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CHANGE, CONSOLIDATION, AND COMPETITION IN HEALTH CARE MARKETS

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ABSTRACT

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 will focus on the markets for health insurance, hospital services, and physician services. We will 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.

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

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).

The one feature common to 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.

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" by Dranove, Shanley and White (1993). It seems clear that the growth of managed care has led to increased price competition in health care markets.

Changes in the Horizontal Structures 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.[1] 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). 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 (Emmons and Kletke, 1996). The number 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 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, 1996). 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, 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 (Rauber, 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 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 specific issues which have arisen in evaluating restructuring health care markets.

Market Definition

Discussions of competitiveness and market structure are always predicated on how the market is defined. The traditional approach to market definition in health care is based on the

assumption that individual patients (in conjunction with their physicians) select their health care providers, and thus is an analysis of historical flows of patients into and out of an area (Elzinga and Hogarty, 1973; Morrisey, Sloan, and Valvona, 1988). However, this approach raises a variety of issues: the geographic boundaries of markets, how one accounts for physician specialties, and the effect that managed care should have in defining markets. In particular this approach does not account for the effect of future price increases, and thus is consistent neither with economics nor the enforcement agencies' merger guidelines (Werden, 1989).

The geographic boundaries of health care 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.[4] While how far consumers are willing to travel for hospital care is not a settled matter, some new empirical evidence indicates that managed care has almost no impact on the distance consumers travel for hospital services (Mobley and Frech, 1998).

Further, it is unclear exactly how managed care should be taken to effect a hospital's product market (Dranove and White, 1998). There is some evidence indicating that network hospitals that are sufficiently differentiated from non-network alternatives may have market power, even in hospital markets that are not particularly concentrated by traditional measures (Town and Vistnes, 1997). The Department of Justice took this approach in a recent suit to block the merger of two hospitals on Long Island.[5] Justice contended that these were "anchor" hospitals in the sense that any managed care plan would have to include at least one of them in its network, therefore the merger would lead to monopoly power. Justice did not win the suit, in part due to the court's

rejection of the anchor hospital market definition.

While physicians have well-defined specialties, it is not clear that these specialties define product markets. For example, while surgeons nearly exclusively sell surgery services or office visits related to surgery, many other specialties also produce surgeries, including general and family practitioners. Conversely, many surgeons could offer primary care services like standard office visits, check-ups, and immunizations if prices for those services rose sufficiently.[6] In another recent court decision, a large number (65-70) of pediatricians practicing in southern New Jersey proposed formation of 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. Under this market definition, the network 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 (U.S. Department of Justice, 1996).[7] Under the government's market definition, the network would have a market share of 50 to 77 percent. In addition, the pediatricians did not demonstrate any significant efficiencies from the proposed network. Hence, the Department of Justice challenged the pediatricians' proposal to form a network.

The rise of managed care presents a challenge to market definition methodologies which presume that consumers, together with their physicians, choose freely among the available health care providers. With managed care, the insurance plan selects the set of hospitals and physicians from which an enrollee may choose. In practice, however, this is not always especially restrictive. There is a trend in California, which is on the forefront of developments in managed care, towards managed care plans being increasingly less restrictive in their selection of providers, to the point of signing up virtually every provider. This lack of restrictiveness may be behind the Mobley and Frech result on managed care not affecting patient travel.

Of course, managed care is not the only player in the market that comes between consumers and health care providers. Most managed care plans are sold to employers, not to consumers directly, and it is unlikely that employers exactly represent the preferences of their workers, either due to agency problems or due to the difficulties in collective choice. There has been almost no analysis of how a market should be defined with this mix of consumers, employers, and managed care.

As just one example of the complications that arise, is managed care a separate product market from conventional health insurance? In a recent case, the court defined the relevant market as the market for all health insurance, regardless of the type of contract.[8] But for an economic answer to this question, we would need evidence on the extent to which buyers of insurance regard these products as substitutes. Most available evidence on this point is in the form of studies of employees' health plan choice within a single employer or city (Buchmueller and Feldstein, 1997; Cutler and Reber, 1998; Feldman et. al, 1989; Royalty and Solomon, 1997). However, such studies cannot directly answer the question of defining the market, because employees are not choosing from among all health plans in the market, and the relative prices that employees face among health plans offered by their employer often do not reflect relative prices in the market. Some alternative evidence is offered in Baker and Corts (1996), who find that conventional insurance premiums decline with HMO market share, suggesting these products may compete with each other. This is clearly a critical area for research. To complicate matters, 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]

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, 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 very similar numbers.[10] Connor et al. (1998) studied the effects of 122 hospital mergers on costs and prices, 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.

