Paper Trail: Working Papers and Recent Scholarship

Editor's note: *In this edition, we review Steven C. Salop and Fiona Scott Morton's paper celebrating the 10th anniversary of the adoption of the 2010 Horizontal Merger Guidelines. Their paper focuses on possible revisions that would increase the efficacy of merger policy in interdicting and deterring anticompetitive mergers.*

We also review recent scholarship on health care prices. Juliette Caminade, Samuel Weglein, and Tímea Laura Molnár discuss three recent papers at the frontier of health economics research that analyze how two important features of the U.S. health care system––bargaining between insurers and employers, and the prevalence of hospital systems––influence price setting and merger analysis in health care, with direct implications for merger enforcement.

Send suggestions for papers to review to: jwoodbury@crai.com

—*John R. Woodbury*

Recent Papers

Steven C. Salop & Fiona Scott Morton, The 2010 HMGs Ten Years Later: Where Do We Go From Here? Georgetown Law Faculty Publications and Other Works 2285 (June 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3628548

In the previous issue of the *Source*, Adam Di Vincenzo, Brian Ryoo, and Joshua Wade offered an insightful discussion of the evolution and the role of market definition in the 2010 Horizontal Merger Guidelines (HMGs). Their article was in celebration of the 10th anniversary of those Guidelines.[1] A recent paper by two leading antitrust scholars and practitioners, Steven C. Salop and Fiona Scott Morton, also uses this anniversary to offer their views as to how the next iteration of the HMGs can further improve the efficacy of those Guidelines in preventing and deterring anticompetitive mergers.[2]

Excessive Focus on False Positives Leading to Under-Enforcement

The foundation for the Salop-Scott Morton (SSM) recommendations is the view that current antitrust enforcement has become too permissive, resulting in considerable consumer harm. Largely propelled by the "Chicago School" in the SSM view, the paper argues that there has been a misplaced effort to avoid challenging a merger that is not anticompetitive—i.e., avoiding a "false positive."

---

[1] Adam Di Vincenzo et al., *Refining, Not Redefining, Market Definition: A Decade Under the 2020 Horizontal Merger Guidelines*, Antitrust Source (Aug. 2020), https://www.americanbar.org/content/dam/aba/publishing/antitrust_source/2020/august-2020/aug20_divincenzo_8_18f.pdf.

[2] Steven C. Salop & Fiona Scott Morton, *The 2010 HMGs Ten Years Later: Where Do We Go From Here?* (Georgetown Law Faculty Publications and Other Works 2285, June 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3628548. Steven C. Salop is Professor of Law and Economics at the Georgetown University Law Center and Fiona Scott Morton is the Theodore Nierenberg Professor of Economics at the Yale University School of Management. Both are Senior Consultants at Charles River Associates, with which I am affiliated.

This comes at the cost of missing the "false negatives" that permit anticompetitive mergers to slip through the antitrust screens because of the high level of certainty the agencies (and the courts) require for a successful challenge. As evidence of under-enforcement, SSM cite a number of econometric analyses of cleared consummated mergers suggesting that these mergers led to reduced competition and higher prices.[3]

SSM argue that requiring such a substantial likelihood that the challenged merger will be anticompetitive is misguided. Put differently, the agencies demand near certainty of post-merger anticompetitive conduct before a merger challenge. But SSM note that the legal standard "requires only an 'appreciable risk' or a 'reasonable probability' that competition will be reduced."[4] SSM further note that "the HMGs are intended to be consistent with a merger law that is not premised on . . . an overarching focus on preventing false positives . . . ."[5] In particular, SSM underscore the point that the HMGs "reflect the congressional intent that merger enforcement should interdict competitive problems in their incipiency and that certainty about anticompetitive effect is seldom possible and not required for a merger to be illegal."[6]

SSM also point to evidence that resources required for effective enforcement have substantially lagged behind the increase in merger activity and the dollar value of mergers, contributing to under-enforcement.[7] Faced with resource constraints, the agencies have naturally focused on the most egregious anticompetitive mergers consistent with the HMGs, with a very high percentage of those mergers receiving a second request being successfully challenged.

Against this backdrop, SSM suggest a number of "fixes" to remedy the perceived current under-enforcement. Many of the "fixes" are directed at reducing the agency burdens required to mount a successful challenge and so mitigate the costs of under-enforcement.

Rebuttable Presumption: HHI

The paper notes that over time, the HHI-based anticompetitive presumption (what SSM call "the red zone") has become more permissive, increasing from a level of 1800 and a delta of 100 to a level of 2500 and a delta of 200. SSM observe that "by announcing this higher internal threshold, the HMGs communicate to courts that a higher threshold for the structural presumption is warranted."[8]

While SSM do not identify a clear reason for that change, they note the possibility that the more stringent HHI thresholds are the result of the increasing willingness of the agencies to tolerate potentially anticompetitive mergers so as to focus limited enforcement resources on only egregious mergers (which, as SSM note, have HHIs well above the current presumption threshold in

---

[3] SSM cite a number of studies that are consistent with under-enforcement in notes 12–13. However, the view that under-enforcement appropriately characterizes recent antitrust experience has not gone unquestioned. *See, e.g.*, John W. Mayo & Jeffrey Macher, *The Evolution of Merger Enforcement Intensity: What Do the Data Show?* (July 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3651485; Dennis W. Carlton, *Some Observations on Claims That Rising Market Power Is Responsible for US Economy Ills and That Lax Antitrust Is the Villain* (July 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3638500.

