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Introduction

David M. Cutler

Most industries in the United States comprise either for-profit firms, not-for-profit firms, or government enterprises. For-profits predominate in manufacturing, for example, while higher education is almost entirely not-for-profit (at least for four-year colleges) and elementary education is almost exclusively public. The hospital industry, however, includes a mix of the three modes of production. In 1995, 65 percent of acute care hospital beds were in private not-for-profit institutions, 24 percent were in public institutions, and 11 percent were in for-profit institutions. Indeed, not-for-profit, for-profit, and government hospitals provide similar services and compete in the same markets. Not-for-profit and for-profit hospitals, for example, engage in joint ventures, and firms of one organization form have subsidiaries of another form.

In recent years, the hospital market has been in a state of flux. Technological innovation and the spread of managed care have led to striking reductions in inpatient demand. Between 1980 and 1995, hospital days in the United States fell by 35 percent, when the population was both growing and growing older. In response to such large demand reductions, the number of independent, acute care hospitals fell from 6,102 in 1980 to 5,258 in 1995, a decline of 14 percent. Further, many remaining hospitals merged with other hospitals, cut their inpatient capacity, or converted status (primarily to for-profit form). Between 1980 and 1995, 263 not-for-profit hospitals (5 percent of the 1980 number) converted to for-profit form.

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These changes raise two fundamental questions: (1) What determines a hospital's choice of for-profit or not-for-profit organizational form? and (2) How does that form affect patients and society?

The Choice of Organizational Form

What determines a hospital's organizational form—*for-profit*, *private not-for-profit*, or *government*? The answer is in some part historical. Many not-for-profit hospitals, for example, were founded by religious orders and have remained not-for-profit because of religious affiliation. There is more to the story, however, than just history. Hospitals do not always retain their historical form; they sometimes convert from one organizational form to another (including hospitals founded by religious institutions).

Several nonhistorical factors may explain the choice of organizational form. One factor is profits. Public and private not-for-profit hospitals can, of course, earn a profit. These institutions may not, however, pay out their profits to a residual claimant. When fund balances are high, hospitals may decide to convert to for-profit form so that future profits can be paid out. Increased profits may also convince hospitals to remain in not-for-profit status, however, because not-for-profit hospitals frequently use profits to finance activities that managers or boards of directors consider important—uncompensated care, teaching, and medical research.

Organizational form also determines access to financing. For-profit firms have access to different financial instruments than not-for-profit firms, since they can use equity financing. Equity capital is most readily available to hospitals affiliated with large for-profit corporations. Not-for-profit hospitals may decide to convert to for-profit form if they have exhausted their ability to issue tax-exempt debt and other available instruments and still need working capital.

A final theory of organizational form is information signaling. Medical care is rife with information imperfections. It is difficult for patients to identify valuable procedures before they become sick, and patients often have little time to do so after they become sick. Thus, information imperfections often force patients to trust that providers will provide high quality medical care. But what ensures that providers will not skimp on care? For-profit firms might skimp more than not-for-profit firms, if skimping raises profits without harming business. Not-for-profit hospitals, in contrast, may have less incentive to skimp on care since they do not have shareholders who demand the highest possible returns. Thus, organizational form may provide a way to signal quality to imperfectly informed consumers.

The Implications of Organizational Choice

These explanations for the choice between for-profit and not-for-profit form have different implications for the appropriateness of and society's views about not-for-profit and for-profit institutions.

Organizational choice affects public sector budgets. The effect is easily recognized in the case of public hospitals, which are part of government budgets. Private not-for-profit organizations also affect public revenues, since they are exempt from federal and state corporate income taxes and local property taxes. This lost revenue has not gone unnoticed. Proposals have periodically been made to eliminate the favorable tax treatment of private not-for-profit institutions, particularly when they are not seen as providing substantial public goods.