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,[11] in which the physician practice is payed a fixed rate per enrolled member per month -- and thus, the practice is at risk for

any fluctuations in the cost of treatment above the fixed capitation rate. Some of this risk is under the control of the practitioner, since it will be affected by the efficiency and quality of their services. However, some of the risk of unexpectedly high medical costs is beyond the practitioner's control, such as the risk of a patient contracting an illness which is particularly expensive to treat.[12] Increasing size by increasing the number of providers in the group/network or the size of the insured population is one way to diversify against this risk, since it increases the size of the risk pool and thereby reduces the variance in medical treatment utilization and costs. While this may seem like an inefficient way to diversify risk, the difficulty of separating factors that are under the practitioner's control from those that are not leads to moral hazard that makes it difficult for the market to insure such risks.[13] 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. Under this system, hospitals now are at risk for deviations in cost from price, and so 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. Some common methods of monitoring include the 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 or enrollees and thereby 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.

A fourth potential reason for horizontal consolidation is economies of scale in managed care. There is anecdotal evidence of cost savings due to mergers of managed care organizations; for example, the merger of Aetna and U.S. Health Care resulted in the closure of half of its claim processing centers and a reduction of 4,000 jobs in its health division (National Health Lawyers Association, 1996). However, these sorts of scale economies seem to be exhausted at relatively small sizes. Wholey et al. (1996) find that HMO scale economies are nearly entirely exhausted above a size of 50,000 enrollees, based on a national sample of HMOs covering the period 1988-1991. Given (1996) finds that scale economies are exhausted at a size of 115,000 enrollees, using a sample of California HMOs covering the period 1986-1992. Such results do not provide an efficiency argument for the mergers of large HMOs that have been taking place.

However, an alternative source of economies of scale involves the transaction costs of contracting; the costs of contracting with one or a few large groups/networks of providers may be lower than the costs of contracting with multiple smaller groups/networks, a concern that may be of special importance for employers with operations in multiple geographic markets.

Finally, the spread of selective contracting as enrollment in managed care plans has increased 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 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 (see, for example, Katz, 1989; Riordan and Salop, 1995; Riordan, 1996; Salop and Scheffman, 1983; Bernheim and Whinston, 1996 generally or Gaynor and Haas-Wilson, 1998 on health care).

Many of the same factors that provide an efficiency rationale for horizontal consolidation also provide stimuli for increasing vertical restraints -- whether in the form of mergers, acquisitions, or tighter contractual relations -- between physicians, hospitals, and insurers. For example, tasks of monitoring and controlling health care utilization and quality may be done more efficiently in organizations where physicians, hospitals, and insurers are vertically integrated or have long-term contracts, and thus, share similar goals and aligned incentives. Further, it may be very costly for a provider to undertake monitoring of utilization and quality to the differing specifications of multiple insurers. Dealing with a single insurer may provide economies and the incentives necessary to invest in monitoring systems.

Vertical merger or tight contractual arrangements may increase efficiency by lowering the costs of transacting between the two markets, whether it be insurers and physicians, insurers and hospitals, or hospitals and physicians. Transaction costs are especially high when there is uncertainty and thus it is costly to negotiate contracts with all possible contingencies, when there are few alternative suppliers and thus there are opportunities for opportunist behavior, and when extensive coordination among the firms at the different stages of production is required (Coase, 1937: Williamson, 1975). All three of these conditions are present in markets for health care.

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. In addition to impacts on the ability of firms to exercise market power through price and quantity decisions, 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.[14]

An incumbent's absolute cost advantage can arise from a number of factors: access to superior inputs; ownership of a patent for a superior product or more efficient production technique; some form of first-mover advantage, like the case in which the first firm to enter a market incurs lower marketing costs than later entrants, who must face brand loyalty to the first mover; learning-by-doing which gives rise to firm-specific skills that no entrant could immediately imitate; and the incumbent's strategies to raise potential entrants' costs, as in the model of Salop and Scheffman (1983). This last factor seems of greatest potential importance in health care markets.

