

American Economic Association

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Source: *The Journal of Economic Perspectives*, Vol. 13, No. 1 (Winter, 1999), pp. 141-164

Published by: American Economic Association

Stable URL: <http://www.jstor.org/stable/2647141>

Accessed: 27/10/2009 12:18

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Change, Consolidation, and Competition in Health Care Markets

Martin Gaynor and Deborah Haas-Wilson

The health care industry is being transformed. Large firms are merging and acquiring other firms. Alliances and contractual relations between players in this market are shifting rapidly. Within the next few years, many markets are predicted to be dominated by a few large firms. Antitrust enforcement authorities like the Department of Justice and the Federal Trade Commission, as well as courts and legislators at both the federal and state levels, are struggling with the implications of these changes for the nature and consequences of competition in health care markets.

In this paper we summarize the nature of the changes in the structure of the health care industry. We focus on the markets for health insurance, hospital services, and physician services. We then discuss the potential implications of the restructuring of the health care industry for competition, efficiency, and public policy. As will become apparent, this area offers a number of intriguing questions for inquisitive researchers.

Changing Health Care Markets

The health care industry in the late 1990s has seen three substantial, interrelated changes: the rise of managed care as a method to finance and deliver health care

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services; horizontal consolidation within markets for insurance, hospital services, and physician services; and the blurring of the vertical distinctions between these markets. We discuss these in turn.

Managed Care

Traditional health care insurance plans—like Blue Cross/Blue Shield—do not restrict either the provider or treatment choices of patients or doctors. Managed care, as its name implies, involves those methods of financing and delivering health care services that manage, or intervene, in care decisions made by patients or doctors. These forms of intervention include limiting the types of treatments or providers from whom treatment can be obtained, requiring advance approval of certain kinds of treatments, and reviewing treatments provided. The common feature of all managed care organizations is that they provide coverage for health care obtained through a predetermined group of health care providers, commonly referred to as a “network,” that is selected by the plan. Patients who receive treatment outside the network must pay a higher share (sometimes all) of the costs.

There is an alphabet soup of insurance plans going by various acronyms that are collectively referred to as managed care organizations. Two of the best-recognized categories are health maintenance organizations (HMOs), in which enrollees must receive all of their primary care from a designated “primary care physician,” and in which coverage is provided only for treatment from a prespecified group of providers, and preferred provider organizations (PPOs), which provide coverage for treatment obtained from a network of separate health care providers who have agreed to provide health care to the PPO’s enrollees at discounted rates. Managed care in these and other forms has grown to become the dominant form of employer-provided health insurance. The proportion of individuals with employer-provided health insurance who were in managed care plans rose from 51 percent in 1993 to 73 percent in 1995 (Jensen et al., 1997).

Under traditional reimbursement insurance, an insured consumer has little incentive to consider price in choosing among providers. However, since managed care plans market themselves to employers chiefly (some might say solely) based on their ability to reduce the costs of health care benefits, price is a critical criterion for the selection of providers into their network. This result of managed care has been termed “buyer driven competition” (Dranove and White, 1994). It seems clear that the growth of managed care has led to increased price competition in health care markets.

Changes in the Horizontal Structure of Health Care Markets

Health care markets have seen waves of collaboration, integration, and outright merger these last few years. The market has so many players—hospitals, physicians, conventional insurers, and managed care organizations—that it is difficult to derive an overall measure of consolidation, but the trend is unmistakable.

Insurers or managed care organizations are integrating with each other. There

were 62 HMO mergers and acquisitions in 1996, up from 28 in 1995 (Japsen, 1997); for perspective, 592 HMOs were in operation in 1996 (InterStudy, 1996). In 1975, there were 128 independent Blue Cross or Blue Shield plans; by May 1997 there were only 58 (Moskowitz, 1997). Two heavily publicized examples are the acquisition of U.S. Healthcare by Aetna Health Plans in 1996, creating a managed care plan with 6.3 million members (Mlawsky, 1996a), and the acquisition of FHP International by PacifiCare Health System in 1997, creating a managed care organization with 3.9 million HMO enrollees in 15 states and another 5.3 million members affected in specialty managed care products (Mlawsky, 1996b).

Hospitals have changed ownership frequently. Between 1994 and 1996, approximately 41 percent of the 5,200 (non-federal) hospitals in the United States were involved in transactions involving changes in asset ownership (Japsen, 1996).¹ From 1985 to 1995, the number of hospitals fell by 9 percent, from 5,732 to 5,194, and the number of hospital beds fell by 13 percent, from 1 million to 873,000. Nonetheless, the hospital bed occupancy rate, the most commonly used measure of capacity utilization, declined from 64.5 percent in 1990 to 59.7 percent in 1995 (Sensenig et al., 1996). The proportion of hospitals that are for-profit, as opposed to non-profit or public, barely increased from 14.0 percent to 14.4 percent from 1985 to 1995.

Physician markets have also undergone tremendous restructuring. By 1995, just over a quarter of all practicing physicians remained as solo practitioners, down from over a third in 1991. The share of physicians employed by hospitals or HMOs increased from 22 percent in 1991 to 30 percent in 1995 (Emmons and Kletke, 1996). At the same time, the average size of medical group practices has been increasing. There were over 218 mergers and acquisitions of physician practices in 1996, up from 126 in 1995 (Japsen, 1997).

There has also been tremendous growth in Independent Practice Associations (IPAs), groups of independent practices who collectively contract with managed care plans to be part of their provider network. As of August 1996, there were approximately 4,000 IPAs with an average of 300 physicians each, up from approximately 1,500 in 1990.² A new form of organization which has emerged in this market in the past five years, the physician management firm, both sells management services to physician practices, including negotiation and marketing with managed care plans, and also owns physician practices. As of August 1996, at least 22 public and many private physician management firms (PPMs) were buying and managing physician practices (Scott, 1996). Three of the largest PPMs, Medpartners, FPA Medical Management,³ and UniMed, have grown very rapidly through

¹ Short term general hospitals are what is commonly meant by the term "hospital." The other types of hospitals are specialized facilities or long-stay facilities, such as psychiatric or rehabilitation hospitals.

