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**Regulation, Competition and Cross-subsidization
In Hospital Care: Lessons from the Economics of Regulation**

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Abstract

This paper reviews the parallels between "hidden" regulation in the form of cross subsidies in hospital care and past experience with cross subsidies in transportation and utilities. We review the pervasive regulation of the U.S. health care industry during the past 60 years, evaluate the similarities between regulation in health care and in other U.S. industries and outline the ways in which current health care regulation, particularly the use of cross subsidies to finance health care for the uninsured and under insured, is failing. The paper describes a number of predictions regarding the course of regulatory development in health care from normative and from economic theory of regulation. Several aspects of the regulatory situation in health care industry suggest the need for some refinement of economic theory of regulation. Finally, while policy advocates urge for added regulation in health care, our analysis shows that the current state of the health care market may make it impossible for such regulation to accomplish its purpose.

Regulation, Competition and Cross-subsidization in Hospital Care: Lessons from the Economics of Regulation

Stephen Earl Foreman and Theodore E. Keeler

Regulation as economists know it¹ is far more pervasive in hospitals and health care than is commonly discussed. Observers understand that regulation applies to state hospital rate setting, practiced in fewer than ten of the fifty states, to Medicare payment for hospital and physician services and to entry restrictions in the form of certification (licensing, accreditation and certificate of need requirements). This is, by any measure, a substantial amount of regulation. It is, by no means, all. Whereas much of this regulation is of a relative recent nature (dating only to the past two or three decades), the much more pervasive regulation discussed herein dates back at least to the beginning of modern hospitals and, in some forms, is likely as old as the medical profession itself.

This "hidden" regulation not only bears striking resemblance to regulation as economists recognize it in transportation and utilities, but also, the study of its economic causes and consequences contains important lessons for the future of health policy in the United States and for our broader understanding of how economic regulation works: lessons that go beyond the health care sector and have direct application to the health reform debate.

Further, the "hidden" regulation we describe here for hospitals has begun to fail in the health care sector in a way highly analogous to the way it failed before 1980 in transportation and telecommunications. Its weakness has strong implications, both for the future of health policy *and* for the economic analysis of regulatory behavior.

The purposes of this paper are several: first, to point out the hidden but pervasive regulations that have existed in U.S. health care for at least a half-century; second, to indicate their striking similarity

to regulation as economists have understood it to exist in American transportation and utilities; and third (and most importantly), to outline the ways in which this regulation is failing, analogously to the ways in which it failed before 1980 in transportation and telecommunications. The analysis has important lessons, both for the future of U.S. health policy and for positive analysis of regulatory behavior.

It also sheds light on positive theories of hospital behavior: specifically, it can explain why even for-profit hospitals might choose to cross-subsidize from some patients to others, if they are "compensated" for doing so by regulators. On the other hand, we nevertheless argue that our conclusions are not sensitive to where one stands on some of the debates on hospital "cost-shifting" currently going on in health economics.

1. Hidden regulation in health care.

a. Direct regulation.

Heretofore the principal economic focus on health care and hospital regulation has concentrated on apparent and direct rule-making. The most obvious is rate regulation. While the federal government has generally refrained from universal rate regulation of health care, several states have actively set rates, at least for hospital services. Economic analysis of these rate setting programs has concentrated on their ability to "control costs" in the form of the impact of the rate regulation on health care expenditures for the regulated service (e.g., hospitals).² These studies have sparked debate over the effectiveness of regulation in controlling costs. They have not, by and large, considered the impact of rate regulation in terms of economic efficiency or in terms of the effect that regulation of one portion of the industry may have on other segments.

The federal government's imposition of rates for hospital and physician services under the Medicare program provides another obvious and direct form of health care rate regulation. About one-half of all U.S. health care expenditures occur under Medicare. In 1984 the Medicare program began paying

hospitals a standard amount based on the diagnostic related group (DRG) payment system³ and in 1991 it expanded this payment philosophy to physicians in the form of a resource based relative value system (RVRBS).⁴ Accordingly, a large portion of American health care payment is currently subject to a form of rate regulation.⁵ As with state rate setting, most economic studies of the impact of the federal payment system have concentrated on total payments and not on the economic effectiveness of the programs.

Further, the federal government and the states have regulated "quantity" and "quality" in the form of certificate of need laws and regulations. Certificate of need has as its principal thrust the elimination of unnecessary and costly duplication of services by hospitals. Dating to rudimentary (and generally voluntary) hospital planning regulations in the 1960s,⁶ nationwide capital expenditure review began with the enactment of Certificate of Need law, The National Health Planning and Resources Development Act of 1974, as amended, 88 Stat. 2229, 42 U.S.C. §3001 (1976). These strictures, enacted at the federal level, required each of the states to review all new capital expenditures by hospitals⁷ and all new hospital services for appropriateness. The underlying rationale was that if all hospitals could not acquire new technology or offer new services, the few that extended service would provide them more efficiently. States implemented Certificate of Need with varying degrees of stringency. A number of studies concluded that Certificate of Need had not been effective and the Reagan administration repealed the mandate that states have a Certificate of Need program.⁸ However, while a number of states abolished health planning review, a number of states still retain the program. Very few studies have assessed the economic impact of certificate of need or the validity of its underlying rationale.