One strategy that seems likely to raise the costs and impede the entry of potential entrants are certain types of contractual arrangements between managed care insurers and sellers of health care services, such as exclusive deals and noncompete clauses. If a managed care firm has exclusive contracts (or is vertically integrated) with a large portion of the providers in the market, the number of independent providers remaining may be insufficient to allow efficient entry by another firm.

This will be especially true if the incumbent managed care plan signed exclusive contracts with the highest quality providers or the most efficient providers in the market. Noncompete clauses in contracts typically specify restrictions on the providers contracting with rival firms for a specified period in a specified geographic area during or after the termination of a contractual relation. These can make entry for rival firms difficult for the same reasons as exclusive contracts.

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 potentially have the procompetitive effect of allowing insurers or other buyers of health care services to lower their costs. But they may also may serve to facilitate tacit collusion by removing incentives to reduce prices (Baker, 1996; Salop, 1986). Any discount the provider grants to one insurer would have to be offered to the insurer with the most-favored-customer clause as well, making price reductions very costly. When a dominant insurer signs a contract including a most-favored-nation clause with a hospital or physician group, that insurer has basically assured that the hospital or physician group will not offer to provide services at lower fees to rival insurers or potential entrants. Antitrust policy concerning most-favored nation clauses in health care contracts is very unsettled. The courts have effectively treated such clauses as per se legal (Bloch, Perlman, and Levasseur, 1996), but the federal antitrust enforcement agencies have aggressively pursued them as anticompetitive, and sought to block their use via consent decrees.

The existing health economics research on the subject of using contracts to deter entry is scant. The theoretical literature thus far is confined to analyses of the impacts of exclusive dealing between insurers and providers on competition in the insurance market and the results are mixed.

Gaynor and Ma (1996) offer a theoretical model in which there is no anticompetitive effect of exclusive dealing in equilibrium, mainly because exclusive dealing leads to competition in the homogeneous product insurance market being transmitted to the differentiated product provider market. Gal-Or (1997a) considers the same issue, but with differentiated insurers, and finds that an exclusive deal can act as a barrier to competition when the provider who agrees to an exclusive deal with an insurer offers a lower payment rate in return for a larger volume of patients, which provides the insurer with a cost advantage over its potential rival. Encinosa (1996) offers a model of exclusive deals between HMOs and physician groups, in which the incumbent HMO signs an exclusive deal with the single provider to avoid the need for making investments in expanding its market, resulting in both blocked competition and inefficiency. These models of exclusive contracts are a good starting point. But it must be remembered that real-world exclusivity and non-compete clauses are not always truly binding. They are more likely to be binding when they have substantial enforceable penalties for breach of contract and if they are of a fairly long duration.

The issue of whether vertical merger or exclusive dealing can lead to foreclosure in real-world health care markets remains an open question. In policy and legal circles, 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 a Wisconsin court case, Blue Cross/Blue Shield of Wisconsin charged that 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.[15] However, Judge Richard Posner ruled that Marshfield Clinic had not monopolized the market for physician services and thus, vertical integration between Marshfield Clinic and its HMO could not have foreclosed the Blue Cross/Blue

Shield HMO from the market.

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 three separate civil enforcement actions against physician-hospital organizations in Danbury, Connecticut, St. Joseph, Missouri, and Baton Rouge, Louisiana. The Department of Justice argued 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.

Sunk costs -- that is, costs that cannot be recovered upon exit from the market -- can pose a barrier to entry (Baumol, Panzar, and Willig, 1982). Even small sunk costs can bestow significant advantages on an incumbent (Farrell, 1986; Gilbert, 1986; Stiglitz, 1987). For example, 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 for billing, utilization management, and quality assurance with providers. 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, whether in terms of systematic information on the magnitude of these sorts of costs or concerning whether the costs associated with networks or utilization or quality management should be considered as sunk.

Strategic behavior of incumbents may be sufficient to deter entry (Gilbert, 1989; Geroski, Gilbert, and Jacquemin, 1990). For example, overinvesting in capacity, especially in irreversible or sunk capital, 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 in order to price aggressively in the presence of entry.

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 seventeen percent of the mergers the acquired hospitals were closed and in forty-one 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 two cities, however, found little evidence that hospital mergers have been associated with reductions in excess capacity of hospital beds and facilities. Using data from 1982 to 1996 for St. Louis and data from 1989 to 1996 for Philadelphia, the results suggest that merged hospitals have consolidated administrative services, such as marketing, finance, public relations, and human resources, but have not closed hospitals considered inefficient and redundant to capacity elsewhere in the hospital system (Wicks, Meyer, and Carlyn, 1998).

