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Hospital Behavior in a Local Market Context

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No hospital operates in a vacuum. In deciding which services to offer, each institution must take into consideration the services offered by other hospitals and the possible future changes in those services. It need not worry to the same extent, however, about all of the other approximately 6,000 short-term general hospitals in the nation. Most other hospitals are irrelevant to the institution's decisions because they are too

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far away or because they are quite different in size or mission. Similarly, each individual hospital must base its decisions on an evaluation of the manner in which it will be paid, i.e., the extent to which its prospective patients are covered by insurance and the distribution of those insured patients among governmental programs, private health insurers, and HMOs. Since the patients in most diagnostic categories will come from the local area, it is the local rather than the national mix of insurance types that matters. In short, when seeking to understand hospital behavior and the utilization of hospital services by patients, it is necessary to determine how the hospital functions in its local environment or market.

The importance of the local environment's influence on a hospital's behavior has steadily gained recognition by both policymakers and health services researchers. Policy changes encouraging selective contracting, the growing oversupply of physicians, and the shift away from fee-for-service reimbursement to fixed payments for hospital services mean that, in order to predict hospital behavior in the future, we must know much more about how local markets affect hospital behavior. Simultaneously, improvements in data from patient-origin studies across large areas and the development of geographic measures of the impact of neighboring hospitals have removed some of the empirical barriers to the analysis of local hospital markets.

In analyzing questions about hospital behavior, it is important to look at the structure of the local market from both the supply and the demand sides. When suppliers (hospitals) have no potential competitors, they are likely to behave differently than when there are several potential local competitors. On the demand side, consumers are becoming increasingly organized, and their intermediaries are exercising their concentrated power by negotiating preferred provider arrangements and selective contracts. In the past, the demand side of the market either was unorganized or behaved as if it were unorganized in purchasing hospital services. With no coordination among demanders and with little price sensitivity because of third-party reimbursement, suppliers were able to exercise their market power by determining prices and availability of services. Because hospitals have not had to compete on the basis of prices, those in competitive markets have used nonprice competition to attract both physicians and patients. The influence of such strategies may be ending, however, as patients become increasingly sensitive to differences in price.

The standard economic models of market behavior require some elaboration if they are to incorporate the institutional features of hospital services, such as health insurance, not-for-profit firms, and the role of physicians. These issues are discussed in the sections on supply of and demand for hospital services. While the discussion builds upon widely

understood models, special emphasis is given to certain empirical issues that must be considered in focusing on local markets, such as who the relevant potential competitors are. To illustrate how local market measures can be used in empirical studies, the third section includes recent examples dealing with the distribution of specialized services, the relation between volumes and outcomes in hospital care, and the influence of competition on hospital costs. The potential usefulness of a local market focus in examining current policy issues is explored in the fourth section, with examples of selective contracting and changes in local hospital behavior. The final section provides a brief summary and further applications of local market structure to empirical and policy questions.

THE SUPPLY OF HOSPITAL SERVICES

Until recently, economic and sociological theories of hospital behavior focused on types of institutions and how they respond to changes in the state or national context. Topics of particular interest included the locus of power in the hospital (trustees, administrators, physicians), the goals hospitals pursue (size and status of the institution, community service, net income), and how these goals are affected by environmental changes at the state and national levels (growth of public and private health insurance coverage or regulatory initiatives, for example). While such factors are important, it is critical to recognize that hospitals deliver their services in a series of overlapping local markets, with the scope of the market and the extent of competition varying by diagnosis or service. The way in which organizational characteristics of hospitals and national changes in financing and regulation manifest themselves in the behavior of individual hospitals will be influenced by the local environment. While earlier studies certainly did not argue for a focus exclusively on national markets, they generally ignored local market factors, an omission that may at times have clouded the results.

HOSPITAL DECISION MAKERS AND DECISIONS

Although one often speaks of hospital decision making as though there were a single decision maker, hospitals are in fact exceedingly complex organizations made up of a variety of different groups—the governing body, administrators, medical staff, and nonmedical staff—each with different priorities. The governing board is responsible for determining the general goals of the institution and assuring that those goals are met. The goals may vary, depending on whether the hospital is a not-for-profit,

investor-owned, or public institution. Day-to-day operations in all hospitals are coordinated by administrators, who filter the means and ends desired by the governing body through their own views of what is feasible and desirable. Administrators are concerned with both the general success of the institution (status, solvency) and their own success (authority, reputation among professional colleagues, income). The medical staff constitutes a third, very important center of power within the hospital, since physicians hold the direct authority to admit patients, order and perform procedures, and discharge patients. The physician staff shares many goals with the trustees and administration, but it is also concerned with its clinical reputation among other physicians and with personal income. Finally, the nonmedical staff of the hospital, at times represented by professional organizations or labor unions, has views about appropriate quality of care (such as staffing ratios) and personal income that must be taken into account.

Hospital Models

Early economic models of the hospital attempted to simplify an otherwise bewildering set of institutional features by adapting the textbook model of the firm. A characteristic of all of these models is that one group is identified as the dominant agent in the institution, and the goals of that one group are assumed to be the goals of the entire institution. Newhouse (1970) and Feldstein (1971b, 1977) posit an institutional goal, one that could be common to all groups, of increasing both the volume of patients treated and the "quality" of care. Quality is defined largely in terms of the inputs used in treatment, subject to the need to break even financially. Lee (1971) focuses on the status-consciousness of the hospital administration and the implication that accumulation of clinical services is a dominant goal, albeit one constrained by resources and community obligations. Pauly and Redisch (1973) promote the physician staff to the role of dominant agent and postulate that the hospital operates in such a way as to minimize costs and maximize the level of reimbursement left over for physician services.

All of these models see the hospital as using resources efficiently in pursuit of some goal. Genuine waste is not present, nor is explicit conflict among interest groups; therefore, no changes can be made in the way hospitals operate without making at least some groups worse off, in terms of their self-defined goals. Harris (1977) brings an organizational perspective to the economic literature, modeling the hospital as an institution made up of different managerial and medical groups that compete for a common body of resources. Waste and inefficiency, defined primarily in

terms of excess capacity, are dominant features of Harris' model. In more technical terms, hospitals are not operating at the edge of a production possibilities frontier; instead, there is substantial room for discretion and variability. As will be seen below, the traditional financing system, that of reimbursement for costs incurred, provided no pressure for hospitals to reduce costs.

If one posits a model in which physicians, hospital administrators, and board members may be in conflict, then attention should shift toward factors that may strengthen the bargaining power of one group vis-a-vis another. Physicians and hospitals are generally in a symbiotic relationship—physicians control the flow of patients and hospitals control the specialized services and facilities needed by physicians. The relative power each group has in a conflict will depend, in part, on its ability to walk away from the bargaining table. For example, if there are several hospitals in town, physicians can more easily threaten to shift their patients to another facility; if one hospital has a monopoly, a boycott by selected physicians will probably fail.

Decisions on Services and Facilities

Hospital decision makers are involved in a wide range of choices, from linen service to major expansions. Particularly important are decisions concerning which clinical services to operate. These decisions influence the types of patients who come to the hospital, since service availability is central to physician and patient choice of hospital. Further, since prices are set so that some services tend to generate net operating surpluses while others must be considered to be loss leaders, such decisions influence the hospital's financial position. Most important, unlike simple operating decisions that affect only the hospital's own performance, decisions on service availability will have a direct effect on neighboring hospitals if patient admitting patterns shift.

In deciding whether to acquire and maintain a particular clinical service, hospital decision makers (trustees, administration, and medical staff, to the extent each group is involved) must compare the expected costs and expected benefits of the proposed service. The costs of purchasing and operating the service are only the most obvious ones. Other potential liabilities are regulatory barriers, organizational disruption, increased administrative burden, exposure to lawsuits, and damage to the institution's public image in case of failure.

The expected benefits of a service depend, in part, on net revenue generated, taking into account factors such as level of utilization, reimbursement rates, and increased utilization of backup facilities. Even more

important, however, may be the effect of the service on the hospital's image in the eyes of community-based physicians and their patients. The presence of a state-of-the-art diagnostic unit may result in a higher volume of patients visiting the hospital's outpatient or emergency clinics, a higher proportion of each affiliated physician's patients being admitted at that hospital rather than another, and a larger number of affiliation requests from physicians.

Another factor a hospital must take into account in deciding whether to offer a particular service is its availability in the local market. Some hospitals will acquire a new lifesaving technology because of perceived community need. Analogously, maternity services are available in nearly all communities, even though generally they are unprofitable. Thus, hospital administrators are at least partially constrained in their decision making by their board members' desire to act in the public interest. This behavior distinguishes hospitals from other organizations, such as retail stores. However, such behavior is also affected by the local market structure: The need for an individual hospital to act in the public interest diminishes as the number of other hospitals increases.

MODELS OF LOCAL SUPPLY

The focus on the local environment as a determinant of behavior, while relatively new to health services research, has a long history in the economics of industrial organization and in the "open systems" tradition in organizational behavior. A judicious use of concepts from these disciplines can prove invaluable in understanding hospital behavior. Each model of market structure and behavior comes with its own set of assumptions, however, and these must be checked for compatibility with the important institutional features of the hospital before any model can be applied fruitfully.

