Antitrust, Vol. 24, No. 1, Fall 2009.

An Innovative Approach to an Old Problem: Hospital Merger Simulation

BY DAVID A. ARGUE AND RICHARD T. SHIN

DESPITE A LENGTHY HISTORY OF failures to block hospital mergers in court, the federal antitrust agencies continue to be interested in the competitive implications of hospital mergers. In 2007–2008, at least four Second Requests were issued for hospital mergers, including ones for Inova Health System's proposed acquisition of Prince William Health System in the Northern Virginia suburbs of Washington, D.C., UPMC's acquisition of Mercy Hospital in Pittsburgh, the consolidation of St. Luke's Hospitals and St. Elizabeth Medical Center in the Kentucky suburbs of Cincinnati, and Banner Health's acquisition of Sun Health System in Phoenix. The FTC ultimately voted out a complaint in the Inova-Prince William transaction, but the other three mergers cleared the agency's review process.

Among the insights that came from these investigations were the first indications that the FTC staff had developed a new form of merger simulation model. The new model has, for the most part, not been publicly aired by the FTC staff, but its basic structure has been revealed through the investigation of at least three of these hospital mergers and in one working paper.[1] The merger simulation model closely follows the theoretical model of hospital competition embraced by the FTC in its retrospective review of the Evanston Northwestern-Highland Park Hospital merger. The theoretical model is well spelled out, but this article is necessarily imprecise in describing the new simulation model derived from the theoretical model.

It is not surprising that the antitrust agencies would revive the attempt to predict ex ante the impact of a merger on competition. Because of the necessarily prospective nature of merger analyses, analysts cannot know with certainty the future effect of a merger on price. Absent the ability to predict a price effect directly, the agencies must rely on indicia, such as shares, concentration, and the likelihood of entry or repositioning, that are identified in the Merger Guidelines.[2]

David A. Argue is a Principal and Richard T. Shin is a Senior Vice President in the Washington, DC office of Economists Incorporated. Dr. Argue has analyzed competition in various health care markets. He also teaches health economics at Johns Hopkins University. Dr. Shin has analyzed competition related to health care, including the behavior of non-profit hospitals and evaluations of comprehensive health insurance proposals.

Even constructing these indicia is not straightforward, however, because doing so typically requires the often-disputed delineation of the relevant market, and often the conclusions to be drawn depend heavily on how the relevant market is defined. Moreover, those measures are only imperfect indicators of market power and do not reveal the actual exercise of market power itself.

The Holy Grail has always been to know in advance of a merger whether it would cause harm through an increase in price to above-competitive levels. Merger simulation attempts to provide that predictive ability, taking into account more than only shares and concentration. If the new merger simulation approach withstands scrutiny (a process which has not yet begun in public), it will be a very powerful enforcement tool because it gives direct, though simulated, evidence and does not require or depend upon market definition.

In the 1990s, merger simulation was developed and advocated by academics and the agencies' staffs.[3] This approach typically involved critical, and often rather controversial, assumptions. Included among the assumptions were a model of oligopoly interaction in industries that are characterized by product differentiation and an assumed functional form for demand, which provides the underlying relationship between change in demand and change in price and expected substitution to alternative products. These merger simulation models were criticized when the models demonstrated sensitivity to untested assumptions.[4]

Model of Hospital Competition

The theoretical basis for the FTC's new approach to hospital merger simulation is based on a model of hospital competition developed in the early 2000s.[5] That model, known as "two-stage hospital competition," characterizes the interaction among hospitals, health insurance plans, and enrollees/patients. It attempts to tell a comprehensive story of how health plans establish networks of hospitals that are offered to enrollees and how enrollees choose hospitals once they have chosen health plans.

In the first stage of the two-stage model, hospitals and health plans engage in negotiations over the price at which a plan will accept a hospital into its network. These negotiations are conducted separately between each health plan and each hospital or hospital system. Hospitals are paid for in-net-

work services at the negotiated price. Logically, hospitals and health plans bargain for prices that reflect the relative value added to the network by each hospital. This value is determined by the many different attributes that make hospitals more or less attractive to health plans. Ultimately, plans take these differences into account as they settle on a price with each hospital.

