

State Health Care Expenditures under Competition and Regulation, 1980 through 1991

ABSTRACT

Objectives. This paper examines health expenditure growth under two alternative policy approaches: competition-based managed care and state government rate regulation.

Methods. Data are presented on cumulative growth in real per capita health expenditures between 1980 and 1991 so as to compare California, a state with a pro-competitive policy, with the US average and with four states with established regulation programs.

Results. Real per capita expenditures for hospital services in the United States grew 54% between 1980 and 1991, while in California the growth was half the national rate, or 27%. Real per capita expenditures for physician services and drug expenditures in the United States grew by 82% and 65%, respectively, while in California these expenditures increased only 58% and 41%, respectively. California's growth rate was below that of all four regulatory states for all measures of health care cost inflation.

Conclusions. On the basis of these findings, a properly structured competitive approach could play a significant role in controlling health expenditures in the United States. (*Am J Public Health.* 1995;85:1391-1396)

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Introduction

With the failure of the United States to pass a national health reform plan in 1994, the locus of change will shift to the states. Many states are already considering significant changes in the structure of their health care systems. A fundamental choice that each state will have to face before it can proceed with significant health reform is the extent to which it will rely on either a competitive or a regulatory approach as the basis for its reform.

Substantial controversy surrounds the implementation of either approach. Some believe that adoption of a competitive model would be risky; they believe that this model is still untested, with no empirical evidence to evaluate its potential. Alternatively, others believe that reliance on state governments to effectively regulate health expenditures over the long run will not be effective. In this paper, we present empirical evidence of the effects of these different approaches, as they have been structured to date, on health expenditures.

Competitive Approach

In June 1982, the California legislature adopted what was to become model legislation for the nation, designed to encourage price competition in the health sector. The law explicitly permitted the formation of health plans that had contracts with selected or "preferred" providers. This legislation allowed the state's Medicaid program, MediCal, as well as private insurance companies to contract with a subset of licensed hospitals and physicians to which it would channel its enrollees in return for signing participating contracts. The contracts often required price concessions and increased utilization review oversight in order to

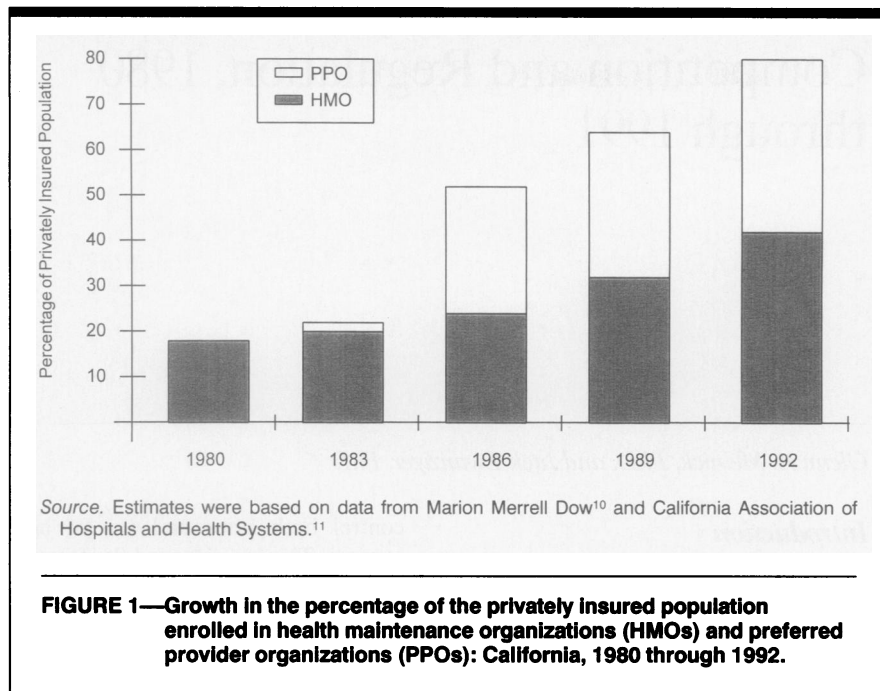
control both price and use of health services. This law spawned the formation and growth of numerous preferred provider organizations and health maintenance organizations (HMOs), generically known as managed care plans, which offered a wide range of innovative plans in an attempt to identify those features that would be most attractive to consumers. In the early years following introduction of the law, the number of plans in California peaked at more than 100. However, recent consolidation of plans has reduced the number substantially.

