

# GEOGRAPHIC MARKET ISSUES IN HOSPITAL MERGERS

Thomas R. McCarthy\*  
Scott J. Thomas

## I. INTRODUCTION

In merger analysis, the key question is whether the merger will create additional market power. The relevant geographic market is important in answering this question because it will describe the geographic reach of those suppliers that significantly constrain the behavior of the merging firms. This, in turn, will indicate the concentration levels in the relevant market. In general, the smaller the geographic market, the higher the concentration, and the more likely that a merger will be viewed as anticompetitive.<sup>1</sup> While even a small geographic market is not dispositive of the market power question, agreement that a large geographic market exists with numerous competitors will normally remove the case from further consideration by the antitrust agencies or the courts.

Properly identifying the relevant geographic market is often critical to hospital merger analysis.<sup>2</sup> The geographic market determination was, arguably, dispositive in both the *Rockford*<sup>3</sup> and *Roanoke*<sup>4</sup> merger cases, which were tried during the late-1980s in federal court. It was also

---

\* Thomas R. McCarthy and Scott J. Thomas are a Senior Vice President and Vice President, respectively, of National Economic Research Associates, Inc.

<sup>1</sup> A narrow geographic market does not always mean that a merger will be challenged. In some cases, it could result in two firms being allowed to merge because they do not compete in the same relevant geographic market.

<sup>2</sup> In some cases, the geographic market is not a major factor. See, e.g., *FTC v. University Health, Inc. et al.*, No. 91-8308 (11th Cir. 1991; order); also *FTC v. Butterworth Health Corporation, et al.*, No.1:96-CV-49 (W.D. MI, September 26, 1996; opinion of the court).

<sup>3</sup> *United States v. Rockford Memorial Corporation*, No. 88-C20186 (N.D.IL, 1989).

<sup>4</sup> *United States v. Carilion Health System, et al.*, No. 88-0249-R (W.D. VA, 1989).

the deciding factor in the *Ukiah*<sup>5</sup> merger case, which was tried before an FTC administrative law judge in 1992 and upheld by the full Commission in 1994. Similarly, in both the *Joplin*<sup>6</sup> and *Dubuque*<sup>7</sup> merger cases, which were tried in federal court during the mid-1990s, the question of the relevant geographic market was a hotly disputed point and resulted in the government “failing to prove” its case in both instances. In the more recent *LIJ*<sup>8</sup> and *Poplar Bluff*<sup>9</sup> merger cases, the district courts ruled in favor of one of the mergers in 1997 and against the other in 1998 based largely on their conclusions about which other hospitals the merging parties competed with.<sup>10</sup> Finally, in the *Sutter Health*<sup>11</sup> merger case, which was tried in federal court during the Fall of 1999, the district judge ruled in favor of the merger because the government “failed to meet its burden of proving a well-defined geographic market.”

Although the government has ultimately lost all of its most recent challenges, one of the apparent results from those cases is that there is still significant disagreement about how the relevant geographic market question should be analyzed. This is largely because there is no

---

<sup>5</sup> *Adventist Health Systems/West, et al.*, Dk. No. 9234 (December 16, 1992; initial decision) and Dk. No. 9234 (April 1, 1994; final order).

<sup>6</sup> *FTC v. Freeman Hospital, et al.*, No. 95-5015-CV-SW-1 (W.D. MO, June 9, 1995; order).

<sup>7</sup> *United States v. Mercy Health Services, et al.*, No. C-94-1023 (N.D. IA, October 1995; opinion and order) and *vacated as moot* 107 F.3d 632 (8th Cir. 1997). Because the case became moot on appeal, the judgment may not have any res judicata or precedential effect. See, e.g., *United States v. Sarmiento-Rozo*, 592 F.2d 1318, 1321 (5th Cir. 1979).

<sup>8</sup> *United States v. Long Island Jewish Medical Center, et al.*, CV 97-3412 (E.D. N.Y., October 1997; memorandum decision and order).

<sup>9</sup> *FTC v. Tenet Healthcare Corporation, et al.*, No. 4:98CV709 CDP (E.D. MO, July 30, 1998; memorandum and order) and No. 98-3123 (8th Cir. July 21, 1999; reversal).

<sup>10</sup> Although the *LIJ* court stated that the relevant product market conclusion was the key to its ruling, an examination of the decision shows that the court rejected the government’s “anchor hospital” product market based largely on a determination of which other hospitals the merging parties competed with for the tertiary services that tended to distinguish “anchor hospitals” as well as for the primary and secondary services that most hospitals provide. Also, the conclusion about the relevant geographic market was dispositive to the appellate court in its decision to overturn the district court’s ruling in the *Poplar Bluff* case.

standardized approach for identifying the relevant geographic market. In all the cases, the opposing economic experts examined the same patient origin data and reviewed the same set of facts but still came up with different conclusions about the extent of the relevant geographic market. Moreover, in several of the cases, the courts disagreed with the analyses of both opposing experts and instead adopted their own approach to identifying the relevant geographic market.

The lack of a standardized approach is due to at least two important factors. First, while the economic literature on geographic markets is substantial, it offers no “bright-line” tests for geographic market delineation.<sup>12</sup> Thus, there is disagreement among economists about which approaches should be used and how to use them. Second, proper geographic market analysis should be forward looking.<sup>13</sup> This means that the analyst has to determine which other hospitals (and possibly other types of providers) the patients *could* turn to in the face of a monopolization

---

<sup>11</sup> *State of California v. Sutter Health System, et al.*, No. C99-03803 MMC (N.D. CA, January 5, 2000; memorandum of decision) and No. C99-03803 (9th Cir. June 30, 2000; affirmed).

<sup>12</sup> See, e.g., Kenneth G. Elzinga and Thomas F. Hogarty, “The Problem of Geographic Market Delineation in Antimerger Suits,” *The Antitrust Bulletin* 81 (1973), pp. 45-18; Kenneth G. Elzinga and Thomas F. Hogarty, “The Problem of Geographic Market Delineation Revisited: The Case of Coal,” *The Antitrust Bulletin* 23 (1978), pp. 1-18; George J. Stigler and Robert A. Sherwin, “The Extent of the Market,” *Journal of Law and Economics* 28 (1985), pp. 555-585; David T. Scheffman and Pablo T. Spiller, “Geographic Market Definition under the U.S. Department of Justice Merger Guidelines,” *Journal of Law and Economics* 30 (1987), pp. 123-147; Barry C. Harris and Joseph J. Simmons, “Focussing Market Definition: How Much Substitution Is Necessary?,” in *Research in Law and Economics* edited by Richard O. Zerbe, JAI Press, Inc. (1989), pp. 207-226; William E. Schrank and Noel Roy, “Market Delineation in the Analysis of United States Groundfish Demand,” *The Antitrust Bulletin* (Spring 1991), pp. 91-154; Steven E. Crane and Patrick J. Welch, “Rethinking Shipments Asymmetries,” *Review of Industrial Organization* 8 (1993), pp. 579-597; Joseph J. Simons and Michael A. Williams, “The Renaissance of Market Definition,” *The Antitrust Bulletin* (Winter 1993), pp. 799-857; Michael G. Gaumann and Paul E. Godek, “Could and Would Understood: Critical Elasticities and the Merger Guidelines,” *The Antitrust Bulletin* (Winter 1995), pp. 885-899; David L. Kaserman and Hans Zeisel, “Market Definition: Implementing the Department of Justice Merger Guidelines,” *The Antitrust Bulletin* (Fall 1996), pp. 665-690; and Lawrence Wu, “The Evidence Is In: A Review of the Market Definition Debate in Hospital Merger Cases,” *Antitrust Report* (November 1998), pp. 23-41.

<sup>13</sup> For instance, all of the recent hospital merger decisions state that the analysis should incorporate “dynamic” evidence about how the other hospitals, third-party payors, and patients would respond to a monopolization threat.

attempt. However, because the patients have not had a need or willingness to turn to other hospitals in the past, there is uncertainty about whether the mechanisms exist to move them and how effective those mechanisms might be.<sup>14</sup> As a result, there is often disagreement among the various market participants about how many patients could practicably shift to alternative providers if the merging hospitals tried to raise their prices above competitive levels.

This chapter attempts to highlight, describe, and critique the most commonly employed methodologies for delineating the geographic market in hospital merger cases. In particular, the chapter begins by describing the conceptual approach to geographic market analysis prescribed in the *1992 Horizontal Merger Guidelines* (hereafter referred to as the *Guidelines*).<sup>15</sup> Although that conceptual approach is not very operational—especially when applied to hospital merger reviews, it does suggest at least two themes for gathering evidence about the relevant geographic market. Next the chapter discusses the most common methods that the antitrust agencies and others have used to identify relevant geographic markets. Those methods consist of either price information or shipment information (e.g., patient origin data) and are generally consistent with the themes inherent in the *Guidelines*. Finally, the chapter examines the methodologies employed in a number of the recent hospital merger court cases, and concludes by noting that each particular methodology used for determining the relevant geographic market may be subject to some meaningful limitations. Consequently, when possible, multiple methods should be employed.

---

<sup>14</sup> For a detailed discussion of mechanisms, see Lawrence Wu, “The Evidence Is In: A Review of the Market Definition Debate in Hospital Merger Cases,” *Antitrust Report* (November 1998), pp. 23-41.

<sup>15</sup> U.S. Department of Justice and Federal Trade Commission, *1992 Horizontal Merger Guidelines* (1992).

## II. GEOGRAPHIC MARKETS UNDER THE 1992 HORIZONTAL MERGER GUIDELINES

### A. Conceptual Approach

Market power is the unifying theme of the *Guidelines*.<sup>16</sup> It is the ultimate question in examining a merger and provides the conceptual basis underlying the identification of the relevant market. In the *Guidelines*, market power refers to the ability of a firm to profitably raise the price or lower the quality of its product—relative to competitive levels—for a significant period of time. The courts and many economists usually refer to this type of market power as monopoly power. It is a long-run concept, and it means that if the firm increased the price above the competitive level, the firm would lose relatively few customers and, thus, could successfully monopolize the market. In the remainder of this chapter, all references to market power will refer to monopoly power.

The goal of the *Guidelines* is to prevent mergers that would “create or enhance market power or facilitate its exercise.”<sup>17</sup> There are two main ways that this could occur. First, the *Guidelines* state that a merger could reduce competition if it reduces the number of independent competitors such that it becomes easier for the remaining rivals to reach some explicit or tacit agreement to stop competing.<sup>18</sup> Thus, a small number of competitors act as if they are one large firm when setting price and quality standards. This concentration-leads-to-collusion concern was arguably the antitrust agencies’ main concern in reviewing hospital mergers during the 1980s and early 1990s. Second, the *Guidelines* say that a merger could reduce competition if it reduces the

---

<sup>16</sup> *Id.*, p. 4.

<sup>17</sup> *Id.*

number of independent competitors such that the merged firms could *unilaterally* increase the price or lower the quality of the relevant product relative to competitive levels.<sup>19</sup> This could come about as a result of the merging firms being the only two firms that compete in a given area or as a result of the merging firms being the only two firms that are close demand substitutes for each other. This “unilateral effects” concern has arguably been the antitrust agencies’ main concern in reviewing hospital mergers during the mid-to-late 1990s.<sup>20</sup>

While the economic concepts reflected in the antitrust agencies’ approach to merger analysis are generally sensible to both antitrust economists and attorneys, several very practical questions immediately arise. Most obviously, if the point of merger analysis is to inquire about incipient market power, what is the “market” at issue? What products are involved? Which producers? How big is the geographic area of competition? Ultimately, the finder of fact wants to know whether there are enough reasonable alternatives for consumers to turn to and thereby ensure that the merger will not harm competition.