In the second stage of the model, enrollees who become ill must choose a hospital from among the hospitals of their previously chosen network. The model assumes that a patient chooses among the hospitals in the network and bears the same out-of-pocket costs whichever one is chosen. Because the enrollee has already chosen a health plan and there is no difference in payment by the enrollee for using any particular in-network hospital, the enrollee is assumed to choose a hospital based entirely on non-price factors. These non-price factors may include attributes such as the hospital's location, reputation, staff physicians, or other attributes. Thus, while hospitals compete on price to join a network in the first stage, they compete on non-price attributes in the second stage to attract enrollees who have become ill.

This model of two-stage hospital competition was adopted in large part by the staff of the FTC, and its concepts are embedded in the Opinion of the FTC Commission in the retrospective investigation of the Evanston Northwestern-Highland Park hospital merger.[6] The two-stage model evidently formed the theoretical structure for the "difference-in-differences" approach to estimating pre- and post-merger prices conducted by the FTC staff in that investigation. The staff argued that its empirical analysis uncovered evidence that the merged hospitals increased prices to managed care plans by above-competitive amounts after the merger. This finding was critical for the Commission in ruling that the merger had harmed competition.[7]

The important recent development from the FTC staff is its adaptation of the two-stage theoretical model for hospital merger simulation purposes. In essence, the key to the simulation is, first, to estimate consumer preferences for hospitals as revealed in their second-stage choice of hospital, then to use that information to estimate prices from the first-stage negotiation between hospitals and health plans.

To understand how the merger simulation model works, it is helpful to flesh out the decision processes by which plans and individuals choose hospitals a little more explicitly than is described in the two-stage model. The two-stage model implicitly assumes that health plans already know the hospital preferences of individuals who are shopping for health insurance. Individuals' preferences for the option to use specific hospitals are based on several types of information possessed by enrollees. Included is enrollees' perceived likelihood of getting specific illnesses. For example, a family with young children may have a strong preference for having access to a children's hospital whereas an older couple is unlikely to use that hospital's services and thus may have a weak preference, if any at all, for it. Enrollees may also have perceptions of a hospital's reputation or its clinical strength and incorporate that information into their option demand for hospitals. The proximity of hospitals to an enrollee's residence is likely to be another important factor in the enrollee's preferences.

As the theoretical model suggests, health insurance plans take into account the likely preferences of their expected enrollees when the plans construct hospital networks in the first stage. Thus, although each health plan negotiates with a hospital over the price at which the hospital will participate in the plan's network, this negotiation is done with a focus on how attractive each hospital is to the plan's enrollees relative to other hospitals. Having contracted with the hospitals it would like to offer to prospective enrollees, the health plan sells health insurance coverage and hospital network access to consumers. Individuals who purchase a health plan and its hospital network thus satisfy their demand for the option to access specific hospitals in the event of an illness.

When an enrollee actually gets sick, he or she chooses among in-network hospitals based on the various factors that underlay his or her preferences in the first instance: the nature of the illness, the hospital's characteristics, its proximity, and any other relevant factors. Subsequent to the hospital providing services, the health insurance plan pays the hospital for services rendered to its enrollees based on the contracted network price.

Theoretical Determination of Rates

The theoretical model underpinning the merger simulation process assumes that each hospital and each health plan engages in a bilateral negotiation process. Hospitals are assumed to maximize profits. Health insurance plans, however, are assumed in the simulation model to construct hospital networks to maximize enrollees' satisfaction for a given level of payment to hospitals rather than to maximize their own profits.[8] Through this process, a plan adds a hospital to its network if the incremental benefit to enrollees of having the additional hospital option is greater than the incremental cost to enrollees. The incremental cost is the amount expected to be paid to the hospital which the model implicitly assumes is translated into premiums. The plan determines the incremental benefit of adding a new hospital to its network by aggregating the probability of each of its enrollees using that new hospital in the network, given the enrollees' various characteristics and given the existence of other hospitals in the network that could satisfy the enrollees' needs.

On its side of the first-stage price negotiation process, each hospital develops its negotiating position based on the bargaining power it has by virtue of offering incremental value to enrollees for being in the network. The size of that incremental value is affected by the alternative hospitals that are already in the network and the alternatives that might be added to the network. In other words, incremental value is determined by the availability of substitute hospitals for health plan enrollees. A unique hospital (e.g., a children's

hospital) may bring more incremental value to enrollees than does one of many community hospitals. The more readily available are in-network substitutes, the less incremental value another hospital adds, and the more constrained on price is the bargaining position of a new hospital being considered for the network. The value to the health plan for its enrollees to have the added option to use a particular hospital in the network is referred to as "willingness to pay" for that hospital (or for the network configuration that includes that hospital).