Finally, most states strictly regulate hospital, physician and other provider services in the form of state licensing regulation. State licensing regulations attempt to regulate quality. In the process they can indirectly impose quantity controls. While different states have different levels of licensing

requirements, the total effect of the state licensing programs is pervasive.⁹ other forms of price and quantity regulation, there has been little economic evaluation of the effect of state health care licensing regulation.

In short, the direct, obvious level of regulation of health care is fairly pervasive, by almost any measure. If experience from transportation and utilities is any guide, the pervasiveness of obvious regulation has substantial economic implications. However, there are "hidden" regulations that impose even greater regulatory burdens on the delivery of health care. These hidden regulations are even less studied.

b. Hidden regulation of health care

Hidden regulation of health care in the United States occurs in the form of the universal practice of cross subsidization of patient treatment. Cross subsidies are a tradition in U.S. health care, indeed in the history of medicine. Further, with ever greater attention to the need to provide universal health care protection for all Americans, the pressure for greater levels of cross subsidies grows.

The law now provides legitimacy for cross subsidization of hospital patients. Most states' anti-dumping laws and the Consolidated Omnibus Budget Act of 1992 make it illegal for hospitals to refuse to treat emergency patients who lack health insurance or who are otherwise unable to pay for their care. Olson (1994). On the surface, this sounds ethical and fair. However, consider the effect of a law that would require a grocery store to give food (without limit) to those who are unable to pay for it. Yet, that is just what the Act requires from hospitals. In order for a hospital to care for a non-paying or an under-paying patient,¹⁰ the hospital must charge paying patients more to cover these uncompensated care costs.

The ability and willingness of governments to compel such behavior is older than COBRA. Students of regulation recognize it readily. Forcing hospitals to treat patients for less than full price constitutes

enforced cross-subsidization, a policy historically and commonly pursued in the markets for transportation and utilities. While COBRA codifies hospital cross subsidization for emergency room services, hospital cross subsidization was pervasive prior to its adoption.¹¹ For example, cross subsidization mandates attach to hospital incorporation, tax status, accreditation and even to legal liability. Indeed, most U.S. hospitals were established between 1890 and 1930 as charitable entities (generally staffed by religious orders or operated as government entities) located in urban areas, to provide health services to those in need and, either implicitly or explicitly, without regard to the ability of patients to pay for care.¹² At the time most hospitals formed there was no health insurance. Patients had to pay for care out of pocket. Wealthy patients generally received care from physicians and nurses in their homes. Low income urban individuals access to health care usually relied upon the charitable hospital. Hospitals began practicing cross-subsidization from the start.

In order to incorporate as a charitable organization¹³ a hospital must acquire a "charter" from the state of their incorporation. The hospital's charter contains a statement of charitable purpose often relating to the care of the sick and injured without regard to the ability to pay. Courts have held that the assets of a charitable hospital become impressed with the charitable purpose expressed in its charter: the "charitable trust doctrine." *Queen of Angels Hospital v. Younger*, 66 Cal. App.3d 359, 136 Cal. Repr. 36 (1977). The state enforces the charitable trust purpose for the intended beneficiaries. In essence, the very charitable nature of the hospital's incorporation establishes a cross subsidy.

The grant of privileges to the hospital can also establish cross subsidies. Most nonprofit hospitals are exempt from payment of local, state and federal taxes.¹⁴ However, in order to maintain this exemption there is a requirement that they provide a certain level of "charitable" or uncompensated care. *Utah County v. Interemountain Health Care, Inc.*, 709 P.2d 265 (Utah 1995); *Simon v. Eastern Kentucky Welfare Rights Organization*, 426 US. 26 (1976). In this case the quid pro quo for tax

exemption is cross subsidization.

Another example of this phenomenon is the Hill-Burton Act of 1946, 42 U.S.C. §291 et seq., Pub. L. No. 88-443, 78 Stat. 447 (1991). The Hill-Burton Act provided nonprofit hospitals with construction funds in return for the recipient hospital promise to provide a designated level of charitable care for a specific period of time. As hospitals reached their free care obligation limits, the federal government attempted to find ways to extend them.¹⁵ *American Hospital Association v. Schweiker*, 721 F.2d 170 (5th Cir. 1983), *cert. denied*, 466 U.S. 958 (1984).

Nor are physicians exempt from the cross-subsidization practices. Physicians, as Reuben Kessel (1958) pointed out some years ago, have long charged fees to patients according to their ability to pay. Most states sanctioned and even enforced this behavior. Indeed, as Kessel noted, physicians rationalized their attempts to block the entry of health maintenance organizations on the basis of the HMOs' refusal to charge patients based on their ability to pay.¹⁶

The plethora of "quality" regulations that apply to health services have subtle but powerful cross-subsidization effects as well. For example, states' licensing laws specify the range of services that hospitals must provide. Often they require hospitals to have an accessible emergency room. Since the emergency room is the service through which many low income patients access the hospital, the licensing requirement can have the effect of enforcing cross-subsidized treatment.