Further, hospitals have substantial indirect effects on government budgets. Hospitals provide a number of public goods that are generally associated with governments, including caring for the uninsured, training medical residents, and facilitating medical research. Traditionally, hospitals have financed these activities by charging more than marginal cost to people with insurance. The "tax" on those with insurance offsets the cost of the "public goods." By financing these activities privately, the costs of these public goods are kept off of the public budget.

Not-for-profit and for-profit hospitals may differ in their willingness to provide public goods. Government hospitals are frequently hospitals of last resort for the very poor. Public goods provision may also be a specific objective of private not-for-profit hospitals; not-for-profit hospitals have mission statements and charters commonly enumerating the public goods as goals. For-profit hospitals are unlikely to value public goods directly, however, or at best, the relationship would be indirect—provide public goods if needed, but minimize the amount of provision if possible. Thus, as hospitals move from one organizational form to another, the amount of privately provided public goods may change, and that change has implications for patient health and public budgets.

In addition, the choice of organizational form may affect the quality of medical care for insured people. As noted above, for-profit hospitals have greater incentives to skimp on patient care than do not-for-profit hospitals, if skimping on care is hard to detect and thus does not result in the hospital receiving an adverse reputation or being sued. On the other hand, greater pay may lead to better managerial ability in for-profit than in not-for-profit hospitals, potentially leading to better outcomes. Medical care is a complex activity, requiring precise coordination of physicians, nurses, and hospital facilities. A well-run organization is likely to have much better outcomes than does a poorly run organization, and high pay might motivate organizations to be more efficient.

Concerns about quality and the potential loss of public goods have

weighed heavily in the public sector. In response, some states have made it difficult for for-profit hospitals to enter. And not-for-profit hospital managers frequently feed this perception, arguing that quality will suffer if for-profit hospitals become dominant.

Given the dramatic recent changes in the hospital industry and these substantial policy questions, it is important to consider the role of not-for-profit hospitals in the medical care system. The papers in this volume present such an examination, focusing on the two issues discussed above: the choice between for-profit and not-for-profit organizational form and the implications of this choice for patients and society.

Hospital Conversions to For-Profit Form

The first set of papers examines the reasons for hospital conversions from not-for-profit to for-profit status and the purchase prices paid for converting hospitals. In a case study of 10 hospital conversions that occurred in North Carolina and South Carolina since 1981, Frank A. Sloan, Donald H. Taylor, and Christopher Conover investigate whether communities receive a fair price when selling a hospital. For their analysis, the authors obtained detailed information about hospital purchase prices, the use of the funds received, and the commitments made by the buyers to the local communities. They calculate appropriate prices under different assumptions about future cash flows and take into account any community benefits that are not reflected in the transaction price. To estimate these benefits, they use parameter estimates from regression analyses of Tennessee hospital conversions.

They conclude that for-profit hospital corporations paid a price substantially above the fair price to acquire not-for-profit hospitals. Interestingly, the authors find the reverse when communities transact with not-for-profit or government organizations. Finally, they find that hospitals that convert to for-profit status do not reduce their provision of community benefits. Because the authors examine a limited time horizon, they acknowledge that these for-profit facilities may behave quite differently in the years ahead. The authors also suggest that further research needs to be done on the social benefits associated with the foundations formed as a result of hospital conversions.

In the second chapter, David M. Cutler and Jill R. Horwitz also use a case-study approach to explain why two not-for-profit hospitals converted to for-profit status and identify the effects of the conversions. They study two large hospitals that both converted more than a decade ago, allowing the authors to examine both the short- and long-term consequences of these conversions. For their analysis, Cutler and Horwitz use several sources of information, including interviews with hospital personnel, newspaper articles, Medicare cost reports, and legal documents.

Their results suggest two primary motivations for conversions to for-profit status. The first is a financial one—not-for-profit hospitals with substantial amounts of debt may convert to gain access to cheaper sources of capital. Second, the culture of a not-for-profit hospital can have an important effect on the decision to convert, as hospitals run by businessmen may be much more likely than religiously affiliated or physician-run hospitals to convert. Their findings also show that the conversions have improved the financial performance of these hospitals by cutting hospital costs and by increasing public sector reimbursement. The authors suggest that this second factor is due to skillful exploitation of Medicare loopholes by for-profit hospitals. Finally, they find that nearby not-for-profit hospitals also begin to game the Medicare program after entry by a for-profit hospital. The authors suggest that future research in this area should examine the effect of not-for-profit hospital conversions on medical care quality.

