

have been better used to implement the agency's goals, such as recruiting physicians or reviewing CON applications. Health plan requirements could be altered by requiring development of a health plan focused only on goals and strategies to reduce costs, and to provide data and analysis directly applicable to CON review. Similarly, many planners believe that requirements to prepare annual implementation plans could be dropped without lessening the usefulness of the health plans.

Eliminating the requirement for broadly representative HSA governing boards could save staff resources currently used to recruit such boards, and might improve the effectiveness of some agencies. Compliance with this requirement does not ensure that the boards reflect community values in health care, because these are based on factors other than sex, race, and income status and because, whatever their composition, the boards are not accountable to the public for their decisions. Moreover, some health planners believe that this requirement has sometimes excluded community leaders able to implement health planning goals. In these cases, some HSAs might be more effective if the requirements were abandoned. On the other hand, some contend that abolishing this requirement might reduce the broad representation of interests and, particularly, consumer contributions to health planning--a key aspect of the planning process.

Consolidate HSAs or Planning Functions. In some states consolidating health systems areas would reduce the number of HSAs. This could be accomplished either by raising the maximum population level for an HSA from the current 3 million, or by raising the minimum above 500,000. This action would reduce costs and eliminate some duplication of effort caused by having many HSAs in one state.

This proposal might, however, reduce the effectiveness of HSAs. Larger health systems areas would contain populations with more diverse health needs, requiring more resources to assess needs and develop strategies for meeting them.

An alternative strategy would consolidate activities rather than agencies and would avoid the loss of local focus associated with combining HSAs. For example, a single statewide staff could serve all HSAs in CON review or in data gathering, but individual planning boards could carry out activities particular to local circumstances, such as encouraging development of mental health services in areas of need.

Grant Antitrust Exemption. An explicit exemption from anti-trust action might be granted to those cooperative arrangements among health facilities approved by planning agencies. This might facilitate efforts by planning agencies to encourage mergers, shared service arrangements, and other cost-saving cooperative endeavors. This provision would also further discourage disapproved consolidations.

On the other hand, an exemption dependent on HSA approval would significantly enhance the power of agencies that are not directly politically accountable. If provider influence was particularly strong in some HSAs, such authority could be misused. Also, the Congress has rarely acted to grant blanket exemptions from antitrust law.

Provide Grants and Technical Assistance to State Planning Programs

A second way to maintain a modified federal role in health planning would be to provide grants and technical assistance to states choosing to continue their planning programs. Unlike the first approach, those states that are not interested in health planning would not have to maintain programs.

The advantage of this option is that it would provide financial assistance to states with relatively successful planning programs and a desire to retain them. Without such funding and faced with widespread federal budget cuts, these states might choose to use their limited resources to replace federal funds for other programs instead. Other states, which might prefer to end their current programs, might choose to initiate new planning programs if less restrictive federal grants were available.

On the other hand, federal grants might not change the number of states continuing health planning, or the effectiveness of the programs. In addition, difficulties in maintaining regional planning is a drawback to this proposal. The fifteen planning areas that cross state boundaries--often major metropolitan areas--could present a problem if the states involved did not all agree to maintain planning programs.

Federal grant money could be allocated to states in several ways. Grants could be awarded competitively, based on review of health plans and proposed activities. Alternatively, funds could be included in a block grant to be used for cost-containment pro-

grams of the states' choice, including health planning. Another means of awarding grants would be by formula, based on state population.

Health planning could also be partially funded by other payers of hospital costs. One way to implement such financing would be for state law to require hospitals to contribute to a fund for health planning. In this way, those who pay for hospital services and stand to benefit from successful cost containment would contribute proportionately to funding the planning program. The federal government could contribute by including its payments as allowable costs for reimbursement under Medicare and Medicaid.

#### ENCOURAGE STATE HOSPITAL COST-CONTAINMENT PROGRAMS

This option would focus on hospital cost containment by including federal funding in a broad performance contract to encourage state programs for this purpose. Under this option, states that held growth in hospital costs to a predetermined level would receive a share of the resulting federal Medicare and Medicaid savings. Each state would be free to select its preferred cost-containment method--rate setting, CON review, voluntary programs, or a combination of these.