The most widely used economic model of market structure is that of atomistic competition. This model describes a market characterized by a large number of buyers and sellers, all with good information on the availability, quality, and prices of goods being exchanged. Differences in price must reflect differences in quality, where accessibility and convenience are considered aspects of quality. Because there are so many sellers, no one seller can have an impact on the market. At the other extreme stands the model of a monopolistic market with only one producer. Here prices will tend to be higher and quantity produced lower than in a competitive market. Costs of production may be minimized so as to maximize profit levels, but the monopolist is under no competitive pressure to do so.

Between the competitive and monopolistic models lie various oligopolistic market models, characterized by a small number of providers. Competition in these markets may be fierce but it usually takes nonprice forms, including product differentiation and attempts to create brand loyalty among consumers, thereby creating a quasi monopoly. A crucial aspect of oligopolistic models is that each seller is large enough to influence the market; therefore, each firm must consider not only the effects of its own decisions, but the likely responses of its competitors to those decisions.

While the predictions of atomistic competition and monopoly are relatively straightforward, the situation is far more complex in oligopolies. There is a large theoretical literature on models of strategic behavior with small numbers of firms, but such models are workable only with substantial simplifying assumptions. One important recent notion, however, is that of a contestable market (Baumol 1982; Baumol, Panzar, and Willig 1982). If market entry is relatively easy, a firm already operating in a market may behave more competitively if there is a threat that others will enter the market even if they are not current competitors. Thus, in such a market one must examine potential, as well as actual competitors.

While most economic analyses focus on either the number of competitors or the general rules of market behavior, such as regulatory constraints, some sociological theories of organizational behavior are focusing more frequently on an organization's environment (in addition to its internal structure and goals) as a prime determinant of behavior. Open-systems theory emphasizes the relationship between the organization and its environment (Thompson 1967) and the influence of the outside environment on the internal structure of the organization (Lawrence and Lorsch 1967). Thus, certain environmental settings will be conducive to the growth of certain types of organizations. The concentration of proprietary hospitals in the Sun Belt states and their avoidance of the heavily regulated Northeast would be an example of such environmental influence.

Applying these models to the hospital sector leads to a number of implications for decision making within local markets. If one is focusing on strategic decisions, such as whether to offer a new service or recruit a subspecialist, and if the hospital is an oligopolist, the likely reactions of local competitors must be considered. If the hospital is a monopolist and if entry is constrained by certificate-of-need laws, it has a much freer hand. There is evidence from other industries that small oligopolies often attempt either to create cartels or to divide the market so as to reduce competitive pressures, but, as the number of firms increases, such behavior tends to break down. The local environment also may influence organizational goals. Thus, while for-profit hospitals may tend to avoid

certain money losing services such as maternity care, they may feel constrained to provide such care if they are local monopolies.

Studies of oligopolies indicate that competition often occurs outside the arena of price. Examples of nonprice competition include product differentiation and advertising campaigns designed to promote loyalty, increases in amenities related to consumption of the good or service (e.g., homelike features in maternity wards), and reduction in time prices (e.g., convenient location, long operating hours, short waiting-room times). Of course, the extensive insurance coverage available for hospital care also reduces price sensitivity (see below), but studies of oligopolies suggest that price cutting is usually selective when it occurs, rather than across-the-board.

RELEVANT PLAYERS IN THE LOCAL MARKET

The scope of the relevant geographic area for a given hospital will depend on the service being considered. The market for emergency services geographically is very small, while that for schedulable surgeries typically is much larger. For exceedingly complex procedures, such as organ transplantations, the market may be national or even international. Not all medical care institutions within the geographic boundaries of a market should be counted as competitors. While some simple procedures, such as hernia repair and cataract removal, can be done in most hospitals and even in some physician offices or independent surgical centers, complex procedures often must be performed at certain hospitals. Hospitals also differ with respect to the type of patient they can or will treat: patients with no means to pay may be restricted to public hospitals, Veterans Administration hospitals serve only eligible veterans, and religious preferences often influence patient choice. Health maintenance organizations and preferred provider organizations deliberately segment hospital markets by directing their patients to affiliated institutions.

The theory of contestable markets suggests that potential, as well as current, competitors may be relevant. This is particularly likely to be the case if hospitals already in the area can add certain specialized services without extensive investment. One must also consider whether the competition is directly for patients or indirectly for physicians. Direct competition for patients is often influenced by tactical decisions concerning advertising, satellite facilities providing urgent care, amenities and occasionally, price. In such cases, economists often empirically estimate market areas by examining the ZIP codes served by hospitals and then identifying other hospitals within or serving the same ZIP codes. Hos-

pitals often self-define their service areas in terms of the ZIP codes that account for 50–75 percent of their admissions. Such measures, of course, only reflect current participants in the market.

A rather different perspective may be useful when bargaining with physicians over the availability of specialized clinical services and facilities. A threat by a physician to shift patients to another facility will be more credible if the physician already maintains active admitting privileges at more than one hospital. Since this would often involve daily visits to each hospital, geographic proximity is likely to be quite important.

Although a full characterization of the topography of hospital markets in the United States is beyond the scope of this article, a first approximation can be developed using the geographic location (latitude and longitude) of all hospitals. For example, 1,562, or 26 percent, of U.S. hospitals in 1982 had no hospital neighbors within 15 miles and, thus, could be considered monopolies in their relationship with local physicians for many diagnoses and procedures (Luft and Maerki 1984–85). This measure was supported empirically in a comparison of hospital-physician relations between rural hospitals that have no other hospitals within 15 miles (monopoly hospitals) and rural hospitals that have one or more hospital neighbors within 15 miles (nonmonopoly hospitals). A significantly higher percentage of medical staff physicians at nonmonopoly hospitals admitted at least half of their patients to other hospitals than did physicians at monopoly hospitals. This finding indicates that physicians who do have multiple affiliations use the alternatives these affiliations provide in their admission decisions, and the 15-mile measure picks up real differences in physician use of alternative hospitals (Hughes 1985).

Physicians in urban areas have many more hospitals to choose from than their counterparts in rural areas, thus increasing the likelihood that they will have multiple affiliations and that they will use the flexibility inherent in having a number of options to choose from when admitting patients. The 15-mile radius used here is merely a first approximation. One would like to empirically determine the distance—or preferably the travel time—at which physician affiliations fall off. A total of 1,530, or 25 percent, of U.S. hospitals had 11 or more neighboring institutions within a 15-mile radius (approximately 700 square miles) and could be considered as operating in a reasonably competitive market. For some sophisticated procedures such as open-heart surgery, the number of competitors may be substantially lower, requiring the use of an oligopolistic market model. However, hospitals are multiproduct institutions and even tertiary care centers have a substantial number of routine cases. Thus, hospitals with 11 or more local competitors are unlikely to be able to take account

of and predict all the reactions of all of their competitors. More important, cartels are likely to fail with that many firms.

THE DEMAND FOR HOSPITAL SERVICES

Medical care is often considered to be quite different from other goods and services. For example, as Arrow (1963) argued in his classic article, many of the special aspects of medical care, such as ethical guidelines, the inculcation of physician-patient trust, and the high social status accorded to physicians, are societal responses to the uncertainties inherent in medical diagnosis and treatment. Despite these differences, it is still useful to consider the economic aspects of medical care in the context of demand. Most of the theoretical and empirical work on demand has focused on the role of insurance in altering the effective price of care (Pauly 1968; Phelps and Newhouse 1974). Others recognize that the patient's time is an important input, including the time involved both in treatment and in traveling to and waiting for care (Grossman 1972; Acton 1976). In general, however, this work has not taken into consideration the structure of the local market on the demand side. To set the stage for such a discussion, this section first reviews some key features of theoretical and empirical aspects of demand, focusing on the role of providers as the patient's agent and on the role of insurance. It then introduces the concept of local market structure on the demand side.

CLINICAL DETERMINANTS OF DEMAND: THE PHYSICIAN AND THE HOSPITAL AS PATIENTS' AGENTS

A high degree of uncertainty characterizes disease processes and the medical services designed to combat them. Many symptoms can be connected to recognized diseases only with great difficulty, and appropriate diagnosis is often the physician's most difficult job. Treatments are of uncertain efficacy and their value depends on how they are administered, as well as the natural history of the disease process at the time of intervention.

The technical complexity of medical care implies that the patient cannot personally choose treatments without at least the interpretation and guidance of a physician. Ideally, the physician serves as the patient's agent by providing the technical expertise which permits expert and objective evaluation of the possible benefits of alternative clinical interventions. Referral of patients by primary care physicians to specialists and admission of those patients to hospitals for inpatient treatment are con-

tinuations of the basic physician-patient relationship. To the extent that hospital rules and procedures influence clinical treatment (such as priorities for operating rooms, availability of diagnostic equipment, and recommended lengths of stay), the hospital also acts as the patient's agent.