Medical Care Quality in For-Profit and Not-for-Profit Organizations

The second group of papers examines quality differences between for-profit and not-for-profit hospitals. Medical care quality has historically been difficult to measure. There are several reasons for this. First, it is difficult to identify the relevant measures of quality. A complete measure would include patient health, satisfaction, and process of care, among other factors. Second, until quite recently there were no reliable data sets that gave detailed information about long-term health outcomes for a substantial share of the population. Third, because of inadequate information about the mix of patients at different hospitals, it was difficult to know if differences across facilities in health outcomes were due to hospital quality or differences in patient mix. Finally, measures of health outcomes, particularly when comparing individual facilities within a market, are quite noisy.

As a result, the papers in this section of the volume take a number of approaches to measuring hospital quality. Improving significantly upon previous work in this area, Mark McClellan and Douglas Staiger use a generalized method-of-moments (GMM) framework to compare quality at for-profit and not-for-profit hospitals. The authors use a data set that contains all elderly Medicare beneficiaries who were (1) hospitalized from 1984 through 1994 following their first heart attack (acute myocardial infarction, or AMI) or (2) hospitalized with ischemic heart disease (IHD) from 1984 through 1991. The authors use 90-day mortality as their outcome measure, and emphasize that the severity of AMI and IHD limits the scope for selection across hospitals and thus enables them to more precisely estimate differences in hospital quality. Moreover, because the outcome measures are noisy estimates of hospital quality, the authors use data from many years to construct filtered risk-adjusted mortality rates (RAMRs) for each hospital.

Their results suggest that (1) there is a strong negative relationship between hospital volume and mortality rates, (2) not-for-profit hospitals have lower mortality than both for-profit and government hospitals, and (3) differences in mortality rates between not-for-profit and for-profit hospitals increased between 1985 and 1994. The authors conclude with case studies of three counties and find evidence that, within a market, for-profit hospitals actually have higher quality than do not-for-profit hospitals. The small average difference in mortality rates between not-for-profit and for-profit hospitals that the authors uncover, coupled with the large variation within each hospital type, suggests that there may be other factors that affect hospital quality and are significantly more important than ownership type.

After suffering from an acute, emergency condition, many individuals' first contact with the health care system is not the hospital but the emergency 911 system that helps to get them to the facility. Because previous research has shown that the time between the onset of an emergency condition and the initiation of appropriate medical procedures can have an important effect on mortality for certain conditions, it may be the case that changes in funding for 911 systems lead to substantial changes in average health outcomes. Moreover, the quality of the response system may have an important effect on the appropriate choice of medical care inputs for nearby hospitals.

Susan Athey and Scott Stern explore the causes and effects of differences across communities in prehospital and in-hospital emergency services. Initially, the authors use a data set with every ambulance ride in Pennsylvania during 1995 to explore the direct productivity benefits that arise when a community adopts a basic or advanced 911 system. Focusing on cases of cardiac incident, they find that both the time to reach an emergency site and the time that elapses from the site to the hospital is decreasing in the adoption of advanced 911 services. However, there is little evidence to suggest that mortality rates from cardiac incidents are related to the adoption of 911 services.

Next, the authors investigate the effect of 911 systems on both the allocation of patients across hospitals and the adoption of cardiac technologies by hospitals. They find that a hospital's level of cardiac technology has an important effect on its share of cardiac patients within a market, but little evidence that the 911 system influences hospitals' technology investments. Finally, using a national-level data set on the adoption of 911 technologies across communities, the authors analyze the determinants of 911 adoption by communities. They find that places with a more conservative political orientation are less likely to adopt advanced 911 systems and that state legislation governing the adoption of 911 has an important effect on communities' adoption decisions.