Reviewing some stylized scenarios helps to clarify the model as it relates to hospital mergers. The logic of these scenarios is not novel, but the examples help focus the analysis on the concept of incremental value of a hospital to a network. Imagine a scenario in which merging community hospitals are similar to each other and are similar to community hospitals that already are included in the network. The incremental value to enrollees of adding either of the merging hospitals to a network that already includes close substitutes will be low.[9] The low incremental value to enrollees means that the merged hospital has little bargaining power to get a price from the health plan that is greater than the hospital's economic costs.

The second scenario considers hospitals that are different from each other (e.g., an orthopedic hospital and a women's hospital) and different from the hospitals already in the network. If two hospitals are different from each other, the existence of one hospital in the network (or under consideration for being added to the network) has little effect on the incremental value of adding the other to the network. Thus the pre-merger incremental value to enrollees of one hospital being in the network is largely independent of the other one already being in-network. Consequently, a merger will have a low impact on the willingness-to-pay for relevant configurations of the network.

The most interesting scenario from an antitrust perspective concerns hospitals that are similar to each other but different from other hospitals that are either in the network or are available to join the network. Because of their uniqueness, the incremental value to enrollees of including either hospital would be significant, which, on its own, suggests an ability of either hospital to negotiate a price that is higher than its costs. Because each of the merging hospitals in this scenario is a close substitute for the other, however, each one's bargaining power is attenuated by the ability of the health plan to choose its rival. A merger of these two hospitals has two effects. The first effect is the same as in the pre-merger world: an entity is available that offers significant incremental value to the plans' enrollees. The second effect, however, is different: the merger increases the combined hospitals' bargaining strength relative to its pre-merger status because it eliminates a close substitute.

As the scenarios suggest, the change in price related to a merger is a function of the incremental value of the combined entity being in the network relative to the incremental value of either hospital separately being in the network. The determinants of that incremental value, or willingness-to-pay (WTP), must be made more explicit and put in a more formalized form to be amenable to estimation.[10] A simplified version of more complex equations shows that:[11]

$$WTP_j(G) = \sum_i \ln [1/(1-s_{ij}(G,a_{ij}))]$$

in which the WTP to add a single hospital (subscripted j) to a network (denoted G) is the sum over all enrollees in a plan (subscripted i) of a function that is directly related to the probability (denoted s_{ij}) of enrollees choosing that hospital within the network given the characteristics of the hospital and of the enrollee (denoted a_{ij}). The WTP for each hospital in network G is calculated in the same manner. When two hospitals (subscripted j and k) merge, the WTP equation becomes,

$$WTP_{jk}(G) = \sum_i \ln [1/(1-s_{ij}(G,a_{ij}) - s_{ik}(G,a_{ik}))]$$

There are two reasons in particular for showing these two formulas in this context. First is to allow a simple comparison of WTP of a network with one of two hospitals prior to a merger with the WTP after the merger of the two hospitals. The second is to identify the central importance of the probability term (s_{ij}). If the post-merger willingness-to-pay (i.e., $WTP_{jk}(G)$) is greater than the sum of the willingness-to-pay for the network alternatively with one of the hospitals than the other (i.e., $WTP_j(G) + WTP_k(G)$), then the model indicates that health plans will be forced to pay a higher price to the merged hospitals than they would have to either hospital alone. It is a matter of simple algebraic comparisons to show that $WTP_{jk}(G) > WTP_j(G) + WTP_k(G)$ always holds if the probability terms are non-zero.[12] In plain language, the model always shows a price increase for the merger of any hospitals in an area for which there is a positive probability of enrollees choosing the hospitals if the hospitals are added to the network.

The probability interpretation and measurement of the term s_{ij} are also important. This term refers to the probability that a patient with specific characteristics will choose a particular hospital. This probability, however, relates to an event occurring in the future (i.e., the enrollee becoming ill) and cannot be observed. Therefore, s_{ij} is estimated as the share of patients with certain characteristics (a_{ij}) who historically have used a specific hospital (j). The significance of s_{ij} effectively being an estimated share is discussed below.