In the aggregate, state cost-containment programs have successfully restrained growth in hospital costs. States with mandatory rate-setting programs experienced a 48 percent increase in per capita community hospital expenditures between 1976 and 1980, compared to a 68 percent increase for those without such programs. In some states, voluntary arrangements among providers or insurers have also limited growth in costs.

For states that chose CON review, this strategy could include federal requirements to encourage competition and comprehensive planning. To foster competition, for example, HMOs and other cost-saving systems for health-care delivery could continue to be exempted from review in state CON laws. To encourage comprehensive planning, CON review decisions could take place within the context of an overall plan setting forth state needs and priorities for hospital services.

The effects of this proposal would depend upon how states responded to the financial incentive. States that have substantial Medicaid hospital expenditures might not need federal encouragement to institute cost-containment programs, particularly with the

recent cuts in federal Medicaid funding. Other states might not respond to the incentive because they do not want to impose regulatory programs or do not have a hospital industry capable of operating a successful voluntary program. If more states are in the latter category, this option would simply replace state spending with federal spending, because federal payments would be made primarily to the states that had cost-containment programs before the incentive was instituted. In these circumstances, this strategy would have little or no effect on hospital costs.

#### ELIMINATE TAX-EXEMPT BONDS FOR PRIVATE HOSPITAL CONSTRUCTION

Although this option would not directly affect the health planning program, it would further the goal of reducing hospital costs by eliminating federal tax subsidies for private hospital construction. Currently, about half of all hospital construction is financed by tax-exempt bonds. Eliminating the tax exemption would increase federal revenues by about \$1.8 billion between fiscal years 1983 and 1987, although roughly one-third of these savings could be offset by higher outlays for Medicare and Medicaid.<sup>6</sup>

Eliminating tax-exempt bonds would reduce total hospital investment. Some hospitals would not be willing or able to pay the higher interest rates needed to attract lenders if the tax-exemption was removed. Furthermore, the higher required repayments would reduce the amount of funds that hospitals could borrow.

Another reason for eliminating tax-exempt hospital bonds is that it is an inefficient way to subsidize hospital investment. The amount of tax benefits received by the lenders exceeds the interest savings to the hospitals by about 33 percent.

This option is not a substitute for CON review, however, because of its lack of targeting. While total investment would be reduced, projects that might have been rejected by CON review could be carried out. At the same time, hospitals would have difficulty financing needed investments. The hospitals most affected would be nonprofit institutions that have little access to other financing, in particular, those with a relatively high proportion of Medicare and Medicaid patients. Proprietary hospitals, which are already restricted in their use of tax-exempt bonds, would be least affected by this proposal.

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6. Decreased investment caused by higher interest rates could reduce this offset somewhat.



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**APPENDIXES**

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APPENDIX A. DEVELOPMENT OF THE FEDERAL ROLE IN HEALTH PLANNING

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Federal participation in health planning evolved over the past 35 years from encouraging voluntary efforts to develop health facilities to planning for a broad range of health resources with controls on investments by health facilities. The most significant predecessors to the current planning program were programs initiated under the Hospital Construction and Survey Act of 1946, known as Hill-Burton, and the Comprehensive Health Planning (CHP) Act of 1966. These were both ended as separate programs in 1974.<sup>1</sup>

Hill-Burton

The Hill-Burton program, which provided funds for hospital construction in underserved (primarily rural) areas, set up a planning process to assist in the allocation of funds. States were awarded grants first to organize planning councils to survey the need for hospital beds and then to carry out construction in accordance with the plan.

Between 1946 and 1965, planning under Hill-Burton essentially involved the application of a formula based on population

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1. In addition to CHP and Hill-Burton, the Regional Medical Program (RMP) and Experimental Health Services Delivery Systems (EHSDS) programs were consolidated into the 1974 Act. The RMP, enacted in 1965, set up regional planning centers to coordinate research and treatment for heart disease, cancer, stroke, and kidney disease. The program funded continuing education, development of emergency medical services, and aimed to improve access to treatment in underserved areas. The EHSDS program, begun in 1971, was intended to fund efforts by community coalitions of providers, insurers, and consumers to reorganize local health systems. The program received little funding, however. At its peak, only 19 grants were made, and there was often overlap with CHP and RMP agencies.

density.<sup>2</sup> Other factors influencing demand for hospital care, such as the size of the elderly population and the extent of third-party coverage, were not considered. In 1965, a new formula was adopted, incorporating projected population levels, rates of hospital use, and target occupancy rates--80 percent for general hospitals and 90 percent for long-term care facilities.