Enrollment in managed care plans in California grew dramatically during the 1980s (see Figure 1). During the period 1980 through 1982, the percentage of the insured population enrolled in managed care plans was relatively stable at slightly less than 20%. In fact, most of the managed care enrollment was in the Kaiser Permanente HMO. Beginning in 1983, immediately after the change in the law, enrollment in preferred provider organizations grew slightly and then showed explosive growth. At the same time, HMOs, particularly new HMOs competing with Kaiser, also experienced a rapid growth in the number of enrollees. By 1991, the insurance market in California had been transformed, with more than 80% of the insured population enrolled in preferred provider organizations and HMOs. Nationally, enrollment in managed care plans is currently estimated to

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exceed 35% of the privately insured population and is growing at double-digit rates.

In summary, the health care system in the largest state in the nation, California, has undergone a dramatic restructuring over the last 10 years. More than 80% of privately insured individuals voluntarily selected a managed care plan for their health insurance coverage, largely based on market forces and without the need for government action. The basis for this dramatic restructuring of the health care system is the increased role of price competition in the health care sector among providers and health insurance plans and more efficient pricing in the health insurance market.

Previous research on the early effects of California's competitive approach indicates that restructuring the health care market can lead to increased price competition and to lower cost growth. Melnick et al.¹ found that increasing price sensitivity on the part of health plans has resulted in increased price competition among hospitals, leading them to offer price discounts to secure contracts with managed care plans. Hospitals lowered their costs when faced with competitive pressure on their prices exerted by managed care plans.^{2,3}

Existing studies showing that competition can lead to lower increases in hospital costs and prices have been limited in several ways. First, because they were done soon after the introduction of price competition, they did not address the question of whether cost containment

effects can be sustained over a long period of time or whether such effects simply represent a one-time reduction in costs, which then increase at previous rates. Second, previous findings of reductions in costs associated with competition have been limited to the hospital sector. This has raised the question of whether costs had simply been shifted out of the hospital sector to the physician sector. In this paper, we present results of analyses of two different data sets designed to address these different questions. In addition, we present descriptive data to examine whether reduced growth in hospital costs induced greater cost growth in other parts of the health care system.

Regulatory Approach

An alternative approach to controlling health care costs is direct regulation of health care prices and payments to health care providers by a government-sanctioned regulatory agency. There was a proliferation of state-level programs to regulate hospital costs and payments during the 1970s. These programs varied dramatically in their structure, regulatory authority, intensity, and, ultimately, longevity. Previous research on the effects of hospital rate regulation programs has shown mixed results. Early studies of hospital rate regulation programs suggested that the adoption of such programs led to a slowing in the rate of growth of hospital expenses.⁴ A later study found that the effects of such programs varied

from year to year and questioned whether these programs can effectively control costs over a long period of time.⁵ A more recent study concluded that states with hospital rate regulation programs were more effective in controlling cost growth than both California, with its competitive approach, and nonregulatory states, at least for the period 1982 through 1986.⁶ In spite of this, questions remain regarding the ability of regulatory programs to control costs over a sustained period. Some believe that while state-level regulatory programs may be able to limit cost increases in the short run, growing pressure from both consumers and the regulated industry over time is too great for regulators or state legislators to sustain effective control in the long run.

Of the more than 25 states that had enacted some form of hospital rate regulation since 1970, only 8 still maintained hospital regulatory programs in 1991. To compare the effectiveness of state-level regulation with California's competitive approach in controlling health care costs under health reform, we analyzed four programs considered to be the most stringent in the country. We focused on Maryland, New Jersey, New York, and Massachusetts. These states have the most sophisticated and comprehensive programs with the longest track records. Table 1 summarizes the characteristics of these four programs. They all have been in operation since the early 1970s and have accumulated at least 15 years of experience.

Methods and Data Source

To compare health expenditure growth under these different approaches, we examined two different sets of time series data for several measures of health expenditures. The first analysis was a descriptive one that used state-level data to compare the performance of California with that of the regulated states. The second analysis was a multivariate one that analyzed hospital-specific data from all California hospitals to estimate more precisely what role competition plays in explaining lower expenditure growth in California.

Comparative Expenditures in Selected States

To compare health care expenditure increases under the different approaches, we calculated the cumulative percentage growth in real per capita health expenditures at the state level between 1980 and

1991. We used the consumer price index to adjust for inflation. Four different measures of per capita health expenditures are presented: hospital services, physician services, retail drugs, and the sum of these three components. The health expenditure data were taken from recently published estimates of state-level health expenditures prepared by the Health Care Financing Administration (HCFA) for the President's Task Force on Health Care Reform.⁷ HCFA estimates that expenditures for hospital services, physician services, and retail drugs, when combined, represent approximately 70% of total health expenditures. (The remaining categories of personal health care include dental services, other professional services, other nondurable medical products, durable medical products, home health care, nursing home care, and miscellaneous other personal health care.) The state-level estimates were based on the location of providers and thus may have overstated or understated growth in expenditures by residents of a state to the extent that there has been a change in net in-migration or out-migration for health service use (the population data, taken from the *US Statistical Abstract*, referred to residents of the state).