A simple physician-as-agent theory clearly excludes an important dimension of the physician-patient relationship. Physicians are not completely disinterested advisers but will themselves provide, for a price, some of the medical services they recommend. (Contrast this with the role of an architect hired to supervise the work of a contractor.) To the extent that physicians have a financial interest in their recommendations, the possibility exists that they will function as imperfect agents, not just considering the patient's clinical benefit but also taking their personal economic gain and other factors into account. Patient referrals between physicians, for example, have been found to depend on the organizational setting of the referring physician (Freidson 1975; Luke and Thompson 1980), the extent to which the referring physician views the patient as socially undesirable (Greenfield et al. 1983), and the referring physician's desire to build his or her practice (Moscovice, Schwartz, and Shortell 1979). Furthermore, the importance of such deviations from the role of perfect agent becomes more important in the context of substantial latitude in treatment options (Wennberg, Bunker, and Barnes 1980).

ECONOMIC DETERMINANTS OF DEMAND: THE ROLE OF INSURANCE

Hospital care is heavily insured in the United States. In 1983, some 192 million Americans had health insurance for hospital care and about 90 percent of all hospital expenses were paid by third parties (Health Insurance Association of America 1985, p. 6). Health insurance traditionally has taken the form of a service benefit, whereby the insurer agrees to pay for all charges incurred above some defined patient copayment, rather than the form of a fixed indemnity or lump-sum payment dependent on illness. The inherent uncertainties in medical treatment mean that consumers would be unwilling to buy policies which only pay a fixed sum for treatments (like collision insurance which provides a fixed amount for repair of a fender). Conventional health insurance effectively lowers the price to the consumer of each unit of medical care consumed, inducing the patient to use more units of service than he or she would have in the absence of the insurance (Pauly 1968). Even if the patient ultimately pays the full cost of utilized services through the monthly premium and any coinsurance charges incurred, his or her demand for service will be in-

fluenced only by that portion of cost directly linked to each unit of service consumed.

The best health insurance design incorporates a trade-off between the need for adequate coverage of uncontrollable events and the need for incentives which encourage appropriate behavior. While most medical services are covered to some extent by health insurance, hospital care is covered particularly well. More people purchase hospital insurance than coverage for physicians' fees. Furthermore, the traditional deductible of \$100–200 per year is usually met on the first day in a hospital, and the coinsurance obligation is often capped so that, after a few days have passed, most additional hospital charges are fully covered.

It is important to recognize that not all medical care is provided in life threatening situations, nor is it all directed by physicians. It is useful to distinguish patient-initiated visits and services from follow-up care (Hershey, Luft, and Gianaris 1975). An illness episode usually begins with patient recognition of a problem, followed by a decision to seek treatment. It is at this point, when the person is seeking ambulatory care, that deductibles and copayments have the greatest impact (Newhouse, Phelps, and Schwartz 1974; Newhouse et al. 1981). Once care has been initiated, the physician's influence is greater and it becomes increasingly likely that expenditures will rise beyond the deductible. If hospitalization is being considered, the anticipated bills are such that the stop-loss level will be reached. The result is that economic incentives generally are operative in the decision of whether or not to hospitalize, not in the realm of specific services or prices once hospitalized.

MODELS OF LOCAL DEMAND

The various components of the theory of demand for medical and hospital care services have not, to date, placed great emphasis on the local environment in which patients and their agents decide upon how much care to purchase. Rather, the focus traditionally has been on changes at the national level: the overall supply of physicians as a determinant of the level of supplier-induced demand, and the extension of public and private insurance mechanisms as a determinant of patient demand. The clinical and economic determinants of demand for hospital services are better understood, however, when analysis includes the structure and characteristics of the local market environment in which hospitals operate. General economic theories of market behavior strongly maintain that the "structure" of the demand side of the market, defined in terms of the number of buyers, will influence both the quantity of services purchased and the price at which they are purchased.

The most common economic model of the market structure of de-

mand assumes atomistic competition, or the presence of many uncoordinated buyers of services. Since each of these buyers individually accounts for only a small fraction of the total volume of services purchased, none has any influence over the price charged. They face a "take it or leave it" choice of how many units of service to purchase at the going price. At the other extreme of the spectrum of market structure models is the monopsony model, which characterizes markets where only one purchaser of goods and services exists. Examples of monopsonistic markets include the labor markets in isolated towns with only one employer, and governmental purchases of highly specialized defense equipment. The important feature of monopsonistic markets is that the buyer is a "price maker" rather than a "price taker". After considering the production costs which would be incurred by providers at various levels of output, the buyer decides on the price to be offered per unit and then purchases a quantity of services offered at that price. The price paid and the quantity purchased will be lower in a monopsonistic market than in a competitive one, assuming that the monopsonist chooses to exert its market power. In practice, however, a pure monopsonist may have an interest in paying its suppliers enough to ensure their long-term viability.

Between the competitive and monopsony models is the range of "oligopsony" models that describe markets composed of a few, but not many, buyers. In general, it is assumed that oligopsonistic buyers act more like atomistic competitors as their numbers increase, since coordination becomes more difficult. The relative size of the buyers may also play a role: a market characterized by one large buyer and a number of smaller buyers may perform in a fashion similar to a monopsonistic market to the extent that the large buyer exerts price leadership and the other buyers purchase services at the established price. Alternatively, dominant buyers within an oligopsonistic market may exert their power in such a way as to exploit the smaller buyers. A large buyer may bargain with providers for a price above marginal costs but below average costs, forcing providers to charge the smaller buyers at levels above average costs. However, a large buyer may be interested in long-term stability and thus be willing to pay average costs, while providers can occasionally offer discounts on overruns to small buyers. Similar discounts to the large buyer would jeopardize producer survival. Just as is the case when examining the supply side, analyses of the demand for hospital care should take into account the local market structure.

THE LOCAL STRUCTURE OF DEMAND

The demand side of the hospital care market at different times and places is best described by different economic models of market structure.

There were many unorganized buyers in urban areas throughout most of the twentieth century, making the atomistic competition model the best approximation. Patients either paid for care on their own or, after the growth of health insurance, had it paid for by a third-party system which encouraged freedom of choice. States had enacted Blue Shield enabling legislation that precluded insurers from selectively contracting with certain providers (Trauner 1983). Physicians were similarly unorganized so each urban hospital faced many potential "admitters", few of whom had substantial market power. In rural areas, however, where hospitals were few and far between, a local hospital would often have a handful of physicians who accounted for the majority of patients. However, given the lack of other hospitals, physicians in rural areas did not necessarily have more market power than those in urban areas.

An exception to this characterization has been the position held by the government and the Blue Cross and Blue Shield plans as major financing sources for health care. Since the mid-1960s, the government has held potential oligopsonistic power through Medicare, Medicaid, and various other entitlement programs. Health care providers devoted a large part of their political activity to ensuring that the government did not exercise that power. Physicians opposed the development of health maintenance organizations and sought to dominate the practices of health insurance plans for the same reason. Until recently, physicians controlled Blue Shield plans and hospitals controlled Blue Cross plans, thus assuring that the monopsonistic power of the Blues would not be exercised, even though these plans cover 70–80 percent of the population in some states.

After a long period of rapidly rising health insurance costs, the major organized buyers began to exercise their monopsonistic power in the early 1980s. State Medicaid programs traditionally had used their power to constrain the fees paid to physicians and hospitals, but federal legislation enacted in 1982 allowed states to contract selectively with a limited number of providers. While this limited freedom of choice for the patient, it substantially increased a state's bargaining power. California took advantage of this legislation and apparently has reaped substantial savings (Johns, Derzon, and Anderson 1983; Iglehart 1984). Under pressure from business coalitions, California also gave private insurers the ability to selectively contract with providers (Bergthold 1984). The Medicare program has taken a different approach so far. Because Medicare accounts for about 40 percent of all hospital days, it was able unilaterally to shift from a cost-based reimbursement scheme to prospectively set prices based on patient diagnoses. While the federal budgetary crisis provided the political momentum for passage and participation by hospitals is voluntary, few hospitals have chosen to forgo 40 percent of their patients.

The increase in bargaining power among third-party payers represents an important change in the relationship between the actors in the health care industry. Historically, the physician has been seen as the patient's agent, making treatment recommendations. Now, however, insurance companies and other third-party payers are beginning to act as the agent for the consumer who is looking for health insurance coverage at a reasonable price. By combining the purchasing power of large numbers of consumers, the insurance industry is able to demand the services that consumers acting individually cannot.

The importance of local market structure should be stressed. An insurer or Medicaid program may wish to contract selectively but, if there is only one hospital available, it cannot make a credible threat that it will shift patients elsewhere. A revealing example of the importance of credible threats occurred in the contract negotiations between hospitals and California's Medicaid program. When the first set of contracts was announced, three of the four major Medicaid hospitals in San Francisco were excluded, including the major teaching hospital. Some similar providers in Los Angeles quickly revised their bids downward.

Implications of the Increasing Supply of Physicians

There has been a recent rapid increase in the supply of physicians relative to the population, generating considerable alarm among those subscribing to the various supplier-induced demand theories. According to these theories, increases in physician supply will produce either an increase in fees, an increase in utilization, or both, resulting in a significant overall growth in health care expenditures. These predictions have been criticized by some economists who argue that the physician services market resembles traditional markets in which an increase in supply leads to a decline in price, with the caveat that both time and money prices are important determinants of demand (Wilensky and Rossiter 1983; Gaffney, Cotterill, and Meeker 1981; Mitchell and Cromwell 1981). For example, an increase in the supply of practicing physicians may not cause substantial declines in the fees charged, but it may motivate physicians to locate in rural areas, to extend their office hours to include evenings and weekends and, perhaps, even to consider making house calls, all of which would reduce the time prices faced by patients. The debate over the modus operandi of the physician services market continues, due in large part to the difficulty in specifying and conducting reasonable tests of the competing hypotheses. However, evidence is accumulating which indicates that time prices have been falling recently as a result of increasing physician supply (Wilensky and Rossiter 1983; Newhouse et al. 1982).