One way that the hospital might resist cross-subsidies would be to provide treatment to patients at a level commensurate with payment levels. However, accreditation, licensing and legal liability (malpractice) standards generally combine to enforce a single¹⁷ level of care for all hospital patients. Each of the quality regulations deals with the level of services provided to hospital patients. Evidence that a particular patient or group of patients has received care at a different level than others may provide an inference that the hospital gave less than an optimal level of care to the "deprived" patient

or patients. In order to avoid arguments about the appropriateness of treatment levels, most hospitals provide a single level of care regardless of the amounts received for the patient's care. Below in this paper, we provide evidence that the cost of caring for uninsured patients, on average, is not significantly different from the cost of other patients for the typical U. S. hospital. That evidence supports the view that the care provided to uninsured patients is little if any different in quality from that provided other patients.

Gruber (1994) has presented empirical evidence that cross-subsidization exists in hospitals. He found that in areas with intense hospital price shopping there was a large fall in net private revenues and that care for the insured fell dramatically as well. To test the extent to which payment impacts patient treatment costs, we developed a simple state level cost model. Using data supplied by the American Hospital Association on short-term acute care U.S. hospitals for the years 1990 to 1992, we tested the hypothesis that the type or level of payment affects health care costs. Generally, hospitals treat three types of patients that pay less than full cost: Medicaid patients, uncompensated or free care patients and self pay or unsponsored patients. Our model evaluates the impact on statewide hospital costs (per patient admission) attributable to the proportion of patients who are Medicaid patients (MDPCT), uncompensated care patients (UCPCT) and unsponsored patients (USPCT). If the coefficient of "percentage nonpaying" is positive, that indicates that, all other things equal, non-paying patients cost more than average private pay and Medicare patient. A negative coefficient implies that non-paying patients cost less.

We performed an estimation using the Fuller-Battese method of adjusting the variance-covariance matrix for autocorrelation and for heteroscedasticity to deal with time series, cross section pooling issues. In addition to measuring the impact on costs from Medicaid, free care and unsponsored care, the model controls for a number of effects. Table 1 summarizes the model variables and provides

descriptive statistics for them. The model results, shown in Table 2, indicate that there is no statistically significant in costs as the percentage of uncompensated and unsponsored patients increases.¹⁸ However, as the proportion of Medicaid patients increase, costs increase. Enforced cross subsidization through the Medicaid program seems to increase costs. Cross subsidies mandated by the Medicaid program, as suggested by theory, may promote economic inefficiency.

In short, for more than a century hospitals and physicians have been subject to public policy that forces them to practice cross-subsidization. In the next section we consider the economic theory of regulation that suggests when policy makers will impose regulation and how regulators function. We show how the theory applies to transportation and utilities. Subsequently we describe how the theory predicts the regulatory reform in transportation and utilities in the late 1970s and early 1980s. In the following section we return to medical care to discuss more systematically the theory of regulation and medical care.

2. The economic theory of regulation and its implications.

a. Historical background.

Regulation, as found in transportation and utilities, dates to the medieval period in England. Keeler (1993). The sovereign granted monopoly privileges to carriers of goods and people in return for important benefits to the state and the public. These benefits included (i) equal access for all at "reasonable" rates, (ii) a guarantee of service (carriers could not discontinue service arbitrarily) and (iii) strict assumption of liability by the carrier for loss and damage for injury to freight and passengers.¹⁹ The charter that gave the carrier monopoly rights on a route in return for providing these services bestowed a "certificate of public convenience and necessity." Carriers who followed the carrier rules became "common carriers."

The U.S. law relating to transportation and utilities used the British common law of common

carriage as its basis. The first U.S. transportation laws related to horse-drawn services. With the development of canals and railroads, state and local governments gave these carriers similar certificates of public convenience and necessity. Initially, courts enforced the law of common carriage through case law. As regulation intensified in the late 19th century federal, state and local governments codified the law of carriage and established regulatory agencies.²⁰

As electricity, telecommunications, highway transportation and air transportation came into existence, public regulation extended to them based on similar principles. Regulatory schemes required new entrants to have certificates of public convenience and necessity. Special agencies regulated rates and the volume of service.

b. The economic theory of regulation.

Traditionally, most economists believed that regulation had as its goals "public interest" objectives: efficient allocation of resources and equitable distribution of income. To the extent that regulators failed to meet these objectives, economic observers cited poor execution. This perspective changed as studies began to conclude that regulation appeared to systematically misallocate resources in the public sector. Caves (1962). Olson (1965) argued that the collective political process, operating in ways that make "rational" sense, can quite readily fail to achieve economically efficient outcomes. From this, Stigler (1971) developed the "economic theory" of regulation. Posner (1971), Peltzman (1976), Becker (1983) and Keeler (1984) substantially expanded the theory. Noll (1988) extends, discusses, and summarizes the various iterations of the theory.

Stigler (1971) argued that in a representative democracy like the U.S. there is a supply of and a demand for regulation established through the political process. Regulation will benefit either producers or consumers (or some combination) depending on the costs and benefits accruing to each. The probability that a group will successfully achieve regulation depends on the group's costs of achieving

a coalition, organizing politically, compared to the benefits the group will receive in the form of higher output prices.