² Estimates by Albert Holloway of the IPA Association of America, *Modern Healthcare*, August 5, 1996, p. 86.

³ This trend has recently seemed to reverse itself. In July 1998, FPA Medical Management filed for

mergers and acquisitions of medical groups and IPAs. Between 1994 and 1996 the number of physicians affiliated with these three PPMs grew from 3,787 to 25,763 (Robinson, 1998).

Changes in Vertical Relations in Health Care Markets

Vertical associations in health care markets have increased as well. For example, the number of physician practices owned or managed by hospital-based systems increased by 60 percent between 1994 and 1995, from 7,015 to 11,234 (Jaklevic, 1996a). Allina Health System, which covers approximately one-fourth of Minnesota's residents through its HMO and PPO, is the result of a 1994 merger between a hospital chain and a health plan, and Allina is continuing to acquire hospitals and physician practices. Both the University of Pittsburgh Medical Center and Blue Cross of Western Pennsylvania in Pittsburgh have independently been purchasing physician practices. Kaiser Permanente Health Plan in Dallas, an HMO, signed an exclusive, five-year contract with Columbia/HCA, then the largest for-profit hospital chain, in January 1995 (Atlantic Information Services, 1995). Further, there are many provider-owned HMOs and PPOs. For example, in 1997 four provider systems in northern California, including UC-Davis Health System and Mercy Healthcare in Sacramento, received an HMO license for Western Health Advantage, a HMO owned by affiliated physicians and hospital administrators (Kertesz, 1997).

There is also some evidence of a trend toward looser vertical associations (a trend away from vertical integration and exclusive contracts) between insurers and providers. A number of HMOs have sold off their physician operations, often to a physician management company, and then contracted with that company to provide physician services. Examples include Aetna/U.S. Healthcare, FHP International Corp., Foundation Health Corp., PacifiCare Health Systems, and Physician Corp. of America (Jaklevic, 1996b). Likewise, provider-owned HMOs and PPOs are increasingly being sold to insurers (Rauben, 1998).

Competitive Issues Regarding the Restructuring of Health Care Markets

The questions raised by the restructuring of health care markets are obvious; the answers are not so obvious. Does consolidation constitute an efficient response to external changes in demand, technology, and other forces? Or does it represent strategic attempts by firms to gain anticompetitive advantage? Some anecdotal evidence, from interviews with executives of health care institutions in the Boston area, indicates that both strategic motives and efficiency concerns are behind the

bankruptcy protection. Medpartners decided to get out of the physician management business in 1998 and has begun selling its physician clinics.

restructuring in health care markets (Barro and Cutler, 1997). To complicate matters further, a full analysis must include not only price effects, but also dimensions of the health care industry like quality of care, the amount of consumer choice, biomedical innovation, or the provision of charity care to the poor. In what follows, we review some of the issues which have arisen in evaluating the restructuring of health care markets.

Market Definition

Discussions of competitiveness and market structure are always predicated on how the market is defined. The most controversial issue concerning health care market definition is how the growth of managed care changes both product and geographic market definitions. The rise of managed care presents a challenge to traditional market definition methodologies which presume that individual patients, together with their physicians, choose freely among the available health care providers, and define geographic markets based on historical patient flows into and out of an area (Elzinga and Hogarty, 1973). Some managed care plans place severe restrictions on the set of hospitals and physicians from which an enrollee may choose, placing doubts on the appropriateness of this methodology. Moreover, a geographic market definition based on historical patient flows does not account for the effect of future price increases, and thus is consistent neither with economics nor the enforcement agencies' guidelines (Werden, 1989).⁴

A recent Department of Justice suit to block the merger of two hospitals on Long Island illustrates some of the hospital product market issues raised by the growth of managed care.⁵ Justice contended that in markets characterized by managed care, some hospitals are critical for a managed care plan to have in its network. The critical position of these so-called "anchor" hospitals gives them market power, even in an unconcentrated market, therefore the merger of the two anchor hospitals on Long Island would lead to monopoly power. Justice lost the suit. However, some evidence does indicate that certain differentiated hospitals may have market power, even in hospital markets that are not particularly concentrated by traditional measures (Town and Vistnes, 1997).

Similarly, the geographic boundaries of hospital markets were at issue in a 1995 U.S. district court decision in which the Department of Justice had sought to block the merger of the only two general acute care hospitals in Dubuque, Iowa. The judge allowed the merger on the grounds that individuals, influenced by managed care, will travel 70–100 miles to obtain hospital care, and thus the merger did not result in undue geographic concentration.⁶ While the distance that consumers are willing to travel for hospital care is not a settled matter, some empirical evidence

⁴ The federal antitrust enforcement agencies define the boundaries of a market in geographic or product space as those at which firms in the market could raise profitably price by 5 percent.

⁵ *United States v. Long Island Jewish Medical Center*, 1997-2 Trade Cases ¶ 71,960.

⁶ *United States v. Mercy Health Services*, No. C94–1023 (N.D. Iowa October 27, 1995).

indicates that managed care has almost no impact on the distance consumers travel for hospital services (Mobley and Frech, 1998).

Likewise, it is unclear how managed care affects the definition of product markets for physician services (Haas-Wilson and Gaynor, 1998a). While physicians have well-defined specialties, it is not clear that these specialties define product markets. For example, many surgeons could offer primary care services like standard office visits, check-ups, and immunizations, while many other specialties, including general and family practitioners, could produce at least some surgeries. As an example of this issue, 65–70 pediatricians practicing in southern New Jersey recently proposed forming a network to contract with managed care plans. The pediatricians argued that the relevant product market included all primary care and specialty care physicians who treat children—and thus that their network of pediatricians would not possess market power. However, the Department of Justice argued that family practitioners are not substitutes for pediatricians in the formation of managed care physician networks.⁷ Under the government's market definition, the network would have a higher market share of 50 to 77 percent.