Neither of the competing perspectives on the physician services market should be allowed to govern future policy initiatives related to physician supply, unless the policies successfully incorporate the important changes in the structure of demand. Patients increasingly are choosing HMOs, PPOs and insurance plans which limit their choice of physician and hospital. Such intermediaries do not reimburse all providers for services rendered, but use their role as a collective purchasing agent to select providers within the local market, to establish controls over utilization and to reduce payment levels.

The increasing formalization and concentration on the insurer side of local health care markets coincides with an increasing number of physicians, threatening to weaken the organization and collusion of providers. Together, these two processes suggest that fears of accelerating physician fees and utilization may be unfounded, particularly if the payment system is altered to focus more on bottom-line costs. However, in order to explain the actual manner in which increasing physician density leads to lower prices, one must consider the monopsonistic and oligopsonistic power of PPOs, governmental financing programs, and other emerging actors on the demand side. These large purchasers of care threaten to disrupt existing referral patterns, concentrating patients in certain physician practices and hospitals and leaving others underutilized. Rather than a smooth overall decline in physician time and money prices which would keep all practices busy, a system may evolve in which overemployed and underemployed physicians coexist. Furthermore, local shortages and surpluses need to be evaluated. An excess of pediatricians cannot offset a shortage of gerontologists, two CT scanners cannot substitute for a neonatal intensive care unit, and surpluses in the suburbs do not substitute for shortages elsewhere. Since some of these surpluses and shortages reflect patient demand channeled through contracting processes, they can be much more volatile than if they merely reflected population shifts.

The Local Market and Health Insurance Alternatives

The importance of health insurance copayments in influencing demand for health care services can also be reexamined fruitfully from the perspective of the local market structure. The original emphasis on coinsurance and deductibles as a solution to the problem of moral hazard may seem especially inappropriate in this new light, aside from the difficulties caused by the weak price elasticity of demand for inpatient care as distinct from outpatient services (Newhouse et al. 1981). Starr (1977) argues that coinsurance and deductibles *decrease* the cost consciousness of the insurer (whether public or private) to the extent that they *increase* the cost con-

sciousness of the individual patient. This is disastrous for a strategy which relies upon both the monopsonistic and oligopsonistic power of the demand side to counterbalance the market power held by physicians and hospitals on the supply side. Starr advocates the reduction of coinsurance and deductibles to encourage cost loading, in direct opposition to the proposals by Feldstein (1971a) and others to encourage their use as vehicles for cost sharing. Forcing employers and governmental payers to assume the full cost of health care expenditures will motivate them to use their considerable economic and political power to make health care providers act in more appropriate ways, Starr argues.

Enthoven (1978), McClure (1978) and others have proposed a market-oriented strategy to control costs, based on the enrollment of patients in HMOs and other alternative delivery systems with consumer cost consciousness restricted to initial choice of programs rather than to each physician visit, hospital admission, or test ordered, as in Feldstein's proposal. These alternative proposals, while clearly relying on market mechanisms for their success, should be recognized for what they are: attempts to increase concentration on the demand side. They are not based upon the textbook model of atomistic competition, consequently their eventual effects may not be predicted based upon that model. This is not to say that the Enthoven and McClure proposals do not have considerable merit, but they are based upon implicit models of oligopolistic and oligopsonistic behavior.

Although HMOs and PPOs are demanders in their relationships with providers of health care services, they are sellers of health insurance in their relationships with individual subscribers. Increasing concentration on the demand side of the health care market in order to enhance bargaining power vis-a-vis providers implies, therefore, increasing concentration on the supply side of the health insurance market. This concentration will vary depending on the size of the local market and the number of insurance entities seeking to provide coverage. In his original proposal, Enthoven seeks to guarantee competition in the local insurance market through regulations that require the existence of several competing health plans. Presumably, antitrust law could be adapted for these purposes.

As health plans compete for enrollees by lowering premiums, they will find that cost reductions come not only from more efficient provision of care, but also from "skimming" or attracting relatively healthy enrollees and avoiding the sick. This type of adverse (or favorable) selection is difficult to control, particularly if the monitoring must be done by distant regulatory agencies. However, since the risk pool in an area is basically fixed, one solution might be areawide capitation and explicit negotiation among the participating carriers. This may result in a mixed competitive

and/or regulatory model similar to statewide auto insurance with assigned risk pools.

APPLYING THE LOCAL MARKET FRAMEWORK TO EMPIRICAL ANALYSES OF HOSPITALS

The concept that the behavior of individual hospitals should be studied in the context of the local market structure, which was emphasized in the previous theoretical discussion, also has potentially important implications for empirical studies of the health care sector. It is important to include measures of the structure of the demand and supply sides of local markets for hospital services in quantitative studies. These market structure variables may be found to be strongly associated with particular performance characteristics, such as availability of clinical services, inpatient mortality, and economic costs. The influence of national-level developments, such as the Medicare prospective payment system or the growth of PPOs, may also be found to vary according to the peculiarities of the local hospital environment. To indicate what the potential benefits from the introduction of market measures into other research areas may be, this section reviews three areas of research in which the introduction of relatively simple market measures has improved the quality of empirical analyses.

DISTRIBUTION OF SPECIALIZED CLINICAL SERVICES

Clinical services have always enjoyed a prominent position in health services research since it is generally accepted that the intensity of care, as measured by inputs per case, is an important determinant of both the quality and cost of hospital services. Furthermore, the availability of clinical services is used by hospitals as a weapon in the process of non-price competition for physician affiliations and patient admissions.

Early studies of the distribution of clinical services attempted to uncover patterns in the acquisition of particular services by individual hospitals (Berry 1973). Services were divided analytically into categories ranging from basic facilities, such as clinical laboratories which are essential to almost any type of inpatient care, up through highly specialized facilities, such as neonatal intensive care units which are used only by hospitals with very complex diagnostic mixes. The hypothesis underlying these studies was that technological factors govern service acquisitions. Particular services are acquired when they are needed, in the sense that the hospital has the requisite number of patients who could benefit from

the service and the requisite support facilities upon which the specialized service can be built.

Recent work by the authors (Luft et al. 1986; Hughes 1985) acknowledges the importance of technological considerations, but also focuses on the role of clinical services in hospital competition. The probability that an individual hospital will have a particular clinical service is the dependent variable in these studies. The number of other hospitals within a 15-mile radius and the percentage of those neighbors that have the particular service in question are the key independent variables. The underlying notion is that some services are used by hospitals to woo physicians, or that physicians may threaten to shift patients to a neighboring hospital if facilities are not upgraded. In this model of bargaining behavior, 15 miles is chosen as a rough limit on the general willingness of physicians to admit patients to multiple hospitals. Hospital characteristics such as bed size, ownership, and teaching status are included to control for the technological factors identified by Berry and others. Demographic characteristics of the local population are used to control for differences in potential case mix and ability to pay.

Using data on about 3,000 short-term general hospitals and 29 specialized clinical services in 1972 and about 5,800 short-term general hospitals and 47 specialized clinical services in 1982, the authors find in almost every case that service availability is strongly influenced by the structure of the supply side of the local hospital market. Both "medical arms race" and "complementary behavior patterns" are observed; that is, depending on the particular service in question, hospitals either are more likely to acquire the service when they have a large number of neighbors (an arms race response) or are less likely to offer the service as the number of neighboring hospitals increases (a complementary response). Arms race patterns clearly dominated complementary patterns in 1972. A more balanced picture emerges in 1982, partly due to consideration of a broader array of services. Complementary behavior patterns tend to dominate for basic services, such as emergency rooms and maternity care, while arms race patterns dominate for more specialized services, such as coronary bypass surgery.

As in the past, data have not been available to control for the structure of the demand side of the local hospital care market, except through crude measures, such as the physician-population ratio and population density. In the future, however, it may be possible to include measures of the dispersion or concentration of buyers in the form of the percentage of area residents enrolled in particular HMOs and PPOs, the percentage of area physicians participating in those organizations, and the extent of selective contracting.

THE RELATIONSHIP BETWEEN HOSPITAL VOLUME AND CLINICAL OUTCOMES

Outcomes of clinical treatment in hospitals have been found to be better in hospitals with higher patient volumes, using data from a number of different years, hospitals, and diagnoses (Luft, Bunker, and Enthoven 1979; Shortell and LoGerfo 1981; Wolfe et al. 1983; Riley and Lubitz 1984; Farber, Kaiser, and Wenzel 1981; Luft 1980; Flood, Scott, and Ewy 1984a, b, c). These findings are consistent with learning curve hypotheses, according to which the quality of performance improves with practice. If this learning curve theory is correct, it implies that substantial reductions in mortality may be achieved by closing low-volume services and concentrating patients in high-volume, good-outcome facilities (Maerki, Luft, and Hunt 1986). This process of regionalization could result either from the health planning process, as has already occurred in the specialized treatment of newborns, or from a market-oriented process that takes quality of care, as well as price, into account in deciding which hospitals should be chosen as contractors. To the extent that such a concentration of patients in a limited number of facilities reduces average costs per case due to the presence of substantial fixed costs in the purchase and operation of services, society would find itself in the rare situation of "having its cake and eating it too"—better clinical outcomes at lower economic cost.