The Hill-Burton program has been credited with increasing the availability of hospital beds, particularly in low-income states. Between 1946 and 1974, Hill-Burton funded about 496,000 inpatient hospital beds and 3,450 outpatient units. The \$4.4 billion spent between 1947 and 1975 comprised about 15 percent of total hospital investment.<sup>3</sup>

In the 1964 amendments, Congress expanded Hill-Burton planning efforts by authorizing funds for voluntary local planning boards in addition to state planning activities. These boards, composed of community leaders and health-care providers, were generally active in major metropolitan areas. They focused on encouraging the development of health facilities needed by their communities. Hill-Burton grants were still awarded through the states, however. The 1974 health planning act replaced the Hill-Burton program with one that ended the emphasis on building new inpatient beds.

#### Comprehensive Health Planning

Voluntary local planning efforts were furthered in 1966 with passage of the Comprehensive Health Planning (CHP) Act, which funded both state and local planning councils.<sup>4</sup> Formula grants were awarded to states; local councils were given federal grants after approval by the state agencies. By 1974, there were 56 state and 218 local CHP agencies.

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2. In relatively densely populated areas, 4.5 beds per thousand were considered necessary, and as many as 5.5 in less densely populated areas.
  3. National Academy of Sciences, Health Planning in the United States: Issues in Guideline Development (1980), p. 13.
  4. State agencies were known as 314(a) agencies and local agencies as 314(b) agencies.

Both state and local planning councils were required to have representatives of health-care providers and consumers, with the latter constituting a majority, although there were no requirements for selection procedures. The consumer majority was intended to prevent providers from controlling the agency's decisions.

Under CHP, the scope of planning was expanded to include health manpower and services as well as health facilities, which were the exclusive focus of Hill-Burton planning. Planning agencies were directed to assess the health needs of their area and plan for the coordination and development of new services and facilities.

The CHP agencies varied greatly in their activities and success. Some local areas never had agencies; others had very active ones. Only about 79 percent of the population was ever covered by local agencies. Several states made notable efforts to develop a comprehensive health-care plan after a great deal of citizen participation. Some CHP agencies became involved in activities such as developing emergency medical services and encouraging a moratorium on hospital construction until a community plan was prepared. The agencies also commented on proposals for federal health facilities development grants, although they had no authority to approve or deny the grants.

Federal funding for CHP averaged about \$22 million over the eight years of its existence, from 1967 through 1974. Local planning agencies received about half the funds and state agencies one-third. The remaining funds were used to train health planners and provide research.

Two serious limitations to CHP were lack of authority and a low level of funding. CHP agencies had no authority to change the health-care system, and had to rely on persuading providers to make the changes they desired. In addition, there was little federal guidance on agency goals and activities, and many agencies never developed health plans.

Limited funding affected the work of both state and local CHP agencies. Funding for state CHP agencies was so low that, for many years of the program, the average state agency had a staff of fewer than five people. Local agencies could afford larger staffs, but federal funding required matching local contributions --which came most often from hospitals. Despite the presence of a

consumer majority on the boards, this dependence on provider contributions probably weakened the ability of the planning agency to make changes that would be undesirable to hospitals.

The National Health Planning and Resources  
Development Act of 1974

The National Health Planning and Resources Development Act of 1974 and its 1979 amendments consolidated and expanded the federal role in health planning. As in CHP, state and local area agencies were designated to carry out planning tasks. In requiring that all states pass certificate of need legislation in which decisions were based on health plans, the act granted planning agencies authority that was lacking in the CHP program. Also the new program received more substantial federal funding than had CHP. In addition, federal standards and process guidelines gave more direction to planning agencies in the development of health plans than did previous programs.