With respect to health insurance, it is not clear whether HMOs and PPOs constitute a separate product market, or are part of the broader health insurance market.⁸ An economic answer to this question requires evidence on the extent to which buyers of insurance regard these types of insurance as substitutes. However, recent empirical evidence on cross-price elasticities may be of limited value for determining market boundaries because these studies look at health plan choice within a single employer and do not account for the fact that health plans are sold to employers, not to consumers directly (Buchmueller and Feldstein, 1997; Cutler and Reber, 1998; Royalty and Solomon, 1997). Thus, the employees in these studies are not choosing from among all health plans in the market, and the relative prices that employees face among health plans offered by their employers often do not reflect relative prices in the market. There is no nationally representative data set which contains information on plan offerings and premia paid by employers, who are the primary purchasers of health insurance.⁹ There is some evidence that conventional insurance premiums decline with HMO market share, suggesting these products may compete with each other (Baker and Corts, 1996). This is clearly another critical area for research.

⁷ Business Review Letter, March 1, 1996.

⁸ In *Blue Cross/Blue Shield United of Wisconsin, et al. v. Marshfield Clinic, et al.*, Case No. 95-1965 (7th Cir. slip op. September 18, 1995), the court defined the relevant market as the market for all health insurance, regardless of the type of contract.

⁹ The Insurance Components of the National Medical Expenditure Survey (NMES, 1987) and the Medical Expenditure Panel Survey (MEPS, in progress) conducted by the U.S. Agency for Health Care Policy Research (AHCPR) contain information on the full array of insurance choices offered by employers for those individuals in the sample. The sampling frame, however, is individuals, not employers or insurers. See (<http://www.meps.ahcpr.gov>) and (<http://www.icpsr.umich.edu/archive1.html>) for more information on MEPS and NMES, respectively.

Potential Efficiency Gains from Horizontal Consolidation

The trend toward horizontal consolidation is in part a response to changing factors in the health care market, like declining demand for inpatient hospital services, economies of scale, the shifting of risk from private and public insurers to providers, greater price and quality sensitivity on the part of buyers, and selective contracting by managed care organizations. Because of these underlying factors, a certain degree of horizontal consolidation in health care markets almost certainly adds to efficiency. We will discuss these factors in turn.

One reason for horizontal consolidation is that many hospitals have found themselves with substantial excess capacity as new technologies have led to less invasive medical interventions and more outpatient treatments. Closure, merger, or acquisition with reallocation of resources are all efficient responses to these changing market conditions. The costs of hospital excess capacity appear to be quite substantial. Gaynor and Anderson (1995) find that an empty bed cost \$48,826 in 1995 dollars, even after accounting for the need of hospitals to hold standby capacity to meet unexpected demand. Reducing the number of hospital beds by the amount necessary to increase the occupancy rate from the current average of 59 percent to 79 percent would reduce hospital operating costs per patient by almost 9 percent. Keeler and Ying (1996) find similar numbers.¹⁰

The empirical evidence on consolidation and excess capacity is mixed. A survey of “survivors” from the 74 hospital mergers that occurred between 1983 and 1988 suggests that more than half of these mergers resulted in substantial reductions in excess capacity (Bogue et al., 1995). In 17 percent of the mergers the acquired hospitals were closed and in 41 percent some general acute care capacity was converted to nonacute uses, such as psychiatric and substance abuse services, rehabilitation, and long-term care. Recent case studies of hospital mergers in St. Louis and Philadelphia, however, found that while hospital mergers have led to consolidated administrative services, such as marketing, finance, public relations, and human resources, they have not reduced excess beds and facilities (Wicks, Meyer and Carlyn, 1998).

Economies of scale do not, however, appear to be substantial for HMOs or physician practices. Scale economies in HMOs seem to be exhausted at relatively small sizes, in the range of 50,000 to 115,000 enrollees (Wholey et al., 1996; Given, 1996). The extant literature on physician groups suggests that scale economies for such practices are also exhausted at relatively small sizes—three to five physicians (Pope and Burge, 1996). Most of this literature, however, uses data from the 1970s. The structure of production for physician groups may have changed since then. Possible sources of efficiency gains for physician networks include risk sharing, by sharing

¹⁰ Both Gaynor and Anderson (1995) and Keeler and Ying (1996), however, employ data on hospitals from the 1980s. It is possible that hospitals have adjusted since then, due to the long-lasting nature of decreases in demand and due to reduced prices, so that the costs of excess capacity may currently be lower than measured by these studies.

capitated contracts, and clinical integration, by jointly monitoring and improving quality. However, we are not aware of any empirical evidence on the actual size of the efficiencies associated with physician networks.

A second reason for horizontal consolidation is that managed care has changed reimbursement practices to sellers of health care services in ways which shift risk to them. For example, a form of reimbursement used for physicians is capitation, in which the physician practice is paid a fixed rate per enrolled member per month. Capitation accounted for 7 percent of physician revenue in 1997 (Moran, 1998). Practitioners can affect the risk that costs of treatment will exceed the fixed capitation rate through the efficiency and quality of their services, but some of the risk of unexpectedly high medical costs is beyond the practitioner's control, such as the risk of a group of patients contracting an illness which is particularly expensive to treat.¹¹ Increasing the size of the insured population by increasing the number of providers in the group/network is one way to diversify against this risk, since it increases the size of the risk pool and reduces the variability in medical treatment utilization and costs (Gaynor and Gertler, 1995). The introduction of the Medicare Prospective Payment System in 1983 created a similar set of incentives for hospitals. It changed reimbursement for hospitals from a system of reimbursement based on costs to a system with regulated prices. Since hospitals now are at risk for deviations in cost from price, they also have an incentive to diversify by expanding in size.