Peltzman extended, refined, and formalized Stigler's theory. Each regulator will maximize a political support function in which political support is a function of regulatory benefits to interest groups. Each group (both for producers and consumers) contains different subgroups. The first order condition for the maximization process is that the marginal political support to subsidize a particular user group should equal the marginal political support for other groups. This can result in a decision to cross-subsidize: in particular, charging consumers higher prices to subsidize producers, and charging some consumers higher prices to subsidize other consumers.

Becker (1983) and Keeler (1984) establish that there is a link between the economic and public interest theories. Keeler notes that the economic theory of regulation is equivalent to a "many person Ramsey tax" in which the marginal political support available from each group is the equivalent of a "welfare weight." Satisfaction of the group interest also satisfies the public interest.²¹

c. Economic theory of regulation and the evolution of regulation.

Economic theories of regulation explain the evolution of U.S. regulatory policy in transportation and utilities. Such regulation (i) restricted the entry of new firms, (ii) caused providers to offer some services above marginal cost, others below and many at different price-cost margins from the levels of a free market, (iii) blocked exit from unprofitable services that were considered "socially desirable or necessary" and (iv) gave many producers excess rents.

In the simplest of terms, regulation always had as its goal the cross-subsidization of some services by others, providing factors of production with excess rents with which to effect the cross-subsidies. Restriction of entry into profitable services and exit from unprofitable services is a crucial component of this strategy. Entry restrictions are necessary to maintain the flow of excess rents.

The economic theory of regulation explains why regulation occurred. What does it say about the reforms of the 1970s and 1980s? Under the economic theory, regulation will cease to occur if its cost gets to be too high: if it fails to contribute a net increase in political support for the elected officials who cause the regulation to occur. Keeler (1984), Noll (1988) and Peltzman (1989) have dealt with these issues.²² There are at least two reasons why those costs became too high in transportation and telecommunications in the 1970's.

First, it is clear that many of the technological motivations for regulation (natural monopoly) that existed in the 1930s no longer existed by the 1970s. Thus, airlines and long-distance telecommunications had far higher traffic densities in the late 1970s than in the 1930s, and they were much further from being natural monopolies. Believers in the economic theory of regulation might argue that scale economies are relevant only to the case of public interest regulators, but, as Keeler (1984) argued, that is not so: a regulator following the economic theory is nothing other than a public interest regulator exercising uneven welfare weights and hence is just as likely to pay attention to scale economies as a public interest regulator. Second, there is evidence that by the 1970's regulation was at least to some degree failing to achieve its purposes. This was happening without reference to changes in scale economies.

Inter-city passenger transportation supported at least two forms of cross subsidization: First, airlines cross-subsidized shorter-haul and lower-density traffic with profits from longer-haul, higher-density traffic. Second, railroads (at least until the creation of Amtrak in 1971) cross-subsidized money-losing passenger service with profits from freight. "Cream-skimming" competition undermined both forms of cross subsidization. Although regulation controlled entry of new airlines and fares, service quality (frequency and capacity) rivalry tended to dissipate rents intended for cross-subsidies. Truck and barge competition (superior service quality, even at equivalent regulated rates and with regulated entry in

trucking) eliminated the excess rents which railroads were to have used to cross-subsidize passengers.

The Interstate Commerce Commission enforced two main types of cross-subsidization for freight: profitable services were to cross subsidize unprofitable routes (low-density branch lines) and unprofitable commodities (some agricultural goods, among others). However, competition by trucks and barges eliminated the excess rents. Dissipation of rail rents left the firms with inadequate funds to make labor "payoffs" (high wages and "featherbedding" work rules) which had built up over the years.

Regulators expected the profits from long-distance services to cross-subsidize local service. This "worked" for a number of years. However, despite the best efforts of the Federal Communications Commission and state agencies, competing long-distance operators offered ever-expanding competition. Here, too, market forces undermined intended cross subsidization, although, as pointed out by Noll (1989), cross-subsidization still flourished when A.T.& T. agreed to the consent decree that to a large degree undid it.

Regulation in transportation and telecommunications not only failed to achieve its goals, but produced inefficient outcomes. In airlines and freight transportation, economists argued that the market forces that undermined cross subsidization (service quality rivalry among airlines) entailed substantial waste of resources (empty plane seats or empty truck backhauls). Further, services like long-haul passenger trains and low-density rail branch lines became economically obsolete. Operating them occasioned a resource waste that regulators either tolerated or (urged by political forces) supported.

Over time the costs attributable to these inefficiencies outweighed the economic and political benefits produced by regulation. As suggested by economic theory of regulation, the inefficiencies produced much of the impetus for regulatory reform. There is a substantial literature indicating that, by and large, regulatory reform has greatly enhanced economic efficiency in transportation and telecommunications, largely along lines predicted by economists.²³ There is, however, another

important outcome of deregulation in transportation and telecommunications that is somewhat less remarked in the literature. Often direct subsidy replaced the failed cross subsidization scheme.