In determining which products and which producers can constrain the alleged dominant firm or budding cartel, it is recognized that consumers may turn to distant suppliers as an alternative to the more local, merged firms. This may mean either buying more from distant, but already established suppliers, or, perhaps, beginning trade with new suppliers. Obviously, it is easier to identify established trading partners by looking at experience than to decide who the

---

<sup>18</sup> *Id.*

<sup>19</sup> *Id.*

<sup>20</sup> Although the “anchor hospital” theory in the *LII* merger case is clearly the prime example of this unilateral effects concern, the government has also used similar unilateral theories in most of its other recently contested hospital mergers. In particular, the government argued in those cases that, even though there were other hospitals located in the immediate surrounding area, none of those hospitals (either individually or combined) would pose an adequate competitive constraint. A notable exception is the California Attorney General’s

new suppliers might be. Still, both supply sources are important to the analysis. The relevant geographic market should include all suppliers, near and far, to which consumers practicably could turn to counteract any attempt at monopoly pricing following the merger.

The *Guidelines* set out a conceptual approach by which to identify the relevant geographic market for each of the merging firms:

In defining the geographic market or markets affected by a merger, the Agency will begin with the location of each merging firm (or each plant of a multiplant firm) and ask what would happen if a hypothetical monopolist of the relevant product at that point imposed a “small but significant and nontransitory” increase in price, but the terms of sale at all other locations remained constant. If, in response to the price increase, the reduction in sales of the product at that location would be large enough that a hypothetical monopolist producing or selling the relevant product at the merging firm’s location would not find it profitable to impose such an increase in price, then the Agency will add the location from which production is the next-best substitute for production at the merging firm’s location.

The price increase question is then asked for a hypothetical monopolist controlling the expanded group of locations. In performing successive iterations of the price increase test, the hypothetical monopolist will be assumed to pursue maximum profits in deciding whether to raise the price at any or all of the additional locations under its control. This process will continue until a group of locations is identified such that a hypothetical monopolist over that group of locations would profitably impose at least a “small but significant and nontransitory” increase, including the price charged at a location of one of the merging firms.<sup>21</sup>

This approach is based on market power because it tries to identify the relevant geographic market by finding the smallest area where a hypothetical monopolist of the relevant product could profitably increase the price. However, it is only a “thought experiment” because the *Guidelines* offer no practical advice as to the test required to determine whether the hypothetical monopolist could profitably raise the price.

---

recent challenge in the *Sutter Health* matter. In that case, the state argued, in part, that smaller, surrounding hospitals would follow the price leadership of the merged hospital.

In an effort to quantify the “thought experiment,” the *Guidelines* state that the antitrust agencies, “in most contexts, will use a price increase of five percent lasting for the foreseeable future.”<sup>22</sup> That is, the agencies will consider a firm or group of firms to possess potential market power if it could profitably raise (the real) price by at least five percent and keep it at that level for the foreseeable future. The problem with this “guidance” is that it still does not provide a test for determining if the hypothetical monopolist could profitably increase the price. Furthermore, the “five percent” standard is an arbitrary cutoff and there is no reason to believe that it is the appropriate measure for whether the firm or group of firms has an unacceptable level of market power.<sup>23</sup> For example, Lawrence J. White, one of the authors of the 1982 Merger Guidelines, favored a 10 percent price standard.<sup>24</sup> A “small, but significant, non-transitory increase in price” must be perceived as just that—large enough to be noticed and permanent enough to be seen as something other than the normal ebb and flow of prices for differentiated products.

## **B. Two Themes for Gathering Evidence on the Geographic Market**

Although the conceptual approach in the *Guidelines* is not very operational, it does suggest at least two themes for gathering evidence. The first and most important theme is that the identification of the relevant geographic market should depend on how buyers would respond to price changes. Not every buyer would have to shift his or her purchases to other locations; only a sufficient number of buyers so as to make the price increase unprofitable. This point is especially important for the hospital industry since low occupancy rates and high fixed costs have made the

---

<sup>21</sup> DOJ and FTC *Guidelines*, pp. 16-18.

<sup>22</sup> *Id.*, p. 14.

<sup>23</sup> Also, the “foreseeable future” language is imprecise and open to interpretation. For example, does it mean one year, two years, or ten years? The agencies generally adopt a two-year limit.



difference between the break-even volume and a volume that would cause losses a thin one for many hospitals. That is, even if a monopolist hospital increased its price and lost as few as 10 percent of its commercial patients, this hospital could still be threatened with net financial losses. Therefore, evidence on how the buyers would respond to price changes is always relevant to the antitrust agencies.

A second theme for gathering evidence is that the relevant geographic market should include all of those producers to which buyers could turn in the face of an attempted monopolization. Thus, evidence of where buyers are now turning for substitute supply sources is very relevant to the inquiry. It is important to note that the relevant geographic market should include both established firms, which are already serving the buyers, and firms not yet being used, which could start serving them if the merging firms tried to raise their prices. In the hospital industry, a list of the hospitals already being used by the patients who live in the service areas of the merging hospitals is perhaps the simplest and most direct way to indicate the established providers. Similarly, an examination of how far some patients have been willing to drive for comparable hospital services may indicate which hospitals could start serving the patients if an antitrust problem were to arise.

The relevant geographic market should also include all of the producers that directly or indirectly compete with the merged firms. To see this, assume that there are three hospitals (A, B, and C) and that the hospitals compete sequentially on a one-to-one basis. That is, hospital A strongly competes with hospital B, hospital B strongly competes with hospital C, but A and C do not appear to directly compete (i.e., their service areas do not overlap in any significant way). To

---

<sup>24</sup> See Lawrence J. White, "Antitrust Merger Policy: A Review and Critique," *Journal of Economic Perspectives* 15 (1987), p. 15.

determine the relevant geographic market for hospital A, we would start with hospital A and ask whether this hospital alone could profitably increase its price. Given that hospitals A and B strongly compete, the answer would be “no.” We would then expand the geographic market by adding hospital B, and ask whether a cartel composed of hospitals A and B could profitably increase their prices. Given that hospitals B and C strongly compete, the answer would once again be “no” since hospital B would suffer sufficient patient losses to hospital C in the event of a price increase. This means that hospitals A and C should be included in the same relevant geographic market even though hospital C competes with hospital A on an *indirect* basis only.<sup>25</sup>

### **III. ECONOMIC APPROACHES TO IDENTIFYING THE RELEVANT GEOGRAPHIC MARKET**

Most economists rely heavily on price information and/or shipment information (e.g., patient origin data) to identify the relevant geographic market. The price information approaches are consistent with the “price response” theme in the *Guidelines*—which is always the main focus of the economic review. These approaches try to identify the relevant geographic market by determining how buyers would respond to possible price changes by the merging firms. Three common price information approaches are the analysis of price correlations, estimation of the residual demand curve, and field interviews relating to price.<sup>26</sup> The first two approaches use historical data to predict how the buyers would respond to price changes, whereas the third

---

<sup>25</sup> This is consistent with the *Guidelines* approach discussed above. The test is whether a group of hospitals could raise prices without losing sufficient patients so as to make the price increase unprofitable. Of course, as additional indirect competitors are considered in the hypothetical, their impact will become progressively more attenuated, and the likelihood that they would make a price increase unprofitable (and thereby qualify as being in the market) becomes progressively smaller.

<sup>26</sup> Another price information approach is the econometric estimation of cross-price elasticities. As far as we know, this method has been used to identify the relevant product market only.

approach uses interview responses. In the health care industry, the managed care buyers are the buyers most often interviewed. However, in the future, it is likely that surveys of consumers and employers will be more widely used to supplement interview information from managed care buyers.

A major drawback to using the price information approaches for hospital merger analysis is that *transaction price* data for each possible supplier in the market are hard, if not impossible, to obtain.<sup>27</sup> This creates a serious problem because buyers' responses depend on the actual prices that they have to pay and not on the list prices that they are quoted. Most hospital services that patients receive are paid for by third-party payors (e.g., insurance companies or the government). Since the third-party payors often receive significant discounts from the list price and since the magnitude of the discounts frequently varies from payor to payor, it is very difficult to determine the actual transaction prices that were paid for the hospital services (especially since there is normally a wide range of transaction prices being charged to different buyers even in the most competitive hospital markets). If the analyst uses list price data instead of transaction price data, serious errors can result, since the two types of price data may not be highly correlated. In fact, list prices may be *inversely* related to transaction prices, since those hospitals that are forced by competition to grant the deepest discounts may "cost shift" more heavily onto the few remaining patients who pay list price. In contrast, a hospital with market power may refuse to give discounts to third-party payors, reducing the need for significant cost shifting.<sup>28</sup>

---

<sup>27</sup> This drawback applies to the price correlations and residual demand methods only. The interview method, which is discussed in more detail later on, has its own unique problems.

<sup>28</sup> This argument assumes that cost-shifting is consistent with not-for-profit hospital behavior under competitive conditions. For an alternative view, see David Dranove, "Pricing by Non-Profit Institutions: The Case of Hospital Cost-Shifting," *Journal of Health Economics* 7 (1988), pp. 47-57.

Because of these data problems, the all-important “price response” inquiry usually cannot be answered directly. This often causes economists to turn to the shipment information approaches, which are consistent with the “relevant producers” theme in the *Guidelines*. They try to identify the relevant geographic market by determining which producers constrain the behavior of the merging firms based on the simple “revealed preference” of where buyers now turn. The three most common shipment information approaches are the direct competitor test, Elzinga-Hogarty test, and critical loss test. All of these approaches use historical shipment data to identify which producers the buyers could turn to if the merged firms tried to raise their prices.

One advantage to using the shipment information approaches for hospital merger analysis is that patient origin data can usually be obtained from either state agencies, hospital associations, or (with some limitations in their usefulness) the Medicare program. For example, in California, the California Office of Statewide Health Planning and Development (OSHPD) collects information about every patient discharged from each in-state hospital. This information includes, for example, the patient’s zip code, procedure code, payor code, admission source (e.g., emergency versus non-emergency), and length of stay.

The basic justification for using patient origin data is that the choices made by patients reflect both their willingness to travel and their response to relative price and quality conditions. That is, these data reveal how patients currently respond to economic conditions across space. Patient origin data are sometimes criticized, however, because the long distances traveled by some patients may only reflect the lack of specialized services available at their local hospitals. This is sometimes a criticism of how the product market is being defined (e.g., primary and secondary care versus tertiary care) rather than how the patient origin data are used. Moreover,

these criticisms can be addressed directly by looking more closely at the data.<sup>29</sup> The important fact is that these data reveal the patients' preferences and willingness to travel and must be analyzed as one of the few sources of objective information available.

As described below, the analysis of patient origin data generally involves two steps. First, the patient origin data are used to identify the patient migration patterns into and out of the merging hospitals' service areas. These migration patterns establish which hospitals patients are already using and for which services. Second, the patient origin data are examined to determine whether patients that currently use the merging hospitals could or would turn to the alternative hospitals in the face of a price increase. While the first of these two steps, arguably, is the more important (i.e., it establishes a revealed preference or willingness to travel to other hospitals), the second step is often necessary to affirm that these alternative hospitals represent reasonable economic alternatives. Though patient origin data cannot "tell all," they do contain valuable information in identifying the relevant geographic market.