Previous authors have shown that health care practice patterns vary

significantly across geographic areas within the United States. Jonathan Skinner and John E. Wennberg use this variation to investigate the productive and allocative efficiency of end-of-life medical care. The authors compare Medicare expenditures and physician visits in the last six months of life across communities in the United States. Initially, the authors focus on Miami and Minneapolis and find that average Medicare costs are substantially higher (by approximately a two-to-one margin) in Miami. Finding that the variation is even larger for intensive medical care, they ascribe much of the variation in expenditures to differences in the treatment of the chronically ill in the two areas.

Next, the authors conduct a cross-sectional analysis of the 306 hospital referral regions in the United States, and they find that the variation in end-of-life medical spending does not appear to be driven by differences in underlying health status across areas. The authors then explore whether the additional spending in certain areas leads to improved health outcomes, as measured by mortality rates. They find no evidence that the areas with relatively high expenditures have better health outcomes than do those areas with significantly lower spending. Finally, the authors argue that patients frequently prefer less intensive treatment than physicians advocate, identifying another potential source of inefficiency in the provision of medical care.

Previous research suggests that recent changes in the health care marketplace have forced not-for-profit hospitals to behave quite similarly to their for-profit counterparts. As inpatient demand has fallen, not-for-profit hospitals have diversified into other activities and entered into joint ventures with for-profit firms. Richard G. Frank and David S. Salkever explore the causes and effects of this recent diversification of activities, and its implications for charitable giving and care to the poor. The authors report on the results of three focus group discussions with executives from 14 (mainly not-for-profit) hospitals in Boston and Chicago, and they use these results in constructing a model of not-for-profit hospital diversification and charitable giving.

They find that nonteaching not-for-profit hospitals diversify their activities and enter into joint ventures not only to offset reductions in inpatient revenues but also to gain market share, strengthen ties with physicians, and reduce the uncertainty in demand for care. Their focus group discussions revealed that philanthropy constitutes a very small share (approximately 1 percent) of a typical not-for-profit hospital's budget, and suggest that these private donations fall when a hospital's financial performance improves. Frank and Salkever find no evidence that diversification or a decline in private donations has reduced the supply of public goods (i.e., charity care) by not-for-profit hospitals. This may be due to not-for-profits' success in keeping their profits relatively high, allowing them to continue to cross-subsidize care for unprofitable patients.

Managed Care and Hospital Quality

The third part of the book focuses directly on the relationship between managed care and hospital quality. As noted above, managed care has fundamentally changed the medical care landscape. Thus, determining its effect on hospital operations is a central problem in health economics research.

Using a unique approach and a rich data set, Sarah Feldman and David Scharfstein compare the quality of care received by cancer patients insured by fee-for-service and managed care insurers. They use provider volume as a proxy for quality, taking the result from many previous studies that the patients of high-volume physicians and hospitals have better clinical outcomes than do other patients. They use a data set containing all Massachusetts hospital discharges in 1995 (including physician identifiers for each discharge) to compare the providers of fee-for-service and managed care patients with breast cancer, colorectal cancer, and gynecologic cancer. The authors choose these three types of cancer because they are typically treated surgically, and thus there are unlikely to be significant differences in the type of treatments received by fee-for-service and managed care patients.

The authors find that managed care patients tend to be treated by physicians who perform relatively fewer surgeries, and that these patients receive their treatment in lower-volume hospitals. The differences across the seven managed care plans are substantial, with one of the plans actually sending their patients to higher volume providers than the fee-for-service providers. Furthermore, their results suggest that there is substantial variation in quality within a typical managed care plan, as some plans appear to offer higher quality care for one type of cancer than for another. The authors conclude that, if provider volume is an accurate measure of quality, then managed care plans may indeed offer lower quality health care than fee-for-service plans.

