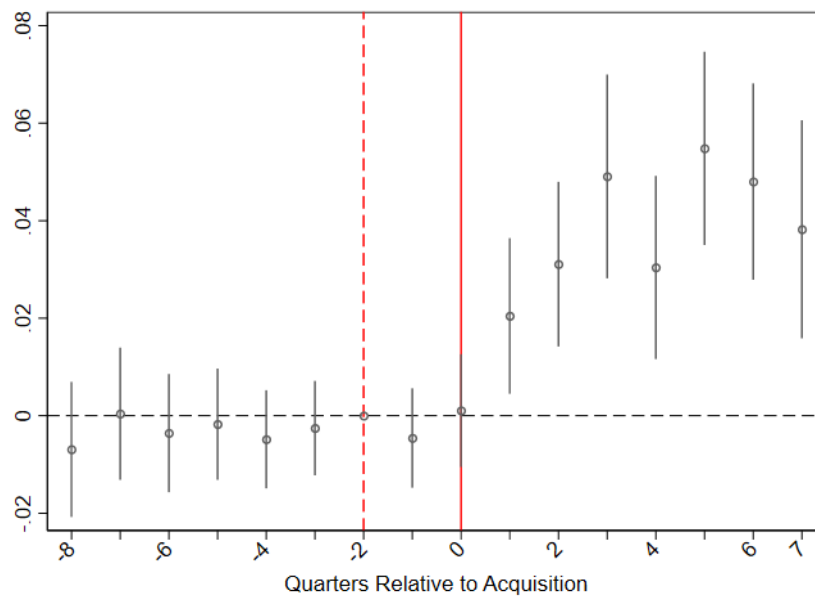
Notes/Sources: Authors' analysis of PitchBook, MD-PPAS, and HCCI data. Add-on acquisitions are defined as acquisitions of physician practices by a PE firm that previously made a platform acquisition in any geographic market.