[4] Salop & Scott Morton, *supra* note 2, at 1 (footnote omitted).

[5] *Id.* at 2. Additionally, the paper argues that a willingness of the agencies to require such a high level of certainty before a challenge runs counter to "the longstanding legal standard that mergers that create a significant market share in a concentrated market *are legally presumed* to be anticompetitive." Salop & Scott Morton, *supra* note 2, at 2 (emphasis added).

[6] U.S. Dep't of Justice & Fed. Trade Comm'n, Horizontal Merger Guidelines § 1 (2010), https://www.justice.gov/atr/horizontal-merger-guidelines-08192010.

[7] Salop & Scott Morton, *supra* note 2, at 2–5.

[8] *Id.* at 8.

the HMGs).[9] If, over time, proposed mergers have even higher HHIs, the agencies may challenge those mergers (while clearing others that are also above the threshold but not by as much). The courts may regard that outcome as indicating that the agencies have effectively raised the HHI thresholds again. In response, SSM advise that the "red zone" thresholds should be lowered to reduce the emphasis on preventing false positives.[10]

Proposed Rebuttable Presumption: GUPPIs

SSM argue that the HMGs should be revised to establish a rebuttable presumption relying on the Gross Upward Pricing Pressure Index (GUPPI) even if the merger does not satisfy the HHI presumption. The GUPPI measures the extent to which the lost sales of one of the merging firms triggered by a price increase are diverted to the second merging firm. Given profit margins for both firms, the greater the diversion to the merging partner, the greater the incentive of the merging firm to raise price post-merger. The GUPPI measures that incentive. SSM suggest that a 10% GUPPI would be a reasonable anticompetitive presumption. A 10% GUPPI will satisfy the 5% SSNIP test for an antitrust market, meaning that the merging firms themselves constitute a relevant antitrust market.[11]

SSM observe that while a GUPPI-based presumption could be implemented by the agencies, it would not now constitute a legal anticompetitive presumption. But agency incorporation of the GUPPI presumption "would be a first step to a legal presumption since the HMGs are designed to influence (i.e., 'assist') the law."[12]

Proposed Rebuttable Presumptions: Potential Competition

Assessing potential competition from a nascent competitor has traditionally been part of an agency investigation. But a renewed focus on nascent competition has led to a much more dire term of art: "killer acquisition," i.e., the acquisition of a nascent rival producing a product that is either a substitute or complement to that of the acquiring firm but which could otherwise grow to compete with the acquirer's product.[13] Among other difficulties, challenging a potential competitor acquisition typically requires evidence that the would-be potential entrant has a high likelihood of entry and, if that occurs, a significant competitive effect, a plan for entry, an assessment of the risk that the entrant would not have been successful, and the absence of a sufficient number of alternative

---

[9] *Id.*

[10] SSM cite evidence that most mergers fail to realize merger-specific efficiencies (*id.* at n.20), leading them to suggest that the HHI safe harbors should be reduced to reflect very low or de minimis efficiencies. This is likely a highly controversial view, at least as stated so affirmatively in the paper. However, SSM do cite a recent paper suggesting that unless the efficiencies are substantial, even mergers generating a HHI delta of less than 100 may not be sufficient to offset consumer harm. *Id.* at 8 n.23 (citing Volker Nocke & Michael D. Whinston, *Concentration Screens for Horizontal Mergers* (Apr. 29, 2020)).

[11] Salop & Scott Morton, s*upra* note 2, at 6 and accompanying notes (citing Steven C. Salop & Serge Moresi, *Updating the Merger Guidelines: Comments* (Nov. 2009), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2756487); *see also* Carl Shapiro, *The 2010 Horizontal Merger Guidelines: From Hedgehog to Fox in Forty Years*, 77 Antitrust L.J. 49 (2010). As with the HHI safe harbor thresholds, SSM also suggest possible elimination of any safe harbor for the GUPPI, such as 5%, intended to account for merger efficiencies. Salop & Scott Morton, *supra* note 2, at 6–7.

[12] Salop & Scott Morton, *supra* note 2, at 6.

[13] Tracy J. Penfield and Molly Pallman echo many of these nascent competitor concerns in their article, *Looking Ahead: Nascent Competitor Acquisition Challenges in the "TechLash" Era,* Antitrust Source (June 2020), https://www.americanbar.org/content/dam/aba/publishing/antitrust_source/2020/june-2020/jun20_penfield_6_17f.pdf. For a discussion of why nascent competitor concerns may be exaggerated, see Jonathan Jacobson & Christopher Mufarrige, *Acquisitions of "Nascent" Competitors*, Antitrust Source (Aug. 2020), https://www.americanbar.org/content/dam/aba/publishing/antitrust_source/2020/august-2020/aug20_jacobson_8_18f.pdf .

entrants.[14] SSM conclude that "[t]hese requirements increase the risk of false negatives as the level of uncertainty inherent in all these predictions is high even while the mean effects may be large."[15]