Estimation of Willingness to Pay

Estimation of the merger simulation model involves a significant amount of data collection, in large part because the probability of individuals choosing a particular hospital must be modeled and estimated. The estimated probabilities are then used to calculate WTP separately for each managed care plan. Since each managed care plan negotiates separately with hospitals to form its own network, it is logically sensible to calculate WTP separately for each. Another obvious rationale for separate estimation is that if a hospital gains mar-

ket power from a merger, it will be expected to increase price to all managed care plans, not just to increase price on average. This provides a test for the model. It should predict across-the-board price increases. If it fails to do so, that would undermine its credibility as a predictor of market power.[13]

Estimation requires data on:

Hospital characteristics	Size, services offered, teaching status, ownership, nursing intensity, capital intensity
Patient characteristics	Age, gender, race, income
Illness characteristics	Type, severity, length of stay, number of procedures
Health plan characteristics	HMO, PPO, POS, indemnity
Travel time from patient to hospital	Usually measured from center of patient's zip code
Price information	Actual payment per case or per day
Non-price sensitive patients to estimate non-price preferences	(See discussion below)

As described previously, a health plan's willingness-to-pay for including a hospital in its network is ultimately a function of the satisfaction that enrollees derive from having the option to use that hospital in the event that they become ill. Thus WTP is calculated based on a utility function that includes arguments about patient characteristics and hospital characteristics, but not hospital price. To determine whether one configuration of a hospital network yields greater satisfaction to enrollees than another, WTP is calculated for each network configuration using the plan's enrollees if such data are available. In that manner, a comparison can be made of the incremental WTP attributable to adding or removing a particular hospital. In the event a hospital is removed from a network, a revised network with a replacement hospital can also be valued, leading to a different level of WTP. In effect, calculating the difference in WTP is the basis for understanding how a hospital merger may enable the merged entity to acquire increased leverage over payors.

The relationship between the probabilities, s_{ij}, on which the WTP calculations are based, and patients' characteristics is estimated econometrically using data on historical hospital choices. The WTP calculation process results in an estimate of the value of the merged entity being added to each plan's network. The change in WTP attributable to the merger is found as the difference between the WTP of the network with the particular hospital included and the WTP of the network excluding the particular hospital.

As was discussed previously, WTP is based on enrollees' utility, which specifically excludes consideration of hospital prices. Thus, to estimate s_{ij} (the probability of patient i choosing hospital j based on the patient's and hospital's characteristics), it is necessary to identify a set of patients who choose hospitals without regard to price. That is, the probabilities must be estimated without any conditions imposed on which hospitals the patients can choose. It may be possible to find an appropriate set of commercially insured patients, such as those that are insured with an indemnity product that has no network restrictions and no differences in out-of-pocket costs to patients. More often, however, commercially insured patients are likely to be affected by network restrictions or financial incentives. Medicare patients might be used as a proxy because their access to hospitals is neither restricted nor affected by price. Medicare patients are, however, an imperfect proxy for commercially insured patients for at least two reasons. First, the Medicare population is much more heavily weighted toward older patients than is the commercially insured population. Thus the type and severity of illnesses common among older populations will be overrepresented and may result in a different mix of hospital choices than would arise from a commercially insured population. In addition, the Medicare population excludes virtually all obstetrics and pediatrics patients. Again, the omission of these patients will be reflected in different choices of hospitals than would be the case in the overall commercial population.

The geographic area from which observations are drawn for inclusion in the data set includes the zip codes that provide "substantially all" of the patients discharged from the merging hospitals. Among those observations are patients who used other hospitals, including both patients and hospitals that may be located some distance from the merging hospitals. If the geographic area is too small, it may omit a significant number of observations. Leaving out a significant number of patients who chose hospitals other than the merging hospitals is likely to bias the results if no adjustments are made. Broadening the area to include more distant zip codes in which the merging hospitals have very small shares will have little incremental effect on the estimation insofar as it adds comparatively few additional observations, but doing so can eliminate the bias otherwise evident in the sampling.

Estimation of Price

Having estimated the incremental value of adding a hospital to a network or removing a hospital from a network (with or without replacement), the price effect from the merger can be estimated. In this context, price refers to the amount that a payor must pay a hospital for the services rendered to the payor's enrollees. Price is assumed to be a function of WTP, patient demographics, length of stay, discharge status, admission source, etc. This function can be estimated using each payor's claims data which indicates payments actually made to each hospital for each disease type (e.g., by DRG). The change in price due to the merger is calculated using the estimated relationship between price and WTP and the change in WTP induced by the merger.