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, this focus may lead to problems. Higher prices in a given market may simply reflect higher quality, rather than providing prima facie evidence of market power.[16]

Ultimately, the economic issue is not about price alone, but about whether there is a social welfare loss, taking nonprice factors like quality into account. This implies that empirical studies of conduct in health care markets should explicitly consider both pricing and quality. Some evidence concerning quality is given below, but it is fair to say that this evidence is still sparse, due to the difficulty of measuring quality. A great deal of effort in recent years, however, 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.

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 available empirical 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. For example, Dranove, Shanley, and White (1993) find a positive relationship between markups and market concentration in California hospitals. 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). This is especially germane as the consolidation in local hospital and insurance markets leads to negotiation as the method by

which prices are increasingly determined.

Connor et al. (1998) and Krishnan (1998) examine the impact of hospital mergers on prices. Looking across all markets, Connor et al. find that merging hospitals have smaller percentage price increases than nonmerging hospitals. This is consistent with hospital mergers enhancing efficiency. However looking at only concentrated markets, the relationship is reversed—merging hospitals have higher percentage price increases. This is consistent with hospital mergers in more concentrated markets enhancing hospitals' market power. Likewise, Krishnan finds that mergers increase the prices of those individual hospital services, measured as DRGs, for which the merging hospitals gain market share.

A number of papers specifically examine the behavior of nonprofit hospitals and all but one (Lynk, 1995) find a positive relationship between price and concentration (Keeler, Melnick, and Zwanziger, 1997; Simpson and Shin, 1997; Dranove and Ludwick, 1997).[17] The willingness of not-for-profit hospitals to exercise market power has been an especially hot issue in recent antitrust cases. It has been argued that nonprofit hospitals seek to maximize the welfare of their communities (or are 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. This argument was influential in a recent court decision to allow the merger of the two largest hospitals in Grand Rapids, Michigan; since they were nonprofit, why worry about monopoly?[18] The recent evidence on the pricing behavior of nonprofit hospitals suggests that antitrust enforcers and courts should worry.

Some efforts have been made to take into effect hospital non-price competition. These studies are of two types: those that examine hospital costs or service offerings and those that examine 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. These studies, do, however, 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 such consistent pattern, however, emerges from studies of the impact of competition on health outcomes. Shortell and Hughes (1990) find no statistically significant relationship between market concentration and hospital mortality rates. More recently, 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) find hospital mergers had no impact on quality, measured as inpatient mortality from heart attacks and strokes, but a negative impact on quality, measured as readmissions within 90 days. Volpp and Waldfogel (1998) find 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. Thus, the jury is still out, and further research is essential in this important 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 hospitals in less concentrated markets in California provided more charity care in the 1980s. 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; Gaynor, 1994; Frech, 1996), and the empirical evidence is consistent with this intuition (Wong, 1995; McCarthy, 1985). There is also some empirical research on entry that is relevant to the competitiveness of markets for physician services. Newhouse et al. (1982) show 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. 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 it is fair to say that the evidence does not indicate that collusion has recently been an important phenomenon in most markets for physician services, there are some particular cases for concern. Markets for specialized services, or markets in rural areas, may be dominated by a small number of physician firms. These firms may be able to erect barriers to entry by controlling hospital privileges or controlling patient referrals. 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. Frech (1996) documents some cases of collusion in physician services markets.

Whatever the past status of physician markets, the growth of managed care certainly has the potential to alter the competitiveness of these markets. Managed care has led to networks of physicians who practice independently but contract collectively with managed care plans.[19]

An analysis of the competitive impacts of these networks is Vistnes (1992). Vistnes points out that 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. These results apply to both to horizontal networks of like providers and to vertical networks. However, network formation is not part of the analysis, thus it is not clear if the same results would obtain in a model in which network formation is considered. Similarly, Dranove and White (1996) show that patient demand for the option to go to a specific provider can bestow market power on that provider when providers are differentiated and managed care insurance limits consumers' insured access to only certain providers. 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, there is little empirical research as of yet on the impacts of networks.