To remedy these infirmities, SSM suggest that the agencies directly assess "the consumer welfare effects of the various possible [entry and growth] paths [of the nascent rival] and predict the expected value impact on consumer welfare."[16] Even if the likelihood of a successful entry is low, the expected loss in consumer surplus can be substantial.[17]

Importantly, SSM recommend that the HMGs include an anticompetitive presumption if a leading firm acquires a small, nascent, or potential competitor. In addition, the HMGs should include an anticompetitive presumption with respect to mavericks in particular "if one of the merging firms in a concentrated market has been a maverick competitor."[18]

The revised HMGs would rely on these presumptions even if the HHI thresholds are not met. Of course, the courts would need to be convinced that these presumptions are justified, but as previously noted, the use of the presumption by the agencies may influence the courts' findings.[19]

Modifying Econometric Analysis to Better Account for False Negatives

In evaluating econometric evidence, a key point SSM highlight is that the conventional statistical approach is biased against a finding of anticompetitive effects from a merger and so increases the agency burden to satisfy an anticompetitive presumption in challenging that merger. For example, suppose the adverse competitive effects of a merger were tested statistically and the conclusion turned on whether the relevant "competitive parameter" in an econometric analysis was statistically significant. In conventional practice, if that parameter is significant in (say) 1 out of 100 random outcome possibilities (statistically significant at the 1% level, a standard significance level), one could conclude that the finding is so "rare" that it was unlikely to occur by chance. That result, in turn, would be viewed as supporting a conclusion that the merger would be anticompetitive. Colloquially, before a merger challenge, one wants to be very certain that the merger was anticompetitive by using stringent significance levels (1%, 5%, 10%) in testing for adverse competitive effects.

Suppose the relevant parameter is not statistically significant at these levels. That itself does not mean that the merger is not anticompetitive. It only means that given the emphasis in the current regime of avoiding false positives and so requiring a very high degree of statistical certainty, the high statistical standard would not "identify" that merger as anticompetitive even if it were the case. As SSM argue, "an exclusive focus on false positives is undesirable, both in terms of the text of the law and also from the perspective of consumer welfare."[20]

---

[14] Salop & Scott Morton, *supra* note 2, at 12. The paper notes the particular difficulty of demonstrating that the acquisition of a small firm producing a complement will, absent the merger, develop a product directly competitive with that of the acquiring firm.

[15] *Id.*

[16] *Id.* at 13.

[17] In addition, SSM encourage the agencies and economists generally to evaluate the effect of cleared nascent-competitor acquisitions on consumers, i.e., a retrospective analysis to gauge the potential harm (if any) from these acquisitions.

[18] *Id.* at 16. The FTC and DOJ have recently begun exploring whether changes in the HSR informational requirements should account for both the acquisition of small but potentially competitive rivals by larger firms and for the effects of common ownership. *See* John Eggerton, *FTC, DOJ Propose Changes to Antitrust Reviews*, NEXTTV (Sept. 22, 2020), https://www.nexttv.com/news/ftc-doj-propose-changes-to-antitrust-reviews.

[19] SSM argue that these presumptions would be particularly burden-reducing in markets with strong network effects: "[T]the incumbent dominant firm has an incentive to acquire the entrant when it still is nascent, but may grow into a significant competitive threat." Salop & Scott Morton, *supra* note 2, at 13.

[20] *Id.* at 15.

To better account for false negatives in the competitive analysis, SSM suggest a "Bayesian" approach, at least at a conceptual level. At the conceptual level (and ignoring statistical detail in this review), first develop an estimate (or judgment) of the likely competitive effects based on (say) a structural presumption, prior studies (e.g. retrospectives), and documents. That may suggest that the merger would be anticompetitive. Second, the conclusion in this first step in the analysis would then be modified (or not) in light of the econometric evidence. If the econometric evidence is weak, that may result in modifying the initial prior that the merger would be anticompetitive.[21]

Other Suggested Modifications

SSM urge the agencies (and scholars) to develop a more complete framework for coordinated effects analyses to replace the "checklist" approach, not a novel suggestion but still an important point. SSM note that some recent papers have empirically identified the adverse consumer effects of collusion and the kinds of circumstances that facilitate that collusion.[22]

Further, SSM highlight the recent substantial and growing literature on the effect of institutional investments in rivals on softening downstream competition.[23] A discussion of the potential anti-competitive effects of common ownership in the HMGs would be useful, as would further agency research into the effect of common ownership on competition.[24]

Finally, the paper suggests that the HMG revisions might consider accounting for the possibility of substantial but low probability shocks to the market that can lead to higher prices if, for example, the merger consolidates plants to take advantage of (say) scale economies. While a seeming static efficiency, fewer plants each with greater capacity might be more prone to a disruption if (say) COVID-19 were to close one of the now larger plants. The resulting pricing pressure might have been mitigated if there were no post-merger plant closures, even if those plants were higher cost than the consolidated plants. SSM consider this outcome an adverse competitive effect that might be reckoned in the competitive analysis as a cost to attaining the efficiencies. But SSM acknowledge the issues of how to gauge both the likelihood of low probability events and the magnitude of the harm if they occur are substantial at best.