The second paper in this section aims to explain how insurance status affects the type of care that an individual receives *within a particular institution*. David Meltzer, Frederick L. Hiltz, and David Bates use a case-study approach to analyze the effect of a managed care institution on the type of care provided in a large academic medical center. They use data on all admissions to the teaching hospital's internal medicine service over a one-and-a-half-year period to investigate the effect of the attending physician's financial incentives on the costs of care. Within the hospital, some attendings are employed by the managed care organization (MCO) while all others are employed by the hospital. The MCO attendings, whose patients are almost all MCO patients, have much stronger financial incentives to reduce costs than do the physicians employed by the hospital.

The authors find that the patients of MCO-employed attendings have

significantly lower costs than do similar patients of hospital-employed physicians. The majority of this cost saving is accomplished through shorter lengths-of-stay. The authors also find that physician workload has a significant effect on patient discharge probabilities, and they suggest that hospitals may increase their attending physicians' incentives to discharge patients quickly by reducing their house staff rather than through actual financial incentives. Both of these papers build substantially on previous research concerning the effects of managed care on health care quality.

Taxation and Information

The final section of the volume examines the tax implications of the difference between not-for-profit and for-profit ownership and the signaling value of different forms of ownership. As noted above, the differential tax treatment received by not-for-profit hospitals has attracted considerable recent attention, as many health care analysts claim that these facilities are behaving no differently from their for-profit counterparts. Using a detailed data set on the financial status of not-for-profit hospitals, William M. Gentry and John R. Penrod estimate the magnitude of these tax benefits. Not-for-profit hospitals are exempt from corporate income taxes (federal and state) and property taxes (state and local), have access to tax-exempt bond financing, and can receive charitable donations that are tax deductible for the donor.

Using data from the Health Care Financing Administration's 1995 public use file of Medicare cost reports, the authors estimate that the income tax exemption is worth \$4.6 billion to not-for-profit hospitals while the value of their property tax exemption is \$1.6 billion. Additionally, the authors' results suggest that the net benefit of access to tax-exempt bonds is quite small and does not significantly reduce the cost of borrowing for not-for-profit hospitals. The authors note, however, that if not-for-profit hospitals engage in tax arbitrage by borrowing at tax-exempt interest rates and investing in financial assets with greater returns, the magnitude of this benefit could be substantial. Data limitations prevent the authors from carefully estimating the value of the tax deduction for charitable gifts. However, their preliminary analysis of cost report data reveals that these contributions are substantial only for a small number of hospitals, with 44 percent of all not-for-profit hospitals having zero charitable contributions in 1995.

Finally, Tomas Philipson examines whether consumers are willing to pay significantly higher prices for not-for-profit nursing home care than for similar care in for-profit facilities. If not-for-profit nursing homes solve the asymmetric information problem between consumers and producers better than their for-profit counterparts, these two types of institutions are not perfect substitutes. More specifically, not-for-profit nursing homes

should sell at a premium because consumers would value the not-for-profit status more highly.

Using data from the U.S. National Nursing Home Surveys in 1985 and 1995, Philipson finds no support for the presence of a not-for-profit premium. Instead, he finds a 5 percent for-profit premium in 1985 and no significant difference in price in 1995. These results suggest that there is perfect substitution on the demand side between not-for-profit and for-profit production, and that asymmetric information is relatively less important in health care markets than many economists have previously suggested. Finally, Philipson points out that future theoretical work on the effect of organizational form within the health care market should aim to explain why the hospital market is served mainly by not-for-profit firms while the nursing home market is dominated by for-profit facilities.

A Concluding Thought

The economics of the hospital industry are changing rapidly and dramatically. Reduced demand, lower profit margins, and more intense competition make the hospital industry of today very different from the hospital industry of the past.

Already, the changes in the industry have reached the public sector. Antitrust policy has been forced to evaluate the costs and benefits of hospital mergers. Tax policy has to consider the revenue consequences of different organizational forms. And perceptions that care for the uninsured will suffer as the industry changes will place pressure on public hospitals and public insurance programs.

The demands for economic analysis are great. The papers in this volume, and the subsequent research they are certain to stimulate, will have enormous implications for public policy toward this vital industry.