While these are not the only reasons for deregulation in transportation and telecommunications, but they are very important. Moreover, they are highly relevant to the health care sector. In recent years, market forces have undermined the health care regulation and there is a parallel "deregulation" movement in health care.

d. Reasons for increased competition in health care

For thirty years Blue Cross provided most of the U.S. hospital care insurance. Private insurance companies offered hospitalization, but the large market share of Blue Cross and its favorable tax and regulatory status²⁴ permitted it to retain its monopoly power. Even when Congress enacted the Medicare and Medicaid programs in the late 1960s, Blue Cross retained its dominant position by acting as payment "intermediary" and hospital cost regulator for the federal and state governments. Along with this dominance and some effects of "capture" by hospitals²⁵ there is evidence that Blue Cross had become inefficient in the 1970s in terms of holding down amounts paid to hospitals and physicians, their own administrative costs and innovation. Blair, Ginsburg and Vogel (1975).

In terms of health care costs, the period from the mid 1930s through the late 1960's was effectively a "golden era." Relatively stable technology, a wartime economy and the post World War II "baby boom," and the general absence of inflation in the U.S. economy all contributed to a relatively stable period in U.S. hospital costs and prices. However, the 1970s saw the initiation of a number of trends that fueled twenty years of hospital cost and price increases. With the end of the baby boom, increased life span and declining growth in the economy, the number of elderly and poor persons and their proportion of the total population began to grow. Hospital costs began to rise. With the growing numbers of elderly and poor the level of cross subsidies grew tremendously in the 1970s and 1980s.

In the late 1960s and the early 1970s the combination of government welfare policy and the Vietnam War fueled inflation. Industries with higher proportion of labor costs exhibit greater short term rates of inflation than industries that use more capital. Hospitals are a very labor intensive industry. Hospital cost inflation, accordingly, has for the past twenty years outstripped the general rate of inflation. The increase in hospital costs and prices attributable to inflation produced more pressure on health insurance rates.

A third major hospital cost accelerator that dates to the 1970s is technology. Technological innovation was relatively stable from the 1930s to the 1970s. Fueled in part by more stable health care financing (Medicare and Medicaid) and in part by the computer revolution, the 1970s and 1980s saw a technological explosion. Technology and hospitals' tendency to compete on the basis of service fueled additional cost increases.²⁶

A fourth hospital cost accelerator emerges from economic factors. The manner of paying health care providers for caring for patients is subject to a complexity of forces including externalities and incentive failures.²⁷ Full insurance provided for the first time for a large number of people in the 1970s and the form of insurance company payments to health care providers, particularly hospitals, on the basis of "costs" or "charges" exacerbated the incentive problems. Accordingly, a substantial portion of the cost increases of the 1970s and 1980s is attributable to incentive failures.

Taken together, the hospital cost (and price) increase has been large and serious. Insured patients pay most of the hospital costs. Cross subsidization occurs in one of two ways: first, insured patients pay more for health care so that providers can care for patients without insurance coverage and second, some insurers pay more for coverage than others. Due to the market power enjoyed by the Medicare and Medicaid programs, most cross subsidies come from Blue Cross and private insurance companies. However, in some areas Blue Cross has enough market power to compel large discounts. There, private

insurers may subsidize Blue Cross patients as well. In short, hospital cost inflation in the 1970s and 1980s contributed to large increases in health care premiums.²⁸ Given the differential ability or willingness to pay increased costs, premium inflation created greater payment disparities and an aggravated level of cross subsidization.

e. Why increased competition undermines cross subsidization

The increases in costs and cross subsidies created permitted payers that could avoid them to make substantial gains. Payers that could reduce their expenditures would prosper. Concurrently, federal and state governments, challenged by rising health care costs (for Medicare and Medicaid programs) and politically beset by business constituents concerned with rising premium expense, modified statutes and regulations to encourage additional competition in health care delivery in the belief that increased competition would reduce the health care cost escalation. Thus, the 1980s saw substantially increased competition in the market for health insurance. Competition took both an institutional and a transactional form: Institutionally, health maintenance organizations combined the function of insurer and provider. This curtailed the providers' incentive to increase health care costs. Transactionally, preferred provider organizations formed for the purpose of negotiating discounts with hospitals, physicians and other health care providers. Supportive legislation removed barriers to HMO and PPO formation and growth.²⁹ Private industry as well as state and federal governments began to provide a substantial amount of coverage through the HMO and PPO forms.

HMOs and PPOs have reduced amounts paid on behalf of their members or subscribers to health care providers. They were so successful that by 1992 HMOs and PPOs provided more than 70 % of the health insurance in California. HIAA (1994). However, the very success of HMOs and PPOs limited the base over which hospitals could spread health care costs for uninsured and underinsured patients. Health maintenance organizations provided care to healthier and younger employed groups

and often provided little or no care to the poor, the elderly or the uninsured. Also, as described by Gruber (1994), the discounts negotiated by PPOs reduced profits or surpluses that providers had previously used to provide cross subsidies, occasioning substantial increases in amounts charged to other private pay patients or the discontinuance of free care altogether.³⁰

In short, the introduction of competition into the cross subsidization situation creates an unstable situation. If any entity can successfully reduce its costs by PPO or HMO participation, all will do so until no remaining organization supports cross subsidies. Thus, it is not surprising that fee for service payment was only ten percent of the California health care market by 1990. It is surprising that it represented as much as 10%. The introduction of competition in hospital care (like the introduction of competition in other regulated industries) undermines cross subsidization.