---

[21] SSM additionally recommend that the HMGs make clear the false-positive bias of current enforcement policy, the limitations of that focus, and (critically) why conventional statistical testing will not necessarily be followed while discussing different ways to take account of false negatives, as just discussed. SSM also urge the agencies to encourage research that would render the Bayesian approach more operational. *Id.* at 16–17. In addition, SSM address a number of other concerns related to the use of econometrics. First, SSM advise that the HMGs should emphasize that the econometrics is not the beginning or end of the story: "[T]he HMGs [should] make it clear that the agency does not require quantitative evidence to satisfy its burden for . . . the prima facie case, but can rely on the structural presumption or another anticompetitive presumption." *Id.* at 17. Second, a judge is unlikely to have the ability to evaluate claims and counter claims of any statistical analysis given the complexity of both the methods and data used. Echoing past recommendations, SSM suggest relying on a court-appointed expert to sift through competing statistical claims, something that could be suggested in the HMGs.

[22] *Id.* at n.29. SSM also suggest that the HMGs specifically address a frequent claim by the merging parties that post-merger, competition will remain intense. This suggestion might be implemented by highlighting how rival firms can accommodate price increases of the merged firm by raising their own prices, as in differentiated product models. SSM also recommend that the HMGs highlight the required necessary skepticism of unsupported claims made by the executives of the merging parties. *Id.* at 19.

[23] *Id.* at 10–11.

[24] While the discussion of common ownership is brief, incorporating how the agencies would assess common ownership explicitly in the HMGs is no easy task. *See, e.g.*, Eric A. Posner, Fiona Scott Morton & E. Glen Weyl, *A Proposal to Limit the Anti-Competitive Power of Institutional Investors,* 81 Antitrust L.J. 669 (2017).

Some Concluding Observations

The gravamen of this paper is the view that the agency enforcement of antitrust policy has been so focused on avoiding the harm from false positives that it has all but ignored the costs of false negatives and so resulting in clearing mergers harmful to consumers. In addition, this under-enforcement of antitrust policy has been amplified by resource constraints at the agencies. Thus, the "lax" enforcement policy is a result of the combination of these two characteristics, and proposed revisions to the HMGs may help remedy this perceived policy failing. Those with views that under-enforcement is not an issue, i.e., the focus on false positives is appropriate, will no doubt find the SSM suggestions as likely to harm consumers.

While the "Chicago School" may have emphasized the importance and the cost of false positives (to the near exclusion of harms from false negatives),[25] one might wonder whether the enforcement policies would have been any different if SSM's revisions were adopted and if the driving force for case selection was a resource-constrained agency. One would expect that the agencies would in any event focus on challenging the most egregious mergers, an outcome consistent with the broad enforcement patterns cited by SSM. Nonetheless, with no relaxing of the resource constraint but with "relaxation" of the HMGs' constraints as suggested by SSM, the mix of cases pursued by the agencies would likely change. For example, more resources might be diverted to nascent competitor acquisitions. Overall, if this new case mix is generated by focusing on those mergers that are likely to create the most consumer harm, the proposed revisions to the HMGs would improve consumer welfare even with resource constraints, if the SSM concerns are valid. And by easing the agency burdens in developing additional rebuttable presumptions, resources may be released to expand the enforcement frontier.

Against that backdrop, the SSM paper should be regarded more as a menu of HMG changes that may improve enforcement and consumer welfare rather than as one that has filled in all of the details of those changes, a point acknowledged by SSM. While more than food for thought, many of the paper's recommendations will require considerable effort to implement, if they can be implemented at all. That would include developing a coordinated effects framework, taming the speculation that can accompany potential competition concerns, and providing much greater guidance on econometrics "reform." And the devil is in the details of how these changes are implemented. Still, in principle, the HMGs' incorporation of some important presumptions could be modified relatively easily, such as lowering the HHI "red zone" thresholds, including a GUPPI-based presumption, and including a leading-firm presumption regarding mergers of actual rivals, nascent competitors, and mavericks.

With respect to econometric "reform" in particular, while some or many regard the false-positive bias of conventional hypothesis testing as excessive, the practical solution to optimally reducing this bias is not at all obvious. The SSM-suggested Bayesian approach could conceptually at least provide a basis for looking at the statistical conclusions in a broader context, but the implementation

---

[25] Certainly, one main argument that has been used in defense of this focus is that harmful mergers that slip through the antitrust screens are self-correcting: The higher profits generated by those mergers will attract entrants to return the market to a more competitive state. One prominent proponent of this argument noted that "private restriction of output may be less harmful to consumers than mistaken rules of law that inhibit efficiency . . . . . [A] market position that creates output restriction and higher prices will always be eroded if it is not based upon superior efficiency." Robert H. Bork, The Antitrust Paradox: A Policy at War with Itself 133 (1978). By contrast, the retrospectives cited by SSM suggest that that erosion has not occurred for many of the cleared mergers.

details are sparse. Having said that, in my own view, research that creates a more optimal balance between false negatives and false positives would advance the interests of consumers.[26]

However, the suggestion that merger policy should account for the low probability occurrence of a substantial market disruption may be a bridge too far. Even if an otherwise competitive merger would render a response to the disruption more difficult and even if in principle antitrust policy should account for these effects (and many would likely argue that would be inappropriate), SSM acknowledge the important issue of "whether the potential for such shocks can be identified in advance and whether the harms are sufficiently high to make such low probability events worth taking into account in merger analysis."[27]

In sum, the paper is a cornucopia of ideas on how to improve antitrust enforcement by better accounting for the cost of false negatives, ideas well worth exploring. Some ideas are easily implementable if a consensus emerged that supported those ideas. Others will require much further research and likely substantial debate but the absence of detail in these proposals should be no bar to considering their merits.