Effects of Competition in California

To test directly whether price competition in California resulted in a long-term and sustained reduction in hospital expenditures, we performed a multivariate analysis of hospital net revenues. The data used in the multivariate analysis were drawn from three data sets created by the California Office of Statewide Health Planning and Development: (1) quarterly data on total expenses, discharges, and visits for each hospital in California from the first quarter of 1980 through the last quarter of 1990; (2) annual disclosure data on use, cost, revenue, and staffing for each California hospital; and (3) discharge data on demographic and clinical information regarding each discharge from a California general acute care hospital during the year for the 1983 through 1988 period. Census data provided demographic characteristics for each zip code area in California.

The multivariate analysis was designed to isolate and compare the effects of competition on hospital revenues prior to and following the growth of managed care plans. The dependent variable, total annual net revenue, was the total amount collected by the hospital from all sources during the year; as such, it represented

TABLE 1—States with Long-Term Regulation of Hospital Revenue: Years of Experience and Payer Groups Covered

State	First Year	No. Years of Regulating Each Payer Group from Inception through 1990		Current Status
		All Payers	Privately Insured and Medicaid	
Maryland	1974	11	...	Ongoing
New Jersey	1975	9	2	Discontinued in 1992
Massachusetts	1971	4	5	Discontinued in 1988
New York	1970	3	6	Ongoing

Source. Data were derived from Friedman and Coffey.¹² ©1993 The AEI Press, Washington, DC.

total expenditures for hospital services. (Total net revenue is equal to total gross charges less any contractual adjustments, such as the difference between charges and payments under the Medicare PPS program, as well as deductions for charity care and uncollectible accounts.) It is important to note that total annual net revenue includes the revenue from providing both inpatient and outpatient services at the hospital. Thus, to the extent that hospitals have been shifting more of their activities to the outpatient side in response to competitive pressure, this shift is still captured in our measure of total net revenue. Discharge data were used in constructing the measure of competition, the Hirschman-Herfindahl index. (Construction of the index is described in detail in Zwanziger and Melnick.³) The multivariate regression model controlled for the other factors that might influence total annual net revenue, including output, input prices, case mix, teaching status and service breadth, demographic characteristics of the hospital's market, ownership, payer mix, financial impact of the Medicare PPS program, competitiveness of the physician market, and individual year effects. (The structure of the model is essentially identical to that used in Zwanziger and Melnick,³ but additional data were included to extend the analysis through the end of 1990.) We included in the analysis each acute care general hospital in California for which complete data were available for the period 1980 through 1990. A variance components model was estimated to correct for the correlation of residuals for individual hospitals.

The coefficients from the model were used to compare revenues for hospitals in highly competitive markets with those in uncompetitive markets while keeping all

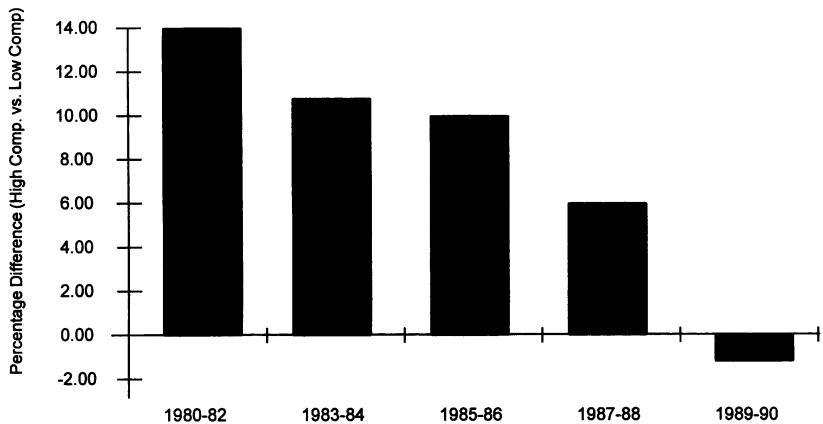
other factors constant. Hospitals in markets that fell in the most and least competitive quartiles were identified, and their net revenues were calculated for each year over the 1980 to 1990 period; all other factors were controlled. If increased price competition as a result of selective contracting and managed care plan growth were an important determinant in controlling hospital expenditures, we would expect that revenues would be lower for hospitals in more competitive markets than for hospitals in less competitive markets after enactment of selective contracting legislation in 1982.