Caveats and Other Considerations

A fair question to ask of any simulation model is: how good are the predictions? Unfortunately, few good situations exist

outside of government investigations or litigation to serve as tests of the simulation model. Although information is available from public sources to estimate the WTP related to a hospital merger, the data necessary to estimate the relationship between price and WTP is proprietary payor information that is generally not publicly available. Some researchers have studied historical mergers using public data to calculate WTP and have used other publicly available data to proxy the price-WTP relationship.[14] One other paper used data on negotiated prices in a simulation exercise, but did not reveal the names of the managed care plans.[15]

As conceptually compelling as the new approach to hospital merger simulation may be, it is not without shortcomings. These shortcomings are not entirely new as many of them were identified in previous incarnations of the merger simulation process. It is helpful to begin by considering what the hospital merger simulation process does not do. First, the model explicitly assumes away health plans' use of financial incentives to steer patients among in-network hospitals.[16] Rather, the model is based on the assumption that hospitals will either be included in or excluded from a network. Second, reflecting a problem that exists in much analysis of health care services, the simulation model does not incorporate quality improvements stemming from the merger. In addition, the model does not account for the likelihood of entry or repositioning that may occur in response to an attempt to increase price or reduce quality from competitive levels. While a model need not explain everything to be useful, insofar as a factor as important as entry cannot be incorporated into the model, it must be evaluated outside of the model. To the extent that sufficient entry would occur, any results of the model predicting a price increase are substantially undermined.

Third, a critical aspect of the hospital services industry that is not explicitly incorporated in the merger simulation model is a link to a theory of competition in the payor market. As was discussed previously, the merger simulation model rests on the assumption that payors maximize enrollees' utility while controlling for the payments to hospitals. This assumption facilitates construction of the merger simulation model, but it does so without fully explaining how this is consistent with profit maximization for health plans. An implicit rationale supporting the assumption of enrollee welfare maximization is that any payor that does not maximize its enrollees' utility risks losing those enrollees to other health plans or that increase in utility would result in higher premiums to offset any additional costs. On the other hand, it is inconsistent to assume that hospitals do maximize profits at the same time that health plans maximize enrollee welfare without an explicit link between enrollee welfare and profits. Discarding the neoclassical assumption of profit-maximization is likely to have significant implications for the model.

If the payor market is perfectly competitive, the best strategy for a payor that maximizes enrollees' utility is to include all hospitals in the network.[17] The reason for this strategy to be preferred is that a broader set of hospital choices increases enrollees' expected utility which increases the likelihood of a payor winning an employer's contract.

A recent FTC staff paper modifies the merger simulation model to have managed care plans maximize their own profits rather than just enrollees' utility.[18] In effect, the modification requires simulation of both hospital prices and a health plan premium. It is not clear how this affects practical applications of model, except to make it more difficult.

Another consideration for evaluating the FTC staff's new merger simulation model is that it predicts no price increases for hospitals other than merging entities, even if the other hospitals are close competitors. Although scenarios could exist in which just the merging parties are able to raise price, one would expect in an oligopolistic market that the merging parties' rivals would also increase prices or, depending on market structure and dynamics, possibly lower prices. In principle, of course, those price changes by competing hospitals could induce payors to choose different facilities for their networks.

Conclusion

The FTC staff's new hospital merger simulation model differs significantly from previous approaches. The model takes advantage of the distinctive characteristics of hospital services markets in a creative approach to the long-sought goal of predicting price changes prior to a merger occurring. The theory of two-stage hospital competition provides the theoretical roots of the new simulation model. The second stage of the theoretical model describes non-price competition among in-network hospitals to attract patients. The simulation model uses this competitive process as the basis for estimating the incremental value to health plan enrollees of having any particular hospital in the network. That incremental value is expressed in the simulation model as the plan's willingness to pay for including that hospital in its network. The theory's first-stage competition provides the framework for the simulation model to estimate the difference in the willingness to pay for the inclusion of the hospitals pre-merger and post-merger and to use that difference to estimate a post-merger increase in price. The new simulation model has not yet undergone substantial public review and critique—and as a result, this article may fall short in describing the model—but the new model holds promise as an innovative approach to an old problem. ■

---

[1] David J. Balan & Keith J. Brand, *Simulating Hospital Merger Simulations* (Federal Trade Comm'n, May 14, 2008) (on file with authors).

[2] U.S. Dep't of Justice & Fed. Trade Comm'n Horizontal Merger Guidelines § 0.2 (1992, revised 1997), *available at* http://www.ftc.gov/bc/docs/hmg080617.pdf.