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APPENDIX B. REVIEW OF THE MAJOR EVALUATIONS OF CERTIFICATE  
OF NEED PROGRAMS

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This appendix presents more detail on the evaluations of the effects of certificate of need (CON) review that were cited in Chapter III, including the studies that were highlighted and others. Each study is discussed individually with respect to the data used, the outcomes measured and the problems specific to its analysis.

Sloan Study

A study by Frank A. Sloan stands out because it uses a well-specified model to measure the effects of CON review on several outcomes using recent data and covers a longer time period than many other studies.<sup>1</sup> Regression analysis was performed on state-level data covering the years 1963-1978 to determine the effects of CON review on the growth in hospital expenditures, net plant assets, beds, and hospital use.

Drawbacks include the use of data aggregated at the state level and the absence of data on variation in state CON programs. Data at the hospital level reveals more variation in the factors considered and, therefore, provides more information to the analysis. In this study, CON was measured only as a dummy variable. Mature programs were defined as those over two years old. This is probably too short a period because most observers believe it takes at least five years to staff and establish a program. Sloan reports that attempts to include measures of program strictness based on case studies were not useful, however.

Policy Analysis, Inc.

The study by Policy Analysis, Inc., and Urban Systems Research and Engineering, Inc., is the most comprehensive review of

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1. Frank A. Sloan, "Regulation and the Rising Cost of Hospital Care", Review of Economics and Statistics (November 1981), pp. 479-487.

CON programs to date.<sup>2</sup> It includes regression analysis of the impact of CON review on hospital investment, hospital expenses, the distribution of hospital resources, and other outcomes, as well as special studies of CON review processes and case studies of particular technologies. Data used in the study were at the hospital, county, and state levels, for various portions of the period 1963-1976.

The most ambitious aspect of the Policy Analysis study is the development of variables to account for program variation across states. Factor analysis was used to develop variables to measure program "toughness," based on onsite observations of four variables: program objectives, such as cost containment, distribution, or some other goal; whether review decisionmaking was centralized or decentralized; the stringency of CON review standards; and whether there were legislative exemptions from CON review for some projects.

For the most part, program characteristics did not seem to influence estimates of the effects of CON review on hospital investment or costs. One exception to this result was that programs characterized as relatively constraining were found to have relatively high rates of hospital expenditure growth--a result opposite to what would be expected--when using county-level data for the years 1972-1976. This could be, however, because initial state conditions were not taken into account; many of these states had CON programs implemented before 1972, and may have had relatively higher rates of hospital expenditure growth before the program was adopted.

Another exception to the lack of findings for program characteristic variables was that states in which the state planning agencies played a more significant role in CON review than local agencies were found to have a restraining effect on hospital costs at the county level. This result held only for equations measuring hospital expenses per admission and not for hospital expenses per patient day, however.

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2. Policy Analysis, Inc., and Urban Systems Research and Engineering, Inc., Evaluation of the Effects of Certificate of Need Programs (prepared for the Bureau of Health Planning and Resources Development, August 1980).

Program characteristics were also relevant in the distribution of hospital beds (discussed in Chapter III), but the results again were not in the expected direction. States with programs classified for the study as having cost containment as their major goal were found to have more of an impact on equalizing the bed-to-population ratio across counties than states with distribution as their major goal.

There are reasons to doubt the usefulness of the program classification variables. First, the program characteristic assessments were made subsequent to the period to which the data apply. Changes in the programs in the intervening years would have made these variables incorrect. Second, in one equation, programs in the "other" category were found to have a constraining effect on the growth in hospital costs per patient day. This implies that the variables may not have accounted for the characteristics that determine program success.

Although the Policy Analysis study is the only one to attempt to measure variation in CON review programs, it has been criticized on a number of counts which fall into two general categories. First, the data are from relatively early years of CON review. Second, multicollinearity may have led to an underestimate of the effects of CON review.