### **A. Price Information Approaches**

*Price Correlations.* This approach reflects Alfred Marshall's fundamental definition of a market. He defined a geographic market for a good as the "area within which the price of a good tends to uniformity, allowance being made for transportation costs."<sup>30</sup> His definition of a market suggests that the relevant geographic market can be identified by (1) estimating transportation costs, (2) adjusting the price levels for the transportation costs, and (3) comparing the adjusted

---

<sup>29</sup> In particular, the services being provided to the patients coming into a city can be compared with the services available to them from their local hospitals. This "overlapping DRGs" approach has been used with considerable effectiveness in showing that the immigrating patients were making a choice and not being forced to come to the city for services not available locally. See, e.g., our discussion of the *Ukiah* case in Section IV below.

<sup>30</sup> Alfred Marshall, *Principles of Economics*, as quoted in George J. Stigler and Robert A. Sherwin, "The Extent of the Market," *Journal of Law and Economics* 28 (1985), p. 555.

price levels. If the adjusted price levels in two areas are the same, the areas are said to be in the same relevant geographic market.

Unfortunately, there are two significant problems with comparing adjusted price levels. First, it is not easy to estimate transportation costs. This arises, in part, because firms or buyers may have different transportation costs. For hospital mergers, this problem is further complicated by the fact that the “transportation costs” are borne by many different types of patients. Second, Marshall’s definition assumes that all buyers and products are homogeneous. If the buyers in two areas have different search costs (e.g., senior citizens usually have lower search costs since they have more time available to search for the low cost firm), or if the products in two areas differ in quality, the adjusted price levels in the two areas could differ even if the areas are in the same relevant geographic market.

To solve these problems, Stigler and Sherwin developed the price correlations approach.<sup>31</sup> The idea behind this approach is that if the prices of the relevant product in two areas are highly correlated (i.e., they move up or down in a closely related pattern), then the areas are in the same relevant geographic market. This approach examines the movement of the price levels, not the price levels themselves. The price correlations approach is consistent with the price response theme in the *Guidelines* since highly correlated price levels in two areas indicate that an attempt by the producers to raise their prices in one area would most likely cause the buyers in that area to shift over and purchase the product from producers in the other area. That is, strongly correlated price movements would reflect arbitrage across the areas.

---

<sup>31</sup> *Id.*

The main criticism of the price correlations approach is that, because of supply conditions, it could either understate or overstate how buyers would respond to price changes.<sup>32</sup> For example, even if the prices in areas A and B are highly correlated, the areas may still appear to be in different relevant geographic markets if there are supply constraints in one of the two areas (e.g., area B). This is because, in the face of an attempted monopolization by the producers in area A, the supply constraints in area B might prevent a sufficient number of buyers in area A from being able to shift over and purchase the product from the producers in area B. Similarly, even if the prices in areas A and B are not correlated, the areas may still be in the same relevant geographic market if there is a lot of excess capacity in area B. When faced with a price increase, the buyers in area A might be able to shift over and purchase the product from the producers in area B without raising the price in that area.<sup>33</sup> Of course, the prices in the two areas would only be correlated, if the amount of arbitrage was sufficient to significantly raise the price in area B despite the excess capacity.

In the hospital industry, most hospitals have excess capacity. This suggests that the use of the price correlations approach would lead to a relevant geographic market that is too narrowly defined. As mentioned earlier, an even bigger problem with this approach is that transaction price data are hard to obtain.

---

<sup>32</sup> See David T. Scheffman and Pablo T. Spiller, "Geographic Market Definition under the U.S. Department of Justice Merger Guidelines," *Journal of Law and Economics* 123 (1987), pp. 123-147. Another criticism mentioned in the literature is that there is no bright-line test to indicate how high the price correlation has to be for two areas to be in the same relevant geographic market.

<sup>33</sup> Whether the buyers in area A would be able to shift over and purchase the product from the producers in area B depends on the price increase in area A and the cost of transporting the product from area B to area A. If the price increase exceeds the transportation cost, the buyers in area A would be able to shift over and purchase the product from the producers in area B

***Residual Demand Curves.*** Scheffman and Spiller developed the residual demand curve approach, in part, to address the supply conditions problem.<sup>34</sup> This approach identifies the relevant geographic market based on the relative steepness of the residual demand curve, not on the correlation of prices.<sup>35</sup> That is, instead of having to infer how buyers would respond to price changes, this method allows the researcher to directly estimate how they would respond. Thus, the residual demand curve analysis offers a direct measure of the “thought experiment” proposed in the *Guidelines*.

The approach works as follows. First, an analyst estimates a residual demand curve for the smallest relevant group of producers that could conceivably have market power.<sup>36</sup> In the case of a hospital merger, this “group” might start with the largest of the merging hospitals. Second, the researcher examines the elasticity (in absolute value terms) of the estimated residual demand curve. If it is sufficiently low—that is, if the “group” could raise price five percent without losing many customers—the analyst stops since market power, according to the *Guidelines*, has been identified. Otherwise, the analyst adds producers located in other areas and then repeats the two steps. The relevant geographic market is identified as the smallest relevant group of producers that has a sufficiently low elasticity of the residual demand curve to make a collective price increase profitable.

---

<sup>34</sup> David T. Scheffman and Pablo T. Spiller, “Geographic Market Definition under the U.S. Department of Justice Merger Guidelines,” *Journal of Law and Economics* 123 (1987), pp. 123-147.

<sup>35</sup> The residual demand curve is the demand curve facing an individual firm. It shows how much of a firm’s product consumers are willing to buy at various prices. If there are many substitute suppliers for buyers to turn to, this demand curve will be relatively flat (i.e., highly elastic). A small increase in price will thus lead to a relatively significant drop in quantity demanded, making the price increase unprofitable.

<sup>36</sup> This is a residual demand curve since it includes the supply of the relevant producers only. It does not include the supply of other producers who also sell the relevant product in the geographic area in question.



Unfortunately, there are a number of significant problems with this method, especially when applied to hospital mergers. Principal among them is the fact that this method is extremely data intensive. It requires not only quantity and transaction price data for the merging firms and all other possible substitute producers, but also data for a variety of variables that could cause the demand and supply curves for the relevant product to shift. Moreover, hospitals normally charge more than one price for a given service (e.g., a Medicare price, a Medicaid price, a price to HMO A, a price to HMO B, etc.). Thus, it is hard to develop a consistent summary measure of price for each hospital. In general, it is simply not practical to use this method.

***Field Interviews.*** The “interview” approach is particularly favored by the antitrust agencies for identifying the relevant geographic market. It is especially important during the initial phases of the Hart-Scott-Rodino process, in part, because the initial review deadline is so tight (30 days). The basic approach works as follows. Buyers of the relevant product (e.g., managed care buyers) are asked what they would do if the merging producers increased their price by at least five percent. If these buyers answer that they would continue to purchase the relevant product despite the price increase, then the producers in the relevant geographic market have been identified.

A major problem with this approach is that the buyers’ responses are subjective and often can be speculative. The questions must be carefully framed to avoid confusion about such matters as whether a “real” five percent increase (i.e., after the inflation that would occur in a non-merged market) is being contemplated and not just the nominal five percent increase that, perhaps, everyone was expecting anyway. Similarly, it is important to ask the questions as if the

hypothetical price increase is known to be non-transitory. That is, it is not just the five percent increase that may occur this year or next, as often occurs with differentiated products.

Interview responses may also be distorted because of the interests of the buyer being questioned. For instance, negotiations for discounts may be in progress between a merging hospital and one of its managed care buyers. This could lead the managed care buyer to threaten to give a less favorable response unless a “good deal” is offered. A payor might also have its own (anti-competitive) reasons to stop a merger, and therefore to provide misleading testimony. This could occur if the payor sees the merging hospitals as competitors, perhaps because they have joint marketing arrangements with other insurers, own their own HMOs/PPOs, or engage in direct contracting with large employers who might otherwise sign up with one of the managed care buyers being interviewed.<sup>37</sup>

Another problem with interviewing only some of the buyers and listening too closely to their alleged fears is that it tends to give too much influence to the opinions of these buyers when the market is actually driven by the actions of all of the buyers. A simple example is a market that also includes Kaiser, which, at least in California, has its own hospitals. If Kaiser forces the insurance premiums to be competitive, this would prevent the merging hospitals from increasing their prices to non-integrated HMOs because the price increase would cause these HMOs to lose enrollees to Kaiser. Those enrollees would then use the Kaiser hospitals and not the merged hospitals. Thus, in this example, it is competition in the health insurance market that ultimately

---

<sup>37</sup> A similar problem may arise out of physician interviews, which are sometimes conducted by the antitrust agencies to determine if the proposed efficiencies from a merger will meet with physician cooperation. Some multi-specialty physician groups bear the insurance risks. If the hospital is seeking the same capitation from the insurer, the physician group may actually be a competitor of the hospital for some aspects of the risk bearing function. A physician group may also compete with the merging hospitals’ salaried physicians or outpatient facilities. Additionally, the physicians may value their convenience over consumer welfare if the merger is efficient but will lead to the closure of some services at their hospital.

constrains hospital pricing. If some managed care payors fear the merger because they, unlike Kaiser, cannot constrain hospital prices, this does not mean that higher prices will be tolerated by all insurers or that consumers will be harmed.

These problems may explain why once an investigation is opened and more time becomes available, the antitrust agencies usually adopt more formal techniques to identify the relevant geographic market (such as the analysis of patient origin data). Still, if properly constructed, executed, and interpreted, interviews can help reveal possible buyer responses to price changes—the central focus of the “thought experiment.” Buyer responses can also be meaningful in identifying past actions that would help discipline the hospitals (e.g., “carveouts” or channeling of patients that punish high priced hospitals). Since several courts have expressed concern that analyses of patient origin data gives only a “static” picture of competitive conditions, these types of interviews (when done well) can provide a measure of how dynamic the market might be in the face of a monopolization attempt. To accomplish this, interviews or surveys of consumers and employers are likely to be equally important, especially since two courts that recently reviewed hospital mergers have questioned the credibility of the managed care witnesses testifying against the merger.<sup>38</sup>

## **B. Shipment Information Approaches**

While the shipment information approaches do not directly address the antitrust agencies’ five percent test, the economic logic behind these approaches stems from the observation that “all

---

<sup>38</sup> See the Eighth Circuit reversal in the *Poplar Bluff* matter and the recent decision in the *Sutter Health* case.

of the demand and supply elements that affect price also affect quantity.”<sup>39</sup> This section discusses these approaches.

***Direct Competitor Test.*** This test seeks to determine the relevant geographic market by identifying which other hospitals *directly* constrain the behavior of the merged entity. The approach works by measuring the degree to which the primary service areas (“PSAs”) of other hospitals overlap with the PSA of the merged entity.<sup>40</sup> A substantial overlap indicates that the merged hospital could lose a significant margin of its patients to the other hospitals should it try to raise its price or lower its quality compared to competitive levels. A small overlap, on the other hand, suggests that, *at least currently*, the patients who live in the merged hospital’s PSA do not commonly use the other hospitals that are apparently serving different geographic areas. This, of course, does not mean that those patients could not shift in the face of an attempted monopolization, only that, to date, they have not shown either a need or a willingness to do so. Thus, the size of the overlap generally measures the percentage of the merged hospital’s PSA patients that are already “at risk” of going to a rival hospital.