—*John R. Woodbury*

Zack Cooper, Stuart V. Craig, Martin Gaynor & John Van Reenen, The Price Ain't Right? Hospital Prices and Health Spending on the Privately Insured, 134 Q.J. Econ. 51 (2019).

This paper documents large differences in hospital prices for private insurers and offers suggestive evidence that the relative bargaining power of providers and insurers is an important determinant of health care prices. Cooper et al. analyze (1) hospital price dispersion, (2) the relationship between negotiated hospital price and providers' and insurers' market structures, and (3) how negotiated prices evolve after hospitals merge. All of their results highlight the importance of the relative bargaining power of providers and insurers in determining health care prices and how that power is affected by mergers.

Prior research on health care spending has often focused on Medicare prices, which are readily available, or has used limited data samples from privately insured beneficiaries.[28] And while there is an extensive literature that aims to study the relationship between hospital prices and market-specific factors, the authors of these papers have not had access to data on the actual

---

[26] Some might say (correctly) that I have drunk the under-enforcement Kool-Aid in making this point. I will note in passing that one can think of choosing the level of significance by weighing the marginal costs of increasing false positives against the marginal benefits of reducing false negatives using an appropriate welfare function. Aside from the fact that this approach is easier to describe than implement, it would result in using significance levels that may vary by merger. The use of context-specific significance levels would be a substantial deviation from standard practice (relying only on the 1%, 5%, and 10% significance levels), which may explain the SSM's less direct Bayesian proposal. If one were to adhere to the conventional significance levels, the avoidance of false negatives can be reduced somewhat by a tolerance of a 10% level of significance which is consistent with standard practice. However, any parameters found to be significant at the 10% level are often regarded as "weakly significant" and so are often ignored as outcome-determinative. Instead, acceptance of that finding at a 10% level might be buttressed (or weakened) by other evidence (e.g., rebuttable presumptions and documentary evidence). Such a change may not be optimal, but it will reduce the incidence of false negatives particularly if supported by other evidence. It could also be viewed as a variant of SSM's Bayesian approach, but focused on a concrete level of significance.

[27] Salop & Scott Morton, *supra* note 2, at 18.

[28] *See, e.g.*, Amy Finkelstein, Matthew Gentzkow & Heidi Williams, *Sources of Geographic Variation in Health Care: Evidence From Patient Migration*, 131 Q.J. Econ. 1681 (2016) (using Medicare claims data); Michael E. Chernew et al., *Geographic Correlation between Large-Firm Commercial Spending and Medicare Spending*, 16 Am. J. Managed Care 131 (2010) (privately insured beneficiaries from the Thomson Reuters (Medstat) MarketScan Commercial Claims and Encounters Database, which collects administrative data for a set of large firms).

transaction prices that were the result of negotiations between a given hospital and a given insurer.[29] This paper is one of the first to study the hospital prices negotiated by private health insurers at the individual insurer level.[30] Cooper et al. rely on recent and extensive claims data collected by the Health Care Cost Institute, which include health care providers' negotiated prices with three large national insurers, Aetna, Humana, and UnitedHealth. They focus their analysis on claims from patients between 18 and 64, excluding claims from secondary payers. The data identify individual hospitals and prices negotiated with one of the three aforementioned insurers, although the insurer name is anonymized. The authors rely on hospital characteristics data from the American Hospital Association annual survey, which includes information on the systems hospitals belong to, and census data.

First, Cooper et al. provide novel evidence that the prices negotiated by private insurers vary substantially across regions, across hospitals within regions, and among insurers at a given hospital. The authors start by measuring risk-adjusted health spending per insured beneficiaries, finding that such spending can vary by as much as a factor of three across the 306 Hospital Referral Regions in the United States. They find that variation in quantity of care only accounts for half of the difference in spending.[31] The rest can be explained by differences in prices of health care. Therefore, the authors study the variation in hospital prices for inpatient stays and certain hospital procedures. To minimize the risk that their comparison is tainted by differences in patient composition or complexity of cases, the authors focus their analysis on undifferentiated, narrowly defined procedures (such as MRIs) and cases without complications or for certain normal age ranges (e.g., C-sections for women between 25 and 34). They also control for differences in hospital quality. The authors find significant variation in prices even for these narrowly defined and largely undifferentiated procedures. For instance, the negotiated prices for a knee replacement can vary from about $15,000 to $35,000, while prices for a lower limb MRI can vary from about $700 to $2,100. Intrinsic differences across hospitals and regions, such as different patient mix and quality of care, explain half of the price variation; a quarter of the price differences arise from the same hospital charging different prices to different insurers for the same procedure.