Results

Table 2 presents data on the cumulative growth in inflation-adjusted (real) per capita health expenditures between 1980 and 1991 for the components of health care mentioned earlier (expenditures for hospital services, physician services, and retail drugs and their total). Comparative data are presented for the United States as a whole and separately for California and the four states with regulatory programs. California experienced the lowest growth across all of the measures in comparison with the country as a whole or with the four states with regulatory programs. For example, real per capita expenditures for hospital services in the United States grew 54% between 1980 and 1991; in California, the growth was half the national rate (27%). Although its growth was greater than that of California, Maryland also experienced lower growth in per capita hospital expenditures in comparison with the country as a whole (34.1%). It is important to note that, contrary to expectations, the slow growth of hospital expenditures per capita in California was not accompanied by a

TABLE 2—Comparison of Cumulative Growth in Real Total Per Capita Health Expenditures and in Selected Components of Health Expenditures: 1980 through 1991

	Expenditure Category, % Growth			
	Total	Hospital Services	Physician Services	Drugs
United States	63.0	54.0	82.0	65.0
California	39.0	27.0	58.0	41.0
Maryland	59.0	34.1	107.3	117.0
Massachusetts	70.2	44.9	151.8	114.7
New Jersey	86.4	84.6	92.0	88.3
New York	85.4	56.5	104.6	85.4



Note. Results are based on a variance components regression model that controlled for differences in hospital characteristics (ownership, teaching status, output levels, case mix), demographic characteristics of the hospital's market, financial impact of the Medicare PPS program, competitiveness of the physician markets operating in the hospital's market, and individual year effects.

FIGURE 2—Differences in total net revenue between hospitals located in the most competitive markets and those located in the least competitive markets: California, 1980 through 1990.

rapid increase in other components of health expenditures, such as physician services and retail drug purchases. Real per capita expenditures for physician services and drug expenditures in the United States grew by 82% and 65%, respectively; in California, the increases for these services were only 58% and 41%, respectively.

To examine the role of increasing price competition in hospital expenditures in California, we looked for differences in hospital revenue growth within those segments of the California hospital sector that are most likely to reflect the changing nature of hospital competition. Figure 2 presents data on the percentage difference in total annual net revenue between hospitals in the most competitive markets and the least competitive mar-

kets over time in California. In the period 1980 through 1982, before the introduction of price competition, hospital expenditures in the most competitive markets were 13.75% higher than those in the least competitive markets. Beginning in the years immediately following the introduction of California's pro-competition law, the differences in hospital expenditures between hospitals in highly competitive markets and the least competitive markets began a steady and sustained decline. In 1983/84, hospitals in high-competition markets collected 11.13% more revenue than hospitals in the least competitive markets. The difference in net revenue between hospitals in the most competitive and least competitive markets continued to narrow in each subsequent year.

Finally, by 1989/90 (1990 was the last year for which data were available), the difference in net revenues between hospitals in highly competitive as compared with those in the least competitive markets had reversed its historic relationship. Hospitals in markets with greater competitive pressure now collect an average of 1.62% less revenue per year than those facing the least competitive pressure.

Comments

In the absence of a national health reform plan, the locus of change will be at the state level. Many states will be considering options based on either competitive or regulatory approaches to restructure their health care systems so as to slow health expenditure growth. We have presented empirical evidence on the effects of these different approaches on health expenditures. California represents one example of the effects of restructuring the health care system based on competitive principles. Four states with long-standing regulatory programs were selected to explore the possible impact of a state-level regulatory approach.

Aggregate data show that California not only did much better than the national average in controlling growth in hospital expenditures per capita but also did better than all of the states with hospital rate regulation programs. (In fact, California did even better in comparison with the country as a whole, since it is large enough to affect the national average.) Furthermore, the data provide no evidence that health expenditures were shifted from the hospital sector to other sectors in California as a result of competition. Rather, it appears that states with hospital regulatory programs are the ones that show evidence of the so-called "ballooning or unbundling" effect, in which expenditures in the unregulated sectors grew much more than the national average for many of the regulatory states. It is important to note that our data cover only 70% of total health expenditures and that there could have been shifts to the other sectors, such as long-term care.

To test whether the dramatically lower expenditure growth observed in California stems from increasing price competition in that state, we performed a multivariate analysis of hospital-level data using data for California's general acute care hospitals. Under a competitive system, hospitals located in more competitive markets are likely to face greater

pressure from managed care health plans to reduce prices, and, ultimately, such plans may attempt to control their payments to these hospitals. This stems from the fact that health plans are likely to focus their efforts on gaining price discounts and other contract concessions in areas where they can convince hospitals that they can easily move their subscribers to substitute providers if the hospital does not meet their contract terms. For this reason, we compared trends in hospital revenue growth in the most competitive markets with growth trends for hospitals in the least competitive markets.