[3] *See, e.g.*, Gregory J. Werden, *Simulating the Effects of Differentiated Products Mergers: A Practitioners' Guide*, *in* STRATEGY AND POLICY IN THE FOOD SYSTEM: EMERGING ISSUES (J.A. Caswell & R.W. Cotterill eds., 1996); Roy J. Epstein & Daniel L. Rubinfeld, *Merger Simulation: A Simplified Approach with New Applications*, 69 ANTITRUST L.J. 883 (2001); Gregory J. Werden & Luke M.

Froeb, *Calibrated Economic Models Add Focus, Accuracy, and Persuasiveness to Merger Analysis* (Vanderbilt University Law School Working Paper 02-22, June 2002).

[4] *See, e.g.*, David Scheffman & Mary Coleman, *FTC Perspectives on the Use of Econometric Analyses in Antitrust Cases*, *in* ECONOMETRICS (ABA Section of Antitrust Law 2005); Douglas D. Davis & Bart J. Wilson, *Differentiated Product Competition and the Antitrust Logit Model: An Experimental Analysis*, 57 J. ECON. BEHAV. & ORG. 89 (2005); Lawrence Wu, *Two Methods of Determining Elasticities of Demand and Their Use in Merger Simulation*, *in* ECONOMICS OF ANTITRUST: NEW ISSUES, QUESTIONS, AND INSIGHTS (Lawrence Wu ed., 2004).

[5] Gregory Vistnes, *Hospitals, Mergers, and Two-Stage Competition*, 67 ANTITRUST L.J. 671 (2000).

[6] Evanston Northwestern Healthcare Corp., FTC Docket No. 9315, slip op. at 10, Opinion of the Commission, *available at* http://www.ftc.gov/os/adjpro/d9315/070806opinion.pdf.

[7] *Id.* at 40, 78.

[8] *See, e.g.*, Gary M. Fournier & Yunwei Gai, *What Does Willingness-to-Pay Reveal About Hospital Market Power in Merger Cases?* (Apr. 11, 2007), *available at* http://ssrn.com/abstract=993213, at 3; Cory Capps et al., *Competition and Market Power in Option Demand Markets*, 34 RAND J. ECON. 738 (2003). The underlying assumption is that by creating a socially optimal or utility maximizing network, health plans can extract the highest premium from enrollees. The mechanism of how a profit-maximizing health plan would reconcile possible nonlinear relationships that exist between premium and enrollee utility is absent. This objective appears to be inconsistent with assumptions in traditional neoclassical economics that individuals maximize their satisfaction, but firms maximize profits. Embedded in the model is the price paid by the plan for hospital services, but it is not clear if that accounts adequately for profit-maximizing behavior of the health plan.

[9] The combined entity's incremental value to enrollees may be higher if the merger allows it to provide new services not previously available, but that circumstance is ignored. The combined entity's net value to the health plan may also increase if merger-related efficiencies reduce costs and thus reduce prices charged to health plans. Again, this possibility is not incorporated into existing models of WTP.

[10] The WTP equation is derived from the individual utility functions. A patient will prefer to use one hospital if the utility derived is greater than from using another hospital. These utilities are functions of various hospital characteristics and individual characteristics.

[11] The mathematical derivation of the WTP equations is set out in slightly different forms in academic papers on the subject. This article follows the convention used by Fournier & Gai, *supra* note 8.

[12] The notation used is simplified to denote the addition or deletion of a single hospital from a network with no consideration for whether an alternative hospital might replace the hospital under consideration. Including a replacement hospital increases the complexity of the model without changing the underlying concept that the availability of inferior substitute hospitals has less significant affects on willingness to pay than if close substitutes are available.

[13] One of the criticisms of the FTC retrospective price analysis in the Evanston Northwestern matter is that one payor (Blue Cross Blue Shield) was not subject to a price increase even after the merger ostensibly created market power on the part of the hospitals. *See* Barry C. Harris & David A. Argue, FTC v. Evanston Northwestern*: A Change from Traditional Hospital Merger Analysis?*, ANTITRUST, Spring 2006, at 39.

[14] *See, e.g.*, Fournier & Gai, *supra* note 8.

[15] See Robert Town & Gregory Vistnes, *Hospital Competition in HMO Networks*, 20 J. HEALTH ECON. 733 (2001).

[16] Balan & Brand, *supra* note 1, at 9.

[17] Capps et al., *supra* note 8, App. B.

[18] Balan & Brand, *supra* note 1, at 10–11.