Before rushing into regionalization efforts based on this line of logic, however, it is essential to recognize that the direction of causality may run from outcome to volume as well as from volume to outcome and that the policy implications may be quite different. As argued by the authors and others (Luft 1980; Dranove 1984; Luft, Hunt, and Maerki 1985), hospitals which have consistently better than average clinical outcomes may attract greater numbers of patients than hospitals with worse than average outcomes. This could occur as word of the differences spreads among referring physicians in the community, or as physicians shift referrals away from hospitals and consultants with poor outcomes. The fact that physicians are notoriously reluctant to document each other's faults in front of outside groups (as in malpractice cases) does not necessarily imply that they do not take quality considerations into account in their dealings with each other. Obviously, selective referral patterns will be influenced by the availability of alternative sources of treatment within the relevant markets.

In ongoing research using patient abstract data from the Commission on Professional and Hospital Activities, the authors have modeled patient volume by diagnosis and procedure as an endogenous variable, itself influenced by the structure of the hospital market, and also as a

determinant of inpatient mortality. Market structure is measured both in terms of the number of neighboring hospitals and, indirectly, through the diagnosis-specific mortality rate of the hospital being analyzed. That is, one hospital's mortality rate can be expected either to attract or to repel patients only insofar as it is better, or worse, than the mortality rates of similar nearby hospitals. Using a simultaneous equation methodology, patient volume is often found to be influenced by both the number of neighboring hospitals and the hospital's own mortality rate. These results are consistent with the view that both "selective referral" and "practice makes perfect" effects are important in the hospital care market.

These findings have several implications for regionalization policies. First, the choice of hospital to be used as the regional treatment center cannot be made arbitrarily, since high volume is not a sufficient condition for good outcomes. Some method of judiciously selecting hospitals as referral centers will be necessary. Second, the referral and practice effects vary markedly across diagnoses, so it may not be possible to identify a "best all around" hospital or selection process. Third, the choice of hospitals and strategies is likely to depend on the local hospital environment. Competitive bidding on the basis of price *and* quality may be appropriate when many potential providers are available, but a different process may be necessary if only a few viable providers are present.

THE COST OF HOSPITAL CARE

Hospital costs have consistently been a major focus for health care economists. While changes over time are of primary interest because the rate of hospital cost inflation has been double the general rate of inflation for the economy as a whole, there is considerable variation in average costs among hospitals at any point in time. Relatively few empirical studies have emphasized local market structure as a determinant of hospital costs, a surprising fact given the heavy emphasis placed on market structure in general economic theories of firm behavior and in empirical studies of other industries. Crude concentration measures that use a county or SMSA as the relevant market area have been included as control variables in a number of studies, but generally they have not been the focus of much attention (Sloan and Elnicki 1978a, b; Russell 1979; Wilson and Jadow 1982). Measures of market structure based on a county or metropolitan area may have given poor results partly because geopolitical boundaries are poor approximations of economic markets. Some studies of specific areas have used patient-origin studies to define hospital markets (Griffith 1972; Griffith et al. 1981; Morrill, Earickson, and Rees 1970; Studnicki 1975) but these measures are difficult to derive across the nation

and implicitly assume that hospitals compete directly for patients rather than for physicians.

Recent studies by the authors (Robinson and Luft 1985, 1986) focus on market structure as a prime determinant of average costs per admission and per patient-day. Two possible effects of market structure are distinguished, corresponding to the use of price and nonprice forms of competition. In oligopolistic markets, firms may choose between price and nonprice competition. To the extent that nonprice competition is important and the manner of production is a visible and important feature influencing consumers' choices, firms in more competitive markets may choose high-cost modes of production. In the hospital care market, the important competitive role played by clinical services in attracting physicians may lead to increased costs, particularly if insurance reduces consumer price sensitivity.

Using data on the universe of short-term general hospitals, the authors find that the cost-increasing effect of competition strongly dominates the cost-decreasing effects. Hospitals in markets with more neighboring hospitals exhibit significantly higher average costs per admission and per patient-day than do hospitals in monopolistic market structures, controlling for a large number of variables describing hospital characteristics, input costs, patient case mix, and regulatory programs. The analysis of competition and costs is being continued through the use of more precise hospital-specific measures of wage rates. It is postulated that these rates are influenced by the structure of the local hospital labor market, because nurse wages may be depressed by the monopsony power of hospitals as purchasers of labor in areas with few hospitals (Yett 1970). The effects of regulatory initiatives on hospital costs may also depend on the structure of the local market, if health planners find it easier to enforce complementary behavior in oligopolistic areas. Similarly, stringent rate regulation may have a greater impact in areas with many competing hospitals, because the costs of a medical arms race are passed on less easily to third parties.

APPLYING THE LOCAL MARKET FRAMEWORK TO CURRENT DEVELOPMENTS

The medical care system in the United States is in the process of undergoing major changes that, while often discussed in the context of national policy, will have important impacts at the local market level. On the supply side, the number of physicians and outpatient settings is expanding markedly and excess bed capacity in hospitals is increasing. This

excess capacity is particularly evident in major urban areas where patients are most able to take advantage of their increased market power vis-a-vis a potentially competitive hospital market. The rules of market behavior are also changing as a result of the change in market structure and the relationship between suppliers, demanders, and intermediaries.

In the 1960s and early 1970s, it was feared that there would be too few physicians in the nation. As a result, public policy each year supported the expansion of medical schools and the number of graduates approximately doubled. However, recent estimates from the Graduate Medical Educational National Advisory Commission indicate that a surplus of physicians currently exists in some specialties and that the surplus will grow during the foreseeable future (Ginzberg 1982). While there are often problems with projections of supply and demand (Harris 1985), there seems to be little controversy over the notion that the relative balance has changed in the last decade. In addition to the growing supply of physicians, hospital use rates have been falling, resulting in nationwide declines in occupancy levels and substantial excess bed capacity in certain areas. New types of providers have also developed recently. These include ambulatory surgical centers, which compete with hospital operating rooms for a wide variety of simple but profitable procedures, and urgent care centers, which compete with both independent physicians and hospital emergency rooms for the treatment of minor trauma and urgent illnesses (Ermann and Gabel 1985). The resulting excess hospital and physician capacity is likely to lead to aggressive new types of competitive behavior.

Much of the discussion of the role of competition and regulation in the medical care system has focused on public utility type regulation of the rate-setting variety. It is recognized less frequently that there have also been important restrictions on acceptable behavior by market entities. For example, many states still forbid health insurers to develop contracts with a limited number of providers which restricts enrollee freedom of choice (Gabel and Ermann 1985; Trauner 1985), although more states remove this restriction every year. These Blue Shield laws make it impossible to establish preferred provider organizations or other types of arrangements in which insurers negotiate lower prices and utilization controls with some providers in exchange for an increased market share. Such contracts are commonplace in other markets.

Until 1977, advertising by physicians was effectively prohibited by ethical guidelines promulgated by the medical associations. A U.S. Supreme Court ruling struck down such restrictions, so it is now possible for providers to advertise directly for patients (Hirsh 1983). Since many urgent care centers are in direct competition with physicians, it would

be impossible for them to survive by relying solely on traditional methods of physician referral. Similarly, it would be impossible for hospitals to develop outpatient programs and facilities which might be in competition with their own medical staffs without the ability to advertise.

In addition to the removal of certain regulatory constraints on behavior, there has been a change in the expectations of actors on the demand side of the hospital services market. Large employers, in particular, no longer seem willing merely to pay for whatever medical care their employees use under their health insurance plans. Instead, there has been a major shift toward benefit redesign to reinstitute deductibles and coinsurance, to require inpatient utilization review and preadmission certification, and to create incentives for patients to use less expensive forms of treatment, such as outpatient surgery (Hewitt Associates 1984; Equitable Life Assurance Society 1985). Some employers are also taking active steps to educate their employees to be more prudent purchasers of medical care (Hughes Stone, Trauner, and Luft 1985). Other employers are negotiating special contracts with selected hospitals and physician groups. (A self-insured employer often can escape the freedom-of-choice provisions imposed upon insurers.)

The change in expectations about acceptable behavior has extended to providers. Hospitals, in particular, have developed marketing departments and are concerned about product differentiation, market share, and long-term strategy in a manner similar to firms in many oligopolistic industries. Physicians who previously were disdainful of HMOs and similar organizations are now joining and developing their own HMOs and PPOs, not because they particularly like the concept but because they are afraid of losing patients. With these changes occurring nationally, it is instructive to explore how local market factors will influence the effects of these changes.