As there is a large body of research on health care based on Medicare prices, there can be a temptation to use the findings of that research to inform policy debate pertaining to the market for private commercial insurance. However, an important finding from the Cooper et al. paper suggests that doing so may be problematic, as they find that Medicare prices are not a good proxy for health care prices negotiated by private insurers. Specifically, they find that over 40 percent of inpatient service prices negotiated by private insurers are not tied in any way to Medicare rates and that, more generally, health spending for privately insured beneficiaries does not strongly correlate with health spending for Medicare beneficiaries.

Second, using these more granular data, Cooper et al. study how inpatient prices and contracts vary with hospital market structure and with the combined enrollee share of Aetna, Humana, and

---

[29] *See, e.g.*, Asako S. Moriya, William B. Vogt & Martin Gaynor, *Hospital Prices and Market Structure in the Hospital and Insurance Industries,* 5 Health Econ. Pol'y L. 459 (2010) (Thomson Reuters MarketScan); Michael R. McKellar et al., *Insurer Market Structure and Variation in Commercial Health Care Spending*, 49 Health Servs. Res. 878 (2014) (Truven Health Market Scan Database); Richard M. Scheffler & Daniel R. Arnold, *Insurer Market Power Lowers Prices in Numerous Concentrated Provider Markets*, 36 Health Aff. 1539 (2017).

[30] While the data differentiate claims from the different insurers, those insurers are anonymized.

[31] For comparison, variation in the quantity of care delivered across regions explains 95% of the variation in Medicare spending across regions.

UnitedHealth (as they are unable to identify which of the three insurers negotiated the price).[32] Earlier papers on the relationship between hospital prices and market concentration typically relied on less granular data and/or measures of prices and bargaining power (such as average claims in a market and market concentration, both on the provider and insurer side).[33] Therefore, these earlier papers only offer limited explanations to their findings as they lacked data on or did not analyze the specific price a given insurer negotiated with a particular provider. Thanks to their more granular data and more disaggregated analysis, Cooper et al. provide suggestive evidence that both insurer and hospital provider market structure influence bargaining outcomes, with a higher insurer share capturing directly the insurer's bargaining leverage, leading to lower prices.

To do so, they define the hospital market structure faced by a given hospital as the number of hospitals within a certain distance (15 miles being their main measure), thus rendering the analysis hospital-specific (rather than specific to a given region, such as a county or an MSA).[34] They classify hospitals into four categories: hospitals with no competing hospital within 15 miles (i.e., monopolies), hospitals with only one other hospital competing within 15 miles (duopolies), hospitals with two other hospitals within 15 miles, and hospitals with three or more other hospitals within 15 miles. They find that average prices at monopoly hospitals are 12 percent higher than prices for the same procedure at hospitals that have at least three competitors in their 15-mile neighborhood; for duopoly hospitals, the prices are 7 percent higher. On the insurer side, they find that, holding all else equal, a 10 percentage point increase in the combined market share of the three insurers in their data is associated with 7 percent lower hospital prices on average.[35]

In addition to price levels, Cooper et al. also look at how the underlying pricing structure relates to risk sharing. Relying on their granular data, they are able to identify the pricing mechanism for most payments from insurers to providers. In some instances, insurers pay providers for each individual service rendered (this is often referred to as "fee for service"); in other instances, providers may be paid a fixed amount for a given type of patient or admission (it may, for example, be based on the patient diagnosis codes), regardless of the exact services rendered (this is often referred to as "prospective payments").[36] Prospective payments are riskier for providers, because they receive a predetermined payment despite uncertainty over which services will be rendered and therefore over the final cost of treatment (from the point of view of the provider). Fee for service payments are less risky for providers because, if a patient requires further or more complicated care, the insurer bears the additional cost. The authors find that 57 percent of all inpatient payments are benchmarked to the Medicare rate, which is a prospective pay structure, typically with

---

[32] As noted earlier, the data used in the paper differentiate among claims from different insurers, but anonymizing the insurers. This is the reason the authors study the combined enrollee share of Aetna, Humana, and UnitedHealth, rather than their individual shares. While it would be preferable to identify the exact insurer for each claim, capturing all claims from a known set of insurers throughout the country provides more accurate estimates than capturing claims from unidentified insurers throughout the country using employer data.

[33] *See* sources cited *supra* note 29.

[34] This analysis of market structure may differ from recent FTC hospital merger reviews, where relevant geographic markets have typically been defined as a set of surrounding counties by application of the hypothetical monopolist test. Market concentration has typically been measured using Herfindahl-Hirschman Index (HHI), not number of hospitals. *See* Cory Capps et al., *The Continuing Saga of Hospital Merger Enforcement*, 82 Antitrust L.J. 441 (2019).

[35] The authors do not investigate whether insurer share has a different effect on monopoly, duopoly, or more competitive hospitals.

[36] Examples of prospective payments include per diem reimbursement and Diagnosis Related Group (DRG) payments. Per diem reimbursement has a simple formula: the price of an inpatient stay is a fixed amount for each day spent in the hospital, sometimes depending on the type of care. DRG-based payments, on the other hand, depend on the patient's diagnoses, primary procedure, and demographics. Medicare's Part A inpatient payment is generally prospective.

some mark-up on the Medicare rate, while 23 percent are directly tied to the hospital list price,[37] reflecting fee for service pricing.[38] In addition, they find that payment structures in which the insurers bear more risk are more common in markets in which providers are monopolists and less likely in markets in which the three insurers have a larger joint market share.