The recent focus of federal antitrust enforcement regarding physicians has been on the physician networks, rather than on physician groups. The issue is whether such networks result in any significant efficiencies or damage competition by facilitating collusion among physicians (Haas-Wilson and Gaynor, 1998). The Federal Trade Commission and Department of Justice have indicated that networks that are 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. Physician networks that fall outside these "safety zones" will be judged under the rule of reason, under which the potential anticompetitive impact is weighed against possible efficiency gains. Possible sources of efficiency gains mentioned by the enforcement agencies for such networks include: risk sharing, by sharing 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 potential efficiencies associated with physician networks.

An additional response to managed care has been the increasing prevalence and increasing sized of medical group practices (Emmons and Kletke, 1996). The extant literature on physician groups suggests that scale economies for such practices are exhausted at relatively small sizes -- three to five physicians (Gaynor and Pauly, 1990; Pope and Burge, 1996). Most of this literature, however, uses data from the 1970s. It is possible that the structure of production for physician groups has changed since then.

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, if any.

There have been some initial attempts to assess the conduct of HMOs, which have produced patterns which 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 (1998) finds that when 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. Moreover, firms may be playing different strategic games in different markets, so that it is not clear exactly what the aggregate data identify. Better data and more sophisticated modeling could lead to significant advances in our understanding of competition in this market.

A concern that has arisen as managed care plans have exercised bargaining power in negotiations with health care providers is the exercise of monopsony power (Pauly, 1998). While there have been a number of empirical studies attempting to detect Blue Cross monopsony power, 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.

Another issue that has gained a great deal of recent policy prominence is the impact of managed care on access to care and quality of care. A great deal of concern has been expressed about managed care denying patients coverage for care and about whether patients in managed care plans receive lower quality care, although the evidence is mixed (Miller and Luft, 1997). Many states have passed legislation regulating managed care and legislation for national regulations is

being considered by Congress. It is unclear, however, what impacts managed care is having, let alone whether those impacts are due to competitive market failures or lack of competition. In a recent paper Encinosa (1998) considers the effects of regulating managed care plans when competitive markets fail due to risk selection. He shows that regulation can solve the risk segmentation problem that arises in a perfectly competitive market, however 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 Morrisey (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, Frech and Danger (1997) show that proper calculation of the effect of concentration on exclusive contracting reveals a positive relationship.

Further studies of vertical consolidation in health care markets is an important topic for future research. The data requirements are daunting. Not only must relevant cost and production 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 it is not obviously so in health care. 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). The differences in health care markets most commonly cited as affecting the welfare properties of competition are 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? We review each of these issues in turn, along with their implications for the desirability of competition in health care markets.

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 (Arrow, 1963; Pauly, 1968; Zeckhauser, 1970). Since moral hazard induces excessive consumption, it might seem that in this 2nd best world 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; Frech, 1996; Pauly, 1998). However, this assumes that the pricing of insurance in a competitive market does not adjust to deal with moral hazard. Once this is taken into account, it can be shown that competition in the health care market is optimal (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 (Rothschild and Stiglitz, 1976). If individuals know their own risk type (say high or low) but insurers do not, then the market will not pool individuals of different risk types. Either high risk individuals purchase complete insurance while low risk types purchase incomplete insurance, or the insurance market does not "exist." 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 (Pauly, 1986; Newhouse, 1996).

The assumption that individuals are either high risk or low risk, immutably, is probably not correct. Eichner, McClellan, and Wise (1997) find persistence among individuals in their health expenditures lasting typically for four or five years at most, although Newhouse et al. (1989) find persistence over a longer period. Further, there is evidence pointing to consumer persistence in their choice of insurance plans; in short, most 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). Taking these patterns as a whole, it is simply unclear whether increases in competition make risk-selection a substantially worse problem than it already is.

The empirical evidence on how risk-selection scenarios work out in real health insurance markets is mixed; however, the most recent evidence suggests a problem. HMOs have had some success in enrolling persons with lower health risks, as opposed to conventional insurance plans (Hellinger, 1995; 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 (increasing consumers' incentives to search for the most efficient health plans) adverse

selection had eliminated the market for the most generous insurance plan.

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] It is not clear whether this is an empirically significant phenomenon; 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; Frech, 1996, ch. 5). While it seems likely that some inducement exists due to asymmetric information and agency problems (Darby and Karni, 1973), neither theory nor current evidence indicate that competition is likely to increase distortions from this market imperfection (Stano, 1987).[22]

It is sometimes alleged that competition in health care markets is different because of the presence of not-for-profit firms, in particular that not-for-profit firms will not choose to exercise market power if given the opportunity. While there is much that remains to be understood about the role played by not-for-profits, the preponderance of evidence is that they do not behave differently with regard to exercising market power, at least in hospital markets.