A third pressure for horizontal consolidation comes from the employers who purchase insurance, who face both rising costs of health insurance and complaints from employees over quality of service. One result has been increased monitoring of health care services through development and imposition of treatment protocols, preauthorization requirements for certain tests or referrals, creating profiles for comparing physicians' utilization patterns, and quality assurance activities. Since the implementation of monitoring systems involves fixed costs, larger firms can spread these costs over more patients and realize lower per unit costs. However, it is not clear that a firm must be particularly large to achieve these efficiencies. Further, in many markets third-party firms specializing in these services have sprung up, decreasing the importance of this particular efficiency justification for larger size.

Finally, the spread of selective contracting by managed care plans has left providers concerned about whether they might be excluded from the main provider networks. Many consolidations can be understood as jockeying for position to make sure not to be the one left standing when the music stops, or as an attempt by

¹¹ Other forms of health finance contracts have spread which also have the property of shifting insurance risk from the insurer to the seller. Some of the other contracts are percentage of premium contracts, in which the seller takes a percentage of the insurance premium, and fee-for-service contracts with a withhold, in which the seller is paid on a schedule determining fees for each service, but a prespecified amount or percentage is withheld, subject to a performance standard being met.

providers to improve their bargaining positions relative to insurers. Such responses may be efficiency-enhancing—or not.

Potential Efficiency Gains from Vertical Consolidation

There are no general results in economic theory on whether vertical consolidation tends to increase efficiency, or to enhance firms' market power. The specifics of the situation dictate which dominates, as Katz (1989) reviews in general terms and Gaynor and Haas-Wilson (1998) discuss in the health care context.

Many of the same factors that provide an efficiency rationale for horizontal consolidation also provide stimuli for increasing vertical consolidation—whether in the form of mergers, acquisitions, or tighter contractual relations—between physicians, hospitals, and insurers. For example, vertical mergers or exclusive contractual arrangements may lower the transactions costs of contracting between insurers and physicians, insurers and hospitals, or hospitals and physicians. Further, the tasks of monitoring and controlling health care utilization and quality may be done more efficiently in organizations where physicians, hospitals, and insurers are integrated or have long-term contracts, and thus share similar goals and aligned incentives.

Anticompetitive Concerns and Barriers to Entry

As health care firms have decreased in number and increased in size, the possibility of the exercise of market power has risen. In simple economic models, this involves the ability to raise price and reduce quantity. In addition, impacts on quality, consumer choice, the provision of charity care, and innovation are all social welfare concerns in health care markets, although they are not part of the traditional domain of antitrust.

For horizontal or vertical consolidation to have anticompetitive effects in health care markets, there must be barriers to entry in those markets. If there are no barriers, then even incumbents with large market shares will be unable to manipulate price to earn excess profits without inducing entry by potential entrants. Barriers to entry can stem from absolute cost advantages, sunk costs, and pre-entry strategic behaviors. We will consider each of these in turn.¹²

An incumbent's absolute cost advantage can arise from a number of factors. Perhaps the most important factors in the context of health care markets are incumbents' strategies that raise costs for potential entrants. One such strategy involves contractual arrangements between managed care insurers and sellers of

¹² Some would argue that economies of scale should also be considered an entry barrier. There is a long-standing argument among industrial organization economists over this categorization. Joe Bain held that barriers to entry were any factor that allows an incumbent to maintain price above average cost, while George Stigler offered a more narrow definition of an entry barrier as a cost that must be borne by potential entrants, that is not (or has not been) borne by the incumbent. Bain's definition includes economies of scale, while Stigler's definition includes only absolute cost advantages. For a detailed discussion of the issue, see Geroski, Gilbert and Jacquemin (1990).

health care services. If a managed care firm has exclusive contracts (or is vertically integrated) with a large portion of the providers in the market—especially if these contracts are with the highest quality providers or the most efficient providers in the market—then the remaining independent providers may be insufficient to allow efficient entry by another firm. A related contractual step are “most-favored-nation” clauses, also called most-favored-customer clauses, which are vertical contractual agreements in which the seller (for example, a hospital or physician group/network) agrees to give the buyer (for example, an insurer) the lowest price it charges any buyer. Such clauses can have the procompetitive effect of allowing buyers of health care services to lower their costs. But they also may serve to facilitate tacit collusion, since a dominant insurer who signs a contract including a most-favored-nation clause has basically assured that the hospital or physician group will not provide services at lower fees to rival insurers or potential entrants (Baker, 1996; Salop, 1986). Antitrust policy concerning most-favored nation clauses in health care contracts is unsettled. The courts have effectively treated such clauses as *per se* legal (Bloch, Perlman and Lévasseur, 1996), but the federal antitrust enforcement agencies have blocked their use via consent decrees.

The existing health economics research on the subject of using contracts to deter entry is scant and the results are mixed. Various theoretical models have been constructed where exclusive contracts between insurers and providers are either anticompetitive (Encinosa, 1996; Gal-Or, 1997a) or neutral (Gaynor and Ma, 1996) in their effects on competition in the insurance market. However, existing models have presumed that the exclusive dealing provisions in contracts are truly binding, when the extent to which they bind is instead determined by factors like whether they have substantial enforceable penalties for breach of contract and if they are of a fairly long duration.

While theoretical models suggest that vertical mergers and exclusive contracts can be anticompetitive in general (Riordan and Salop, 1995), the issue of whether vertical mergers or exclusive dealing can lead to foreclosure in real-world health care markets remains an open question. Vertical relations between health care firms have been especially hot topics in New Hampshire and Wisconsin. Legislation banning exclusive contracts between HMOs and health care providers in New Hampshire took effect in June 1997. In Wisconsin, Blue Cross/Blue Shield of Wisconsin charged that the Marshfield Clinic, a physician-owned clinic that was vertically integrated with its HMO, had excluded the Blue Cross/Blue Shield HMO from the HMO market by foreclosing the market for physician services, but lost the case.¹³

It has also been argued that vertical restraints can confer monopoly power by facilitating horizontal coordination or collusion (Katz, 1989). In 1995 and 1996, the Department of Justice brought civil enforcement actions against physician-

¹³ Blue Cross/Blue Shield United of Wisconsin, et al. v. Marshfield Clinic, et al., Case No. 95–1965 (7th Cir. slip op. September 18, 1995).

hospital organizations in Danbury, Connecticut, St. Joseph, Missouri, and Baton Rouge, Louisiana, arguing that vertical restraints between monopoly hospitals and a large share of physicians in the market restrained competition in the physician services market, and resulted in higher prices for physician services.