SELECTIVE CONTRACTING

Hospitals are entering into selective contracts with HMOs, PPOs, individual employers, and third-party payers, such as insurers and state Medicaid programs. These contracts take on a wide variety of forms and may be for either the full range of services or only selected services and types of patients. As in most contractual situations, each party gives up something and gains something relative to the noncontracting situation. In hospital contracts, the hospital often quotes a lower price, offers a rate guarantee for a longer period than would otherwise be the case, or provides a fixed per diem rate that includes all ancillary services (Trauner 1985). In exchange, the buyer typically offers an increased market share

to that hospital by creating incentives for its enrollees to use that hospital instead of competing hospitals.

If there are no other local hospitals, there is no reason for a hospital to offer any concessions. While hospitals in monopoly markets may join PPOs, it is not likely that they will give up very much to do so. In areas where many hospitals are in proximity, a hospital may offer substantial discounts in order to increase its market share. For example, one insurer found that it could negotiate a discount as long as it guaranteed that no other hospitals within a five-mile radius were included in the PPO (Schlarb 1984). Contracts will be for specific services in some instances, such as the Kaiser-Permanente Health Plan HMO in Northern California contracts for cardiovascular surgery with Stanford University Hospital and Seton Medical Center. In other instances, tertiary care hospitals are included in PPOs, but the internal referral and utilization review systems are designed so as to avoid sending patients there if they can be treated less expensively in community hospitals.

The development of PPOs and other selective contracting arrangements with hospitals implies an important shift in the competitive behavior of hospitals. In the past, hospitals competed for patients by attracting physicians, often by offering new equipment and facilities. There is evidence that the ensuing medical arms race resulted in substantial excess capacity. Selective contracts mean that hospitals can now acquire patients by offering good prices to their intermediaries. This substantially reduces physician bargaining power, particularly in the light of the increasing supply of specialists. It should be remembered, however, that as contracts become more specific, focusing on special services such as mental health and cardiac surgery, the local market structure becomes more important.

It seems that most contracts developed so far have taken quality into account only in the most general way. Careful local observers usually can identify hospitals with good and poor reputations; data-reporting requirements in some states provide explicit information about hospital outcomes. Some insurers approach only those hospitals with good reputations when initiating discussions about price, thus excluding institutions about which there are some quality concerns. The primary payer for neonatal care and pediatric cardiac surgery in California, the state's crippled children's program, has developed specific quality criteria for acceptance into its reimbursement system. In the future, payers may evaluate hospital performance with respect to specific procedures and diagnoses and develop very selective contracts. PPOs might then be marketed on the basis of including only those hospitals whose mortality rates are substantially below average. One requirement for any PPO to be suc-

cessful, however, is that full coverage of all services be assured within a reasonably small geographic area.

It is useful to identify two types of contractual discounts common in the hospital market. The classic market model type that includes individually negotiated discounts in exchange for preferred treatment is relatively new in the hospital field. Much more common is the collective fixed price or discount, in which Blue Cross negotiates a discount with the local hospital association, the state Medicaid program sets its allowable per diem, or Medicare fixes its payment through the new prospective payment system. The latter type of discount is generally not designed to reward a hospital with an increased market share, except that it is effectively excluded from a major portion of the market if it does *not* participate. Not surprisingly, few hospitals refuse to participate in these programs. This type of contract is a good example of a very large buyer exerting its monopsony power.

When examining the impact of contracts, various models of strategic behavior may be appropriate. The ability of hospitals to offer substantial discounts will depend, in part, on their ability to raise the prices charged to some patients. Much of the concern about uncompensated hospital costs and inner-city hospitals arises from the fact that they have few privately insured patients whose prices can be raised in order to offset the mandated discounts associated with Medicare and Medicaid patients. In the past, the issue of bad debt and charity care was much less visible because cross subsidization was possible. The current problems are exacerbated by the fact that hospital markets are quite local, so that charity care costs are not spread over all patients in a state. For example, public hospitals may take care of the vast majority of poor patients and the ensuing large bad debt, when averaged over a small base of middle-class patients, results in noncompetitive charges. This suggests that facilitation of the ability of inner-city hospitals to compete for insured patients will require some separate form of financing for those without coverage. This could be done through various mechanisms, but some consideration should be given to local market structure. For example, a tax on hospitals to finance a pool to cover the costs of uncompensated care has been established by New York State, which spreads the burden among all hospitals in the state. However, it will make nearby Connecticut hospitals more attractive to people and health plans in Westchester County, N.Y., than suburban New York hospitals just across the state line.

The market framework can be applied fruitfully to explaining the short-term success of selective contracting by California's Medicaid program. Because of an extreme state budgetary crisis, extraordinary provisions were incorporated into the law which bypassed all the

usual governmental procurement, bidding, freedom of information, and appeal mechanisms (Iglehart 1984; Johns, Derzon, and Anderson 1983). The governor's special negotiator used these extraordinary provisions so as to maximize his monopsony power in negotiating with hospitals on a one-by-one basis. While the California situation is often described as a competitive approach, it might be better described as one in which the state chose to use its full power as a discriminating monopsonist to reduce its Medicaid costs. One of the important policy questions to arise from this experience is whether it can be tried in states without the low occupancy rates and local hospital concentration present in California. A second question is whether it can be repeated, now that hospitals have a better understanding of how the game can be played. It may be significant that California has not chosen to renegotiate its Medicaid contracts since they were first implemented in 1983.

Concentration on the buyer side may have both advantages and disadvantages. In many eastern and central states, Blue Cross is by far the dominant insurer. It has been able to exact across-the-board discounts from hospitals, but further pressure may threaten the industry's survival. In some western states, no one insurer has a very large market share and some have used this as an argument that their additional patients should only be charged marginal costs, while others can pay average costs.

CHANGES IN LOCAL HOSPITAL BEHAVIOR

In this new financing environment in which hospital administrators are facing either externally set prices, such as those imposed by Medicare and some Medicaid programs, or contractually negotiated prices, cost containment becomes a much more important issue. If services are underutilized, administrators will attempt to reduce duplication of facilities among competing hospitals.

It is important to distinguish between a decision not to offer a new service and a decision to close down an existing one. In the former situation, clinicians approach hospitals requesting new facilities, such as magnetic resonance imaging, but the stage has already been set by widespread discussions of the new cost-containment environment. Hospital administrators can use this in resisting requests and in attempting to develop new financing arrangements. This can lead to joint ventures between hospitals and selected physicians, so that capital is raised by both parties (Kessenick 1985). Furthermore, the physicians may be financially tied to the new enterprise, in which case they will not be able to threaten to leave for a neighboring hospital in a year or two if the most recent equipment upgrade is not purchased. Another type of arrangement is

the joint venture by several competing hospitals to purchase new equipment or even to build a new hospital which might feed referrals to each partner. Hospitals are implicitly agreeing to divide the market up among themselves in such an arrangement, rather than to continue in head-to-head competition.

The merger of neighboring hospitals is another aspect of this phenomenon. In contrast to the large multi-institutional chains which seek to achieve economies in raising capital, bulk purchasing of supplies and centralized management, these mergers often involve just two or three hospitals in an area and seem oriented toward service consolidation (Mills-Peninsula Corporation 1985). Rather than have two obstetrics units, two CT scanners, and two hemodialysis units in hospitals ten minutes from each other with largely overlapping medical staffs, the merger allows the new institution to consolidate services without having to worry as much about physician threats to take their patients elsewhere.

We may see much more such consolidation in the future. Even though there may not be much reduction in overall bed capacity, there is likely to be a substantial reduction in specialized services and facilities at individual units. Such mergers are likely to take place among neighboring institutions that can combine medical staffs, rather than between geographically distant hospitals. This kind of hospital consolidation indicates a substantial shift in power from medical staffs to hospital administrators as the former find it more difficult to threaten to take their patients away. It is likely to make local hospital markets even more monopolistic or oligopolistic and it is not yet clear whether the government or private parties will bring suit against such mergers on antitrust grounds.

SUMMARY AND CONCLUSION

This article has sketched some ways in which economic theories of the local market can be applied to theoretical, empirical and policy issues in hospital care. It is hoped that this effort will encourage a broader interest in and understanding of local market behavior on the part of researchers involved with the many dimensions of hospital performance. In concluding, it seems appropriate to emphasize what appear to be some fruitful possible directions for new research and policy development.

A great need exists for a better theoretical grasp of how the structure of the local market influences the behavior of individual hospitals in those markets and for improved measures of market structures for empirical studies. This is particularly urgent for the demand side of the market. General economic theory provides a useful body of insights concerning

the relationship between market structure and market behavior on the supply side, and empirical measures of the number and characteristics of competing hospitals are not too difficult to develop. The situation is much less satisfactory on the demand side, where the different forms of organized buying power are not well understood and where it is very difficult to measure the presence and strength of organized buyers, such as HMOs, PPOs and governmental programs which utilize selective contracting. Better models of bilateral monopoly and bargaining situations are needed which can describe behavior in local hospital markets where a limited number of provider institutions confront a limited number of health insurers, and ways are needed through which to translate the insights from these models into empirical studies. It is important to remember, however, that the number of marketplaces is quite limited. There are only 50 states, each with a distinct Medicaid program, regulatory history, and institutional structure. Some states do not have any market with a lot of hospitals, while others have a single dominant insurer. Thus, empirical studies of local markets must include consideration of idiosyncratic factors.