A fifth 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 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. What we do not know is whether this 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 will lead to too little quality relative to the socially optimal level (less quality may be optimal) or the underprovision of health care services.[23] Health care consumers are often poorly informed about prices (Gaynor and Polachek, 1994) and quality (Haas-Wilson, 1994). 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 it, it is not clear how well consumers use available health plan or provider quality information (Chernew and Scanlon, 1998; Hibbard and Jewett, 1997; Mennemeyer, Morrisey, and Howard, 1997).

On a more positive note, economic theory (Klein and Leffler, 1981; Wolinsky, 1983; and 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 (The President's Advisory Commission on Consumer Protection and Quality in the Health Care Industry, 1998). The hope is that increasing the availability of information on quality will facilitate the provision of quality in at least two ways—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.[24] Basically, 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, a goal of health care policy should be to ensure that these markets work as efficiently as possible. 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. Unfortunately, the task of determining the line between the good (net efficiency enhancing) and the bad (net market power enhancing) 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 (Bingaman, 1994a; 1994b; 1996). They have adopted new antitrust guidelines for health care three times in the past four years.[25] In fact, the FTC has a specific section of their web site devoted to "Health Care Antitrust," the only such industry with its own section (http://www.ftc.gov/bc/health.htm). In addition there has been considerable state and private antitrust activity.

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). However, the FTC and DOJ have lost several prominent court cases.[26]

Proposals before Congress call for the loosening of the application of antitrust laws to health care providers; see Harris and Fenton (1996) for a discussion. If enacted, these proposals would effectively limit the ability of antitrust enforcers to police health care markets, without providing a replacement for this important job. Further, 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. At last count, 23 states had passed such legislation. It is unclear how effective state supervision will be at limiting the exercise of market power.

No one knows what health care markets will look like when the dust settles. Some of the new organization structures will survive the market test and some will not. The hope is that at the end of the day the surviving organizational structures will be the ones that enhance efficiency and quality, rather than the ones that increase providers' or insurers' market power. Careful research on the issues raised in this paper can help inform optimal policy towards competition in this area.

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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, 8/5/96, p. 86.

3. In July of 1998, however, FPA Medical Management filed for bankruptcy protection.

4. United States v. Mercy Health Services, No. C94-1023 (N.D. Iowa October 27, 1995).

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

6. The federal antitrust enforcement agencies define the boundaries of a market as the point in geographic or product space at which firms in the market could raise price by 5 percent without inducing entry.

7. See Haas-Wilson and Gaynor (1997) for a discussion of the federal enforcement agencies' thinking on product market definition for physician services under managed care.

8. 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).

9. The Insurance Component of the Medical Expenditure Panel Survey (MEPS) currently being conducted by the U.S. Agency for Health Care Policy Research holds some promise in this regard. The data are scheduled to be available in 1999. See http://www.meps.ahcpr.gov for more information.

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 as measured by these studies.

11. Capitation accounted for 7 percent of physician revenue in 1997 (Moran, 1998).

12. 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.

13. Gaynor and Gertler (1995) and Lang and Gordon (1995) show that risk diversification provides a strong incentive for forming medical and legal partnerships.

14. 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. Bain (1965) held that barriers to entry were any factor that allows an incumbent to maintain price above average cost. In contrast, Stigler (1968) 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. See Gilbert (1989) or Geroski, Gilbert, and Jacquemin (1990) for more detail.

15. Blue Cross/Blue Shield United of Wisconsin, et al. v. Marshfield Clinic, et al., op cit.

16. 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., op cit.

17. One difference is the time period. Lynk looked only at 1989, while the other studies employed later years, so their findings that not-for-profit hospitals charge more in concentrated markets may be a result of a change in the nature of competition in hospital markets between the late 1980s and the early 1990s. Lynk's regression may also be misspecified, since it includes market share in addition to the Herfindahl index.

18. 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).

19. 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.

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.

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.

23. For example, Dranove and Satterthwaite (1992) show that increasing price information when

consumers are uncertain about quality can decrease welfare.

24. 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).

25. 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.

26. These are all of the recent hospital merger cases: Dubuque, Grand Rapids, and Long Island. The DOJ and FTC filed an amicus brief supporting charges of anticompetitive conduct in the Marshfield Clinic case, but the case was decided against them on appeal.

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