3. Why health care policy still depends on cross subsidies.

Despite the pressure on hospital costs and the threats to cross subsidization provided by increasing competition in health care, cross subsidies persist as a mechanism to fund care for uninsured and underinsured patients. A major portion of the rationale underlying the persistence of cross subsidization is the importance or perceived importance of health care. A substantial portion of the electorate sees health care as a fundamental right. Hayes (1992). A number of others while agreeing that health care may not be a "fundamental right" sees the concept of health care as a basic commodity that a civilized society provides to its members.³¹ Brodeur (1990). Even more conservative observers who would not provide universal health care coverage as a matter of right or duty will acknowledge the "externalities" presented by health care. Members of society who are ill and infirm can pass contagious diseases, can provide a drain on public welfare rolls and fail to contribute to the economic well being of the society. A society runs on healthy, productive workers. Accordingly, while there is almost universal consensus that health care should be accessible to everyone,³² there is no consensus on how to fund it.

Accordingly, if universal health care access is to be a reality, there are two basic choices: fund it through general tax revenues (direct subsidies) or through cross subsidies (shifting costs to paying patients or their insurers).³³ The current political climate is no different from any other in terms of taxes. Taxation is unpopular. Political support for an adequate and direct health care tax may be difficult, if not impossible to generate. Without public support for direct taxes and direct subsidies, health policy will have to continue to rely on cross subsidies and indirect support in order to achieve universal health care access.

4. Implications for the debate on "cost-shifting" in health care, and for the issue of profit-maximization by hospitals

So far, we have avoided reference to the health-care term often used for cross-subsidization, cost-shifting. The reason for this is straightforward: this paper is not intended to address the issue sometimes debated in this area: if Medicare or Medicaid reimbursement were reduced, would that imply higher rates for others, and does that imply cost-shifting. Morrisey (1994) has produced a very good summary of the issues there. Our point, rather, is that there *is* uncompensated care, by almost everyone's admission, and this does come from profits from other services. If revenues for cross-subsidization of uncompensated care dwindle, we believe, consistent with Gruber, that it is more likely that cross-subsidized care will more likely be reduced than that rates would be raised for others, though the arguments set forth in this paper are correct whichever happens. It is also worth noting that we are *not* arguing that anywhere near all price differences charged by hospitals among patients represent cross-subsidization. Many price differentials represent price discrimination, as Morrisey (1994) has argued, but this, too, does not affect our basic argument.

A further mention is required concerning profit-maximizing versus non-profit-maximizing theories of hospital behavior. Often, cross-subsidization is thought to be consistent only with non-profit-maximizing enterprises. Our argument in no way depends on these assumptions, for the Peltzman model allows for

cross-subsidization even in a profit-maximizing context, and it is worth explaining why that is so. In these models, in essence, the regulator says to the regulated firm, "We'll do something for you if you do something for us. If you're willing to cross-subsidize according to our desires, we'll compensate you with something which should generate more profits for you." Thus, airlines were to be allowed a higher-than-normal return on investment in return for cross-subsidizing, and airlines (and many other regulated firms) went along (the cross subsidies were often dissipated by market forces, but that is consistent with our story). In the case of hospitals, this *quid pro quo* behavior has been described elsewhere in the paper: it includes such things as government authorities allowing hospitals to be built or capacity to be expanded in return for expanded charity care.

5. *Conclusions regarding theories of regulatory behavior*

In his 1989 survey and analysis, Peltzman notes that health care was at that time an area of entrenched and consolidated regulation. At that time, and in the context of conventionally understood health care regulation, Peltzman's assertion was certainly correct. Indeed, with the recent advent of resource based relative values scales for physician payment by Medicare, COBRA and many of the provisions of the Clinton health reform package, regulation in health care may be increasing. On the other hand, at least one form of hidden regulation (hospital cross subsidy practices) is failing in a manner similar to the way in which similar regulation failed in other industries: competition has exhausted revenues intended for cross subsidization and, to some extent, for direct factor payoffs to physicians and other health care workers.

There are, of course, health care practices that current theories of regulation cannot so easily explain: Why is regulation increasing in health care, while at the same time cross subsidization is threatened by competition? Why does the process of change work so slowly?³⁴ Finally, why are indigent beneficiaries unable to exert political power in the same way as beneficiaries of other forms of regulation?³⁵ What have indigent patients done to "capture" the benefits of regulation?

"Public interest" aspects of cross subsidization are not unique. In broadcasting, the FCC requires

broadcasters to cross-subsidize "public interest" programming, although their "public" clientele has not necessarily been politically powerful. In the case of health care, government authorities see indigents as requiring government support if cross subsidies fail. Accordingly, the body politic imposes cross subsidization in order to avoid direct subsidy requirements. In addition, while providers of "public" services may profess opposition to cross subsidy schemes, it is possible that the providers actually benefit from their role in the process: cross subsidies increase use of the service in question and for a provider whose utility is related to volume of service provided rather than profit, cross subsidies increase utility. In such instances, as predicted by economic theory of regulation, the provider may be acting as a silent surrogate for the "public interest" in the lobbying process, either by actively supporting direct and cross subsidy legislation, or by providing much less active opposition. Economic theory would predict that this surrogacy would continue so long as the benefits to the provider from the cross subsidy outweigh its costs.