One area of research, which may yield especially interesting insights when analyzed through the market framework, concerns the important variations in hospital utilization across small geographic areas that have been analyzed by Wennberg and others (Wennberg and Gittelsohn 1980; McPherson et al. 1982; McCracken, Latessa, and Wennberg 1982; Connell, Blide, and Hanken 1984; Roos and Roos 1981; Barnes et al. 1985). Studies to date have emphasized the existence of such variation and its predominance for those diagnoses in which indications for hospitalization are not straightforward. Furthermore, no correlation was found between this variation and existing measures of either supply of local health care providers or demand characteristics of the local patient population. While the patterns of variability have been replicated across many hospital diagnoses and procedures, few of these studies have been able to include large numbers of market areas. Better theoretical models of patient behavior and better empirical measures of market structure may make it possible to discover patterns in what currently appears to be largely random variation in practice styles.

On the policy side, the most pressing need is to move beyond the sterile debate of competition versus regulation and to recognize that any coherent public policy will contain both some regulatory features and some reliance on market forces. The effect of regulatory programs such as rate regulation and certificate of need will probably depend on the structure of the local hospital market, since this influences the incentives facing patients, physicians and hospital administrators. Many governmental programs, such as Medicare's prospective payment system or the

California Medicaid selective contracting system, can fruitfully be interpreted as exploitation of latent monopsony power. The success of these programs in reducing public expenditures will also depend on the structure of local markets and, in particular, on the ability of private insurers to use their market power to prevent price discrimination (cost and charge shifting). Experiences from other nations may be understood better when they are conceptualized as alternative ways of organizing market power. The relative success enjoyed by the Canadian national health insurance system in controlling costs is due largely to its use of monopsonistic buying power (Barer and Evans 1986; Vayda and Deber 1984). The explicit bargaining process between the responsible governmental bodies in Canada and the Canadian provider groups may prove to be a prototype of the relationships which will develop in the United States.

Policy interest in market-oriented strategies has been stimulated by the high rate of hospital cost inflation and by more general changes in the political and ideological environment, but it does not rest upon a great deal of supporting theoretical and empirical studies of how health care markets actually perform. It is essential that health services research incorporate local market structure into its theoretical models and empirical studies in order to allow a balanced evaluation of such strategies. Failure to do so may result in a costly pendulum swing from an earlier neglect of market forces in policy design to a blind faith in a simple version of those forces without recognizing their differential effects across markets.

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REFERENCES

- Acton, J. P. (1976). "Demand for Health Care among the Urban Poor, with Special Emphasis on the Role of Time." In *The Role of Health Insurance in the Health Services Sector*, ed. R. N. Rosett, 165-208. New York: National Bureau of Economic Research.
- Arrow, K. J. (1963). "Uncertainty and the Welfare Economics of Medical Care," *American Economic Review* 53 (December): 941-73.
- Barer, M. L., and Evans, R. G. (1986). "Riding North on a South-Bound Horse? Expenditures, Prices, Utilization, and Incomes in the Canadian Health Care

- System." In *Medicare at Maturity*, eds. G. Stoddard and R. G. Evans. Calgary: University of Calgary Press.
- Barnes, B. A.; O'Brien, E.; Comstock, C.; D'Arpa, D. G.; and Donahue, C. L. (1985). "Report on Variation in Rates of Utilization of Surgical Services in the Commonwealth of Massachusetts," *J. of the American Medical Association* 254 (July 19): 371-75.
- Baumol, W. (1982). "Contestable Markets: An Uprising in the Theory of Industry Structure," *American Economic Review* 72 (March):1-15.
- Baumol, W.; Panzar, J.; and Willig, R. (1982). *Contestable Markets and the Theory of Industry Structure*. New York: Harcourt Brace Jovanovich.
- Bergthold, L. (1984). "Crabs in a Bucket: The Politics of Health Care Reform in California," *J. of Health Politics, Policy and Law* 9 (Summer): 203-22.
- Berry, R. E., Jr. (1973). "On Grouping Hospitals for Economic Analysis," *Inquiry* 10 (December): 5-12.
- Connell, F. A.; Blide, L. A.; and Hanken, M. A. (1984). "Clinical Correlates of Small Area Variations in Population-Based Admission Rates for Diabetes," *Medical Care* 22 (October): 939-49.
- Dranove, D. (1984). "A Comment on 'Does Practice Make Perfect?'" *Medical Care* 22 (October): 967.
- Enthoven, A. C. (1978). "Consumer-Choice Health Plan," *New England J. of Medicine* 298 (March 23): 650-58; 298 (March 30): 709-20.
- Equitable Life Assurance Society (1985). *The Equitable Healthcare Survey III: Corporate Initiatives and Employee Attitudes on Cost Containment*. New York: The Society.
- Ermann, D., and Gabel, J. (1985). "The Changing Face of American Health Care: Multihospital Systems, Emergency Centers, and Surgery Centers," *Medical Care* 23 (May): 401-20.
- Farber, B. F.; Kaiser, D. L.; and Wenzel, R. P. (1981). "Relation between Surgical Volume and Incidence of Postoperative Wound Infection," *New England J. of Medicine* 305 (July 23): 200-204.
- Feldstein, M. S. (1971a). "A New Approach to National Health Insurance," *Public Interest* 23 (Spring): 93-105.
- _____. (1971b). "Hospital Cost Inflation: A Study of Nonprofit Price Dynamics," *American Economic Review* 61 (December): 853-72.
- _____. (1977). "Quality Change and the Demand for Hospital Care," *Econometrica* 45 (October): 1681-1702.
- Flood, A. B.; Scott, W. R.; and Ewy, W. (1984a). "Does Practice Make Perfect? Part I: The Relation between Hospital Volume and Outcomes for Selected Diagnostic Categories," *Medical Care* 22 (February): 98-114.
- _____. (1984b). "Does Practice Make Perfect? Part II: The Relation between Hospital Volume and Outcomes and Other Hospital Characteristics," *Medical Care* 22 (February): 115-25.
- _____. (1984c). Letter in reply to: Dranove, D., "A Comment on 'Does Practice Make Perfect?'" *Medical Care* 22 (October): 967-69.
- Freidson, E. (1975). *Doctoring Together*. Chicago: University of Chicago Press.

- Gabel, J., and Ermann, D. (1985). "Preferred Provider Organizations: Performance, Problems and Promise," *Health Affairs* 4 (Spring): 24-40.
- Gaffney, J. C.; Cotterill, P. G.; and Meeker, E. F. (1981). "Competitive Forces in the Market for Physicians' Services: A Survey of Current Research." In *Profile of Medical Practice, 1981*, ed. D. L. Goldfarb, 3-26. Chicago: American Medical Association.
- Ginzberg, E. (1982). "The Future Supply of Physicians: From Pluralism to Policy," *Health Affairs* 1 (Fall): 6-19.
- Greenfield, S.; Linn, L. S.; Purtill, N.; and Young, R. T. (1983). "Reverse Consultations: The Profiles of Patients Referred from Subspecialists to Generalists," *J. of Chronic Diseases* 36 (No. 12): 883-89.
- Griffith, J. R. (1972). *Quantitative Techniques for Hospital Planning and Control*. Lexington, Mass.: Lexington Books.
- Griffith, J. R.; Restuccia, J. D.; Tedeschi, P. J.; Wilson, P. A.; and Zuckerman, H. S. (1981). "Measuring Community Hospital Services in Michigan," *Health Services Research* 16 (Summer): 135-60.
- Grossman, M. (1972). *The Demand for Health: A Theoretical and Empirical Investigation*. Occasional Paper No. 119. New York: National Bureau of Economic Research.
- Harris, J. E. (1977). "The Internal Organization of Hospitals: Some Economic Implications," *Bell J. of Economics* 8 (Autumn): 467-82.
- _____. (1985). "Projecting Physician Manpower Needs: The Underlying Normative Issues." Paper presented at Vanderbilt University Health Policy Symposium, Providing and Paying for Medical Education: Past, Present, and Future, May 2-4, Nashville, Tenn.
- Health Insurance Association of America (1985). *Source Book of Health Insurance Data, 1984-1985*. Washington, D.C.: The Association.
- Hershey, J. C.; Luft, H. S.; and Gianaris, J. M. (1975). "Making Sense Out of Utilization Data," *Medical Care* 13 (October): 838-54.
- Hewitt Associates (1984). *Company Practices in Health Care Cost Management*. Lincolnshire, Ill.: Hewitt Associates.
- Hirsh, B. D. (1983). "Antitrust and Medical Ethics," *J. of the American Medical Association* 250 (November 25): 2759-60.
- Hughes, R. G. (1985). "Is There an 'Arms Race' among Competing Hospitals?" San Francisco: Institute for Health Policy Studies, School of Medicine, University of California. Unpublished paper.
- Hughes Stone, M.; Trauner, J. B.; Luft, H. S.; et al. (1985). "Efforts to Promote Prudent Purchase of Health Services: Current Corporate Programs in the Workplace." Draft Final Report under Contract No. 282-83-0070, Task Order No. 2. Washington, D.C.: Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services.
- Iglehart, J. K. (1984). "Cutting Costs of Health Care for the Poor in California: A Two-Year Follow-Up." *New England J. of Medicine* 311 (September 13): 745-78.
- Johns, L.; Derzon, R. A.; and Anderson, M. (1983). "Selective Contracting for Health Services in California: First Report." Washington D.C.: Health Policy Studies, Center for Policy Research, National Governors' Association.