The direct competitor test provides a very conservative approach for identifying the relevant geographic market since it counts only overlapping providers. As discussed earlier, if hospital A strongly competes with hospital B, hospital B strongly competes with hospital C, but hospitals A and C do not directly compete, all three hospitals should still be included in the same relevant geographic market. This is because a cartel composed of hospitals A and B would not

---

<sup>39</sup> Kenneth G. Elzinga and Thomas F. Hogarty, “The Problem of Geographic Market Delineation in Antimerger Suits,” *The Antitrust Bulletin* 18 (1973), p. 73.

<sup>40</sup> A PSA is usually defined as the smallest set of zip codes from which the hospitals in question draw 90 percent of their patients. It is supposed to approximate where the hospitals compete for and draw patients from on a regular basis. The only exception to the 90 percent rule is for teaching hospitals, where we have found that a 75 percent PSA provides a safer measure of where the hospitals regularly get their patients from.

be able to profitably increase its price without including hospital C. If it tried to do so, the cartel would break apart as a result of hospital B losing a substantial number of patients to hospital C. A direct competitor test for hospital A would indicate only that hospital B should be included in the relevant geographic market. *This means that the direct competitor analysis is not a “complete” approach to identifying the relevant geographic market since it excludes potentially important indirect competitors.*

One problem with the direct competitor test is that it can sometimes overstate the “effective” constraint that the other hospitals have on the merged entity. This can occur, for instance, if a substantial overlap is due to another hospital drawing only a few of its PSA patients from the merged entity’s most populated zip codes. In this situation, the test would mistakenly indicate that many of the merged entity’s PSA patients are “at risk” of going to the other hospital when, in fact, it is unlikely that many would be lost since the other hospital is drawing only a few patients from the zip codes in question. One way to identify this problem is by examining the reverse overlap, i.e., how many of the other hospital’s PSA patients are “at risk” of being lost to the merged entity. If the reverse overlap is also large, this confirms that the other hospital provides an “effective” constraint and should be included in the same relevant geographic market.<sup>41</sup>

***Elzinga-Hogarty Test.*** This well-known test seeks to determine the relevant geographic market by identifying the smallest geographic area where few patients are leaving and few patients are entering.<sup>42</sup> If a relatively insular area has been found, this means that all significant

---

<sup>41</sup> It should be mentioned that, even if the reverse overlaps by themselves are not large, the other hospitals may still represent an “effective” constraint if their combined reverse overlap is large.

<sup>42</sup> Kenneth G. Elzinga and Thomas F. Hogarty, “The Problem of Geographic Market Delineation in Antimerger Suits,” *The Antitrust Bulletin* 18 (1973), pp. 45-81.

hospital competitors have probably been included. Since few patients are leaving the area, hospitals located outside the area are likely viewed as poor alternatives to the hospitals located in the area. The Elzinga-Hogarty test usually starts with the PSA of the hospital or hospitals in question and then expands that area as needed. Expansion continues until a relatively insular area has been found where there is little outmigration and little immigration.<sup>43</sup> One common measure of “little,” which has been used in many hospital antitrust cases, is the 90/90 standard. This means that only 10 percent of the patients who live in that area receive hospital care outside of the area, *and* only 10 percent of the patients who are treated in that area come from outside of that area. The 90/90 standard is sometimes called the “strong” standard.<sup>44</sup> An alternative standard that has been less frequently used in hospital antitrust matters is the so-called “weak” standard of 75/75. This standard suggests that a relevant geographic market is found when both outmigration and immigration are 25 percent or less.

A market area identified by the 90/90 standard of the Elzinga-Hogarty test becomes a reasonable (and generally conservative) measure of the relevant geographic market, assuming that the expansion has been made gradually to identify the smallest monopolizable market and assuming that three potentially distorting problems are not present.<sup>45</sup> In fact, the true size of the relevant geographic market is more likely to be *understated* by the Elzinga-Hogarty test than to be overstated. The patient movement data only indicate where patients have gone in the past, not

---

<sup>43</sup> These patient flow measures are commonly referred to as “LIFO” and “LOFI,” respectively. LIFO stands for Little In From Outside and LOFI stands for Little Out From Inside.

<sup>44</sup> This is the standard that Professors Elzinga and Hogarty suggest should be used. See Kenneth G. Elzinga and Thomas F. Hogarty, “The Problem of Geographic Market Delineation Revisited: The Case of Coal,” *The Antitrust Bulletin* 23 (1978), pp. 1-18.

<sup>45</sup> This, of course, also assumes that the other hospitals located in the market area have the necessary capacity and product offerings to constrain the behavior of the merging hospitals.

where they *could* go in the face of an attempted monopolization—which is the ultimate question in geographic market analysis.

The first possible distortion is geographic price discrimination. This problem refers to the situation where a hospital in one area (area A) is charging patients who live in that area a significantly higher price than it is charging patients who live in another area (area B). If this problem existed, the Elzinga-Hogarty test might include both areas in the same relevant geographic market (since there could be a significant immigration of patients from area B to area A), even though the two areas might properly be included in different markets. Fortunately, in the hospital industry, geographic price discrimination seems highly unlikely. The contracts that hospitals negotiate with third-party payors constrain them to charge each payor's patients the same set of prices, regardless of where the patients live or which company the patient works for. Moreover, third-party payors usually sell to a wide variety of employers. The location of each employer and the geographic dispersion of their covered employees are normally difficult to predict so there is rarely a basis for devising a geographic price discrimination scheme.

A second possible distortion stems from geographic quality or service differences. This problem is a form of product differentiation and it has been written about by at least one DOJ economist.<sup>46</sup> The problem may be evidenced, for instance, by observing the movement of patients from rural areas into the urban medical centers, perhaps due to perceived significant quality differences or the lack of availability of some high level services.<sup>47</sup> If this problem

---

<sup>46</sup> See, e.g., Gregory J. Werden, "The Use and Misuse of Shipments Data in Defining Geographic Markets," *The Antitrust Bulletin* 26 (1981), pp. 719-737; also Gregory J. Werden, "The Limited Relevance of Patient Migration Data in Market Delineation for Hospital Merger Cases," *Journal of Health Economics* 8 (1989), pp. 363-376.

<sup>47</sup> See, e.g., Steven E. Crane and Patrick J. Welch, "Rethinking Shipments Asymmetries," *Review of Industrial Organization* 8 (1993), pp. 579-597.

existed, the Elzinga-Hogarty test would probably erroneously include the urban and rural areas in the same relevant geographic market. Still, even where the problem exists, the Elzinga-Hogarty analysis can easily take into account the differences in service availability by looking only at patients with diagnoses that have been or clearly could have been treated in both the rural area and the urban area. The quality differences are sometimes more difficult to account for, but it is important to note that urban centers are usually more expensive and, if they are higher quality, a rise in the *relative* price of the urban hospitals might cause more rural patients to use their local hospitals. Thus, quality differences do not preclude a significant response to changes in relative price.

The last possible distortion for the Elzinga-Hogarty test arises if there is a pre-existing monopoly. This problem might occur if a substantial number of patients from one area (area A) traveled to another area for hospital services (area B) simply because the hospital in area A is already charging supracompetitive prices. If this problem existed, the substantial immigration to area B would cause the Elzinga-Hogarty test to include both areas in the same relevant geographic market even though they might not be. Some economists think that the pre-existing monopoly problem is unlikely. They believe “that such a situation is unlikely to occur because profit-maximizing behavior would establish the price in A at a point just short of encouraging” outmigration.<sup>48</sup> In any event, the pre-existing monopoly problem can also be addressed directly by comparing prices in the allegedly monopolized market with prices in competitive benchmark areas.

---

<sup>48</sup> George J. Stigler and Robert A. Sherwin, “The Extent of the Market,” *Journal of Law and Economics* 28 (1985), p. 580.



The Elzinga-Hogarty test is sometimes criticized based simply on the fact that the resulting market just “seems too big.” This is because the Elzinga-Hogarty test captures both direct competitors and indirect competitors. In some urban areas, this may lead to a finding that the entire metropolitan area is in the relevant geographic market. The reply to such a finding is often: “How can the eastern-most hospital in the city be in competition with the western-most hospital? Nobody on the east side of the city would ever consider driving all the way over to the west side of town for care.” This, however, is not the relevant question. Instead, the relevant question is, “Which hospitals must join the cartel to make it a monopolizable market?” The Elzinga-Hogarty test usually provides the appropriate answer to this question. By capturing indirect competitors as well as direct competitors, the Elzinga-Hogarty test recognizes that competition is comprised of more than just direct competition. The hospitals that are direct competitors of the merging hospitals are disciplined by the fear of losing patients and managed care contracts to the hospitals located at the periphery of their service areas even if those hospitals do not directly compete with the merging hospitals. It is not necessary that the hospitals outside the hypothetical cartel discipline each and every member of the conspiracy to undermine the cartel.<sup>49</sup>

Finally, it should be pointed out that the Elzinga-Hogarty test is driven by the immigration statistics. That is, the test chooses as its hypothetical geographic market those zip codes that are most important to the hospitals in the area under investigation. Thus, all “expansions” of the hypothetical market are made in the direction of those zip codes that are next highest on the list as

---

<sup>49</sup> An exception to this would be a well-organized cartel that was capable of sharing profits through side payments or was capable of setting up an elaborate geographic price discrimination scheme with higher prices near the core of the cartel and lower prices at the periphery. As far as we know, nothing of this sort has ever been alleged in a hospital merger investigation or in litigation.

sources of patients. This can cause another possible distortion known as the “black hole” problem, which occurs when a strong competitor exists at the periphery of the merging hospitals’ service areas but is overlooked by the test. For instance, a merger of two hospitals in San Jose, California, might be analyzed using the Elzinga-Hogarty test. But the test may not capture Stanford’s large medical complex just 25 miles northwest of San Jose. This is because the competitive strength of Stanford allows it to capture the vast majority of patients in its nearby zip codes. Consequently, those zip codes are usually not important sources of patients for the merging San Jose hospitals. Thus, even though Stanford can clearly be shown to be a competitor using tests based more on outmigration data (i.e., the direct competitor test or the critical loss test, discussed below), the Elzinga-Hogarty test may exclude an important competitive force in the market, like Stanford, thus, *understating* the relevant geographic market. Potential problems such as these require that multiple tests be used, and further indicate why no single, bright-line test is possible.

***Critical Loss Test.*** This test seeks to determine the relevant geographic market by identifying the smallest set of hospitals that would have to be included in the market to make a hypothetical price increase profitable, usually a 5 percent increase. This test reflects the so-called “hypothetical monopolist” thought experiment recommended in the *Guidelines*. That experiment begins with a set of hospitals and asks whether a hypothetical monopolist of those hospitals could profitably increase its price by five percent. Even though some patients might continue to buy at the higher price, the price increase may become unprofitable due to the lost sales of those patients who decide to go elsewhere. For hospitals, which have relatively high fixed costs that must be borne whether or not fewer patients show up, each lost sale is especially important as a generator

of added profit because only the variable costs of handling the patients are avoided. Thus, the lost revenue would have made a substantial contribution to covering the fixed costs. If a significant margin of patients would leave the hypothetical monopolist after the price increase, the price increase would likely become unprofitable very quickly, and more hospitals would have to be added to find a monopolizable market. If, on the other hand, such a hypothetical price increase would prove to be profitable, then the set of hospitals under consideration is likely to include all of those hospitals that significantly constrain one another.