Third, Cooper et al. examine how hospital prices evolve after hospital mergers for hospitals located as far as 50 miles apart. They analyze price data from a comprehensive database that includes over 350 U.S. hospital mergers between 2007 and 2011. They find that mergers of hospitals within 25 miles of each other are associated with statistically significant price increases, with effects that are larger for hospitals that are closer to each other. When two merging hospitals are located less than 5 miles apart, they are able to negotiate, on average, 6 percent higher prices after the merger. The effect gradually decreases for hospitals within 5 to 15 miles of each other, and plateaus at around 2 percent for distances up to 25 miles. The effect is also positive, albeit not statistically significant, for hospitals up to 50 miles apart. While the authors caution that these results do not prove a causal relationship, they interpret them as supportive of a conclusion that local market structure affects the bargaining power of hospitals relative to the bargaining power of insurers.

Glenn Melnick, Katya Fonkych & Jack Zwanziger, The California Competitive Model: How Has It Fared, and What's Next? 37 Health Aff. 1417 (2018).

Leemore Dafny, Kate Ho & Robin S. Lee, The Price Effects of Cross-Market Mergers: Theory and Evidence from the Hospital Industry, 50 RAND J. Econ. 286 (2019).

Traditionally, antitrust authorities have been concerned by mergers between health care providers that are direct competitors, either in the same geographic or product market.[39] Cross-market hospital mergers have only recently attracted attention over rising concerns by academic economists and antitrust practitioners that local prices could be affected by cross-market ownership. Each of these two studies sheds new light on the unilateral price effects stemming from hospital mergers across distinct geographic markets. Such evidence is relevant given the increasing prevalence of cross-market hospital mergers.

Melnick et al. argue that the consolidation of hospitals into hospital systems spanning multiple local markets in California has been an important factor behind rising hospital prices. In particular, the authors suggest that hospital systems were able to increase prices by leveraging their cross-market ownership to strengthen their bargaining position vis-à-vis insurers by using "all-or-nothing" contracting, i.e., negotiating for all hospitals within a system jointly. Intuitively, the insurer would lose many hospitals from its network if negotiations with the entire hospital system broke down, thereby reducing the "attractiveness" of the insurer's outside option in negotiations.

---

[37] Hospitals generally set "list prices" for all of their procedures and services. This is the price that an uninsured patient would be billed by the hospital. When insurers pay providers on a fee for service basis, they can negotiate to pay a certain percentage of the list price for any service received by a patient.

[38] There are more complex payment structures that could account for the remaining 20% of inpatient payments.

[39] *See, e.g.*, Leemore Dafny, Kate Ho & Robin S. Lee, *The Price Effects of Cross-Market Mergers: Theory and Evidence from the Hospital Industry*, 50 RAND J. Econ. 286 (2019); Glenn A. Melnick, Katya Fonkych & Jack Zwanziger, *The California Competitive Model: How Has It Fared, and What's Next?* 37 Health Aff. 1420 (2018).

Melnick et al. start by documenting an increase in hospital consolidation starting in the mid-1990s in California, driven by hospital exits, mergers, and the expansion of multihospital systems, both locally and throughout the state. They find that local concentration increased only between 1995 and 2001, and that between 1995 and 2016, the share of hospitals belonging to systems increased from 39 percent to 60 percent. Together, these two findings suggest that hospital systems have been expanding their geographic reach. They also document that after the two largest systems in California (Sutter Health and Dignity Health) both started using all-or-nothing bargaining in the early 2000s, their inpatient prices began diverging from other hospitals. The authors calculate the average revenue per private admission, adjusting for patient volume, hospital differences in patient case mix, and input prices. They report that while Sutter and Dignity prices were comparable to those of other hospitals in 1996, they were 25 percent higher by 2016. While Melnick et al. do not directly link Sutter and Dignity's change in strategy to specific mergers in or across local markets, they interpret the above facts together as indicative that large multimarket hospital systems can enhance their bargaining position through cross-market mergers.

Dafny et al. propose a more rigorous modeling and empirical analysis of cross-market merger effects. The authors observe that about half of recent hospital mergers involved hospitals in different local markets.[40] Such mergers have not typically raised concerns from antitrust authorities. However, in this paper, the authors argue that such mergers can lead to cross-market effects because of the intermediating role that insurers play between hospitals and employers/households.

Dafny et al. start by developing a theoretical model of bargaining between upstream suppliers and downstream intermediaries (such as insurers who act as intermediaries between hospital and employers/households). One of their key insights is that, even though the consumption of hospital services by patients is typically local, both the payments and the actual purchase of hospital services are not purely local. First, as mentioned in Melnick et al., insurers are often present across multiple hospital markets and may negotiate payments jointly across multiple local markets. Second, and more importantly, an employer may seek to purchase health insurance for a pool of employees located in multiple hospital markets. As a result, even though each employee seeks health care locally, the employer considers the joint location of all its employees, therefore creating a possible link between those local areas.[41] For example, while a patient from Los Angeles would most likely not consider treatment at a San Francisco hospital, an employer with offices in both cities would typically seek to offer an insurance plan to its employees with access to hospitals in both places. As a result, if a hospital in San Francisco merged into a hospital system with hospitals in the Los Angeles area, the joint entity would have more bargaining power with respect to insurers who contract with employers representing employees in both locations.