- Kessenick, L. W. (1985). "Economic Cooperation between Hospitals and Physicians," *Legal Bulletin* (Hospital Council of Northern California), July 11.
- Lawrence, P. R., and Lorsch, J. W. (1967). "Organization and Environment: Managing Differentiation and Integration." Cambridge: Graduate School of Business Administration, Harvard University.
- Lee, M. L. (1971). "A Conspicuous Production Theory of Hospital Behavior," *Southern Economic J.* 38 (July): 48-58.
- Luft, H. S. (1980). "The Relation between Surgical Volume and Mortality: An Exploration of Causal Factors and Alternative Models," *Medical Care* 18 (September): 940-59.
- Luft, H. S., and Maerki, S. C. (1984-85). "The Competitive Potential of Hospitals and Their Neighbors," *Contemporary Policy Issues* 3 (Winter): 89-102.
- Luft, H. S.; Bunker, J. P.; and Enthoven, A. C. (1979). "Should Operations Be Regionalized? The Empirical Relation between Surgical Volume and Mortality," *New England J. of Medicine* 301 (December 20): 1364-69.
- Luft, H. S.; Hunt, S. S.; and Maerki, S. C. (1985). "The Volume-Outcome Relationship: Practice Makes Perfect or Selective Referral Patterns?" San Francisco: Institute for Health Policy Studies, School of Medicine, University of California. Unpublished paper.
- Luft, H. S.; Robinson, J. C.; Garnick, D. W.; Maerki, S. C.; and McPhee, S. J. (1986). "The Role of Specialized Clinical Services in Competition among Hospitals," *Inquiry* 23 (Spring): 83-94.
- Luke, R. D., and Thomson, M. A. (1980). "Group Practice Affiliation and Interphysician Consulting Patterns within a Community General Hospital," *J. of Health and Social Behavior* 21: (December): 334-44.
- McClure, W. (1978). "On Broadening the Definition of and Removing Regulatory Barriers to a Competitive Health Care System," *J. of Health Politics, Policy and Law* 3 (Fall): 303-27.
- McCracken, S.; Latessa, P.; and Wennberg, J. E. (1982). *A Study of Hospital Utilization in Iowa in 1980*. Des Moines: Servi-Share of Iowa.
- McPherson, K.; Wennberg, J. E.; Hovind, O. B.; and Clifford, P. (1982). "Small-Area Variations in the Use of Common Surgical Procedures: An International Comparison of New England, England, and Norway," *New England J. of Medicine* 307 (November 18): 1310-14.
- Maerki, S. C.; Luft, H. S.; and Hunt, S. S. (1986). "Selecting Categories of Patients for Regionalization: Implications of the Relationship between Volume and Outcome," *Medical Care* 24 (February): 148-58.
- Mills-Peninsula Corporation (1985). San Mateo, Calif.
- Mitchell, J. B., and Cromwell, J. (1981). *Physician-Induced Demand for Surgical Operations—Final Report*. Health Care Financing Grants and Contracts Report, HCFA Publication No. 03086. Washington, D.C.: Health Care Financing Administration, March.
- Morrill, R. L.; Earickson, R. J.; and Rees, P. (1970). "Factors Influencing Distances Traveled to Hospitals," *Economic Geography* 46 (No. 2): 161-72.
- Moscovice, I. S.; Schwartz, C. W.; and Shortell, S. M. (1979). "Referral Patterns

- of Family Physicians in an Underserved Rural Area," *J. of Family Practice* 9 (November): 677-82.
- Newhouse, J. P. (1970). "Toward a Theory of Nonprofit Institutions: An Economic Model of a Hospital," *American Economic Review* 60 (March): 64-74.
- Newhouse, J. P.; Manning, W. G.; Morris, C. N.; Orr, L. N.; Duan, N.; Keeler, E. B.; Leibowitz, A.; Marquis, K. H.; Marquis, M. S.; Phelps, C. E.; and Brook, R. H. (1981). "Some Interim Results from a Controlled Trial of Cost Sharing in Health Insurance," *New England J. of Medicine* 305 (December 17): 1501-7.
- Newhouse, J. P.; Phelps, C. E.; and Schwartz, W. B. (1974). "Policy Options and the Impact of National Health Insurance," *New England J. of Medicine* 290 (June 13): 1345-59.
- Newhouse, J. P.; Williams, A. P.; Bennett, B. W.; and Schwartz, W. B. (1982). "Where Have All the Doctors Gone?" *J. of the American Medical Association* 247 (May 7): 2392-96.
- Pauly, M. V. (1968). "The Economics of Moral Hazard," *American Economic Review* 68 (June, Part I): 531-37.
- Pauly, M. V., and Redisch, M. A. (1973). "The Not-for-Profit Hospital as a Physicians' Cooperative," *American Economic Review* 63 (March): 87-99.
- Phelps, C. E., and Newhouse, J. P. (1974). "Coinsurance, the Price of Time, and the Demand for Medical Services," *Review of Economics and Statistics* 56 (August): 334-42.
- Riley, G., and Lubitz, J. (1984). "Outcomes of Surgery in the Medicare Population: The Relation of Surgical Volume and Other Factors to Mortality." Working Paper Series No. 84-6. Baltimore: Office of Research, Demonstrations, and Statistics, Health Care Financing Administration, August.
- Robinson, J. C., and Luft, H. S. (1985). "The Impact of Hospital Market Structure on Patient Volume, Length of Stay, and the Cost of Care," *J. of Health Economics* 4 (December): 333-56.
- _____. (1986). "Competition and the Cost of Hospital Care, 1972-1982." San Francisco: Institute for Health Policy Studies, School of Medicine, University of California. Unpublished paper.
- Roos, N. P., and Roos, L. L. (1981). "High and Low Surgical Rates: Risk Factors for Area Residents," *American J. of Public Health* 71 (June): 591-600.
- Russell, L. B. (1979). *Technology in Hospitals: Medical Advances and Their Diffusion*. Washington, D.C.: Brookings Institution.
- Schlarb, T. (1984). Personal communication, Prudential Insurance Company of America, May 3.
- Shortell, S. M., and LoGerfo, J. P. (1981). "Hospital Medical Staff Organization and Quality of Care: Results for Myocardial Infarction and Appendectomy," *Medical Care* 19 (October): 1041-53.
- Sloan, F. A., and Elnicki, R. (1978a). "Professional Nurse Staffing in Hospitals." In *Equalizing Access to Nursing Services*, ed. F. A. Sloan. Washington D.C.: U.S. Department of Health, Education, and Welfare.
- _____. (1978b). "Professional Nurse Wage Setting in Hospitals." In *Equalizing*

- Access to Nursing Services*, ed. F. A. Sloan. Washington, D.C.: U.S. Department of Health, Education, and Welfare.
- Starr, P. (1977). "Controlling Medical Costs through Countervailing Power," *Working Papers* 5 (Summer): 10-11, 97-98.
- Studnicki, J. (1975). "The Geographic Fallacy: Hospital Planning and Spatial Behavior," *Hospital Administration* 20 (Summer): 10-21.
- Thompson, J. O. (1967). *Organizations in Action*. New York: McGraw-Hill.
- Trauner, J. B. (1983). "Preferred Provider Organizations: The California Experiment." San Francisco: Institute for Health Policy Studies, School of Medicine, University of California, August.
- _____. (1985). "The California Health Care Market—Where Is It Headed Next?" *Frontiers of Health Services Management* 1 (May): 4-30.
- Vayda, E., and Deber, R. B. (1984). "The Canadian Health Care System: An Overview," *Social Science & Medicine* 18 (No. 3): 191-97.
- Wennberg, J. E., and Gittelsohn, A. (1980). *A Small Area Approach to the Analysis of Health System Performance*. DHHS Publication No. (HRA) 80-14012. Washington D.C.: Government Printing Office.
- Wennberg, J. E.; Bunker, J. P.; and Barnes, B. (1980). "The Need for Assessing the Outcome of Common Clinical Practices." In *Annual Review of Public Health*, Vol. 1, eds. L. Breslow, J. E. Fielding, and L. B. Lave, 277-95. Palo Alto: Annual Reviews Inc.
- Wilensky, G. R., and Rossiter, L. F. (1983). "The Relative Importance of Physician-Induced Demand on the Demand for Medical Care," *Health and Society: Milbank Memorial Fund Quarterly* 61 (Spring): 252-77.
- Wilson, G. W., and Jadow, J. M. (1982). "Competition, Profit, Technical Incentives and Efficiency in the Provision of Nuclear Medicine Services," *Bell J. of Economics* 13 (Autumn): 472-82.
- Wolfe, R. A.; Roi, L. D.; Flora, J. D.; Feller, I.; and Cornell, R. G. (1983). "Mortality Differences and Speed of Wound Closure among Specialized Burn Care Facilities," *J. of the American Medical Association* 250 (August 12): 763-66.
- Yett, D. E. (1970). "Causes and Consequences of Salary Differentials in Nursing," *Inquiry* 7 (March): 78-99.