The critical loss test begins with the hospital or hospitals in question and proceeds in three steps.<sup>50</sup> First, it determines how many patients (in percentage terms) the hospital or hospitals in question would have to lose to make a hypothetical price increase unprofitable. This is called the “critical loss” percentage.<sup>51</sup> Second, the test then determines how many patients (in percentage terms) the hospital or hospitals in question might lose if the hospital tried to increase its prices. This is called the “at-risk” percentage. Third, it compares the two percentages. If the “at-risk” percentage exceeds the “critical loss” percentage, then a hypothetical price increase would likely be unprofitable because the hospital or hospitals in question would lose too many patients to other hospitals. If so, the geographic market under consideration has been too narrowly defined. In other words, the geographic market would have to be expanded to include some or all of the hospitals to which patients could turn to avoid the price increase. Because the critical loss test primarily looks for hospitals to which the hypothetical monopolist’s patients may turn, it is driven

---

<sup>50</sup> For more details, see Barry C. Harris and Joseph J. Simmons, “Focussing Market Definition: How Much Substitution Is Necessary?,” in *Research in Law and Economics* edited by Richard O. Zerbe, JAI Press, Inc. (1989), pp. 207-226.

<sup>51</sup> We have found in our hospital merger work that this percentage usually ranges from 7 to 11 percent.

by outmigration and may overlook hospitals that could significantly reduce immigration to the hypothetical monopolist.

Although the critical loss test adds an important ingredient to hospital merger analysis by quantifying how many patients would have to shift to make a hypothetical price increase unprofitable, it still has a number of limitations. First, the results of the test depend on the size of the hypothetical price increase. That is, the higher the hypothetical price increase, the greater the number of patients that would need to shift to make it unprofitable. Thus, the size of the hypothetical price increase becomes a major debate and there is nothing in the test to suggest how high the post-merger prices could be. Second, like the direct competitor test, this test is usually not a “complete” approach to identifying the relevant geographic market. This is because the test usually only identifies those other hospitals that directly compete with the merging hospitals; it does not identify possible indirect, yet constraining, competitors. Finally, and most importantly, this test, like the direct competitor test and the Elzinga-Hogarty test, is based on historical patient origin data and cannot directly address how patients would actually respond to a monopolization attempt.<sup>52</sup> Thus, a second stage of argument generally follows explaining why it is likely that a sufficient number of additional patients would actually shift to these other hospitals if the

---

<sup>52</sup> The critical loss test also has other limitations. One of them is that the determination of the “at risk” percentage is somewhat arbitrary. This is because it requires identifying which patients (by zip code) are “at risk” of going to other hospitals, but there is no clear-cut measure for doing so. For instance, should a zip code be considered “at risk” if only 20 percent of its patients are already going to other hospitals? Or should a higher cut-off (such as 33 percent or 50 percent) be used instead? Because the choice of the cut-off is important to the determination of the “at risk” percentage, we typically use several different cut-offs.

Another limitation, related to the problem of choosing an appropriate “at risk” percentage, is the problem of comparing “apples and apples” when we observe patients leaving to use outside hospitals. Some of that outmigration may be for specialty services not available at the merging hospitals. This problem can be easily corrected for by analyzing overlapping DRGs.

merging hospitals tried to increase their prices. This means that an analysis of the “mechanisms” by which patients will shift to other hospitals is often warranted.<sup>53</sup>

#### **IV. GEOGRAPHIC MARKET ISSUES IN HOSPITAL MERGER CASES**

##### **A. Ukiah Merger**

This case involved a merger that the FTC contested more than one year after the fact. The merger took place in August 1988 between two of the three general acute care hospitals located in Ukiah, California: Ukiah Adventist Hospital (43 beds) and Ukiah General Hospital (51 beds).<sup>54</sup> On November 7, 1989, the FTC filed a complaint alleging that the merger had violated Section 7 of the Clayton Act. The parties held a trial before an administrative law judge in July 1992 and the judge issued his initial decision in favor of the merged hospitals on December 9, 1992. The full Commission ultimately voted to uphold this decision on April 1, 1994.

To identify the relevant geographic market, both economic experts assumed that the relevant product market was acute care inpatient hospital services. Given this assumption, they then relied on versions of the Elzinga-Hogarty test to determine the extent of the market. The FTC’s expert used a version of the test in which he focused on specific geographic areas only and then calculated immigration and outmigration percentages just for those areas. In particular, he did not examine how expansion changed any of those putative markets.<sup>55</sup> Based on his work, the

---

<sup>53</sup> For a detailed discussion of mechanisms, see Lawrence Wu, “The Evidence Is In: A Review of the Market Definition Debate in Hospital Merger Cases,” *Antitrust Report* (November 1998), pp. 23-41.

<sup>54</sup> *Adventist Health Systems/West, et al.*, Dk. No. 9234 (December 16, 1992; initial decision), p. 5.

<sup>55</sup> Professors Elzinga and Hogarty say in both of their papers that expansion should be used to determine the relevant geographic market. The *DOJ/FTC Merger Guidelines* also indicate that expansion should be used to determine the market. Also, the district judge in the *Sutter Health* case found the defendants’ analysis of the relevant geographic market to be more credible than the plaintiff’s analysis partly because the defendants’

FTC's expert testified that the "most defensible" relevant market was the Ukiah-Willets-Lakeport area, which had an immigration of 9 percent but an outmigration of 25 percent.<sup>56</sup>

Although that geographic area contained a large amount of outmigration, the FTC's expert argued that those patients were leaving the area only because they could not receive the type of hospital services that they needed locally. To support this claim, he performed two analyses. First, he compared the average Diagnosis Related Group (DRG) weights for the residents hospitalized in the area with those hospitalized outside of the area. This analysis showed that the residents hospitalized outside of the area had a 38 percent higher DRG weight.<sup>57</sup> Second, the FTC's expert examined the specific procedure and diagnosis codes for those patients leaving the area. This analysis showed that, of the 2,711 patients who left the area in 1987, 1,045 had a specific diagnosis or received a specific treatment that allegedly was not delivered at any hospital in the area.<sup>58</sup>

Defendants' expert challenged both of those analyses. He claimed that the DRG-weight analysis was wrong because it ignored the significant overlap in DRGs between the two groups of patients. That is, even though the group leaving the Ukiah area had a higher average DRG-weight, the majority of those DRGs were also being performed at the hospitals within the area. Defendants' expert also claimed that the specific procedure and diagnosis code analysis was flawed because the classifications upon which it was based did not necessarily reflect distinct medical procedures. As an example, he mentioned how the two International Classification of

---

expert allowed the data to identify the market. Plaintiff's expert chose an area first and then applied the Elzinga-Hogarty test.

<sup>56</sup> *Adventist Health Systems*, Dk. No. 9234 (initial decision), p. 14. Willits is approximately 23 miles north of Ukiah, and Lakeport is approximately 34 miles southeast of Ukiah.

<sup>57</sup> *Id.*, p.14.

Disease Clinical Modification (ICD-9-CM) codes for malignant neoplasm of the upper left and lower left vermilion border could create misleading information:

[I]f a patient left the area, went down to Santa Rosa for treatment of a malignant neoplasm in his upper left, and his next-door neighbor stayed put and was treated for a malignant neoplasm of the lower left at Ukiah Valley, [the FTC's expert's] Uniqueness Analysis would say there's no competitive overlap.<sup>59</sup>

Based on these criticisms and on other testimony concerning patients leaving the Ukiah area even though they could have received similar treatments at Ukiah Valley, the administrative law judge ruled that the FTC's relevant geographic market was too small.

The administrative law judge also ruled that defendants' relevant geographic market was too large. In contrast to the FTC's expert, the defendants' expert employed a more conventional version of the Elzinga-Hogarty test to identify the market. In particular, he used the service area of the merged entity to start his analysis and then expanded that putative market by determining where 90 percent of the consumers who live in that service area went for hospital care.<sup>60</sup> He concluded that the relevant geographic market included parts of Lake, Mendocino, and Napa Counties and all of Sonoma County.<sup>61</sup> The administrative law judge rejected this definition because it "incorporates some hospitals which are located so far from Ukiah that it is inconceivable that they would impose any competitive constraint on the activities of Ukiah Valley."<sup>62</sup> Although the judge did not say how close hospitals should be to Ukiah to be considered "competitive constraints," it should be noted that in the relevant geographic market

---

<sup>58</sup> *Id.*, p.15.

<sup>59</sup> *Id.*, p. 16.

<sup>60</sup> *Id.*, p. 24.

<sup>61</sup> The City of Ukiah is located in Mendocino County.

found by the judge he included the Santa Rosa hospitals, which were located “approximately 68 miles” away from Ukiah Valley.<sup>63</sup>

There are two other notable geographic market issues concerning this case. First, there was very little evidence in the record about the ability of managed care payors to move patients (i.e., about “mechanisms”). Moreover, the evidence that did exist was inconclusive as to whether the managed care payors would be able to move patients in the face of a monopolization attempt.<sup>64</sup> Second, the administrative law judge indicated that he had considered evidence about where else Ukiah physicians had privileges when ruling on the relevant geographic market—though the facts apparently did not strongly influence his decision. This evidence showed that only a few of the Ukiah physicians had privileges at hospitals outside of the Ukiah area.

In affirming the administrative law judge’s decision, the full Commission addressed the use of the Elzinga-Hogarty test. It acknowledged that the test is useful, but not determinative. In particular, the Commission stated:

That is not to say that patient flow analysis, employing the Elzinga-Hogarty methodology and other statistical techniques, has no place in geographic market definition. Indeed, historical or current patterns of patient flows are valuable sources of information in analyzing the question of whether a hypothetical monopolist in a geographic area could exercise market power. The point is that other evidence is equally relevant.<sup>65</sup>

---

<sup>62</sup> *Adventist Health Systems*, Dk. No. 9234 (initial decision), pp. 25.

<sup>63</sup> *Id.*, pp.12 and 41-43.

<sup>64</sup> *Adventist Health Systems*, Dk. No. 9234 (final order), p. 6.

<sup>65</sup> *Id.*, pp. 8 and 9.



## **B. Joplin Merger**

The *Joplin* case involved a merger between the second and third largest general acute care hospitals in Joplin, Missouri: Freeman Hospital (193 beds) and Oak Hills Hospital (105 beds).<sup>66</sup> The merging hospitals initially notified the FTC about their consolidation plan in July 1994. After the full Commission rejected the plan in February 1995, the FTC filed a complaint in federal court to block the merger. The district court held a temporary restraining order hearing following which it denied the FTC's request. The FTC appealed the decision and won a stay. The district court then held a preliminary injunction hearing in March 1995, which resulted in a second decision in favor of the hospitals. On November 15, 1995, the appeals court affirmed.

At the preliminary injunction hearing, the determination of the relevant geographic market became central. Both sides relied on versions of the Elzinga-Hogarty test. The FTC's expert first identified a combined service area for the five hospitals (including the merging hospitals) in the immediate Joplin area. This service area was based on using the smallest set of *contiguous* zip codes that generated about 80 percent of the total discharges for the five hospitals.<sup>67</sup> Next, the FTC's expert supplemented his Missouri patient origin data with some limited statistics from the Kansas Hospital Association to determine the amount of outmigration from this service area. His research resulted in a relevant geographic market consisting of all zip codes within a 27-mile radius of Joplin.<sup>68</sup> This area contained portions of five counties in three different states and had an immigration of 19.2 percent and an outmigration of 22 percent.<sup>69</sup>

---

<sup>66</sup> *FTC v. Freeman Hospital, et al.*, No. 95-5015-CW-SW-1 (W.D. MO, June 9, 1995; order), p. 2.