Our analysis establishes analogies between regulation in health care and regulation in other industries in the form of cross-subsidization. Where details of the story do not provide a perfect fit with existing theories of regulation, we must re-evaluate theory. Health care is hardly unique. As Noll (1989) and others have pointed out, the economic theory of regulation has difficulty explaining a number of regulatory phenomena. Health care is more analogous to other regulated industries than the previous literature might indicate. Extensions of theory that help us understand health care may help resolve unanswered questions in other regulated industries as well.

5. Lessons from other industries

There are several important lessons in this analysis, and from the experiences of other industries in the failure of cross-subsidization.

First, the increasingly competitive environment not only threatens the old system of hospital cross-subsidization, but also, if evidence from other industries is relevant, resuscitation attempts cannot succeed. In other words, one cannot have one's cake and eat it too: One cannot have both the benefits of cross

subsidization and the benefits of competition.

Second, even if we could reconstitute the old system of cross subsidies, cross-subsidization is economically inefficient. If we must subsidize a service, direct subsidies, imposed using a broader and more efficient tax base, provide clear advantages.

Third, evidence from regulatory changes in transportation and telecommunications indicates overwhelming efficiency enhancements as a result of deregulation. Efficiency benefits from competitive markets even after offsetting direct subsidy costs, provide a net gain in public welfare.

Fourth, lessons from transportation and telecommunications give some predictions about deregulation in health care. When direct subsidies replace cross subsidization federal programs are by no means the only source of funding. For example, when there was no longer money to cross-subsidize unprofitable rail services, state subsidy programs met a very large part of the burden. Thus, it would be wrong to assume that federal programs or national health insurance must pay the cost of charity care. Indeed, recent evidence indicates that in health care, it is now at the state level that initiatives for reform are occurring (Tudor, 1995; Riley, 1995, and other articles in the same journal issue).

Fifth, our analysis provides conclusions regarding the economic theory of regulation: that from the 1930s through the 1970s the U. S. political and economic system practiced health care cross-subsidization similar to cross subsidization in transportation and telecommunications. Cross-subsidization is failing in health care for reasons similar to its failure in other regulated industries: market competition and cream-skimming. Moreover, the movement away from cross-subsidization has happened in health care only a few years later than in other regulated industries. The analogous trends suggest the basis for further profitable research on common political-economic trends in health care and other regulated industries. While regulation may have its advocates, its validity may be as tenuous in health care as it is in other areas of the U.S. economy.

Table 1
Descriptive Statistics for Study Variables

Var	Mean	Std Dev	Minimum	Maximum	Measure
BEDS	18200.910	18440.980	1191.00	81595.00	Hospital beds in state (total)
COST	4759.910	894.780	2881.00	8389.00	Cost per admission (dollars)
MDPCT	1.718	1.384	1.50	6.60	Medicaid patients (%)
OCC	64.986	8.020	48.90	86.00	Bed occupancy rate (%)
P65	12.460	2.075	4.10	18.30	Over 65 population (%)
PCI	15448.160	2500.060	11049.00	22344.00	Per capita income (dollars)
PCOLL	4.871	1.600	2.78	14.62	College graduate (per capital)
POP	4886.840	5411.100	454.00	30380.00	Population (thousands)
UCPCT	5.907	2.4843	1.50	13.40	Uncompensated care (%)
UNEMP	5.770	1.4638	2.60	10.50	Unemployment (%)
URB	68.804	15.0918	32.20	100.00	Urban population (%)
USPCT	4.959	1.9989	0.80	10.40	Unsupported care (%)
YEAR	2.000	0.8192	1.00	3.00	Time (90=1,91=2, 92=3)

Table 2
Estimation for Impact of Cross Subsidies on Cost

Variable	Parameter Estimate	Standard Error	T for H0: Parameter=0
INTERCEP	400.038	762.342	0.524
MDPCT	99.866	46.480	2.148
UCPCT	20.524	53.164	0.386
USPCT	-58.959	62.565	-0.942
PCI	0.060	0.031	1.926
YEAR	341.674	40.010	8.539
OCC	24.682	10.105	2.442
P65	-50.367	36.638	-1.374
URB	19.604	5.540	3.538
PCOLL	84.587	50.829	1.664
Variance Component for Cross Sections			189465.730
Variance Component for Time Series			0.000
Variance Component for Error			155622.113