Another incumbent strategy that may deter entry in health care markets is over-investing in capacity, especially in irreversible or sunk capital, which can signal potential entrants that incumbents are willing and able to respond to new competitors with a surge of output that would make that entry unprofitable. The only paper we are aware of considering these issues in health is Gal-Or (1997b), which considers hospital mergers as a means of acquiring excess capacity to price aggressively in the presence of entry.

Sunk costs, even when they are small, can bestow significant advantages on an incumbent (Gilbert, 1986). There may be sunk costs of entry for managed care firms due to the costs of building a provider network, such as the costs of identifying cost-effective and high quality providers, or the costs of finding compatible information systems with providers for billing, utilization management, and quality assurance. If a physician or hospital cannot compete for managed care contracts unless it is part of a network, and if the costs of building a network are large and sunk, then individual physicians or hospitals may no longer be viable competitors or potential entrants. However, there has been very little analysis of sunk costs in health care markets, either concerning the magnitude of these costs or whether the costs associated with networks or utilization or quality management should be considered as sunk.

Empirical Evidence on the Exercise of Market Power in Health Care Markets

Traditional analyses of anticompetitive behavior have focused on price, and our discussion here will lay out the available evidence on price. However, in health care markets, where providers jointly set price and quality, higher prices in a given market may also reflect higher quality, rather than providing *prima facie* evidence of market power.¹⁴ Some evidence concerning quality is given below, but this evidence is still sparse. However, a great deal of effort in recent years has gone into generating empirical measures of health care quality, particularly for hospital care; thus, there is the potential for addressing this issue directly in future research. Where evidence is available concerning how changes in market structure have affected consumer choice, the provision of charity care, and innovation, we will mention these factors as well.

¹⁴ For a recent court case making this point, see the decision in *Blue Cross/Blue Shield United of Wisconsin, et al. v. Marshfield Clinic, et al.*, Case No. 95-1965 (7th Cir. slip op. September 18, 1995).

Most of the available empirical evidence focuses on horizontal consolidation within certain sectors: hospitals, physicians, insurers. We will first review that evidence, and then add a few words about evidence on effects of vertical consolidation.

Hospitals

The most extensive research evidence on competitive conduct by firms in health care markets is on hospitals; Dranove and White (1994) offer an extensive survey. These studies use differing product and geographic market definitions and research methods, yet the consistency of the results is striking. Increased concentration is associated with increased prices in markets for hospital services. Likewise, concentration in hospital markets appears to increase hospitals' bargaining power relative to insurers and self-insured firms (Melnick et al., 1992; Brooks, Dor and Wong, 1997).

More recent studies have examined the impact of hospital mergers on costs and prices. Connor et al. (1998) studied the effects of 122 hospital mergers, using data from over 3,500 hospitals covering the period 1986–1994. They find that, on average, merging hospitals reduced costs relative to non-merging hospitals. However, they also found that mergers in concentrated markets led to significantly lower cost savings. Further, they find that merging hospitals have smaller percentage price increases than nonmerging hospitals, which is consistent with hospital mergers enhancing efficiency. However, looking only at concentrated markets, merging hospitals have *higher* percentage price increases, which is consistent with hospital mergers enhancing hospitals' market power. Likewise, Krishnan (1998) finds that mergers increase the prices of those individual hospital services for which the merging hospitals gain market share.

A number of papers specifically examine the behavior of nonprofit hospitals (Dranove and Ludwick, 1999; Keeler, Melnick and Zwanziger, 1999; Lynk, 1995; Lynk and Neumann, 1999; Simpson and Shin, 1998), and most find a positive relationship between price and concentration.¹⁵ The willingness of not-for-profit hospitals to exercise market power has been an especially hot issue in recent antitrust cases, where it has been argued—for example, in a recent court decision to allow the merger of the two largest hospitals in Grand Rapids, Michigan¹⁶—that nonprofit hospitals seek to maximize the welfare of their communities (or at least are constrained by the presence of a board of trustees drawn from the local community) and thus will not exercise market power even if given the opportunity. The evidence on the pricing behavior of nonprofit hospitals suggests that as a general view of nonprofits, this is overoptimistic.

¹⁵ The exceptions are Lynk (1995) and Lynk and Neumann (1999). The studies differ in a number of ways, including state covered, period covered, and specification. See Keeler et al. (1999), Lynk and Neumann (1999), and Dranove and Ludwick (1999) for discussions on the possible sources of these differences.

¹⁶ Federal Trade Commission v. Butterworth Health Corporation and Blodgett Memorial Medical Center, 1996-2 Trade Cases 71,571; 1996 QL 570479 (W.D. Mich. September 26, 1996).

Some efforts have been made to take into effect non-price hospital competition. One set of studies has examined hospital costs or service offerings; another set has examined patient health outcomes. Robinson and Luft (1985) find that hospital costs are greater in less concentrated markets, presumably due to greater non-price competition. Zwanziger and Melnick (1988) find that this relationship exists for California hospitals in the early 1980s, but disappears by 1985. The general finding for hospital service offerings is that they are fewer in less competitive markets. Luft et al. (1986) found that hospital service offerings increased for the most part with the number of other hospitals within a five- and 15-mile radius, using national data from 1972. Dranove, Shanley and Simon (1992) find that California hospitals in 1982 tended to offer more services in less concentrated markets, but that the effects are small. However, a lower range of services may not represent a welfare loss, given that health care providers may tend to overinvest in certain technologies. Moreover, these studies predate the emergence of managed care as a substantial force in health care markets, so it is hard to know whether these patterns have persisted.