<sup>67</sup> *Id.*, pp. 5-7.

<sup>68</sup> *Id.*, p. 6. This geographic area was equivalent to his combined service area.

<sup>69</sup> *Id.*, pp. 6 and 11.

Defendants' expert also used a two-step approach to identify the relevant geographic market. Like the FTC's expert, he first determined a combined service area for the five hospitals in the immediate Joplin area. However, he based this service area on the smallest set of *non-contiguous* zip codes that generated 90 percent of the Joplin area hospitals' discharges.<sup>70</sup> Next, defendants' expert identified all of the hospitals in this combined service area and compared the amount of overlap between the individual service areas for each of these hospitals (i.e., the direct competitor test). This step enabled the expert to confirm that all of these hospitals were in fact competitors. At this point, the expert concluded his analysis. Unlike the FTC's expert, he did not try to determine the amount of outmigration from his combined service area because the service area included zip codes from three different states and he did not have complete patient origin data for all of these states. The resultant relevant geographic market included portions of thirteen counties located in three different states. This area contained seventeen hospitals: twelve located within 40 miles of Joplin, and the remaining five located between 40 to 54 miles of Joplin.<sup>71</sup>

The district court focused on three points in rejecting the relevant geographic market proposed by the FTC. First, the court questioned the technique of arranging zip codes by distance instead of by economic importance (i.e., contiguous zip codes instead of non-contiguous, but more significant, zip codes). The court noted that, by doing this, the FTC had omitted several zip codes that had contributed a large number of patients.<sup>72</sup> Second, the court questioned the reliability of the FTC's patient origin data. Although both experts used data generated by the Hospital Industry Data Institute (HIDI), they got their data from different sources. The FTC's

---

<sup>70</sup> *Id.*, p. 8

<sup>71</sup> *Id.*, p. 9.

<sup>72</sup> For instance, in 1993, two of these omitted zip codes had accounted for 533 and 317 patients, respectively.

expert got his data from a diskette furnished by HIDI, whereas defendants' expert relied on a published report from HIDI. The district judge questioned the reliability of the FTC's data because the diskette's total for 1993 exceeded the published total by 22 percent.<sup>73</sup> Finally, the court questioned the FTC's outmigration analysis because it did not think that the expert had sufficient data to do the analysis. For all of these reasons, the court ruled that "[b]ecause the FTC has not met its burden of establishing a valid geographic market, its complaint must fail."<sup>74</sup>

The court also addressed the usefulness of the Elzinga-Hogarty test. In particular, it stated that "[w]hile this test is often utilized to analyze geographic markets, it is not solely dispositive . . . [o]ther evidence may be relevant."<sup>75</sup> The appeals court took a similar position, stating that the Elzinga-Hogarty test does "not, by itself, address the decisive question of where consumers could practicably go for alternative sources of acute care inpatient services" if an antitrust problem were to arise.<sup>76</sup> Interestingly, neither of the courts seemed to have relied much on other evidence (such as mechanisms evidence) when reaching their decisions. Indeed, the appeals court specifically gave little weight to the testimony of the various market participants who indicated that the patients would be unlikely to turn to other hospitals in the face of a post-merger monopolization attempt by the Joplin area hospitals.<sup>77</sup>

### **C. Dubuque Merger**

This case involved the proposed merger between the only two general acute care hospitals in Dubuque, Iowa: Finley Hospital (124 staffed beds) and Mercy Health Center (320 staffed

---

<sup>73</sup> *Id.*, p. 7.

<sup>74</sup> *Id.*, p. 29.

<sup>75</sup> *Id.*, p. 4.

<sup>76</sup> *FTC v. Freeman Hospital, et al.*, Nos. 95-1448/95-2882 (affirmation), p. 18.

beds).<sup>78</sup> The DOJ alleged that this merger would reduce competition and filed a complaint in federal court to block it. The trial began in September of 1994 and lasted for about a month. About one year later, on October 27, 1995, the district court rendered an opinion in favor of the hospitals. The appeals court vacated the decision as moot in 1997 after the hospitals decided not to merge.

A major point of contention in this case was the determination of the relevant geographic market. The DOJ's economic expert identified a relevant geographic market that covered a 15-mile radius around the City of Dubuque and included just three hospitals: Finley, Mercy, and Galena-Stauss (25 beds).<sup>79</sup> (Galena-Stauss is located in Illinois on the edge of the DOJ's expert's relevant geographic market and has only one operating room.) In contrast, the defendants' expert identified a relevant geographic market that included "at least Finley and Mercy and nearby rural hospitals, and at a minimum, at least the first ring of regional hospitals . . . [located] in Waterloo, Davenport, Cedar Rapids, Iowa City and Madison."<sup>80</sup> The regional hospitals located in Madison, Wisconsin are approximately 100 miles away from Dubuque.

To identify the relevant geographic market, both economic experts assumed that the relevant product market was acute care inpatient hospital services. Given this assumption, the DOJ's expert relied on four factors: the views of managed care buyers, the overlap of physician privileges at Finley and Mercy with the other hospitals, the views of local physicians, and patient origin data—in particular, a version of the Elzinga-Hogarty test with a relatively low immigration

---

<sup>77</sup> *Id.*, pp. 18 and 19.

<sup>78</sup> *United States v. Mercy Health Services, et al.*, No. C-94-1023 (N.D. IA, October 27, 1995; opinion and order), p. 2.

<sup>79</sup> *United States v. Mercy Health Services*, No. C-94-1023 (trial transcript), pp. 336-337.

<sup>80</sup> *Id.*, pp. 2374 and 2375.

standard.<sup>81</sup> The DOJ's expert testified that the managed care buyers had indicated that they could not successfully offer a managed care plan in Dubuque if they had to send their patients out of the area to receive hospital services. She also testified that the overlap between physician privileges showed that almost all of the local physicians had privileges only at Finley and/or Mercy and that the local physicians had told her that the other hospitals were just "too far away" for admitting patients. Finally, she testified that the Elzinga-Hogarty test showed that there is only 12 percent outmigration of patients from the area in question and that the immigration equals only 24 percent.<sup>82</sup> Based on all of this evidence, she concluded that the relevant geographic market covered an area that included the three hospitals only.

Defendants' expert, in turn, relied primarily on patient origin data (the critical loss test), affidavits and declarations, and consumer survey results to identify the relevant geographic market. He testified that the hospitals' financial statements showed that if Finley and Mercy were to lose as few as 8 percent of their patients, this would make a five percent price increase unprofitable.<sup>83</sup> He also testified that the patient origin data indicated that, if Finley and Mercy tried to increase their prices, they would be at risk of losing 24 percent of their patients.<sup>84</sup> Finally, he testified that the affidavits and declarations from the managed care buyers and the survey results of local residents supported his assertion that a significant number of patients would shift

---

<sup>81</sup> Like the FTC's expert in the *Ukiah* case, she used a version of the test that focused on specific geographic areas only and that did not examine how those putative markets changed as a result of expansion.

<sup>82</sup> Although this represents a significant amount of immigration, she argued that it would not constrain the behavior of the merging hospitals because there were a number of reasons why the immigrating patients would not shift to other hospitals (*United States v. Mercy Health Services*, No. C-94-1023 (trial transcript), pp. 373-376). Those reasons included: (1) loyalty to primary care physicians who only had staff privileges at the Dubuque hospitals, (2) membership in managed care plans that contracted with the Dubuque hospitals only, and (3) requiring hospital services on an emergency basis only.

<sup>83</sup> *Id.*, p. 2423.

<sup>84</sup> *Id.*, pp. 2423 and 2424.

to other hospitals if Finley and Mercy tried to raise their prices. Based on all of this evidence, he concluded that the relevant geographic market also includes the surrounding rural hospitals and at least the first ring of regional hospitals.

In his opinion, the judge focused most of his attention on the question of whether enough patients would actually shift to the regional hospitals if an antitrust problem were to arise. He concluded that the government's geographic market definition was inadequate because it relied too heavily on past conditions and it did not properly reflect the ability of competing regional hospitals and physician groups to attract patients through their growing outreach efforts.<sup>85</sup> As support, he cited the testimony about industry trends, which stated that outreach efforts were accelerating as a result of declining hospital admissions and shorter lengths of stay. He also mentioned several examples of the growing outreach efforts, including: regional hospitals (such as the University of Iowa hospitals) opening up outreach clinics in the Finley and Mercy service areas to attract patients back to their hospitals, regional physician groups associated with the regional hospitals (such as the Dean Clinic in Madison, Wisconsin) opening up outreach clinics in the Finley and Mercy service area to attract patients back to their parent clinics and the regional hospitals, and local physician groups (such as Medical Associates in Dubuque) opening up outreach clinics in the surrounding areas to directly compete with the regional hospital and physician clinics. All of this testimony led the judge to conclude that the regional hospitals would be an effective constraint on the merging hospitals and should be included in the same market.

---

<sup>85</sup> *United States v. Mercy Health Services*, No. C-94-1023 (opinion and order), pp. 25-28.

The judge also found the government's geographic market definition to be inadequate because it did not properly reflect the ability of managed care buyers to move patients. In particular, the judge explained that there are several ways that managed care entities can move patients. These include: "(1) by only paying the hospitalization costs if the enrollee is treated at a specified hospital, or (2) by requiring the enrollee to pay a higher percentage of the enrollee's hospitalization costs (a co-pay) if the enrollee chooses to be hospitalized at a non-preferred hospital."<sup>86</sup> He then cited the managed care testimony and the survey results testimony indicating that Dubuque residents could be induced to travel to other hospitals for less than \$1,000.<sup>87</sup> Given that the average full charge at the merging hospitals was \$6,000 and the average discount was 20 percent, the judge reasoned that the managed care entities would have a sufficient incentive to move patients (i.e.,  $\$1,200 = \$6,000 \times 0.20$ ) if the hospitals tried to eliminate the discount after the merger.<sup>88</sup> This testimony reinforced the judge's conclusion that the regional hospitals should be included in the market since the managed care entities could steer the Dubuque patients to them if the need were to arise.

Moreover, summing up the government's reliance on the historical patient origin data, the judge stated:

In order to determine the actual geographic market, current market behavior must be put into a dynamic analysis which looks at possible competitive responses from other hospitals, third-party payers and consumers. In this light, it is important to note that the government's reliance on the Elzinga-Hogarty test is merely a starting point—it states where Mercy and Finley are currently attracting patients and the area from which most patients seek services from either Mercy and Finley. This is a snapshot of the market as it exists under current conditions and does not pretend to answer the question of what would

---

<sup>86</sup> *Id.*, pp. 8 and 9.

<sup>87</sup> *Id.*, pp. 36 and 37.

<sup>88</sup> *Id.*, p. 37.

happen if there was an attempt to exercise market power by one of the market participants.<sup>89</sup>

#### **D. Grand Rapids Merger**

This case involved a merger between two of the four hospitals in Grand Rapids, Michigan: Butterworth Hospital (529 beds) and Blodgett Hospital (328 beds).<sup>90</sup> The FTC filed a complaint in federal court and a preliminary injunction hearing was held during the week of April 22, 1996. The district court denied the preliminary injunction on September 26, 1996, and the Eighth Circuit affirmed.