Problems With Early Data. Much of the data used in the Policy Analysis study cover only the early years of many CON programs, making it difficult to draw inferences about current programs for two reasons. First, investments resulting from decisions made prior to the implementation of CON review may be included in early data, making the results a less relevant measure of current program effectiveness.<sup>3</sup> Second, because programs have

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3. A case study of Massachusetts found that, for the first two years following enactment of CON review, almost none of the hospital capital expenditures were subject to review because they were for projects already underway when the legislation was enacted. In addition, for three years beyond that, most expenditures were for projects approved in the first two years of program operation, when the review process and standards were still being developed. See Julianne R. Howell, Regulating Hospital Capital Investment: The Experience in Massachusetts (National Center for Health Services Research, March 1981), p. 14-15.

changed over time, in some cases early data are essentially describing programs that no longer exist. Programs may have improved because of changes in the CON law, procedures, staffing, or experience producing successful programs.

The major limitation resulting from a short time frame is that lagged effects cannot be considered. Capital expenditures in a given year often reflect decisions made in previous years. Therefore, many investments made in the first few years of a CON program's existence had not been subject to review. In addition, a recent case study of Massachusetts indicates that hospital investment in that state has followed a 14-year cycle.<sup>4</sup> If this is generally true, using a short time period for analysis would make it difficult to separate changes in investment because of CON review from the investment cycle, although this would not bias the results.

Possible Underestimate of CON Review Effects. A further limitation to the usefulness of the Policy Analysis study is the possibility that the effects of CON review were underestimated. It appears that multicollinearity may have been introduced by the inclusion of several CON variables in the same equation. For example, the bed growth equation included the percentage of the time period in which CON review was in effect; a dummy for the year in which it was passed; and the proportion of time the program had particular characteristics, such as bed standards and exemption of certain projects. The authors report that alternative specifications attempting to reduce this problem did not change the outcome with respect to CON review, however.

#### Other Studies

Results from several studies other than the three highlighted in the text were reported in Chapter III. These studies are discussed in this section.

Sloan and Steinwald. An analysis by Sloan and Steinwald tested the effects of CON review on a number of variables,

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4. Julienne R. Howell, Regulating Hospital Capital Investment, p. 5.

including growth in hospital costs, investment, and beds.<sup>5</sup> Because it used virtually the same data as the Policy Analysis study (minus the program variation variables and data for 1976), and because the results were not substantially different, it was not one of the studies discussed prominently in Chapter III.

The study found no restraining effects related to CON review from costs, assets, or beds. It did find increases in total costs per adjusted patient day and total beds in the year prior to CON implementation. Because of lags in hospital investment, it is unlikely that this resulted from a deliberate attempt to avoid review.

This study also found that states with relatively new CON programs, defined as those one or two years old, experienced an increase in total costs per admission. Hospitals in states with more comprehensive CON review (review of services and equipment as well as capital) had less of an increase. Again, these increases could result from projects initiated before CON. The study also has potential underestimates of CON effects because of multicollinearity that may have resulted from introducing several CON variables in the same equation.

Coelen and Sullivan. Although a study by Craig Coelen and Daniel Sullivan is primarily an analysis of prospective rate reimbursement programs, it included a control variable to measure CON effects on hospital expenditures.<sup>6</sup> It uses the most recent hospital-level data covering the years 1969-1978. In addition, it is the only recent study to measure effects on per capita hospital costs, that was done at the county level.

The definition of CON review used in the study and the limited range of outcomes considered are drawbacks, however. CON appears only as a dummy variable for individual states, and no measures of program age or other variations were included.

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5. Frank A. Sloan and Bruce Steinwald, "Effects of Regulation on Hospital Costs and Input Use," Journal of Law and Economics (April 1980), pp. 81-109.

6. Craig Coelen and Daniel Sullivan, "An Analysis of the Effects of Prospective Reimbursement Programs on Hospital Expenditures," Health Care Financing Review (Winter 1981), pp. 1-40.

Effects on bed supply or investment were not tested in this study. In addition, the data do not include pre-CON years for those states that began programs prior to 1969.

Salkever and Bice. A study by Salkever and Bice used state-level data for the years 1968-1972 to test the effects of CON review on total hospital investment, beds, assets per bed, hospital use, and costs, including per capita costs.<sup>7</sup> The study found that, although CON review did not limit total investment, it did lead to a decrease in growth in hospital beds and an increase in assets per bed. This study has been widely discussed, and although it provides a careful, comprehensive analysis of CON review, it is less useful than other more recent studies.