Under cost-based reimbursement, hospital costs and revenues in more competitive markets have been shown to be substantially higher than costs in hospitals in less competitive markets.⁸ If price competition is effective, we would expect the relationship to be reversed, with lower payments in more competitive markets than those in markets with less competition. Examination of data within California reveals that the introduction of price competition in that state led hospitals in more competitive markets to limit increases in their revenues on a sustained basis. Within 6 to 7 years after the introduction of price competition, there was a reversal of the historic relationship between hospitals in highly competitive and less competitive markets, with hospital expenditures in the most competitive markets below those in the least competitive markets.

In summary, our data indicate that the growth in real health expenditures under California's system of competing managed care plans was far less than both that of the nation as a whole and that of states with the most well-developed hospital rate regulation programs. Furthermore, it appears that increased competition has resulted in a long-term cost containment effect that has been experienced throughout the system rather than in a one-time savings in the hospital sector, as has been suggested by some. It is our belief, based on these findings, that a properly structured competitive approach could play a significant role in controlling health expenditures in many areas of the United States.

Implications for Policy and Future Research

As states consider options for reforming their health care systems, we believe that, if they wish to develop a more

competitive system as the basis for slowing health expenditure growth, the experience from California can provide valuable guidance. First, we believe policies that encourage the formation of competing health plans will foster desirable dynamics within the health sector, such as increased price competition and innovation by health plans. The use of selective contracting to form provider networks and the reporting of understandable, comparative information to consumers and purchasers on prices, quality, and services are essential elements for ensuring health plan competition. Such long-run innovation is required for sustained improvement in the performance of the health care system.

Another essential element of a competitive health system is the development and maintenance of price competition among health providers. Vigorous competition among health providers striving to be included in the networks of health plans provides ongoing pressure on providers to control their costs and to maintain quality over the long run. There is an essential role for state and federal regulatory agencies to ensure that, as health plans and providers restructure themselves, the competitive structure of the market is maintained and strengthened. For this reason, we believe that laws or regulations that relax efforts by the Federal Trade Commission and the Department of Justice or by state attorney generals offices to enforce antitrust laws in the health sector will lead to a harmful erosion of the competitive structure of the health care industry. If the current trend of mergers and consolidations is permitted to continue unchallenged, it could significantly hamper the long-term effectiveness of a competitive approach. Healthy competition is needed at all market levels, including health plans, hospitals, and physician markets. Excessive concentration at any of these levels could harm the competitive dynamic needed to ensure effective price and quality competition.

Our findings suggest a number of areas for future research. The data show that only one regulated state, Maryland, was below the national growth rate for either hospital expenditures per capita or total expenditures. None of the regulated states, including Maryland, had rates of growth below California's. Obviously, these data are not definitive in determining the independent effects of the programs discussed. Other, unmeasured factors (e.g., demographic and economic

changes in the regulated states) could have caused a state's expenditures to grow at a greater rate than the expenditures of other states. For example, it is possible that an increase in net patient migration out of Maryland to the District of Columbia or Virginia could have contributed to Maryland's lower growth during this time period. Alternatively, the increase in the percentage of the population without insurance in California over time may have contributed to a slowing in the growth of health expenditures, while regulated states often had uncompensated care pools to cover uninsured individuals. Thus, while these data are not conclusive, they reveal very dramatic differences over a long period of time that provide a basis for initial comparison and further analysis.

In addition to further analysis on expenditures, it is essential to conduct research on the quality and access implications of a competitive system. There has been almost no research on how managed care plans are able to achieve their cost savings and whether the savings come from increased efficiency or reduced access and/or quality. Furthermore, recent findings from California indicate that increased price competition leads to a reduction in access to the uninsured population.⁹ These findings underscore the importance of reforming the health insurance system to include everyone. □

Acknowledgments

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Call for Abstracts for the Thirteenth Conference of the International Society for Quality in Health Care

The Thirteenth Conference of the International Society for Quality in Health Care will be held in Jerusalem, May 26 through 30, 1996, at the Ramada Renaissance Hotel. The meeting is being organized by the International Society for Quality in Health Care in conjunction with the Israel Society for Quality, the Israel Medical Association, the Israel Association for Medical Informatics, and the Palestine Council of Health. The conference theme, "The Impact of Quality Interventions on Health Care," will serve as the basis for state-of-the-art lectures, panel discussions, workshops, oral and poster presentations, and free paper presentations.

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