One of the issues of the case (though not the issue on which the decision ultimately turned) was the scope of the geographic market. The FTC alleged that there were two relevant product markets: general acute care inpatient hospital services and primary acute care inpatient services. The FTC defined the geographic market relevant to the first product market as “greater Kent County,” consisting of an area within a 30 mile radius of Grand Rapids.<sup>91</sup> The FTC’s market included the four Grand Rapids hospitals and five small rural hospitals in the area. The FTC alleged that the relevant geographic market with respect to its primary care product market was the “immediate Grand Rapids area,” consisting of an area slightly larger than Kent County, containing Grand Rapids, in which the only hospitals were the four Grand Rapids hospitals.<sup>92</sup> The hospitals opposed these definitions, but did not offer their own alternative definition.

---

<sup>89</sup> *Id.*, p. 24.

<sup>90</sup> *FTC v. Butterworth Health Corporation, et al.*, No.1:96-CV-49 (W.D. MI, September 26, 1996; opinion of the court), p. 2.

<sup>91</sup> *Id.*, pp. 11 and 12.

<sup>92</sup> *Id.*, p. 16.



In analyzing the geographic market, both parties applied the Elzinga-Hogarty test. The FTC's economist found that the "strong" Elzinga-Hogarty test was met by the first market definition, concluding that 90% of the patients of the hospitals in the "greater Kent County" area came from that area, and 90% of the residents of that area obtained hospital care within the area.<sup>93</sup> Defendants disputed this, but apparently did not dispute that at least an 85% Elzinga-Hogarty test was met by this market definition. The FTC contended that the strong Elzinga-Hogarty test was also met with regard to the second geographic market.

In support of its market definitions, the FTC also relied on representatives of managed care organizations and major employers, who testified that they "would not attempt to steer their members or employees, respectively, away from Grand Rapids hospitals in response to a 5% to 10% price increase. . ." <sup>94</sup> The testimony also indicated that since the Grand Rapids hospitals are "among the least costly in Michigan," traveling to other locations for hospitalization would be unlikely to reduce prices. The court also noted that "outmigration would be resisted by patients due to physician loyalty, inasmuch as it could entail treatment in hospitals where their own treating physicians lack admitting privileges." <sup>95</sup>

In response, defendants presented evidence including a survey indicating that patients would travel outside the area in response to a price increase. However, the court found this evidence to be inadequate because "[s]ome of the most critical survey questions are ambiguous in material ways and some of the responses yielded are of suspect reliability." <sup>96</sup> For this reason, the

---

<sup>93</sup> *Id.*, p. 13.

<sup>94</sup> *Id.*, pp. 14 and 15.

<sup>95</sup> *Id.*, p. 15.

<sup>96</sup> *Id.*, pp. 17 and 18.

court rejected the survey evidence, even though survey evidence had been found to support a broader geographic market in the *Dubuque* case.

Significantly, the court rejected defendants' attacks on the FTC's market because "it is always possible to take pot shots at a market definition" (quoting Judge Posner in Rockford Memorial), but "defendants have not even proposed an alternative" market.<sup>97</sup> Given this lack of a proposed "better" market, the court found the FTC's proposed market to be adequate.

### **E. LIJ Merger**

The *LIJ* case involved a merger between two hospital systems located primarily on Long Island, New York: Long Island Jewish Medical Center (3 hospitals) and North Shore Health System (9 hospitals).<sup>98</sup> The major hospitals in these systems, LIJ (450 beds) and North Shore Manhasset (705 beds; hereafter referred to as "NSM"), were located approximately two miles apart. They were both affiliated with medical schools and they both provided tertiary care services. The DOJ filed a complaint in federal court alleging that LIJ and NSM were the only two "anchor hospitals" in Queens and Nassau Counties and that a merger between them would allow the merged entity to raise its price to managed care payors.<sup>99</sup> After a three week trial, the district court rendered a decision in favor of the merging systems.

Although the district court stated that its conclusion about the relevant product market was the key to its ruling,<sup>100</sup> an examination of the decision shows that the court reached that conclusion based largely on a determination of which other hospitals competed with LIJ and

---

<sup>97</sup> *Id.*, p. 17.

<sup>98</sup> *United States v. Long Island Jewish Medical Center, et al.*, CV 97-3412 (E.D. NY, October 1997; memorandum decision and order), pp. 4-6.

<sup>99</sup> *United States v. Long Island Jewish Medical Center*, Case No. DLG-9891 (E.D. NY, 1997; verified complaint), pp. 1-4.

NSM. The evidence that the court used to make that determination consisted mainly of fact witness testimony and some patient origin data evidence. The fact witness testimony was used to establish which other hospitals were viable alternatives to LIJ and NSM for the various types of hospital services. For instance, Mr. Stocker, who was President and CEO of Empire Blue Cross and Blue Shield, was instrumental in establishing that Winthrop Hospital, which is also located in Nassau County, “provides the same services as LIJ and NSM and therefore, is a viable alternative to those hospitals.”<sup>101</sup> Similarly, Mr. Stocker also played a key role in establishing which other Queens and Nassau hospitals directly competed with LIJ and NSM for primary and secondary services.<sup>102</sup> The patient origin data evidence, on the other hand, was used to confirm that the Manhattan hospitals directly competed with LIJ and NSM for tertiary care services. In particular, the court cited the number of Queens, Nassau, and Suffolk patients traveling to Manhattan for cardiac surgery.<sup>103</sup> Based on all of this evidence, the court concluded that the relevant product market was general acute care inpatient hospital services.<sup>104</sup>

To determine the relevant geographic market, the economic experts in this case appear to have used markedly different approaches.<sup>105</sup> The DOJ’s expert appears to have used an approach which assumed that the relevant market (including both the product and geographic dimensions) was “the bundle of acute inpatient service provided by anchor hospitals to managed care plans” in

---

<sup>100</sup> *United States v. Long Island Jewish Medical Center* (memorandum decision and order), p. 42.

<sup>101</sup> *Id.*, p. 21. Mr. Stocker appears to have been the key witness at the trial. His testimony directly contradicted the testimony of one of the government’s key witnesses, who also happened to work for Mr. Stocker.

<sup>102</sup> *Id.*, p. 39.

<sup>103</sup> *Id.*, pp. 25 and 40.

<sup>104</sup> *Id.*, p. 41.

<sup>105</sup> The judge’s decision does not describe exactly what approaches the two experts used. We have inferred their approaches based on the judge’s comments.

Queens and Nassau Counties.<sup>106</sup> He then relied primarily on the testimony of various managed care witnesses to support that contention. The defendants' expert, in contrast, appears to have used an approach which assumed that the relevant product market was "general acute care inpatient hospital services."<sup>107</sup> She then relied on patient origin data evidence to determine the extent of that market. Based on her work, she concluded that the relevant geographic market includes Nassau, Queens, Western Suffolk, and Manhattan.<sup>108</sup>

As mentioned above, the district court rejected the DOJ's market definition. The court, however, also, rejected the hospitals' definition. In particular, it concluded that there were really two relevant geographic markets: one for primary and secondary care that includes only Queens and Nassau, and another for tertiary care only that includes Manhattan, Queens, Nassau, and western Suffolk County.<sup>109</sup> However, the court realized that there was a problem with that finding: it was inconsistent with the court's conclusion about the relevant product market. That is, the court had earlier concluded that there was just one relevant product market which included all primary, secondary, and tertiary services combined. Therefore, to resolve this inconsistency, the court revised its relevant product market to include primary and secondary services only.<sup>110</sup>

## **F. Poplar Bluff Merger**

This case involved a merger between two general acute care hospitals in Poplar Bluff, Missouri: Lucy Lee Hospital (185 staffed beds) and Doctors Regional Medical Center (187

---

<sup>106</sup> *United States v. Long Island Jewish Medical Center* (memorandum decision and order), pp. 35 and 43.

<sup>107</sup> *Id.*, p. 35.

<sup>108</sup> *Id.*, p. 43.

<sup>109</sup> *Id.*, p. 46.

<sup>110</sup> *Id.*, pp. 46 and 47.

staffed beds).<sup>111</sup> The FTC and Missouri Attorney General filed separate actions in April 1998 to block the merger. The federal court consolidated the actions and held a trial in June 1998. On July 20, 1998, the district judge issued a ruling in favor of the FTC. On July 21, 1999, the appeals court reversed that ruling. The Eighth Circuit eventually denied the plaintiffs' petition to rehear the case.

The trial boiled down to a classic battle about the relevant geographic market. Both experts assumed that the relevant product market consisted of general acute care inpatient hospital services, including primary and secondary services only.<sup>112</sup> Given this assumption, the government's expert used an Elzinga-Hogarty test to identify the relevant geographic market. He began by determining where the merging hospitals' draw 90 percent of their patients from. He then determined the percentage of outmigration from this PSA. That percentage equaled 16 percent.<sup>113</sup> Finally, he examined the reason for the sizeable outmigration and concluded that the majority of the outmigrating patients either were leaving for services not available locally or were admitted for emergency conditions while visiting other areas. This led the government's expert to opine that the merging hospitals' 90 percent PSA represented the relevant geographic market. That service area comprised approximately a 50-mile radius around Poplar Bluff and included the two merging hospitals as well as five rural hospitals.<sup>114</sup>

Similarly, the defendants' expert started with the merging hospitals' 90 percent PSA to begin his geographic market analysis. However, instead of using an Elzinga-Hogarty test to

---

<sup>111</sup> *FTC v. Tenet Healthcare Corporation, et al.*, No. 4:98CV709 CDP (E.D. MO, July 30, 1998; memorandum and order), p. 3.

<sup>112</sup> *Id.*, p. 9.

<sup>113</sup> *Id.*, p. 15.

<sup>114</sup> *Id.*, p. 9.

identify the extent of the market, he used a critical loss test. To determine how many patients were “at risk,” he used a 20 percent cut-off.<sup>115</sup> That is, he assumed that every PSA zip code that had 20 percent or more outmigration was an “at-risk” zip code and that all of the patients in those zip codes who were currently receiving hospital services at one of the merging hospitals were “at risk” of using other hospitals. Based on this approach and on survey results that indicated to him that the “at risk” patients could actually be moved, the defendants’ expert concluded that the merging hospitals’ 90 percent PSA was *not* a relevant geographic market and that it needed, at a minimum, to be expanded to include the much larger hospitals in Jonesboro, Arkansas, and Siskeston and Cape Girardeau, Missouri. That larger geographic area corresponded to approximately a 65-mile radius around Poplar Bluff.<sup>116</sup>

To rebut the defendants’ analysis, the government’s lawyers proceeded as follows. First, they relied on the testimony of managed care witnesses to demonstrate that there were no mechanisms that could be used to steer the “at risk” patients to the outlying hospitals. Second, they presented additional expert testimony to demonstrate that the majority of the patients that were leaving the merging hospitals’ PSA were doing so for services not available locally.<sup>117</sup> Third, they presented additional expert testimony to demonstrate that the defendants’ survey results were flawed.<sup>118</sup> Finally, they provided testimony to show that, even if the merging hospitals were to raise their prices after the merger, the Cape Girardeau hospitals would not be a

---

<sup>115</sup> *Id.*, p. 17.

<sup>116</sup> *Id.*, p. 10.