Figure 8: Effect of Within- and Cross-market Add-on Acquisition on Log Price

A. Within-Market Only

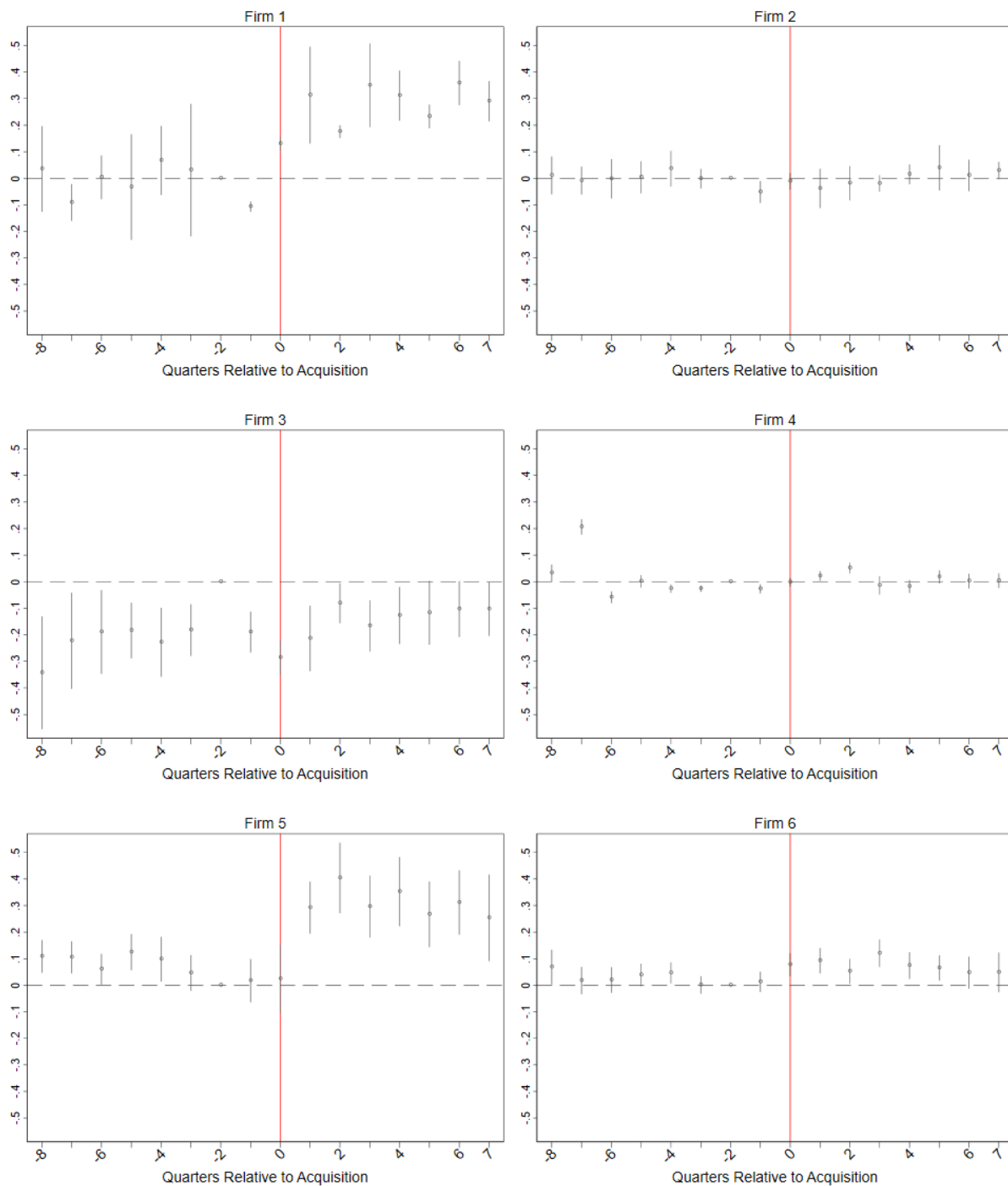


B. Cross-Market Only



Notes/Sources: Authors' analysis of PitchBook, MD-PPAS, and HCCI data. Add-on acquisitions are defined as acquisitions of physician practices by a PE firm that previously made a platform acquisition in any geographic market. Within-market add-ons are acquisitions that happen in the same CBSA relative to platform acquisition. Cross-market add-ons are acquisitions that happen in a distinct CBSA relative to platform acquisition. The DiD estimate for the regression examining within-market add-on acquisitions is 0.1036138 and 95% confidence interval [0.0653493, 0.1418782] ($p < 0.01$). The pre-period is 5.37 (SD=0.70). The DiD estimate for the regression examining cross-market add-on acquisitions is 0.0341469 and 95% confidence interval [0.0187527, 0.0495411] ($p < 0.01$). The pre-period is 5.37 (SD=0.69).

Figure 9: Differential change in log-price, cross-market acquisitions relative to platform acquisition, by acquiring firm



APPENDIX TABLES AND FIGURES

Appendix Table 1: PE firms and Platform Practices

		Number of acquired locations						States with acquisitions	
PE firm	Platform	2015	2016	2017	2018	2019	2020	Earliest Acquisition	End of Study Period
Kohlberg Kravis Roberts	Covenant Physician Partners					7		AZ	AZ
Varsity Healthcare Partners	Gastro Care Partners					1		CO	CO
Audax Private Equity	Gastro Health		9	7	6	14	37	FL	FL, AL, WA, VA, PA, OH, TN
Waud Capital Partners	GI Alliance				6	51	11	TX, LA	TX, LA, AZ, IL, IN, AR, AZ, OK
Pamlico Capital	PE GI Solutions	1				12		MD	MD
Frazier Healthcare Partners	United Digestive				35	1		GA	GA
Amulet Capital Partners	US Digestive Health					11	1	PA	PA
	Total:	1	23	7	47	97	56		

Appendix Table 2: Effect of add-on acquisition on log volume (select services)