Note that this insight may naturally extend to cross-product mergers in the same local market, as similar mechanisms may be at play. Such cross-product mergers include cases where a hospital merges with a physician group[42] or when two different specialty groups merge.

---

[40] Specifically, in the same state but in different metropolitan or micropolitan statistical areas, or in different states altogether.

[41] The authors caution that certain features would make this cross-market link disappear, such as if employers could costlessly offer different plans in different geographic areas or if each hospital bargained on its own, regardless of its system affiliation.

[42] As an example, consider Northwestern Medicine, which is the result of multiple hospital and physician practice mergers and acquisitions. *See The Growing Reach of Northwestern Memorial Hospital*, Becker's Hospital Rev., https://www.beckershospitalreview.com/hospital-physician-relationships/the-growing-reach-of-northwestern-memorial-hospital-it-s-not-your-parents-nmh-10-things-to-know.html (last visited Oct. 2, 2020).

Dafny et al. do not rest on theoretical results. They use two sets of acute-care hospital mergers between 1996 and 2012 to empirically test their theoretical model. The empirical exercise is complicated by the fact that hospital mergers are not random events. Hospitals involved in a merger are likely systematically different in their unobserved characteristics than hospitals not involved in mergers, so using non-merging hospitals as a benchmark for prices charged by merging hospitals may be misleading. To circumvent this issue, the authors use data only on hospitals that they consider more likely to be "bystanders" of the transactions, rather than at the center of the deal, focusing on hospitals in different geographic markets that are not the "crown jewels" of the merging systems.[43] These bystander hospitals, unlike the crown jewel hospitals that generally generate the strategic value of the merger, can be compared to a benchmark set of hospitals, and meaningful conclusions may be drawn from those comparisons.

For each hospital, Dafny et al. construct a price measure for a standard inpatient stay across all commercial insurers.[44] They then estimate a fixed effect model that compares how prices changed for bystander hospitals after the merger compared to a set of control hospitals, controlling for hospital characteristics such as case mix.[45] They find that cross-market mergers can lead to higher prices, if the merging hospitals are in the same state. They estimate that, when a hospital system acquires another *in-state* hospital in a different geographic market, it raises prices charged to private insurers by 7 to 10 percent. They find evidence suggesting that mergers of closer hospitals lead to the largest effects. Surprisingly, they find no effects for out-of-state acquisitions, suggesting that the links between local markets within the same states are stronger.[46]

Conclusion

These three recent papers provide important insights into the price impacts of hospital mergers, highlighting the need to account for how the specific institutional features of a given market (or markets) influence the bargaining between the various stakeholders in health care markets (i.e., hospitals, insurers, and employers). One lesson that emerges is that both the market structure of providers and that of insurers have significant effects on price negotiations and ultimate prices, as the structures are indicative of each side's relative bargaining position.

A practical consequence for antitrust practitioners is that any pricing analysis should take into account the market structures and bargaining dynamics throughout the supply chain. For instance, a proposed merger of two hospitals may have different effects depending on the degree of concentration in either the insurer market or the provider market (or both). Another lesson that emerges is that local factors matter, including the extent to which hospitals in a given market are

---

[43] Specifically, the authors exclude the "crown jewels" of each deal and exclude hospitals that gained a system member within a 30 minutes' drive. For transactions involving five or fewer hospitals, the "crown jewel" is defined as the largest hospital being acquired; for other transactions, the "crown jewels" are all hospitals above the 80th percentile of beds among the target system.

[44] Unlike Cooper et al., who are able to calculate prices for individual insurers, Dafny et al. rely on data containing aggregated payments across all commercial insurers, without distinction (Healthcare Cost Report Information System). They calculate this price measure by dividing an estimate of net inpatient revenue for non-Medicare patients by the total number of non-Medicare inpatient admissions.

[45] The method employed by Dafny et al. attributes *any* divergence in prices between the group of hospitals affected by the merger and the control hospitals (after controlling for observable factors) to the effect of the merger. Because the authors rely on aggregate price across all commercial insurers, they are unable to control for any changes in competitive conditions on the insurer side, which could also contribute to the divergence in prices.

[46] There are several explanations that may explain the observed weaker links across states. Employers may be more likely to have employees within the same state than across states; in addition, many insurers are state-based, such as many of the Blue Cross/Blue Shield insurers; and employers may be more likely to offer different carriers/plans across states than within states.

part of a large hospital system that extends into multiple geographic markets, or the prevalence of large multi-location employers that negotiate for all of their employees when bargaining with insurers.

For practitioners, these studies remind us that, especially in health care markets, economic analyses are context-specific and will depend on the specific characteristics of the markets in which the merger or conduct occurs. ●

—*Juliette Caminade, Samuel Weglein, and Tímea Laura Molnár*

Juliette Caminade and Samuel Weglein are economists at Analysis Group; Tímea Laura Molnár is an assistant professor in economics at the Central European University in Vienna.