<sup>117</sup> *Id.*, p. 16. That testimony compared a number of measures for the outmigrating patients with the patients treated at the merging hospitals. Those measures included the length of stay, total charges per discharge, number of procedures performed, the Deyo Index of severity, and the Mortality Predictor.

viable alternative since those hospitals would still be more expensive than the merging hospitals. Based on all of this testimony, the district court ruled that the “plaintiffs’ proposed geographic market is appropriate, and that defendants’ proposed market is unsupported by the evidence.”<sup>119</sup>

The appeals court cited a number of reasons why the district court’s ruling should be reversed. The first reason was that the government’s geographic market analysis of the patient origin data was based only on an Elzinga-Hogarty test, which is a static test and does not adequately account for where patients might go in the face of monopoly pricing.<sup>120</sup> The second reason was that the district court improperly discounted the fact that a significant amount of the outmigrating patients were leaving for services that could be obtained locally.<sup>121</sup> Finally, the appeals court felt that the testimony from the managed care witnesses was probably tainted since those witnesses had a direct interest in the outcome of the case. On this issue, the appeals court stated:

We question the district court’s reliance on the testimony of managed care payers, in the face of contrary evidence, that these for-profit entities would unhesitatingly accept a price increase rather than steer their subscribers to hospitals in Sikeston and Cape Girardeau. Without necessarily being disingenuous or self-serving or both, the testimony is at least contrary to the payers’ economic interests and thus is suspect.<sup>122</sup>

---

<sup>118</sup> *Id.*, p. 19. The survey results were supposedly flawed since the dollar amounts that the consumers were asked about corresponded to the *total* increase in the hospital bill and not just to the *portion* that the consumers would have to pay.

<sup>119</sup> *Id.*, p. 19.

<sup>120</sup> *FTC v. Tenet Healthcare Corporation, et al.*, No. 98-3123 (July 21, 1999; reversal), pp. 8-9, 12-14, and 17.

<sup>121</sup> *Id.*, pp. 10 and 15. As support, the appeals court said that the plaintiffs’ rebuttal testimony concerning the outmigrating patients, which the district judge relied on, was flawed because it was based on averages that could have been skewed by high or low numbers on either end.

<sup>122</sup> *Id.*, p. 16. The district judge had noted, however, that both Sikeston and Cape Girardeau are more than one hour driving distance from Poplar Bluff.

## **G. Sutter Health Merger**

This case involved a merger between two general acute care hospitals located, respectively, in the cities of Berkeley and Oakland in Alameda County, California: Alta Bates Medical Center (468 staffed beds) and Summit Medical Center (420 staffed beds).<sup>123</sup> Initially, both the FTC and the California Attorney General's Office investigated the transaction. Eventually, the FTC decided not to oppose the transaction, while the California Attorney General's Office filed a complaint in federal court to block it. The court held a preliminary injunction hearing, which started on October 25, 1999 and lasted for four days. On January 5, 2000, the district court issued a ruling in favor of the hospitals. On June 30, 2000, the appeals court affirmed the ruling.

As in most of the other cases, the major point of contention in this case was the determination of the relevant geographic market. The government's economic expert identified the relevant geographic market as the "inner East Bay area," which consisted of most of Alameda County and the northeastern portion of Contra Costa County.<sup>124</sup> That area contains ten hospitals, including the two merging hospitals.<sup>125</sup> The defendants' economic expert, in contrast, testified that the relevant geographic market was broader than the "inner East Bay area" and extended into

---

<sup>123</sup> American Hospital Association, *1999/2000 AHA Guide*, pp. A38 and A54. Alta Bates is owned by Sutter Health.

<sup>124</sup> *State of California v. Sutter Health*, No. C 99 3803 (N.D. Ca. 1999; trial transcript), pp. 18 and 274.

<sup>125</sup> *Id.*, p. 388. Although it is not clear from the record, some of the ten hospitals appear to be part of the same system. Also, the Kaiser Hospital in Oakland is supposed to be shut down within 1 to 3 years as a result of failing to meet new seismic regulations.



the other portions of Alameda and Contra Costa County as well as into the San Francisco area.<sup>126</sup> That area contains approximately twenty-nine independent hospital competitors.<sup>127</sup>

To identify the relevant geographic market, both economic experts assumed that the relevant product market was acute care inpatient hospital services. Given this assumption, the government's expert began his analysis by running a critical loss test on the "inner East Bay area." He concluded that 15 to 20 percent of the patients in that area would have to leave to defeat a 10 to 15 percent price increase.<sup>128</sup> He next examined a number of criteria to determine if enough patients would leave to defeat such a price increase. Those criteria included physical barriers (such as the Bay Bridge), local traffic patterns, physician staff privilege information, and the testimony of the managed care payors. He concluded that a 10 to 15 percent price increase could not be defeated and that therefore the "inner East Bay area" represented a relevant geographic market. As a final check, he also ran a version of the Elzinga-Hogarty test on that area. His version of the test did not examine expansion, and it ranked zip codes according to the merging hospitals' share of the patients in each zip code (and not according to the total patients that they draw from each zip code).<sup>129</sup> The results of the test showed that the "inner East Bay area" meets about an 85/85 standard.<sup>130</sup>

Defendants' expert began her analysis by examining the area from which the merging hospitals draw 90 percent of their patients.<sup>131</sup> In contrast to the Attorney General's expert, she

---

<sup>126</sup> *Id.*, p. 660.

<sup>127</sup> *Id.*, p. 661.

<sup>128</sup> *Id.*, p. 270.

<sup>129</sup> *Id.*, p. 674.

<sup>130</sup> *Id.*, p. 309.

<sup>131</sup> *Id.*, p. 668.

ranked the zip codes according to the total patients that the merging hospitals draw from each. Given the 90 percent PSA for the merging hospitals, she then performed a direct competitor test.<sup>132</sup> This led her to conclude that the merging hospitals compete directly with many of the other hospitals located outside of the “inner East Bay area.” Next she investigated where all of the patients in each of the merging hospitals’ 90 percent PSA go for hospital services. This demonstrated that many of those patients travel outside of the “inner East Bay area” to receive hospital care. Finally, she performed a “unilateral” version of the critical loss test to determine if the merging hospitals could profitably increase their prices by 5 to 10 percent after the merger.<sup>133</sup> The results indicated that the other hospitals in Alameda County and Contra County would have to treat “something like one-additional patient per day” to defeat such a price increase.<sup>134</sup> All of the above led her to conclude that the “inner East Bay area” was too narrow of an area to be considered a relevant geographic market and that the market should be extended to include the rest of Alameda County and Contra Costa County as well as the San Francisco area.

The district court preferred the analysis of the defendants’ expert for a number of reasons. First, it felt that a proper analysis should begin by identifying the merging hospitals’ 90 percent PSA and not by just running tests on a selected geographic area.<sup>135</sup> Second, the court believed that the determination of the 90 percent PSA should be based on the total number of patients that

---

<sup>132</sup> *Id.*, p. 682.

<sup>133</sup> *Id.*, p. 709. The “unilateral” version of the test examines whether the merging hospitals would be able to raise their prices “unilaterally” after the transaction, whereas the “collusive” version examines whether the PSA hospitals would be able to raise their prices “collusively” after the transaction. The collusive version of the test is one that corresponds to the “hypothetical monopolist” approach specified in the *Guidelines*. It assumes that a collusive agreement could somehow be reached by all of the PSA hospitals and then tests to see if there is sufficient competition from outside the geographic market to defeat the hypothetical monopoly price increase.

<sup>134</sup> She also confirmed that the other hospitals have the excess capacity needed to treat the additional patients.

the merging hospitals draw from each zip code and not on the share of the patients that the merging hospitals have in each zip code.<sup>136</sup> Third, the court found that an Elzinga-Hogarty standard of 85/85 was not sufficient for identifying a relevant geographic market.<sup>137</sup> Finally, the court ruled that the critical loss test should be based on a 5 percent price increase and not on 10 to 15 percent.<sup>138</sup>

The district court also addressed the usefulness of the Elzinga-Hogarty test, stating that the Elzinga-Hogarty test is only the “starting point for analyzing the geographic market” and that it does not pretend to answer the price response question of how patients would respond if there were a monopolization attempt.<sup>139</sup> In discussing the critical loss test, the court noted that the market behavior of the managed care buyers and the physicians (i.e., the evidence about mechanisms) was “particularly important” in determining the extent to which the “at risk” patients could shift to alternative hospitals.<sup>140</sup> However, like the appeals court in the *Poplar Bluff* case, the district court appears to have given very little weight to the testimony of the managed care buyers. For instance, it stated that “many of plaintiff’s [managed care] witnesses appear to

---

<sup>135</sup> *State of California v. Sutter Health*, No. C 99 3803 (memorandum of decision), p. 20. Related to this point, she also felt that the data should expand to identify the relevant geographic market and that a preconceived geography should not simply be tested.

<sup>136</sup> *Id.*

<sup>137</sup> *Id.*, p. 23.

<sup>138</sup> *Id.*, p. 32.

<sup>139</sup> *Id.*, p. 24.

<sup>140</sup> *Id.*, p. 33.

be testifying based on pure conjecture.”<sup>141</sup> This is especially important since the trial transcript indicates that most (but not all) of the managed care buyers testified against the merger.<sup>142</sup>

## V. CONCLUSION

When identifying the relevant geographic market for a hospital merger, the crucial question is, where could patients turn if the merging hospitals tried to raise the price or lower the quality of their services relative to competitive levels? The evidence most consistently relied upon to answer this question remains patient origin data. These data show where patients currently go to receive hospital services and they suggest how far patients would be willing to travel if an antitrust problem were to arise. A variety of analyses, including the direct competitor test, Elzinga-Hogarty test, and critical loss test, will help to discern the relevant geographic market.

Of course, there is still significant controversy surrounding the use of patient origin data, since those data cannot directly answer whether the hospitals in the geographic area under investigation might be able to raise their price by “five percent lasting for the foreseeable future.”<sup>143</sup> Each of the possible methods available for analyzing the patient origin data are subject to some potentially meaningful limitations and none of them provide a single bright-line test for identifying which hospitals should be included in the market. Thus, the patient origin data by themselves may not be sufficient to establish the geographic market. But it is clear from

---

<sup>141</sup> *Id.*, p. 36.

<sup>142</sup> According to the transcript (p. 38), Blue Cross, Blue Shield, Aetna, Prudential, Maxicare, and United all said that they would not be able to move patients if the merging hospitals tried to raise their prices. However, the transcript (p. 38) also indicates that the largest health plan in northern California, Kaiser, said that it did not consider the merger to be a problem and that it had lots of ways to discipline the merging hospitals.

<sup>143</sup> DOJ and FTC, *Guidelines*, p. 14.

the courts' decisions that interview evidence on likely responses to price changes is even less trusted. Judgements about the relevant geographic market cannot be based on interviews alone.

Because of these potential problems, multiple methods should be used to analyze the patient origin data whenever possible. Furthermore, the results of those analyses should be supplemented with other available information relevant to the geographic market determination, such as interviews and/or surveys with market participants (managed care buyers, large employers, physicians, and consumers), the location of outreach clinics, evidence of actual attempts to shift patients, and staff privileges information. It is important to understand that the more uncertain the evidence about the geographic market delineation, the more the merger review process will be driven by a complete analysis of potential market power, including an assessment of the other market factors that pertain to competitive effects (such as the presence of sophisticated buyers and excess capacity) as well as entry, efficiencies, and failure.