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ENDNOTES

- ¹ Transportation and public utility regulation in terms of price and volume controls. Train (1991).
- ² See, for example, Coelen and Sullivan (1981); Sloan (1981); Dranove and Cone (1985), and Feldstein (1994), pp. 290-291.
- ³ For a recent survey of the evidence of the effects of DRG's, see Feldstein (1994), pp. 291-293.
- ⁴ Implementation of the resource based relative value scale is too recent for evidence to be available on its effects. For an a priori critique, see Frech (1991).
- ⁵ Further, state Medicaid programs and private insurers (particularly Blue Cross and Blue Shield Plans) commonly mimic federal Medicare payment practices, so the pervasiveness of rate regulation is even greater.
- ⁶ The so-called "Section 1122" act and regulations, 42 U.S.C. §1320a-1 (1991).
- ⁷ In excess of a de minimis amount- initially \$200,000.
- ⁸ For a survey of the evidence on the effects of CON regulations, see Feldstein (1994), pp. 271-277.
- ⁹ The California licensing laws fill several library shelves.
- ¹⁰ The number of non-paying patients treated by hospitals is large. From 1990 to 1992, the percentage of uncompensated care patients treated by U.S. hospitals averaged 5.9%. HIAA (1994).
- ¹¹ Morrissey (1994) argues persuasively that cross subsidization (what health economists call cost shifting) is, in reality, merely price discrimination. However, to the extent that some of the hospital's patients receive care at less than the hospital's marginal cost of treatment (certainly the case for free care), economic distortions will result.
- ¹² For an economic history of hospitals summarizing these points, see, for example, Temin (1988).
- ¹³ Most U.S. hospitals are nonprofit corporations.
- ¹⁴ This and access to tax exempt revenue bond financing is the major point of nonprofit incorporation.
- ¹⁵ For example, the litigation produced by the Carter administration's attempts to extend the free care obligations.
- ¹⁶ State enforcement is a classic pattern observed in transportation and telecommunication matching the predictions of the Peltzman theory of regulation: producers receive special privileges in the form of entry controls and excess rents. In return for these privileges, the producers must perform certain "socially desirable" services. In health care, they must serve low

income patients at lower fees than those charged to high income patients.

¹⁷ Generally, a maximum.

¹⁸ This may be due to the small proportion of patients who are uncompensated and unsponsored, it may reflect a less intense level of treatment provided by the hospitals to these patients or it may reflect the fact that the majority of uncompensated care is provided in city and county hospitals with lower cost structures.

¹⁹ Except for "natural" tragedy such as weather related loss and "criminal" activity like highway robbery.

²⁰ For example, state agencies for intrastate transportation and the federal Interstate Commerce Commission.

²¹ An extension of the economic theory of regulation in transportation, in communications and in medical care suggests the possibility of a "hidden" surrogate theory. Just as protection of the farmers' interests translated into regulation that benefited the railroads, and just as radio and television stations operated "in the public interest with substantial economic benefit to license holders, a great deal of regulation that aims to benefit uninsured hospital patients inures to the economic benefit of hospitals. Hospitals may be the largest beneficiaries of cross subsidies.

²² Noll (1988) and Peltzman (1989) deal more broadly with industries than does Keeler (1984) whose analysis deals more with transportation. Noll (1989) argues eloquently that an economic theory of the political process needs to be considerably broader than the Chicago theories of regulation.

²³ For a survey of the evidence in these areas, see Winston (1993).

²⁴ In most states if not in all, Blue Cross operated as a nonprofit tax-exempt entity. Blue Cross also commonly enjoyed a special statutory status that exempted it from the usual insurance company rules and regulations, particularly with regard to rates.

²⁵ In the 1930s hospitals formed Blue Cross Plans and hospitals dominated Blue Cross boards into the 1970s. Sindelar (1988).

²⁶ The relative roles of technology, service quality competition, moral hazard, and other factors in causing hospital cost inflation in the 1970's is a matter of some controversy, of which the arguments set forth here are independent. For various viewpoints on these issues, see Joskow (1981), Robinson and Luft (1988) and Dranove, Shanley, and Simon (1992).

²⁷ There is an extensive literature on these forms of market failure in health care. Among the first was Arrow (1963).

²⁸ For a discussion of these cost increases, see Feldstein (1994), Chapter 10.

²⁹ See, e.g., the federal HMO Act of 1973, 42 U.S.C. §300e et seq., Pub. L. No. 93-222 (1991).

³⁰ Suppose that a hospital with a \$105 million budget and 21,000 annual admits has five percent of its patients (1000 admits) uninsured. In essence, \$5 million in expense has been spread among the 20,000 insured patients. A break-even charge per insured admission will be \$5250 (\$5000 attributable to the insured patient and \$250 to pay for free care). Now, suppose that the payer for the hospital's largest source of patients (Medicare) decides that it will no longer pay for uncompensated care. The \$5 million in free care will be spread over 10,000 patients rather than 20,000. The per admission charge for Medicare patients will be \$5000 and the per admission charge for other insured patients will be \$5500. Medicare's policy has prompted a five percent increase (\$250) in (break even) charges to the other insured patients. Needless to say, if all insurers refused to pay for the free care, the hospital would have to discontinue offering care to indigents.

³¹ In the nature of food, clothing and shelter.

³² Regarding the multitude of opinions regarding universal health care coverage, almost no one seriously suggests that the poor should not have access to health care.

³³ Or some combination of the two.

³⁴ This is a criticism of the Chicago theories made by Noll (1989) in the context of railroads.

³⁵ The reason may be tied up in the explanation that the uninsured are truly "indigent" and economically / politically powerless in a way that the beneficiaries of other regulatory schemes (e.g., farmers and small town residents in the context of railroads and airlines) never were.