No consistent pattern has emerged from studies of the impact of competition on health outcomes, but some of the recent results are disturbing. Kessler and McClellan (1998) find a positive relationship between concentration and mortality from heart attacks, suggesting that perhaps hospitals take advantage of market power by skimping on quality. Hamilton and Ho (1998) conclude that hospital mergers have no impact on inpatient mortality from heart attacks and strokes, but a negative impact on quality measured as readmissions within 90 days. Volpp and Waldfogel (1998) show that heart attack mortality in New Jersey increased following hospital rate deregulation, implying that more active price competition was accompanied by a decrease in quality competition. Clearly, further research is essential in this area.

A final issue surrounding hospital conduct concerns competition and hospital provision of charity care. While Frank and Salkever (1991) found no relationship between concentration and the provision of charity care in Maryland, both Gruber (1994) and Mann, Melnick, Bamezai and Zwanziger (1995) find that hospitals in less concentrated markets in California provided more charity care in the 1980s. Again, more research is needed in this area, both because of the relative paucity of evidence, and because markets have changed considerably since these studies were undertaken.

Physicians

Prior to the growth of managed care, entry by physicians into large urban areas was easy, but physicians possessed some market power due to information asymmetries between themselves and patients and the inherent heterogeneity of services or idiosyncratic patient preferences. These markets could be considered as monopolistically competitive (Satterthwaite, 1979), and the empirical evidence is consistent with this intuition (Wong, 1995; McCarthy, 1985). There is also some empirical research showing that physicians are mobile and respond

to income opportunities—in particular, that physicians locate in progressively smaller population areas as their numbers increase over time (Newhouse et al., 1982). Bresnahan and Reiss (1991) examine entry into small markets for a number of different products; with regard to physician services, they find that a relatively small amount of entry rapidly provides the benefits of competition.

While the evidence does not indicate that collusion has been an important phenomenon in most markets for physician services, there are some particular cases for concern, as documented by Frech (1996). Markets for specialized services, or markets in rural areas, may be dominated by a small number of physician firms. The research findings are far from definitive with regard to this issue, and in particular, incumbent control of referrals and hospital privileges acting as a barrier to entry has not been examined.

Whatever the past status of physician markets, the growth of networks of physicians who practice independently but contract collectively with managed care plans certainly has the potential to alter the competitiveness of these markets.¹⁷ Since a managed care plan contracts with all the physicians affiliated with a network together, networks may increase product differentiation in the market for physician services; as a result, networks have some power to increase price (Vistnes, 1992). However, network formation is not part of the Vistnes analysis, and it is not clear the same results would obtain in a model in which network formation is considered. Further, patient demand for the option to go to a differentiated provider can bestow market power on that provider when managed care insurance limits consumers' insured access to a subset of providers (Dranove and White, 1996). There is little empirical research as of yet on the impacts of networks, with the exception of a paper by Town and Vistnes (1997) showing that hospital prices increase with the degree of differentiation between a network hospital and the next best substitute outside the network.

Recent federal antitrust enforcement regarding physicians has mostly focused on physician networks. The issue is whether these networks result in efficiencies or damage competition by facilitating collusion among physicians (Haas-Wilson and Gaynor, 1998b). The Federal Trade Commission and Department of Justice have indicated that networks below a certain size will not be challenged; for example, nonexclusive networks that include 30 percent or fewer of the physicians in the same specialty and exclusive networks that include 20 percent or fewer of the physicians in the same specialty. Risk sharing or clinically integrated networks that fall outside these "safety zones" are evaluated under the rule of reason or the potential anticompetitive impacts are weighed against possible efficiency gains.

¹⁷ There are two variants of this practice. In the first approach, physician firms in the network market themselves collectively to managed care plans, but set prices independently. To reduce the risk of price collusion, a third party is retained to collect price information from each of the firms and convey it to a plan. In the second approach, the firms not only market themselves collectively, but set price collectively.

Another issue is the emergence of physician unions, which act as collective bargaining agents for physicians. The difference with traditional trade unions is that the vast majority of physicians are not employees of the insurance firms they are bargaining with, but are independent firms. Collective price setting by independent firms, such as that engaged in by a collective bargaining entity, is not allowed, on the grounds that this is price fixing; the Department of Justice is prosecuting a case on those grounds.¹⁸ Physicians, however, argue that collective bargaining is necessary to allow them to counteract insurer monopsony power (although the argument is not stated in precisely those terms).

This argument may not be sensible, for two reasons. First, if the problem is monopsony power by insurers, then the obvious solution is to fix this problem, rather than creating monopoly power on the part of physicians. Second, it is not obvious that insurers currently possess substantial monopsony power with regard to physicians. Most markets have multiple insurers, implying a need for some sort of collusion among them as a necessary condition to achieve monopsony power. Even if that is achieved, if physician entry and exit from local markets is fairly easy, then if insurers reduce physician payments substantially physicians will leave the market or new physicians will not enter.¹⁹ This implies that the supply of physician services to an insurer is likely to be elastic, rendering monopsony power of insurers low. On the other hand, if the growth of managed care is reducing the elasticity of physician supply (Haas-Wilson and Gaynor, 1998a), then the possibility of monopsony power may be increasing. New research on buying competition by insurers and the aggregate supply of physician services in local markets characterized by managed care is clearly needed.

Insurers

There is little recent empirical evidence on competitive conduct by health insurance firms. In the past, a variety of evidence pointed towards Blue Cross plans exercising market power due to large discounts granted them by providers (Frech, 1996, Ch. 6, surveys the literature). However, it seems unlikely now that much advantage remains for the majority of Blue Cross plans.