The study's major drawback is that the data covered years in which there were few CON programs in effect and all were very young. Consequently, the results must be viewed with a great deal of caution. The impact of CON review may not be felt for years after review begins because of lead times for capital projects, the exemptions granted to certain projects, and the process of staffing and developing a working program.

The study also has some analytical shortcomings.<sup>8</sup> First, the data begin in 1968, and do not include pre-CON review years for a few states. Second, the effects of other regulatory programs were not considered. Several states had rate-review programs during this period.

Joskow Studies. Paul Joskow has prepared two separate analyses of CON review.<sup>9</sup> One study found that CON review and rate

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7. David S. Salkever and Thomas A. Bice, Hospital Certificate-of-Need Controls: Impact on Investment, Costs, and Use (Washington, D.C.: American Enterprise Institute, 1979).
  8. For more a detailed critique of the Salkever and Bice study, see Urban Systems Research and Engineering, Inc., and Policy Analysis, Inc., Certificate of Need Programs: A Review, Analysis, and Annotated Bibliography of the Research Literature (prepared for the Bureau of Health Planning, November 1978).
  9. Paul L. Joskow, "The Effects of Competition and Regulation on Hospital Bed Supply and the Reservation Quality of the  
(Continued)

review programs have been successful in limiting growth in hospital bed supply. A second study indicated that overall investment and total hospital expenditures have been unaffected by CON review.

The first study by Joskow is an analysis of hospital bed supply. Using a simple queuing model and data from a small sample of hospitals for 1976, Joskow estimated the effects of CON review and rate regulation on hospital reserve margins. This is defined as the difference between the number of beds and the average daily census of the hospital.

Drawbacks to this study are the small sample size and the potential sensitivity of the outcome to assumptions made in the queuing model. The sample of 346 hospitals is small relative to other studies using hospital-level data. As the author reports, the assumptions used may have over- or underestimated hospital reserve margins. If states with regulatory programs tended to start with higher reserve margins than other states, the results could be biased upward. These assumptions are that hospital use is random over the year; that all types of hospital beds are substitutable; and that there is only one queue for all patients--that is, emergency patients are not treated differently.

The second study, using regression analysis, found no evidence that CON affected the growth of hospital expenditures, personnel per bed, inpatient days, or hospital wages. The data used were for the years 1975-1979 and are aggregated at the state level.

The study is weakened by failure to include pre-experimental data for those states with CON review. The equations contained a lagged dependent variable, which would account for pre-CON conditions, but the data did not cover years without CON review for most states. Twenty-six states had CON programs in place before 1975, when this data began.

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9. (Continued).  
Hospital," Bell Journal of Economics (Autumn 1980), pp. 421-447; and Controlling Hospital Costs: The Role of Government Regulation (Cambridge, Massachusetts: MIT Press, 1981).

Urban and Bice. Recent analyses by Nicole Urban and Thomas Bice examined the interaction effects of a number of regulatory programs over the years 1974-1979 on costs, bed supply, and the adoption of computed tomography (CT) scanner technology.<sup>10</sup> The regulatory programs considered were hospital rate setting, CON review, Section 1122 review, Professional Standards Review Organizations, and Blue Cross conformance clauses. The data was aggregated at the level of the health systems area.

The analysis indicated that health systems areas in those states with relatively stringent regulatory activity on some combination of prices and investment or utilization experienced a slower rate of increase in per diem hospital costs than HSAs in other states. These effects were not found on this data using the regression methodology commonly used in other studies. No significant effects were found on growth in inpatient beds, but states with relatively stringent regulatory programs were found to have slower growth in the adoption of CT scanner technology.

The study found that states with tough CON programs tended to be those with rate-setting programs as well. Factor analysis methodology was used to identify those states with relatively stringent regulations in the late 1970s. For CON review, stringency was measured using the variables developed by Policy Analysis, Inc., in their study.

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10. Nicole Urban and Thomas W. Bice "Measuring Regulation and Its Effects on Hospital Behavior" (University of Washington, September 1981, unpublished).