	(1) Colonoscopy	(2) E&M	(3) Endoscopy
Post	0.121*** (0.016)	-0.194*** (0.017)	0.059*** (0.015)
PE treatment x post	-0.408*** (0.031)	-0.112*** (0.032)	-0.371*** (0.029)
Constant	2.653*** (0.011)	3.125*** (0.011)	2.120*** (0.010)
Observations	93,980	95,509	88,660
R-squared	0.450	0.535	0.494
Year-Qtr FE	Yes	Yes	Yes
NPI FE	Yes	Yes	Yes

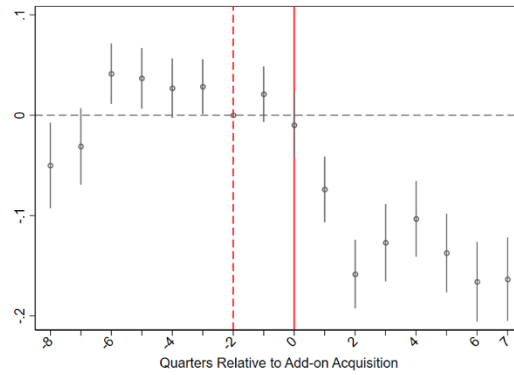
Robust standard errors in
parentheses

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

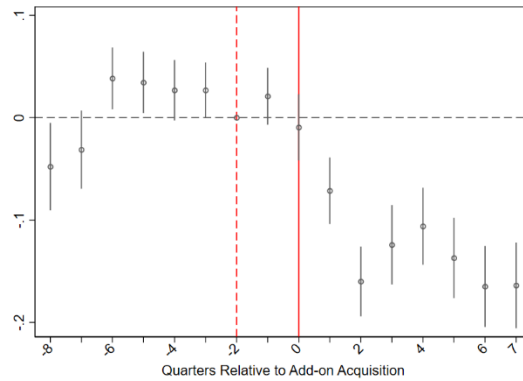
Notes/Sources: Authors' analysis of PitchBook, MD-PPAS, and HCCI data. Add-on acquisitions are defined as acquisitions of physician practices by a PE firm that previously made a platform acquisition in any geographic market.

Appendix Figure 1: Effect of Add-on Acquisition on in-network claim volume

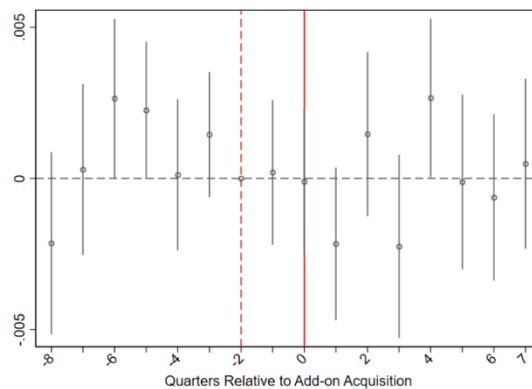
A. Log (In-Network Claims)



B. Log (In-Network and Out-of-Network Claims)



C. Share of In-Network Claims



Notes/Sources: Authors' analysis of PitchBook, MD-PPAS, and HCCI data. Add-on acquisitions are defined as acquisitions of physician practices by a PE firm that previously made a platform acquisition in any geographic market.