Some initial attempts have been made to assess the conduct of HMOs; the results are roughly consistent with competition increasing with entry. Feldman et al. (1993) find that when Medicare beneficiaries have a choice of two or more HMOs, the HMOs are dramatically less likely to charge large supplemental premiums above the regulated price set by Medicare. Similarly, Ellis (forthcoming) finds that when

¹⁸ The case is *United States v. Federation of Physicians and Dentists, Inc.*, 98-475, 8/12/98. It is permissible for a third party to collect and transmit price information from a network of independent physician firms to an insurer so long as the price information is not collectively agreed upon by, or transmitted between, the physician firms (this has been termed the "messenger model" by the enforcement agencies).

¹⁹ Evidence from the Medicaid program indicating that physician participation in the program is strongly responsive to fees is consistent with this possibility.

state employees have more health plan choices, family premiums decrease. However, he also finds that increases in the number of HMOs in a state are associated with increases in premiums. On the other hand, Wholey et al. (1995) find that premiums charged by HMOs in private markets decline with the number of firms in the market.²⁰ However, since they only have information on HMOs, not all managed care plans or the entire health insurance market, and since it is unclear that there is a separate product market for HMO insurance, it is not clear how to interpret the results. Better data and more sophisticated modeling could lead to significant advances in our understanding of competition in this market.

As managed care plans have exercised bargaining power in negotiations with health care providers, concern has arisen over the exercise of monopsony power (Pauly, 1998). A number of empirical studies have attempted to detect Blue Cross monopsony power, but we are not aware of any such studies of managed care. If the current consolidation on both sides of the market continues, many markets will be bilateral oligopolies. We will need substantial theoretical development as well as empirical work in order to understand the implications of this structure.

A final issue that has gained recent policy prominence is the impact of managed care on access to care and quality of care. Great concern has been expressed about whether patients in managed care plans receive lower quality care. The evidence is mixed, and it is unclear what impacts managed care is actually having, let alone whether those impacts are due to excessive competition or lack of competition (Miller and Luft, 1997). In a recent paper, Encinosa (1998) shows that regulation can solve the risk segmentation problem that arises in a perfectly competitive market, but also finds that such regulation can actually decrease welfare if the market is imperfectly competitive. This is an area in which research is clearly needed, but for which the data obstacles are substantial.

Empirical Evidence on Vertical Consolidation in Health Care Markets

There is virtually no empirical research providing evidence on the impacts of vertical restraints in health care markets. One exception is a paper by Lynk and Morrissey (1987), who consider exclusive dealing between hospitals and physician groups in hospital-based specialties like radiology, anesthesiology or pathology. They contend that these sorts of exclusive deals are efficiency enhancing, by aligning the incentives of physicians with the hospital. They find a slightly negative relationship between exclusive contracting and concentration in a market, and infer that exclusive contracts do not bestow market power on physicians. However, Danger and Frech (1997) show that proper calculation of the effect of concentration on exclusive contracting reveals a positive relationship.

Vertical consolidation in health care markets is an important topic for future

²⁰ They do, however, obtain the seemingly strange result that premiums are constant with regard to the number of firms for independent practice association (IPA) type HMOs up until there are 13 firms in the market, and they decline with the number of firms thereafter.

research. The data requirements are substantial. Not only must relevant price and cost information be obtained from the different sectors, like physicians and hospitals, but which firms are linked with each other and the nature of those links must be known.

Is Competition Best in Health Care Markets?

In many industries, the link between competition and social welfare seems fairly direct. But health care markets are characterized by multiple imperfections and differences from “standard” markets, in large part deriving from the asymmetry of information between buyers and sellers and the uncertainty inherent in the nature of medical care (Arrow, 1963), which is argued to result a variety of phenomena including moral hazard, risk selection, induced demand by sellers of health care services, the pervasive presence of not-for-profit firms, the “medical arms race,” and poor consumer information. In the context of this paper, the issue is not the existence or magnitude of these phenomena, or how one might design policies to deal with them, but rather a narrower question: Does greater competition in the health care industry ameliorate or exacerbate these issues?

Moral hazard occurs in health care markets since the insurance that protects consumers from the financial risks of illness also reduces the price of health care they face; hence, they increase their consumption of health care services beyond what it would have been were they not insured (Pauly, 1968). Since moral hazard induces excessive consumption, it might seem that market power on the part of firms selling health care services could improve matters by restricting output, and that competition would worsen this problem (Crew, 1969). However, this assumes that insurance policies in a competitive market do not adjust—for example, with copayments and premiums—to deal with moral hazard. Once such adjustments are taken into account, there is no reason to believe that greater competition will worsen this problem (Gaynor, Haas-Wilson and Vogt, 1997).

A second imperfection in health care markets concerns the functioning of competitive insurance markets in the face of risk selection. If individuals know their own risk type (say high or low) but insurers do not, then either high risk individuals purchase complete insurance while low risk types purchase incomplete insurance, or an insurance market will fail to exist, since potential insurers will be too fearful of attracting only bad risks.

However, in practice, most individuals are not dipping in and out of the insurance market as their health prospects deteriorate or improve (Neipp and Zeckhauser, 1985; Royalty and Solomon, 1997). Conversely, if insurers can discern the risk types of individuals but cannot risk adjust premiums, then insurers will engage in “cream skimming” or “cherry picking,” seeking out good risks and avoiding bad risks (Newhouse, 1996). The empirical evidence suggests that HMOs have had some success in enrolling persons with lower health risks, as opposed to conventional

insurance plans (Newhouse, 1996). Cutler and Reber (1998) find that within three years of Harvard University's switch to a system of paying a fixed contribution independent of health plan choice (that is, increasing consumers' incentives to search for the most efficient health plans), risk selection had forced the exit of the most generous insurance plan. But taking these patterns as a whole, it is unclear whether increases in competition make risk-selection a substantially worse problem than it already is.

A third imperfection in health care markets is the asymmetric information between physicians and patients which leads to an agency relationship and thus, the potential for physicians to induce demand for their services.²¹ The empirical literature on this topic suffers from such severe methodological flaws that it does not provide useful evidence on either the existence or magnitude of this effect (Gaynor, 1994). While it seems likely that some inducement exists, neither theory nor current evidence indicate that competition is likely to increase distortions from this market imperfection (Stano, 1987).²²

A fourth issue often raised with regard to the special nature of competition in hospital markets is that, due to insurance, hospitals do not compete on price to attract patients, but rather compete on quality or facilities to attract patients (or doctors, who then bring patients with them). This behavior has been referred to as the "medical arms race." This scenario has some plausibility for hospitals prior to the 1990s. However, the heightened price competition among hospitals since that time, presumably to attract contracts from managed care firms by aggressively negotiating on price, is probably reducing the amount of nonprice competition. We do not know what amount of nonprice competition is optimal.

The more relevant concern for the 1990s and beyond is whether increasing price competition in health care markets characterized by poorly informed consumers may lead to too little quality relative to the socially optimal level or to the underprovision of health care services. Health care consumers are often poorly informed about both prices (Gaynor and Polachek, 1994) and quality (Haas-Wilson, 1994), and Dranove and Satterthwaite (1992) show that increasing price information when consumers are uncertain about quality can decrease welfare. Further, available measures of quality can be "blunt, expensive, incomplete, and distorting. And, unless great care is taken, they can easily be inaccurate and misleading" (Eddy, 1998). Whether consumers are rationally ignoring this information or not able to process

²¹ Emons (1997) and Vogt (1998), on the other hand, offer theoretical results in which no inducement occurs in equilibrium, even though sellers have the ability to induce.

²² If physician firms are not profit maximizers, but utility maximizers, then it may be possible that income effects can lead to increased inducement in response to entry. This is a version of the backward-bending labor supply curve; competition reduces prices, and physicians in the backward-bending part of the curve react to their lower wages by working more. To our knowledge, there are no papers that have analyzed precisely this situation. However, substitution effects typically outweigh income effects by a wide margin (Rizzo and Blumenthal, 1994), so that even if physicians maximize utility (rather than profit) the evidence is not consistent with an increase in inducement in response to entry and price decreases.

it, it is not clear how well consumers use available health plan or provider quality information (Chernew and Scanlon, 1998; Hibbard and Jewett, 1997; Menemeyer, Morrisey, and Howard, 1997).

On a more positive note, both theory (Klein and Leffler, 1981; Shapiro, 1983) and empirical research (Haas-Wilson, 1990) suggest that when consumers can learn providers' and insurers' reputations, health care markets can still function effectively. Further, there is ongoing work in developing mechanisms to measure provider and health plan quality and disseminate this information (President's Advisory Commission, 1998). The hope is that increasing the availability of information on quality will facilitate the provision of quality by stimulating competition based on quality and by allowing payments linked to the actual provision of quality. Nonetheless, if only some aspects of quality can be measured, then such strategies may only serve to emphasize what is measurable at the expense of what is not.²³ The jury is still out on this crucial issue, but the attempts to develop and use quality measures provide fertile opportunities for empirical research.

Conclusion and Implications for Competition Policy

Given the increasing reliance on markets to allocate health care resources, health care policy should seek to ensure that these markets work efficiently. Cautious enforcement of the antitrust laws is essential both to prevent monopoly power and to ensure that antitrust enforcement activity does not discourage the growth of new and efficient forms of health care organization. However, the task of drawing the line between practices and arrangements that have net efficiency enhancing effects and those that have net market power enhancing effects is especially difficult in industries experiencing rapid transition, such as health care.

The federal antitrust enforcement agencies, the Department of Justice and the Federal Trade Commission, have been quite active in the health care area. They adopted and revised new antitrust guidelines for health care three times between 1993 and 1996.²⁴ The FTC has a specific section of their web site devoted to "Health Care Antitrust" at (<http://www.ftc.gov/bc/health.htm>), the only such industry with its own section. In addition, there has been considerable state and private antitrust activity. However, recent federal enforcement policy can be characterized as cautious. The combined agencies challenged only about 2 percent of the 956 hospital premerger filings they received between 1981 and 1997 (Leibenluft, 1998).

²³ If unmeasurable features are correlated with what is measured then this may not be a problem. However, this seems unlikely to be the case with health care. Indeed, some of the measured aspects of quality themselves are not correlated with each other (Haas-Wilson, 1994; Chernew and Scanlon, 1998).

²⁴ DOJ/FTC, "Statements of Antitrust Enforcement Policy in the Health Care Area," September 15, 1993, DOJ/FTC, "Statements of Enforcement Policy and Analytical Principles Relating to Health Care and Antitrust," September 27, 1994, and DOJ/FTC "Statements of Antitrust Enforcement Policy in Health Care," August 1996.

Proposals before Congress call for the loosening of the application of antitrust laws to health care providers; Harris and Fenton (1996) offer a discussion. If enacted, these proposals would effectively limit the ability of antitrust enforcers to police health care markets. Further, a number of states are passing “state action immunity” legislation, under which firms in specific industries (including health care) can be exempted from federal antitrust laws if they are subject to state supervision—although it is unclear how effective state supervision will be at limiting the exercise of market power in health care. At last count, 23 states had passed such legislation.

No one knows what health care markets will look like when the dust settles. Research on the issues raised in this paper can help public policy to encourage those organizational structures and market practices that enhance efficiency and quality, rather than the ones that only serve to increase providers’ or insurers’ market power.

■ *We wish to thank Jon Baker, Bob Berenson, Bob Bloch, Patricia Danzon, Brad De Long, David Dranove, Winand Emons, Roger Feldman, Ted Frech, Esther Gal-Or, Ruth Given, Steve Klepper, Alan Krueger, Bob Leibenluft, Albert Ma, Tom McGuire, Mike Morrissey, Joe Newhouse, Mark Pauly, Bill Sage, Mark Satterthwaite, Mark Schlesinger, Timothy Taylor, Bill Vogt, Joel Waldfoegel, Will White, and Dennis Yao and participants in seminars at Carnegie Mellon, Yale, and Penn for helpful discussions and comments. We are grateful to the Robert Wood Johnson Foundation for financial support under its Investigator Awards in Health Policy program.*

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