Appendix Table 3: Robustness of DiD estimates with CBSA*Year Fixed Effects

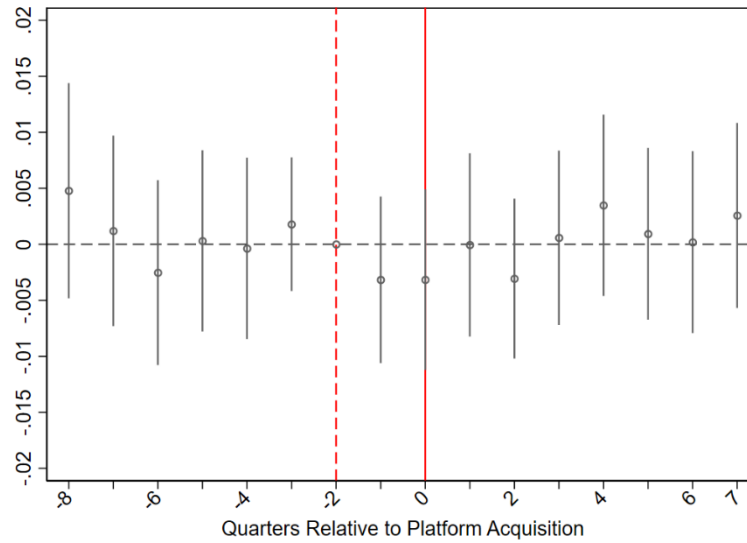
Variable	Main Specification (DiD, 95% CI)	With CBSA * Year FE
Platform Price	0.0543481 (0.000) [0.0384155, 0.0702807]	0.0592571 (0.000) [0.0367126, 0.0818016]
Add-on Price	0.051569 (0.000) [0.036914, 0.066224]	0.0574972 (0.000) [0.0416801, 0.0733143]
Cross-market Price	0.0341469 (0.000) [0.0187527, 0.0495411]	0.04022 (0.000) [0.0227545, 0.0576856]
Within-market Price	0.1036138 (0.000) [0.0653493, 0.1418782]	0.0930575 (0.000) [0.0555591, 0.1305558]

Appendix Table 4. DiD estimates with leave-one-out sensitivity

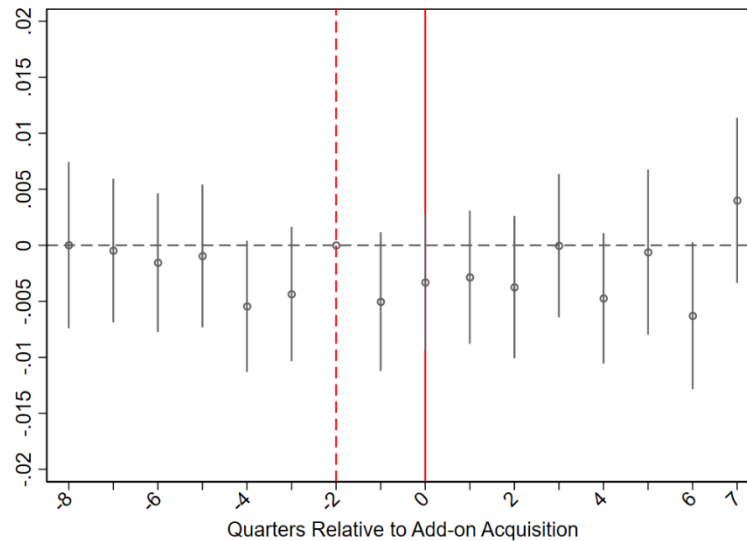
	Platform Price	Add-on Price
Leave company 1 out	0.0549304 (0.000) [0.0389726, 0.0708883]	0.0742439 (0.000) [0.0570922, 0.0913957]
Leave company 2 out	0.062556 (0.000) [0.0443518, 0.0807603]	0.071884 (0.000) [0.0549648, 0.0888032]
Leave company 3 out	0.0604918 (0.000) [0.0394124, 0.0815712]	0.1165575 (0.000) [0.093652, 0.1394629]
Leave company 4 out	0.0540931 (0.000) [0.0375705, 0.0706158]	0.0722867 (0.000) [0.0551557, 0.0894177]
Leave company 5 out	0.0551631 (0.000) [0.0375125, 0.0728136]	0.0814044 (0.000) [0.0622747, 0.100534]
Leave company 6 out	0.0593464 (0.000) [0.0427345, 0.0759583]	0.0690025 (0.000) [0.0523102, 0.0856947]
Leave company 7 out	0.054369 (0.000) [0.0383873, 0.0703507]	0.0208505 (0.006) [0.0060649, 0.0356361]

Appendix Figure 2: Effect of Acquisition on Share of Patients with Adverse Outcomes (weighted by patient volume)

A. Platform Acquisition



B. Add-on Acquisitions



Notes/Sources: Authors' analysis of PitchBook, MD-PPAS, and HCCI data. Add-on acquisitions are defined as acquisitions of physician practices by a PE firm that previously made a platform acquisition in any geographic market.

Appendix Figure 3: Differential change in price, cross-market acquisitions relative to platform acquisition, by acquiring firm

